THE IMPACT OF NEOCLASSICAL PRICE THEORY ON MONOPOLIZATION LAW: A TRANSATLANTIC PERSPECTIVE

I, Jay Matthew Strader, submit this thesis to University College London for the degree of Doctor of Philosophy.

I confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

In the Appendix to Chapter 2, I set-out various factors that have influenced the development of U.S. predatory pricing law at the federal appellate level, to emphasize the importance of Neoclassical Price Theory.

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ABSTRACT

This thesis explores the content and implications of Neoclassical Price Theory (NPT) for monopolization enforcement, as applied to predatory pricing, tying, and bundled discounts in both the United States and the European Union. When considering the foundations to monopolization enforcement, many authors have found distinct schools of antitrust thought, each featuring distinguishable legal and economic principles.[1] *Such principles support varying degrees of monopolization enforcement, with a ratchet effect upwards from Chicago, to Harvard, to Post-Chicago. I attempt to demonstrate a superseding claim, namely that the economic and legal principles embodied in NPT have influenced, above all other considerations, the development of predation, tying, and bundling law in both jurisdictions. Courts have constructed and altered that law from the following core concepts of NPT: rationality, competition, efficiency, and the rule of law.*

I further set-out to prove that NPT by itself does not support low levels of monopolization enforcement, or any particular level. Rather, it identifies the most relevant economic factors that determine price levels, efficiency, and consumer welfare more generally.

This thesis is timely because it assesses both the theoretical and practical validity of NPT at a juncture in history when the EU Commission has issued a Guidance Paper on monopolization enforcement drawn principally from its precepts,[2] *and when the judiciary in both jurisdictions is considering expanding, or has expanded, cost tests to other price-based abuses.*

[1] *Compare* Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925, 928 (1979),*with, e.g.*, William E. Kovacic, *The Intellectual DNA of Modern U.S. Competition Law for Dominant Firm Conduct: The Chicago / Harvard Double Helix*, 2007 COLUM. BUS. L. REV. 1 (2007).

[2] Ioannis Lianos, "*Lost in Translation?*" *Toward a Theory of Economic Transplants*, Jean Monnet Working Paper 08/09 (2009) at 31, *available at*: http://ssrn.com/abstract=1485378.

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CHAPTER 1: INTRODUCTION

At a time when the U.S. Supreme Court was enjoining mergers and attaching liability to predation claims with little regard for the market power of the alleged dominant undertaking,[1] Neoclassical Price Theory (NPT) quickly gained traction among academics and judges. It did so by providing relatively simple and logical principles that explained economic activity reasonably well,[2] thereby infusing a degree of certainty into an area of jurisprudence previously administered ad hoc. Combined with (1) an independent political desire to promote investment and innovation, (2) a faith in the recuperative power of markets to trend toward competitive equilibria, forged by many years of price-controls, high inflation, and low economic growth, and (3) a lack of confidence in the judicial process to reach better decisions than even a debilitated market process — NPT curtailed enforcement levels, at least in the predatory pricing context. Notably, while also adopting NPT as the theoretical foundation for predatory pricing claims, as reflected in the test for liability, EU Institutions have not implemented the other three factors discussed above to the same extent.

After the U.S. judiciary reached an agreement on the threat to competition that predatory pricing poses, it inspired judges and academics to expand predation doctrine to other areas of monopolization law, particularly to other price-based exclusionary practices. Because of stare decisis, or the controlling authority of case precedent, legal reasoning naturally lends itself to analogical reasoning, or trying to establish that an accepted point of law covers a new fact pattern. The process involves "mapping similarities in the relational structures from a base domain (the analog) to a target domain to project inferences from the base to the target."[3] This process has proceeded apace in the U.S. monopolization context, as cost tests have expanded from predatory pricing to predatory bidding and to single and multiple product rebates. The EU Commission similarly has recommended applying cost tests to evaluate loyalty rebates[4] and bundled discounts.[5] While EU Courts have not ruled upon any

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[1] *See, e.g., Utah Pie Co. v. Continental Baking Co.*, 386 U.S. 685, 692, 87 S.Ct. 1326, 1330 (1967) (White, J.).
[2] For instrumentalism and the predictive value of NPT, *see* Ioannis Lianos, "*Lost in Translation?*" *Toward a Theory of Economic Transplants*, Jean Monnet Working Paper 08/09 (2009) at 15, *available at*: http://ssrn.com/abstract=1485378.
[3] Sean P. Gates, *Antitrust By Analogy: Developing Rules for Loyalty Rebates & Bundled Discounts*, 79(1) ANTITRUST LAW JOURNAL 99, 120 (2013).
[4] Guidance on the Commission's Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings (2009/C 45/02) at ¶¶ 37-45 ["Guidance"].
[5] *Id*. at ¶¶ 59-61.

bundling cases, they stalwartly have resisted determining liability in single-product rebate cases based exclusively on the application of cost tests.[6]

An unwillingness to expand the predation framework to other pricing abuses does not contravene NPT, which recognizes and explains the various influences that interact with price to produce anticompetitive effects, moving market conditions away from the perfectly competitive paradigm. Cost tests are not a proxy for NPT, though they derive from its tenets. Rather, rationality, competition, and efficiency embody NPT. Throughout the thesis, I attempt to demonstrate how these principles have influenced the development of monopolization law, and how they do not compel any particular level of enforcement.

I. Summary of Research Question

I attempt to answer the following research question: To what extent does Neoclassical Price Theory (NPT) conceptually support existing monopolization standards and enforcement levels? I conclude that NPT mostly explains the relevant economic factors at issue in monopolization cases, and that judges mostly have relied on its tenets, which include the rule of law, to formulate controlling legal tests. Incorporating other NPT principles could improve the accuracy of certain legal tests. Particularly in the bundling context, NPT supports a more expansive inquiry into pro- and anticompetitive effects than a simple cost test permits.

Legal tests do not always determine enforcement levels. In the predation context, for example, different liability tests in the U.S. and EU have not altered similarly lax enforcement.[7] Administrative costs and a common desire to protect the incentive to lower price, even by dominant undertakings, has curtailed enforcement more effectively than a strict evaluation of predation based on rationality, competition, and efficiency.

NPT focuses on consumer welfare as the primary goal of enforcement. Price levels have provided the most important metric to the analysis, at least partially due to their objectivity. The EU Commission has included innovation, quality, and variety as additional determinants

[6] *See, e.g.*, Wouter P.J. Wils, *The Judgment of the EU General Court in Intel & the So-Called 'More Economic Approach' to Abuse of Dominance*, 37(4) WORLD COMPETITION 405 (5) n.12 (forthcoming Dec. 2014), available at: http://ssrn.com/author=456087 (discussing Case T-286/09 *Intel v. European Commission*, Judgment of the Court, Seventh Chamber, ¶¶ 145-146, 151-152 (12 June 2014), *on appeal* to the Court of Justice, Case C-413/14 P *Intel v. European Commission*); *see also* Case C-549/10 P *Tomra Systems ASA v. European Commission*, Judgment of the Court, Third Chamber, ¶¶ 73-74, 80 (19 Apr. 2012); Case 322/81 *Nederlandsche Banden-Industrie-Michelin v. Commission* [1983] ECR 3461 ¶¶ 81-86.

[7] Thanks to Professor Lianos for helping me to realize this point.

of consumer welfare.[8] To the extent that NPT more extensively incorporates such factors into the competitive effects of challenged practices, they could provide additional causes for enforcement. Except for innovation in certain contexts, however, quality and variety unlikely will out-weigh lower prices and efficiency when a direct conflict exists, certainly under existing U.S. precedent.[9] At this juncture, non-price factors have surfaced in the EU and U.S. case law on tying, bundling, and predation only when the dominant undertaking has removed price from consideration, as Microsoft did in the tying context.[10]

II. Defining Neoclassical Price Theory

A. Components

1. Price Theory

Neoclassical Price Theory (NPT) dates back to the forebears of classical economics such as Adam Smith, and reflects faith in individual autonomy and the welfare-generating capacity of self-interest. Smith posited that, particularly in economic affairs, self-interest motivates human interaction, and when directed into market mechanisms, individuals pursuing self-interest will promote societal welfare, primarily by generating wealth.[11] NPT also assumes that, in any particular market exchange — given complete knowledge of alternative options and given that individuals bear the full societal cost of each option, meaning no externalities exist — individuals know best how to advance their own welfare. Following from these assumptions, the prices of various goods reflect the relative production costs to society. If prices function properly, then buyers "will cast an informed vote" when purchasing goods, thereby ensuring the most desirable combination of consumption choices available to society.[12] Suppliers will respond to the votes cast by consumers and produce the most popular goods, thereby maximizing their utility.

Another principle tenet of NPT is rationality and its offspring, profit-maximization. NPT assumes that, when the market presents a choice, individuals actually will have perfect knowledge about how to decide — both concerning the ends desired and the least-cost means

[8] Guidance (2009/C 45/02) at ¶ 11.
[9] I make this point given my review of the case law. *See also* Lianos, *supra* n.2 at 37, 41.
[10] *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001) (per curiam); Case T-201/04 *Microsoft Corp. v. Commission*, Judgment of the Court of First Instance (Grand Chamber) (17 Sept. 2007).
[11] STEVEN G. MEDEMA, THE HESITANT HAND 18-19, 25 (2009).
[12] JAMES R. HACKNEY JR., UNDER COVER OF SCIENCE 113 (2007).

of achieving those ends. Individuals, therefore, have clearly defined preferences[13] and will choose the option that they prefer, the appropriate option or means that maximize their utility or happiness, which are ends motivated by self-interest.[14] A fundamental attribute of the market and the price mechanism, therefore, is that their interaction reveals both the wants and desires of consumers and the scarcity of inputs.[15] On the demand-side, consumers face budget constraints, and NPT assumes that consumers accurately calculate the financial strictures of those constraints when purchasing goods.[16] On the supply-side, rationality translates into maximizing profits. In mixing labor and capital to produce products, and in deciding how much of a good to produce and at what cost, suppliers focus exclusively on maximizing profits; otherwise, competitors will drive them from the market.[17] The rationality principle converts individuals, either consumers or suppliers, in any situational model into abstractions that behave how "any" intelligent person would behave in that situation, ignoring psychological predilections, beliefs, values, tastes, and "the effect of social institutions".[18]

The theory of supply and demand counts as another principal pillar of NPT. Prices act as the catalyst for the interaction between supply and demand. NPT generally assumes upward-sloping supply curves and downward-sloping demand curves for most markets that interact to produce stable equilibria. Under NPT, price incorporates consumer value or consumer utility, as measured by the willingness of consumers to pay.[19] Higher prices signal to firms that consumers value goods (or services) more highly and that firms should produce more of that good, but because of the inverse relationship between price-charged and quantity-demanded, as prices go up, consumers will purchase less of the good. Firms will increase production until the marginal cost of producing the good equals the marginal revenue secured through sales, because if marginal revenue exceeds marginal cost, producing an additional unit will

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[13] Colin Camerer et al., *Regulation for Conservatives: Behavioral Economics And The Case For "Asymmetric Paternalism*," 151 U. PA. L.R. 1211, 1214-1215 (2003).
[14] ROGER E. BACKHOUSE, THE PUZZLE OF MODERN ECONOMICS 169 (2010); Christopher R. Leslie, *Rationality Analysis in Antitrust*, 158 U. PA. L.R. 261, 266 (2010).
[15] NEIL K. KOMESAR, IMPERFECT ALTERNATIVES: CHOOSING INSTITUTIONS IN LAW, ECONOMICS, & PUBLIC POLICY 260 (1994).
[16] GEORGE J. STIGLER, THE THEORY OF PRICE 56 (3d ed. 1966).
[17] Leslie, *supra* n.14 at 266.
[18] Ioannis Lianos, *Judging Economists: Economic Expertise In Competition Litigation: A European View*, *in* TOWARDS AN OPTIMAL COMPETITION LAW SYSTEM 185, 215 (Ioannis Lianos & Ioannis Kokkoris eds., 2009).
[19] *See generally* Hackney, *supra* n.12 at 110; William H. Page, *The Chicago School And The Evolution Of Antitrust: Characterization, Antitrust Injury, And Evidential Sufficiency*, 75 VA. L. REV. 1221, 1233 (1989) ("Consumers, for example, will not pay more than the value they assign to the product, and will substitute other products at higher prices.").

generate revenue above costs. If marginal cost exceeds marginal revenue, on the other hand, producing an additional unit will cost more than the revenue generated.[20] Conversely, a falling price signals to firms that consumers value a good less highly and that firms should produce less of that good, but as price falls, consumers will purchase more of the good. Firms likewise will decrease production until marginal cost equals marginal revenue, which achieves equilibrium: "[P]rices will adjust so as to make the demand for every good equal to the amount that suppliers want to sell, and the resulting allocation of resources will be efficient in the sense that any departure from it would make at least one person worse off."[21]

NPT critically distinguishes between levels of efficiency achieved in perfect competition and monopoly. Perfect competition constitutes the paradigm, the societal objective, and that economic model hinges on three additional assumptions — price-taking, product homogeneity, and free entry and exit.[22] When many firms operate in a competitive market, each individual firm produces a relatively small percentage of market output and thus cannot influence the market price.[23] Such price-taking generally occurs absent product differentiation. In perfect competition, firms produce nearly identical, and thus perfectly substitutable, goods, and "no firm can raise the price of its product above the price of other firms without losing most or all of its business."[24] The third assumption, the absence of entry barriers, means that rivals can procure, at reasonable cost, the financing and inputs necessary to enter an industry and compete with the market leader. The absence of entry barriers also means that no special costs inhibit rivals from exiting an industry if profits prove allusive.

If all three assumptions hold, consumers easily can switch back and forth between suppliers.[25] In this highly idealized state of perfect competition, the demand curve facing each individual firm is flat, signifying that each firm cannot influence the market price: The marginal revenue of each additional sale consequently equals the price of the good sold. Each firm will produce output where the market marginal cost curve intersects a flat marginal revenue curve. Competition ensures that the lowest-cost provider supplies the market marginal cost curve.

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[20] ROBERT S. PINDYCK & DANIEL L. RUBINFELD, MICROECONOMICS 284-85 (8th ed. 2012).
[21] Backhouse, *supra* n.14 at 47.
[22] Pindyck & Rubinfeld, *supra* n.20 at 280.
[23] *Id.*
[24] *Id.*
[25] *Id.* at 280-81.

By contrast, entry barriers and product differentiation weaken competition in monopolistic markets, affecting the slope of the demand curve facing the monopolist. Rather than a flat demand curve, the monopolist now can control the price at which it sells the product and thus faces a downward sloping demand curve, the market demand curve.[26] To sell more goods, the monopolist must lower the price, but it must lower the price on all goods sold, so while it gains additional revenue from selling more items, it loses revenue from goods that could have been sold at the higher price. Marginal revenue no longer equals price, as in perfect competition, but is less than price: the monopolist's marginal revenue curve falls more steeply underneath the market demand curve. Although the monopolist also prices where marginal revenue equals marginal cost, because price no longer equals marginal revenue, at that output level the monopolist can charge a price greater than marginal cost. In perfect competition, suppliers would produce more output at that marginal cost.

The difference between the outcomes in perfect competition and monopoly defines the NPT concept of efficiency. In perfect competition, the price of the product represents not only the utility that consumers derive from the good, or value, as measured by their willingness to pay, that consumers place on the good. The price also represents the cost to suppliers, the societal cost, to produce the good. The net effect is that suppliers produce goods at the lowest cost to society, and all consumers who value the good at that cost and price can purchase it.

Monopoly yields inefficiency because the monopolist operates at a price above marginal cost. At that output level, allocative inefficiency results because a subset of consumers would have been willing to purchase the product at marginal cost but now must buy other products valued less highly, whether from the monopolist or from suppliers in other markets. Moreover, the extra resources necessary to produce the extra output in perfect competition now go either to producing less-valued products or to rent-seeking. Rent-seeking involves protecting monopoly profits by, for example, investing in spare capacity or lobbying governments to strengthen entry barriers. Potential suppliers often cannot produce the extra output desired by consumers because of entry barriers and higher costs.[27] Additionally, at the

[26] *See generally* Stigler, *supra* n.16 at 195.
[27] Thanks to Professors Kokkoris & Jones for asking that I clarify this paragraph.

monopoly output level, productive inefficiency generally results because the monopolist faces less pressure to lower costs.[28]

The outcome in perfect competition, on the other hand, is Pareto efficient, in that society cannot reallocate resources and make anyone better off without making someone else worse off.[29]

> Pareto efficiency is a modest goal: It says that we should make all mutually beneficial exchanges, but it does not say which exchanges are best. Pareto efficiency can be a powerful concept, however. If a change will improve efficiency, it is in *everyone's* self-interest to support it.[30]

NPT promotes the perfectly competitive paradigm because it represents a position of maximum satisfaction for society[31] reached by individuals and firms responding to price signals. Prices reduce the amount of information that individuals and firms must know to maximize utility and profits.[32]

Smith believed that if society adopted appropriate legal rules and generally promoted competition, it would neutralize the abject excesses of self-interest,[33] not least by forcing firms to implement the most efficient technologies. Absent entry barriers and market power, high profits induce suppliers to compete for market share by producing new products or producing old products more cheaply — the competition spurring innovation and maximizing consumer surplus.[34]

2. Neoclassical Economics

Neoclassical Price Theory (NPT) as an approach to law and economics owes a substantial intellectual debt to neoclassical economics. Thorstein Veblen coined the term "neoclassical"

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[28] *See generally* Pindyck & Rubinfeld, *supra* n.20 at 615, 625.
[29] Backhouse, *supra* n.14 at 49. Given the difficulty of achieving Pareto-optimality, policy-makers generally prefer the Kaldor-Hicks efficiency standard, which considers an outcome efficient if those made better off *in theory* could compensate those made worse off, rendering the net outcome Pareto-optimal. The winners need not actually compensate the losers; the mere possibility is what counts. John Hicks, *The Foundations of Welfare Economics*, 49 ECONOMIC JOURNAL 696 (1939); Nicholas Kaldor, *Welfare Propositions in Economics and Interpersonal Comparisons of Utility*, 49 ECONOMIC JOURNAL 549 (1939). I accessed the articles by Hicks & Kaldor at: http://en.wikipedia.org/wiki/Kaldor%E2%80%93Hicks_efficiency.
[30] Pindyck & Rubinfeld, *supra* n.20 at 607 (emphasis in original).
[31] Medema, *supra* n.11 at 55.
[32] C. MANTZAVINOS, INDIVIDUALS, INSTITUTIONS, AND MARKETS 216 (2001).
[33] Medema, *supra* n.11 at 21.
[34] Backhouse, *supra* n.14 at 58-59.

to describe an approach to economic thought that splintered from classical economics.[35] Classical economics holds that market economies operate under particular laws of the normal or the natural that economists can discover by exercising common sense, and then reformulate as authoritative economic principles.[36] The process of deriving the normal case distinguishes neoclassical from classical economics. Instead of formulating normality purely from common sense or experience, neoclassical economists derive the normal case "at the level of the actual course of events."[37] The normal case must conform to empirical regularities.[38] Classical economists thus have more freedom in crafting hypotheses.

Professor Lawson has argued that, above all other defining characteristics, neoclassical economics represents a method of reasoning and classification that proceeds down a closed, deductive path.[39] After identifying an economic principle from perceived correlations, a neoclassical economist then tests the hypothesis by comparing it to observed permutations, thus authenticating the hypothesis by induction.[40] Under such a method, the "normal" case represents the fulcrum of analysis, as policy prescriptions follow from how closely observed results track anticipated results.[41] When accurate, the deductive method produces a "body of logically consistent propositions concerning the normal relation of things — a system of economic taxonomy."[42]

B. By Comparison

1. Old Institutionalism

Professor Lawson distinguishes the taxonomic method of classical and neoclassical economics from the evolutionary method of old institutionalism, whose adherents strictly subscribe to the "test of causal relation or quantitative sequence."[43] This competing approach seeks answers at every level of analysis "in terms of cause and effect".[44] By contrast, the taxonomic economist requires an additional analytical step above merely identifying cause

[35] Tony Lawson, *What Is This "School" Called Neoclassical Economics?*, 37 CAMBRIDGE JOURNAL OF ECONOMICS 947-948 (2013) (referring generally to, e.g., Thorstein Veblen, *Why Is Economics Not An Evolutionary Science?*, 12(4) QUARTERLY JOURNAL OF ECONOMICS 373-97 (1898)).
[36] *Id*.
[37] *Id*. at 968.
[38] *Id*.
[39] *Id*. at 953.
[40] *Id*.
[41] *Id*.
[42] *Id*. at 965.
[43] *Id*. at 960-61.
[44] *Id*.

and effect, which involves systematizing knowledge and discovering a "natural law[] or an association of phenomena".[45] In attempting to make sense of economic workings, taxonomic economists apply insights "external to the events unfolding".[46] While potentially heavily empirical, the neoclassical approach does not involve comparing historical events to reality to trace cause and effect; rather it seeks explanations based on the similarity of existing facts to carefully constructed event regularities drawn from the available evidence.[47]

2. Neoclassical Economics versus Old Institutionalism

While likely beyond the scope of his study, Professor Lawson does not explicitly discuss why neoclassical economists have adhered to the taxonomic method of analysis. A likely reason is that the taxonomic method works better when formulating policy prescriptions and thus when advising governments on how to structure and regulate their economies. A strict cause and effect approach considers only historical data, and while that data might narrow the range of subsequent developments, the immediate future unlikely will repeat historical events, if only because the future always involves distinct circumstances. A theory of economic analysis that permits greater generalization based on recurring principles or fact-patterns enables greater analytical and predictive power. Neoclassical economics has retained its perch atop the economics profession because politicians and regulators are more interested in analytical tools that can help predict future events compared to reasoned explanations of past events. The taxonomic method brings greater influence with politicians and industry and thus greater funding for research.

Take the rationality assumption. Developing theories that assist in predicting individual behavior in certain common circumstances helps companies to make money and politicians to govern better. Indeed, "the primary purpose of any rationality axiom is just to fix individual behavior in some way to render it atomistic and so tractable."[48] The precise set of assumptions applied matters less than the ability to isolate a variable for measurement.[49] Given the diversity inherent to the human experience, tracing historical data to predict how even a material subset of individuals, let alone all individuals, will react to various economic circumstances is both impossible and beyond the budget of any government or institution.

[45] *Id*. at 980-81.
[46] *Id*. at 961.
[47] *Id*. at 963.
[48] *Id*. at 977.
[49] *Id*.

Instead, neoclassical economists have toiled in generalizations that capture an aspect of human nature, or a relevant indicator that might anticipate the direction of economic activity, all to inform policy-making. They wisely have not attempted to explicate fully the varied causes of historical events, as a prelude to explaining the shifting causes of future events. In that way, the profession has gained in relevance.

3. Neoclassical Price Theory versus Neoclassical Economics

While neoclassical economics attempts to explain economic phenomena, judges associated with the Chicago School of antitrust analysis advanced Neoclassical Price Theory (NPT) as a method to assist the judiciary in maximizing wealth, efficiency, and consumer welfare when deciding cases.[50] A subcategory of law and economics, rather than economics, NPT integrates the taxonomic method of neoclassical economics with the basic substantive principles of microeconomics and industrial organization, both to improve legal reasoning and to provide an objective lodestar for legal analysis. Basic microeconomic principles constitute the "normal" case, or first principles from which judges attempt to predict whether intervention in the market will maximize wealth.[51] NPT obviously has the greatest relevance in cases where society wants judges to maximize wealth, and in no other area of legal analysis is that objective more important than competition law, which sets the legal boundaries of economic interaction in a free market economy.

The greatest weakness to this mode of analysis thus stems from the applicability of the normal case, based on very basic economic principles, to the varied and complex exclusionary and exploitative actions that sophisticated undertakings can adopt. The link between cause and effect may not always hold if the normal case does not fit reality.

Similarly, by contrast to macroeconomic policy-making — which by its nature requires forward-looking analyses yet involves intensive quantitative number-crunching — the judicial and administrative processes in the competition law context critically rely on an historical evaluation of facts and evidence for legitimacy. An evidential focus is important not least because judges and many administrators generally lack both the economic training and the quantitative tools to justify economic predictions in the legal context. NPT undoubtedly will provide the best mode of analysis when evaluating many alleged abuses, if for no other reason

[50] *See* ROBERT H. BORK, THE ANTITRUST PARADOX 91 (1978).
[51] *See generally* RICHARD A. POSNER, HOW JUDGES THINK (2008).

than that even basic economic principles provide greater insight into the economic consequences of challenged acts relative to simplistic analogies of current fact patterns to a limited number of previous opinions. Yet an unyielding faith in the normal case, despite the existence of evidence weakening its applicability, exalts theory over reality, thereby weakening both the accuracy and the legitimacy of the judicial process.

4. Ordoliberalism versus Neoclassical Price Theory

Ordoliberalism has greatly influenced the development of EU competition standards, particularly in the early case law of the EU Court of Justice, though many such standards remain good law today. Led by Walter Eucken, the Freiburg School in Germany crafted the governing principles of ordoliberalism,[52] which at least partially evolved as a resistance movement against Hitler and Nazi Germany.[53]

In planning to transition away from the war economy, the Freiburg School took note of the tremendous concentration of private capital prior to, and during, the war years. A timid approach to monopolization law after that period would have institutionalized the concentration of economic power in the hands of a few undertakings. Aside from propagating inefficiency and reducing the supply of goods, such an economic structure suppressed the "dependent masses"[54] by limiting their ability to start businesses and create new markets in vast swathes of the economy.

In another sense separate from the principle tenets of Neoclassical Price Theory (NPT), ordoliberals viewed competitive markets as "privilege free" and "non-discriminating," where "economic actors meet as legal equals."[55] While NPT promotes competition as a means to achieve efficiency and generate wealth, therefore, and while ordoliberals valued efficiency and wealth as well, they independently valued the competitive process because it most effectively achieves a humane economic order.[56]

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[52] Heinz Rieter & Matthias Schmolz, *The Ideas of German Ordoliberalism 1938-45: Pointing the Way to a New Economic Order*, 1:1 The European Journal of the History of Economic Thought 87, 96 (1993), *available at*: http://dx.doi.org/10.1080/10427719300000064.

[53] *Id*. at 98. All the scholarly meetings of the Freiburg group ended on 20 July 1944, the day when an assassination attempt on Hitler failed. The Third Reich subsequently killed several members of the Freiburg inner circle.

[54] *Id*. at 100.

[55] Viktor J. Vanberg, *The Freiburg School: Walter Eucken & Ordoliberalism*, Freiburg discussion paper on constitutional economics, No. 04/11 (2004) at 14, *available at*: http://hdl.handle.net/10419/4343.

[56] Rieter & Schmolz, *supra* n.52 at 104.

As another distinctive characteristic that separates ordoliberalism from NPT, ordoliberals viewed competition policy as a meta-principle, defined at the level of constitutional economic policy. Specifically, ordoliberals distinguished between two types of market interventions: one that occurred directly to remedy an undesirable economic outcome, and another that occurred indirectly at an institutional or constitutional level, "in the sense of defining the general terms under which market transaction[s] are carried out."[57]

Ordoliberals advanced the indirect method, and thus sought to reform the rules of the economic game by attempting to "create conditions under which economic actors[,] in seeking to further their own interest[s,] also promote the common interest."[58] Such a competition policy intangibly seeks to protect the process of competition.[59] By constraining the unilateral actions of dominant undertakings, the competitive process enables many more economic actors to participate productively in the market.[60]

Ordoliberalism functions less effectively at the sub-constitutional or adjudicative level, where judges must assess "the welfare consequences of alternative options".[61] At that level, NPT exhibits significant advantages. By focusing on promoting consumer welfare and efficiency, judges can examine price levels, the most tangible measure of consumer benefit, and cost levels in relation to price levels, the most immediate measure of efficiency — rather than attempting to identify more tenuous damage to the competitive process.

Nevertheless, ordoliberalism does not differ unrecognizably from NPT. At the sub-constitutional or adjudicative level, ordoliberalism favors the process of competition because of a conviction that it promotes consumer sovereignty.[62] Competition can manifest in two forms: either in terms of improving performance to better serve consumer interests, or in terms of preventing competition, which bolsters profitability by weakening or restraining

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[57] Vanberg, *supra* n.55 at 4.
[58] *Id*. at 7.
[59] For an astute discussion of the process/outcome dichotomy that shapes the evolution of public law, *see* MARTIN LOUGHLIN, THE IDEA OF PUBLIC LAW 20 (2003).
[60] Viktor J. Vanberg, *Market & State: The Perspective of Constitutional Political Economy*, 1 Journal of Institutional Economics 23, 29 (2005), *available at*: http://journals.cambridge.org/abstract_S1744137405000032.
[61] Ioannis Lianos, *Some Reflections on the Question of the Goals of EU Competition Law*, CLES Working Paper Series 3/2013 (Jan. 2013) at 27, *available at*: http://www.ucl.ac.uk/cles/research-paper-series/research-papers/cles-3-2013.
[62] *Id*.

competitors.[63] A healthy competitive process strengthens performance competition while inhibiting prevention competition.

Ordoliberals viewed consumer sovereignty as the sole viable objective of competition policy. And the process of competition achieves that objective by aligning the earning of profits with serving consumer interests.[64] "Referring to Adam Smith's view that the impulse of human selfishness loses its anti-social aspects under the impact of competition," Franz Böhm, another leading ordoliberal, argued that performance competition provided the "moral backbone" of a profit-based economy.[65] In a famous passage, Professor Böhm asserted that competition does not merely represent a mechanism to align incentives, but more profoundly "the most magnificent and most ingenious instrument of deprivation of power in history."[66]

Consumer sovereignty is a by-product of competition. In the NPT sense, perfect competition does not describe any functioning market; rather, it represents an ideal standard against which policy-makers can judge "the institutional-legal frameworks of existing markets".[67] In that ideal state of economic affairs, consumer sovereignty dictates market outcomes, since consumers ultimately determine the success and failure of producers.[68]

Heinz Rieter and Matthias Schmolz, in characterizing various methods of economic analysis, have considered ordoliberalism as a sub-category of neoclassical economics, rather than of historical economics or socialism.[69] The association with neoclassical economics at least partially resulted from ordoliberals' "persistent faith" in the ability of perfect competition to advance societal welfare.[70] Ordoliberals further promoted a healthy competitive order so as to allow the price system to function robustly. Economic actors need accurate price signals to operate efficiently and to allocate resources optimally.[71]

Despite such similarities, NPT and ordoliberalism differ in material respects. Even while acknowledging the value of the efficiency principle developed by neoclassical economists,

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[63] Vanberg, *supra* n.55 at 13.
[64] *Id*. at 12 (*summarizing* Franz Böhm, *The Non-State ('Natural') Laws Inherent in a Competitive Economy*, *in* STANDARD TEXTS ON THE SOCIAL MARKET ECONOMY — TWO CENTURIES OF DISCUSSION 107, 109 (Wolfgang Stützel et al. eds., 1982)).
[65] *Id*. (*quoting* FRANZ BÖHM, REDEN UND SCHRIFTEN 22 (1960)).
[66] *Id*. (*quoting id*.).
[67] Vanberg, *supra* n.60 at 39 (discussing ADAM SMITH, AN INQUIRY INTO THE NATURE & CAUSES OF THE WEALTH OF NATIONS 660 ((1981) [1776] Liberty Classic, reprint of the Oxford Univ. ed. (1976)).
[68] *Id*. at 40.
[69] Rieter & Schmolz, *supra* n.52 at 90.
[70] *Id*. at 100.
[71] *Id*. at 103.

ordoliberals established an alternative notion of efficiency. Rather than targeting productive and allocative efficiency, ordoliberals derived a concept of efficiency more directly from the model created by Pareto, which further anticipated the model created by Coase. Specifically, ordoliberals stated that economists could measure efficiency viably only by observing "voluntarily agreed-on transactions".[72] This argument follows from Pareto's assertion that efficiency meant improving the lot of someone without detracting from the lot of someone else.[73] Focusing on voluntary transactions further supports Coase's claim that, absent transaction costs, free exchange will maximize wealth, as resources gravitate to their highest valued-uses.[74]

Economists could assume that, if parties agree to contract, they perceive that the contract improves their welfare, or at least does not lower their welfare, otherwise the parties would not have agreed. Similarly, given zero transaction costs (including zero information costs), the party that values a particular resource the most, or could put that resource to the most productive use, would be willing to pay the most for it. The transaction allows the seller to receive a price at least equal to, but likely greater than, the seller's own value of that resource. The resource changing hands will empower both parties to create additional wealth, by utilizing the resource and by investing or consuming the cash proceeds from the sale. Protecting the process of competition contributes to wealth creation by lowering market-wide transaction costs — since competitive markets constitute

> institutionally secured arenas for voluntary cooperation within which individuals are free to enter into contracts[] [with others] that they expect to work to their benefit[.] [A]nd it is only because — or, more precisely, to the extent that — market outcomes are, indeed, the result of voluntary contracting that they can be judged 'efficient'.[75]

Efficiency as a competitive process features a different focus than efficiency as a particular outcome. Efficiency as a process protects the liberal value of pursuing interests free from the coercion of more powerful actors. Absent coercion, individuals and businesses have a better chance of agreeing to mutually beneficial transactions. The greater the number of

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[72] *See generally* Vanberg, *supra* n.60 at 28.
[73] VILFREDO PARETO, MANUEL D' ECONOMIE POLITIQUE (1909) (*cited* by Herbert Hovenkamp, *Antitrust Policy After Chicago*, 84 MICH. L. REV. 213, 239 n.133 (1985)). I accessed a short summary of the Pareto Theorem on Wikipedia, *available at*: http://en.wikipedia.org/wiki/Pareto_efficiency.
[74] Ronald H. Coase, *The Problem of Social Cost*, 3(1) Journal of Law and Economics 1 (1960) (I found this citation on Wikipedia, *available at*: http://en.wikipedia.org/wiki/Coase_theorem.)
[75] Vanberg, *supra* n.60 at 34.

such transactions, the more likely a market will maximize welfare. The ultimate outcome of the market process depends entirely on bargains struck by individual market actors. Prior to the transaction, or the series of transactions, the outcome is indeterminate. Targeting a specific outcome, therefore, makes little sense.

Because a monopolist will constitute an unavoidable trading partner for many market participants, it will have the ability to coerce rivals and consumers to accept terms that they would refuse given competitive conditions. Coercion can manifest in forcing rivals to accept an unwanted product, or to accept a less desirable product relative to existing alternatives because of discounts off a necessary purchase. This competitive concern arises in tying and bundling law, and both ordoliberalism and NPT provide theoretical support for examining such transactions. By themselves they can lower welfare relative to a "but-for" world[76] of greater competition. When tying and bundling additionally weaken existing competition further and enable price increases, they harm efficiency however conceived.

Productive and allocative efficiency represent very specific outcomes[77] in the monopolization context.[78] NPT values competition as a condition precedent to both outcomes.[79] The NPT view of competition aligns closely to Kaldor-Hicks efficiency. Regardless of the welfare trade-off between the dominant undertaking and competitors, if the exclusionary behavior reduces efficiency while transferring surplus from consumers, it will not qualify for Kaldor-Hicks efficiency. A monopolist will have nothing left over after compensating market participants both for the inefficiency generated by, and the surplus transferred as a result of, an anticompetitive act.

With Coasian efficiency, a concentrated market deters welfare-enhancing transactions relative to a competitive market, by increasing transaction costs. Absent pricing power, the market would produce greater output. Both rivals and consumers would enter into a greater

[76] For "but-for" competition in the tying and bundling context, *see* Einer Elhauge, *Tying, Bundled Discounts, & the Death of the Single Monopoly Profit Theory*, 123 HARV. L.R. 397, 450-58 (2009).
[77] Vanberg, *supra* n.60 at 34.
[78] Bork, *supra* n.50 at 7 (Professor Bork referred to them as "opposing forces that determine the degree of consumer well-being").
[79] To ordoliberals, a conception of efficiency that includes these two measures alone "plays only a 'subsidiary role'" in maximizing societal welfare. Rieter & Schmolz, *supra* n.52 at 99 (*quoting* Walter Eucken, *Wettbewerb als Grundprinzip der Wirtschaftsverfassung*, *in* DER WETTBEWERB ALS MITTEL VOLKSWIRTSCHAFTLICHER LEISTUNGSSTEIGERUNG UND LEISTUNGSAUSLESE 29 (Günter Schmölders ed., 1942)).

number of transactions, increasing their information concerning market conditions.[80] The added information would outweigh the loss of information sustained by the monopolist by entering into fewer transactions because the market now produces more information.

Given the existence of pricing power, net bargaining costs also increase in monopoly. While bargaining costs for the dominant undertaking fall, since it can dictate market terms, those for rivals and consumers increase at least by an equal measure. Consumers cannot alter the terms of transactions set by the monopolist, as inadequate alternatives exist. Rivals can alter bargaining costs only by innovating or differentiating. Under competitive conditions, lower bargaining costs for rivals and consumers would outweigh the increased bargaining costs for the monopolist simply because, again, market production exceeds the level in monopoly. Lower transaction costs improve the likelihood, in a Coasian sense, that assets will gravitate to their highest valued uses.

Ordoliberals favored aggressive monopolization enforcement. They advocated eliminating monopolies wherever possible if more competitive markets would result. If more competitive markets were not possible, then ordoliberals advised imposing on dominant undertakings an obligation to act "as if" perfect competition existed.[81] Ordoliberals believed that such a standard adhered to the rule of law by providing an objective measure and clear guidance for dominant undertakings to follow.[82] Expanding on the "as if" principle, ordoliberals argued that classifying particular actions by dominant undertakings as impediment competition (rather than performance competition) involved determining whether the dominant undertaking could implement such actions without market power.[83]

This concept could reduce consumer welfare given the actual presence of market power. Applied literally, it would prevent the dominant undertaking from engaging in several transactions that, while potentially exclusionary, also could improve consumer welfare, such as single- and multiple-product rebates. A dominant undertaking could not lower prices

[80] Transaction costs, or the costs to make an exchange, include information costs, bargaining costs, and enforcement costs. http://en.wikipedia.org/wiki/Transaction_cost.
[81] Rieter & Schmolz, *supra* n.52 at 100.
[82] Lianos, *supra* n.61 at 25, 28 (*quoting* David J. Gerber, *Constitutionalizing the Economy: German Neo-Liberalism, Competition Law and the "New" Europe*, 42(1) THE AM. J. OF COMPARATIVE LAW 25, 53 (Winter 1994)).
[83] *Id*. at 25.

because, if it were operating in a competitive market, any price-cut would fall below cost, forcing it to shut-down.[84]

By targeting a specific outcome, whether efficiency or consumer welfare, neoclassical price theorists almost invariably evaluate the effects of a challenged practice more closely than would an ordoliberal to determine net efficiency or to identify consumer harm.[85]

5. Austrian Economics versus Neoclassical Price Theory

Inspired by Carl Menger, von Bawerk, and von Mises,[86] Austrian economics has influenced the development of monopolization law mostly by emphasizing the welfare-generating capacity of dynamic efficiency over the static efficiency depicted by Neoclassical Price Theory (NPT) models. Austrian economists do not seek to weaken market power outside of the normal interplay of demand and supply. To the contrary, they discern no competitive problem with the existence of market power and high profit margins, because profitability regularly fuels technology-enhancing investment. Such investments further stimulate imitation and successive innovations that increase productivity and spur economic progress.

Austrian economists such as von Mises and von Hayek placed more emphasis on the element of time, which does not feature prominently in static price theory models. Austrians believe that entrepreneurs represent the key actors in markets, so they closely examine their incentives, because only entrepreneurs can establish, coordinate, and consolidate markets. The "continual interaction between the entrepreneur and the environment" represents the relevant process of competition on which antitrust authorities should focus.[87] They should not strive to impose perfect competition on concentrated markets; the dynamic process of competition depends on the quest for market power.[88]

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[84] *Id*. (*discussing* Gerber, *supra* n.82 at 53).
[85] *Cf. id*. at 25.
[86] For a sample, *see* CARL MENGER, PRINCIPLES OF ECONOMICS (2011); EUGEN VON BOHM-BAWERK, CAPITAL & INTEREST: A CRITICAL HISTORY OF ECONOMICAL THEORY (2012); LUDWIG VON MISES, LIBERALISM: IN THE CLASSICAL TRADITION (1985), *available at*: http://mises.org/Literature.
[87] Roger Van den Bergh & Peter Camesasca, EUROPEAN COMPETITION LAW & ECONOMICS: A COMPARATIVE PERSPECTIVE 86 (2d ed. 2006) (*cited* by ALISON JONES & BRENDA SUFRIN, EU COMPETITION LAW 34 (4th ed. 2011)).
[88] *See generally id*. at 86. Along those lines, some scholars instead have promoted "workable competition," *see* RENATO NAZZINI, THE FOUNDATIONS OF EUROPEAN UNION COMPETITION LAW: THE OBJECTIVE & PRINCIPLES OF ARTICLE 102, 174 (2011), which lies between perfect competition and monopoly.

Unlike neoclassical price theorists, Austrians do not believe that markets axiomatically tend towards equilibrium.[89] Instead of adopting a taxonomic method that works deductively from internally consistent principles and that results in stable equilibria, Austrians focus almost exclusively on competition as a dynamic process that has no predictable equilibrium, similar to ordoliberals. Because individuals and businesses "hold important economic information in an extremely non-aggregated way," judges and competition authorities cannot employ competition policy to predict market outcomes and thereby maximize welfare "better than the competitive process itself".[90] To attempt to do so, argued von Hayek, exhibits "a pretense of knowledge"[91] that does not exist, "given the complex interdependencies in socio-economic systems"[92].

Such systems feature a multitude of relevant influences and the ingenuity of market participants, who often can game legal rules to achieve the desirable effect.[93] Rent-seeking by competitors more readily can succeed when governments have the discretion to intervene in the internal affairs of successful undertakings to promote competition, rather than intervening only when undertakings fail to follow more delineated rules.[94]

Remedying a specific abuse of dominance generally cannot outweigh the corresponding negative influence on the dynamic competitive process and on the competitive incentives of entrepreneurs.[95] The focus on competitive processes and potential or latent competition supersedes the presence or absence of actual competition or efficiency. However, this focus does not appear to account for the possibility that, absent monopolization enforcement, entrepreneurs will have far less opportunities to innovate and create wealth.

Although not their objective, the Austrian emphasis on dynamic competition has led neoclassical price theorists and antitrust enforcers generally to stress the importance of entry barriers when evaluating anticompetitive conduct. In their absence, nothing prevents dynamic

[89] *Id*. at 87-88.
[90] *Id*.
[91] Vanberg, *supra* n.60 at 36 (*quoting* F.A. HAYEK, THE MIRAGE OF SOCIAL JUSTICE, Vol. II of LAW, LEGISLATION & LIBERTY 129 (1976)).
[92] *Id*.
[93] *Id*. at 38 (*discussing* Hayek, *supra* n.91 at 71, 115).
[94] *Id*. at 37.
[95] Van den Bergh & Camesasca, *supra* n.87 at 87-88.

competition from eroding market power. An acknowledgement of dynamic competition also underpins a reluctance to investigate exploitative abuses.[96]

6. Behavioral Economics[97]

Behavioral economics disputes the claim that individuals abide by the rationality tenet of Neoclassical Price Theory (NPT). Behavioral economists assert that individuals do not necessarily maximize clearly-defined preferences in most circumstances; they regularly display bounded rationality, bounded willpower, and bounded self-interest.[98]

> To function effectively in a complex world, boundedly rational individuals must rely on cognitive heuristics — simplifying mental shortcuts — that inevitably lead people to make some systematic decision errors; as a result, their behavior necessarily deviates from that predicted by rational actor models.[99]

Heuristics such as loss aversion, the endowment effect, the availability heuristic, and overconfidence bias[100] cannot replace the concept of rationality — or always acting to maximize utility, satisfaction, or profits. Rather, heuristics can supplement rationality by identifying the circumstances under which individuals will deviate systematically from particular market stimuli in a predictable manner.

For example, individuals care more about losing utility than about subsequently gaining the equivalent amount back, even though rationality predicts an equivalent indifference.[101] Individuals also ask for a higher price to sell a good that they already own than "they would be willing to pay to obtain [the good] in the first place."[102] A rational analysis would reveal that the value of the good has not changed from one situation to the next.

Anecdotal evidence, or whether similar events come readily to mind, carries unjustifiable influence over individuals, who overweight such evidence when calculating the probability

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[96] Thanks to Professors Jones & Kokkoris for asking that I mention excessive pricing.

[97] I paraphrased most of this section from the following paper: Jay Matthew Strader, *The Consequences Of Neoclassical Price Theory For U.S. Predatory Pricing Law* (University College London Centre For Law, Economics & Society, Working Paper No. 7-2012), *available at* http://www.ucl.ac.uk/cles/research-paper-series/research-papers/cles-7-2012.

[98] RICHARD H. THALER & CASS R. SUNSTEIN, NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH & HAPPINESS (2009); BEHAVIORAL LAW & ECONOMICS (Cass R. Sunstein ed., 2000); Christine Jolls et al., *A Behavioral Approach to Law & Economics*, 50 STAN. L. REV. 1471 (1998). *But see also* Richard A. Posner, *Rational Choice, Behavioral Economics, and the Law*, 50 STAN. L. REV. 1551 (1998).

[99] Avishalom Tor, *The Fable of Entry: Bounded Rationality, Market Discipline, And Legal Policy*, 101 MICH. L. REV. 482, 484 (2002).

[100] *See, e.g.*, Maurice E. Stucke, *Behavioral Economists at the Gate: Antitrust in the Twenty-First Century*, 38 LOY. U. CHI. L.J. 513, 527-528 (2007).

[101] *Id*. at 527.

[102] Robert A. Prentice, *Chicago Man, K-T Man, and the Future of Behavioral Law and Economics*, 56 VAND. L. REV. 1663, 1700 (2003).

of an event occurring. Professor Christine Jolls has discussed how "events that are highly available are typically ones that have received a great deal of media attention, and are often ones that are intrinsically vivid or memorable, or have a technological nature."[103] Rational individuals would not adjust probability calculations based on anecdotal evidence beyond their numerical weight within the quantitative data.

Individuals also exhibit overconfidence when predicting their own future, in that "they overestimate their positive traits, abilities, skills, and likelihood of experiencing positive events, while they underestimate their vulnerability to certain risks."[104] A rational individual would view the future more skeptically, focusing on the quantitative evidence. Overconfidence bias "thrives in the business community, including among investors and corporate managers."[105]

Bounded willpower means that individuals often disregard their own long-term self-interests. Using cocaine despite knowing that it substantially increases the risk of heart attacks, strokes, and seizures,[106] or overeating despite a propensity for heart disease and diabetes, represents just two examples.[107]

Bounded self-interest captures the idea that individuals "may aspire toward benevolence in accordance with some religious or social norm of fairness even though such behavior deviates from the tenets of wealth maximization."[108] Separating bounded self-interest from rationality is no easy task, particularly beyond the short-term, since acting as a decent human being can assist in accumulating wealth. As just one example, undertakings might curtail short-term profit maximization to invest in good-will for the sake of higher profits later.[109]

Critics of using behavioral economics to analyze monopolization claims have argued that the theory is indeterminate, not least because it offers no guidelines for assessing the net effect of how various heuristics interact both within a dominant firm and between competitors.[110]

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[103] Christine Jolls, *Behavioral Economics Analysis of Redistributive Legal Rules*, 51 VAND. L. REV. 1653, 1662 (1998).
[104] Tor, *supra* n.99 at 505.
[105] Leslie, *supra* n.14 at 276.
[106] http://www.webmd.com/mental-health/addiction/cocaine-use-and-its-effects?page=2.
[107] Jolls et al., *supra* n.103 at 1479.
[108] Stucke, *supra* n.100 at 529.
[109] *See generally* Posner, *supra* n.98 at 1557-58.
[110] *See, e.g.*, Joshua D. Wright & Judd E. Stone II, *Misbehavioral Economics: The Case Against Behavioral Antitrust*, 33 CARDOZO L. REV. 1517, 1524 (2012). For a hard-hitting criticism of behavioral economics more

In each of the subsequent chapters, I will explore whether behavioral economics either supplements or contradicts policy prescriptions and legal standards developed by NPT. If appropriate, I also will consider whether the alleged indeterminacy of behavioral economics limits its practical use. Having defined NPT, I now turn to how it has shaped the legal concept of abuse of dominance.

III. The Effect of Neoclassical Price Theory on the Conduct Element of Abuse

The conceptual framework used to prohibit exclusionary conduct in both the U.S. and EU consists of two elements, a structure element and an abuse element. Both jurisdictions require a plaintiff alleging monopolization first to define a market and to establish dominance, or market power. The plaintiff then must demonstrate an abuse that excludes rivals by means other than merit competition. This thesis will focus on the conduct or abuse element because of the uncontroversial assertion that Neoclassical Price Theory (NPT) has influenced the structure element.

In defining markets, U.S. and EU antitrust agencies examine demand substitution factors, or "customers' ability and willingness to substitute away from one product to another in response to a price increase".[111] More specifically, the agencies apply the hypothetical monopolist test, which attempts to determine to which products customers would switch, if any, in response to a small but significant, non-transitory increase in price (SSNIP), usually around 5%.[112] They thus attempt to trace what happens in a market moving toward monopolistic conditions.

In 2010, Professors Joseph Farrell and Carl Shapiro proposed an alternative filter to defining markets to identify troublesome mergers.[113] Professors Farrell and Shapiro questioned the efficacy of defining markets given a multitude of differentiated products in and around them, particularly because categorizing such products regularly involves "artificial

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generally, *see* Joshua D. Wright & Douglas H. Ginsburg, *Behavioral Law And Economics: Its Origins, Fatal Flaws, And Implications For Liberty*, 106(3) NW. U. L. REV. 1033 (2012).

[111] U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES § 4 (2010) [hereinafter "2010 Merger Guidelines"], *available at*: http://www.ftc.gov/os/2010/08/100819hmg.pdf.

[112] *Id*. at § 4.1.2.

[113] Joseph Farrell & Carl Shapiro, *Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition*, 10(1) THE B.E. JOURNAL OF THEORETICAL ECONOMICS Art. 9 (Policies_perspectives) (2010) [hereinafter, Farrell & Shapiro, *Horizontal Mergers*], *available at*: http://www.bepress.com/bejte/vol10/iss1/art9; Joseph Farrell & Carl Shapiro, *Upward Pricing Pressure & Critical Loss Analysis: Response*, CPI ANTITRUST JOURNAL (Feb. 2010) [hereinafter, Farrell & Shapiro, *Upward Pricing Pressure*], *available at*: https://www.competitionpolicyinternational.com/assets/Free/Shapiro-FarrellFEB10.pdf.

line-drawing" that can produce haphazard results.[114] Their alternative approach compares "the loss of direct competition between the merging parties, which creates upward pricing pressure," to "marginal-cost savings from the merger, which create (offsetting) downward pricing pressure".[115] If the interaction between diversion ratios[116] — which trace the substitution of products after adjustments to price — and marginal cost efficiencies — which record the decrease in costs that vary with output because of alterations to labor and capital — produces upward pricing pressure, then the competition authority should evaluate the merger more closely.[117] The risk of monopolization has increased. Both diversion ratios and marginal costs are precepts derived by working within NPT models.

In examining market structure, the EU Commission similarly, though more generally, has assessed the competitive constraints imposed by existing and potential competitors, both to define the relevant market and to establish dominance. Dominance means the ability "profitably [to] increas[e] prices above the competitive level for a significant period of time."[118] This definition precisely matches the one provided by NPT.

After defining the market, both EU and U.S. competition authorities then turn to market share figures as a "useful first indication,"[119] or proxy, for market power. Absent NPT, the exercise of determining market power would not focus so predominantly on price[120] — specifically, on price movements and substitution along a given demand curve, and on the ability of the dominant undertaking to maintain prices above costs or the competitive level, given its supply curve.

The conduct inquiry features a more checkered history, in that NPT has exerted less, though still prominent, influence over the process of finding an abuse. In the early stages of monopolization enforcement in both the U.S. and EU, conduct considered immoral,

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[114] Farrell & Shapiro, *Horizontal Mergers*, *supra* n.113 at 4.
[115] *Id*. at 2.
[116] A diversion ratio "is the fraction of sales gained by Product 1" when its price decreases, secured "at the expense of sales of Product 2." Farrell & Shapiro, *Upward Pricing Pressure*, *supra* n.113 at 2.
[117] Farrell & Shapiro, *Horizontal Mergers*, *supra* n.113 at 2.
[118] Guidance (2009/C 45/02) at ¶ 11.
[119] *Id*. at ¶ 13.
[120] *See* 2010 Merger Guidelines at 4.1.2 (The SSNIP test "is used because normally it is possible to quantify 'small but significant' adverse price effects on customers and analyze their likely reactions, not because price effects are more important than non-price effects.").

insufficiently industrial, and merely exclusionary all counted as an abuse.[121] NPT originally distilled non-collusive anticompetitive acts to dominant firm behavior that lowered either productive or allocative efficiency.[122] A more intricate definition (although not a test for liability) would consider anticompetitive those exclusionary practices that materially weaken competition *or* lower efficiency, while ultimately raising prices — so long as enforcement does not curtail productive investment.[123] Weakened competition will affect other parameters of consumer welfare such as variety and quality.

A price objective finds expression in modern EU antitrust enforcement. The anticompetitive foreclosure doctrine exemplifies the importance of this target. The Guidance Paper setting-out the enforcement priorities of the European Commission in abuse of dominance cases distinguishes between simple foreclosure, or the elimination of rivals, and anticompetitive foreclosure, or the weakening or elimination of existing or potential rivals that "adverse[ly] impact[s] on consumer welfare".[124] By "consumer welfare," the Commission mentioned not only "higher price levels," but also conduct that "limit[s] quality or reduc[es] consumer choice."[125] Immediately after expanding the concept of consumer harm, however, the Commission defines anticompetitive foreclosure as the exclusion or weakening of rivals such that "the dominant undertaking is likely to be in a position to profitably increase prices to the detriment of consumers."[126]

While quality and choice, as products of the interaction between demand and supply, also represent variables for which NPT accounts, identifying the existence or prospect of higher consumer prices as the defining difference between simple foreclosure and anticompetitive foreclosure reflects the preeminent value that consumers place on price levels.[127] After all, greater efficiency and lower prices can exclude rivals. Only when exclusion produces the

[121] PHILLIP AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES & THEIR APPLICATION §618 (Aspen Publishers 1978, Supplement No. 2009, 2009).
[122] *See* Bork, *supra* n.50 at 91.
[123] *But see* RICHARD A. POSNER, ANTITRUST LAW 13 (2d ed. 2001).
[124] Guidance (2009/C 45/02) at ¶ 19 (discussed in Jones & Sufrin, *supra* n.87 at 373-74).
[125] *Id*. Not everyone agrees with the Commission that EU Competition Law aims to maximize consumer welfare. *See, e.g.*, Nazzini, *supra* n.88 at 4 (arguing that it targets long-term social welfare).
[126] *Id*.
[127] *But see* LIZA LOVDAHL GORMSEN, A PRINCIPLED APPROACH TO ABUSE OF DOMINANCE IN EUROPEAN COMPETITION LAW 116 (2010) (discussing "effective," as opposed to insignificant, foreclosure as the relevant concept); Lianos, *supra* n.2 at 43 (equating price and quality under effects).

opposite effect, or perhaps independently weakens the other parameters of welfare, does NPT support intervention.

For price abuses, United States federal courts mostly have demonstrated a willingness to find higher prices anticompetitive only if they initially fail a cost test. A cost test identifies abusive conduct as inefficient conduct that likely will produce higher prices. In the predation context, requiring proof of recoupment ensures that lower prices alone do not prompt liability. For non-price abuses, federal appellate courts closely have examined whether the challenged conduct likely will produce higher prices, as determined by the extent of market power and entry barriers. After concluding that a practice qualifies as unmeritorious competition, this inquiry frequently is dispositive.

Practices that do not appear likely to result in higher prices often will fail the antitrust injury requirement. To collect treble damages under § 4 of the Clayton Act, and thus to succeed in establishing a monopolization claim under § 2 of the Sherman Act, all plaintiffs must prove antitrust injury. Antitrust injury is "injury of the type the antitrust laws were intended to prevent".[128] In the context of predatory pricing, lower prices above cost "do not threaten competition" and "cannot give rise to antitrust injury."[129]

Notwithstanding the influence of NPT, the abuse element in both jurisdictions also reflects the impact of other legal principles and other methods of economic analysis, as demonstrated by the fact that the "§ 2 monopolizing offense requires something more than the existence of monopoly power."[130] Simply by assessing whether the relevant market structure more closely resembles perfect competition or monopoly, a policymaker following NPT might pursue damage claims against the mere existence of dominance. Aside from any wealth transfer effects caused by monopolization, a competitive market produces greater efficiency than a monopolized market. For this reason, societies generally enjoy greater overall welfare with competitive markets.

The Austrian school of economics has helped persuade competition authorities that, even from a purely economic perspective, the "something more" that § 2 and A.102 require, in addition to monopoly power, is "an exclusionary practice".[131] Given a dynamic view of

[128] *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477, 489, 97 S.Ct. 690, 697 (1977) (Marshall, J.).
[129] *Atl. Richfield Co. v. U.S.A. Petroleum Co.*, 495 U.S. 328, 340, 110 S.Ct. 1884, 1892 (1990) (Brennan, J.).
[130] Areeda & Hovenkamp, *supra* n.121 at ¶ 618.
[131] *See generally id*.

competition, monopoly alone does not necessarily produce an overall fall in welfare relative to the "but-for" world of increasing existing competition. In certain instances, the acumen applied and the investment incurred to achieve monopoly actually can drive the creation of wealth and consumer welfare.[132]

Having briefly sketched the influence of NPT over defining the economic harm that monopolization enforcement targets, and over the factors considered to identify such harm, I discuss below how legal principles necessary for effective adjudication also have affected the development of NPT.

IV. Categorical Thinking

I have focused on predatory pricing in this thesis because if Neoclassical Price Theory (NPT) cannot explain and provide practical advice on how to address this abuse, which forecloses rivals through lower prices and harms consumers through higher prices,[133] then it likely contributes minimally to a proper understanding of monopolization law. Other anticompetitive practices feature additional means, other than by adjusting prices, to foreclose and harm consumers, though such practices often fit within the NPT conceptual framework.

Bundled discounts damage consumers by lowering, and then raising, prices, similar to predation, but mixed bundling also features characteristics of tying practices, by forcing or coercing the purchase of an unwanted product. Particularly since appellate courts have been debating whether to treat mixed bundling like predatory pricing or tying, I additionally have examined and compared both practices, attempting to explicate further the influence and explanatory power of NPT over abuses that ostensibly raise independent theoretical sources of anticompetitive harm.

Given the insular nature of the Ph.D. project, and the significant number of reported U.S. appellate cases on each abuse, I had to draw the line somewhere. A more expansive project also might consider loyalty rebates, given that they too coerce and foreclose by lowering prices. Exclusive dealing likewise can resemble loyalty rebates, mixed bundling, and tying in

[132] *Verizon Commc'n, Inc. v. Law Offices of Curtis V. Trinko, L.L.P.*, 540 U.S. 398, 407, 124 S.Ct. 872, 879 (2004) (Scalia, J.) (monopoly prices "attract[] business acumen" and "induce[] risk taking that produces innovation and economic growth"); Van den Bergh & Camesasca, *supra* n.87 at 86.

[133] Foreclosure also can reduce variety and quality. Thanks to Professors Kokkoris & Jones for requesting that I clarify the harm to consumers.

that it can produce the exact same foreclosure effects,[134] though without employing the price mechanism.

Price squeeze claims and refusals to deal fall into a different category of abuse. Price squeeze claims can look like predation, given that the practice excludes by manipulating prices, by charging too low prices in the downstream or retail market, combined with charging too high prices in the upstream or wholesale market. Yet property rights and investment incentives in the upstream market also have influenced the development of price squeeze law, and rightfully so. Courts and competition authorities have turned to refusal to deal doctrine for partial guidance.[135] The U.S. Supreme Court has said that if a dominant undertaking can refuse to deal with a competitor in the upstream market, then it can charge whatever price it wishes to that competitor in the upstream market,[136] assuming that price does not constitute a constructive refusal to deal. Setting aside the merits of that argument, it deserves separate treatment from a thesis focused on NPT. The property interests inherent to a refusal to deal claim also justify weighing competing and independent policy considerations.

The EU debate about the reform of A.102 has centered on the extent to which courts and competition authorities should evaluate exclusionary practices by looking more closely at the effects that the challenged conduct has, or will have, on consumers.[137] The alternative method considered often attempts to determine liability primarily based on the form that the challenged conduct takes. The timing and causal relationship between the disputed conduct that courts and competition authorities review, and the market effects of such conduct, materially influence the substance of this debate. Courts and competition authorities first might ask whether the conduct already has produced competitive effects, characteristic of ex post control. Or courts and competition authorities might have to examine whether the

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[134] Professor Elhauge recommends setting a minimum foreclosure share of 20-30% for such practices. Elhauge, *supra* n.76 at 469.

[135] *See, e.g.*, *Pac. Bell Tel. Co. v. Linkline Commc'n, Inc.*, 555 U.S. 438, 447-451, 129 S.Ct. 1109, 1118-1119 (2009) (Roberts, C.J.) (actually eliminating a price squeeze claim as a freestanding abuse by requiring plaintiffs to establish both an antitrust duty to deal and prices below cost in the retail market); Guidance (2009/C 45/02) at ¶ 80 (addressing price squeeze claims under the heading, "Refusal to supply & margin squeeze").

[136] *Linkline*, 555 U.S. at 450, 129 S.Ct. at 1119.

[137] Jordi Gual et al., Report by the EAGCP: *An Economic Approach to Article 82* (July 2005), *available at*: http://ec.europa.eu/dgs/competition/economist/eagcp_july_21_05.pdf; DG Competition Discussion Paper on the Application of Article 82 of the Treaty to Exclusionary Abuses (Brussels, December 2005); Guidance (2009/C 45/02) at ¶ 19 (anticompetitive foreclosure).

challenged conduct has yet to produce such effects, implicating ex ante control.[138] Much monopolization law involves ex ante review, or examining market conditions and the challenged conduct to predict, as accurately as possible, the consequences for consumers over the short-, medium-, and long-term. Only easy cases involve actual competitive effects.

Judges and competition authorities have relied so heavily on the principle tenets of NPT to evaluate potentially anticompetitive conduct because NPT assists in predicting competitive effects, or at least helps to identify the likely consequences for certain abuses. The form versus effects debate arguably turns on whether judges or competition authorities should assess liability by classifying certain acts as falling within recognized categories of conduct that consistently have harmed consumers, or whether they more closely should examine the extent to which the challenged conduct actually has, or likely will, harm consumer interests.[139] An effects-based approach closely reviews existing market conditions to reach an informed judgment about how the challenged conduct has influenced, or will influence, price, quality, and innovation.

Professor Lianos has argued that effects analysis need not require empirical evidence of actual anticompetitive effects: "It may instead take the form of a theory of consumer harm, which aims to establish a relationship [] between the specific practice and potential consumer detriment."[140] To qualify as effects analysis, the judge or competition authority still needs to align the theory and terms of causality with existing economic evidence and conditions in the relevant market.[141]

Legally evaluating exclusionary practices must involve a degree of categorical thinking. To identify anticompetitive effects, the judge or competition authority already must have formulated a reliable narrative of consumer harm. NPT has supplied theories, conceptual categories of conduct, and examples depicting how an undertaking possessing market power can raise prices and harm consumers. For example, dominant undertakings might engage in predatory pricing, mixed bundling, or tying practices. The existence of such categories

[138] *See generally* IOANNIS LIANOS, *Categorical Thinking in Competition Law & the 'Effects-based' Approach in Article 82 EC*, *in* ARTICLE 82 EC: REFLECTIONS ON ITS RECENT EVOLUTION 19, 23 (Ariel Ezrachi ed., 2009).
[139] For effects as theories of harm compared to empirical findings, *see* Lianos, *supra* n.2 at 43.
[140] Lianos, *supra* n.138 at 44.
[141] *Id*. at 21.

permits analytical shortcuts that support a reasoned, logical assessment of the challenged practices, while further enabling efficient factual investigations.[142]

A pure effects-based approach might not bother to classify conduct as falling within a pre-existing category that presumably or generally harms consumers. Instead, an economist simply might examine price or output levels and attempt to establish a correlation between the challenged conduct and subsequent levels of lower output and higher prices. Without pre-existing knowledge of how certain conduct likely harms consumers, the economist seeking to maximize welfare would have to isolate the challenged conduct from all the other microeconomic and macroeconomic influences on price levels in the relevant market. The economist then would have to ensure that the challenged conduct did not raise efficiency or otherwise benefit consumers by an amount that outweighed the price increase. The information costs of gathering that data in individual cases could be prohibitive, or at least "set[] limits to the expansion of a full effects-based approach in Article 82."[143]

Ensuring that antitrust jurisprudence abides by the rule of law further curtails the application of a pure effects-based approach. Even dominant undertakings must be able to ascertain the governing law before following it. Fundamental notions of due process that have underpinned western judicial systems for millennia would prohibit a competition law regime that penalized dominant undertakings for engaging in conduct that harms consumers, determined after-the-fact.[144] Dominant undertakings never would know whether mundane business decisions might lead to antitrust liability.

At a minimum, the rule of law requires that dominant undertakings must be able to determine, prior to making decisions, whether an act *might* violate the antitrust laws. Categorical thinking — or designating certain types of conduct as potentially violating the antitrust laws, while applying the same rules to analogous cases — represents an integral requirement not only for the proper administration of the antitrust laws. Such a requirement more basically represents a minimum condition for market economies to function adequately at all.[145] Little investment of time and money would occur if every act of a successful business risked antitrust liability. "The calls for an 'effects-based' economic approach do not

[142] *Id*.
[143] *Id*.
[144] *See generally id*. at 36.
[145] *Id*. at 30, 35.

question the need to classify or create categories of abuses."[146] Judges, enforcement officials, practitioners, and academics (not necessarily in that order) may revise those categories "according to empirical findings and the evolution of economic theory".[147] Professor Lianos has argued that the amendable nature of antitrust categories separates an effects-based approach from a form-based alternative.[148]

Of the existing general standards proposed to evaluate exclusionary conduct, the rule of reason most closely resembles an effects-based, or purely economic, approach.[149] To determine liability, the rule of reason balances the anticompetitive harm caused by the challenged conduct against any corresponding benefits or efficiencies passed-on to consumers. Implicit to this welfare balancing method, however, the judge or competition agency still must classify the challenged conduct to assess the degree of consumer harm.[150]

A structured rule of reason approach to tying, for example, might consider elements of the quasi-per se rule, such as market power, forcing, and the existence of anticompetitive foreclosure on the harm-side of the ledger. To take another example, courts applying the rule of reason to exclusive dealing arrangements have asked whether the condition will substantially lessen competition in the relevant market.[151] To know whether the condition substantially lessens competition, the judge or competition authority must understand that such contract provisions exclude by foreclosing downstream market access to upstream competitors, rather than, for example, lowering prices to levels that retail competitors cannot match. Only then can the judge or competition authority assess whether the foreclosure share secured by the exclusive dealing arrangement outweighs any actual or likely efficiencies produced, thereby causing anticompetitive effects.

In assessing anticompetitive foreclosure, many of the factors that the Commission considers — such as the strength of the dominant position, the existence of barriers to entry and expansion, the position of competitors and customers, the percentage of total sales affected, and evidence of actual foreclosure[152] — relate to the structure of the market and thus

[146] *Id*. at 35.
[147] *Id*. at 36.
[148] *Id*.
[149] *Id*. at 35.
[150] *Id*.
[151] *ZF Meritor, LLC V. Eaton Corp.*, 696 F.3d 254, 268 (3d Cir. 2012) (Fisher, J.).
[152] Guidance (2009/C 45/02) at ¶ 20.

are relevant to all the separate categories of abuse.[153] But those factors can operate differently depending on the abuse under review. In determining whether a predation scheme substantially lessens competition, a judge or competition authority may consider the factors listed above as helpful in assessing the likelihood of recoupment. In a tying or bundling case, those factors might help reveal the extent of forcing or coercion present. Or they might indicate the likelihood that the foreclosure of competitors actually harms consumers. The key point is that categorical thinking remains integral to evaluating exclusionary conduct properly under any standard, whether a structured rule of reason, substantially lessening competition, or anticompetitive foreclosure.

Judges and competition authorities nevertheless should attempt to devise legal tests that treat similar conduct alike, another principle tenet of the rule of law. If a diversified monopolist could achieve anticompetitive foreclosure by either tying or bundling, or by loyalty rebates or exclusive dealing, and the monopolist knows that prospective plaintiffs will have greater difficulty satisfying the legal standard for mixed bundling relative to tying, and for loyalty rebates relative to exclusive dealing, then the monopolist will favor bundling practices and loyalty rebates. That monopolist will escape legal liability more frequently than a monopolist in another market that institutes a tying or exclusive dealing arrangement, even though both sets of practices harm consumers similarly and achieve the same effect. Antitrust jurisprudence should not permit some monopolists to increase market power relative to others predominantly based on the legal tests applied by courts.[154]

Certain practices may harm consumers more than others, warranting a broader test. One could argue that principle applies to tying relative to mixed bundling because tying involves forcing, while mixed bundling employs lower prices to coerce consumers, who always retain the option of buying only the linking product. Some packaged discounts, however, due to their extent and to existing market conditions, may exert a level of coercion roughly equivalent to forcing. Under those circumstances, judges and competition authorities should not treat mixed bundling more leniently than tying, thereby creating a legal loophole for dominant undertakings with skilled counsel to exploit. Such loopholes harm consumers by funneling anticompetitive exclusionary conduct to legally favored practices, thereby

[153] Jones & Sufrin, *supra* n.87 at 375.
[154] *See generally* Lianos, *supra* n.138 at 40; *id*. at 49 (discussing the "Balkanization" of A.102 based on different tests applying to equivalent conduct).

increasing the incidence of it. The consistent application of the antitrust laws will result in more competitive markets and lower market-wide prices.

As the debate over form- versus effects-based approaches to exclusionary practices continues to evolve, the contentious issues that likely will arise often will relate to the boundaries of, or safe harbors applied to, the different categories of abuse, rather than to the wisdom of searching for effects as such.

V. Outline

The thesis consists of four substantive chapters, in addition to this Introduction and a Conclusion. The first substantive chapter considers U.S. predatory pricing law. I find that Neoclassical Price Theory (NPT) conceptually justifies all the relevant economic factors considered in U.S. predation analysis, but it does not explain the fall in plaintiffs' success rate over the last 20 years.

In the second chapter, I consider EU predation law and find that the same NPT principles govern EU predation enforcement, despite a willingness to consider predation claims at prices above the average variable costs, but below the average total costs, of the dominant undertaking. Despite the additional liability that this test allows, EU Institutions have decided a limited number of predation claims. This suggests that non-NPT factors have influenced enforcement in the EU as well.

The third chapter examines the evolution of tying doctrine in the EU and US from a quasi-per se test to a structured rule of reason, or de facto merger review. NPT explains the relevant legal and economic considerations that have animated tying jurisprudence. They include: (1) market power as a source of coercion, (2) other forms of coercion generated by tying products together, (3) the demand and supply considerations that determine whether separate products exist, and (4) anticompetitive foreclosure.

The fourth chapter initially assesses bundling as a type of predation, and then turns to analyzing it as a type of tying. Finding the practice conceptually closer to tying, I recommend a legal test based on similar factors. However, I also suggest implementing market share safe harbors that eliminate from consideration discounts that do not risk dominance in the linked market. I further find irreparable fault with the discount attribution standard as the sole test for liability under NPT.

CHAPTER 2: U.S. PREDATORY PRICING LAW & ECONOMICS

I. Introduction

This chapter seeks to test the hypothesis that by adopting the basic principles of Neoclassical Price Theory (NPT) as the predominant analytical framework through which to evaluate predatory pricing claims, United States federal appellate judges have lowered the probability of plaintiffs winning those claims.

To recap, NPT posits that suppliers act exclusively to maximize profits, "that demand curves slope downward, that an increase in the price of a product will reduce the demand for its complement, [and] that resources gravitate to the areas where they will earn the highest return".[1] NPT applies the microeconomic models of perfect competition and monopoly to analyze monopolistic conduct, while focusing on the various determinants of price.[2] The inefficiency and higher prices created by market power justifies government involvement in dominant firm behavior.[3]

All major schools of antitrust thought have adopted NPT as the relevant theory through which to evaluate anticompetitive conduct, to which each adds various assumptions. In response to appellate court decisions that ignored the implications of competitive conditions and the absence of market power,[4] the Chicago School argued that markets tend toward

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[1] Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925, 928 (1979) (then Professor Posner did not use the term "Neoclassical Price Theory" (NPT) but rather "price theory"); ROBERT H. BORK, THE ANTITRUST PARADOX 90-133 (1978) (*cited* by Herbert Hovenkamp, *Antitrust Policy After Chicago*, 84 MICH. L. REV. 213, 215 n.17, 226 (1985), *available at*: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1396788 (Professor Hovenkamp also discusses the "neoclassical market efficiency model," which "refers to the price theory of the Chicago School")). To my knowledge, Professor Lianos was the first to discuss "neoclassical price theory". Ioannis Lianos, "*Lost in Translation?*" *Toward a Theory of Economic Transplants*, Jean Monnet Working Paper 08/09 (2009) at 4, 26, 31, 37, 39-40, *available at*: http://ssrn.com/abstract=1485378; *see also* Ioannis Lianos & Abel Matteus, *Antitrust In the New U.S. Administration: A Transatlantic View*, Release Two, The GCP Online Magazine for Global Competition Policy (January 2009) at 33-34, *available at*: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1399693. For a criticism of price theory in the tying context, *see* Alan J. Meese, *Tying Meets the New Institutional Economics: Farewell to the Chimera of Forcing*, 146 U. PA. L.R. 1, *passim* (1997). For additional mention of price theory, *see* Roger Van den Bergh & Peter Camesasca, EUROPEAN COMPETITION LAW & ECONOMICS: A COMPARATIVE PERSPECTIVE 87-88 (2d ed. 2006); GIORGIO MONTI, EU COMPETITION LAW 24, 26, 125, 128 (2007); Nicholas Economides & Ioannis Lianos, *The Elusive Antitrust Standard on Bundling in Europe and in the United States in the Aftermath of the Microsoft Cases*, 76(2) ANTITRUST LAW JOURNAL 486, 542 (2009) (also challenging it); LIZA LOVDAHL GORMSEN, A PRINCIPLED APPROACH TO ABUSE OF DOMINANCE IN EUROPEAN COMPETITION LAW, *passim* (2010).

[2] *See* the discussion under "Price Theory" in the Introduction, *supra*, pp. 3-7.

[3] William E. Kovacic, *The Intellectual DNA of Modern U.S. Competition Law for Dominant Firm Conduct: The Chicago / Harvard Double Helix*, 2007 COLUM. BUS. L. REV. 1, 20 (2007).

[4] William H. Page, *The Chicago School And The Evolution Of Antitrust: Characterization, Antitrust Injury, And Evidential Sufficiency*, 75 VA. L. REV. 1221, 1274 (1989).

efficiency, that the motive to earn profits supercharges competition,[5] ensuring the transitory nature of market imperfections,[6] and "that judicial enforcement should proceed cautiously, lest it mistakenly proscribe behavior that promotes consumer welfare".[7] Moreover, the Chicago School recommended enforcement only when purported exclusionary practices reduced productive and allocative efficiency, not when such practices transferred wealth from consumers to producers, leaving total wealth unchanged.[8] Chicago models that draw heavily from NPT "have become widely accepted as the conceptual basis for antitrust law,"[9] at least in the United States.

The Harvard School originally expressed a more skeptical view towards the robustness of competition, acknowledging the deleterious competitive effects of product differentiation and concentrated market structures. The absolute number of firms in a market and entry barriers matter, as "new entry [does] not [necessarily] discipline anticompetitive practices in concentrated markets".[10]

Post-Chicago scholars successfully have employed game theory to challenge the Chicago presumption that monopolists have no incentive to engage in anticompetitive practices.[11] They similarly have stated that competition does not necessarily prevent or remedy market failure, but have gone even further in arguing "that firms can therefore take advantage of [market] imperfections, such as information gaps or competitors' sunk costs, to produce inefficient results even in ostensibly competitive markets".[12] The focus under NPT would be whether this alleged inefficiency produces higher market-wide prices and lower output, or reduces market-wide quality, variety, or innovation when price-effects do not predominate. The argument departs furthest from NPT if it dispenses with pricing power as a component of monopolization. In the vast majority of market settings, anticompetitive effects still

[5] Frank H. Easterbrook, *Workable Antitrust Policy*, 84 MICH. L. REV. 1696, 1701 (1986).
[6] Page, *supra* n.4 at 1243.
[7] Michael S. Jacobs, *An Essay on the Normative Foundations of Antitrust Economics*, 74 N.C. L. REV. 219, 222-223 (1995).
[8] Page, *supra* n.4 at 1238.
[9] *Id*. at 1307.
[10] HERBERT HOVENKAMP, THE ANTITRUST ENTERPRISE 36 (2005).
[11] Hovenkamp, *supra* n.1 at 260-274; David S. Evans & A. Jorge Padilla, *Designing Antitrust Rules for Assessing Unilateral Practices: A Neo-Chicago Approach*, 72 U. Chi. L. Rev. 73, 74 (2005).
[12] Jacobs, *supra* n.7 at 222-23; *see* Hovenkamp, *supra* n.1 at 264-274.

depend on its existence. The Post-Chicago School also has expressed more faith in the ability of government to identify and remedy anti-competitive practices.[13]

The prevailing conception is that the application of NPT to monopolization law has curtailed enforcement,[14] credit for which goes to both the Harvard and Chicago Schools. While Chicago scholars introduced price theory to monopolization law and popularized it, Harvard scholars and judges converted economic arguments into workable legal tests, effectively driving those arguments into the Federal Reporter. They did so by devising the tests for both predation[15] and antitrust injury,[16] by fully supporting a legal wariness towards discouraging price-cutting,[17] and generally by elevating hurdles to monopolization enforcement[18] because of a shared skepticism toward government involvement in dominant firm behavior.[19] Post-Chicago scholars have attempted to weaken this skepticism somewhat but have operated generally within the NPT framework, most persuasively by demonstrating how dominant firms can raise rivals' costs and prices more generally.[20] In developing this study, therefore, no coherent theoretical alternative to NPT exists in the case law, so distinguishing between schools when attempting to test the effect of NPT on plaintiffs' probability of winning predation cases raises methodological challenges.

After reviewing all reported U.S. Courts of Appeal and U.S. Supreme Court cases reaching the merits of predatory pricing since 1950, 62 in total,[21] I conclude that NPT does not necessarily attempt to approximate "effects analysis," or assessing the legality of dominant firm behavior by determining, after the fact, whether it actually produces positive or negative competitive effects. Rather, the tools of NPT predominantly attempt to *predict*

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[13] Jacobs, *supra* n.7 at 260-61. For non-price effects to consumer welfare, *see* Guidance on the Commission's Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings (2009/C 45/02) at ¶¶ 5, 11, 19.
[14] *See, e.g.*, Page, *supra*, n.4 at 1233.
[15] Herbert Hovenkamp, *The Harvard & Chicago Schools & the Dominant Firm*, *in* HOW THE CHICAGO SCHOOL OVERSHOT THE MARK 109, 110 (Robert Pitofsky ed., 2008).
[16] *Id*. at 112.
[17] Kovacic, *supra* n.3 at 21.
[18] *Id*. at 15.
[19] *Id*. at 80-81.
[20] Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power Over Price*, 96 YALE L.J. 209 (1986); Hovenkamp, *supra* n.10 at 38.
[21] I included *Weyerhaeuser Co. v. Ross-Simons* in the population set because, though a predatory bidding case, the Supreme Court viewed the exclusionary claim as close enough to predatory pricing to apply the same legal standard. 549 U.S. 312, 315, 127 S.Ct. 1069, 1072 (2007) (Thomas, J.). I express no substantive view on the Court's decision, except to note that its effect will be to narrow predatory bidding claims. I excluded other cases where the Court did not reach the merits of the predation claim.

competitive effects.[22] To prove economic phenomena, economists usually engage in quantitative analysis or run regression analyses, selecting a dependent variable, representing the proposed effect or outcome of the hypothesis, and independent variables, representing proposed causes, or predictors, of the hypothesis.[23] This chapter seeks to test the hypothesis that NPT has lowered the probability of plaintiffs winning predation cases by analyzing appellate reasoning and tallying results: by engaging in a qualitative study, which tests theories using language, but which also customarily utilizes quantitative methodology. Plaintiffs' rate of success, as measured by whether the court upheld or dismissed the predatory pricing claim, constitutes the dependent variable. The independent variables respectively consist of decision-making factors derived from NPT and analysis of the actual effects of the predatory pricing scheme.[24]

NPT constitutes the first independent variable. Three concepts derived from NPT — *rationality*, *competition*, and *efficiency* — conceptually justify the current predation test under U.S. antitrust law, which requires plaintiffs to demonstrate below-cost pricing[25] and a dangerous probability of recoupment. Rationality provides the intellectual support for the profit sacrifice test, another legal formulation occasionally used to detect predatory pricing. Competition and efficiency justify employing the market power concept to predation claims. Judges additionally have considered intent evidence, both objective and subjective, in evaluating predatory pricing, and some even have focused on it. NPT ultimately supplied the governing proxy for intent, however: cost tests.

Crucially, these various mechanisms to detect predation accurately identify anticompetitive conduct if — but only if — monopolists behave rationally and maximize profits, competition punishes monopolists who fail in this endeavor, and society approves of the resource allocation achieved when monopolists price at cost. But legal tests based on costs, profit sacrifice, intent, and market power fail to measure actual anticompetitive effects. Instead, they assist judges in predicting whether an initial price-cut will harm consumers. Recoupment measures anticompetitive effects, though it involves applying NPT to assess

[22] *See generally* Page, *supra* n.4 at 1296.
[23] For additional detail, *see* ANDY P. FIELD, DISCOVERING STATISTICS USING SPSS 7, 198 (3d ed. 2009).
[24] *See* Appendix for full results.
[25] Then Professor Frank Easterbrook warned against the perils — for law generally, and for antitrust law specifically — of providing insufficient benchmarks for legal standards. Frank H. Easterbrook, *The Limits of Antitrust*, 63 TEX. L.R. 1, 3 (1984).

future market conditions. I selected these various indicators for likely effects to represent NPT in the case law.

While NPT determines which competitive effects matter when evaluating predation claims, effects analysis, the second independent variable, still represents a distinct *mode* of decision-making. Temporally, it is backward-looking. Notwithstanding the evolution of economic theory and specifically of predatory pricing as a category of abuse, an effects analysis examines the actual consequences of the challenged conduct. It assesses whether competitors responded to lower prices by exiting the market, after which the monopolist raised prices long enough to recover any losses sustained. Effects analysis thus requires actual proof of — rather than relying on NPT to predict — consumer harm.

If NPT accurately predicts competitive effects, then the two variables would coalesce, raising a multi-collinearity issue, but nevertheless justifying the influence of NPT over predatory pricing law. After rendering judgment, however, courts do not verify the results predicted by NPT, which would take time and resources that courts lack, so empirical proof validating the accuracy of NPT in predation cases does not exist.[26] The purpose of the second independent variable is not to provide or challenge that missing empirical support but to test whether plaintiffs are more likely to win cases in which appellate judges consider actual effects.

To aid in evaluating the evidence, I divide the results temporally to reflect the influence of three events critical to the development of U.S. predatory pricing law. In 1975, Phillip Areeda and Donald Turner published an article that established price theory as the conceptual foundation to evaluating predation. They argued that liability should turn on whether the monopolist priced below marginal cost, or rather average variable cost because firms have great difficulty calculating marginal costs.[27] Two U.S. Supreme Court judgments reflecting a skeptical view of the frequency and viability of predatory pricing — *Matsushita*[28] in 1986 and *Brook Group*[29] in 1993 — mark the other two temporal dividers.

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[26] *Compare* Eleanor M. Fox, *The Politics Of Law And Economics In Judicial Decision Making: Antitrust As A Window*, 61 N.Y.U. L. REV. 554, 584 (1986), *with* Page, *supra* n.4 at 1300.
[27] Phillip Areeda & Donald F. Turner, *Predatory Pricing And Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697 (1975); *see also* Kovacic, *supra* n.3 at 6 (discussing the impact of Areeda & Turner's article); Bruce H. Kobayashi, *The Law & Economics of Predatory Pricing*, *in* ANTITRUST LAW & ECONOMICS 116, 131 (Keith N. Hylton ed., 2010) (discussing how AVC can fall well below MC at high output levels).
[28] *Matsushita Elec. Indus. Co., Ltd. v. Zenith Radio Corp.*, 475 U.S. 574, 106 S.Ct. 1348 (1986) (Powell, J.).
[29] *Brooke Group v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 113 S.Ct. 2578 (1993) (Kennedy, J.).

In terms of coding, I labeled the cases as influenced by NPT if the opinion incorporated the concept of market power while additionally considering cost evidence, recoupment, profit sacrifice, or objective intent. Only four cases fall outside this category. The population size, at 62 cases, is not large enough to permit a high degree of confidence concerning correlation, which usually requires at least 100 data points. At less than 100 data points, minor differences significantly could skew results. But the cases constitute the population of data points, not just a sample, which eliminates sampling error and thus contributes to greater accuracy.[30]

The results demonstrate that plaintiffs' probability of winning predatory pricing cases has fallen over time. Prior to Areeda & Turner's article, plaintiffs won 42.9% of predatory pricing cases; subsequently, they have won 23.6%. Plaintiffs' success rate after *Matsushita* also noticeably narrowed, from 30.3% to 20.7%. That success rate fell most dramatically after *Brooke Group* — from 31.3% to 7.1%.

Because appellate judges reasoned from NPT principles when formulating the legal test for predation, below-cost pricing and a dangerous probability of recoupment, these results at least partially reflect the impact of NPT on predatory pricing law. The pre-existing legal standards applicable to all monopolization and attempted monopolization claims,[31] themselves a partial product of NPT, provided the original conceptual framework on which NPT has exerted influence.

I labeled the cases as focused on (1) NPT considerations, (2) Effects, or (3) Intent. However, these categories overlap substantially. Judges have employed NPT and Intent to help predict the effects of predatory pricing. NPT has altered what effects matter, from simple exclusion to allocative efficiency and price levels. To the extent that intent still matters, it must assist in proving the harm that NPT has determined predation poses.

The results of the study do not support the hypothesis that plaintiffs' probability of winning cases improves when judges consider the actual effects of predatory pricing, because

[30] Thanks to Dr. Wagner von Papp for raising the issue of sample size, and to Professor Lianos for mentioning that the analysis includes the entire population of data points.

[31] According to the Tenth Circuit, "The elements of a monopolization case are (1) the possession of monopoly power in the relevant market and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident." Alternatively, "A case of attempted monopolization requires proof that defendant's conduct was motivated by specific intent to monopolize and that a dangerous probability of monopoly existed." *Pac. Eng'g & Prod. of Nev. v. Kerr-McGee Corp.*, 551 F.2d 790, 791 (10th Cir. 1977) (Hill, J.)

plaintiffs won 20% of such cases compared to an overall success rate of 25.8%, though the difference is not overwhelming.

After attempting this empirical, positive analysis, the last third of the paper constitutes a more theoretical inquiry focused on behavioral economics. To my knowledge, no appellate predatory pricing decision explicitly has considered behavioral economic factors.[32] I argue that behavioral economics, principally bounded rationality and bounded self-interest, can supplement rationality theory and game theory to enhance the attractiveness of predation schemes to dominant firm managers, to whom the rationality principle also applies.

The chapter proceeds as follows. Part II briefly sketches the historical development of predation law. Part III sets-out the independent variables. First, I justify the selection of five proxies for NPT: analysis of costs, recoupment, profit sacrifice, objective intent, and market power. I also discuss subjective intent. I then explain the relevance of the other independent variable, effects analysis. In Part IV, I discuss research results. I consider the applicability of behavioral economics to predation claims in Part V. And in Part VI, I conclude.

II. Brief Sketch of U.S. Predation Law Development[33]

Modern predatory pricing law arguably developed in response to the Supreme Court's 1967 decision in *Utah Pie Co. v. Continental Baking Co*.[34] The Court considered a predatory pricing claim asserted by the most dominant undertaking in the relevant market, whose market share, initially at 66.5%, fell to 45.3% by the end of the predation scheme.[35] Market power — defined by Neoclassical Price Theory (NPT) as the ability to raise and maintain prices above the competitive level — either did not exist in the frozen pie market in Salt Lake City, or existed only faintly. The Supreme Court even stated that the relevant market was "highly competitive".[36]

In all events, the parties that allegedly engaged in predation did not wield market power: their market shares rose only from (1) 16.4% to 29.4%,[37] (2) 1.8% to 8.3%,[38] and (3) 10.3%

[32] *But cf. United States v. Dentsply Int'l, Inc.*, 399 F.3d 181, 190 (3d Cir. 2005) (Weis, J.) (the Court determined that Dentsply's pricing practices supported finding market power, particularly evidence that "Dentsply had a reputation for aggressive price increases in the market.").
[33] I added this section based on a suggestion from Professors Jones & Kokkoris.
[34] 386 U.S. 685, 87 S.Ct. 1326 (1967) (White, J.)
[35] *Id*. at 689, 1329.
[36] *Id*. at 703, 1336.
[37] *Id*. at 692, 1330.
[38] *Id*.

to 12.1%.[39] Such levels currently do not approach dominance anywhere in the world. Under existing monopolization law in most U.S. Circuits, these facts would warrant dismissal no matter the alleged abuse. Entities that do not have market power cannot unilaterally raise prices, and absent that ability, price-cuts will produce additional consumer surplus.

Nevertheless, the Supreme Court found that all three defendants were pricing either below cost or well below cost;[40] one had incurred "substantial losses,"[41] and the other had recovered insufficient revenues to pay for long-run costs.[42] In considering the effect of the below-cost pricing on competition in the relevant market, the Court did not discuss consumer welfare or the vitality of competition in a market where four undertakings took turns lowering prices. Rather, the Court focused on how the price-cuts affected Utah Pie. It stated that, to remain in business, Utah Pie had to cut prices in response,[43] that failing to do so would have resulted in the loss of important customers,[44] and that the predation therefore cost Utah Pie money, making it "a less effective competitive force".[45] Yet the Court also acknowledged that Utah Pie "constantly [was increasing] sales volume and continued to make a profit."[46]

The Supreme Court expressed an erroneous view of competition, as measured against the NPT concept of perfect competition, in which rivals vie to serve consumer interests at the lowest price and cost possible. Also enigmatic to current monopolization law, the Court viewed predation as a type of business tort actionable if the plaintiff could prove the challenged price-cut harmed its competitive position.

Justice Stewart, in dissent, highlighted the economic absurdity of the majority opinion, noting that the alleged predation improved competitive conditions,[47] that liability protected "competitors, instead of competition,"[48] that "lower prices are the hallmark of intensified

[39] *Id.*
[40] *Id.* at 701, 1335.
[41] *Id.* at 697, 1333.
[42] *Id.* at 698, 1334.
[43] *Id.* at 699, 1334.
[44] *Id.*
[45] *Id.* at 699-700, 1334.
[46] *Id.* at 702, 1335.
[47] *Utah Pie*, 386 U.S. at 705, 87 S.Ct. at 1337 (Stewart, J., dissenting).
[48] *Id.*

competition,"[49] and that Utah Pie was using the antitrust laws to protect itself "from effective price competition".[50] Justice Stewart thus set the stage for the Chicago and Harvard Schools to revolutionize antitrust law by more closely aligning its objectives to "consumer welfare".

Although *Utah Pie* technically has governed only predation supported by price discrimination,[51] the Supreme Court held in *Brooke Group* that injury from primary line price discrimination "is of the same general character" as predation under Sherman Act § 2. The same legal test thus applies to both claims.[52] U.S. Circuit Courts of Appeal long ago failed to follow *Utah Pie* when addressing predation claims under Sherman Act § 2, and endorsed the more utilitarian view of competition supplied by NPT. As another important difference, circuit courts demanded market power as a prerequisite to liability. The courts further converged, to differing degrees, on a conception of the practice as profit sacrifice for the sake of recoupment.

The principles and tests supplied by NPT exhibited a distinctive economic coherence relative to the holding in *Utah Pie*, which punished price-cuts that had little chance of raising prices. The perceived objectivity of NPT further allowed judges to select among the interests of small and mid-sized companies, large firms, and consumers based on an esteemed and well-funded independent body of learning. NPT assumed the role of legal precedent in the antitrust context.

In considering a predation claim in 1974, the Fourth Circuit Court of Appeals remarked that monopolization requires intent and market power, and that below-cost pricing can satisfy the intent element.[53] In reviewing an attempted monopolization claim involving predation in 1976, the Ninth Circuit Court of Appeals spoke more broadly about the elements required to establish predatory pricing, namely profit sacrifice and recoupment.[54] It stated that a plaintiff could satisfy both elements by demonstrating that defendant was pricing below average variable cost.[55] Four years later, while not foreclosing alternative

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[49] *Id*. at 706, 1337.
[50] *Id*. at 706, 1338; *see also* Monti, *supra* n.1 at 63.
[51] *A.A. Poultry Farms, Inc. v. Rose Acre Farms, Inc.*, 881 F.2d 1396, 1405 (7th Cir. 1989) (Easterbrook, J.).
[52] *Brooke Group*, 509 U.S. at 209-210, 113 S.Ct. at 2580-81. Thanks to Professors Jones & Kokkoris for recommending that I examine *Utah Pie* closely.
[53] *Greenville Publ'g Co. v. The Daily Reflector Inc.*, 496 F.2d 391, 396 (4th Cir. 1974) (Craven, J.).
[54] *Hanson v. Shell Oil Co.*, 541 F.2d 1352, 1358 (9th Cir. 1976) (Duniway, J.).
[55] *Id*.

methods of proof, the Ninth Circuit amended this rule by identifying below-cost pricing and market power as the requisite elements of predation.[56] Market power satisfied the dangerous probability of success requirement.[57] The following year, in *William Inglis*, the Ninth Circuit again altered the test, stating that while proof of market power can support a dangerous probability of success, the two concepts were not "equivalent".[58] It further held that although below-cost pricing strongly supports liability, plaintiffs can establish intent to predate by other means.[59] While below average variable cost (AVC) pricing creates a presumption of liability, when the price-cut falls between AVC and average total cost (ATC), the plaintiff must demonstrate anticompetitive intent through additional evidence.[60] In 1983, the Sixth Circuit Court of Appeals adopted the very same liability test for predation,[61] which also became the governing standard in the European Union.[62]

Other U.S. Circuit Courts developed variations to the eventual cost and recoupment requirements. As early as 1975, the Fifth Circuit Court of Appeals stated that actionable predation required either (1) pricing below the AVC of the dominant undertaking, or (2) profit sacrifice plus the existence of significant entry barriers.[63] In 1980, the Seventh Circuit Court of Appeals, while endorsing marginal or AVC as "an extremely useful factor in determining the presence of predatory conduct," was willing to consider "other factors" as well.[64] In 1983, however, it defined predation as profit sacrifice "for the purpose of driving rivals from the market," allowing the dominant undertaking to charge higher prices and recoup any losses sustained.[65] The Seventh Circuit further limited its holding in *Chillicothe*

[56] *Hahn v. Codding*, 615 F.2d 830, 846 (9th Cir. 1980) (Anderson, J.).
[57] *Id*.
[58] *William Inglis & Sons Baking Co. v. ITT Continental Baking Co., Inc.*, 668 F.2d 1014, 1029 (9th Cir. 1981) (Sneed, J.).
[59] *Id*. at 1033-1034, 1038.
[60] *Id*. at 1035-36.
[61] *D.E. Rogers Assoc., Inc. v. Gardner-Denver Co.*, 718 F.2d 1431, 1436-37 (6th Cir. 1983) (Martin, J.).
[62] Case C-62/86 *AKZO Chemie BV v. Commission*, 1991 ECR I-03359, ¶¶ 71-72 (*listed in*: Ioannis Lianos, *Is The Availability of 'Appropriate' Remedies A Limit To Competition Law Liability Under Article 102 TFEU? The Mischiefs of 'Discretionary Remedialism' In Competition Law*, *in* COMPETITION LAW & THE ENFORCEMENT OF ARTICLE 102, 165, 187-202 (Federico Etro & Ioannis Kokkoris eds., 2010)).
[63] *Int'l Air Indus., Inc. v. Am. Excelsior Co.*, 517 F.2d 714, 724 (5th Cir. 1975) (Morgan, J.).
[64] *Chillicothe Sand & Gravel Co. v. Martin Marietta Corp.*, 615 F.2d 427, 432 (7th Cir. 1980) (Castle, J.).
[65] *MCI Commc'n Corp. v. Am. Telephone & Telegraph Co.*, 708 F.2d 1081, 1112 (7th Cir. 1983) (Cudahy, J.) (*citing* Areeda & Turner, *supra* n.27 at 698).

by requiring proof of pricing below an appropriate measure of cost as a prerequisite to establishing liability.[66] Subjective intent no longer could substitute for this element.[67]

The First,[68] Second,[69] and Third Circuits[70] all adopted similar definitions of predation. The Second Circuit Court of Appeals was willing to presume the illegality of any price-cut below the reasonably anticipated AVC of the dominant undertaking.[71] The First[72] and Third[73] Circuits similarly identified the costs of the dominant undertaking as the benchmark for analysis but refused to endorse AVC as the only measure of profit sacrifice.[74] The Second Circuit test also called for market conditions that support recoupment in "the not-too-distant future".[75] The First Circuit Court of Appeals subsequently held that price-cuts above ATC could not violate monopolization law.[76]

Initially in *Matsushita* in 1986,[77] and then in *Brooke Group* in 1993,[78] the Supreme Court determined that the necessary elements to establish predation were pricing below an appropriate measure of cost and a dangerous probability of recoupment.

III. The Independent Variables

A. Neoclassical Price Theory

Appellate judges have not mentioned the specific term "Neoclassical Price Theory" (NPT) when deciding predatory pricing cases. To demonstrate the influence of NPT over predatory pricing law and to test NPT's effect on the dependent variable — plaintiffs' probability of winning predatory pricing cases — below I will attempt to establish how appellate judges, when considering predation claims, have applied NPT through the following five decision-making factors:

(1) comparing the price level after a reduction to the costs of the monopolist,

(2) consideration of the monopolist's probability of recoupment,

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[66] *Id*. at 1112-13.
[67] *Id*.
[68] *Barry Wright Corp. v. ITT Grinnell Corp.*, 724 F.2d 227, 231 (1st Cir. 1983) (Breyer, J.).
[69] *Northeastern Tele. Co. v. Am. Tele. & Telegraph Co.*, 651 F.2d 76, 86 (2d Cir. 1981) (Kaufman, J.).
[70] *Sunshine Books v. Temple Univ.*, 697 F.2d 90, 92 (3d Cir. 1982) (Becker, J.).
[71] *Northeastern Tele.*, 651 F.2d at 88.
[72] *Barry Wright*, 724 F.2d at 232.
[73] *Sunshine Books*, 697 F.2d at 92.
[74] *Id*. at 93-94; *Barry Wright*, 724 F.2d at 233.
[75] *Northeastern Tele.*, 651 F.2d at 89.
[76] *Barry Wright*, 724 F.2d at 235-36.
[77] *Matsushita*, 475 U.S. at 584 n.8, 588-91, 106 S.Ct. at 1355 n.8, 1357-58.
[78] *Brooke Group*, 509 U.S. at 222, 113 S.Ct. at 2587.

(3) profit sacrifice by the monopolist,

(4) examination of the monopolist's objective intent when lowering prices, meaning how the surrounding market circumstances might have influenced a decision to cut prices, and

(5) analysis of the market power wielded by the monopolist.

1. Costs

The Supreme Court in *Brooke Group* stated that every plaintiff "seeking to establish competitive injury resulting from a rival's low prices must prove that the prices complained of are below an appropriate measure of [the] rival's costs."[79] The requirement pre-dates *Brooke Group*, however. Of sixty-two reported predatory pricing cases at the U.S. federal appellate level dating back to 1950, fully sixty-one considered the defendant's costs relevant to determining liability. Cost analysis embodies two fundamental tenets of Neoclassical Price Theory (NPT) — rationality and efficiency. This section also considers the relevance of cost tests given low marginal costs or "free" goods.

(i) Rationality

NPT posits that firms operate to maximize profits and that if firms fail to pursue this objective, competition will ensure their exit from the market. Pricing below cost is irrational: "A price below average variable cost, and for that matter, a price below average total cost, could not possibly be sustained in the long run since, to survive, firms must cover total costs in the long run."[80] "At a price less than average variable cost [AVC] the firm is earning no return and could incur fewer losses by ceasing operations."[81] A profit-maximizing firm voluntarily would sustain losses by pricing below cost only if "the promise of future monopoly gains made such a tactic profitable from a long-run perspective."[82] Reformulating the principle, the Fifth Circuit has stated that, at a price below AVC,

> [T]he firm is suffering a loss on every unit of output it produces and sells, and its behavior is *rational* only if it hopes by engaging in this conduct to drive its

[79] *Id*.
[80] Paul L. Joskow & Alvin K. Klevorick, *A Framework for Analyzing Predatory Pricing Policy*, 89 YALE L.J. 213, 252 (1979); *see also* Case C-62/86 *AKZO*, 1991 ECR I-03359, at ¶ 72 (*listed in*: Lianos, *supra* n.62 at 187-202); RICHARD A. POSNER, ANTITRUST LAW 216 (2d ed. 2001).
[81] Areeda & Turner, *supra* n.27 at 717.
[82] Joskow & Klevorick, *supra* n.80 at 252.

> competitors from the market and thereby gain monopoly powers that will enable it to charge a monopoly price in the future.[83]

Conversely, by pricing above AVC, firms act in "an economically rational manner," deriving an "immediate economic benefit from [] sales," and consequently do not price illegally.[84] Cost tests demonstrate the legal usefulness of examining the economic rationality of a dominant undertaking, in that neither competitive firms nor monopolists generally have any profit maximizing reason to price below AVC unless engaged in predatory pricing.[85] A rational firm not so engaged would cease operations rather than price below that level.

Cost tests can indicate the intent of a dominant undertaking. When maximizing profits by pricing above cost, price-cuts closely resemble competition on the merits, though dominant undertakings always will *want* to raise prices after a price-cut. Acting against self-interest, on the other hand, creates an objective concern about the intent of the dominant undertaking. Above-cost price-cuts do not suggest an ability or imminent necessity to raise prices again. When a dominant undertaking lowers price below cost, it could have earned much higher revenues. The existing market power of the dominant undertaking, coupled with exclusion effectuated by below-cost pricing, provides a compelling indication of the future direction of prices. Maintaining prices will result in continued losses and bankruptcy.

Cost tests embody NPT by integrating the line between economic rationality and legality, though on an inverse basis: rational pricing, defined as maximizing profits above cost or at least minimizing losses, prevents liability; while irrational pricing below cost elicits a recoupment analysis to gauge consumer harm.

(ii) Efficiency

Pricing at an appropriate measure of cost achieves the efficiency contemplated by NPT in perfect competition. From a static perspective and in terms of maximizing efficiency, pricing at cost constitutes the economic ideal for society, in that society cannot make anyone better off without making someone else worse off:

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[83] *Adjusters Replace-A-Car v. Agency Rent-A-Car, Inc.*, 735 F.2d 884, 889 (5th Cir. 1984) (Higginbotham, J.) (emphasis added); *see also Stearns Airport Equip. Co., Inc. v. FMC Corp.*, 170 F.3d 518 (5th Cir. 1999) (Garwood, J.); *cf.* Case C-62/86 *AKZO*, 1991 ECR I-03359, at ¶ 71 .

[84] *Chillicothe*, 615 F.2d at 432.

[85] *See, e.g.*, Valentine Korah, *The Paucity of Economic Analysis In The EEC Decisions On Competition — Tetra Pak II*, 46 CURRENT LEGAL PROBLEMS 148, 176-77 (1993) (exceptions include introducing a product to market, tipping a market when network effects exist or, in a recession, "if it would be more expensive to close [a] plant down and then restart it when demand increases") (cited in RICHARD WHISH & DAVID BAILEY, COMPETITION LAW 744 (7th ed. 2012); *see also* ALISON JONES & BRENDA SUFRIN, EU COMPETITION LAW *passim* (4th ed. 2011)).

> [M]arket price reflects what consumers are willing to pay for the last unit of output; marginal cost reflects the full current cost of resources needed to produce it; a higher price would result in a reduction in output and thus deprive some buyers of a commodity for which they were willing to pay the cost of production.[86]

Though willing to consider predatory price-cuts above marginal cost, the Ninth Circuit has acknowledged that marginal cost pricing promotes allocative efficiency: "[P]ricing [at marginal cost] enables resources to be properly allocated because the price accurately 'signals' to the consumer the [short-term] social cost of the product."[87] Certain U.S. Circuit Courts have refused to prohibit prices above the short-term ideal because they have hesitated to create inimical incentives, albeit short-term, for monopolists. Normatively speaking, society wants dominant undertakings to price at AVC, so improving short-term efficiency should not risk treble damages. A measure of short-term efficiency under NPT thus creates a verifiable benchmark for liability.

Monopolists, of course, do not operate under the constraints of perfect competition and generally price far above marginal cost.[88] Inelastic demand, product differentiation, and entry barriers create market power that permits monopolists to price up-to the market demand curve above where marginal revenue equals marginal cost. The absence of competition that supports this price generates inefficiency. Notwithstanding the existence of market power and thus the applicability of the monopoly model,[89] a marginal cost-based test — which because of the difficulty of measuring marginal costs, means an AVC test[90] — requires rivals to operate *as if* the market were perfectly competitive.

Competitors that lack attributes that make the monopolist dominant — such as IP rights or economies of scale or scope — still must be able to price at a proxy for the perfectly competitive price, where even the monopolist incurs losses by not recovering any fixed costs. To foster short-term efficiency, therefore, the test requires rivals to compete at a level of efficiency that NPT acknowledges rarely, if ever, exists, and at which the dominant undertaking otherwise would not operate.

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[86] Areeda & Turner, *supra* n.27 at 702.
[87] *William Inglis*, 668 F.2d at 1032.
[88] Einer Elhauge, *Defining Better Monopolization Standards*, 56 STAN. L. REV. 253, 272-273 (2003).
[89] Depending on the definition of entry barriers, a monopolist can lack dominance. Thanks to Professors Kokkoris & Jones for requesting clarification on this point.
[90] Posner, *supra* n.1 at 942; Kobayashi, *supra* n.27 at 131. Thanks to Professor Lianos for reminding me of this point.

The Second Circuit, quoting Areeda & Turner, has declared that monopolists may price down to marginal cost because at any price above that level, "only less efficient firms will suffer larger losses per unit of output."[91] "Marginal cost pricing," concluded the Second Circuit, "fosters competition on the basis of relative efficiency."[92] The Seventh Circuit has declared that "rules requiring price floors higher than short-run marginal cost will tend to preserve inefficient rivals or attract inefficient entry."[93] According to this view, excluding less efficient competitors by lowering price above marginal cost therefore constitutes merit competition.

Conceptually, such demanding expectations of rivals converts the competitive process in monopolized, or nearly monopolized, markets from competition in the market to competition for the market, because only another undertaking with the capacity of the monopolist, or near-monopolist, would be able to match the dominant undertaking's competitive advantages. This observation obviously would apply if existing market conditions efficiently could accommodate only one undertaking. Requiring an ability to meet competition at the most efficient price raises entry barriers by increasing the financing, scale, and acumen necessary to confront a monopolist immediately from the moment of entry. The rule does not permit gradual market success and growth to support a build-up to competition.[94]

(iii) Low-Marginal Cost or "Free" Goods or Services

The NPT tenets of rationality and efficiency conceptually support the application of cost tests to price-cuts in many industries and markets, though other factors derived from NPT also could determine competitive effects. Where marginal costs approach zero, such as in software markets or other markets protected by intellectual property rights, or where the dominant undertaking offers a product for free, cost tests customarily applied may reveal less information about the intent and efficiency of the dominant undertaking.

By pricing close to zero, the dominant undertaking will be incurring less short-term losses to exclude rivals. It therefore will be pricing within one NPT conception of rationality. Other than signaling a necessity eventually to raise prices to average total cost (ATC) or long-

[91] *Northeastern Tele.*, 651 F.2d at 87 (quoting Areeda & Turner, *supra* n.27 at 711); *see also Janich Bros., Inc. v. The Am. Distilling Co.*, 570 F.2d 848, 857 (9th Cir. 1977) (Wallace, J.).
[92] *Northeastern Tele.*, 651 F.2d at 87.
[93] *Chillicothe*, 615 F.2d at 431; *see also* Areeda & Turner, *supra* n.27 at 711; *but see* Joskow & Klevorick, *supra* n.80 at 252-53.
[94] In comments to the CLASF Workshop hosted by Bird & Bird LLP in London on 1 May 2014, Derek Ridyard of RBB Economics called this "controlled competition".

run average incremental cost (LRAIC), continuing operations even at a minimal price does not cost more than shutting-down. A court would have difficulty detecting from the extremely low price an irrational practice to exclude efficient rivals. The most efficient price possible, or the perfectly competitive price, also more closely approximates zero. Low pricing generates efficiency and bolsters consumer surplus. It may increase market share, but so long as the price remains low, it does not necessarily increase market power.

Independently, a price close to zero does not prevent as-efficient rivals from competing in the short-term. Intellectual property rights may block them from matching the low costs of the dominant undertaking, but that advantage merely relates to the probability of recoupment. If a dominant undertaking reduces price below marginal costs in low marginal cost markets, then the customary predation test would apply.[95]

As a rational, profit-maximizing reason for pricing at marginal cost, a dominant undertaking may be attempting to maximize the revenues from the alternative side of a two-sided market. Network effects, or economies of scale in consumption, typically operate in such markets, where distinct sets of consumers purchase separate goods or services on a unitary platform.[96] The elasticity of demand of at least one side of the platform, and possibly both, will depend on demand and supply conditions on the other side, specifically the raw quantity of members or the intensity of use, which indicates market share.[97] Such platforms set prices based on relative elasticities of demand, and the consumers who value the product or service the most often will pay a price that incorporates most of the costs of running and supplying both sides of the platform.[98] Charging women cheaper drinks at bars or lower prices to join a dating service may increase, rather than depress, the willingness of men to pay higher prices at either establishment, and to buy more drinks at bars.[99]

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[95] On predation in low marginal cost markets generally, *see Wallace v. IBM Corp.*, 467 F.3d 1104, 1107 (7th Cir. 2006) (Easterbrook, J.).
[96] Posner, *supra* n.80 at 247.
[97] For a more detailed discussion of the economics of two-sided platforms, *see* Florence Thépot, *Market Power in Online Search and Social Networking: A Matter of Two-Sided Markets*, 36(2) W. COMP. 195, 198-99 (2013) (*citing* B. Caillaud & B. Jullien, *Competing Cybermediaries*, 45 EUROPEAN ECON. REV. 797-808 (2001); J.C. Rochet & J. Tirole, *Two-Sided Markets: A Progress Report*, 37 RAND J. ECON. 645–667 (2006); D.S. Evans & R. Schmalensee, *Industrial Organization of Markets with Two-Sided Platforms*, 3 COMPETITION POLICY INT'L. 151, 152 (2007); M. Armstrong, *Competition in Two-Sided Markets*, 37 RAND J. ECON. 669 (2006)).
[98] *See generally id*. at 199-200.
[99] *Id*. at 198.

Given two-sided markets, rational, profit-maximizing pricing might warrant pricing below marginal cost to one side of the market. Two-sided markets provide a clever mechanism to price discriminate. The platform provides a service that a group of consumers value at low prices, sometimes even below marginal cost, to maximize distribution. Selling newspapers below the marginal costs of production, to increase circulation, may maximize profits because merchants value the increased sales generated through advertising far more than production costs, and far more than people value staying informed.[100]

In the case of search engines and social networks, Google and Facebook provide their services for free. Because such services are interactive, the platforms can collect information that consumers have revealed about their interests or identity relevant to their willingness to purchase other products or services.[101] The platform then sells that information to merchants in the form of targeted advertisements to consumers based on their revealed preferences,[102] which increases the likelihood that the consumer will respond to the advertisement. Merchants are willing to pay a premium to advertise to likely customers as determined by what they say or write rather than a more random characteristic such as their interest in reading about local or world events.

Not only can pricing below marginal cost to one side of a two-sided market represent rational or profit-maximizing pricing, but pricing *above* marginal cost to that side of the market actually may constitute *irrational* pricing. This particularly might occur when the suppliers initially offered the product for free. Many consumers would be unwilling to use Google or Facebook now if they were charged a membership or usage fee.[103] The increase in revenues generated by charging a smaller pool of users the marginal cost of providing the service likely would fall short of the corresponding lower advertising premiums that merchants would be willing to pay to reach fewer consumers, who possibly reveal less about their individual demand preferences.

The price below marginal cost to one side of the market does not necessarily represent an inefficient price either, since advertisers pay to cover both the variable and fixed costs of providing the platform. The ostensible below-cost price need not sacrifice profits. It rather

[100] *See generally* Michal S. Gal & Daniel L. Rubinfeld, *The Hidden Costs of Free Goods: Implications For Antitrust Enforcement* (2014) at 31, *available at*: http://www.eale.org/conference/Aix-Marseille2014/paper/view/1030/309.
[101] Thépot, *supra* n.97 at 213.
[102] Gal & Rubinfeld, *supra* n.100 at 15.
[103] On the unique allure of free goods, *see id*. at 7-9.

increases output and can generate economies of scale on the advertising side of the market. In markets where intellectual property creates the foundation to dominance, such as in the internet search market, the marginal cost of expanding supply to consumers, in terms of updating the search algorithm, may approach zero.[104] The short-term efficient price, in other words, approximates the alleged predatory price.[105]

For at least the reasons of failing to indicate non-profit maximizing and inefficient pricing in two-sided markets, traditional cost tests inadequately detect predatory pricing. They also do not account for the staggering consumer surplus that two-sided markets produce. Hundreds of millions, if not billions, of consumers, pay nothing for services to which most attach some value, as measured by their use. Many merchants also still pay below what they would be willing to pay for mass targeted advertising.

A zero price to consumers further can generate independent economic activity. The fees that many consumers otherwise would have paid to Google or Facebook, they instead can use to purchase other products. Advertising separately spurs additional sales, at least some of which never would have occurred. Enabling economic activity produces jobs, salaries, and spending that circulates throughout an economy.

2. Recoupment

In addition to establishing pricing below an appropriate measure of cost, to win a predatory pricing suit, a plaintiff also must demonstrate a dangerous probability of recoupment. Recoupment means that the monopolist must recover, by supra-competitive pricing, the investment in below-cost pricing. "Recoupment is the ultimate object of an unlawful predatory pricing scheme; it is the means by which a predator profits from predation."[106] U.S. federal appellate judges regularly, though not comprehensively, have discussed recoupment throughout the period since 1950, specifically in forty-three of sixty-two reported predatory pricing cases. The doctrine of recoupment derives explanatory power from, and indeed exists because of, two principle tenets of Neoclassical Price Theory (NPT): competition and rationality.

[104] Posner, *supra* n.80 at 246.
[105] *Wallace*, 467 F.3d at 1107.
[106] *Brooke Group*, 509 U.S. at 224, 113 S.Ct. at 2588.

(i) Competition

Efficiency, one objective of NPT, hinges on the presence of competition. When prices rise above the equilibrium level in perfectly competitive markets, existing rivals will expand production or potential rivals will enter those markets and produce the same product at a lower price or an innovative alternative that competes with the original — returning market prices to equilibrium. Competition thus will preclude the anticompetitive effects of predatory pricing by preventing recoupment:

> Selling below cost [] to drive out a competitor is unprofitable even in the long run … The predator loses money during the period of predation and, if he tries to recoup it later by raising his price, new entrants will be attracted, the price will be bid down to the competitive level, and the attempt at recoupment will fail.[107]

Note again, however, that Judge Posner here describes a competitive dynamic only possible absent durable market power and sizeable entry barriers. Given the existence of competitive market conditions, the Third Circuit Court of Appeals has agreed that recoupment is "uncertain, since supra-competitive prices will attract new entrants (or returning competitors)."[108] The Second Circuit expressed an even deeper faith in market competition when it declared that monopoly "profits, *of course*, will invite new entry."[109]

In testing for recoupment, judges actually are examining which NPT model applies — whether the alleged monopolist operates alongside sufficiently weakened competition that rivals cannot expand production, and whether robust entry barriers exist, in which case the monopoly model more likely applies and recoupment is likely. Or whether, because of sufficiently robust competition, existing rivals or entrants will boost production in response to price increases and thereby prevent recoupment, in which case the market more closely resembles perfect competition.[110] The recoupment inquiry thus examines many of the same factors as a market power inquiry. Recoupment can occur only when the dominant company can project market power into the future.

Because the plaintiff generally already will have demonstrated that the alleged monopolist previously had maintained a high market share for several years, recoupment analysis often focuses on entry barriers: whether timely and effective entry will negate

[107] Posner, *supra* n.1 at 927.
[108] *Advo, Inc. v. Phila. Newspapers, Inc.*, 51 F.3d 1191, 1196 (3d Cir. 1995) (Greenberg, J.).
[109] *Northeastern Tele.*, 651 F.2d at 89 (emphasis added).
[110] *See generally A.A. Poultry Farms*, 881 F.2d at 1402.

recoupment.[111] Unless barriers to entry exist, several circuits have assumed that competition will forestall recoupment:

> If it is easy to enter the circular distribution business, PNI's scheme is doomed to failure: any attempt to recoup by charging supra-competitive prices after it has gained a monopoly simply will attract new (or old) distributors who will undercut PNI and force prices back down to competitive levels.[112]

The Fifth Circuit has stated that "there must be evidence that the surviving monopolist could then raise prices to consumers long enough to recoup his costs without drawing new entrants to the market."[113] The Ninth Circuit similarly has dismissed a predatory pricing claim by holding that "the ease of entry into [the relevant market] and the number of potential participants on every level of it abundantly demonstrates that recoupment of the monopolist would never be possible."[114]

Indeed, the absence of entry barriers even pardons below-cost pricing.[115] At the theoretical level, in assessing the likelihood of entry, Professor Monti has asked "whether a hypothetical market player would find entry profitable, taking into account the risks and costs of entry, the effects of entry on price, and the anticipated response of other firms in the market."[116] Competition authorities historically have determined that entry would prove "timely" if occurring within two to three years,[117] though U.S. antitrust agencies more recently have refrained from explicitly selecting a window that qualifies. Counteracting the exercise of market power "requires that the impact of entrants in the relevant market be rapid enough that customers are not significantly harmed" by the practice under review.[118]

Yet even if entry barriers do not exist over an extended period, by significantly raising prices, monopolists need less of a window to recoup. Entry barriers extend the period over which monopolists can recoup, and they thus increase the probability of recoupment occurring.

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[111] *See generally* ROBERT O'DONOGHUE & A. JORGE PADILLA, THE LAW & ECONOMICS OF ARTICLE 82 EC 243 (2006). Thanks to Professors Kokkoris & Jones for highlighting the importance of quality entry, as unpopular entry poses little threat to a dominant undertaking.
[112] *Advo*, 51 F.3d at 1200.
[113] *Stearns Airport*, 170 F.3d at 529.
[114] *Vollrath Co. v. Sammi Corp.*, 9 F.3d 1455, 1461-62 (9th Cir. 1993) (Hug, J.).
[115] *A.A. Poultry Farms*, 881 F.2d at 1401.
[116] Monti, *supra* n.1 at 252.
[117] *Id*. at 252 (describing the then-current practice of the EU Commission).
[118] U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES § 9.1 (2010), *available at*: http://www.ftc.gov/os/2010/08/100819hmg.pdf.

This analysis suggests that U.S. federal appellate courts err — even under principles of NPT — when focusing only on entry barriers to determine recoupment. Other relevant factors include the extent of the profit sacrifice: the greater the profit sacrifice, the higher entry barriers must be to support recoupment.[119] Recoupment also turns on whether existing competitors can expand production fast enough to counteract a monopolist's attempt to increase prices and recoup.[120] Whether the predation actually excludes competitors also matters, since their continued existence in the market might prevent price increases sufficient to recover initial price-cuts. Recoupment further depends on the status of any competitors excluded. If the dominant undertaking's closest competitors remain in the market, recoupment becomes much more difficult.[121] A preliminary finding of market power suggests, though does not establish, that existing competitors might lack the capacity to ramp-up production sufficiently to block recoupment.

In markets characterized by differentiation, judges also need to consider whether rivals could reposition closely related products in response to attempted price increases by the monopolist.[122] In clusters of only finely differentiated markets, an alleged monopolist less likely can recoup because potential competition more readily would restrain price increases. But an alleged monopolist more likely lacks significant market power when operating in only finely differentiated markets.

(ii) Rationality

Absent entry barriers, and if sufficiently healthy competition otherwise appears likely to survive the challenged price-cuts, then recoupment cannot occur. Predatory pricing consequently would appear implausible because no rational, profit-maximizing monopolist would incur the losses that predatory pricing entails unless a reasonable probability of recoupment existed *ex ante*.[123] Absent that "reasonable expectation of recovering, in the form of later monopoly profits, more than the losses suffered," predatory pricing makes no

[119] Jay Matthew Strader, *Post Danmark's Recoupment Element*, 10(2) COMPETITION LAW REVIEW 205, 228-29 (Dec. 2014).
[120] David S. Evans, *Lightening Up On Market Definition*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF ANTITRUST LAW 62 (Einer Elhauge ed., 2012).
[121] Strader, *supra* n.119 at 225 (*citing* Monti, *supra* n.1 at 146, 153, 251).
[122] Evans, *supra* n.120 at 62.
[123] O'Donoghue & Padilla, *supra* n.111 at 243.

economic sense.[124] Assuming a price below cost, evidence of recoupment explains the irrational — why a monopolist would "forgo profits that free competition would offer []."[125]

Prior to *Brooke Group* reaching the Supreme Court, the Fourth Circuit dismissed Brooke Group's predatory pricing claim for failing to proffer "an economically rational basis" for recoupment, in that relying on an inherently unstable oligopoly to produce recoupment is "economically irrational".[126] Plaintiff argued that to relieve pricing pressure created by plaintiff developing generic cigarettes, Brown & Williamson offered consumers its own line at prices below average variable costs. It did so to force plaintiff to increase generic cigarette prices and to "introduce oligopoly pricing in the economy segment".[127]

The Supreme Court itself also doubted the likelihood of recoupment, and thus the rationality of initially deciding to predate, based on market conditions existing at the time of the alleged predation. Brown & Williamson had just one-ninth of the relevant market: While it would incur the profit sacrifice alone, it would recover only 11% of every dollar invested.[128] This suggested that "most of the returns from [] predation would accrue to other firms."[129]

However, the Court examined the potential for recoupment only in the generic cigarette market, where output increased.[130] It ignored the potential of earning long-term higher profits by altering the market structure and compressing the price difference between generic and branded cigarettes. If the practice proved substantially profitable at the industry level, the Court also did not consider the compelling incentive that other oligopoly members henceforth would have had to reward Brown & Williamson in other ways to encourage the survival and prosperity of the group.

Supreme Court precedent thus precludes U.S. federal appellate courts from sanctioning irrational pricing by a monopolist, at least partially determined by market conditions existing

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[124] *Matsushita*, 475 U.S. at 588-89, 106 S.Ct. at 1357; *see also Weyerhaeuser*, 549 U.S. at 325, 127 S.Ct. at 1078 (in context of predatory bidding).
[125] *Matsushita*, 475 U.S. at 588, 106 S.Ct. at 1357.
[126] *Liggett Group, Inc. v. Brown & Williamson Tobacco Corp.*, 964 F.2d 335, 342 (4th Cir. 1992) (Niemeyer, J.); *see generally infra* Part V.
[127] *Brooke Group*, 509 U.S. at 212, 113 S.Ct. at 2582. Thanks to Professors Jones & Kokkoris for asking that I provide the basic facts of the case.
[128] *Id*. at 228, 113 S.Ct. at 2590.
[129] Aaron Edlin, *Predatory Pricing*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF ANTITRUST LAW 171 (Einer Elhauge ed., 2012).
[130] *Brooke Group*, 509 U.S. at 232, 113 S.Ct. at 2592-93.

at the time of predation. To recover under the Sherman Act, the plaintiff must establish that the alleged predatory pricing scheme either maximized profits, or appeared likely to do so. Otherwise consumers benefit from monopolists pricing irrationally below cost or below a profit-maximizing level, without a reasonable prospect for recoupment. In that sense, because of NPT, an irrational pricing scheme constitutes a defense to predatory pricing claims.[131]

(iii) Low-Marginal Cost Products & Standard Setting

Recoupment analysis involves different considerations when marginal costs are close to zero or when, to strengthen network effects in two-sided markets, undertakings provide goods or services for free. Only intentionally pricing below cost or otherwise sacrificing profits implicates recoupment. Losses determine the amount required to satisfy the concept. In two-sided markets, pricing below marginal cost on one side simply may redistribute the costs of running a platform to the side more willing to pay for the service offered to them. Recoupment occurs simultaneously on that side of the market.

Outside the context of two-sided markets, a price even negligibly below marginal cost or average variable cost must increase in the future. When prices again rise, plaintiffs should have an easier time establishing predation if marginal costs or average variable costs trend toward zero. Recoupment would necessitate only a corresponding minimum price increase above marginal cost over a similar time period. While low marginal costs thus can mitigate any profit sacrifice incurred, potentially increasing the incidence of predation, they also raise the likelihood of a court ultimately finding liability, since recoupment similarly would occur even at low prices.

In non-technology markets, increasing capacity can require significant investment in both labor and capital. Such investments make predation a more expensive and risky exclusionary tactic. This is because, to succeed, recoupment must match losses, which can accumulate quickly. The fact that undertakings can supply goods or services dependent on intellectual property at low marginal costs, by streaming software or reproducing it on discs, not only makes predating to defend a dominant position more cost-effective. Low cost predation also

[131] Dominant undertakings thus have an ex ante incentive to create evidence suggesting the unprofitability of its pricing.

enhances the viability of attacking a dominant position,[132] potentially increasing its vulnerability. Assuming rivals could invent around the underlying intellectual property supporting dominance, no trivial task, pricing below marginal cost to supplant the output of a dominant undertaking may require little recoupment.[133] Minimal profit sacrifice makes predation more appealing both to rational and boundedly rational managers. In this context, courts would have to decide whether attempted monopolization to replace a monopolist benefits or harms consumers.

Another context common to markets delineated by intellectual property rights where predation could prove profitable is the standard setting process. Winning the support of a standard setting organization can guarantee recoupment by protecting monopoly profits for many years into the future, until a superior technology appears and earns the support of industry participants. For rational and irrational reasons, any alternative would have to overwhelm the existing standard in terms of cost and performance before industry participants would consider adopting it. Inertia stems from sunk costs, or the significant investment that industry participants incur to develop "products and technologies that conform to the standard".[134] This cost also dulls the incentives of the businesses or individuals most likely to have the expertise required to invent a replacement.

During the period when a standard setting organization considers alternative technologies, predating could present a lucrative monopolization strategy. The price to license a technology supporting a standard inevitably will constitute a critical factor on which the standard setting organization will focus when selecting among alternatives.[135] While the owners of candidate technologies will have to agree to license their intellectual property on fair, reasonable, and non-discriminatory (FRAND) terms,[136] the standard setting organization will not set a range of prices or even determine which FRAND terms ultimately will apply during licensing negotiations. The standard setting organization, representing the interests of industry participants, must rely on the good faith representations made by competing technology companies concerning their costs and the other market conditions that ultimately will determine licensing fees.

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[132] Posner, *supra* n.80 at 255-56.
[133] *See generally id*. at 249.
[134] *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d 297, 310 (3d Cir. 2007) (Barry, J.).
[135] *Id*. at 313.
[136] *See, e.g., id*. at 304.

Candidates almost surely will set future licensing terms based on demand conditions and the average total costs (ATC) of supplying the relevant technology, since research and development, a component of fixed costs, constitute a majority share of the value invested to develop a technology. Allowing the competing technology companies to price below this measure during the period when standard setting organizations are considering alternative technologies would be equivalent to a misrepresentation concerning the ultimate costs associated with licensing fees. The Third Circuit has found misrepresentations to standard setting organizations during this period a form of both monopolization and attempted monopolization.[137]

In this context, pricing below ATC alone can establish predation, since the designation of a standard almost surely will guarantee full recoupment of any losses sustained during the consideration period. This example also represents an exception to the NPT requirement that monopoly power already must exist for predation to harm consumers. Standard setting does not pose a typical fact pattern because market participants legally collude to raise entry barriers to insurmountable levels, ultimately to benefit consumers. Predation greatly increases the risk that the standard setting organization will adopt an inferior technology as determined by the relevant tradeoff between price and quality.

OTHER DECISION-MAKING FACTORS

If a plaintiff establishes pricing below cost and a dangerous probability of recoupment, which predominantly requires market power, other decision-making factors matter not. Profit sacrifice above cost and other objective intent factors represent subsidiary considerations. The relationship between market power and recoupment demonstrates overlap between decision-making factors, or multicollinearity.[138] Although multicollinearity may reduce the predictive accuracy of individual sub-variables in a model, it does not affect the overall predictive accuracy of the sample data, taking the sub-variables together. Because I am not interested in how each individual sub-variable representing NPT affected plaintiffs' probability of winning predation claims — but rather how NPT as a predictive tool affected that probability — the benefits of the three additional sub-variables far outweigh

[137] *Id*. at 314-16.
[138] *See* Field, *supra* n.23 at 223-24; *see also* Wikipedia, Multicollinearity, *available at*: http://en.wikipedia.org/wiki/Multicollinearity. I am grateful to Dr. Wagner von Papp for this insight.

their costs. Moreover, all three additional proxies for NPT have appeared both regularly in the case law and *separately* from cost and recoupment analysis.

3. Profit Sacrifice

The doctrine of profit sacrifice constitutes another appropriate proxy for Neoclassical Price Theory (NPT). Profit sacrifice occurs when a monopolist deliberately sacrifices "present revenues for the purpose of driving [rivals] out of the market," and then recouping the losses through higher profits earned in the absence of competition.[139] Profit sacrifice has no legal significance unless considered jointly with the NPT concept of rationality; indeed, profit sacrifice represents the converse of that concept.

In perfectly competitive markets, suppliers must behave rationally and maximize profits or competitors will drive them from the market.[140] Sacrificing profits suggests intent to exclude: no rational supplier would forego present profits unless the pricing scheme creates a reasonable prospect for future profits.[141] Successful firms rarely lower prices benevolently or absent compulsion. Profit sacrifice also reflects existing market power: Without it, the sacrifice will result in losses, with the price returning only to the competitive level. Depending on the extent of the sacrifice, the willingness of a monopolist to forego profits further indicates likely exclusion, regardless of the efficiency of competitors. Operating irrationally, for the benefit of consumers independent of self-interest, justifies a closer examination of the challenged practice, specifically how the monopolist intends to recoup.

U.S. federal appellate courts have conceptualized predatory pricing in terms of detecting irrationality and profit sacrifice. Of sixty-two reported predatory pricing cases since 1950, 29/64, or almost half, have considered profit sacrifice an important factor. Following *Matsushita*, which held that a conspiracy to price predatorily made no economic sense,[142] the Fifth Circuit applied the "no economic sense" test — which encompasses a broader category of economic activity than profit sacrifice[143] — to a claim of unilateral predatory pricing.[144]

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[139] *Chillicothe*, 615 F.2d at 889; *see also D&S Redi-Mix v. Sierra Redi-Mix & Contracting Co.*, 692 F.2d 1245, 1249 (9th Cir. 1982) (Wright, J.).
[140] Christopher R. Leslie, *Rationality Analysis in Antitrust*, 158 U. PA. L.R. 261, 266 (2010).
[141] O'Donoghue & Padilla, *supra* n.111 at 185.
[142] *Matsushita*, 475 U.S. at 597, 106 S.Ct. at 1361.
[143] This is so because a dominant firm's activity may not sacrifice any short-term profit, yet it still may make "no economic sense". The profits earned from the activity could derive exclusively from anti-competitive effects. For a comprehensive discussion of the leading tests under Section 2, *see* U.S. DEP'T OF JUSTICE, COMPETITION & MONOPOLY: SINGLE-FIRM CONDUCT UNDER SECTION 2 OF THE SHERMAN ACT 39 (2008).
[144] *Stearns Airport*, 170 F.3d at 523.

For some courts, the absence of any profit sacrifice constitutes a defense to predatory pricing claims. The Ninth Circuit has stated that, "Where the opportunity exists to increase or protect market share profitably by offering equivalent or superior performance at a lower price, even a virtual monopolist may do so."[145] Similarly, in dismissing a predatory pricing claim, the Seventh Circuit has said that, by selling above AVC, the defendant acted in "an economically rational manner, derived immediate economic benefit from its sales, and did not engage in the deliberate sacrifice of present revenues […]."[146]

The close relationship between a price-cost comparison and profit sacrifice raises a question as to whether the profit sacrifice test is superfluous — whether it simply reflects pricing below an appropriate measure of cost — or whether profit sacrifice represents a distinct concept. The answer is: both. U.S. federal appellate courts have referred to profit sacrifice as equivalent to below-cost pricing while also acknowledging that profit sacrifice embodies a distinct phenomenon. The Seventh Circuit,[147] the Ninth Circuit,[148] and even the Supreme Court[149] all have spoken of profit sacrifice as defining the offense of predatory pricing,[150] isolating cost as the benchmark by which to measure profit sacrifice.

Profit sacrifice also can occur well above a firm's costs. The Ninth Circuit has recognized the potential for one form of profit sacrifice — limit pricing, "in which a monopolist sets prices above average total cost [ATC] but below the short-term profit-maximizing level so as to discourage new entrants and thereby maximize profits over the long run."[151] Or a monopolist temporarily can reduce price to a point above ATC but "below the profit-maximizing price whenever a new entrant appears ready to enter the market," to intimidate or deter the rival from entering.[152] The Seventh Circuit sharply has criticized condemning this species of profit sacrifice as "rob[bing] consumers of the benefits of [] price reductions by dominant firms facing new competition," and as further "freez[ing] the prices of dominant firms at their monopoly levels".[153]

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[145] *Cal. Computer Prod. v. IBM*, 613 F.2d 727, 742 (9th Cir. 1979) (Choy, J.).
[146] *Chillicothe*, 615 F.2d at 432 (internal quotations omitted).
[147] *Id*.; *see also A.A. Poultry Farms*, 881 F.2d at 1400.
[148] *D&S Redi-Mix*, 692 F.2d at 1249.
[149] *Weyerhaeuser*, 549 U.S. at 323, 127 S.Ct. at 1077.
[150] Frank H. Easterbrook, *Predatory Strategies and Counterstrategies*, 48 U. CHI. L. REV. 263, 306 (1981); *see also* Hovenkamp, *supra* n.10 at 152.
[151] *Transamerica Computer Co., Inc. v. IBM Corp.*, 698 F.2d 1377, 1387 (9th Cir. 1983) (Pregerson, J.).
[152] *Id*.
[153] *MCI Comm'cn*, 708 F.2d at 1114.

Aside from the merits of curtailing profit sacrifice above ATC, which the Supreme Court has ruled out,[154] the existence of the debate illustrates how profit sacrifice can constitute a concept separate from pricing below cost. Then-Judge Steven Breyer, writing on behalf of the First Circuit, has recognized profit sacrifice as a distinct concept even more difficult to measure than pricing below-cost. Such a determination "hinges not only on cost data, but also on elasticity of demand, competitors' responses to price shifts, and changes in unit costs with variations in production volume.[155] Joint reference to "profit sacrifice" as both below-cost pricing, one-half of the legal test for predatory pricing, and as failing to maximize profits, a separate and more expansive concept, obscures the meaning of the term.

4. Intent

In 35/62 reported federal appellate cases, the opinion considered relevant the intent of the monopolist when lowering prices below remunerative levels. Five cases from the 1st,[156] 7th,[157] and 8th [158] Circuits stated that subjective intent evidence is generally irrelevant to determining liability in predatory pricing cases. The U.S. Supreme Court in *Brooke Group*, however, considered both subjective[159] and objective intent.[160] About half of the 35 cases that considered intent relevant to liability focused on subjective intent; the other half mentioned or implicitly reviewed objective intent.[161]

Aside from the probative value of intent, the factor keeps resurfacing in the cases because intent to monopolize constitutes a requisite element of attempted monopolization claims.[162] To the extent that courts have required intent to establish predatory pricing, below-cost evidence mostly has satisfied the element.[163] To demonstrate, the Second Circuit, which fully has adopted the Areeda & Turner AVC test, considers intent "crucial" when evaluating

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[154] *Brooke Group*, 509 U.S. at 222-23, 113 S.Ct. at 2587-88.
[155] *Barry Wright*, 724 F.2d at 235.
[156] *Id*. at 232.
[157] *MCI Comm'cn*, 708 F.2d at 1112-13; *A.A. Poultry Farms*, 881 F.2d at 1401-2.
[158] *Morgan v. Ponder*, 892 F.2d 1355, 1359 (8th Cir. 1989) (Lay, J.); *Int'l Travel Arrangers v. NWA, Inc.*, 991 F.2d 1389, 1395 (8th Cir. 1993) (Friedman, J.).
[159] *Brooke Group*, 509 U.S. at 214-15, 231, 113 S.Ct. at 2583, 2592.
[160] *Id*. at *passim*.
[161] *See* Appendix. For a brief discussion of the distinction between subjective and objective intent, *see generally* Ioannis Lianos, *Categorical Thinking in Competition Law & the 'Effects-Based' Approach in Article 82 EC*, *in* ARTICLE 82 EC: REFLECTIONS ON ITS RECENT EVOLUTION 32 (Ariel Ezrachi ed., 2009).
[162] *See, e.g., D.E. Rogers Assoc.*, 718 F.2d at 1435.
[163] *See, e.g., Marsann Co. v. Brammall, Inc.*, 788 F.2d 611, 613 (9th Cir. 1986) (Sneed, J.).

predatory pricing claims.[164] The Sixth Circuit has stated that "motive or intent is the distinguishing characteristic of predatory pricing."[165] Reconciling these statements to Supreme Court precedent, the Second and Sixth Circuits must be referring to the objective intent of the dominant undertaking, as determined by market conditions (including entry barriers),[166] in addition to cost tests.[167]

In *Utah Pie*, the Supreme Court briefly discussed subjective intent. It stated that evidence of predatory intent "might bear on the likelihood of injury to competition."[168] Management at a defendant identified Utah Pie as a "constant check," or competitive restraint, on its pricing and performance.[169] Without detailing the motivations or objectives of the other defendants, the Court noted that "some evidence of predatory intent" existed concerning each defendant.[170]

However, the Court was much more interested in the effect of the challenged pricing on its conception of adequate competition,[171] which it defined in the Salt Lake City market for frozen pies as the state of inflated prices existing prior to the challenged price-cuts. While subsequent courts of appeal more closely have measured competition against the perfectly competitive and monopolistic models supplied by Neoclassical Price Theory (NPT), and have focused more on efficiency considerations when examining predation claims, even *Utah Pie* did not view subjective intent as dispositive or critical to establishing liability.

Evidence of intent cannot demonstrate actual competitive effects or establish recoupment. Rather, intent evidence, similar to the other NPT proxies discussed above, assists judges in predicting competitive effects. The NPT paradigm is profit-maximization, so when firms irrationally price below cost, intent evidence can help explain why. Subjective intent evidence consists of documents and correspondence generated by the monopolist explaining its state of mind — why the monopolist decided to lower prices. NPT posits that firms have perfect knowledge and choose appropriate means to maximize profits. If prices fall below

[164] *Northeastern Tele.*, 651 F.2d at 85.
[165] *Arthur S. Langenderfer, Inc. v. SE Johnson Co.*, 729 F.2d 1050, 1057 (6th Cir. 1984) (Wellford, J.).
[166] *See Spirit Airlines, Inc. v. Northwest Airlines, Inc.*, 431 F.3d 917, 946 (6th Cir. 2005) (Haynes, J.).
[167] *See McGahee v. Northern Propane Gas Co.*, 858 F.2d 1487, 1503-4 (11th Cir. 1988) (Lynne, J.).
[168] *Utah Pie*, 386 U.S. at 702, 87 S.Ct. at 1336.
[169] *Id*. at 697, 1333.
[170] *Id*. at 702-703, 1336.
[171] *Id*. at 703, 1336.

cost, firms must have a plan to recoup. No monopolist accidentally recoups.[172] In the absence of purposeful conduct, whether or not established by documentary evidence, recoupment rarely will occur.

Even aside from the fact that Supreme Court precedent has not emphasized intent when evaluating predation claims, subjective intent does not originate in NPT. Subjective intent evidence can be ambivalent, and NPT provides no basis in law or economics to conclude that subjective intent, independent of market conditions, will produce anticompetitive effects. Many predation cases that discuss subjective intent support a mere desire to exclude rivals, which could motivate merit competition. Very few discuss a plan to recoup, which at least more clearly would support an anticompetitive purpose, if not effect. Because subjective intent constitutes an important element to legal claims outside of competition law, and even outside of legal topics that focus on business behavior, I do not include subjective intent as a relevant NPT factor.

Objective intent evidence also attempts to explain why the monopolist lowered prices, but it consists of surrounding market circumstances and efficiency considerations rather than justifications articulated by the monopolist. Objective intent derives explanatory power exclusively from NPT premises, so it constitutes an appropriate proxy for NPT. In addition to below-cost pricing and entry barriers, the following factors also influence objective intent:

(1) whether market entry or rival expansion immediately precedes the monopolist's decision to lower prices;

(2) the historical trajectory of prices; and

(3) the scope of the market targeted: whether the dominant undertaking can limit its exposure to losses.

Market-based evidence concerning objective intent can assist in evaluating the likely profitability of a price-cut: whether recoupment follows. Such evidence can explain otherwise ambivalent or irrational pricing decisions.

5. Market Power

Market power or monopoly power[173] refers to the ability of "a single firm or group of firms to price profitably above marginal cost".[174] More specifically, a firm or group of firms

[172] *See generally A.A. Poultry Farms*, 881 F.2d at 1401.
[173] Posner, *supra* n.80 at 2.
[174] Thomas G. Krattenmaker, Robert H. Lande, Steven C. Salop, *Monopoly Power & Market Power in Antitrust Law*, 76 GEO. L.J. 241, 247 (1987).

exercise market power if existing or potential competitors cannot restrain price increases above the dominant firm's marginal cost by expanding within, or entering, the relevant market.[175] Pricing below cost does not require market power, but both reducing prices above cost and converting below-cost prices into profits do.

Dominant firms generally can exercise market power by one of two methods. Either "the firm or group of firms may raise or maintain price above the competitive level directly by restraining its own output."[176] Or "the firm or group of firms may raise price above the competitive level or prevent it from falling to a lower competitive level by raising its rivals' costs and thereby causing them to restrain their output."[177] For purposes of analyzing predatory pricing, the first method of exercising market power more frequently applies, since predation initially involves lower output prices rather than higher input prices,[178] though predation can raise rivals' costs of entering the monopolist's market.[179] Factors relevant to determining this classic form of market power[180] include the market share of the monopolist, whether significant entry barriers exist, "the number and size distribution of firms already in the market, the stability of market shares over time, and historical evidence on the profits earned by the dominant firm."[181]

U.S. federal appellate courts have discussed market power as integral to proving predation in forty-eight of the sixty-two reported predatory pricing cases since 1950.[182] In an additional eight cases, the Court considered the likelihood of recoupment.[183] Market power and recoupment did not arise in two other cases only because the Court found that no profit sacrifice or below-cost pricing occurred.[184] In all but four cases, therefore, plaintiff had to

[175] *See generally id*. at 249; *see also* Evans, *supra* n.120 at 62.
[176] *Id*. at 249.
[177] *Id*.
[178] *But cf. id.* at 255 ("The evaluation of Bainian market power is not merely the first step of the inquiry; it is the primary focus of the entire analysis … It is the exclusionary conduct that creates the market power being evaluated, not the other way around.").
[179] A vertically integrated monopolist also might combine the first and second methods of exercising market power by raising input prices while lowering output prices — by engaging in a price squeeze — which would enhance the probability of recoupment.
[180] Professors Krattenmaker, Lande, & Salop refer to classical market power as "Stiglerian market power". *Id*.
[181] Joskow & Klevorick, *supra* n.80 at 226.
[182] Appendix.
[183] *Id*.
[184] *Conoco Inc. v. Inman Oil Co., Inc.*, 774 F.2d 895, 906 (8th Cir. 1985) (Nichol, J.); *R.W. Int'l Corp. v. Welch Food, Inc.*, 13 F.3d 478, 488 (1st Cir. 1994) (Coffin, J.).

establish market power, as defined and determined by NPT, to recover damages for predatory pricing.

The concept of market power follows from the Neoclassical Price Theory (NPT) principle of competition. Market power inhibits competition, enables monopoly pricing (or pricing above marginal cost), and yields inefficiency. The existence of market power ensures that the model of perfect competition does not apply. Products are not homogenous but differentiated. Consumers will not readily substitute to other products if the dominant firm raises price above marginal cost. Barriers to entry or expansion exist. Greater competition would force the monopolist to lower price and thus operate at a lower productive cost to society. At that lower cost, additional consumers would be willing to purchase the monopolist's product rather than an inferior substitute. Market power thus signifies the greater applicability of the monopoly paradigm and constitutes a prerequisite to recoupment:[185] the most indicative factor in predicting whether lower prices today foreshadow monopoly prices tomorrow. Without market power, the competitive price will prevail, and any attempt to charge supra-competitive prices will induce rivals or entrants to expand output, rendering recoupment futile.[186]

In *Atl. Richfield*, through which the Supreme Court eventually applied the antitrust injury doctrine to monopolization claims,[187] the Ninth Circuit dismissed a predatory pricing claim because, "Although there is a genuine issue regarding market share and entry barriers, there appears to be no genuine issue regarding the ability of [defendant's] existing competitors to increase their output."[188] In a relatively recent and important predatory pricing case, the Sixth Circuit found that Northwest Airlines "possessed overwhelming market share, and [that] barriers to entry were very high."[189] It further held that "Northwest had the requisite market power to render its predatory pricing plausible and successful."[190] Examining the ability of an undertaking to raise and maintain prices above the perfectly competitive paradigm exhibits the influence of NPT over U.S. predatory pricing law.

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[185] *Am. Academic Suppliers, Inc. v. Beckley-Cardy Inc.*, 922 F.2d 1317, 1321 (7th Cir. 1991) (Posner, J.).
[186] *Id*. at 1319.
[187] The Supreme Court originally crafted the antitrust injury doctrine for mergers in *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477, 489, 97 S.Ct. 690, 697 (Marshall, J.).
[188] *Rebel Oil Co., Inc. v. Atl. Richfield Co.*, 51 F.3d 1421, 1443 (9th Cir. 1995) (Beezer, J.).
[189] *Spirit Airlines*, 431 F.3d at 931.
[190] *Id*. at 936.

B. Effects

Analysis of the actual effects of predatory pricing on consumer welfare constitutes the second independent variable. Effects analysis, at least after *Utah Pie* and beginning with circuit decisions in the 1970s,[191] has progressed along the conceptual boundaries delineated by Neoclassical Price Theory (NPT), the first independent variable. U.S. federal courts have applied NPT to market conditions to determine the competitive effects of a price-cut. The intellectual force of NPT compelled the shift in legal concern in all of monopolization law from competitors to competition as determined by consumer welfare.[192] In the context of predatory pricing, this generally has meant assessing whether a price-cut ultimately will cause consumers to pay higher overall prices: whether the monopolist will recoup.[193]

Given the substantial overlap between independent variables, multi-collinearity must pervade the model. But it does not reflect perfect multi-collinearity for the following reasons.[194] The sub-variables that together constitute the first independent variable attempt to predict competitive effects by examining market characteristics. By contrast, the second independent variable reflects a strictly historical review of market facts, comparing the differential between initial price-cuts and subsequent price increases.[195] The independent variables represent different modes of legal analysis that generally occur at distinct junctures of a predation scheme. Each independent variable relies on similar and overlapping, but not identical, evidence to establish successful predation.[196]

1. Stages of Predation

The predictive capability of NPT, captured by the first independent variable, has proved administratively useful to appellate judges because the offense of predatory pricing occurs sequentially over time. The monopolist first lowers price. Lower prices secondly harm competitors. Then the monopolist thirdly raises prices to supra-competitive levels to recover the investment in lower prices and to earn additional profits. Only at the last step does the

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[191] *See, e.g., Greenville Publ'g*, 496 F.2d at 396; *Int'l Air Indus.*, 517 F.2d at 721-22.
[192] *See, e.g., Richter Concrete Corp. v. Hilltop Concrete Corp.*, 691 F.2d 818, 825 (6th Cir. 1982) (Contie, J.) (analyzing price effect on market).
[193] RENATO NAZZINI, THE FOUNDATIONS OF EUROPEAN UNION COMPETITION LAW: THE OBJECTIVE & PRINCIPLES OF ARTICLE 102, 223 (2011); Strader, *supra* n.119 at 216-18.
[194] *See* Field, *supra* n.23 at 223-24.
[195] Wolfgang Wurmnest, *Predatory Pricing: From Price/Cost-Comparisons to Post-Chicago Thinking*, *in* STRUCTURE & EFFECTS IN EU COMPETITION LAW 109-110 (Jürgen Basedow & Wolfgang Wurmnest eds., 2011) (discussing structural and "strict" recoupment tests).
[196] *Cf.* Field, *supra* n.23 at 224.

monopolist harm consumers.[197] The timing and stages of predatory pricing separates the offense from other exclusionary pricing practices, while raising widespread skepticism that any initial investment and short-term consumer benefit actually will convert to recoupment and medium-term consumer harm.

The U.S. Supreme Court once expressed an even more radical view, preferring all short-term price-cuts *even if* "the ultimate effect of the cut is to induce or reestablish supra-competitive pricing."[198] "[D]iscouraging a price cut and forcing firms to maintain supra-competitive prices," the Court continued, "depriv[es] consumers of the benefits of lower prices in the interim," and thus "does not constitute sound antitrust policy."[199]

If read literally and independently of the subsequent statement that actual market conditions carry greater weight than theory,[200] such reasoning would eviscerate the claim of predation. And in fact, *Brooke Group* marked a seismic shift in predation enforcement. The suggestive language employed here — severely discounting any subsequent negative effects on consumers and essentially equating predation with price-cuts — reflects an unsparing short-term bias in evaluating consumer welfare.

Dutiful circuit court judges, along with savvy plaintiffs' counsel, have taken the cue. Plaintiffs' appellate success rate after *Brooke Group* fell dramatically even as fewer decisions reached the appellate courts.[201]

NPT does not mandate such extreme skepticism towards predatory pricing. Indeed, by empowering courts to predict competitive effects, it actually has enhanced the legal viability of predation claims by permitting evaluation prior to the last stage of the offense — prior to when consumer harm actually occurs. Assuming a reasonable degree of accuracy, providing judges with the ability to predict competitive effects is a significant attribute of NPT.

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[197] *Wallace v. Int'l Bus. Mach. Corp.*, 467 F.3d 1104, 1106 (7th Cir. 2006) (Easterbrook, J.).
[198] *Brooke Group*, 509 U.S. at 224, 113 S.Ct. at 2588.
[199] *Id*.
[200] *Id*. at 229, 113 S.Ct. at 2591.
[201] *See* Part IV. The case also will have affected settlement discussions. On the one hand, *Brooke Group* lowered the value of predation claims, while on the other, defense counsel probably have agreed to settle for higher sums certain predation cases that pose any risk of amending favorable appellate precedent. Thanks to Dr. Martin Mandorf, Chief Economist at the Swedish Competition Authority (SCA) and a Professor at Stockholm University, for raising the issue of how *Brooke Group* may have affected settlement discussions during a presentation at the SCA on 12 March 2013.

2. Efficiency

Analysis of effects, by contrast, entails examining actual efficiency losses or actual harm to consumers, in the form of recoupment. Advocates of NPT might respond that cost tests do attempt to measure pricing efficiency rather than attempting to predict it. And indeed, cost tests measure *static* efficiency at a particular point in time, which might prove dispositive if the offense of predatory pricing did not occur sequentially over time. The risk to consumer welfare from predation is not the current price that cost tests measure, but a subsequent, higher price. That higher price involves wealth transfer effects and inefficiency that could outweigh any short-term consumer gain. In that sense, cost tests account for one relevant data point along a dynamic line of data points.

In markets characterized by significant innovation, cost tests anchored at AVC do not even measure the most relevant competitive effects of predatory pricing. Prices below ATC create inefficiency and anticompetitive effects as well. To finance research and development that raises productivity and that brings welfare-enhancing products to market, dominant undertakings must cover their total costs of production. An AVC benchmark in such markets over-subsidizes innovation and wastes resources, producing allocative inefficiency. It allows dominant firms to exclude rivals with prices that do not account for the investment required to produce the product. Dominant undertakings normally earn market returns on that investment based on the barriers to entry it creates and based on consumer demand for the product. An AVC benchmark further redirects competition and investment to other markets potentially in less need of it. While investment incentives loom large, therefore, in other areas of monopolization law, promoting efficiency and lower prices — beyond the immediate term — constitute more important objectives for predatory pricing law.

Cost tests also attempt to predict competitive effects by providing a benchmark below which the risk of predatory pricing significantly increases. Once breached, judges then consider objective intent, market power, and the probability of recoupment. The purpose of the second independent variable is to determine which factors courts more closely examine when deciding predatory pricing cases: factors derived from NPT that attempt to predict effects, or the actual competitive effects of the challenged practice. Another purpose of the second independent variable is to determine how plaintiffs fare when courts focus on effects to resolve predatory pricing claims rather than predictive decision-making factors derived

from NPT. I hypothesize that plaintiffs' rate of success in predatory pricing cases increases when courts examine — rather than exclusively employ NPT to predict — actual effects.

Consequences matter. Scholars[202] have debated exactly what antitrust law should aim to pursue, from allocative efficiency to minimizing wealth transfers from producers to consumers.[203] But even Chicago School scholars, the most ardent advocates of applying NPT to competition law rules,[204] have argued that liability should turn on the effects of challenged practices. Judge Posner has recommended evaluating competition by its consequences — specifically, "whether the restriction caused the firm's output to rise or fall."[205] The neo-Chicago approach "accepts the Chicago tenet that legal rules can and should be assessed on their consequences in terms of efficiency."[206] Harvard School scholars similarly have crafted legal rules focused on evaluating exclusionary effect in terms of efficiency.[207]

3. Actual Anticompetitive Effects

In the predatory pricing context, an effects-based approach would consider:

- whether the purportedly anticompetitive prices terminally weakened or drove rivals from the market,
- whether weakened or excluded rivals restrained the dominant undertaking from raising prices and to what extent,[208]
- how efficiently rivals actually operate, and whether they could match the efficiency of the dominant undertaking,
- whether other competitors restrain the dominant undertaking from raising prices post-predation,[209] and

[202] A debate continues within the antitrust community as to whether different schools of thought actually exist. *Compare, e.g.*, Hovenkamp, *supra* n.10 at 31, *and* Kovacic, *supra* n.3 at 14, *with* Posner, *supra* n.1 at 925.
[203] *Compare* Bork, *supra* n.1, *with* Robert H. Lande, *Wealth Transfers as the Original and Primary Concern of Antitrust: The Efficiency Interpretation Challenged*, 50 HASTINGS L.J. 871 (1999).
[204] *See, e.g.*, Posner, *supra* n.1 at 932.
[205] Richard A. Posner, *The Next Step in the Antitrust Treatment of Restricted Distribution: Per Se Legality*, 48 U. Chi. L. Rev. 6, 21 (1981).
[206] Evans & Padilla, *supra* n.11 at 75.
[207] Elhauge, *supra* n.88 at 330. Professors Elhauge and Wickelgren also have argued that bundled discounts above cost can exclude as-efficient competitors. Einer Elhauge & Abraham L. Wickelgren, *Robust Exclusion Through Loyalty Discounts With Buyer Commitment* (John M. Olin Ctr. For Law, Economics, And Business, Discussion Paper No. 722, Aug. 2012); Einer Elhauge & Abraham L. Wickelgren, *Anti-Competitive Exclusion And Market Division Through Loyalty Discounts* (Univ. of Texas Law & Economics Research Paper No. 216, Oct. 2011) (both *cited* by GLOBAL COMPETITION POL'Y daily newsletter, Fall 2012).
[208] On competitive restraints, *see* Evans, *supra* n.120 at 60.

- whether recoupment actually occurs — whether the dominant undertaking was able to raise prices high enough and long enough after weakening or eliminating rivals to recover the initial investment in below-cost pricing.

An effects-based approach therefore focuses on present market conditions and how they explain recoupment. If full recoupment has not occurred, then market conditions will determine whether it is close. The Supreme Court, at least, always has found such evidence compelling in predatory pricing cases, even in cases that feature legal reasoning and presumptions derived from NPT.[210]

Consider *Matsushita*. Plaintiffs Zenith Radio Corporation and National Union Electric Corporation claimed that defendants, twenty-one corporations that manufacture or sell television sets, conspired to exclude plaintiffs from the U.S. television market. The pricing scheme involved setting "artificially high prices for television[s] sold [] in Japan," while simultaneously fixing prices below costs "for television[s] exported to and sold in the United States".[211] Despite an opinion that discussed profit sacrifice and the "no economic sense" test, the Court's holding turned on the fact that, despite a predatory pricing scheme that already had lasted *twenty years*, plaintiffs could not establish anticompetitive effects or recoupment.[212] "Two decades after their conspiracy is alleged to have commenced, [defendants] appear to be far from achieving [recoupment]: the two largest shares of the retail market in television sets are held by RCA and respondent Zenith, not by any of petitioners."[213]

Moreover, a dispute over the effects of predation, whether recoupment actually occurred, arguably drove the holding in *Brooke Group* as well. Plaintiffs asserted that the predatory pricing scheme succeeded by narrowing the price gap between higher-priced branded cigarettes and lower-priced generic cigarettes, "from approximately 38% at the time Brown & Williamson entered the segment to approximately 27% at the time of trial."[214]

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[209] *Id*.
[210] Professor Page has taken a slightly different view, arguing that the Supreme Court decided *Matsushita* predominantly based on the expected effects as determined by the relevant economic model. Page, *supra* n.4 at 1287. Thanks to Professors Jones and Kokkoris for requesting clarification to this section.
[211] *Matsushita*, 475 U.S. at 577-78, 106 S.Ct. at 1351.
[212] Professor Leslie has argued that courts should evaluate predation schemes *ex ante*, at the time of their implementation. Leslie, *supra* n.140 at 313.
[213] *Matsushita*, 475 U.S. at 591, 106 S.Ct. at 1358.
[214] *Brooke Group*, 509 U.S. at 218, 113 S.Ct. at 2585.

Yet the Court calculated that the increasing market share of generic cigarettes ensured that sufficient competition existed, precluding recoupment.[215] "Following Brown & Williamson's entry, the rate at which generic cigarettes were capturing market share did not slow; indeed, the average rate of growth doubled."[216] Five years after the alleged predation commenced, "the generic segment expanded from 4% to more than 15% of the domestic cigarette market, or greater than 2% per year."[217]

This approach represented an effects analysis because the Court sided with the view that more consumers purchasing generic cigarettes produced lower overall prices relative to the "but-for" world of no price-cuts below cost. The Court ignored the possibility that the price of generics would rise steadily to a level that more closely approximated the original price of branded cigarettes.

4. Efficiency As Effects

Cases also exist, however, where a NPT variable — the relationship between prices and costs — designed to facilitate predicting competitive effects, actually outweighed evidence of consumer harm. In *U.S. v. AMR Corp.*, for instance, the Tenth Circuit Court of Appeals dismissed a predatory pricing claim because the Justice Department failed to establish that American Airlines priced below an "appropriate" measure of cost.[218] The Justice Department proffered evidence that American was pricing below four measures of cost, two measures based on average total cost (ATC), and two representative of profit sacrifice.

The Court initially stated that "[d]espite a great deal of debate on the subject, no consensus has emerged as to what the most appropriate measure of cost is in predatory pricing cases."[219] "In this circuit," the Court continued, "we have spoken of both average variable cost and other marginal cost measures as relevant"[220] — a selection well within the Tenth Circuit's discretion given Supreme Court precedent.[221] As to why it accepts various

[215] *But see* Leslie, *supra* n.140 at 271.
[216] *Brooke Group*, 509 U.S. at 233, 113 S.Ct. at 2593.
[217] *Id*. at 234.
[218] 335 F.3d 1109, 1120 (10th Cir. 2003) (Lucero, J.).
[219] *Id*. at 1115, 1116.
[220] *Id*. at 1116.
[221] The Tenth Circuit favors incremental cost because "as long as a firm's prices exceed [marginal cost], each additional sale decreases losses or increases profits". *Id*. at 1115-16 (internal quotations omitted).

measures of marginal cost, the Tenth Circuit stated that "[s]ole reliance on AVC as the appropriate measure of cost may obscure the nature of a particular predatory scheme".[222]

Of the four cost measures proffered by the Department of Justice, the Tenth Circuit rejected two as too closely resembling profit sacrifice tests, which, according to the Tenth Circuit, "involve a great deal of speculation and often result in injury to the consumer and a chilling of competition."[223] In rejecting profit sacrifice measures above cost, the Tenth Circuit followed the Supreme Court's holding in *Brooke Group* that demanded pricing below-cost even if profit sacrifice otherwise occurred.

The Tenth Circuit appeared to have designated average avoidable cost as the appropriate cost benchmark in *AMR Corp*.[224] Because American arbitrarily had allocated certain common or fixed costs associated with running its business, costs that did "not vary proportionately with the level of flight activity,"[225] to the other measures considered by the Tenth Circuit, it held them "invalid as a matter of law".[226]

While Tenth Circuit precedent can support that conclusion, Supreme Court precedent certainly did not compel it, as the Tenth Circuit repeatedly claimed. *Brooke Group* never stated that, to establish predation, plaintiffs must prove prices below only variable cost, or even incremental costs. Consequently, the Tenth Circuit could not accurately state that "utilizing the[] cost measures [in Tests Two and Three] would be [] equivalent [to] applying an average total cost test, implicitly ruled out by Brooke Group's mention of incremental costs only."[227] While *Brooke Group* mentioned "incremental costs," it did so only to reiterate the open question whether predation could occur above that level,[228] ruling out only prices above cost.[229] The Tenth Circuit might have been coaxing the Department of Justice

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[222] *Id*. at 1116.
[223] *Id*. at 1118; *see generally* Einer Elhauge, *Why Above Cost Price Cuts to Drive Out Entrants Are Not Predatory — And The Implications for Defining Costs and Market Power*, 112 YALE L.J. 681, 694 (2003).
[224] Average avoidable cost represents all the expenses that a dominant undertaking could have avoided by not producing a particular range of output. DG Competition Discussion Paper on the Application of Article 82 of the Treaty to Exclusionary Abuses (Brussels, December 2005) at ¶ 108 ["Discussion Paper"].
[225] *AMR Corp*., 335 F.3d at 1119; *see also Spirit Airlines*, 431 F.3d at 946.
[226] *Id*. at 1118 n.10.
[227] *Id*. at 1117.
[228] *Brooke Group*, 509 U.S. at 223 n.1, 113 S.Ct. at 2588 n.1. The Supreme Court earlier had suggested that incremental cost equaled AVC. *Cargill, Inc. v. Monfort of Colorado, Inc.*, 479 U.S. 104, 118 n.12, 107 S.Ct. 484, 493 n.12 (1986) (Brennan, J.).
[229] *See id*. at 223, 2588.

to appeal, and the Supreme Court to provide needed guidance on what factors to consider when selecting the appropriate cost measure. The DOJ did not appeal.

Cost considerations negated the necessity of evaluating the medium-term effect of the challenged price-cuts on customers of American Airlines. The Court recited as a fact that American willingly had sacrificed profits by combining lower prices with greater capacity: "By increasing capacity, American overrode its own internal capacity-planning models for each route, which had previously indicated that such increases would be unprofitable."[230] In addition to matching competitors' lower prices, American "increased the number of planes and seats available" only on routes served by competitors.[231] The Court also acknowledged persuasive evidence of either actual or likely recoupment: "Once the [lower-cost competition] ceased or moved its operations, American generally resumed its prior marketing strategy, reducing flights and raising prices to levels roughly comparable to those prior to the period of low-fare competition."[232]

The Tenth Circuit, of course, could not ignore cost evidence.[233] Doing so would have violated the rule of law. The rule of law demands, before attaching liability, a reasonably clear and accessible body of legal rules and standards from which parties can identify their legal obligations.[234] The rule essentially requires that the law apply to everyone, and it benefits individuals and corporations alike. Uncertainty generated by arbitrary and potentially confiscatory legal rules would suppress trade and investment.[235]

Yet the established existence of anticompetitive effects might have exerted greater influence on which cost measure to accept. Similar to the prevailing view now and then, the Tenth Circuit favored short-term over medium-term efficiency considerations and price levels. Regardless of the actual justification, the rule of law did not require the Tenth Circuit to reject all four cost measures. Disregarding anticompetitive effects and ruling on the basis

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[230] *AMR Corp.*, 335 F.3d at 1112; *see also* Mateus, A.M., *Predatory Pricing: A Proposed Structured Rule of Reason* (22 Mar. 2010) at 12, available at: http://ssrn.com/abstract=1576434.
[231] Mateus, *supra* n.230 at 10 n.10.
[232] *AMR Corp.*, 335 F.3d at 1112.
[233] Page, *supra* n.4 at 1305.
[234] I am grateful here to King's College and presenters on another panel at the IGLRC for discussing the rule of law in the context of international relations and human rights, particularly Dr. Veronika Fikfak.
[235] TOM BINGHAM, THE RULE OF LAW 38 (Penguin Books 2011) (2010).

of a decision-making factor constructed to predict anticompetitive effects constitutes deontological[236] reasoning that unduly risks inaccurate results.[237]

IV. Results

A. Overall Results

I chose Professors Areeda and Turner's article as a temporal divider because of a suspicion, confirmed by the case law, that it made Neoclassical Price Theory (NPT) accessible to the judiciary, and thereby greatly expanded its influence. I chose *Matsushita* and *Brooke Group* because they represent the only predation decisions decided by the Supreme Court after NPT gained prominence in legal and academic circles. The decisions also illustrate the control that the Supreme Court has over the boundaries of monopolization claims.[238]

Initially, from 1950 to 1975, prior to Professors Areeda & Turner's article, federal appellate courts issued only 7 reported predatory pricing decisions; fifty-five such decisions, from 1975 until the present,[239] followed that article. Professors Areeda & Turner's article thus marked the emergence of NPT and revived a dormant legal claim, even if it did not make the claim easier to establish. Pre-Areeda & Turner's article, plaintiffs won 3 cases and lost 4: a success rate of 42.9%. Post-Areeda & Turner's article, plaintiffs have won 13 cases, losing 42, for a success rate of roughly 23.6%, almost 20 percentage points lower.

The Supreme Court decided *Matsushita* in 1986. Prior to *Matsushita*, plaintiffs won 10 predatory pricing cases at the federal appellate level and lost 23, a success rate of 30.3%. Post-*Matsushita*, plaintiffs have won 6 predatory pricing cases and lost 23, for a 20.7% success rate — representing a fall in that rate of almost a third. I cannot conclude from this evidence that *Matsushita* caused plaintiffs' success rate to fall, but a discernible relationship between the *Matsushita* judgment and a subsequently lower success rate appears to exist, strengthened by the fact that the cases analyzed here constitute the entire population of data points available, eliminating the risk of sampling error.

[236] Thanks to Professor Lianos for introducing this term to my vocabulary.
[237] The challenge of separating pro- from anti-competitive price-cuts and the argument that price-cuts constitute the chief mechanism of competition undoubtedly influenced the opinion of the Tenth Circuit. *AMR Corp*., 335 F.3d at 1114.
[238] Thanks to Professors Kokkoris and Jones for requesting that I add further explication to this section.
[239] This analysis includes published opinions issued before October 2014.

The U.S. Supreme Court decided *Brooke Group* in 1993, twenty-two years ago, but 18 years after Professors Areeda & Turner's article. Prior to *Brooke Group*, plaintiffs won 15 predatory pricing cases at the federal appellate level and lost 33, resulting in a 31.3% success rate. Post-*Brooke Group* (including *Brooke Group*) , plaintiffs have won *one* case at the federal appellate level, while losing 13 — a success rate of 7.1%, well below the overall success rate of 25.8%.

Not only has plaintiffs' success rate noticeably fallen since *Brooke Group* — from 31.3% to 7.1%, by over three-fourths — but the number of reported opinions by appellate courts have fallen as well. From Professors Areeda & Turner's article in 1975 until the 1993 judgment in *Brooke Group*, U.S. federal appellate courts published 42 predatory pricing decisions. After *Brooke Group*, from 1993 until 2014, federal appellate courts have issued just 13 opinions on the merits of predation. Thus, from 1975 until 1993, a period of 18 years, U.S. appellate courts filed over 3 times more predatory pricing decisions than from 1993 until 2014, a period of 22 years. While this fact simply may indicate a settled body of law,[240] reducing the need for appellate courts to issue opinions, it also supports the claim that *Brooke Group* lowered the probability of plaintiffs winning predatory pricing cases.

B. Effects Determined by Neoclassical Price Theory (NPT)

U.S. federal appellate courts at least partially relied on decision-making factors derived from NPT to decide liability in 58 of 62 reported predatory pricing cases. This fact should not surprise, since the legal test for predatory pricing — evidence of below-cost pricing and a dangerous probability of recoupment — essentially adopts 3 of the 5 NPT factors that attempt to predict the competitive effects of predation. Three of the four other decisions considered cost evidence, but they did so without incorporating the concept of market power.[241] The results when appellate courts applied NPT to assess effects essentially mirror the overall results because appellate courts considered only effects, or only effects and intent, in just four reported cases, all between 1950 and 1967.[242]

C. Effects Absent Neoclassical Price Theory (NPT)

In two early predation cases, the courts determined liability based on the effects of the challenged price-cut, in terms inconsistent with Neoclassical Price Theory (NPT). In *Gen.*

[240] Thanks to Dr. Wagner von Papp for this point.
[241] Appendix.
[242] Plaintiffs won half of those cases. *Id.*

Gas Corp. v. Nat'l Utilities of Gainesville, Inc., the Fifth Circuit at first appeared to apply NPT by intimating that the price at issue did not fall below the costs of the defendant; that price-cuts generally harm the public only when they again rise; and that the defendant held 25% of the relevant market.[243] The Court examined whether the challenged cuts would eliminate plaintiff and other competitors, but ultimately ordered an amendment to the injunction limiting price-cuts based on that factor.

Similarly, while the Supreme Court in *Utah Pie* considered whether the defendants priced below their costs of production, a NPT inquiry, the Court ignored the potential for recoupment, since at the end of the predation, the defendants had market shares of 8.8%, 8.3%, and 29.4%, while the plaintiff held a 45.3% market share.[244] The Court also found the reduced profitability of the plaintiff relevant to liability,[245] even while its net worth more than doubled during the predatory period.[246]

Effects potentially could encompass many legal and economic variables. NPT has narrowed the relevant effects in predation cases to actual or potential recoupment.

D. Neoclassical Price Theory (NPT) & Intent Predicting Effects

This category initially sets-out the results when courts only applied predictive factors derived from NPT — to the exclusion of effects, but not intent. I include intent in this category because after Professors Areeda & Turner's article, when courts discussed intent as a controlling factor, they usually referred to NPT factors — particularly whether price fell below cost — to discern the intent of the dominant undertaking. Thirty-three such cases exist.[247]

Prior to the publication of Professors Areeda & Turner's article, plaintiffs won 1 of 2 cases, or 50%. Post-Areeda & Turner, plaintiffs won 9 of 31 cases, or 29%. Prior to the Supreme Court's judgment in *Matsushita*, plaintiffs won 7 of 21 cases, or 33%; post-*Matsushita*, plaintiffs won 3 of 12 cases, or 25%. Prior to the Supreme Court deciding *Brooke Group*, plaintiffs won 10 of 29 cases in which the appellate court attempted to predict

[243] 271 F.2d 820, 823-25 (5th Cir. 1959) (Tuttle, J.).
[244] 386 U.S. at 692, 87 S.Ct. at 1330.
[245] *Id*. at 699-700, 1334.
[246] *Id*. at 689, 1329.
[247] I included *D.E. Rogers*, 718 F.2d at 1439 (*citing Int'l Air Indus.*, 517 F.2d at 721-22), in this category because, while it also reviewed effects, it did so only to state that losing business and profits are not relevant.

competitive effects by applying NPT, or 34.5%. After *Brooke Group*, plaintiffs have lost all 4 cases, or won 0%.

This evidence supports several points. As an initial matter, using NPT to predict effects exploded after the publication of Professors Areeda & Turner's article, from 2 cases to 31. The evidence also appears to establish that circuit courts relied less exclusively on NPT and intent to decide predation cases after both *Matsushita* and *Brooke Group* relative to before those cases. While the absolute number of cases also fell, the number of instances where courts considered effects steadily increased until, after *Brooke Group,* they considered effects in 10 of 14 predatory pricing cases.

Plaintiffs' success rate in establishing predation progressively fell after each evidentiary marker. Pre- and post- both Areeda & Turner's article and *Brooke Group*, plaintiffs' success rate when the court applied NPT to predict effects fell dramatically. Pre- and post-*Matsushita,* that success rate fell as well, though plaintiffs still won 1 of 4 cases afterwards rather than 1 of 3.

The evidence further demonstrates that plaintiffs' success rate actually improved when appellate courts attempted to predict effects by using NPT rather than tallying results. In other words, the evidence does not support the hypothesis that utilizing NPT to predict effects lowers plaintiffs' chances of winning predation cases relative to considering actual effects. In all but one category of cases, plaintiffs more likely lost when the appellate court examined effects, whether or not NPT applied.

Pre-Areeda & Turner's article, plaintiffs won 2 of 5 effects cases, or 40%; afterwards, they won 4 of 24 cases, or 16.7%. Pre-*Matsushita*, plaintiffs won 3 of 12 effects cases, or 25%; post-*Matsushita*, plaintiffs won 3 of 17 such cases, or 17.6%. Pre-*Brooke Group*, plaintiffs won 5 of 19 effects cases, or 26.3%; they won 1 of 10 subsequently, or 10%. Plaintiffs' success rate therefore declined in all categories of effects cases, by over 23%, 7%, and 16%, respectively.

By comparing the success rates in NPT cases against effects cases, I found additional evidence for the proposition that predicting effects does not bias plaintiffs' case. Plaintiffs won 50% of NPT cases before Professors Areeda & Turner's article against 40% of effects cases; they won 29% of NPT cases afterwards relative to 16.7% of effects cases. Pre-*Matsushita,* plaintiffs won 33% of NPT cases against 25% of effects cases; those percentages

fell to 25% and 17.6%, respectively, after *Matsushita*. Prior to *Brooke Group*, plaintiffs won 34.5% of NPT cases and 26.3% of effects cases; they won 0% of NPT cases and 10% of effects cases post-*Brooke Group*.

Plaintiffs always stood a better chance of winning predation cases if the Court predicted effects using NPT rather than determining actual effects, except after *Brooke Group*. And one case, *Spirit Airlines*, explains the difference in that category. Plaintiffs' overall success rate when the Court employed NPT and intent to predict effects is 30.3% (10/33 cases); they won 20.7% (6/29) of cases involving actual effects.

V. Behavioral Economics

The fact that plaintiffs have won one reported predatory pricing case at the U.S. federal appellate level since *Brooke Group* may outrage or comfort depending on one's ideological commitments. Either way, the application of Neoclassical Price Theory (NPT) to predatory pricing claims, not necessarily the theory itself, appears to have lowered plaintiffs' probability of winning predation cases drastically at least since 1993. Predatory pricing law, and the tenets of NPT upon which it rests, have not changed significantly since Areeda & Turner's landmark article in 1975, 40 years ago. Meanwhile, the field of behavioral economics, a marriage between psychology and economics, has produced evidence weakening the NPT claim that maximizing utility and profits motivate all market activity. Since the 40th anniversary of Areeda & Turner's article has arrived, and since the 20th anniversary of *Brooke Group* recently passed, perhaps now is an appropriate time to evaluate whether behavioral economics can add insights and predictive accuracy to the unrivalled contributions of NPT, and to evaluate whether any adjustments to current predation law might abate the rout of plaintiffs since *Brooke Group*.

Behavioral economics could influence predation law in various ways, both inside and outside the framework of NPT.[248] U.S. federal appellate judges could decide to abandon the cost and recoupment concepts that have guided analysis of predation claims at least since the mid-1970s and instead apply a distinct test. Appellate judges also could consider the

[248] *See generally* Avishalom Tor, *The Fable of Entry: Bounded Rationality, Market Discipline, And Legal Policy*, 101 MICH. L. REV. 482 (2002); Maurice E. Stucke, *Behavioral Economists at the Gate: Antitrust in the Twenty-First Century*, 38 LOY. U. CHI. L.J. 513 (2007).

applicability of the availability heuristic when evaluating the likelihood of recoupment.[249] This heuristic particularly applies to the probability of subsequent entry or re-entry. Behavioral economic scholarship further might convince appellate judges to adjust the current error-cost calculus to account for the possibility that the endowment effect and loss aversion might influence dominant company managers to predate more frequently. Evidence that behavioral economics might increase the frequency or viability of predatory pricing further might prompt judges to shift the evidentiary burden in individual cases. The following paragraphs explore the extent to which behavioral economics can explain predation consistent with the basic tenets of NPT.

A. Purpose of Behavioral Economics in Predatory Pricing Law

If behavioral economics is to enhance the predictive accuracy of NPT as applied to predation law by limiting false-negative errors,[250] it cannot merely identify irrational or boundedly rational behavior by a monopolist, explaining why a monopolist might predate. This is because non-profit maximizing price-cuts increase consumer welfare. Consumers benefit from lower prices that eventually do not rise to supra-competitive levels, or that the monopolist does not recoup in some other fashion.

Rather, to expand the variety of predatory schemes that the Sherman Act forbids, behavioral economics still must explain how seemingly irrational, or boundedly rational, behavior confers profits on the dominant firm. In other words, behavioral economists must explain how boundedly rational behavior actually constitutes rational behavior. While behavioral economics might expand the legally-recognized motivations for predating, it complements or further explicates rationality and recoupment by helping to identify profit-maximizing price-cuts.

To discern the contours of rational and boundedly rational behavior in the predation context, below I set-out the objectives of a monopolist and its rivals when predation occurs,

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[249] Thanks to Johan Sahl, a lawyer at the Swedish Competition Authority, for suggesting that I discuss behavioral economics under the recoupment rubric.

[250] For a concise articulation of error costs, *see* Page, *supra* n.4 at 1241. While "Judge Richard Posner first applied error-cost analysis, which is based on decision theory, to the law in 1973," Evans, *supra* n.120 at 76-77 (citing Richard A. Posner, *Economic Approach to Legal Procedure & Judicial Administration, An*, 2 JOURNAL OF LEGAL STUDIES 399 (1973)), and while Professors Joskow & Klevorick, *supra* n.80 at 222-225, applied the error-cost framework to predatory pricing claims, Judge Frank Easterbrook, *supra* n.25 at 14-17, *passim*, significantly expanded the analysis to all of antitrust law and thereby made it famous. *Cf.* THE GLOBAL LIMITS OF COMPETITION LAW (Ioannis Lianos & D. Daniel Sokol eds., 2012) (discussing the impact of Judge Easterbrook's *Limits of Antitrust* on competition law).

and further evaluate how behavioral economics can assist in explaining those objectives and the corresponding actions of competitors in concentrated markets.

1. Monopolist

The two most important decisions that a monopolist takes concerning predation are, initially, to cut prices drastically to a level below some measure of cost, and subsequently, to raise prices again to supra-competitive levels. In considering each decision, Neoclassical Price Theory (NPT) posits that the monopolist will aim only at maximizing profits, the overarching objective, but subsidiary objectives also may exist. A monopolist may predate to expel a competitor from the market, to deter a rival from entering the market, or to discipline a competitor that competes too fiercely.

Monopolistic entities decide on pricing only through managers, individuals to whom the rationality principle should apply. Corporate governance law long ago recognized that self-interested managers who formulate and execute policy may pursue objectives other than long-run profit maximization. Such alternatives include short-term profit-maximization, meeting growth targets, or revenue maximization — all to earn promotions or boost bonuses.[251]

Neoclassical economists and price theorists generally have responded that the threat of hostile takeovers, the possibility of shareholders or boards of directors replacing managers, and the existence of profit maximizing competitors limit such freedom.[252] The ideas here are, first, that corporate raiders can earn huge sums identifying and replacing underperforming managers, so competition in the market for corporate governance should prevent self-interested managerial behavior. Second, corporate governance law entrusts directors to monitor managers and to ensure that they maximize shareholder value. Third, shareholders have the self-help remedy of replacing directors who inadequately monitor underperforming managers. And fourth, competition in the relevant product market will check managers who fail to maximize profits by punishing their firms and promoting rivals run by profit-maximizing managers.

But the existence of market power or dominance in the product market changes the calculus, weakening the effectiveness of these processes in holding managers accountable.

[251] ROBERT S. PINDYCK & DANIEL L. RUBINFELD, MICROECONOMICS 282 (8th ed. 2012).
[252] *Id*.

Dominant firms (operating outside of niche markets)[253] may constitute less appealing takeover targets given that market power already has inflated the firm's share price, and has allowed the stock-piling of financial reserves conducive to blocking, and thus deterring, hostile bids. While market power in various markets may not wholly obstruct or deter a determined, deep-pocketed suitor such as Google or Apple, market power at least would slow the pace of takeovers, permitting dominant firm managers to pursue objectives other than profit-maximization.

Market power equates with weakened competition, the ability of the dominant firm to influence the market price, and thus the ability to act independently of competitors. So by definition, rivalry already fails adequately to restrain the dominant firm, creating scope for influences other than competing on the merits, such as behavioral economics, to operate at least over the medium term.

While a dominant firm's share price might fall due to unprofitable predation, thereby attracting suitors or indirectly strengthening actual or potential competitors, the fact of dominance hinders even this result by eliminating the premise. Dominance significantly raises the probability that predation — even if originally motivated by bounded rationality — actually will succeed. Market power means that the dominant firm, after cutting prices, subsequently can raise price without many consumers switching to other suppliers,[254] and without rivals entering the market to supply a similar product at a lower price.[255] Thus market power can convert otherwise irrational pricing into a rational, profit-maximizing scheme by enabling recoupment.

Given the absence of competition in the relevant product market and in the market for hostile takeovers, moreover, even the most diligent directors or shareholders may be unable to identify and replace underperforming, boundedly rational managers. This is because market power prevents competitors from capitalizing on and punishing boundedly rational acts, as would occur in a perfectly competitive market. The lack of competitive restraint creates an artificial price floor under the share price. Directors and shareholders in any event may have no incentive to discipline or replace managers who initiate predatory pricing for

[253] Thanks to Dr. Wagner von Papp for this point.
[254] On market power, *see* Posner, *supra* n.80 at 9-10.
[255] High market shares, customarily starting at 70% in the U.S., indicate the potential existence of market power. *U.S. v. Aluminum Co. of Am.*, 148 F.2d 416, 424 (2d Cir. 1945) (Hand, J.).

boundedly rational reasons, particularly if the predation proves successful because of market power. In such cases, predation constitutes a profit-maximizing strategy, for which directors and shareholders even might reward managers if the scheme, though illegal, goes undetected.[256]

All this might prompt the observant skeptic to respond that behavioral economics need not alter the existing predatory pricing test inspired by NPT, in that the relevant focus remains on recoupment. Regardless of whether rational or boundedly rational reasons motivated dominant firm managers, what ultimately matters is whether the predation proves profitable, whether recoupment occurs.

Evidence derived from behavioral economics still might demonstrate an increased likelihood that recoupment will occur. For example, because of the availability heuristic, a history of below-cost pricing in response to attempted entry could establish the requisite likelihood of recoupment when supported by evidence of high profit margins and entry barriers.

Similarly, just as cost tests help to identify potentially anticompetitive prices unrelated to merit competition, applying bounded rationality to the motivations of dominant firm managers could supplement this inquiry. The existence of behavioral motivations to pricing decisions might affect the cost benchmark used to measure predation, thereby lowering the threshold for liability.

2. Rivals

The two decisions by rivals most likely to incite predatory pricing include entering a market or significantly expanding output and lowering price. Like dominant firms, rivals too seek:

(1) to maximize profits,

(2) to raise entry barriers and differentiate their products so as to lower the elasticity of demand and to maximize the difference between price and the output level where marginal revenue equals marginal cost,

(3) to increase market share, and even

(4) to drive the incumbent from the market.

[256] Kobayashi, *supra* n.27 at 128.

In evaluating an entrant's objectives, one cannot assume that an entrant is either small or large, since dominant firms in adjacent markets might consider investing the resources necessary to enter the monopolized market, notwithstanding significant entry barriers. Unlike the monopolist, however, rivals and their managers probably cannot afford to indulge in boundedly rational, or irrational, foibles — *at least when such foibles prompt entry or expansion*. They must maximize profits because they either currently face, or will face, fierce competition from the monopolist, assuming collusion does not follow predation.

Firms dominant in other markets, though perhaps possessing significant financial resources, generally will focus on maximizing profits when considering whether to enter because of entry barriers and the financial sums at stake. On the other hand, because of significant uncertainty concerning (1) market conditions, (2) the capacity of the monopolist, and (3) the monopolist's reaction to entry,[257] potential entrants still might depart from purely rational decision-making and indulge in boundedly rational reasoning.

The competitive effects of bounded rationality when exercised by rivals can go in either direction. If rivals engage in boundedly rational expansion or entry, that decision likely will enhance consumer welfare by strengthening competition, spurring innovation, and lowering prices.[258] But if bounded rationality *prevents* competitors from entering into, or expanding within, a dominant market, or leads to collusive pricing after entry, then failing to identify the deterrent effect that bounded rationality exerts on entry reduces consumer welfare by improving the effectiveness of predation.

B. Application

1. Loss Aversion, Endowment Effect & Bounded Self-Interest

Loss aversion occurs when individuals care much more about losses than about equivalent gains; the endowment effect reinforces that conclusion by demonstrating that individuals demand higher payment to sell an object already part of their endowment than to purchase the equivalent object having never owned it.[259]

Monopoly profits, the aspiration of all businesses, can reach considerable levels. Even if modest, the endowment effect and loss aversion must attach equally to monopoly profits as to coffee mugs and other more mundane widgets, as rent-seeking behavior by monopolists,

[257] Tor, *supra* n.248 at 525.
[258] *Id*. at 540-42.
[259] *Supra* Part V.

such as government lobbying,[260] demonstrates. Having obtained the objective of their pursuits — the pinnacle in business achievement — managers at dominant firms are unlikely to stand-down when a competitor threatens entry into its market — threatens forcefully to take that endowment by outperforming dominant firm managers, by beating them. Indeed, loss aversion and the endowment effect must apply with considerable strength to monopoly profits, given that, in the original experiments, the subjects at least received remuneration for selling the object. By contrast, competition from entry often represents a zero-sum struggle for profits with no corresponding benefit.

Bounded self-interest may compound the urge to defeat entry by all means available to dominant firm managers. U.S. society effectively has institutionalized the will to compete and the desire to win: Americans love winners. Proof for this assertion lies in the wild popularity of, and money sloshing around in, professional sports,[261] in steady or increasing application rates to elite universities despite the costs of attendance spiraling upwards, and in the very form of government operating in the U.S., as democracy requires politicians to defeat another candidate merely to remain employed.

To reach a level of pricing oversight at a dominant firm, a manager generally must have competed effectively, even fiercely, surpassing rivals from the ground floor upwards through the ranks of the dominant firm. Confronted with entry, a challenge to their superiority, to their ability to send their children to those elite universities, and to their very professional existence, dominant firm managers might price below-cost to defeat entry even if they do not anticipate fully recouping the investment in below-cost pricing. Dominant firm managers actually may act irrationally or against self-interest according to NPT.[262]

Antitrust law measures recoupment at the firm level but when evaluating the probability of predation occurring, it also could consider recoupment at the individual manager level. If entry or expanded production threatened to displace the dominant company, either eliminating it from the market or substantially curtailing its profitability, the management team confronting the entry or expanded production would not survive the market

[260] On the resources expended to protect monopoly, *see* Posner, *supra* n.80 at 13.
[261] *See* RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW (7th ed. 2007).
[262] The institutional environment at a dominant firm further might reward such aggression, whereby a manager may earn non-monetary remuneration, such as the esteem and respect of contemporaries and coworkers, by vanquishing rivals or deterring entry. *Cf.* HERBERT A. SIMON, ADMINISTRATIVE BEHAVIOR 92 (4th ed. 1997); *see also cf. id.* at 322.

displacement. Directors and shareholders would clamor for replacements, and the original management team would have difficulty securing equally desirable positions if they oversaw the displacement. Viewed from that perspective, the management team might count the elimination or deterrence of entry or expanded production as adequate recoupment even if the dominant company cannot immediately raise prices above pre-predation or "but-for" levels.[263] Retaining their positions and reputations, in addition to the possibility of later raising prices and recouping at the firm level, would more than compensate the management team for short-term lower prices and decreased shareholder value.

Given the previous lack of competitive pressure and the resulting profits that characterize monopoly, managers at dominant firms not only have the incentive to protect monopoly profits, they also have the market freedom and the financial ability to guard their endowment. The tested response to loss aversion and the endowment effect suggests that dominant firm managers would pay more to avoid the loss, to keep the endowment, than the actual value of that endowment. Dominant firm managers might well be willing to incur a loss to avoid the complete loss of monopoly profits — might well be willing to price below cost even if full recoupment never occurs.

A countervailing effect might restrain predatory pricing. Loss aversion and the endowment effect might apply to the predation stage, during which the dominant undertaking incurs losses. Managers operating in the best interests of a corporation might view the losses from below-cost pricing as the relevant endowment. In such instances, bounded rationality could deter or prevent the initial loss necessary to initiate a successful predatory pricing scheme.

However, such considerations suggest that dominant undertakings will not turn to predatory pricing as a first defense against competition. Yet if potential or existing rivals pose an existential threat to the dominant undertaking or its managers, loss aversion and the endowment effect more likely will apply to the sum of future profits threatened over the short-term losses required to initiate predation. Entry might pose the complete loss of monopoly profits, or the personal loss of a job. Significant existing market power that increases the probability of recoupment lowers the balance of risks in favor of predation. It also compounds the attachment to maintaining monopoly profits over avoiding short-term

[263] Strader, *supra* n.119 at 219-221.

losses. Given the potential interaction of heuristics in this context, dominant undertakings likely will attempt to narrow the scope of the practice by directing predation only at limited markets where their closest, or potentially closest, competitors operate.

Antitrust law cares little about monopoly losses unless those losses cause consumer harm, which in the case of predatory pricing means subsequently higher prices from deterring entry or competition. The question of consumer harm turns on the market power existing after the price-cut, and the time frame over which to evaluate higher prices. If considerable market power exists, then recoupment should occur expeditiously, even if dominant firm managers did not initiate the predation to maximize profits.

2. Availability Heuristic & Overconfidence Bias

The availability heuristic states that individuals allow anecdotal evidence, such as whether a similar event comes readily to mind, to influence probability calculations.[264] Neoclassical Price Theory (NPT) has modeled entry in game theoretic terms, which not only assumes that incumbents and entrants individually act rationally, but further assumes that, in deciding whether to enter or how to respond to entry, each party accounts for the rationality of the other party, essentially by asking: "If I believe that my competitors are rational and act to maximize their own payoffs, how should I take their behavior into account when making my decisions?"[265] Players prefer "dominant strategies," which maximize welfare no matter what the other player does. But they often settle for a "Nash Equilibrium," which maximizes welfare given what the other player does.[266]

In the game of entry, incumbents and entrants both might exhibit bounded rationality and further plan for the other party exhibiting bounded rationality. The possibility of incumbents and entrants maximizing welfare subject to heuristics adds additional uncertainty to the entry game, since each participant must determine, prior to acting, whether the other party will respond rationally or boundedly rationally. The availability heuristic fosters no such uncertainty, however, because it reinforces the attractiveness of predation assuming entry constitutes a repeated game.

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[264] *See, e.g.*, Christine Jolls, *Behavioral Economics Analysis of Redistributive Legal Rules*, 51 VAND. L. REV. 1653, 1662 (1998).
[265] Pindyck & Rubinfeld, *supra* n.251 at 488.
[266] *Id*. at 492.

In the standard NPT model of rational entry, the entrant may or may not view the entry game as recurring, but for the monopolist, combating entry will constitute a repeated game, in which reputation matters.[267] Monopolist managers know that future entrants will study how the monopolist responded to entry when calculating their strategies.[268] Facially irrational actions, such as pricing below cost, actually may prove rational and maximize profits over the long-term by deterring entry.[269]

Given all the information available, for example, a rival may determine that entry would yield profits because a rational, profit-maximizing monopolist would refrain from predating post-entry. But if, in fact, the monopolist had predated after each prior entry attempt, the rival cannot plan for the monopolist pricing rationally post-entry. Both the increased uncertainty conjured by previous instances of predation and the actual threat of losses could deter profit-maximizing entry. Ostensibly irrational predatory pricing constitutes a long-term profit-maximizing strategy,[270] a behavioral entry barrier that exists because the entrant cannot rely on the incumbent maximizing short-term profits post-entry.[271]

The availability heuristic reinforces the attractiveness of predation if entry constitutes a repeated game. In deciding whether to enter, a rival likely will overemphasize the prospect of predation if the monopolist previously has predated, particularly if the monopolist predated recently, because of the availability heuristic. In calculating the probability of predation assuming imperfect information, which almost always exists, prior similar instances of predation will distort the entrant's assessment of whether the monopolist will predate again post-entry.

An entrant subject to the availability heuristic is more likely to forego profitable entry, raising the profitability and probability of predation occurring *even if* the incumbent cannot recover the full investment in below-cost pricing until the game repeats, perhaps in the distant future. In this instance, similar to limit pricing, predation could prolong a lower level of monopoly profits yet still maximize profits over the long-term. In deciding whether to

[267] The monopolist has no incentive to build a reputation for predation if a finite number of potential entrants exist. Posner, supra n.80 at 211-12. Thanks to Dr. Wagner von Papp for mentioning the chain store paradox.
[268] Pindyck & Rubinfeld, *supra* n.251 at 498.
[269] Posner, *supra* n.80 at 211; Leslie, *supra* n.140 at 299; Kobayashi, *supra* n.27 at 132.
[270] Leslie, *supra* n.140 at 300.
[271] Pindyck & Rubinfeld, *supra* n.251 at 512.

predate, the monopolist might account for the uncertainty generated and the intimidating effect on future entrants captured by the availability heuristic.

Quantifying reputation effects in the context of examining rationality or the availability heuristic will prove difficult and could amount to testimony by rival managers who presently could gain from weakening the monopolist's position by claiming deterrence. Quantification difficulties, however, do not negate the existence of the phenomenon. Objective evidence that illuminates the motivations for, and potential consequences following, significant price-cuts in monopolized markets is relevant to whether predation exists.[272] Quantification difficulties might affect the weight attached to such evidence.

Overconfidence bias also might afflict current and future entrants, counteracting the effect of the availability heuristic by causing entrants to discount the risk of both predation and failure post-entry, and to view the probability of successful entry more highly than rationality dictates. Professor Tor has documented how rivals, when contemplating entry, often exhibit "insensitivity to the expected intensity of competition in high-profit industries" post-entry, while also ignoring entry barriers.[273]

Professor Leslie, by contrast, has described how overconfidence bias also might afflict the monopolist in that "the more that a firm values an outcome — [] monopoly power — the more likely it is that overconfidence will bias the decision-making process."[274] While proving overconfidence bias in court would appear nonsensical, its operation on the dominant undertaking again might alter the error-cost analysis applied to predation. Knowing that the overconfidence of rivals might prompt entry notwithstanding the existence of structural entry barriers could encourage the dominant company to consider other means to thwart rivals and to raise behavioral entry barriers, such as predation.

Although behavioral economics offers no theoretical means to determine which heuristic ultimately might cause or prevent predation, the issue simply might depend on the evidence proffered. Such evidence certainly appears relevant to explaining the potential competitive consequences of predatory pricing. At a theoretical level, a pragmatic analysis highlights the

[272] *Cf.* Christopher R. Leslie, *Predatory Pricing & Recoupment*, 113 COLUM. L.R. 1695, 1754-56 (2013) (advocating a focus on intent when evaluating predation claims).
[273] Tor, *supra* n.248 at 493.
[274] Leslie, *supra* n.140 at 308.

profit-maximizing potential of predation,[275] or alternatively, refutes the claim that predation rarely ever occurs. Most relevant behavioral considerations illustrate this:[276]

(1) the availability heuristic operating on the potential entrant,

(2) the overconfidence of the monopolist,

(3) bounded self-interest operating on the monopolist,[277] and

(4) loss aversion and the endowment effect influencing both the entrant and monopolist.[278]

So does the rational NPT view that entry constitutes a repeated game in which a reputation for predation can deter entry.

Such theoretical profitability, however, does not mean that predation will occur frequently. But it will occur if market power exists. The current error-cost framework applied to predation, which focuses on the self-defeating aspects of the practice,[279] assumes surrounding competitive market conditions, not the reality of insufficient competition that monopoly poses.

VI. Conclusion

I can discern no imminent end to the reign of NPT over U.S. predatory pricing law. Simply by examining the number of plaintiff wins in U.S. federal appellate courts since *Brooke Group*, a casual observer could conclude that U.S. federal appellate judges have found scant evidence of market power in predating companies over the last 22 years. Or perhaps a misperception pervades the current application of predation law, in which judges assume that competition operates equivalently both in perfectly competitive and monopolistic markets. Judges assume that all firms, despite the existence of market power, are capable, at all times, of pricing, or entering and pricing, at the monopolist's AVC, a price at which the monopolist does not even cover its current operating costs, and at which the monopolist does not otherwise price. Perhaps legal realism has influenced enforcement: Predatory pricing

[275] *But cf.* Tor, *supra* n.248 at 531-33.
[276] Thanks to Professors Jones and Kokkoris for requesting greater clarity in this paragraph.
[277] Bounded self-interest, of course, can motivate the entrant to win as well.
[278] The choice to invest requires overcoming loss aversion and the endowment effect, assisted by the prospect of high rates of return.
[279] Professor Evans has argued that the Supreme Court "has invoked the error-cost framework mainly to limit false positives," which occur when courts impose liability on pro-competitive activities. However, the framework itself does not mandate that outcome. Evans, *supra* n.120 at 77.

litigation can last for years and costs a great deal for everyone involved; judges like clearing their dockets; and cost tests provide a convenient filter to dismiss predation cases.[280] Whatever the actual answer, the application of NPT to predation law *need not* operate as an insurmountable barrier to enforcement. U.S. judges must acknowledge that market power or dominance can exist in the U.S. economy, and appreciate the potential anticompetitive effects that follow from that finding, in predation law and monopolization law generally.

[280] Thanks to Dr. Wagner von Papp for pointing this out.

CHAPTER 3: EU PREDATORY PRICING LAW & ECONOMICS

I. Introduction[1]

Neoclassical Price Theory (NPT) is not just an American mode of analysis. EU Institutions have crafted a predatory pricing doctrine based on the very same tenets of NPT — *rationality*, *competition*, and *efficiency* — that shaped U.S. predation doctrine. The legal tests differ, however. EU Institutions have demanded proof of dominance, below-cost pricing, and, until recently, proof of an intention to exclude for prices between AVC and average total cost (ATC),[2] though no longer.[3]

The EU considers pricing below-AVC irrational as well, to which it attaches a presumption of illegality. But the EU further considers pricing below-ATC but above-AVC irrational,[4] since over the medium-to-long-term, an undertaking must cover total costs to remain in business. Potential rivals also focus on the ATC of the dominant undertaking when deciding whether to enter a market, since that cost represents the minimum price that rivals must match to remain viable beyond the short-term. More generally, the equilibrium market price, or the medium- to long-term price on which supply and demand forces rest, will equal the long-run marginal costs of production.[5] An undertaking pricing below ATC or long-run average incremental cost (LRAIC) incurs a loss with each sale — namely, the failure to cover a relative apportionment of fixed or long-run incremental costs, respectively.

By contemplating liability for prices between AVC and ATC, the EU has promoted a view of efficient pricing beyond the short-term. As-efficient competitors generally need to match price-cuts down to ATC or LRAIC, a standard that obviously promotes greater competition as such, since it permits a greater number of rivals to compete, whether or not overall lower prices result. Absent super-dominance, price-cuts above ATC are legal, which strengthens pricing freedom.

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[1] I used a portion of this chapter, as originally drafted, as the basis for an article.
[2] *ECS/AKZO* [1985] OJ L374/1 Commission Decision 85/609/EEC (IV/30 698) (*listed in*: Ioannis Lianos, *Is The Availability of 'Appropriate' Remedies A Limit To Competition Law Liability Under Article 102 TFEU? The Mischiefs of 'Discretionary Remedialism' In Competition Law*, *in* COMPETITION LAW & THE ENFORCEMENT OF ARTICLE 102, 165, 187-202 (Federico Etro & Ioannis Kokkoris eds., 2010)).
[3] Case C-209/10 *Post Danmark A/S v. Konkurrenceradet, Forbruger-Kontakt a-s*, Judgment of the Court (Grand Chamber) (27 Mar. 2012), ¶ 36. For a concise explanation of incremental costs, *see* http://www.wisegeek.org/what-is-incremental-cost.htm (last visited 10 February 2014).
[4] Case C-62/86 *AKZO Chemie BV v Commission*, 1991 ECR I-03359, Judgment of the Court (Fifth Chamber) (*listed in*: Lianos, *supra* n.2 at 187-202).
[5] EKATERINA ROUSSEVA, RETHINKING EXCLUSIONARY ABUSES IN EU COMPETITION LAW 138 (2010).

Even longer-term cost tests promote only static efficiency and ignore the existing competitive structure. The as-efficient competitor test permits dominant undertakings to price more efficiently when attempting to exclude rivals. Yet successful predation lowers market-wide efficiency, which judges and competition authorities can determine only by examining market conditions and the health of competition after the challenged price-cut takes effect. Cost tests substitute the hypothetical efficiency of competitors for consumer welfare,[6] when the existence of either equally efficient or less efficient competitors could prevent recoupment after the lower price phase. *Post Danmark* recently demanded anticompetitive effects for prices between incremental costs and ATC, a nod to this analysis.

In the right factual setting, EU predation law could veer away from price as the centerpiece of analysis. The Commission Guidance on enforcing A.102 mentions undistorted competition only in the first paragraph,[7] but as a treaty obligation, it can bind EU courts when applicable. While vague, the concept likely incorporates more than just price effects. The Commission has discussed the importance of quality, variety, and innovation to the competitive process, while emphasizing price.[8] Because price levels remain the focus of the predation claim, however, even in an unusual factual setting, NPT will remain relevant to the analysis.

As another theoretical point to consider, EU Institutions implicitly have accounted for the psychology of predation and the exclusionary potential of the availability heuristic as far back as *AKZO*. The Commission stated that the combination of AKZO's market power and its repeated instances of price-cuts in response to attempted entry intimidated and deterred subsequent entry attempts by projecting a determination to block entry.[9] On appeal, the Court of Justice nevertheless required proof of below-cost pricing.[10]

The chapter proceeds by examining, in Part II, the influence of the NPT concepts of rationality, competition, and efficiency over EU predation law. The rationality subsection focuses on the ATC benchmark, maximizing profits, and predating rationally. The subsection on competition closely considers perfect competition, "normal" competition,

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[6] RENATO NAZZINI, THE FOUNDATIONS OF EUROPEAN UNION COMPETITION LAW: THE OBJECTIVE & PRINCIPLES OF ARTICLE 102, 221 (2011).
[7] Guidance on the Commission's Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings (2009/C 45/02) at ¶ 1 ["Guidance"].
[8] *Id*. at ¶ 11.
[9] *ECS/AKZO* [1985] OJ L374/1, at ¶ 79.
[10] Case C-62/86 *AKZO*, 1991 ECR I-03359, ¶¶ 71-72; Case C-209/10, *Post Danmark*, at ¶ 44.

market structure — and its relation to anticompetitive foreclosure — and promoting pricing restraints on the dominant undertaking. In the efficiency subsection, I assess the as-efficient competitor test, examine potential cost measures, consider the legal effect of *Post Danmark* on prices between the AVC and ATC of the dominant undertaking, review above-cost predation, evaluate the distinction between price restraints and non-price restraints, and investigate non-cost measures of efficiency. After identifying a source of behavioral economics in EU predation law in Part III, I conclude in Part IV.

II. Influence of Neoclassical Price Theory On EU Predation Law

In addition to requiring the existence of dominance, or substantial market power, the predation test employed by EU courts and regulators also incorporates the major tenets of Neoclassical Price Theory ("NPT") — rationality, competition, and efficiency. Adopting a cost test to evaluate predation claims demonstrates a firm belief that the principles of NPT maximize welfare when applied to the predation context, even if focusing on other NPT concepts might result in a more expansive inquiry and greater levels of welfare.

A. Rationality

1. Cost Tests & Maximizing Profits

At a price below average variable cost (AVC), a monopolist maximizes profits by ceasing production; continued production constitutes irrational pricing.[11] Identifying instances in which dominant undertakings price "irrationally" warrants closer examination because market survival depends on rational pricing. Another profit-maximizing motivation must exist prompting a dominant firm to forgo short-term revenue. After determining that Tetra Pak priced below AVC (and average total cost), for instance, the EU Commission stated: "This [pricing below cost] again confirms that Tetra Pak's conduct was opposed to any economic rationality other than as part of an eviction strategy."[12]

The Commission also found the possibility of irrational pricing below ATC (and AVC) in *Wanadoo*, holding that by failing to recover accounting costs, which include an economic rate of return, defendant Wanadoo "was hovering close to, but always slightly on the wrong

[11] Opinion of A.G. N. Fennelly in Joined Cases C-395/96 P & C-396/96 P, I-1371 *Compagnie Maritime Belge Transports & Others v. Commission* (29 October 1998) at ¶ 127.
[12] IV/31043-*Tetra Pak II*, Commission Decision of 24 July 1991 (92/163/EEC) at ¶ 149 (listed in Lianos, *supra* n.2 at 187-202).

side of, the borders of economic rationality."[13] Wanadoo operated at a loss for two years while failing to generate surplus profits on other product lines.[14] To strengthen a finding of unmeritorious competition, the Commission decided that "[a]n analysis of full costs is necessary in [] light of [] Community case-law []."[15] Defendant "was aware of the dangers associated with its pricing of ADSL services from a very early stage," yet nevertheless "knowingly weighed a short-term profitability objective against an objective of vigorous penetration of the market, and [] it deliberately sacrificed the first [short-term profitability] to the second [widespread market penetration]".[16]

The irrational below-cost pricing harmed consumers only if the overall scheme proved rational by ultimately "lead[ing] to [the] maximization of profits through [] exclusionary or other anticompetitive effects".[17] The total cost standard reflected an alternative notion of rationality and suggested that while cost measures attempt to set a floor for rational pricing, various cost measures exist. NPT does not dictate precisely which measure to apply,[18] though it does support inquiring into recoupment.

NPT itself likewise does not necessarily define rational pricing by whether an undertaking prices above an appropriate cost measure. When attempting to identify profit maximizing price-cuts, both the time-frame over which, and the juncture at which, to evaluate the decision matters. As to the time-frame, no undertaking possesses comprehensive market knowledge. Each undertaking requires a margin of discretion when setting prices within which to test competing hypotheses concerning how best to meet consumer preferences while maximizing profits.[19]

Ex ante, undertakings cannot know for sure whether pricing decisions will prove profitable. By constantly testing demand conditions, an undertaking can build up

[13] COMP/38.233 – *Wanadoo Interactive*, Commission Decision of 16 July 2003, at ¶ 259 (listed in Lianos, *supra* n.2 at 187-202).
[14] *Id*. at ¶ 84.
[15] *Id*.
[16] COMP/38.233 – *Wanadoo*, at ¶ 126.
[17] *Id*. at ¶ 266.
[18] On appeal, the General Court considered evidence that the exclusionary pricing was perhaps less rational because of low entry barriers. However, it never challenged the long-term view of predation adopted by the Commission. Jay Matthew Strader, *Post Danmark's Recoupment Element*, 10(2) COMPETITION LAW REVIEW 205, 227 n.88 (Dec. 2014) (*citing* Case T-340/03 *France Telecom SA v. Commission*, [2007] ECR II-107, 93-96, 188, 221, 254-55 (*listed in*: Lianos, *supra* n.2 at 187-202)).
[19] IOANNIS LIANOS & VALENTINE KORAH, COMPETITION LAW: CASES & MATERIALS 199-200 (Hart Publishing, Oxford, forthcoming 2015).

institutional knowledge that allows it to adjust more responsively and profitably to market conditions going forward. A pricing decision may produce losses over the short-term but generate profits over the medium- to long-term. For instance, in response to fickle short-term consumer preferences, cutting prices below a particular cost measure could minimize losses rather than shutting-down. Rational pricing also could include raising prices when enough consumers fail to switch to substitute products.

Conversely, an undertaking may believe that a pricing decision will maximize profits, and that decision in fact may maximize profits in the short-term. Observed over a longer period, however, it may prove irrational. A price-cut may fail to stimulate demand, or a price-increase may drive customers to rivals or attract entrants into the market. Or lower pricing could result in inadequate revenues to differentiate sufficiently to meet evolving consumer preferences. Innovation, involving pricing decisions or otherwise, cannot occur without a margin of discretion to experiment.

The law does not burden dominant undertakings with a legal test that turns on the rationality of pricing as determined by a legal expert. It rather targets exclusionary pricing that temporarily sacrifices profits below a threshold that reveals a plan to exclude and earn profits by unmeritorious competition. As the designated threshold, cost tests also supply undertakings with a safe harbor above which they can avoid legal liability when experimenting with pricing.

2. ATC More Relevant to Rival

By charging a price that does not include a proportionate fraction of fixed costs per unit of output, the dominant undertaking fails to cover overhead expenses. A profit-maximizing undertaking cannot remain in business beyond the short-term unless the market price reaches average total cost (ATC), avoidable costs, or long run average incremental cost (LRAIC).

The average variable cost (AVC) measure seeks to identify predatory pricing by delineating the line between rational and irrational pricing from the perspective of the alleged dominant undertaking. From the perspective of the targeted undertaking or a potential entrant, the ATC of the dominant undertaking represents the more relevant benchmark. A competitor is more interested in the minimum price that the dominant undertaking must charge to remain in business beyond the short-term. The ATC or LRAIC of the dominant undertaking represents the efficient price that the rival must achieve to compete effectively

against the dominant undertaking absent predation. Any price below that measure could deter as-efficient competition, since rivals will enter a market only when the anticipated equilibrium price exceeds their own projected ATC.[20]

A price below the dominant undertaking's ATC, avoidable costs, or LRAIC also could bankrupt an existing rival that lacks the profit base, product diversification, or financing necessary to supplement a price that yields an operating loss on each unit of output. In the least competitive industries, or those featuring substantial fixed or sunk costs, this dynamic will prove most acute, permitting dominant undertakings to deter or eliminate rivals merely by pricing below ATC, avoidable costs, or LRAIC.[21]

3. Rationally Predating

Rationality also encompasses predating at the lowest cost possible to a dominant firm.[22] AKZO engaged in low-cost predation in the sense of "concentrat[ing] its price cuts on the flour additives market," a market "extremely important to [its rival] ECS but of relatively minor significance to AKZO in the context of its overall organic peroxides business".[23] Avoiding the significant losses that would follow predating in a multiplicity of markets, AKZO adopted the strategy of "achieving its aim at the lowest cost to itself"[24] — a rational pursuit in accord with NPT.

The EU Commission has closely examined predation strategies that leverage dominance across markets, termed "cross-subsidization". For example, Tetra Pak operated in four adjacent markets — aseptic machines and cartons and non-aseptic machines and cartons, maintaining dominance to varying degrees in the machine and aseptic markets — but faced competition from upstarts in the cartons and non-aseptic markets. According to the Commission, Tetra Pak pursued the exclusionary strategy of contractually requiring purchasers of machines, who also purchased cartons, to purchase cartons exclusively from Tetra Pak for the life of the machine. Tetra Pak then sold cartons below both AVC and ATC, a rational strategy because:

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[20] Abel M. Mateus, *Predatory Pricing: A Proposed Structured Rule of Reason* (March 22, 2010) at 16, 18, *available at*: http://ssrn.com/abstract=1576434.
[21] *Id.*
[22] *See generally* Bruce H. Kobayashi, *The Law & Economics of Predatory Pricing*, *in* ANTITRUST LAW & ECONOMICS 116, 127 (Keith N. Hylton ed., 2010).
[23] *ECS/AKZO* [1985] OJ L374/1, at ¶ 79.
[24] *Id.*

> Tetra Pak thereby limits competition to the area which is most favorable to it, i.e. that of machines, where the technological entry barriers are very high, especially on the aseptic market, where it enjoys a virtual monopoly. [T]hese same contractual clauses prevent the emergence of any competition in the cartons sector, where the technological barriers are much lower.[25]

Conjoining tying and below-cost pricing, but only to certain markets, enabled Tetra Pak to maximize the chance of earning profits while predating by minimizing losses.

B. Competition

1. Model of Perfect Competition

Now consider the extent to which EU predation law has incorporated the Neoclassical Price Theory (NPT) concept of *competition*. NPT generally conceives of competition as that state of economic affairs existing in perfect competition, where many suppliers produce a homogenous, undifferentiated product, and no supplier has significant control over price. A perfectly competitive market does not feature entry barriers, meaning that no firm can earn more than economic profits because supra-competitive profits would attract expanded production or entry. EU monopolization law generally attempts to promote this NPT paradigm.[26]

The model of perfect competition applies with particular relevance to predation claims because the victim of predation alleges anticompetitive exclusion from low prices. And perfect competition depicts the lowest price that an undertaking may charge in the short-run while still competing on the merits. In a peculiar twist, the short-term competitive paradigm, pricing at marginal cost, also constitutes the lower limit to competitive pricing. A predation test anchored at marginal cost therefore allows the greatest and most exclusionary price-cut consistent with continued operations; any deeper price-cut would warrant shutting-down. Consumers have access to short-term lower prices of the highest magnitude, yet a marginal cost standard, or AVC proxy, further maximizes the likelihood that price-cuts around this threshold will exclude competitors and ultimately cause higher prices.

When evaluating predation claims, EU Institutions have examined how closely the relevant market conditions resemble either perfect competition or monopoly to predict whether the alleged dominant undertaking later could profit from currently low prices by

[25] IV/31043-*Tetra Pak II*, at ¶ 120.

[26] For arguments against the model of perfect competition, *see* ROBERT H. BORK, THE ANTITRUST PARADOX 60 (1978); PINAR AKMAN, THE CONCEPT OF ABUSE IN EU COMPETITION LAW 22-23 (2012).

subsequently raising prices without prompting expanded production or entry. While a monopolist and an undertaking operating in a competitive market could lower price below cost, only the monopolist later could earn supra-competitive profits after excluding competitors. Because the relevant market structure separates the two scenarios, EU Institutions also have defined competition by reference to market structure.

Before further discussing that concept, I consider how "normal competition" relates to the NPT view of competition.

2. Normal Competition

Normal competition equates with competition on the merits, or competition based on "performance".[27] Normal competition thus embodies the competition envisioned by Neoclassical Price Theory (NPT) that drives both imperfectly competitive and monopolized markets towards the efficiency-maximizing model of perfect competition. Predatory pricing can distort the proper functioning of the price mechanism. The dominant undertaking inefficiently over-produces the relevant product, sending the inaccurate signal that costs of production are lower than reality. The over-production permits consumers who are not even willing to pay for production costs to purchase the product. The dominant undertaking could forgo this societal loss by producing products for which consumers are willing to pay the production costs. Additionally, efficient rivals also reading the inaccurate price signals, who could have produced the product at cost, now must reinvest resources into producing other products or services that consumers may not value as highly. Predation thus misrepresents market signals and corrupts the price mechanism, leading to weakened competition and inefficiency.

This outcome followed in *Tetra Pak*, facilitated by patents and technological barriers protecting both the carton and machine markets.[28] The Commission remarked that "[i]t is barely conceivable that undertakings whose conduct is dictated by the laws of the market would be able to impose contractual clauses on their clients as restrictive as [those imposed by Tetra Pak]."[29] Tetra Pak priced non-aseptic cartons individually at un-remunerative levels to exclude rivals, at least partially enabled by its dominant position in the aseptic markets. The exclusionary scheme "allow[ed] a trading policy to be pursued which no longer

[27] Case C-209/10 *Post Danmark*, at ¶ 24.
[28] IV/31043-*Tetra Pak II*, at ¶ 22.
[29] *Id*. at ¶ 146.

respect[ed] the economic reality of prices."[30] The Commission intervened to promote price competition such that supply and demand in the non-aseptic carton market again could produce efficient prices. NPT favors restoring to markets the accurate transmission of information and signals encapsulated by the price mechanism.

Deutsche Post employed a related strategy, using profits earned in the government-sanctioned monopolized market for standardized mail to fund below-cost pricing in the mail-order parcel services market.[31] The Commission again assessed liability because of the inefficiency generated by predation.

3. Structure

Predation claims cannot proceed unless the Commission initially finds dominance. Dominance means that the Neoclassical Price Theory (NPT) model of monopoly applies to the relevant market. Entry barriers exist, the defendant produces a sizable portion of market output, and it can control price levels. Dominance at least conceptually supports a presumption that predation could prove rational and profitable; recoupment is possible.

At times, EU Institutions have attempted to promote more legal notions of competition when deciding abuse of dominance cases. A primary reason is treaty obligation. Former Article 3(1)(g) EC, now Protocol No. 27 of the Treaty of Lisbon, requires that EU Institutions establish a system of undistorted competition.[32] No similar provision has required Community Institutions to maximize efficiency or total welfare,[33] though Treaty drafters and signatories must have presumed that a market structure that promoted undistorted competition generally would maximize welfare.[34]

The concept raises the question of what is the baseline or benchmark for competition, the counterfactual that would exist absent distortion. From what does the challenged conduct distort competition?[35] The treaties do not address the question of what qualifies as undistorted competition, or how to achieve an undistorted structure of competition. Mooted

[30] *Id*. at ¶ 120; *see also id*. at ¶ 105.
[31] For additional explication, *see* Strader, *supra* n.18 at 212-13.
[32] Jürgen Basedow, *Introduction*, *in* STRUCTURE & EFFECTS IN EU COMPETITION LAW 3, 8 (Jürgen Basedow & Wolfgang Wurmnest eds., 2011).
[33] Efficiency considerations matter when considering the lawfulness of agreements between undertakings under Article 101(3) TFEU, however. *Id*.
[34] *Id*.
[35] For a comprehensive discussion of undistorted competition in EU competition law, *see* LIZA LOVDAHL GORMSEN, A PRINCIPLED APPROACH TO ABUSE OF DOMINANCE IN EUROPEAN COMPETITION LAW 110 (2010).

answers by EU Institutions have included "individual freedom of action, the protection of market operators against the exercise of economic power by others, the consumer interest in the guarantee of a cheap [and desirable] supply of [] goods[,] and a collective interest in promoting technical innovation".[36]

Unfortunately, however, this non-inclusive list does not translate into principles useful in determining, for instance, when a low price qualifies as predation. Existing law, in any event, does not require that the Commission demonstrate insufficient freedom of action, inadequate supply as indicated by exploitative prices, or insufficient technical innovation, when establishing an abuse of dominance.[37] The unconfined boundaries of concepts such as economic freedom could facilitate unprincipled and overly aggressive, and thus welfare-detracting, enforcement levels.[38] The freedom to compete, for instance, does not distinguish between efficient and inefficient, or close and distant, competitors.[39] Should governments subsidize companies that allow more efficient undertakings to charge higher prices? Should it finance wasteful research that has little chance of improving welfare or appealing to consumer preferences?

Market structures that promote undistorted competition likely represent markets that approach the perfectly competitive paradigm. That benchmark appears as viable as any, though perfectly competitive markets rarely exist. Nor would society want all markets, at all times, to approach perfect competition. EU policy-makers may have envisioned another concept of competition such as "workable" competition,[40] which supports the quest for market power that drives innovation. Or they simply may have meant market conditions that foster rivalry or facilitate price and quality competition and innovation.

The Commission Guidance Paper on Enforcement Priorities in Applying A.102 TFEU — which, unlike treaty obligations, does not legally compel anything — states that rivalry drives innovation. Without the immediate threat of losing market share to potential or existing competitors, undertakings have little incentive to innovate, operate efficiently, or pass on efficiency gains to consumers. That position, of course, directly opposes the

[36] Daniel Zimmer, *Protection of Competition v. Maximizing (Consumer) Welfare*, *in* STRUCTURE & EFFECTS IN EU COMPETITION LAW 23, 38 (Jürgen Basedow & Wolfgang Wurmnest eds., 2011).
[37] *Id.*
[38] *But see* Gormsen, *supra* n.35 at 135 (discussing how a dominant position and the intent to exclude could support liability if competition agencies targeted economic freedom).
[39] *See id*. at 179-80.
[40] *See, e.g.*, Nazzini, *supra* n.6 at 174.

Austrian stance that the pursuit of market power and monopoly profits drive innovation.[41] Particularly given faint competition, the Guidance Paper continued, promoting rivalry outweighs all other considerations.[42] Rivalry reaches its peak in perfect competition. And monopoly maximizes the profits that make investment attractive. Regardless of the precise analogy, EU law could benefit from the conceptual framework provided by NPT, in terms of tracking and nudging the evolution of markets between the perfectly competitive and monopolistic paradigms.

i. Entry Barriers

Promoting competition to ensure an effective market structure alternatively could mean, when examining whether an anticompetitive abuse has occurred, focusing on the strength of entry barriers. As applied to predation analysis, EU Institutions have sought to examine whether predation significantly weakens the existing structure of competition, a result more likely if entry barriers exist. The degree of dominance greatly influences the likelihood of predation succeeding, and the strength of entry barriers is a leading indicator of dominance.

Before examining costs in *Compagnie Maritime Belge*, for example, the Court of Justice noted that the liner conference "has a very large market share and has held it for some time," demonstrating "a position of strength"[43] and formidable entry barriers. Having determined that weakened competition existed, and that entry barriers prevented any process of competitive regeneration, the Court of Justice stated that *Compagnie Maritime Belge* had a special responsibility not to impair further the existing structure of competition.[44] The more dominant an undertaking, the more restrictively that special responsibility applies. At its apogee, the special responsibility prevented *Compagnie Maritime Belge* from offering above-cost discounts to its only competitor's customers.[45]

The existence and operation of entry barriers have represented primary factors for analysis in EU predation cases. The Commission in *AKZO*, for example, determined that

[41] On the Austrian position, *see supra* pp. 25-26.
[42] Lianos & Korah, *supra* n.19 at 199-200 (*quoting* Guidance (2009/C 45/02) at ¶ 30).
[43] Joined Cases, C-395/96 P & C-396/96 P, *Compagnie Maritime Belge Transports SA, Compagnie Maritime Belge SA & Dafra- Lines A/S* (16 Mar. 2000) Judgment of the Court of Justice (Fifth Chamber) at ¶ 132 (*listed in*: Lianos, *supra* n.2 at 187-202).
[44] Opinion of A.G. N. Fennelly in Joined Cases C-395/96 P & C-396/96 P, I-1371 *Compagnie Maritime Belge*, at ¶ 62.
[45] Joined Cases, C-395/96 P & C-396/96 P, *Compagnie Maritime Belge*, at ¶ 119.

entry barriers, including start-up costs, had weakened competition sufficiently to render predation an effective strategy:

> Apart from ECS there appear to have been no recent entrants to the organic peroxides market. Having regard to the high start-up costs, and the market structure, it is most unlikely that new producers, knowing the likely reaction of AKZO, will be ready to enter the market.[46]

The Commission here refers to two separate categories of entry barriers. High start-up costs, a structural feature of the market, prevented competitors from entering or re-entering the market after AKZO raised prices. The act of repeatedly predating in response to competitive entry or expansion deterred its recurrence; it thus constituted the other category of entry barrier.[47] The interaction between structural and behavioral entry barriers raised the probability of recoupment and further demonstrated that predation can alter the existing structure of a market, protecting or enhancing the monopoly power of a dominant undertaking.[48]

The institutional relationship forged between France Telecom and Wanadoo provides an additional example of entry barriers that financially made predation an operable strategy.[49] France Telecom granted preferential treatment to Wanadoo, in the form of exclusive access to "commercial and technical deployment facilities and potential financial support".[50] Competition as conceived by the Commission and the General Court did not proceed on the relative merits of plaintiff's and Wanadoo's ability to provide desirable products or services at low-cost. Only Wanadoo could use France Telecom's distribution network, which involved a maze of exclusive commercial relationships. The advantages of that network would have required a fortune in time and money to replicate.[51] The Commission and General Court found that the structure of the market, coupled with below-cost pricing, prevented competition on the merits.[52]

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[46] *ECS/AKZO* [1985] OJ L374/1, at ¶ 70.
[47] ROBERT S. PINDYCK & DANIEL L. RUBINFELD, MICROECONOMICS 512 (8th ed. 2012).
[48] To my knowledge, U.S. federal appellate courts have not categorized the act of predation as a behavioral entry barrier, as the Commission essentially did in *AKZO*.
[49] COMP/38.233 – *Wanadoo*, at ¶ 248.
[50] *Id*. at ¶ 223.
[51] *Id*. at ¶ 243.
[52] The General Court affirmed the Commission's decision as to entry barriers and dominance. Case T-340/03 *France Telecom SA v. Commission*, [2007] ECR II-107, ¶¶ 112-118, 264 (entry barriers), 104, 108-109. The Court of Justice did not reverse this finding. Case C-202/07 P *France Telecom SA v. Commission of the European Communities*, [2009] ECR I-2369.

ii. Foreclosure versus Anticompetitive Foreclosure

The concept of foreclosure concerns preventing rivals from accessing or continuing to operate on a relevant market. Foreclosure can occur for competitive or anticompetitive reasons, for example following a price-cut. Promoting rivalry and undistorted competition by preventing foreclosure, without further inquiring into the likely effect on consumers, has motivated Commission enforcement actions at times. A potential explanation, previously recognized by Community Institutions, is to ensure equality of opportunity for "all direct or indirect users of [] products, wholesalers and retailers".[53] The purpose of EC competition law, according to this formulation, is to preserve the "freedom to compete at any level in the chain of distribution".[54] By holding that the Commission need not demonstrate that conduct challenged under A.102 "had any actual or direct effect on consumers,"[55] the General Court in *British Airways* implicitly supported the freedom to compete paradigm. It also reinforced previous findings by EU Courts that when dominant undertakings offer loyalty rebates, they generally harm consumers, enough to avoid further inquiry.

A policy of preventing foreclosure and protecting the freedom to compete — when insufficiently supported by actual or likely consumer harm — could sustain high prices. It would do so by prohibiting price-cuts from supra-competitive levels or by undertakings operating more efficiently. The competitive structure propagated here not only could raise prices in the relevant market, by sustaining uncompetitive companies, it also could preclude the more efficient and cost-effective production of goods and services in other markets, where those companies might compete more effectively.

In recent guidelines concerning enforcing Article 102, which again do not carry legal force, the Commission distinguished between foreclosure, or excluding competitors, and anticompetitive foreclosure, "that is exclusion of competitors that leads to consumer harm."[56] A competition authority or judge aiming to prevent foreclosure or to promote rivalry will

[53] Kathryn McMahon, *A Reformed Approach to Article 82 & the Special Responsibility not to Distort Competition*, *in* ARTICLE 82 EC: REFLECTIONS ON ITS RECENT EVOLUTION 121, 130 (Ariel Ezrachi ed., 2009).
[54] *Id.*
[55] Orit Dayagi-Epstein, *The Evolution of the Notion of Consumer Interest in Light of the Modernisation of Article 82*, *in* ARTICLE 82 EC: REFLECTIONS ON ITS RECENT EVOLUTION 67, 70 (Ariel Ezrachi ed., 2009) (*quoting* Case T-219/99 *British Airways v. Commission* (17 Dec. 2003) Judgment of the Court of First Instance (First Chamber) at ¶ 264)).
[56] Carles Esteva Mosso, *The More Economic Approach Paradigm — An Effects-Based Approach to EU Competition Policy*, *in* STRUCTURE & EFFECTS IN EU COMPETITION LAW 11, 16 (Jürgen Basedow & Wolfgang Wurmnest eds., 2011).

focus on the welfare of competitors when examining exclusionary conduct.[57] A competition authority or judge targeting anticompetitive foreclosure also might attempt to prevent foreclosure or promote rivalry and thereby protect competitors, but only particular competitors that advance consumer welfare. Such competitors restrain the dominant undertaking from raising price or curbing quality or innovation.[58]

A foreclosure analysis simply asks whether the challenged conduct has or will eliminate a rival. An anticompetitive foreclosure analysis goes further, examining how the elimination of rivals will affect market conditions and ultimately consumers. A shift in analytical focus towards consumer welfare underlines the importance of Neoclassical Price Theory in assessing the competitive effects of foreclosure.[59] NPT enables prognostication and testing a counterfactual hypothesis, such as comparing consumer welfare after the alleged exclusionary conduct significantly weakened or eliminated rivals (the existing or soon-to-exist scenario), to consumer welfare if that conduct had not occurred (the hypothetical scenario).[60] Exclusion that raises prices or lowers efficiency converts foreclosure into anticompetitive foreclosure.

While consistent with a structural analysis in that the competition authority or judge must examine

- entry barriers,
- the extent of product differentiation,
- the present and potential scale of the monopolist and rivals, and
- the evolution of the market,

consumer welfare guides which competing market structure to prefer. Price levels represent the foremost metric of consumer welfare, but the relationship between price and the costs of the dominant undertaking, quality, variety, and innovation also matter.

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[57] *Id*.

[58] For closest competitors, *see* GIORGIO MONTI, EU COMPETITION LAW 146, 153, 251 (2007). For competitive restraints, *see* David S. Evans, *Lightening Up On Market Definition*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF ANTITRUST LAW 60 (Einer Elhauge ed., 2012).

[59] *Cf.* Monti, *supra* n.58 at 23 ("[T]he question about whether there is competition is not whether the market is characterized by rivalry, rather whether the market in question yields economic welfare. Defining competition by judging the effects on economic welfare (the neoclassical concept) is traditionally associated with economic approaches to competition law.").

[60] Svend Albaek, *The European Commission's Priorities For Enforcement of Article 102 TFEU*, *in* STRUCTURE & EFFECTS IN EU COMPETITION LAW 41, 43 (Jürgen Basedow & Wolfgang Wurmnest eds., 2011).

4. Promoting Restraint

The EU understanding of competition historically has emphasized the restraint that particular rivals exert on each other. For example, in *AKZO*, the Commission stated that maintaining competition may require protecting a smaller or inefficient rival, if its behavior disproportionately restrains the monopolist. The idea is that "[t]he importance of a particular firm to the maintenance of competition does not depend so much upon its size as upon the impetus and direction of the competition which it provides to the larger established producers."[61] This doctrine promotes a more focused view of the competitive pairings or spheres of competition that actually enhance consumer welfare.

Targeting efficiency might permit a dominant undertaking to eliminate smaller or less efficient rivals. Competitive constraints analysis entails a more circumspect inquiry into competition, focused on whether a particular competitor, however efficient, constrains the dominant undertaking from pricing higher, providing worse service, or innovating less.[62] If a particular rival does prevent such competitive ills, competition and consumers benefit from its existence in the market, and Neoclassical Price Theory (NPT) could support antitrust enforcement to ensure its survival. NPT aims to promote not only the efficiency achieved in perfect competition, but equally important, the vigorous price and quality competition depicted in that model. Economists and policy-makers generally look to perfect competition as a paradigm because, in many if not most market settings, consumers would fare best given its existence. Promoting incentives to invest and innovate can constitute countervailing concerns.

C. Efficiency[63]

When markets operate efficiently, consumer preferences exert the greatest influence on what suppliers produce. Suppliers provide such goods and services at the cheapest price possible. The model of perfect competition depicts this peak of consumer satisfaction. Suppliers earn only an economic rate of return under such conditions, so they do everything they can, sometimes legal, sometimes illegal, to avoid perfect competition. Suppliers prefer monopoly. When no rivals exist or could appear in response to price increases, then suppliers produce an amount that drives the biggest wedge between cost and price, thereby

[61] *ECS/AKZO* [1985] OJ L374/1, at ¶ 86.
[62] Evans, *supra* n.58 at 53, 60.
[63] On the essentials of efficiency under NPT, *see* Strader, *supra* n.18 at 209-212 (& sources cited therein).

maximizing profits and the transfer in surplus from consumers to producers. Suppliers become rich. Only relatively more wealthy consumers or particularly avid fans of the product can afford to purchase it. Everyone else spends their money on less desirable products. The interaction between the monopolist and consumers determines market-wide conditions.[64]

1. As-Efficient Competitor Test

To identify price-cuts that do not qualify as merit competition, judges and competition authorities conduct an as-efficient competitor test, which compares the production costs of the dominant undertaking to the price level existing after a challenged price-cut. If the price falls below average variable cost — if the undertaking prices beneath a proxy for the most efficient price that would have maximized consumer welfare in perfect competition — then not even an efficient rival could have matched the price-cut. Other cost measures gauge efficiency beyond the short-term. Unmeritorious competition justifies liability.

Applying the as-efficient competitor test as the sole measure of predation indicates a predominant interest in preserving static efficiency.[65] The relevant question turns on whether the dominant undertaking has priced below an appropriate measure of cost, not on the competitive effects of the price-cut. Such effects include whether the exclusion of particular competitors eventually will lead to higher prices or reduced quality and innovation, or whether the excluded competitors reasonably could have achieved the efficiency of the dominant undertaking in the near future. The as-efficient competitor test exclusively targets efficiency in a relative sense. Recoupment attempts to assess the market-wide efficiency, or net effect, of predation.[66]

"A true as efficient competitor test" would involve a more detailed analysis of market conditions, "necessitat[ing] an evaluation and comparison of the cost structures of the targeted rivals and of the dominant undertaking."[67] In setting a legal standard that complies with the rule of law, and thus in ensuring that dominant undertakings can evaluate the legality of their pricing practices, EU courts have refrained from asking dominant undertakings to temper price-cuts based on a direct comparison of costs. Such information

[64] *Id.*
[65] Lianos & Korah, *supra* n.19 at 198.
[66] Strader, *supra* n.18 at 216-222.
[67] Dominik Massing, *Discussion*, *in* STRUCTURE & EFFECTS IN EU COMPETITION LAW 155 (Jürgen Basedow & Wolfgang Wurmnest eds., 2011).

may not be publicly available,[68] and promoting the exchange of such information could encourage collusion. By eliminating the need to evaluate the costs of competitors and the consequences of actual exclusion, the as-efficient competitor test saves the dominant undertaking legal costs and the judicial system administrative expenses.

2. Better Efficiency Measure: AVC, AAC, ATC, LRAIC?

As a matter of Neoclassical Price Theory (NPT), the duration over which to evaluate efficiency, or merit-based pricing, separates the competing cost-measures, average variable cost (AVC) and average total cost (ATC), discussed by the Court of Justice in *AKZO*.[69] A monopolist will price at a proxy for the most competitive price, absent short-term considerations, only when dominance no longer exists. It normally will shut-down rather than price below AVC. A monopolist will keep prices around an efficiency measure that includes both variable and fixed costs when competitive restraints approach the competitive paradigm. It will price below ATC or long-run average incremental cost (LRAIC) to exclude as well, since it would incur a loss on each sale. Sustained pricing below these measures also would prompt the monopolist to shut-down.[70] Over the long-term, prices will settle around the long-term marginal costs of the monopolist.

The Commission has recognized the importance of operating profitably even in the short-term because of the resulting competitive effects. It stated that "even if the underlying policy considerations of Articles [101] and [102] were limited [] to the achievement of short-term efficiency," the ATC test *still* more accurately assesses relative efficiency:

> [I]t is not only the 'less efficient' firms which will be harmed if a dominant firm sells below its total cost but above variable cost. If prices are taken to a level where a business does not cover its total costs, smaller but possibly more efficient firms will eventually be eliminated and the larger firm with the greater economic resources [] will survive.[71]

By arguing that a price between AVC and ATC "eventually" could exclude an as-efficient competitor, the Commission designated the medium-to-long term as the more relevant period over which to examine exclusionary pricing. During that period, ATC more accurately measures the efficiency of market-wide pricing.

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[68] Discussion Paper (December 2005) at ¶ 67 ("[I]n case reliable information on the dominant company's costs is not available it may be necessary to apply the as efficient competitor test using cost data of apparently efficient competitors.").
[69] For the tests, *see* Case C-62/86 *AKZO*, 1991 ECR I-03359, ¶¶ 71-72.
[70] RICHARD A. POSNER, ANTITRUST LAW 215 (2d ed. 2001).
[71] *ECS/AKZO* [1985] OJ L374/1, at ¶ 77.

The Commission also may have been expressing the insight that dominant firms and competitors alike rarely select price and output levels, or decide whether to enter or depart a market, by exclusively examining short-term considerations. A dominant undertaking will not lower price below-cost without considering whether and when it can raise the price again. Likewise, a potential or existing rival will not enter or cease production without analyzing its prospects over the medium-term.

The Commission in *AKZO* expressed a willingness to assess liability to pricing below ATC and above AVC if accompanied by evidence that the dominant undertaking intended to predate. The Court of Justice in *Post Danmark* recently determined that the illegality of prices below ATC did not turn on intent evidence.[72] *Post Danmark* involved competition between two companies that delivered unaddressed mail: "brochures, telephone directories, guides," and newspapers.[73] Because defendant Post Danmark had a government-sponsored monopoly "in the delivery of addressed letters and parcels not exceeding a certain weight,"[74] it could utilize common resources in both markets. Forbruger-Kontakt alleged that Post Danmark won contracts from existing customers to deliver unaddressed mail by pricing below average total costs (ATC) while above incremental costs.[75]

Similar to its holding in *AKZO*, the Court of Justice determined that inefficient production for purposes of identifying predatory pricing could occur above AVC as well:

> [T]o the extent that a dominant undertaking sets its prices at a level covering the great bulk of the costs attributable to the supply of the goods or services in question, it will [] be possible for a competitor as efficient as that undertaking to compete with those prices without suffering losses that are unsustainable in the long term.[76]

"[T]he great bulk" of a dominant undertaking's costs will include some fixed costs. In the market for delivering unaddressed mail, the Court of Justice looked beyond the short-term to designate the relevant benchmark by which to measure efficient production, "as-efficient" competition, or merit competition. Such competition would transpire around the average avoidable costs (AAC) or LRAIC of the dominant undertaking.

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[72] Case C-209/10 *Post Danmark*, at ¶ 29.
[73] *Id*. at ¶ 3.
[74] *Id*. at ¶ 4.
[75] *Id*. at ¶¶ 6, 9. Thanks to Professors Jones & Kokkoris for requesting that I provide the basic facts of *Post Danmark*.
[76] *Id*. at ¶ 38.

The Commission Guidelines on Article 82 recommend AAC as the lower threshold for liability, which includes all costs, whether variable or fixed, that the dominant undertaking could avoid by shutting down.[77] AAC does not include fixed costs common to the production of multiple products.[78] Without explicitly mentioning AAC, the Court of Justice appears to have approved of this cost measure as well. Because prices were above AVC, however, and because the Court did not explicitly state a willingness to presume the illegality of price-cuts below AAC, it did not supplant the holding of *AKZO* on this point.

The Court discussed the relevant cost benchmarks in terms of incremental costs and ATC. ATC does not represent a political conception of efficiency, but one long-term measure of efficiency under NPT.[79] The Article 102 Guidelines selected LRAIC, or the long-run costs to produce an additional increment of output, as the outer benchmark against which to measure the efficiency of competitors.[80] NPT does not dictate which measure more accurately identifies efficiency. The time-frame over which to measure efficient pricing, as determined by the selection of a cost benchmark, is a critical policy choice for predation enforcement. It raises the normative question of whether society should encourage dominant undertakings to price at an efficient level exclusively over the short-term, or also over the long-term. The answer materially will affect the difficulty of establishing liability.

Aside from NPT considerations that focus on the dominant undertaking, the choice of a cost benchmark raises subtle macroeconomic considerations as well. Relative to AVC, the other cost measures avoid favoring particular industries. Dominant firms operating in capital-intensive industries such as the technology sector require large initial investments and have lower variable costs than dominant firms operating in labor-intensive industries, including service sectors such as healthcare and hospitality. Assuming at-will labor contracts, salaries usually qualify as variable costs. Dominant technology companies more easily can exclude competitors with price-cuts down to AVC compared to dominant healthcare companies. This advantage allows dominant technology companies to achieve a relatively higher market capitalization. If labor accounts for a majority of operating costs, then the chief method for lowering costs, raising profits, and competing when demand

[77] Guidance (2009/C 45/02) at ¶ 26.
[78] *Id.*
[79] *See* Paul L. Joskow & Alvin K. Klevorick, *A Framework for Analyzing Predatory Pricing Policy*, 89 YALE L.J. 213, 252-54 (1979).
[80] Guidance (2009/C 45/02) at ¶ 67.

softens will be to fire workers. The existence of higher fixed costs provides an alternative source from which to cut costs. While disfavoring dominant firms that hire relatively more workers, an AVC test further disfavors entrants precisely in those industries where predation is most likely and effective: capital-intensive industries. Significant entry barriers characterize such industries, where prices below ATC or LRAIC most risk bankrupting entrants burdened with high start-up costs.

On the other hand, an ATC or LRAIC benchmark could dampen investment incentives in capital-intensive industries if investors there currently count investment returns to include the ability to drive competitors from the market with AVC pricing. Resetting the predation threshold to AAC would weaken the ability of dominant firms to eliminate competitors, and thus should lower their share prices. Increased competition could cause the dominant firm to discover the next technological breakthrough, however. Or an ATC or LRAIC threshold could enable the dominant firm to enter and compete more effectively in adjacent markets. NPT provides no theoretical basis to weigh short-term efficiency against competing economic concerns.

As a matter of liability, an AVC threshold will deter many more predatory pricing suits than an AAC, LRAIC, or ATC benchmark, a policy consideration that undoubtedly favors the AVC benchmark if predatory pricing is rare and ineffective. If, however, predatory pricing is more prevalent and effective, then a singular AVC threshold likely under-deters unmeritorious price-cuts. Questions of deterrence also raise challenging measurement issues that remain largely unanswered during formal predation investigations because of the inherently predictive nature of the inquiry. The fundamental question is empirical and evolutionary: Given the existence of significant market power, do price-cuts by a company responding to entry or expanded production result in lower or higher prices over time? Because a cost measure that incorporates at least a portion of fixed costs better accounts for the incentives of competitors and the sustainability of prices beyond the immediate term, it more accurately answers the question that predation poses.

3. Post Danmark & Effects

A seismic policy shift occurred in 2012 when the EU Court of Justice raised the issue of anticompetitive effects in predatory pricing cases. No longer willing to assess effects based

on the intent[81] of a dominant undertaking when it lowers prices below ATC but above average variable cost (AVC), the Court stated that henceforth it would inquire into whether, "without objective justification," the price-cut "produces an actual or likely exclusionary effect, to the detriment of competition and, thereby, of consumers' interests."[82]

A predation doctrine that determines liability based exclusively on whether a monopolist lowers price below an appropriate measure of cost equates efficiency to competitive effects. From an evidentiary perspective, it assumes adverse market effects based on the inability to match price-cuts below the most efficient price of the dominant undertaking. EU predation doctrine historically has ignored other relevant market considerations that could have indicated where prices might have settled after an initial price-cut.

Ultimate price levels determine the net effect of predation on consumers and the medium- to long-term efficiency of the practice. Regardless of the relationship between the challenged price and the costs of the dominant undertaking, consumers benefit from price-cuts that subsequently do not increase enough to produce higher overall prices, increased market power, and recoupment. Lower prices and less market power do not harm competition.[83]

4. Above-Cost Predatory Pricing

Cost tests condemn price-cuts below the shut-down price of the dominant firm not only because such prices represent inefficient pricing, which they do. After all, cost tests permit inefficient pricing above cost. Pricing below AVC demonstrates an exclusionary animus. Short- and long-term cost tests literally promote as-efficient competition by not expecting competitors to operate at a level of efficiency where even the dominant undertaking would incur losses. Conversely, when a competitor cannot match price-cuts above an appropriate measure of cost, the market potentially could operate more efficiently in the competitor's absence. Cost tests prevent high cost undertakings from continuing to serve consumers when a more-efficient firm, whether the monopolist or a rival, could produce that same good at lower cost, or utilize the less-efficient firm's resources to produce another good in another market more-efficiently. In accord with standard precepts of Neoclassical Price Theory (NPT), *AKZO* held that price-cuts above average total cost (ATC) were presumptively legal.

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[81] For a comment on effects analysis moving beyond "hypothetical cost justifications," *see* Damien Gerard, *Looking Back at a 2012 Highlight: Post Danmark*, *available at*: http://kluwercompetitionlawblog.com/2013/01/07/looking-back-at-a-2012-highlight-post-danmark/comment-page-1/.

[82] Case C-209/10 *Post Danmark*, at ¶ 44.

[83] Strader, *supra* n.18 at 234-239.

Yet NPT could support liability for price-cuts above ATC as well. In *Compagnie Maritime Belge*, the Court of Justice enjoined price-cuts above ATC (1) because the liner conference wielded "super-dominance," or market power approaching monopoly, (2) because it cut prices only on routes where the rival was competing, and (3) because eliminating the rival would eradicate all remaining competition in the relevant market.[84] Super-dominance meant years of pricing well above cost, formidable and sustained entry barriers, and the near absence of functioning competition. In one sense, the above-cost price-cuts were efficient because they moved market prices toward the perfectly competitive paradigm. In another sense, the Court recognized that the existence of competition, however feeble, constrained the dominant undertaking from inefficiently raising prices even further above preexisting levels.

AG Fennelly argued that "the mere fact that [] prices are not pitched at a level that is actually [] below total average (or long-run marginal) costs does not [] render legitimate the application of such a pricing policy."[85] In following that argument, the Court signaled that efficiency cannot outweigh competition when competition otherwise would not exist. In other words, the Court will not permit near-monopolies, no matter how potentially efficient, to eliminate all competition. More generally, efficiency is one policy consideration that must compete with others, perhaps preeminent of which is ensuring the existence of competition.

Compagnie Martime Belge raises important policy issues. Because price-cuts represent the simplest and most common method of competing, both EU and U.S. Institutions only cautiously have sought to prohibit them. Cost-tests provide a theoretical framework by which to cabin the search for anticompetitive price-cuts. Although rigid and potentially inconclusive, cost-tests contribute a degree of determinacy to an otherwise ad hoc and open-ended market inquiry. Absent cost tests, competition authorities would have to conduct a fact-intensive, merger-like review of all price-cuts initiated by dominant undertakings, aimed at predicting how competition would develop in the absence of the targeted competitor. Such an inquiry would entail substantial administrative costs. Promoting competition in markets particularly enfeebled by monopoly power might justify the administrative costs involved. That justification loses force, however, in the majority of other markets where price-cuts

[84] Joined Cases, C-395/96 P & C-396/96 P, *Compagnie Maritime Belge*, at ¶ 117, 119.
[85] Opinion of A.G. N. Fennelly in Joined Cases C-395/96 P & C-396/96 P, I-1371 *Compagnie Maritime Belge*, at ¶ 137.

above cost can represent competition on the merits. In those many markets, competition authorities or judges might have difficulty determining precisely at what level price-cuts sufficiently eliminate competitive restraints to permit market-wide higher prices. Indeterminacy in assessing an equilibrium price level after prices initially fall could render the adjudicative process arbitrary and indeterminate.

In addition to that concern, preventing exclusion above cost might involve short-circuiting the primary mechanism by which markets achieve efficiency and maximize societal welfare. By deterring dominant undertakings from cutting prices, a disregard for cost tests could place the onus on rivals to lower prices. On the other hand, cost tests represent the belief that allowing dominant undertakings maximum leeway to compete will promote consumer interests relative to the absolute existence and process of competition. Cost tests theoretically align the interests of consumers and dominant undertakings despite the fact that all businesses have a strong incentive to maximize price, along with profits.

More recently, the Court of Justice rescinded any willingness to condemn price-cuts above ATC. In *Post Danmark*, the Court held that such cuts were incapable of having "anti-competitive effects".[86] Economically speaking, that assessment is inaccurate, since short-term price-cuts above-cost that eliminate or intimidate competitors in a market characterized by dominance could lead to recoupment through yet higher-prices. The result of higher prices would depend on the market structure, particularly the strength of entry-barriers.

Reconciling *Compagnie Maritime Belge* and *Post Danmark*, the Court must be saying that unless a dominant undertaking holds super-dominance, the consumer benefits of price-cuts above-cost even in markets characterized by dominance outweigh the material administrative costs of conducting a merger-like review to identify anti-competitive price-cuts. Without a cost benchmark or the resources to initiate a merger review of the many competitive price-cuts above cost, the risk of condemning and deterring competitive price-cuts outweighs the too indefinite anticompetitive harm inflicted by lower prices above-cost. Maintaining competition, therefore, normally requires allowing anti-competitive price-cuts above cost in all but exceptional circumstances.

[86] Case C-209/10 *Post Danmark*, at ¶ 36.

5. Price Restraints versus Non-Price Restraints

The Commission Guidance on applying Article 102 TFEU reflects the extensive influence of Neoclassical Price Theory (NPT) over EU monopolization law generally, but specifically over pricing abuses. The Guidance Paper carries significant persuasive authority, since it applies much of the accumulated learning of NPT.[87] In evaluating exclusionary practices, the Commission targets anticompetitive foreclosure, or foreclosure of competitors that ultimately harms consumer welfare.[88] The Commission then sets-out conditions that generally permit anticompetitive foreclosure, including

1. the existence of significant market power, which typically accompanies high entry barriers, economies of scale and scope, or network effects;
2. the foreclosure of particularly robust competitors that, prior to the exclusionary conduct, restrained the dominant undertaking's pricing;
3. the expanse of the exclusionary practice, meaning the percentage of total sales affected; and
4. direct evidence of an exclusionary strategy, which could assist in evaluating the likely effect of the exclusionary conduct.[89]

All the factors considered relevant, except for exclusionary intent, derive from NPT.

As to the second variable above, Professor Evans has stated that "[a] competitive constraint is any factor that tends to reduce the expected profit that a firm can earn from taking some action that would harm consumers."[90] To identify such restraints, a competition authority might examine the extent to which existing competitors constrain each other from raising prices prior to the challenged practice, what competitive constraints survive the practice and whether rivals retain capacity to expand production, and whether potential constraints, such as entrants, might exert sufficient pressure on the dominant undertaking to prevent subsequent increases in price.[91]

In discussing the four factors above, the Commission states that, while it also applies to price-based exclusionary practices, because price competition generally benefits consumers, the Commission will intervene only to prohibit price-cuts that exclude as-efficient

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[87] For more on the Commission adopting NPT in the Guidance Paper, *see* Ioannis Lianos, *"Lost in Translation"? Towards a Theory of Economic Transplants*, Jean Monnet Working Paper 08/09, 31 (2009), *available at*: http://ssrn.com/abstract=1485378.
[88] Guidance (2009/C 45/02) at ¶ 19.
[89] *Id*. at ¶ 20.
[90] Evans, *supra* n.58 at 60.
[91] *Id*. at 60-62.

competitors. This cost test essentially represents a safe harbor in that anticompetitive foreclosure generally will not exist when the dominant undertaking excludes inefficient competitors.[92] But anticompetitive foreclosure still *may* exist even if the competitor cannot match such price-cuts.[93] Importantly, the efficiency of the competitor influences the inquiry into anticompetitive foreclosure only when exclusionary practices involve price, but not otherwise.[94]

The standards are inconsistent, but they also present other theoretical difficulties. As an initial matter, such a distinction creates an incentive, when attempting to exclude competitors, to use price-based methods. The Commission will analyze non-price based exclusionary conduct by whether it harms consumers, regardless of the targeted competitor's efficiency. But the Commission generally will permit the dominant undertaking to employ pricing practices to exclude less efficient competitors even if the foreclosure harms consumers. The Commission essentially substitutes the efficiency of the competitor, or whether it has achieved the efficiency of the dominant undertaking, for consumer harm in price abuse cases. Yet consumer welfare constitutes a broader concept for non-price abuses.

A cost test enforces the principle that, because a less efficient competitor cannot match the lowest price that a dominant undertaking rationally could charge, consumers do not benefit from the competition that it does add to an already uncompetitive market. Yet if the dominant undertaking chooses to exclude the less efficient competitor by a method other than lowering price, the competitive value of the rival will depend on whether its continued existence in the market contributes to consumer welfare. The means by which the dominant undertaking excludes influences the value that the targeted rival contributes to the competitive process. Surely that value exists independently of the competitive tactics chosen by a dominant undertaking.

As Chief Justice Roberts intimated in *Linkline*,[95] either the efficiency of competitors constitutes a relevant factor when determining harm to consumer welfare caused by eliminating competitors, or it does not. Whether the dominant undertaking excludes by price-based or by non-price-based methods should not alter the calculus. "What counts is the

[92] Guidance (2009/C 45/02) at ¶¶ 23, 25.
[93] *Id*. at ¶ 27.
[94] Lianos & Korah, *supra* n.19 at 134.
[95] *Pac. Bell Tel. Co. v. linkLine Commc'ns, Inc.*, 555 U.S. 438, 450, 129 S.Ct. 1109, 1119 (2009) (Roberts, C.J.). For an extensive discussion of this point and case, *see* Lianos & Korah, *supra* n.19 at 138.

effect of the specific conduct on consumers, not the price or non-price label attached to it [].”[96] Of course, expanding cost tests to non-price abuses likely would curtail enforcement.

The Commission justifies the different treatment of the two practices by arguing that price competition generally benefits consumers.[97] And it does. From an error-cost perspective, moreover, the risk of striking down a benign competitive practice (false positive) undoubtedly increases when that practice immediately benefits consumers.[98] The task of examining market conditions to determine whether prices subsequently will increase enough to outweigh an initial consumer gain may pose greater difficulty than evaluating how a practice that immediately harms, or has no effect on, consumers subsequently will influence them. Yet many exclusionary practices, including non-price practices such as tying, confer initial benefits on at least some consumers, such as providing an innovative new product or lower prices for two products.

Discerning the ultimate welfare effects of price and non-price practices alike often will require market analysis and informed prediction. Precisely because pricing practices generally benefit consumers immediately, however, judges and competition authorities also face a heightened risk of not condemning harmful price-cuts (false negative). Set to one side the administrative costs and deterrent effect of aggressively pursuing pricing practices. Purely on grounds of NPT, adequately assessing the net impact of price-cuts may require a closer examination, because pricing practices more acutely raise the risk of both false positives *and* false negatives. Their ultimate competitive effects are simply more difficult to work-out.

Under NPT, lower prices, an alternative allocation of resources that yields lower prices or greater output, or increased innovation all can raise efficiency. The relevant efficiency inquiry focuses on whether the presence of a particular competitor lowers market-wide prices, causes the dominant undertaking and other competitors to allocate resources more efficiently, or raises productivity by enhancing the incentives to innovate. The Commission also considers improved product quality and additional consumer choice as relevant objectives aside from efficiency. Whether the target of exclusionary practices, price-related

[96] *Id*. at 138.
[97] Guidance (2009/C 45/02) at ¶ 23.
[98] Thanks to Professor Lianos for raising the error-cost issue. For more on error-costs, *see* Evans, *supra* n.58 at 76-77 (citing Richard A. Posner, *Economic Approach to Legal Procedure & Judicial Administration, An*, 2 JOURNAL OF LEGAL STUDIES 399 (1973)).

or not, can avoid shutting-down while pricing at the dominant undertaking's costs does not necessarily gauge the competitive consequences of the practice.

The challenged practice might increase output and lower prices, or it might coerce additional purchases over the short-term, only because the practice excludes and enables lower output and higher prices over a disproportionately longer duration. Competitors' productive efficiency relative to the dominant undertaking also says nothing about the effect of the challenged act on innovation, quality, or consumer choice.

Measurement difficulties partially explain why competition authorities and courts have relied on cost tests to identify anticompetitive pricing conduct rather than precisely assessing any direct effect on efficiency. But measurement difficulties cannot justify a dominance regime that, on the one hand, converts a second-order question, or indirect method, for determining anticompetitive exclusionary conduct into the primary means of establishing a pricing abuse. On the other hand, the regime completely ignores the efficiency of the targeted competitor when evaluating non-price related abuses. Cost tests serve several legitimate legal and economic purposes, but exclusive reliance on cost tests to identify anticompetitive pricing abuses unduly raises the risk of inaccurate results.

6. Efficiency Defined by Other Measures

Perfectly competitive markets rarely, if ever, exist. Professor Evans has argued that companies generally avoid competing vigorously with each other. They instead expend significant resources designing methods to differentiate their products "through physical differentiation, service, quality, advertising, branding, location, and many other factors".[99] The widespread prevalence of differentiation significantly raises the difficulty of "drawing hard market boundaries,"[100] which does not mean entry barriers do not exist. Indeed, the resources expended to differentiate products can operate as robust entry barriers. The prevalence of differentiation rather means that instead of a finite number of products competing in a bounded market, many products "usually substitute along a continuum."[101] That is, most markets do not qualify as perfectly competitive or monopolistic, but rather more closely resemble monopolistic competition, or graduated competition between differentiated products. In such markets, each competitor wields a degree of market power,

[99] Evans, *supra*, n.58 at 56.
[100] *Id*. at 89.
[101] *Id*.

"but not to the extent" of a monopolist.[102] To compete successfully in markets characterized by monopolistic competition, which predominate in both the EU and U.S., companies may have to combine low prices, a sparkling brand image, and high quality.[103]

Perhaps in recognition of the widespread prevalence of monopolistic competition and of the fragmented markets upon which such competition regularly occurs, the Court of Justice recently expanded the concept of efficiency beyond productive and allocative measures — and beyond price-based measures:

> Competition on the merits may, by definition, lead to the departure from the market or the marginalization of competitors that are less efficient and so less attractive to consumers from the point of view of, among other things, price, choice, quality or innovation.[104]

If companies competed only on price, then productive efficiencies, or producing goods more cheaply, and allocative efficiencies, or employing a mix of resources market-wide that provided consumers with the goods desired at the lowest cost, accurately would measure both consumer and societal welfare. But if competition rather transpires along various categories, from quality to service features to popularity, as well as price, then consumer welfare (a substantial component of societal welfare) includes concepts beyond productive and allocative efficiency.

Expanding the metric of consumer welfare beyond price perhaps raises insurmountable administrative difficulty, however.[105] Judges and competition authorities generally lack the ability to replicate the potentially infinitesimal demand and supply data points that individuals and businesses in the market produce and respond to. The market then simultaneously processes such data points to generate existing and emerging prices, variety, quality, and innovation.

Production costs, as a proxy for perfect competition, provide the relevant counterfactual for price levels. So long as competition remains healthy, rivals will reduce prices toward that welfare-maximizing benchmark. No similarly tangible counterfactual for variety, quality, or innovation exists but the imagination of plaintiffs' counsel and judges. Businesses generally have greater expertise identifying and producing the combination of product characteristics

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[102] Monti, *supra* n.58 at 150.
[103] *Id*.
[104] Case C-209/10 *Post Danmark*, at ¶ 22; *id*. at ¶ 21; *see also* Opinion of A.G. N. Fennelly in Joined Cases C-395/96 P & C-396/96 P, I-1371 *Compagnie Maritime Belge*, at ¶ 132; Discussion Paper (Dec. 2005) at ¶ 6.
[105] Strader, *supra* n.18 at 231-32.

that maximizes welfare. The reasons why include (1) because businesses have more and better information concerning costs and consumer preferences, and (2) because the market rewards those businesses most attuned to calibrating consumer wants and producer capability — with profits, comfort, status, independence, and happiness.

Measurement difficulty equally arises when gauging innovation. Consumers may not want the same good or service produced more cheaply, but might prefer a more expensive product that combines functionalities, such as telephone and computer services, particularly if friends are buying it. Once a company manufactured a new product, then one could speak of efficient production, but productive or allocative efficiency does not necessarily generate differentiation or innovation. The term "dynamic efficiency" purports to capture innovation, but price viewed as a measure of the willingness of consumers to pay does not fully internalize the innovation process. Both lower and higher prices could spur innovation.[106]

Neoclassical Price Theory (NPT) more generally fails to depict innovation and differentiation as a distinct or freestanding efficiency. Productive efficiency represents a singular snapshot of a company's cost level, or of the relationship between costs and prices at a company or in a particular market. Economists use the term dynamic efficiencies to illustrate forces, such as innovation, that generate efficiencies over time. Under standard models of NPT, innovation often causes a supply-side shock that raises productivity levels or lowers costs, thus generating productive and allocative efficiencies. Innovation also could shift the market demand curve outward, but it may have no effect at all. The importance of innovation for producing wealth and welfare, however, has prompted economists and competition authorities to analyze the variable separately. Indeed, the Commission has justified protecting the process of competition and rivalry as an essential engine of innovation and thus as an essential cause of "dynamic efficiencies".[107] Incentives to innovate and differentiate thus ultimately produce productive and allocative efficiencies, but the phenomenon does not represent a separate category of efficiency.

Measurement difficulty even complicates targeting allocative efficiency. While judges and competition authorities can observe and analyze price levels, and compare prices to the

[106] A lower price might provide a compelling incentive to innovate so as to raise price and exclude competitors. A higher price, if representative of significant profit margins, will provide the means to invest in research and development.
[107] Guidance (2009/C 45/02) at ¶ 30.

costs of the dominant undertaking, they cannot practically measure allocative efficiency. It, too, represents a nebulous concept, because allocative efficiency essentially is a macroeconomic concept. Instead of the insular, microeconomic focus of productive efficiency, allocative efficiency depends on a cascade of hypothetical, but-for opportunity costs that no judge or competition authority could map with any degree of confidence. Its contours and value would depend on the reaction of both consumers and producers acting rationally, boundedly rationally, and irrationally to presently non-existent market conditions. To improve allocative efficiency in concentrated markets outside of natural monopoly situations, lawyers and economists generally recommend greater output and more intense competition, which would restrain pricing.[108]

The reader should not interpret the above discussion highlighting the importance of price levels to identifying consumer welfare, alternatively in terms of producing consumer surplus and encouraging innovation, as a prescription for ignoring productive efficiency. The Commission in *Wanadoo* appeared to separate the efficiency of a practice from whether it raises competitive concern:

> [W]hile the search for scale economies and learning effects may be included among the rational justifications for predatory behavior, it may not serve to legitimize that practice from the point of view of competition law since it has the effect of conferring a more favorable cost structure on the dominant undertaking to the detriment of its competitors.[109]

The Commission would forbid a dominant undertaking from lowering prices in certain instances even when justified by the pursuit of scale economies and learning effects — by the pursuit of efficiency, if such efficiency confers a competitive advantage on the dominant undertaking. Attaining such advantages, of course, constitutes the objective of all competitive action. Consumers gain from lower prices when undertakings operate in a productively and allocatively efficient manner, even if they eliminate competitors. When dominant firms lower prices not as a ploy for subsequently higher prices but to exclude competitors by producing more cheaply, society unequivocally should encourage that pursuit. Discouraging it will weaken competition, cause higher prices, and harm consumers. *Removing* the pursuit of efficiency from the competitive process literally turns competition

[108] Judge Bork argued that monopolization law should act "as a mesh that stops output-restricting behavior and permits efficiency-creating activity to pass through". Bork, *supra* n.26 at 70.
[109] COMP/38.233 – *Wanadoo*, at ¶ 309.

on its head, rendering the concept meaningless or detrimental as a principle to guide antitrust policy, and as a benchmark to monitor markets.

III. *Existing* Influence of Behavioral Economics on EU Predation Law

This section endeavors to describe the implicit influence of psychology, or Neoclassical Price Theory (NPT) and psychology, on existing EU predatory pricing law. Though not mentioning the term, the EU Commission anticipated the contribution of the availability heuristic to the value of predating as far back as *AKZO*, by noting that consistently pricing below cost in response to attempted entry likely would deter future entry attempts, thereby enhancing the anticompetitive effect of predation. The availability heuristic is a concept originating in behavioral economics that states that when calculating the probability of an event occurring, individuals overweight anecdotal evidence, particularly vivid or memorable events receiving widespread media attention.[110] They thus perceive a higher probability of an event occurring than what actually exists.

EU Institutions described the psychology of predation when first evaluating the practice, specifically how previous instances of pricing below-cost can intimidate and deter rivals contemplating entry. This effect greatly enhances its profitability:

> The annual reports of AKZO [] indicate that smaller firms which have attempted to expand their market share or penetrate new markets have almost invariably been unsuccessful in the face of AKZO's response … Apart from ECS there appear to have been no recent entrants to the organic peroxides market.[111]

In each prior instance of attempted entry or expansion, AKZO responded by pricing below-cost, which so thoroughly thwarted rival entry that apart from the then-current target, ECS, no rivals had attempted recent entry into the relevant market. Such facts amount to a textbook example of how the availability heuristic can deter market entry in response to predation.

The Commission already had established AKZO's dominance, so rivals knew of AKZO's superior market position, in terms of entry barriers and product differentiation. These facts alone would have deterred a fair measure of entry or expansion. Having additionally observed the low prices that repeatedly blocked previous entry attempts, managers at

[110] *See, e.g.,* Christine Jolls, *Behavioral Economics Analysis of Redistributive Legal Rules*, 51 VAND. L. REV. 1653, 1662 (1998).
[111] *ECS/AKZO* [1985] OJ L374/1, at ¶ 70.

potential entrants very likely responded by overestimating the probability of an identical outcome recurring, that is failed entry, and thus pursued other market opportunities.[112]

AKZO, the dominant undertaking, having deterred potential entrants by demonstrating a willingness to incur losses, reaped bountiful returns. AKZO undoubtedly earned enough to recoup the original investment in below-cost pricing because, after all, AKZO continued the practice for many years during which its profit margins never fell, and during which it never lost market share to competitors. All of which demonstrates the profitability, and thus the rationality, of the practice under NPT. To break the cycle of deterrence, to prevent AKZO from continuing to deploy predatory pricing as an entry barrier, and to improve market conditions for competition, the Commission found that the pricing practice violated A.102. It commented that "the elimination of ECS would have a dissuasive effect upon any other small producer which might be minded to attack AKZO's established market position."[113]

Yet the Commission did not consider the psychology or deterrent effect of predation in isolation. "Having regard to the high start-up costs, and the market structure, it is most unlikely that new producers, knowing the likely reaction of AKZO, will be ready to enter the market."[114] Without dominance, including high structural entry-barriers, employing predation as a behavioral entry barrier loses exclusionary potency. Stated differently, AKZO's success at eliminating and deterring potential entrants hinged not only on the exclusionary and intimidating effect of below-cost pricing, but at least equally on AKZO's ability to control prices and to exercise market power, protected by structural entry barriers.

Given the difficulty of, and discretion involved in, accurately defining markets, evidence of previous instances of predation could prove telling, particularly in markets subject to tipping. Where competition authorities are attempting to establish dominance or considering whether to examine more closely certain pricing practices, identifying previous instances of substantial price-cuts in response to entry or rival expansion could help demonstrate market power. Or it at least could alert competition authorities to the potential for dominance, prompting a closer review of market conditions and the probability of recoupment. The absence of previous instances of predation, of course, does not absolve a current attempt. A

[112] *But see* Avishalom Tor, *The Fable of Entry: Bounded Rationality, Market Discipline, And Legal Policy*, 101 MICH. L. REV. 482, 504-531 (2002) (discussing the strength of overconfidence bias in the context of entry).
[113] *ECS/AKZO* [1985] OJ L374/1, at ¶ 86.
[114] *Id*. at ¶ 70.

dominant undertaking may be investing in the deterrent effect. But a sequence of substantial price-cuts in response to entry or expansion raises the issues of dominance and deterrence, and further enhances the probability of recoupment.

This analysis, focused on contextual market conditions, can occur mostly outside the framework of comparing prices to costs. The A.102 Guidance on Enforcement Priorities highlight how behavioral considerations alone, specifically an intention "to influence the expectations of potential entrants and thereby deter entry," can alert the Commission to the possibility of predatory pricing, if the resulting reputation risks anticompetitive foreclosure.[115] The Commission must proffer:

(1) evidence concerning multiple markets and periods;

(2) evidence that the dominant undertaking actively seeks to deter entry; and

(3) evidence that potential competitors can observe or otherwise identify the predatory behavior that excludes or weakens a current rival.[116]

The Commission in *AKZO* found the psychology of predation even more compelling than cost-analysis, though admittedly in a case involving below-AVC pricing.

> The important element is the rival's assessment of the aggressor's determination to frustrate its expectations, for example as to [the] rate of growth or attainable profit margins, rather than whether or not the dominant firm covers its own costs.[117]

The Commission was willing to assess liability at least partially based on AKZO's determination to prevent entry, without any additional proof of pricing below cost.

The Court of Justice in *AKZO*, however, overruled the Commission's decision on this point when it set-out the cost framework that until *Post Danmark* solely governed predation liability.[118] While demonstrating that pricing below cost still constitutes a prerequisite to proving predation, behavioral considerations, particularly the availability heuristic, remain relevant to establishing anticompetitive effects and recoupment.[119]

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[115] Guidance (2009/C 45/02) at ¶ 68.
[116] Discussion Paper (Dec. 2005) at ¶ 119.
[117] *ECS/AKZO* [1985] OJ L374/1, at ¶ 79.
[118] Case C-62/86 *AKZO*, 1991 ECR I-03359.
[119] The year that it decided *AKZO*, the Commission implicitly echoed the importance of behavioral considerations in *Hilti*, acknowledging the disciplinary and anticompetitive potential of selective price-cuts by a dominant undertaking. *See* IV/30.787 & 31.488 – *Eurofix-Bauco v. Hilti* (88/138/EEC) (No. L 65/19) Commission Decision of 22 Dec. 1987 at ¶ 81 (listed in Lianos, *supra* n.2 at 187-202).

IV. Conclusion

The claim of predatory pricing would not exist absent the widespread acceptance, in legal and economic circles, of Neoclassical Price Theory (NPT). All existing liability tests for predatory pricing, and the vast majority of conceivable alternatives, derive from its tenets. The structure of the EU test conceptually permits greater liability relative to the prevailing test in the U.S. In *Post Danmark*, however, the Court ordered proof of anticompetitive effects for prices between average total cost and average avoidable cost. Prior to that holding, the Commission did not need to establish the recoupment of losses initially sustained, nor did it have to examine competitive restraints after the predation phase.

Requiring plaintiffs to satisfy additional elements to a legal test raises the difficulty of proving liability. Yet the Commission brought scarce few predatory pricing claims after *AKZO*,[120] which meant that enforcement levels in the EU, notwithstanding claims brought by National Competition Authorities, arguably did not even match U.S. levels, at least prior to *Brooke Group* in 1993.

Other legal considerations have dampened enforcement levels as well. The perceived administrative costs of properly assessing anticompetitive effects, the rule of law attributes of a cost test, and the legal intuition that an imprecise liability rule might deter price-cuts — all have outweighed the theoretical shortcomings and inaccuracy of cost tests. Add to these legal factors the suspicion popularized by the Chicago School that predatory pricing is "rarely tried, and even more rarely successful,"[121] and enforcement levels on both sides of the Atlantic have proved minimal at best.

For those skeptical of monopolization enforcement generally, the claim of predatory pricing has provided a model of how to curtail enforcement. Cost tests represent the lifeblood of that model, so skeptics have attempted to apply that test wherever possible to other monopolization claims, most commonly to pricing abuses. Because the legal factors discussed above that have proved so effective at dampening predation enforcement do not necessarily apply with equal vigor to other monopolization claims, even to other pricing abuses, and because cost tests derive from NPT, NPT itself likely can supply the most robust

[120] Thanks to Professor Lianos for bringing this fact to my attention.
[121] *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 589, 106 S.Ct. 1348, 1357 (1986) (Powell, J.).

conceptual opposition to the advancement of cost tests into areas of monopolization law where other NPT considerations more aptly would determine welfare.

CHAPTER 4: TYING LAW & ECONOMICS

I. Introduction

Tying and bundling harm consumers by foreclosing competitors, curtailing choice, and raising prices. The European General Court has indicated that it will apply the same analysis to evaluate both practices.[1] Tying relies on market power in one product to force sales of another product, thereby excluding rivals in a tied market that cannot compete effectively with the tied package. For the practice to raise antitrust concern, the exclusion or weakening of rivals additionally "must harm the competitive process and thereby harm consumers,"[2] which predominantly means that the practice must increase prices in the tied or the package market. In the United States, to avoid the label of "monopoly leveraging," which generally will preclude liability, the practice further must protect, create, or pose a dangerous risk of creating market power: the ability to price above cost.[3]

This narrative of consumer harm, both the origin of coercive potential and the anticompetitive ends achieved by the practice, derive from Neoclassical Price Theory (NPT). Unless an undertaking has pricing power in a tying market, it cannot force consumers to purchase unwanted products. In competitive markets, an attempt to tie an unwanted product will fail because consumers simply will switch to alternative suppliers offering the tying product individually.[4] If consumers do buy the package in competitive markets, they must prefer the combination to individual consumption. Market power directly influences the level of forcing that a dominant undertaking can apply, and thus the means by which the practice harms consumers. Significant market power in the tying product increases the likelihood that consumers will forego purchases of preferred tied alternatives.

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[1] Case T-201/04 *Microsoft Corp. v. Commission*, Judgment of the Court of First Instance (Grand Chamber), ¶¶ 840, 851, 971 (17 Sept. 2007) (in considering Microsoft's tying practice, the General Court uses the term "bundling") (*listed in*: Ioannis Lianos, *Is The Availability of 'Appropriate' Remedies A Limit To Competition Law Liability Under Article 102 TFEU? The Mischiefs of 'Discretionary Remedialism' In Competition Law*, *in* COMPETITION LAW & THE ENFORCEMENT OF ARTICLE 102, 165, 187-202 (Federico Etro & Ioannis Kokkoris eds., 2010)).

[2] *United States v. Microsoft Corp.*, 253 F.3d 34, 58 (D.C. Cir. 2001) (per curiam).

[3] For a concise discussion of monopoly leveraging, *see* Roger D. Blair & Amanda K. Esquibel, *Some Remarks on Monopoly Leveraging*, 40 ANTITRUST BULL 371, 373-75 (1995). For a discussion of a broader notion of leveraging and tying, *see* Louis Kaplow, *Extension of Monopoly Power Through Leverage*, 85 COLUM. L. REV. 515 (1985).

[4] HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION & ITS PRACTICE 449 (4th ed. 2011).

Critical to the claim as well, of all consumers buying the tied product, the percentage independently also buying the tying product, or who would buy that product if the price were lower, greatly influences the ability to exclude.[5]

Exclusion in any market, standing alone, does not harm consumers and should not warrant antitrust liability. Even unmeritorious competition that does not reduce efficiency or transfer consumer surplus to the dominant undertaking does not harm consumer welfare. Nevertheless, tying jurisprudence in both the U.S. and EU has sought to promote merit competition between tied goods.[6] For antitrust injury to exist, the Fifth Circuit Court of Appeals has stated that the exclusion must alter competitive conditions in the relevant markets such that the dominant undertaking can raise prices without prompting enough customers to switch to alternative suppliers to render the price-hike unprofitable.[7] The independent requirement of the quasi-per se rule that the tying arrangement affect a substantial amount of commerce in the tied market relates directly to price levels. If the arrangement does not foreclose above that threshold, it will not affect competition, consumer choice, and price levels enough to justify enforcement. The tying arrangement must confer pricing power on the dominant undertaking, or move market conditions in the tied or package market closer to the monopoly model.

Taken together, the arrangement must substantially lessen competition or significantly impede effective competition, in particular by strengthening dominance. That will occur only if the tie-in excluded competitors that restrained the dominant undertaking from raising prices, and remaining or potential rivals cannot expand or enter the tied or package market in time to prevent sustained price increases. Similar to predatory pricing, therefore, rationality, competition, and efficiency supply the conceptual framework that best explains modern tying jurisprudence.

Tying law implemented NPT at the outset through the quasi-per se test, conceived by the U.S. Supreme Court in *Jefferson Parish*. The D.C. Circuit Court of Appeals in *Microsoft* more recently endorsed the rule of reason, in effect a substantially lessening of competition

[5] RICHARD A. POSNER, ANTITRUST LAW 198 (2d ed. 2001).
[6] *See, e.g., Microsoft*, 253 F.3d at 87.
[7] *See generally Roy B. Taylor Sales, Inc. v. Hollymatic Corp*, 28 F.3d 1379 (5th Cir. 1994) (Higginbotham, J.).

approach, to evaluate technological tying.[8] The elements to the quasi-per se test remain the guideposts to this more flexible inquiry, however.

The EU Commission and General Court in *Microsoft I* concurred by administering a structured rule of reason, which entailed methodically applying the elements to the quasi-per se approach previously used to evaluate contractual tying. Because technological tying more likely produces efficiencies and innovation, the EU Institutions refused to presume foreclosure, instead assuming the burden to establish "real foreclosure effect[s]".[9] In addition, they gave Microsoft an opportunity to prove an objective justification, or net efficiencies, that might have outweighed any demonstrated foreclosure effects, though Microsoft failed in this endeavor.[10] The final step to this analysis involved assessing Microsoft's tying practice holistically. The General Court concluded that "there was a reasonable likelihood that tying Windows and Windows Media Player would lead to *a lessening of competition* so that the maintenance of an effective competition structure would not be ensured in the foreseeable future."[11]

The quasi-per se test first determines the existence and extent of market power in the tying product. Absent pricing power, though not necessarily monopoly power, the inquiry ends. The dominant undertaking must tie together separate products, otherwise competition law would punish companies for manufacturing a product, adding extra features, or otherwise improving the product. The NPT concept of consumer demand, or whether consumers exhibit sufficient willingness to pay for separate products, governs the separate product inquiry. Yet the United States Supreme Court and the D.C. Circuit further have found that supply conditions — specifically, the extent to which efficiencies permit discounts on a tying package — endogenously influence demand conditions.[12]

A focus of the abuse, the tying arrangement must force the purchase of an unwanted product. Oligopoly market structures in and around the tied product market can muddy the determination whether the tie-in links an unwanted product, since competitors capable of testing the desirability of the tied product or package by differentiating around it may refrain from doing so to deter incursion into markets where they hold pricing power. Judges and

[8] *Microsoft*. 253 F.3d at 94-95.
[9] Case T-201/04 *Microsoft*, ¶ 1009.
[10] *Id*. at ¶ 1100.
[11] *Id*. at ¶ 1089 (emphasis added).
[12] *See infra* Part II(C)(ii) & sources cited therein.

competition authorities thus often focus on the extent of market power or anticompetitive foreclosure to gauge coercive potential.

Finally, a quasi-per se tying claim must establish the foreclosure share; de minimus foreclosure unlikely will harm competition by raising prices. Because U.S. antitrust plaintiffs anyway must establish antitrust injury or consumer harm in all monopolization cases, U.S. judges and competition authorities essentially could combine the separate inquiries here, as the EU Courts have done, and search for anticompetitive foreclosure, or foreclosure that ultimately harms consumers by raising prices or curtailing quality or choice. Tying jurisprudence under either the *Jefferson Parish* or the respective EU and U.S. *Microsoft* approaches focus on the relevant NPT factors that determine the exclusionary and anticompetitive potential of tying arrangements.

In addition to this Introduction, the chapter contains one substantive section and a Conclusion. Section II discusses the NPT Foundations to Tying. In Subsection A, I set-out how NPT explains the general consumer harm and benefits associated with tying. Subsection B turns to the relevance, under NPT, of market power in the tying product. Subsection C argues that coercion cannot exist absent market power. Subsection D discusses the importance of requiring separate products under NPT, while Subsection E considers Anticompetitive Foreclosure in the tying context, as conceived by NPT.

II. Neoclassical Price Theory Foundations to Tying

A. Consumer Harm & Benefit

Unlike predatory pricing, which purports to damage consumers exclusively through the price mechanism, because the initial effect of tying is to coerce consumer choice, the claim raises the possibility that monopolization law might focus on an aspect of consumer welfare other than price or efficiency levels. Yet most of the various theories expounding on the pro- and anticompetitive effects of tying — from damage to the tied market to the tying market to the net effect on both markets — generally measure consumer harm by the resulting effect on prices. Neoclassical Price Theory (NPT), by setting-out how exclusionary practices influence prices, and how prices in turn influence levels of product variety and innovation, has supplied the theoretical tools by which judges and competition authorities have evaluated tying arrangements.

In measuring anticompetitive effects, NPT recommends first determining whether supply and demand conditions resemble competitive or monopolized markets, and second looking to whether the tying arrangement alters market conditions towards the monopoly paradigm. Even efficiency concerns matter to consumers only to the extent that they cause prices to fall or improve quality and variety.

United States federal courts generally have implemented an overarching concern for price levels through the antitrust injury doctrine, which requires a plaintiff to demonstrate, as a condition precedent to establishing liability, that the challenged conduct harmed consumers. U.S. federal judges have utilized the doctrine to dismiss monopolization claims where the plaintiff could not demonstrate a viable theory of consumer harm. Harm to individual competitors, including lower profitability or even exclusion, do not necessarily count as antitrust injury. While alternative measures to consumer welfare exist, such as greater product variety, quality, or innovation, price represents the most tangible and important measure. Consumers care about variety, quality, and innovation. Assuming a properly defined market, however, the majority of consumers in that market care most about price levels. Consumers otherwise register their preferences for product characteristics in their willingness to pay for them.

Judges and economists (unlike consumers), in any event, have difficulty determining whether the higher prices that generally accompany greater quality, on balance, contribute to consumer welfare. Quantifying variety, quality, and innovation in the aggregate poses extraordinary measurement difficulties, not least because judges and even economists do not have the tools to make interpersonal utility calculations.[13] Price performs this function, in the interplay of supply and demand in the relevant market. Market intervention that attempted to promote aspects of consumer welfare other than price, if price otherwise functions properly, could resemble regulation, which only severe market failure can justify. It often would require ad hoc, subjective judgments.

In the U.S. and EU Microsoft cases, which receive central treatment in this chapter, the price of the tied good was not a relevant factor, since consumers ostensibly received web portals and media players for free. However, these freebies existed only because they

[13] On interpersonal utility calculations, *see* Richard A. Posner, *Rational Choice, Behavioral Economics, and the Law*, 50 STAN. L. REV. 1551, 1557-58 (1998).

protected pricing power in the operating system market. This dynamic enabled the presiding judges and enforcement officials to highlight how the tying arrangement harmed other aspects of consumer welfare and the competitive process, such as product quality and innovation.[14] Where prices exist, prohibiting exclusionary practices that raise prices enable judges and competition authorities to promote consumer welfare by an objective measure.

As an example of the centrality of price-effects even in tying jurisprudence, the Fifth Circuit encountered a vertical tying arrangement between hamburger patty machines and patty paper in *Hollymatic*.[15] While not outwardly discussing the antitrust injury doctrine, the Court did *not* examine the four elements of the quasi-per se tying rule because, even assuming a tie-in existed, the forced purchase did "not purport to affect prices charged for … goods."[16] Conditions in the patty paper market suggested that, although the particular plaintiff dealer could not sell other brands of paper, fierce competition and the absence of entry barriers there ensured that the tying arrangement did not raise prices to paper purchasers.[17] Implicitly, the Court also must have found that Hollymatic lacked significant market power in patty machines; otherwise the tying arrangement might have foreclosed enough paper sales to raise prices. Or perhaps alternative uses of paper overwhelmed the amount used in machines such that even full foreclosure of paper competitors active in supplying machines would not raise the price of paper. Either way, the price of paper constituted the fulcrum of the analysis. Because consumers responded to the higher price dictated by the tying arrangement simply by purchasing machines or paper elsewhere, the tie-in could not have harmed them. "Now this may have cost [plaintiff] money — injured it — but it belies its claim of injury to competition."[18]

1. NPT Explains How Tying Benefits Consumers

NPT has supplied the narrative concerning how tying can benefit consumers. The ubiquity of tying, in both competitive and concentrated markets, suggests that the practice can serve consumer interests. The tying of lectures to the pursuit of university degrees, keyboards to the purchase of computers, and baggage transport to the purchase of airline tickets, all can benefit consumers. Generally, providing choice may cost more than limiting

[14] *See, e.g.*, Case T-201/04 *Microsoft*, ¶¶ 1057, 1088.
[15] *Id*. at 1380.
[16] *Hollymatic*, 28 F.3d at 1382-83.
[17] *Id*. at 1384-85.
[18] *Id*. at 1385.

purchasing options, which can simplify production and lower prices. "Limiting combinations of options can save fixed costs associated with a full range of product offerings and can foster product-specific cost reductions"[19] that lower marginal cost, as when greater scale allows an undertaking to move further down its average cost function. Tie-ins further can enhance productive and transactional efficiency not only by lowering costs, but also by improving product quality and facilitating distribution.[20] Higher product quality from the forced purchase of appropriate and well-functioning input products and spare parts can save consumers on repair costs and can help the tying undertaking build a reputation for reliability that can lower advertising costs and thus prices. Justice Scalia also has spoken of the potential that tying "may, through the resultant manufacturer control of aftermarket activity, yield valuable information about component or design weaknesses that will materially contribute to product improvement."[21]

Tying additionally can benefit consumers by eliminating double marginalization. If prior to the tying arrangement, two separate entities charge monopoly prices in the tying and tied markets, then two sets of monopoly mark-ups, or two sets of deadweight losses, exist. Those losses represent, according to NPT, the allocative and productive inefficiencies caused by lowering output, raising cost, and pricing some consumers out of the market.[22] But if the tying undertaking vertically integrates, offers both products as a package, and replaces the second monopolist, then it can charge one monopoly mark-up that reduces the previously applicable deadweight losses from two to one.[23]

Of course, when consumers purchase the tying and tied products in variable proportions, the tying undertaking generally will not replace a pre-existing monopolist in the tied market, but rather will weaken or eliminate a number of oligopolists. The additional weakening of competition in the tied market may allow prices there to rise above pre-entry or pre-tying levels, so the double marginalization theory requires careful analysis.

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[19] Alden F. Abbott & Joshua D. Wright, *Antitrust Analysis of Tying Arrangements & Exclusive Dealing*, in ANTITRUST LAW & ECONOMICS 183, 190 (Keith N. Hylton ed., 2010).
[20] Hovenkamp, *supra* n.4 at 436.
[21] *Eastman Kodak Co. v. Image Tech. Serv., Inc.*, 504 U.S. 451, 502, 112 S.Ct. 2072, 2100-2101 (1992) (Scalia, J., dissenting).
[22] Hovenkamp, *supra* n.4 at 471; *cf.* Robin Cooper Feldman, *Defensive Leveraging in Antitrust*, 87 GEO. L.J. 2079, 2083 (1998-99).
[23] *Id*. at 471.

2. NPT Explains How Tying Harms Consumers in Tied Market

NPT further has explained how tying arrangements can harm consumers. Consider first the tied market. By forcing consumers of the tying product to buy the tied product as well, an undertaking with market power in the tying product can reduce demand for competing tied products by foreclosing pre-existing sources of sales.[24] Conversely, the dominant undertaking, through compulsion, enhances demand for its own tied product.[25] The potential for monopolization of the tied good arises because of foreclosure. If joint consumption of the tied and tying products accounts for a high enough percentage of tied market sales, then the tying arrangement could reduce competitors' profits "below the level that would justify continued operation".[26] This result is particularly likely either when high fixed costs characterize the tied product market, since a rival reduced to a small market share then will have higher unit costs.[27] Or when the tied product market exhibits scale economies such that the foreclosure prevents competitors from attaining the sales necessary to match the dominant undertaking's costs and prices.[28] In both cases, the tied product market resembles oligopoly, not perfect competition. Consumer harm customarily follows the exit of tied market rivals, which allow the dominant undertaking to raise prices.[29]

Notice how, given the presence of scale economies, the tie-in can eliminate equally efficient competitors. Tied product rivals could have the exact same average cost function (average cost as a function of quantity) as the dominant undertaking yet still lack the ability to price competitively because the tie-in has moved the rival up that average cost function.[30] A tying arrangement need not even force rivals to exit the market to harm consumers. In addition to inhibiting the realization of scale economies, the abuse can deprive rivals of the "network effects or economies of [] scope, distribution, supply, research, or learning"

[24] Abbott & Wright, *supra* n.19 at 187.
[25] LAWRENCE A. SULLIVAN & WARREN S. GRIMES, THE LAW OF ANTITRUST: AN INTEGRATED HANDBOOK 386 (2000).
[26] Michael D. Whinston, *Tying, Foreclosure, & Exclusion*, 80(4) THE AMERICAN ECONOMIC REVIEW 837, 838-39 (Sept. 1990).
[27] Nicholas Economides, *Tying, Bundling, and Loyalty / Requirement Rebates*, in RESEARCH HANDBOOK ON THE ECONOMICS OF ANTITRUST LAW 121, 135 (Einer Elhauge ed., 2012).
[28] Abbott & Wright, *supra* n.19 at 188.
[29] Whinston, *supra* n.26 at 839.
[30] Economides, *supra* n.27 at 139.

required to compete effectively with the dominant undertaking in the tied product market.[31] If the tying arrangement impedes rivals' ability to restrain price increases in the tied product market in any such ways, it will have harmed consumers even if rivals continue to compete at a weakened capacity.[32]

The analysis under NPT need go no further, but a tie-in followed by rival exit also reduces product variety,[33] a component of consumer welfare. Accounting for price and non-price features, a tying arrangement can eliminate even more efficient rivals that can produce a higher quality or otherwise more desirable tied product at the same cost.[34] By employing market power to "impair competition on the merits in another market," a tying arrangement can insulate "a potentially inferior product [] from competitive pressures,"[35] the absence of which ensures lower product quality and variety and higher prices.

If the objective of the tying arrangement is to enhance market power in the tied product market, to assess the likelihood of that objective, and thus to assess the likelihood of consumer harm, NPT requires examining market conditions there. Assuming that consumers purchase the tying and tied products in variable proportions and that the undertaking has market power in the tying product, Justice O'Connor has argued that acquiring pricing power in the tied product market as well turns on whether a number of stable sellers already occupy that market, and on the pre-existing strength of tied market entry barriers.[36]

Oligopolistic conditions in the tied market further might prompt a dominant undertaking to employ a tying arrangement strategically to exclude rivals, such as when a competitor there is experiencing operational or financial difficulty, or cannot extend or secure a credit line. Introducing a tie in such circumstances can force a vulnerable competitor to exit the tied market, even when the tying arrangement does not maximize the dominant undertaking's profits in a static sense.[37] Yet because tying often constitutes a low-cost form of exclusion, particularly if the dominant undertaking already operates in the tied market, tying can bolster

[31] Einer Elhauge, *Tying, Bundled Discounts, & the Death of the Single Monopoly Profit Theory*, 123 HARV. L.R. 397, 413 (2009).
[32] *Id*.
[33] Whinston, *supra* n.26 at 839.
[34] Elhauge, *supra* n.31 at 417.
[35] *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 14-15, 104 S.Ct. 1551, 1559 (1984) (Stevens, J.).
[36] *Jefferson Parish*, 466 U.S. at 38, 104 S.Ct. at 1572 (O'Connor, J., dissenting).
[37] Whinston, *supra* n.26 at 849.

profits even if the arrangement does not foreclose extensively.[38] If the tie-in costs the dominant undertaking little, and thus requires minimum or no profit sacrifice, even marginally weakening competitors justifies the arrangement if it curtails their ability to innovate or lower prices.[39]

Tying arrangements also can misallocate resources, lower productive efficiency, and transfer wealth away from consumers.[40] When tied consumers switch to inferior or less desirable products because of the tie-in, tying contributes to allocative inefficiency and deadweight loss, and more likely lessens total welfare. At least a partial misallocation of resources is inherent to any tie-in. The coercion or forcing of consumers to buy one product along with another redirects resources away from tied products that some consumers otherwise would have purchased. The size of the foreclosure share — particularly that subset of consumers who would have bought competitors' tied products but-for inelastic demand in the tying market — represents the extra resources misallocated to the dominant undertaking. If the forced foreclosure share is substantial, and competitors exit the tied market, then the markets into which they subsequently enter, or the idled use of their resources, also represent a misallocation of resources.

Tying further can lower productive efficiencies by raising the costs of both the dominant undertaking and rivals. Particularly with technological tying, a dominant undertaking could increase both fixed and marginal costs by integrating two separate products. If insufficient consumer demand exists for the combined product, then the tie-in will have depressed purchases of both the tying and tied products, and will have prevented the dominant undertaking from achieving the scale economies anticipated in the tied market. Rivals in the tied market that experienced foreclosed sales also could experience higher marginal costs. In all events, market-wide costs can rise if the dominant undertaking, fueled by forced sales, replaces rivals in the tied market that previously produced more cheaply on an individual basis, or maintained a lower average cost function.

Aside from promoting inefficiencies, if the dominant undertaking succeeds in transferring pricing power from the tying to the tied market, then it also would have succeeded in transferring surplus from consumers to itself. The tying arrangement not only could force

[38] Kaplow, *supra* n.3 at 526.
[39] Elhauge, *supra* n.31 at 404.
[40] *See generally* Sullivan & Grimes, *supra* n.25 at 411.

tied product consumers to pay more for the tied product than they otherwise would have absent the arrangement, but such consumers very likely will value the tied product less than an alternative that they would have chosen. Tying thus can compress consumer surplus from both ends — from the perspective of price and willingness to pay. Given the consumer welfare standard that applies in both the EU and U.S., this wealth transfer as defined by NPT counts as an anticompetitive effect.

3. The Single Monopoly Profit Theorem

The above analysis of harm to the tied product market assumes that consumers use the tying and tied products in variable proportions, meaning that consumers also purchase the tied product for individual consumption or as a complement to products in other markets. But if consumers purchase the tying and tied products strictly in fixed proportions, meaning that they only consume the tied product when consuming the tying product, then the Single Monopoly Profit Theorem applies, and tying arrangements predominantly will promote competition. Monopolists then have few profit-maximizing incentives to exclude tied product competitors, since increased demand for the tied product means proportionally increased demand for the tying product as well.[41] Conversely, raising prices in the tied market reduces sales in the tying market, where the monopolist earns supra-competitive profits. A monopolist can decide to shift that profit between the two markets, but cannot grow the pie: only one monopoly profit exists.[42] Under such conditions, the monopolist has a strong incentive to promote differentiation and to expand demand of the tied product.[43]

Professors Aaron Director and Edward Levi, the conceptual founders of the Chicago School of antitrust law and economics, doubted the prevalence of undesirable tying, even if the undertaking had market power in the tying product.[44] Such doubt may have arisen because, prior to the tie, the undertaking already was maximizing profits by pricing where marginal revenue equaled marginal cost. From a static perspective and assuming the tie does not increase demand for the tying product, incurring the extra cost of producing the tied product would add to profits only if the following conditions applied. Enough consumers continued to purchase the package at the higher price, enough to outweigh the greater sales

[41] Whinston, *supra* n.26 at 840.
[42] Feldman, *supra* n.22 at 2080.
[43] Whinston, *supra* n.26 at 850.
[44] Aaron Director & Edward H. Levi, *Law and the Future: Trade Regulation*, 51 NW. U. L. REV. 281, 290 (1956-1957).

previously secured by offering only the tying product at a lower price.[45] That calculus further depends on the following factors:

(1) the efficiency with which the undertaking can produce the tied product;

(2) the extent to which consumers continue to want the tying product at the higher price — which depends on their sensitivity to price increases or their elasticity of demand; and

(3) independent consumer demand for purchasing the two products together.

Generally, tying an undesirable tied product will raise costs and lower sales as marginal consumers respond to the higher price and switch to other products, thus lowering profits. With undesirable tying, the undertaking would earn greater profits either by not tying, or by not tying and lowering the price of the tying product, which at least would increase sales.[46] A rational undertaking simply would choose not to tie.

The conditions of the single monopoly profit theorem do not encompass all, or even most, tying arrangements, however. The theorem assumes that, when most markets trend toward oligopoly, perfect competition characterizes the tied product market, not only prior to the tie but also subsequently.[47] It therefore assumes that the tying arrangement does not alter the market structure of the tied market towards oligopoly or monopoly — that the exclusionary nature of any tying arrangement fails to secure any additional profit.[48] This line of reasoning leads proponents of the theory to conclude that rational monopolists choose to tie strictly because of the enhanced profits procured from greater efficiencies.

Yet because many tied products have uses outside the tie-in, the dominant undertaking can earn additional profits on sales of the tied product used separately from the tying product. This occurs when the dominant undertaking can weaken competitors in the tied market through foreclosure, raising costs, or raising entry barriers — allowing it to increase the price of the tied product, even if it must lower price of the tying product.[49]

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[45] *See generally* Kaplow, *supra* n.3 at 526 (*quoting* Ward S. Bowman Jr., *Tying Arrangements & the Leverage Problem*, 67 YALE L.J. 19 (1957)).
[46] On the elasticity of products within a bundle, *see* Barry Nalebuff, *Bundling as a Way to Leverage Monopoly*, Yale School of Management Working Paper #36, 7-10, 14-18 (2004), *available at*: http://ssrn.com/abstract=586648.
[47] For criticism of the single monopoly profit theorem, *see* Alan J. Meese, *Tying Meets the New Institutional Economics: Farewell to the Chimera of Forcing*, 146 U. PA. L.R. 1, 22-49 (1997).
[48] Elhauge, *supra* n.31 at 413.
[49] *Id*. at 416.

4. NPT Explains How Tying Harms Consumers in Tying Market

In addition to providing the theoretical support for how tying can raise prices and thus harm consumers in the tied market, Neoclassical Price Theory (NPT) also supplies the intellectual foundation for how tying can raise prices and harm consumers in the tying market. Tying can raise entry barriers to both the tying and tied markets and so function as an entry deterrent device.[50] The tying undertaking already holds pricing power in the tying market, so competitors restrain its pricing there only to a limited extent. If rivals wish to expand within or enter the tying market, the tie forces them to incur the additional cost and financial risk of conjointly producing the tied product. That additional burden on competition should weaken even further their ability to restrain the tying undertaking's pricing.

This analysis also hinges on the contours of consumer demand, since when consumers actually prefer purchasing the tying and tied products separately, and their willingness to pay can support continued separate production, demand conditions create an opening for rivals to enter either market. When demand operates the other way, however, and consumers grow to expect the products offered as a package, the tying undertaking would have succeeded in raising entry barriers to both markets. Moreover, pre-existing entry barriers to the tying market ensure a period of practical monopoly in selling the package, which bestows on the dominant undertaking a material head-start in winning or maintaining brand loyalty.

Consumer demand may not support a tying arrangement that conjoins two substitute products unless they are also complements because each substitute satisfies the same consumer need. From the perspective of suppliers, however, tying possible substitutes can operate as a particularly effective exclusionary tool.[51] A potential rival to the tying undertaking may choose to enter the tied market first so as to avoid having to overcome, all at once, the established customer loyalty and corresponding inertia associated with a dominant product.[52] Competing in the tied market may allow the entrant to overcome this inertia gradually by offering "a sub-product, a bargain brand, or the next generation in

[50] Economides, *supra* n.27 at 126, 130.
[51] Dennis W. Carlton & Michael Waldman, *The Strategic Use of Tying to Preserve & Create Market Power in Evolving Industries*, 33 RAND JOURNAL OF ECONOMICS 194, 204 (2002).
[52] Feldman, *supra* n.22 at 2089.

product development".[53] Initially producing the tied product also may lower entry costs and limit sunk costs, by relegating competition to a smaller portion of a potentially larger market.[54] Limiting competition allows the rival to gain experience in product technology, consumer tastes, and product life cycles in a related market before challenging the dominant undertaking head-on in the tying market.[55] Finally, competing successfully in the tied market may enable the rival to build a reputation for producing quality goods and services efficiently, which would help secure the financing necessary to enter the larger and more insulated tying market.[56]

By tying the two products together, the dominant undertaking can maintain tying pricing power "for longer or at a higher degree":

1. by deterring entry into the tied product market, thus eliminating a potential source of competition;
2. by weakening rivals in the tied product market, thus either delaying or preventing entry altogether into the tying market; or perhaps
3. by forcing premature entry, which reduces the likelihood of success.[57]

The tying practice denies the actual and/or potential rival enough sales to support gradual entry into the tying market.[58] It also raises the production costs of a substitute that otherwise more effectively might constrain the dominant undertaking's pricing power in the tying market.[59]

B. Market Power in Tying Product

Undesirable or unwanted tying that harms consumers cannot occur in the perfectly competitive markets envisioned by Neoclassical Price Theory (NPT) because competition negates the potential for coercion. Competitors in both the tying and tied markets price the relevant goods or services at marginal cost, ensuring that consumers will view the forced purchase of an additional, unwanted product as a price-hike. Either because many competitors exist or many competitors could exist in the tying market in response to attempted price increases, consumers readily will switch to alternative tying products

[53] *Id*.
[54] *Id*. at 2088.
[55] *Id*. at 2092.
[56] *Id*. at 2091-92.
[57] Abbott & Wright, *supra* n.19 at 188, Elhauge, *supra* n.31 at 417.
[58] *Id*. at 188.
[59] Elhauge, *supra* n.31 at 417, 418.

unburdened by the tie, and the tie will unravel. Such an undesirable tie, equivalent to a price increase, can persist only if the seller has market power.[60]

Market power — embodied in the unwillingness or inability of consumers to switch to alternative products in response to price increases, and thus representing the power to control prices and to exclude competition[61] — allows sellers to force purchasers "to do something [they] would not do in a competitive market".[62] Market power cannot exist absent entry barriers that prevent competition. Entry barriers must inhibit rivals either from offering a roughly equivalent tying product at a competitive price, or from "design[ing] and offer[ing] a similar package for a similar cost".[63] If a tie survives despite competitive conditions in the tying market, then consumers must prefer purchasing the two products together as demonstrated by their willingness to pay the higher joint price that finances producing the two products together.[64]

Because undesirable tying cannot harm consumers in competitive markets, both United States federal courts and European courts require plaintiffs to demonstrate, as a condition precedent to liability, that the defendant has market power in the tying product.[65] For the distinctive purpose of establishing market power — rather than as a method of proving anticompetitive effect — judges and competition authorities have conducted the hypothetical analysis recommended by Judge Easterbrook that focuses on whether the price of the tied package exceeds the price of the two components offered in competitive markets.[66] This exercise involves parsing the package price to determine whether it equals the sum of the marginal costs of producing the two products separately.[67] Alternatively, the plaintiff could show that distinct rivals sell identical tying and tied products separately at combined prices below the joint package price. More frequently, however, plaintiffs attempt to demonstrate tying market power indirectly by proving that, first, barriers to entry exist, second, that the

[60] *Id*. at 438.
[61] *Microsoft Corp.*, 253 F.3d at 51.
[62] *Jefferson Parish*, 466 U.S. at 13-14, 104 S.Ct. at 1559.
[63] *Will v. Comprehensive Accounting Corp.*, 776 F.2d 665, 672 (7th Cir. 1985) (Easterbrook, J.).
[64] *See generally Jefferson Parish*, 466 U.S. at 37, 104 S.Ct. at 1571 (O'Connor, J., concurring) ("Absent [market power in the tying product market] tying cannot conceivably have any adverse impact on the tied-product market, and can be only pro-competitive in the tying-product market.").
[65] *See, e.g., Microsoft*, 253 F.3d at 85; Case T-201/04 *Microsoft*, at ¶ 842.
[66] As articulated by, for instance, Elhauge, *supra* n.31 at 402-403.
[67] *Comprehensive Accounting*, 776 F.2d at 671-72.

defendant previously had, or currently has, a high tying market share, and third, that insufficient competitive restraints exist to prevent price increases in the tying market.

While undertakings generally cannot coerce without market power in the tying product,[68] the mere presence of market power does not prove coercion. Consumers may prefer that the undertaking sell the two products together for any number of potentially competitive reasons. Such reasons include:

- the distinct complementarity of the two products;
- lower transaction costs from purchasing the two products together; and
- lower prices stemming from the production efficiencies generated by the supplier producing and selling the two products together.

For such reasons, Professor Hovenkamp has noted that both monopolists and their customers can profit from package sales.[69]

Even an efficient tie can eliminate any possibility of purchasing the two products separately, however, harming welfare by curtailing choice. If market power in the tying product exists and supports the construction of market power in the tied market, rivals or potential rivals will have difficulty re-introducing choice in the tied market on comparable terms if consumer preferences shift. Bundling the two products coerces less and thus lowers the risk of anticompetitive effects.

Whether or not possible, tracing consumer preferences in existing markets to what they would have been in competitive markets may require a great deal of judgment. In competitive markets, consumer preferences are more visible because no barriers to entry or expansion inhibit rivals from constantly testing such preferences by offering alternative products or services either to win-over existing consumer demand, or to create new demand. Under competitive conditions, rivals in and around the relevant market will exploit any and

[68] For the view that an undertaking need not have market power to coerce the purchase of tied products, *see* Warren S. Grimes, *Antitrust Tie-In Analysis After Kodak: Understanding the Role of Market Imperfections*, 62 ANTITRUST L.J. 263, 264-65, 281 (1993-1994); Warren S. Grimes, *The Antitrust Tying Law Schism: A Critique of Microsoft III & A Response to Hylton & Salinger*, 70 ANTITRUST L.J. 199, 200, 225 (2002). Even Professor Grimes admits, however, that "market imperfections will always have a greater collective impact when the seller has a high market share in the tying product." Grimes, 62 ANTITRUST L.J. at 296.

[69] Hovenkamp, *supra* n.4 at 449.

all profit opportunities presented by unstable demand and supply conditions, including the shifting desires of consumers.[70]

By contrast, market power creates continuity in demand and supply, while masking and dictating consumer preferences. Entry barriers prevent rivals from testing and modifying existing consumer wants, so the market will not reflect potential consumer demand under competitive conditions.[71] Absent a healthy process of competition, enforcement authorities would have to rely on economists to construct a market that does not exist in reality, to identify products that might have appeared on the market, and to determine whether such products would have appealed to consumer preferences. Economists can disagree, of course.[72]

Dominant undertakings rarely will act as catalysts for disruptive technologies and products. They have no incentive to aggressively alter consumer demand and risk cannibalizing existing profits unless new products appear likely to generate independent revenue streams. The inertia and profitability of dominance represents a material constraint on monopolist-led innovation that usually results in conservative investments to slightly improve products rather than in market altering, creative new products.[73] Supply conditions shape demand conditions when market power exists.

U.S. precedents have stated that the market power necessary for unlawful tying need not reach the minimum level that would support a monopolization claim under § 2 of the Sherman Act.[74] The economic power required in the tying market may "exist[] only with respect to some of the buyers in the market."[75] A less demanding market power inquiry could mean that the law requires pricing power only in a sub-market. Questions of markets and sub-markets often reduce to a market definition inquiry, precisely how the court or regulator defines the relevant market. NPT provides analytical tools to examine market

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[70] IOANNIS LIANOS & VALENTINE KORAH, COMPETITION LAW: CASES & MATERIALS 199-200 (Hart Publishing, Oxford, forthcoming 2015).
[71] *Id.*
[72] On the use of economic evidence in competition litigation, *see* Ioannis Lianos, *Judging Economists: Economic Expertise In Competition Litigation: A European View*, *in* TOWARDS AN OPTIMAL COMPETITION LAW SYSTEM 185 (Ioannis Lianos & Ioannis Kokkoris eds., 2009).
[73] *See generally* Jonathan B. Baker, *Beyond Schumpeter v. Arrow: How Antitrust Fosters Innovation*, at 7 (2007) (discussing how pre-existing profits can slow the innovative effort), *available at*: http://ssrn.com/abstract=962261.
[74] This point of law may not have much effect in practice, however, since to bring a monopolization claim under Sherman Act § 2, the plaintiff first must establish pricing power in a relevant market, presumably the tying market.
[75] *Fortner Enter., Inc. v. United States Steel Corp.*, 394 U.S. 495, 502-503, 89 S.Ct. 1252, 1258 (1969) (Black, J.) [Fortner I].

definition and market power, such as whether particular products restrain the undertaking from raising prices in the tying market. A lower threshold for liability likely responds to the high market share traditionally required for dominance under Sherman Act § 2.[76]

Although subsequently retaining the general principle that tying market power need not rise to the level of monopoly, the U.S. Supreme Court consistently has required plaintiffs to demonstrate pricing power. The question is "whether the seller has the power, within the market for the tying product, to raise prices or to require purchasers to accept burdensome terms that could not be exacted in a completely competitive market."[77]

The source of that pricing power may vary. Indeed, the Court has implemented a seemingly boundless standard for identifying pricing power. The seller must exhibit only "some advantage not shared by [] competitors in the market for the tying product,"[78] which more precisely means some demand or supply advantage.[79] The problem with this test is that such advantages almost always exist in differentiated markets, which characterize the vast majority of real-world markets. If applied literally, then, the standard collapses, since most differentiated producers would meet it.

In an outlier of tying precedent, the European Court of Justice in *Tetra Pak II* made the following determination. Because (1) the four markets at issue were closely related — two in aseptic machines and cartons, and another two in non-aseptic machines and cartons, and (2) Tetra Pak held a near monopoly in the aseptic markets and a leading position in the non-aseptic markets, the Commission did not have to prove that Tetra Pak held a dominant position in the non-aseptic markets. The close associative links between the four markets ensured that Tetra Pak's dominance extended to the non-aseptic markets, even though dominance as such did not exist there.[80]

The following facts helped establish the conceptual links that justified (from the Commission's and Court's perspective) the transfer of dominance. The cartons were nearly

[76] *U.S. v. Aluminum Co. of Am.*, 148 F.2d 416, 424 (2d Cir. 1945) (Hand, J.) (indicating 70% as the threshold). Thanks to Professor Lianos for raising this point.
[77] *United States Steel Corp. v. Fortner Enter., Inc.*, 429 U.S. 610, 620, 97 S.Ct. 861, 867-68 (1977) (Stevens, J.) [Fortner II].
[78] *Id.*
[79] *But see Illinois Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28, 45-46, 126 S.Ct. 1281, 1293 (2006) (Stevens, J.) (patent protection in the tying product, standing alone, does not demonstrate pricing power in the tying market).
[80] Case C-333/94 P *Tetra Pak Int'l v. European Commission* (14 Nov. 1996) Judgment of the Court of Justice (Fifth Chamber) at ¶¶ 27-31 (listed in Lianos, *supra* n.1 at 187-202).

identical on the aseptic and non-aseptic markets. The cartons packaged nearly identical products on both markets. And most customers of non-aseptic products also bought Tetra Pak's aseptic products[81] — making Tetra Pak the inevitable supplier of machines and cartons for most users.

Critical to this analysis, the alleged tying occurred exclusively on the non-aseptic markets, where Tetra Pak tied cartons and services to machine sales.[82] The case thus appears at least a partial exception to the market power requirement underpinning tying doctrine, since Tetra Pak did not hold sufficient market power in the non-aseptic machine market to support a finding of dominance.

Given the standard for demonstrating market power applied by U.S. courts, on the other hand, perhaps the case does not represent such an outlier. The Commission described the non-aseptic markets as oligopolistic: Tetra Pak held a market share of roughly 50% to 55%, almost twice that of its nearest rival.[83] The Commission also found that while the technological barriers to entering the aseptic machine market were considerable, such technological barriers did not significantly obstruct entry into the non-aseptic machine market.[84]

According to NPT, market power cannot exist, no matter how high an undertaking's market share, unless entry barriers prevent potential rivals from responding to attempted price increases by flooding the market with alternatives, thereby depressing prices back down to the competitive level. Absent entry barriers, therefore, the Commission could not even establish the lower U.S. threshold of pricing power in the tying product that need not rise to the level of dominance.

To account for this theoretical deficiency, the Court of Justice chose to view the two sets of markets as a unitary system.[85] This determination allowed the Court to hold that the

[81] IV/31043-*Tetra Pak II*, Commission Decision of 24 July 1991 (92/163/EEC) at ¶ 104 (listed in Lianos, *supra* n.1 at 187-202).
[82] Daniel Gustafsson, *Tying Under EC Competition Law, The Tetra Pak II Case*, Lund University (2 Feb. 2007), downloaded at: lup.lub.lu.se/luur/download?func=downloadFile&recordOId=1335665&fileOId=1646325 (last visited 10 Nov. 2014).
[83] IV/31043-*Tetra Pak II*, at ¶ 13.
[84] *Id*. at ¶18.
[85] Case C-333/94 P *Tetra Pak*, at ¶ 28 ("[I]t was relevant that Tetra Pak held 78% of the overall market in packaging in both aseptic and non-aseptic cartons, that is to say seven times more than its closest competitor.").

technological barriers in the aseptic machine market prevented competitors from entering the non-aseptic machine market and lowering price down to marginal cost.

The concept of associative links has no basis in NPT. Either the relevant market included both aseptic and non-aseptic machines and cartons, and Tetra Pak wielded market power in the machine market; or separate markets existed and Tetra Pak lacked market power in the non-aseptic machine market. By maintaining both that four separate markets existed and that, despite the absence of entry barriers, Tetra Pak exercised pricing power over the non-aseptic machine market, the Commission and the Court of Justice, in finding tying liability, departed from fundamental precepts of NPT.

C. Coercion Cannot Exist Absent Market Power

EU and U.S. courts uniformly have required evidence of coercion before finding tying liability. However, the EU Commission, in its 2009 enforcement priorities in applying A.102 TFEU, omitted coercion as a requisite element to the claim.[86] Perhaps the Commission views coercion as a natural consequence of market power and anticompetitive foreclosure, and thus a redundant element to any tying claim.

A dominant undertaking can offer desirable tied packages, however, which might raise prices in both the tying and tied markets. Unless the package forces consumers to buy an unwanted product, it increases consumer welfare and therefore should not trigger liability. Anticompetitive tying cannot occur without coercion.

Neoclassical Price Theory (NPT) nevertheless explains how coercion produces anticompetitive effects, by accounting both for the origin of coercion — meaning pricing power in the tying market, and for the harm that coercion causes consumers — measured in terms of anticompetitive foreclosure. Anticompetitive foreclosure occurs when a tying arrangement protects pricing power in, or transfers pricing power from, the tying market. It also occurs when the tie-in prevents merit competition from functioning in at least the tied market, thereby moving that market closer to the monopoly paradigm.

Coercion historically has occurred at a level of forcing beyond persuasion such that a seller requires a buyer to purchase a second product as a condition precedent to obtaining the

[86] Guidance on the Commission's Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings, (2009/C 45/02) at ¶ 50 ["Guidance"].

first product.[87] The coercion realistically must foreclose the option of purchasing the tying product separately from the undertaking with pricing power in the tying market.[88] The tying practice further must compel, directly or indirectly, the purchase of a product either unwanted or preferred separately, whether or not offered by a competing supplier.[89] A vertical tying arrangement between a manufacturer and a dealer that does not foreclose a sufficient portion of the retail market, such that consumers nevertheless have adequate access to competing products, does not limit consumer choice enough to prompt liability.[90]

Under NPT, the ability to curtail consumer choice proportionately increases with market power. A company can force consumers to forego a preferred mix of products only if it wields pricing power in the tying market,[91] or the ability to decrease output without losing enough consumers to render the decision unprofitable. If perfect competition characterizes the tying and tied markets — meaning that to cover costs, suppliers must satisfy consumer preferences or consumers will switch to rivals who will — and if consumers prefer purchasing the tying and tied products separately, then the tying undertaking will have no means or ability to force consumers to purchase the package. "[A] perfect competitor could not coerce any buyer into taking anything."[92]

Judge Easterbrook, a persuasive advocate of NPT, has discussed the non-price consequences of condemning tying arrangements without a showing of market power. Essentially, of deleting a desirable combination of products, an alternative market option, and thus "reducing rather than enhancing the vigor of competition and the welfare of consumers".[93] If consumers dislike a package yet continue to buy it, however, then the seller must have a dominant share of a tying market protected by entry barriers, and thus have the ability to restrain choice by exercising market power. "Only if buyers are forced to purchase the tied services as a result of the seller's market power would the arrangement have anticompetitive consequences."[94] The U.S. Supreme Court has grafted such NPT tenets into

[87] *Paladin Assoc., Inc. v. Montana Power Co.*, 328 F.3d 1145, 1159 (9th Cir. 2003) (Gould, J.).
[88] Case T-201/04 *Microsoft*, at ¶¶ 945, 955.
[89] *Id*. at ¶ 864.
[90] *Hollymatic*, 28 F.3d at 1382.
[91] Keith N. Hylton & Michael Salinger, *Tying Law & Policy: A Decision Theoretic Approach*, Boston University Law & Economics Working Paper No. 01-04 (19 Apr. 2001), *available at*: http://www.bu.edu/law/faculty/papers.
[92] Hovenkamp, *supra* n.4 at 449.
[93] *Comprehensive Accounting*, 776 F.2d at 673-74.
[94] *Id*. at 669 (internal quotations and citation omitted).

tying jurisprudence, evidenced by the fact that it has not found coercion or compulsion to purchase another product without first determining that market power existed in the tying market.[95]

1. Determining Coercion by Testing Consumer Demand

Institutional economics supports the proposition that dominant undertakings have wide scope to influence consumer preferences, and thus have wide scope to affect the legal parameters of coercion. Absent market power, competitors will engage in an unceasing testing process, constantly altering price and quality combinations to probe consumer preferences and win market share.[96] The act of tying two separate products by a dominant undertaking artificially disrupts that selection process because market power prevents rivals both from offering a substitute to the package, and from improving upon that substitute to serve consumer needs better.[97] What the market produces in such a situation may not benefit consumers relative to how the tied market would have developed absent the tie-in.

A dominant undertaking might anticipate the evolution of both a tying and tied market and employ a tying arrangement to alter fundamentally the parameters of that evolution to favor its own products, for either defensive or offensive reasons.[98] The profit maximizing package ordained by a dominant undertaking unlikely will track what consumers otherwise would have preferred in both the tying and tied markets after having the opportunity to select among various options.[99] The tying arrangement would have allowed the dominant undertaking to "shape endogenously consumer preferences by establishing an artificial selection process."[100]

The following paragraphs attempt to demonstrate that market power not only enables coercion, it also makes coercion more difficult to prove, at least in the technology markets that have attracted the most recent scrutiny from competition officials. Market power can deter vigorous competition between potential oligopolists, and the corresponding testing of consumer demand that follows, which establishes a basis to evaluate coercion. Tying in differentiated markets raises the prospect that rivals may not be willing to test consumer

[95] *Montana Power*, 328 F.3d at 1160.
[96] Lianos & Korah, *supra* n.70 at 199-200.
[97] Nicholas Economides & Ioannis Lianos, *The Elusive Antitrust Standard on Bundling in Europe and in the United States in the Aftermath of the Microsoft Cases*, 76 (2) ANTITRUST LAW JOURNAL 486, 542 (2009).
[98] *Id*. at 543.
[99] *Id*. at 544.
[100] *Id*. at 543.

demand, leaving the preferences of many consumers inscrutable. That unwillingness both might render any search for coercion indeterminate. It also might channel the analysis to whether the undertaking has market power in the tying product.

If oligopolists compete in several overlapping markets, in each of which a distinct oligopolist holds a leading position, then the rivals capable of producing a differentiated tied product that consumers might prefer over the actual tied product may refrain from producing it, so as not to prompt fiercer competition in the market where the oligopolist holds a leading position. A reluctance to compete affects the accuracy of tying jurisprudence because the appearance of an alternative to the tied product would provide an opportunity for consumers to prefer another product, which would establish the coercive potential of the tying arrangement.

Consider the actual and potential competition between the technology giants Apple, Microsoft, and Google. Apple, the most profitable and largest company by market capitalization in the world,[101] makes electronic devices, such as phones, computers, TV's, and MP3 players, many of which Apple ties together. Apple developed a mobile operating system called iOS that runs on these devices (except Mac computers), but which Apple does not license for outside use.[102] Both Microsoft and Google have created alternative mobile operating systems, Windows Phone and Android, respectively, that they do license for use on competing electronic devices.[103]

Microsoft and Apple compete in the development of operating systems for computers, with Microsoft's Windows historically and presently dominant. Apple's OS X represents a niche operating system at least partly because, once again, Apple does not license OS X for use outside Mac computers.[104] Google also has launched a limited foray into the operating system market through the open source, Linux-based Google Chrome OS, which it designed to interface primarily with web applications.[105]

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[101] "*The Alibaba Phenomenon*," THE ECONOMIST (Mar. 23, 2013).
[102] http://en.wikipedia.org/wiki/IOS (last visited 10 Nov. 2014).
[103] *Id*.
[104] http://en.wikipedia.org/wiki/OS_X (last visited 10 Nov. 2014).
[105] http://en.wikipedia.org/wiki/Chrome_OS (last visited 10 Nov. 2014).

Finally, Google and Microsoft's Bing — which joined forces with Yahoo in 2010[106] and together currently account for a 30% market share[107] — compete in the search engine market, where Google holds a dominant position.

The differentiation between the technology giants has limited, though not precluded, head-on competition, generally relegating it to discreet market segments that either strategically protect other dominant positions or signal the likelihood of retaliation if full-blown competition ensues. This evolution of the various distinct, but related, markets likely would hinder the willingness of all three dominant undertakings to test consumer demand in the tied markets of rivals. Generally in technology markets, which require prodigious sums merely to challenge an entrenched incumbent, only the other technology giants have the relevant expertise[108] and the financial wherewithal or balance sheets to incur the potentially massive fixed costs, whether in IP, branding, or network effects, necessary to compete.

Take Apple's decision in the 1980s and 1990s not to license the predecessors to OS X for use on Dell, HP, and IBM computers, among others, thereby avoiding direct confrontation with Microsoft and maintaining its unique product offering and brand image. Microsoft reciprocated by not integrating into the device market and by not attempting to drive Apple out of the computer business altogether by drastically cutting the price of Windows toward cost. Apple continued to develop its reputation for elegant user interface, on which it relied to launch wildly popular, and often tied, products that pioneered new markets, such as the I-Phone and IPAD.

Both Microsoft and Google have responded to Apple's profitability by entering upstream markets that compete with Apple on the supply or input level, as Android and Windows Phone, among other mobile operating systems,[109] run non-Apple smart phones and tablet computers. Google's development of Android simply might represent an attempt to find new revenue streams, but Android also might serve to warn Apple about entering into the search business.

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[106] http://en.wikipedia.org/wiki/Bing_Ads (last visited 10 Nov. 2014).
[107] "*Taking Sides: Microsoft & Yahoo! Strike a Long-Awaited Deal*," THE ECONOMIST (July 29, 2009).
[108] This fact may — but need not — explain a recent settlement concerning alleged collusion in hiring practices. Aarti Shahani, *Tech Giants Will Pay $415 Million To Settle Employees Lawsuits*, NPR (Jan. 16, 2015), *available at*: http://www.npr.org/blogs/alltechconsidered/2015/01/16/377614477/tech-giants-will-pay-415-million-to-settle-employees-lawsuit.
[109] http://en.wikipedia.org/wiki/Smartphone (last visited 10 Nov. 2014).

Microsoft's recent purchase of Nokia crosses the vertical threshold into full head-on competition in the mobile handset market. Yet even here, Microsoft likely is targeting the more elastic portion of demand for smart phones, consisting of value consumers who cannot afford Apple's I-Phone.[110] Whether Microsoft can move its smart phone offering upmarket to rival the I-Phone directly — a feat that Microsoft's X-Box accomplished in the gaming console market,[111] to the chagrin of Nintendo and Sony — might depend on Apple's willingness to license OS X to competing computer hardware manufacturers.

Microsoft also has initiated direct competition with Google. In 2009, Microsoft launched Bing as an alternative search engine.[112] In 2010 Microsoft signed a joint venture with Yahoo to take over the functional operation of Yahoo's search engine, which included selling advertising.[113] In 2011, Google — surely in response to Microsoft's incursion into its core market — launched Chrome OS, which, because it offers only a browser, media player, and file manager, only faintly competes with Windows. Yet Microsoft surely understood the implication of the three applications featured by Chrome OS — two of which, browsers and media players, were the subject of historic antitrust investigations by the European Commission and the U.S. Department of Justice. Both investigations highlighted the threat that browsers and media players potentially posed to Microsoft's monopoly in the operating system market, and thus the anticompetitive objective of both tying arrangements. Microsoft sought to stamp-out nascent competition in presently complementary, yet potentially substitutable, markets. Again, the extent to which Google develops, invests in, and markets Chrome OS might depend proportionally on the ferocity with which Microsoft competes in the search engine market.

Of course, all three giants simply may be preparing for a future in which Apple, Microsoft, and Google "clouds," the ultimate tied service, compete to meet both work and

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[110] *But see Tablet Computers: Overdose*, THE ECONOMIST (Oct. 26, 2013) (discussing Microsoft & Nokia's entrance into the "dearer end" of the tablet computer market, though noting both that Microsoft already failed at that endeavor and that "[e]ntry at the bottom is as easy as it is hard at the top, with margins that reflect perfect competition rather than near-monopoly"). Apple's contract with AT&T, which allows AT&T to sell I-Phones at a significant discount in exchange for customers signing a service agreement, may alter market positioning to an extent.

[111] "*U Turn: Much Is Riding on the Success of Nintendo's Latest Console*," THE ECONOMIST (Dec. 1, 2012).

[112] http://en.wikipedia.org/wiki/Bing (last visited 10 November 2014).

[113] http://en.wikipedia.org/wiki/Bing_Ads (last visited 10 November 2014).

entertainment consumer electronic needs.[114] In such a market, individuals might use software available in rival clouds online at both work and home to draft memoranda, to develop architectural blue prints, to search for information online, to download music, to talk on the phone, and even to access movies and television shows. The hardware of the various giants might contribute extra features to its corresponding cloud.

But that hypothetical world seems improbable according to the rationality tenet of NPT, if only because holding monopolies in the various market segments above more likely would generate greater profits for the technology behemoths over time than dividing the spoils three or more ways in one market. Given the likely price-tag initially to purchase connectivity, only a minor segment of consumers could afford access to such clouds, though as the market matured, competition likely would lower both prices and profits while increasing accessibility. The technology companies then might offer access to segments of the market at higher prices to increase revenue.

A more direct answer to the question whether sufficient market incentives exist in the facts above to prompt potential rivals to test consumer demand — on which an accurate reading of coercion depends — might go as follows. So long as any tying arrangement did not directly encroach on a market in which another technology giant was earning sizable profits, the remaining giants might prove reluctant to fully develop competing tied products so as to test the extent of coercion generated by the tying arrangements of rivals. That reluctance may persist even if the remaining giants have a strategic interest in the tied market, and even if the giants represent one of only a few companies capable of testing demand in the tied market or competing directly with the package. A similar consideration likely would deter aggressive competition in many oligopolistic, differentiated markets. The reluctance nevertheless originates in market power somewhere.

Absent market power in the NPT sense, the tying undertaking cannot prevent or intimidate rivals from offering additional choice in either market at comparable prices. Welfare suffers because consumers may not know that they do not want the tied product unless attractive substitutes exist. Competition authorities and judges would be able to detect coercion more easily if market power did not deter competition. The presence of robust

[114] *See, e.g.*, "*When Clouds Collide: Microsoft's Bid for Yahoo! Is Not Just About Online Advertising* ," THE ECONOMIST (Feb. 7, 2008).

market power in the tying product, therefore, significantly enhances the ability to coerce while simultaneously inhibiting the capability of the legal system to detect coercion.

Small wonder that U.S. and EU courts and competition agencies have relied so heavily on market power in the tying product to predict the likelihood of, rather than actually to prove, coercion. The reluctance to offer substitutes in related oligopolistic markets both could bias tying inquiries against finding coercion, if the absence of alternatives persuades consumers to prefer the dominant company's offerings. Inadequate incentives to compete also could bias investigations toward finding coercion, if judges and competition authorities respond by presuming its existence based on market power. Either way, inadequate competition, which yields inadequate information, weakens the enforcement process.

2. Manipulating Consumer Demand with Market Power, Behavioral Economics & Eliminating the Pricing Mechanism

Market power in a tying product creates advantages in winning over consumer demand that tied rivals cannot match. Coercion will not exist if consumers prefer the tied package. Consider how a dominant undertaking might attempt to manipulate consumer preferences to favor a package. The psychology of purchasing a joint product over two separate products likely will favor the tying undertaking. Aside from saving on transaction and production costs, many consumers might prefer a package simply because the tied product seemingly adds functionality or performance to a pre-existing product at a hidden price. Tying removes the pricing function as a mechanism to calibrate consumer wants and producer capability. It thereby could eliminate head-to-head competition between the dominant undertaking and certain rivals based on price and quality.

Narrowing the purchasing decision from two separate products to one instead focuses the consumer's attention on the tying product where the dominant undertaking enjoys unique advantages that confer pricing power. If many purchasers of the tied product also buy the tying product, and those purchasers have a favorable impression of the tying product, then they are likely to transfer that favorable impression to the tied product as well.[115] Consumers will do so even if they otherwise might view that product as inferior to alternatives. The superior branding of the tying product can eliminate the coercion (as forcing) inherent in any

[115] *Cf.* Nalebuff, *supra* n.46 at 7-10, 14-18.

tying arrangement, by allowing robust demand for the tying product to obscure the higher priced or lower quality tied product.

Tying doctrine aims to preserve merit competition in the tied market,[116] defined as the competition that exists in the perfectly competitive models of Neoclassical Price Theory (NPT). Either the tied rival cannot enter the tying market and produce a similar package as the dominant undertaking, or the tied rival cannot match the price subsidies or economies of scope flowing from the tying to the tied market. Tying arrangements thus corrupt the pricing mechanism as a primary means to exhibit efficiency and win-over tied customers. By altering the purchasing process, the dominant undertaking can force a tied rival to exit the market based on factors unrelated to merit competition.

Once consumers have bought a tied package, rival tied competitors might have to overcome loss aversion and the endowment effect to win back custom. Loss aversion states that individuals value existing utility much greater than gaining an equivalent amount elsewhere.[117] The endowment effect states that individuals require a higher price to sell a good already owned than they would be willing to pay for that same good initially.[118] For the coercion generated by behavioral economics, if any, to produce anticompetitive foreclosure, it will have to interact with market power in the tying product.

Market power, price-cuts permitted by market power, or consumer demand more likely will prompt customers to purchase the package initially rather than bounded rationality. For instance, dominant undertakings will have greater scope to offer discounts that tied product rivals cannot match. Once customers buy the package, loss aversion makes them less likely to switch back to purchasing only the tied product even if the tying undertaking subsequently rescinds any discount and raises prices to previous levels. Consumers place extra value on maintaining existing levels of utility and are willing to pay for it. This dynamic further can affect the difficulty with which plaintiffs can establish coercion, since consumers eventually might prefer a tying arrangement even if prices subsequently increase.

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[116] *Paladin*, 328 F.3d at 1162 ("When such forcing is present, competition on the merits in the market for the tied item is restrained and the Sherman Act is violated." (internal quotations omitted)).

[117] Maurice E. Stucke, *Behavioral Economists at the Gate: Antitrust in the Twenty-First Century*, 38 LOY. U. CHI. L.J. 513, 527-528 (2007).

[118] Robert A. Prentice, *Chicago Man, K-T Man, and the Future of Behavioral Law and Economics*, 56 VAND. L. REV. 1663, 1700 (2003).

The endowment effect applies similarly. Once consumers have purchased and grown accustomed to a tying package, they might consider the extra utility added from the tied product as part of their endowment or, combined with the tying product, a baseline of satisfaction against which any tied alternative must exceed to alter purchasing decisions. For repeat customers and both durable and non-durable goods and services, therefore, these heuristics might require tied rivals to produce a far superior alternative in terms of price or quality to overcome the heightened demand for the package exacerbated by behavioral economics.

Bounded self-interest might pull some consumers in the opposite direction when purchasing the package or tied product. This heuristic posits that individuals can aspire to benevolence and individual notions of fairness even if such behavior costs them money.[119] Consumers of rival tied products might ignore the initial package discounts or tied product discounts and continue purchasing from the tied rival out of loyalty or possibly self-interest, if it is a sophisticated buyer and can anticipate foreclosure.[120]

In assessing this heuristic and its strength, bounded self-interest likely applies only faintly unless the tied good is durable and expensive, or implicates health and safety concerns. In that case, consumers might prefer a rival product for rational reasons such as to reduce risk. Lower prices, particularly if offered by a dominant, and thus trusted, undertaking, are likely to outweigh altruistic and schematic purchasing motivations in all but exceptional circumstances. Self-interest, in one guise or another, generally motivates market transactions, or at least motivates those who enter into the most transactions.

The net effect of heuristics in the tying context thus favors the tying undertaking. The coercion identified by both NPT and behavioral economics will work in tandem to produce anticompetitive effects in the tying context, assuming sufficient market power and overlapping demand between tied products exist.

D. Separate Products

1. Demand Conditions

All tying requires separate products; otherwise antitrust law would penalize undertakings for assembling components to a single product, or for choosing how to manufacture a

[119] Stucke, *supra* n.117 at 529.
[120] *Cf*. Frank H. Easterbrook, *Predatory Strategies & Counterstrategies*, 48 U. CHI. L. REV. 263, 282-88 (1981) (discussing the rationality of rivals).

product. Of the potentially myriad methods of identifying separate products, including by comparing product characteristics or by exercising subjective intuition, both United States and European Union courts have relied on a principal pillar of Neoclassical Price Theory (NPT), the concept of demand, to address the question. The law of demand essentially posits that as the price of a good falls, all else equal, consumers will demand more of that good. And as the price of a good rises, all else equal, consumers will demand less of it. The U.S. Supreme Court in *Jefferson Parish* stated that deciphering the existence of independent products "turns not on the functional relation between them, but rather on the character of the demand for the two items."[121]

This point of law has evolved since *Jefferson Parish* in accord with fundamental tenets of NPT, at least in the context of technological tying. In the U.S. *Microsoft III* case, the D.C. Circuit addressed the tying of Internet Explorer to the Windows operating system. It criticized the consumer demand test if used as the exclusive method for identifying separate products. Specifically, the Court worried that such a test might "chill innovation" by deterring companies from integrating new functionality into their products, if that functionality previously existed independently on the market.[122] The separate consumer demand that automatically would precede integration in such instances, along with the associated threat of treble damages if liability ensues, could prevent product innovation that might benefit consumers substantially. The Court further stated that the other elements of the quasi-per se rule articulated by the *Jefferson Parish* Court do not adequately counterbalance the potential tax on innovation that the separate products test might levy if focused exclusively on consumer demand.[123]

In applying the separate products test, EU Institutions have not expressed the same concerns over innovation as the D.C. Circuit did. The Commission in *Microsoft I* endorsed a "but-for" version of that test, inquiring into whether, absent the tying, "a substantial number of customers would purchase or would have purchased the tying product without also buying the tied product from the same supplier."[124] On appeal, the General Court affirmed that the

[121] *Jefferson Parish*, 466 U.S. at 19, 104 S.Ct. at 1562.
[122] *Microsoft*, 253 F.3d at 89.
[123] *Id*.
[124] Guidance (2009/C 45/02) at ¶ 51.

separate product prong of any tying analysis depends on customer demand.[125] If independent demand for the tied product does not exist, "there can be no question of separate products and no abusive tying."[126] The General Court found that separate products existed because, although consumers may have preferred media players integrated into operating systems, they did not necessarily prefer Windows Media Player over alternatives.[127] The fact that, notwithstanding the tying arrangement, a material number of consumers continued to acquire media players manufactured by rivals supported this claim.[128]

2. Supply Conditions

Despite ostensibly isolating the demand side in defining product markets, courts and regulators have not ignored, in testing for separate products, the supply-side influences that both shape and reflect demand, particularly the drive to produce efficiently. The U.S. Supreme Court, for instance, has stated that for two separate products to exist, sufficient consumer demand must enable the efficient production of goods or services independently.[129] Stated differently, consumers must be willing to pay a high enough price for both the tying and tied products such that sellers immediately can recover their marginal or avoidable costs of producing the two products separately.

One easily can imagine a factual scenario where this condition does not hold. Consider the separate provision of pathological services, a laboratory-based specialty, from general hospital services. Patients and hospitals proved unwilling to pay a price high enough above pathologists' marginal costs to permit them to set-up shop separately from hospitals. This fact prompted the Seventh Circuit Court of Appeals to dismiss a tying claim because the pathologists failed to establish that two separate products or services existed.[130]

The D.C. Circuit has drawn an explicit relationship, though "inversely proportional," between perceptible separate demand and net efficiencies, a supply consideration:[131] the greater the joint efficiencies from producing two products together, the less that consumers will demand them separately. This is so because of the steep premium consumers would

[125] Case T-201/04 *Microsoft*, ¶ 917.
[126] *Id*. at ¶ 918; *see also* ALISON JONES & BRENDA SUFRIN, EU COMPETITION LAW 454, 477 (4th ed. 2011).
[127] *Id*. at ¶ 922.
[128] *Id*. at ¶ 932.
[129] *Eastman Kodak Co. v. Image Tech. Serv., Inc.*, 504 U.S. 451, 462, 112 S.Ct. 2072, 2080 (1992) (Blackmun, J.).
[130] *G.P. Collins v. Associated Pathologists, Ltd.*, 844 F.2d 473, 477 (7th Cir. 1988) (Cummings, J.).
[131] *Microsoft*, 253 F.3d at 87-88; *see also* Economides & Lianos, *supra* n.97 at 523; ROBERT O'DONOGHUE & JORGE PADILLA, THE LAW & ECONOMICS OF ARTICLE 102 TFEU 621 (2d ed. 2013).

have to pay to finance independent production. Conversely, if a seller can extract minimum efficiencies from jointly producing two goods or services, then consumers should exhibit stronger demand for purchasing the two items separately. The small price differential between the jointly and separately produced goods unlikely will outweigh the inability to choose. In the extreme opposite case, if joint production allows the manufacturer to offer the tied product for free compared to the "but for" or non-tied alternative, few consumers likely would demand independent production.[132] The rule depends on supply considerations and price movements to reveal demand.

The U.S. consumer demand test does not just balance demand and supply considerations. Rather, it ultimately balances consumer preferences (demand) and cost savings and efficiencies (supply) against the reduction of consumer choice that tying inherently effectuates.[133] While NPT incorporates the existence of consumer choice as a beneficial by-product of competitive markets, or as a justification for both higher and lower prices, it generally does not balance such a factor against price considerations. Consumer choice helps determine price levels. The facts of the U.S. *Microsoft III* case did not present the opportunity to weigh price against choice, since consumers ostensibly acquired web portals for free.

The consumer demand test articulated by the D.C. Circuit ultimately would attempt to measure whether the tie-in, "on balance," enhances consumer welfare.[134] A welfare inquiry as a component to the quasi-per se test would absorb all other considerations. Perhaps that was the point, because the Court proceeded to recommend a rule of reason as the appropriate test to evaluate technological tying.[135]

While applying a far-narrower separate products test, the EU General Court in *Microsoft* also considered that supply factors informed consumer demand. For instance, relevant supply factors encompassed technical features of the tying and tied products including the history of their development, as well as the commercial practice of both Microsoft and rivals leading up to the integration of the two products.[136]

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[132] Yet consumers might demand separate production if they attached no value to the tied product and must incur costs to dispose of it.
[133] *See Microsoft*, 253 F.3d at 88.
[134] *Id*. at 87.
[135] *Id*. at 84, 94.
[136] Case T-201/04 *Microsoft*, ¶¶ 925, 927.

The Commission and General Court did not need to consider the potential efficiencies generated by the tying arrangement under the separate products prong of the liability test because a distinct prong of that test, focused exclusively on objective justifications, independently accounted for efficiencies. Under that heading, the Court held that the curtailment of consumer choice and innovation brought about by the tying arrangement far outweighed any accompanying efficiency gains in terms of eliminating the consumer transaction costs of integrating media players, or of enhancing the technical performance of the Windows operating system.[137] In any event, the tie-in was not indispensable to achieve the pro-competitive effects sought.[138]

3. Behavioral Economic Considerations to the Separate Products Inquiry

In the context of tying doctrine and establishing separate products, once customers begin to purchase the tied package, behavioral economics, and particularly loss aversion, can integrate in the minds of consumers what they previously considered separate products.[139] This affects demand considerations. Switching back to purchasing only the tied product represents a loss valued greater than the package or either product offered separately, even products otherwise valued equivalently. With market power, an undertaking can build momentum towards a tied package by offering discounts or compelling a sample purchase of the tied product, providing an opportunity for behavioral economics to operate.

The overconfidence bias of the tying undertaking also will tend to integrate markets. Overconfidence bias holds that, when predicting the future, individuals, including managers at companies, overestimate positive outcomes while underestimating the risk of failure.[140] For both rational and boundedly rational reasons, dominant undertakings will tend to add features to a product to increase and protect market power.[141] Yet dominant undertakings will tie more than rationality predicts because their managers generally will overestimate the receptivity of consumers to additional product features.

Depending on the existing contours of consumer demand and the degree and breadth of market power in the tying product, these heuristics could produce either competitive or anti-

[137] *Id*. at ¶¶ 1091-1098.
[138] *Id*. at ¶ 1098.
[139] On loss aversion, *see* Stucke, *supra* n.117 at 527-528.
[140] Avishalom Tor, *The Fable of Entry: Bounded Rationality, Market Discipline, And Legal Policy*, 101 MICH. L. REV. 482, 505 (2002).
[141] Thanks to Professors Kokkoris & Jones for pointing-out that NPT can explain this behavior as well, and for questioning the relation between market power and loss aversion.

competitive effects. Competitive effects will follow if the tying undertaking succeeds in improving the tying product, or if its many tying attempts either weaken its own market power in the tying product, or weaken the market power of dominant undertakings operating in the various tied markets targeted. The tie-in will produce anticompetitive effects if the market power of the tying undertaking allows it to monopolize various other markets by offering products that do not improve consumer welfare, but that consumers purchase anyway because of the desirability of the tying product. Anticompetitive effects also will arise if the various tie-ins protect the tying market from competition.

The net effect of these two heuristics in the separate products context again favors the tying undertaking, since they will support the defense that a single product exists. The strength of market power in the tying product still constitutes a condition precedent for loss aversion and overconfidence bias to harm consumers by facilitating the integration of markets against their interests.

E. Anticompetitive Foreclosure

Before determining that a tying arrangement is illegal, the U.S. Supreme Court and the EU Courts have required plaintiffs to demonstrate the fact that, or the likelihood that, the tying arrangement has foreclosed, or will foreclose, a substantial volume of commerce in the tied market.[142] From the U.S. perspective, this element most directly tests for anticompetitive effects, in the sense that unless the tying arrangement forecloses a material percentage of competitors in the tied good market, it unlikely will raise prices in either market or reduce consumer choice substantially.

The EU even more explicitly has linked foreclosure to anticompetitive effects as defined by Neoclassical Price Theory (NPT). To incur liability, the tying arrangement must produce "anticompetitive foreclosure," or foreclosure that harms consumers generally in terms of higher prices, but potentially in terms of reduced quality, choice, and innovation, if price effects do not predominate.

From a broader NPT perspective, tying raises competitive concerns, or moves markets further away from the competitive paradigm, because it might allow monopolists to exclude actual or potential competitors in the tied or tying markets which otherwise would have

[142] *Fortner I*, 394 U.S. at 497-98, 89 S.Ct. at 1256; *Jefferson Parish*, 466 U.S. at 16-17, 104 S.Ct. at 1560-61; *see also* Guidance (2009/C 45/02) at ¶ 50.

restrained price increases above the competitive level.[143] The quasi-per se rule that provides the framework for liability in both jurisdictions essentially sets-up the inquiry into foreclosure or anticompetitive foreclosure.

1. Price Effects, Overlapping Demand, and Coercion Under NPT

Tying arrangements that either exclude or raise rivals' costs (RRC) can generate anticompetitive foreclosure within the terms of Neoclassical Price Theory (NPT). The RRC conceptual framework examines whether exclusionary practices "place rival competitors at a cost disadvantage" in procuring inputs or producing outputs sufficient to permit price increases in output markets.[144] By foreclosing a certain percentage of potential business in the tied good market, a monopolist can prevent tied good competitors from attaining the economies or other advantages necessary to compete effectively against the monopolist in either the tied or tying markets. Insufficient competition allows the monopolist to raise prices.

If the foreclosure in the tied good market does not reach a certain threshold, determined theoretically and practically by NPT, tied good suppliers will have ample opportunity to lower costs and prices. Conversely, the greater the share of supply foreclosed, the greater the potential cost and price increases that will follow.[145]

Even if tying excludes or raises rivals' costs, however, a host of conditions still might prevent the monopolist from increasing prices. To address the issue of price effects, the examiner further must analyze competitive restraints in the tying and tied good markets to ascertain the ability of excluded rivals, existing rivals, and potential entrants to obstruct price increases by expanding output.[146] An anticompetitive foreclosure analysis further may involve a discretionary prognostication based on the relationship between the tying arrangement and the evolution of demand and supply conditions going forward. In the majority of contractual and technological tying cases where market prices remain a relevant variable, anticompetitive foreclosure will exist if the tying arrangement, because of consumer

[143] *See generally* Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power Over Price*, 96 YALE L.J. 209, 291 (1986) (reducing all anticompetitive practices either to collusion, exclusion, or raising rivals' costs that further increases market prices). On competitive restraints, *see* David S. Evans, *Lightening Up On Market Definition*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF ANTITRUST LAW 53, 60 (Einer Elhauge ed., 2012).
[144] Krattenmaker & Salop, *supra* n.143 at 214.
[145] *Id*. at 70.
[146] Evans, *supra* n.143 at 60.

responses, excludes or materially weakens rivals that most restrain the dominant undertaking from raising prices, generally in the tied market.[147] Foreclosure often will precede any price effects caused by tying. It also represents a rough proxy for the amount of consumer choice curtailed, though remaining tied competitors may produce more highly differentiated products than those excluded.

Overlapping demand between tying and tied products can greatly influence whether the tie-in produces anticompetitive foreclosure.[148] According to NPT, overlapping demand means that, absent the tying arrangement, consumers of the tying product regularly buy the tied product. If significant overlapping demand exists, then the tying arrangement likely will exclude a material portion of tied competitors, since it will force consumers who otherwise bought their products to buy only the package. The tying arrangement takes existing customers from tied rivals. If only an insignificant amount of demand overlaps, meaning that tying product consumers generally do *not* buy the tied product independently, then the tying arrangement will not take customers from tied rivals, at least initially. Retaining their customers will allow tied rivals to stay in the market.

Yet if the tying market is much larger than the tied market prior to the tie-in, then it will substantially reduce the market share of tied rivals. Lower market share eventually could exclude them when the tying arrangement confers on the dominant undertaking economies of scale or scope or other advantages inherent to market power.

The extent of anticompetitive foreclosure in the tied market also depends on the extent to which the tying arrangement affects the contestable part of demand for the tied product. That issue also implicates coercion and resembles the foreclosure inquiry raised by loyalty rebates. If the tying undertaking already operates in the tied market prior to the tying arrangement, then presumably a proportion of purchasers of the tied product already buy the tying product. As the percentage of consumers who otherwise would buy, absent the tie-in, both the tying and tied products from the dominant undertaking grows, the tying arrangement coerces less, even if it forecloses potential competition. The greater the contestable portion of demand,

[147] *See generally* Krattenmaker & Salop, *supra* n.143 at 263; GIORGIO MONTI, EU COMPETITION LAW 146, 153, 251 (2007); Evans, *supra* n.141 at 53, 60.

[148] Posner, *supra* n.5 at 198; JURIAN LANGER, TYING & BUNDLING AS A LEVERAGING CONCERN UNDER EC COMPETITION LAW 218-19 (2007); EKATERINA ROUSSEVA, RETHINKING EXCLUSIONARY ABUSES IN EU COMPETITION LAW 399 (2010) (*quoting* DG Competition Discussion Paper on the Application of Article 82 of the Treaty to Exclusionary Abuses (Brussels, December 2005) at ¶ 198 ["Discussion Paper"]).

meaning the higher the percentage of consumers who substitute, or would substitute, between tied products, the greater the potential anticompetitive effect of the tying arrangement.

An undertaking usually will account for a competitive portion of tied purchases prior to the tying arrangement, but after instituting the tie-in, that portion will increase substantially. That extra portion of consumer demand that previously went to tied products sold by rivals, but now goes to the package, represents the contestable portion of demand foreclosed to competitors, and a measure of coercion or forced purchases.[149]

Tied rivals may retain at least a portion of contestable demand. Subsequent foreclosure could exclude as-efficient and more efficient rivals by reducing their scale of operations. The tying arrangement thus could exclude lower priced alternatives that cannot compete with the dominant undertaking in the tying market.[150]

The package further enables pricing freedom that tied rivals lack. The tying undertaking could win tied product sales despite raising the price of the tied product within the package, because it can lower the price of the tying product.[151] Alternatively, the tying arrangement may allow the dominant undertaking to win individual product sales in the tied market by lowering the individual price of the tied product while raising the price of the package.

Aside from efficiency considerations, when demand under competitive conditions would have supported more variety or greater quality in the tied market, a tying arrangement can reduce consumer surplus by reducing the contestable share available to competitors. It does so even if only inefficient rivals would have met that demand.[152]

NPT has identified the coercion that produces anticompetitive foreclosure. A tying arrangement coerces regardless of the percentage of overlapping demand, and even if that percentage does not foreclose enough of the tied market to make continued or new operation there unprofitable. The tying arrangement still coerces those tying product customers who would have preferred to purchase an alternative tied product even if they represent, say, only one-fifth of consumers affected by the tie-in. Forcing these consumers to purchase an unwanted product does not produce anticompetitive foreclosure. It may produce

[149] *Cf.* Economides, *supra* n.27 at 138.
[150] *Cf. Intel*, Comp/37.990, Commission Decision of 13 May 2009, at ¶ 1612.
[151] Nalebuff, *supra* n.46 at 7-10, 14-18.
[152] *Cf.* Economides, *supra* n.27 at 124.

anticompetitive effects only if the judge or competition authority measures consumer welfare by the elimination of choice.

Competition law alternatively may not deem coercion anticompetitive unless the tying arrangement forecloses a high enough percentage of tied rivals that, to a designated degree, price goes up or quality goes down. For that to happen, overlapping demand generally must exist. The dominant undertaking's tied product must account for a large portion of consumption in the tied market. While coercion is inherent to any tying arrangement, therefore, it raises competitive concern when it causes foreclosure beyond the competitive threshold. Only then will the tie-in materially affect price levels and consumer choice.

Anticompetitive effects measured in terms of anticompetitive foreclosure influences competition. Absent an anticompetitive tying arrangement as defined by NPT, competition in the tied market would have more closely resembled the competitive paradigm where rivals compete by adjusting price and quality to provide continually better products. An undertaking with pricing power in the tying market can short-circuit that process and win market share in the tied market solely because of an ability to satisfy consumer wants in an entirely separate market.

Anticompetitive foreclosure can proceed along two parallel tracks. A tying arrangement can force unwanted purchases of a second product, and it can manipulate consumer preferences away from competing tied products. Even if tying undertakings gain from the brute force method of forcing additional sales, the indirect route adds a multiplier effect because it influences consumer preferences and demand conditions. If the tie ultimately convinces consumers to prefer the package, then they will be less likely to substitute away into viable or even more attractive alternatives, or to stop purchasing the products altogether. Consumers also will want to purchase the tying package more frequently and will be willing to spend more on it. The multiplier effect thus may sustain higher prices far longer than would have occurred otherwise.

The indirect method also may better protect the positive brand image of the dominant undertaking and may avoid further encouraging rivals to offer a competing package. Achieving foreclosure by manipulation therefore might motivate tying arrangements even more than the direct exclusionary method.

Yet U.S. tying doctrine appears to recognize only coercion that directly forces unwanted purchases, and the EU Commission does not even designate coercion as an independent element to a tying claim,[153] though the General Court and Court of Justice still require evidence of coercion before imposing tying liability. The U.S. Supreme Court in *Jefferson Parish* declared that the illegality of a tying arrangement depends on forcing a buyer to purchase a "tied product that the buyer either did not want at all, or might have preferred to purchase elsewhere on different terms".[154] This focuses the question of consumer harm at least initially on eliminating choice for the tying purchaser rather than how the tie-in influences consumer preferences because of weakened competition in the tied market.

Following this precedent, the Ninth Circuit Court of Appeals has stated that plaintiffs can satisfy this element by showing that buyers of a tying product or service accepted an additional product or service that they considered burdensome or disfavored.[155] Or plaintiffs can demonstrate coercion by proving that a customer, because of a tying arrangement, bought a tied product at an inflated price when an equally desirable alternative in terms of quality, branding, and variety existed at a lower price.[156]

While the quasi-per se test pins liability on the coercion of consumers and the foreclosure of competitors, foreclosure minus coercion will not harm consumers in a legal sense, regardless of whether it alters demand conditions over time to favor the dominant undertaking. The absence of coercion suggests (1) that consumers prefer, and freely choose to buy, the package over purchasing the products separately, (2) that they are indifferent to foreclosure, and (3) that their revealed preferences favor the package. The foreclosure of competitors then reflects market forces, or the interplay between supply and demand; antitrust law seeks to promote this result. In those circumstances, higher prices do not raise anticompetitive concern, because they reflect strong consumer demand. Higher prices even may go hand-and-hand with greater consumer surplus, if consumers' reservation price for the package now cumulatively exceeds their reservation price for the tying and tied products sold individually. Even if coercion were not a separate element to a tying claim, therefore, it still

[153] Guidance (2009/C 45/02) at ¶ 50.
[154] 466 U.S. at 12, 104 S.Ct. at 1558.
[155] *Paladin*, 328 F.3d at 1161.
[156] *Id*. at 1162.

represents a prerequisite to anticompetitive foreclosure, or foreclosure that harms consumers, in the tying context.

Competition law guided by NPT does not aim to protect competitors, or ensure "fair-play" in all markets. The importance of coercion to tying doctrine demonstrates this norm. If enough consumers in both the tying and tied markets prefer the package because it generates efficiencies and thereby permits lower packaged prices, or if the package enhances functionality, then even if the tying arrangement excludes more efficient tied competitors, the package still enhances consumer welfare.

The existence of coercion alone, on the other hand, does not establish anticompetitive foreclosure. A tying arrangement may coerce consumers relative to the options available in a "but-for" world of perfect competition in the tying and tied markets, yet still enhance both consumer and total welfare. The tying arrangement may finance research and development that leads to innovation and product improvements. While the consumer may pay more given the tying arrangement, the package produces greater consumer surplus than competitors offering the products separately. In these circumstances, coercion initially may exist and then dissipate after the dominant undertaking produces a better version of each product or a better combined product.

The tying undertaking manipulates consumer preferences under these circumstances as well, but for the betterment of consumers. The fact that tying can manipulate preferences to the betterment or detriment of consumers further demonstrates the sagacity of selecting consumer welfare as the lodestar for all of competition law.

Establishing that coercion produces anticompetitive foreclosure often will prove challenging. It may require constructing a "but-for" world of perfect competition in the tying product. Under competitive conditions depicted by NPT, consumer preferences very likely would differ from existing preferences. If strong demand characterizes the tying product, consumers may buy the package for that reason alone. Or if demand also supports the tied product, they may purchase the package purely because of the discount on offer, even if consumers disfavor the dominant undertaking's tied product. Given competitive conditions, consumers would not choose to purchase a package when the discount off the tying product or package does not exceed the lower price of, or greater desirability of, a competitor's tied

product, or when the package itself does not add functionality. Consumers simply would purchase both the lower priced tying and tied products separately.

Comparing existing market conditions to a "but-for" world requires an intensive market analysis and a degree of forecasting. The case for such a detailed analysis might be strongest with tying, however, because it can merge two markets.

By conditioning the opportunity to purchase a necessary or popular product on the simultaneous purchase of a separate product, the tying undertaking suspends the exercise of independent judgment as to the merits of the tied product.[157] And by grafting the necessary or popular product's appeal onto the competitive product, a tying arrangement insulates the tied product "from the competitive stresses of the open market".[158] If two separate products exist, then competition previously proceeded along delineated, non-overlapping lines (though the two products could have represented partial substitutes). This means that distinct sets of products generally would have constrained attempts to increase the prices of each individual product. Assuming market power exists in the tying product, the substitutes available to restrain price increases in that market will not operate as effectively as the competitive restraints at work in the tied market, where market power is weaker. The tying arrangement allows an undertaking, essentially, to more closely approximate competitive conditions between the two markets, thereby transferring at least a portion of pricing power from the packaged to the tied market.

Under NPT, to determine the extent to which a tying undertaking successfully transfers its market power to the tied market and achieves enough foreclosure there to mirror conditions after a merger, a judge or competition authority closely must examine demand and supply conditions in both the packaged and tied markets subsequent to the tie. The fundamental questions focus on the reaction of consumers to a forced purchase, including whether they will turn to rivals capable of differentiating.[159] When a sufficient percentage of consumers continue to demand the tied product separately, the competitive issue depends on

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[157] *Times-Picayune Pub. Co. v. U.S.*, 345 U.S. 594, 605, 73 S.Ct. 872, 879 (1953) (Clark, J.) ("[T]o the extent the enforcer of the tying arrangement enjoys market control, other existing or potential sellers are foreclosed from offering up their goods to a free competitive judgment").

[158] *Id*. at 605, 73 S.Ct. at 878; *see also id*. at 614, 73 S.Ct. at 883 (Tying raises the chief concern of forestalling competition in the tied market by disrupting the purchase of a desirable product through forcing the additional purchase of a second product.).

[159] *See, e.g., id.* at 621, 73 S.Ct. at 887 (noting that the alleged victim of the tying "appeared, in short, to be doing well").

whether the tying arrangement confers on the tying undertaking a unique production advantage in the tied market unrelated to merit competition. When insufficient demand for separate products persists, the supply-side question turns to whether tied rivals or other potential competitors can enter the package market and compete with the tying undertaking there. Market power in the tying product regularly will allow an undertaking to block such competition.

As another relevant consideration under NPT, the foreclosure rate in the tied market may underestimate the extent of consumer harm when a tying arrangement forecloses particularly distinct substitutes. Foreclosure may harm consumers more acutely if the excluded products were "manifestly different from the consumer's perspective" from the remaining products in the tied market.[160] Consumers prefer choice over coercion, particularly when the options available are stark. Greater differentiation in non-luxury markets, in markets that do not substantially affect health and safety, and in markets that do not raise significant externalities, allows consumers to consider what product characteristics maximize their welfare, and to test preliminary hypotheses concerning what they like.

Given clearly delineated variety in such markets, consumers are more likely to find a product that they value far above the asking price, which thereby maximizes consumer surplus. A more drastic curtailment of differentiation among tied products therefore may aggravate the consumer harm caused by a tying arrangement. Ultimate success in creating a merged market against consumers' wishes marks a measure of anticompetitive foreclosure in the tying context.

2. EU Microsoft I Case

While perhaps the chief concern, tying jurisprudence does not just aim to prevent higher consumer prices and inefficiency, the leading indicators of anticompetitive effects under Neoclassical Price Theory (NPT). It also attempts to guard against tying arrangements that stifle merit competition. In the U.S. *Microsoft III* case, the D.C. Circuit stated that, under competitive conditions, goods appeal "directly" to consumer choice on the merits.[161] Market power does not inhibit buyers from exercising their own judgment concerning the price and

[160] *Cf. Intel*, Comp/37.990, at ¶ 1605 (discussing loyalty rebates, but the foreclosure and coercion issues resemble those presented by tying arrangements (listed in Lianos, *supra* n.1 at 187-202)).
[161] *Microsoft*, 253 F.3d at 87.

quality mix in the goods that they prefer.[162] The Court determined that the tying arrangement, combined with indirect network effects, allowed Microsoft to "stave off" any meaningful competition in the tying or tied markets, regardless of the perceived quality of alternatives.[163] In the web portal market, providing higher quality represented the primary method of competition, since Microsoft ostensibly made Internet Explorer available free of charge.[164]

Microsoft employed a similar practice in the EU *Microsoft I* case, tying media players to its dominant operating system. Again Microsoft eliminated price as a potential means to compete by offering Windows Media Player (WMP) for free to consumers of its operating system. Without the ability to lower price, rivals could compete only by offering higher quality or more innovative media players. The General Court stated that Microsoft's market power in the operating system market, combined with the tie-in, secured "a competitive advantage unrelated to the merits" of WMP.[165] The tying arrangement permitted Microsoft "automatically" to transfer its market power on the operating system market to the media player market, "without having to compete on the merits".[166]

Under conditions of perfect competition, Microsoft would have had to build a vastly superior media player, in terms of quality and innovation, to achieve the same market share that it did simply by tying WMP to its operating system. The tying arrangement enabled Microsoft to "evade[] competition and the significant additional costs which it entails."[167] Consumers would have had greater influence over the product characteristics that ultimately prevailed in the media player market. The tie-in thus produced allocative inefficiency. Even though it did not raise media player prices, NPT accurately predicted the anticompetitive effects of the practice.

(i) Anticompetitive Foreclosure Measured by Coercion

The tying at issue in the EU *Microsoft I* case presents a milder form of coercion compared to that depicted in paradigmatic tying arrangements, in the sense that Microsoft did not explicitly prohibit, or financially discourage, consumers from using rival tied products.

[162] *Id*.
[163] *Id*. at 56.
[164] *Id*. at 68.
[165] Case T-201/04 *Microsoft*, ¶ 1015.
[166] *Id*. at ¶ 1038.
[167] *Id*. at ¶ 1047.

Various media players were available to download at no-charge from the Internet,[168] and Microsoft did not technically inhibit either the download or the selection of rival media players alongside the Windows offering.[169] However, Windows Media Player (WMP) came pre-installed on Microsoft's dominant operating system, and users could not remove it even if they preferred alternative media players.

The EU General Court held that coercion existed because Microsoft deprived customers "of the realistic choice of buying the tying product without the tied product".[170] Because customers only could add a second media player, rather than initially selecting a preferred offering, or replacing WMP with another product,[171] the tying arrangement conferred on Microsoft a singular advantage in media player competition: 80% of all operating systems shipped worldwide featured just one media player, which the tying arrangement guaranteed was WMP. Moreover, Microsoft also ensured that WMP automatically appeared on 95% of operating systems, and thus computers, shipped worldwide.[172]

Due to the additional transaction costs and expense required to install a second media player, computer manufacturers predominantly included only one. This selection narrowed the contestable portion of the relevant market. As the General Court stated, "developers of third-party media players compete with each other in order to have their products pre-installed" in 20% of the available market. Microsoft was able to evade all competition in the uncontested portion of the relevant market — which reached 80% — "and the significant additional costs which [competition there would have] entail[ed]."[173]

The prohibited coercion amounted to systemically altering the market structure for media players and the incentives of content providers, software developers, and computer manufacturers in a manner unrelated to merit competition under Neoclassical Price Theory (NPT). The manipulation of market structure and incentives significantly enhanced the desirability of WMP without lowering its price or improving its quality. The tying arrangement favored Microsoft in two respects.

[168] *Id*. at ¶ 951.
[169] *Id*. at ¶ 953.
[170] *Id*. at ¶ 955.
[171] *Id*. at ¶ 958.
[172] *Id*. at ¶ 1026.
[173] *Id*. at ¶ 1047.

First, it ensured that consumers tested Microsoft's media player first, and because the vast majority of media player consumers neither were aficionados of, nor did they have to pay explicitly for, media players, such consumers were likely to assume that WMP worked best with Windows. And having become part of the Windows endowment, unless WMP proved grossly dysfunctional or inadequate, most consumers would switch to a second product only if it offered compellingly better functionality. Under the rationality tenet of NPT, such a discrepancy in functionality unlikely would occur given both the vast financial resources available to Microsoft to ensure rough parity, and the deterrent effect of the tie-in itself. The tie-in made achieving a market share conducive to recovering the investment necessary to develop a significantly better media player exceedingly difficult.

As a second and more daunting consequence of the coercion at work in the EU *Microsoft I* case, the tying arrangement took advantage of indirect network effects that conjoined the purchasing incentives of operating system consumers and the financial incentives of content providers and software developers to write content and applications compatible with WMP.[174] Consumers prefer media players for which content providers and software developers have written the most content and applications, and content providers and software developers prefer writing content and applications for the most popular media players. They have this preference because maximizing distribution ultimately maximizes revenue, and because writing content and applications for other media players require additional outlays of limited resources.

Microsoft's near monopoly in the operating system market meant that by writing content and applications for WMP, content providers and software developers could reach virtually all potential users of media players at the lowest cost.[175] Computer manufacturers also saved money by including only one media player.[176] The tying arrangement thus manipulated competitive conditions to favor Microsoft simply by ensuring the ubiquity of WMP.[177] The enhanced features and additional content written to WMP in turn made the product more

[174] *Id*. at ¶ 1061.
[175] *Id*. at ¶ 1065.
[176] *Id*. at ¶ 1044-1045.
[177] *Id*. at ¶ 1036.

desirable to consumers.[178] Even the low substitution costs of downloading free alternatives could not overcome such advantages.[179]

Despite stark differences between computer software and nails,[180] the coercion at issue in *Microsoft* and *Hilti* could operate in a similar manner. Hilti nail gun consumers had to purchase Hilti nails, so they additionally could not buy the nails offered by competitors. Purchasing Windows operating system ensured that consumers had the option of using WMP, while nothing prevented them from using another product. However, the tying arrangement materially raised the entry barriers and switching costs to achieving the market penetration required to attract the content and applications that would have allowed rival media players to match the functionality of Microsoft's product. The EU General Court held that the tie-in raised such barriers high enough that no rival media player could have overcome them.[181] If correct, this finding meant that the net effect of the coercion applied by Microsoft actually converged towards the Hilti example. A tying arrangement that — exclusively because of pricing power in the tying product — fixes competitive conditions so that consumers inevitably will prefer the dominant undertaking's tied product achieves the same degree of anticompetitive foreclosure as directly forcing the same result.

As evidence of this proposition, the EU General Court highlighted that "in three months Windows Media Player 6 obtained almost the same distribution by being bundled with the Windows operating system as it achieved in a year by downloading."[182] NPT greatly influenced and expanded the EU *Microsoft I* Court's view of coercion, as not necessarily the act of forcing, but the consequence of manipulating market conditions to block competition based on "the intrinsic merits of [] two products".[183] If such exclusionary acts further harmed consumers — and the Court ruled that it did by reducing variety and precluding more extensive product improvements[184] — then the tying arrangement produced anticompetitive foreclosure.

[178] *Id*. at ¶¶ 983-985.
[179] *Id*. at ¶ 982.
[180] For purposes of the analysis above, I ignore the merits of the tying arrangement in *Hilti*.
[181] Case T-201/04 *Microsoft*, ¶ 1039.
[182] *Id*. at ¶ 1051.
[183] *Id*. at ¶ 1046.
[184] *Id*. at ¶¶ 1057, 1088.

(ii) Weakening Competition as Anticompetitive Foreclosure

Because of indirect network effects and the tying arrangement employed by Microsoft, Windows Media Player (WMP) achieved nearly full market coverage. To achieve the same coverage, rival media players would have had to expend practically infinitesimal resources in advertising and distribution that Microsoft saved merely by tying the two products together. No matter the efficiency or creativity of a rival media player, consumers were likely to choose WMP because of its seemingly cost-free and actual transaction-free ubiquity. Of course, Apple partially surmounted these entry barriers and higher costs by introducing a distinct and disruptive technology popular among consumers, namely the Apple IPOD, itself tied to Quicktime Media Player.[185] But that development did not prevent years of Microsoft dominating the media player market because of a tying arrangement that conferred an unparalleled competitive advantage on WMP unrelated to the product's intrinsic qualities,[186] or to consumer demand. Absent the tie-in, concluded the General Court, different demand considerations more focused on product desirability would have determined the prevalence and general popularity of media players.[187] The tie precluded merit competition and replicated monopoly conditions in the media player market.

Although the tying decision in the EU *Microsoft I* case did not turn on higher media player prices, if consumers hypothetically had paid a price for media players, Microsoft's tying arrangement likely would have raised it. The dominance of the Windows operating system insulated Microsoft from any hypothetical pricing restraints that competing media players could have exerted, since Microsoft included WMP at no price within the operating system package. The tying arrangement further significantly raised the cost structure of rivals by forcing them to engage in expensive distribution methods such as mail order advertising, or less costly methods such as downloading the media player from the internet. Both distribution methods, nevertheless, were of limited effectiveness because, to work, each

[185] *Cf.* http://www.wisegeek.com/what-is-a-media-player.htm (defining media players and discussing Apple's Quicktime).
[186] Case T-201/04 *Microsoft*, at ¶¶ 983, 985.
[187] *See generally id*. at ¶ 1046.

required consumers to incur the extra transaction costs of installing or downloading a product similar to one that already came pre-installed on their operating system.[188]

In fact, the tie-in completely removed the price mechanism as a lever of competition, so rivals could not attempt to win market share by lowering costs and prices. Instead, to rival Microsoft's market share, rival media players would have had to produce a far superior product, and then would have had to expend significant resources advertising the product to consumers. If an explicit price existed, rival media players would have had to charge a steep premium above Microsoft's offering to cover at least their inflated distribution and advertising costs. Knowing the extra cost that competitors producing rival media players had to incur, Microsoft could have raised the hypothetical price of WMP while still retaining a dominant market share. All because of pricing power in a separate product.

The General Court noted that Microsoft must have incorporated at least a portion of the cost of developing WMP in the price of its operating system.[189] The lack of remuneration in the media player market suggested that Microsoft actually aimed to maintain or increase the price of its operating system either (1) by adding features that enhanced functionality at a hidden price, or (2) by weakening competition in a market that eventually could replace operating systems. Eliminating the explicit relationships between price and cost and price and quality in the media player market constituted a substantial anticompetitive effect of the tying arrangement.

Examining foreclosure from the perspective of behavioral economics, rather than rationality and profit maximization, once consumers paid for WMP by purchasing Microsoft Windows, both products became part of their endowment. The tie-in therefore increased the intrinsic value of WMP in the minds of consumers compared to the "but-for" world of formulating value absent the tie. In that "but-for" world, consumers would have determined desirability based solely on the merits of the competing products.

The absence of the price mechanism did not prevent the General Court from affirming a merger review approach to evaluate the tying arrangement. The Court ultimately concluded that a reasonable likelihood existed that the tying arrangement materially foreclosed

[188] For a discussion of the welfare effects of free goods, *see* Michal S. Gal & Daniel L. Rubinfeld, *The Hidden Costs of Free Goods: Implications For Antitrust Enforcement* (2014) at 2-12, *available at*: http://www.eale.org/conference/Aix-Marseille2014/paper/view/1030/309.

[189] Case T-201/04 *Microsoft*, at ¶ 968.

competitors in the tied good market.[190] This approach did not involve adopting an independent test for tying arrangements or raising rivals' costs, since the General Court, for the purpose of identifying exclusionary conduct, meticulously reviewed the basic elements of an illegal tying claim — market power, separate products, coercion, and anticompetitive foreclosure, while permitting inquiry into whether efficiencies outweighed anticompetitive effects. Rather, the merger review approach looked beyond a singular focus on requiring convincing historical proof of each tying element to a more holistic, forward-looking market inquiry. This inquiry examined whether the challenged conduct, here tying, also had stifled, or likely would stifle, "effective competition from vendors of potentially more efficient media players who could [have] challenge[d] [Microsoft's] position".[191]

By upholding a market intervention that attempted to counteract an undertaking with significant market power in one market that had monopolized a second market, the General Court sought to protect competition as conceived by NPT. The monopolization proceeded not by providing a higher quality, more desirable, or more efficiently produced product, but by manipulating consumer preferences through a recognized method of exclusion only available to dominant undertakings — tying.

III. Conclusion

Neoclassical Price Theory (NPT) mostly explains the relevant legal and economic considerations that have driven the development of tying doctrine in both the EU and U.S. Pricing power in a large tying market frequently will represent the most critical determinant to tying success, along with the extent of overlapping demand between the tying and tied products. Courts and competition authorities evaluate the existence of separate products by applying basic concepts of demand and supply. Accurately determining whether the legal elements of coercion and foreclosure harm consumers requires the close examination of such NPT concepts as elasticity, the contours of demand and supply, the strength of entry barriers, and the robustness of competitive restraints in the tying, tied, and packaged markets, before and after the tying arrangement takes effect.

Even the evolution of tying doctrine towards an abbreviated merger analysis or structured rule of reason test, led by both the D.C. Circuit and the EU General Court, merely highlights

[190] *Id*. at ¶¶ 1010, 1089.
[191] *Id*. at ¶¶ 1088, 1125.

the overwhelming influence that NPT has exerted, and continues to exert, on tying law. While non-NPT considerations such as behavioral economics could influence tying law at the margins, it still generally requires the presence of market power to produce anticompetitive effects. Tying can impede rivals from winning market share by producing a higher quality, more innovative, or cheaper product, thereby obstructing merit competition. It thus can lower consumer welfare and effectuate monopolization according to standard NPT models.

CHAPTER 5: BUNDLING ECONOMICS & LAW

I. Introduction

To varying degrees, bundling resembles both tying and predatory pricing. Some U.S. Courts of Appeal, and the EU Commission to an extent, view bundling as a form of predation and thus have attempted to evaluate the conduct by applying the discount attribution standard or another cost-based test. Multiple product discounts differ from single product discounts in material respects, however. Predation excludes entirely by foregoing profits otherwise available. A bundled discount need not entail any profit sacrifice. Dominant undertakings can manipulate prices within a bundle to eliminate the need to forgo profits, particularly since many purchasers of the linking product exhibit inelastic demand when confronted with price changes. The independent popularity of the linking and linked products, the complementarity of the bundled products, and the pre-existing overlapping demand for the bundled products — all will affect the exclusionary potential of the discount.

Unlike in the predation context, the discount attribution standard does not attempt to determine the efficiency of individual price-cuts. Rather, the standard tests whether a hypothetically equally efficient competitor could match all the various price-cuts if aggregated and applied to the competitive product, without pricing below the average variable cost (AVC) of the dominant undertaking.[1] With predation, AVC represents the lower limit of any discount, the short-term efficient price, and the shut-down price of the dominant undertaking, since it will earn an immediate loss on any discount below that measure. By contrast, package purchasers potentially could gain substantially more consumer surplus from a bundled discount because of the possibility of multiple price-cuts. The profit margin on the competitive product limits the potential benefit to package purchasers under the discount attribution standard, which therefore does not account for the greater utility that bundled discounts can provide to at least some consumers.

The incongruence between single and multiple product discounts raises the question whether bundling resembles tying more closely. While forcing consumers to purchase two products harms more than offering price-cuts to coerce a second purchase, since consumers

[1] The Commission test asks whether the incremental price that consumers pay for each product in the bundle falls below the long run average incremental cost of the dominant undertaking to add that product to the bundle. Guidance on the Commission's Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings (2009/C 45/02) at ¶ 60 ["Guidance"].

at least retain the option to buy the products individually, when price-cuts reach substantial proportions, the difference dissipates. Examining market power in the linking product — and thus a significant portion of the potential to coerce prices in the linked or packaged markets — would provide relevant evidence of the exclusionary and anticompetitive potential of any discount. The relationship between the dominant undertaking's costs and the extent of the discount also affects coercive potential, but the discount attribution standard tests for nothing else.

Independent of cost evidence, both the extent and the timing of discounts influence their anticompetitive effect, as well as the magnitude of any countervailing consumer benefit. The discount attribution standard does not attempt to work-out whether the benefit to package purchasers outweighs the loss to single product buyers, who ultimately may face higher prices in the linked market. The test further ignores the fundamental inquiry underlying all exclusionary practices, that is, whether the discount forecloses enough competitors, or particularly important competitors, such that the dominant undertaking gains pricing power in the relevant market.

The frailties of the discount attribution standard would lessen if it were folded within an approach that resembled the quasi-per se test utilized in tying law. The discount attribution standard could help establish market power, coercion, and potential anticompetitive effects, but it singularly establishes each element insufficiently. A quasi-per se tying test applied holistically to determine whether the discount ultimately produces anticompetitive foreclosure more accurately would measure the harmful effects that bundling poses. Any test focused on consumer welfare further would need to balance the lower prices that bundling usually confers on package purchasers against competitive effects in the linked market. A quasi-per se test would retain flexibility both:

(1) to ignore price-cuts that simply induce marginal purchases, that fall below cost but are unlikely to result in higher prices, or that otherwise confer substantial benefits on consumers (over-inclusive); and

(2) to identify price-cuts that weaken competitive conditions in the linked market but that do not violate the discount attribution standard (under-inclusive).

It also would enhance allocative efficiency by not channeling exclusionary conduct to pricing practices.

To comply with the rule of law, I additionally recommend two safe harbors for dominant undertakings producing separate products that are considering whether to offer a bundled discount. To the extent that the market share of the dominant undertaking in the linked product does not exceed 45%-50%, the discount is per se legal. Alternatively, if the dominant undertaking can establish that less than 60% of linked product purchasers also buy the linking product, then the discount is legal. When dominant undertakings do not qualify for either safe harbor, they must defend against proof of anticompetitive foreclosure. Dominant undertakings reasonably might assume the risk of accurately defining the relevant markets ex ante as a burden of dominance, and of profitably utilizing non-replicable advantages in a separate market to extend pricing power.

To take a couple concise examples of the inadequacy of the discount attribution standard, when a linked product competes in a competitive market, the profit margin on the dominant undertaking's linked product is minimal. If a dominant undertaking offers a bundled discount to consumers buying its leading linking product as well, then the discount very likely would violate the discount attribution standard. Yet if demand conditions would continue to support several linked competitors, and material foreclosure does not ensue, then the test would have precluded a practice that generated significant additional consumer surplus. Conversely, when the linked product competes in an oligopolistic or monopolistic market, significant discounts that exclude competitors that restrained price increases would harm consumer welfare, assuming price increases follow price-cuts. Yet the bundled discount might not violate the discount attribution standard because of the tremendous profitability of the linked product.

The discount attribution standard does not necessarily seek to prevent higher prices or to promote lower prices. It rather aims to prohibit the exclusion of rivals because of pricing power and discounts in separate markets. This focus on as-efficient competitors or merit competition reflects a greater concern for the process of competition over price levels. The test seeks to promote the model of perfect competition between products within the same market, but inadequately measures the anticompetitive effects of bundled discounts in the linked market. It further ignores overlapping demand and the prospect for recoupment.

Because monopolization law applies to dominant undertakings, an anticompetitive foreclosure analysis would affect their pricing incentives only in linked and packaged

markets. Dominant undertakings would retain the freedom to dictate competitive conditions in linking markets. The administrative burden of such an approach, as the Third Circuit Court of Appeals demonstrated in *LePage*, need not unduly surpass that of singularly applying the discount attribution standard. Neoclassical Price Theory (NPT) does not fully support either approach because each only partially complies with its principal tenets.[2]

This chapter features two substantive sections that together attempt to demonstrate the overwhelming influence of NPT over bundling law in the EU and U.S. Section II examines the NPT Foundations to Bundling. Section III offers recommendations to amend existing bundling doctrine in certain regions of the United States and in Europe. Section II(A) asks whether Bundling Resembles Predation. The first subsection (i) employs NPT to examine the General Proximity of Single & Multiple Product Discounts, while the second part (ii) critically assesses the Discount Attribution Standard under NPT. Section II(B) alternatively asks whether Bundling Resembles Tying. Concluding that it does, the section argues that detecting anticompetitive bundling requires evidence of: (i) Market Power, (ii) Coercion, and (iii) Anticompetitive Foreclosure, as defined by NPT. Finally, Section II(C) contrasts the opposing approaches to bundling under NPT adopted by, respectively, the Ninth Circuit Court of Appeals in *PeaceHealth* — which exclusively applied the discount attribution standard, and the Third Circuit in *LePage* — which arguably applied the elements to a quasi-per se tying test as subparts to a structured rule of reason.

II. Neoclassical Price Theory Foundations to Bundling

If Neoclassical Price Theory (NPT) greatly has influenced the development of tying law, then it likely would have exerted even more influence over bundling jurisprudence, which addresses discounts offered when purchasing two or more products together. If tying coerces through contractually or technically forcing the purchase of a second product, then bundling coerces through price-cuts. Price-cuts generally reduce profitability at least initially, or the spread between prices and costs, and thereby increase efficiency. At first glance, NPT might support a permissive approach to bundling, perhaps viewing the practice as conceptually similar to predatory pricing. And indeed, some Circuit Courts of Appeal, led by the Eighth

[2] Thanks to Professors Jones & Kokkoris for requesting clarification on the relation between NPT and the two approaches.

and Ninth Circuits, exclusively examine the relationship between costs and price to evaluate bundling.

In addition simply to acknowledging that prices fall after a price-cut, however, NPT also attempts to promote competition and efficiency over time, and specifically, the competitive conditions depicted in the model of perfect competition. Under such conditions, the market will produce the levels of price, variety, and quality that consumers prefer, as determined by their willingness to pay.

After identifying profit sacrifice, the U.S. and EU predatory pricing tests also attempt to measure how the price-cut ultimately will affect market conditions and price levels, at least for price-cuts within a certain range.[3] The discount attribution test incorporates no similar analysis of actual competitive effects. Regardless of the conclusion reached after applying the discount attribution standard, NPT would not support a discount that altered competitive conditions toward monopoly, as measured by a material reduction in competitive restraints on the dominant undertaking.[4]

Alternatively, because NPT has incorporated the Kaldor-Hicks measure of efficiency, it *would* allow all price-cuts that benefited more consumers than it harmed. For bundled discounts, this reasoning suggests that price-cuts should not incur liability if they benefit packaged consumers more than they harm linked product consumers. In considering all monopolization conduct, NPT attempts to promote consumer welfare across all markets, as demonstrated by its focus on allocative efficiency and price levels over time. The Third Circuit has adopted this second, more holistic approach to bundling claims. This section attempts to trace the influence of NPT over the competing approaches.

Perhaps no other action that a company can take more closely embodies competition on the merits and more effectively benefits consumers than a price-cut.[5] Lower prices contribute directly to consumer surplus, or the difference between what consumers actually pay for a product and what they are willing to pay. And lower prices further deepen a market by permitting additional consumers to purchase the product. Understandably, U.S. federal

[3] Jay Matthew Strader, *Post Danmark's Recoupment Element*, 10(2) COMPETITION LAW REVIEW 205, 234-38 (Dec. 2014).
[4] On competitive restraints, *see* David S. Evans, *Lightening Up On Market Definition*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF ANTITRUST LAW 60 (Einer Elhauge ed., 2012).
[5] *Concord Boat Corp. v. Brunswick Corp.*, 207 F.3d 1039, 1062 (8th Cir. 2000) (Murphy, J.) ("Cutting prices is the very essence of competition." (internal quotations omitted)).

courts have taken great care not to punish economic behavior that benefits consumers, and a bundled discount, if not a disguised penalty, "is a price discount on a collection of goods"[6] that allows consumers "to get more for less".[7] In that sense, lower prices immediately benefit consumers[8] regardless of the purpose motivating them, and ultimately benefit consumers if the price-cuts do not subsequently cause higher prices — which they must to justify their implementation.[9] Increased efficiency can explain bundled discounts above cost, as an undertaking can reduce costs by simultaneously selling multiple products to one consumer rather than several products individually.[10]

While bundling can exclude rivals that cannot match discounts offered on multiple products, sometimes leading to higher prices in the linked market, it also can produce ambivalent welfare effects. For example, bundling can encourage consumers to make incremental purchases that they otherwise would not have made, resulting in greater overall revenue for the dominant undertaking and potentially greater consumer satisfaction. Absent bundling, assume that a material portion of consumers, call them marginal consumers, might purchase only the dominant product and forgo purchases of the bundled product or substitutes because they value such products a little less than the asking price. The monopolist sells at least the linking product well above cost, creating great scope to offer a package that lowers the price of the linked product to marginal consumers. A form of price discrimination, the bundled discount in this instance might help the dominant undertaking achieve greater scale in the linked market, thus lowering costs. Or the package otherwise may boost profitability, as the lower price on the linking or linked products boost sales of both products, each of which the dominant undertaking sells above cost and thus earns a profit.[11]

Consumers who previously bought both products unequivocally gain consumer surplus from the discount. Marginal consumers may or may not gain from purchasing the bundle,

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[6] *Cascade Health Solutions v. Peacehealth*, 515 F.3d 883, 902-3 (9th Cir. 2008) (Gould, J.).
[7] *Id*. at 895.
[8] Nicholas Economides & Ioannis Lianos, *The Elusive Antitrust Standard on Bundling in Europe and in the United States in the Aftermath of the Microsoft Cases*, 76(2) ANTITRUST LAW JOURNAL 486, 489-90 (2009).
[9] *Cascade Health Solutions*, 515 F.3d at 901 (quoting *Brooke Group v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 223, 113 S.Ct. 2578, 2588 (1993) (Kennedy, J)).
[10] *Id*. at 895.
[11] *Cf*. Barry Nalebuff, *Bundling as a Way to Leverage Monopoly*, Yale School of Management Working Paper #36, 7-10, 14-18 (2004) (discussing the profitability of manipulating the prices of bundled products), *available at*: http://ssrn.com/abstract=586648.

particularly if the monopolist discounts the linking product minimally or not at all. They would gain the value of the linked product but very little consumer surplus from it. And the discount may have caused marginal consumers to forgo purchases of products valued less highly on which they nevertheless would have secured greater consumer surplus. The welfare effects on consumers who exclusively continue to buy the linked product depend on whether the bundled discount confers pricing power on the dominant undertaking. Judges and competition authorities have not attempted to calculate the net welfare effects of bundled discounts on consumers, perhaps because of measurement difficulties. Instead, they have turned to other concepts derived from NPT for guidance.

Because multiple product discounts at least ostensibly resemble single product discounts, identical arguments in the predation context have arisen in the bundling context. The Ninth Circuit, for instance, has quoted Supreme Court jurisprudence on predatory pricing to support the applicability of cost tests to bundling claims, stating that price-cuts above-cost that competitors cannot match exclude on the basis of efficiency or a lower cost structure, and so represent competition on the merits.[12] Pioneering this line of argument, the Eighth Circuit Court of Appeals has stressed the importance of pricing incentives for dominant undertakings,[13] which generally price well above marginal costs and, by definition, "lack market discipline on their prices."[14] Monopolization law generally should not discourage such companies from lowering prices, since the primary and simplest means to compete consists of cutting prices to increase sales. Indeed, monopolization law principally exists to promote market conditions that facilitate lower prices. Attaching treble damages to price-cuts already deters, to an extent, the very action that competition seeks to promote.[15]

Treble damages do not exist in Europe, however. The deterrent effect of finding price-cuts implemented by dominant undertakings illegal correspondingly will not reach the same level as in the United States. Less punitive remedies in Europe have not precluded at least the EU Commission from viewing multi-product rebates as a form of predation, warranting the application of a cost test. Yet the EU cost test critically differs from the discount attribution standard adopted by the Ninth Circuit. The test does not aggregate all the

[12] *Cascade Health Solutions*, 515 F.3d at 901.
[13] *Concord Boat*, 207 F.3d at 1061.
[14] Daniel L. Rubinfeld, *3M's Bundled Rebates: An Economic Perspective*, 72 U. CHI. L. REV. 243, 262 (2005).
[15] *Concord Boat*, 207 F.3d at 1061 (quoting *Brooke Group*, 509 U.S. at 223; *Matsushita Elec. Indus. Co., Ltd. v. Zenith Radio Corp.*, 475 U.S. 574, 594, 106 S.Ct. 1348, 1360 (1986) (Powell, J.)).

discounts on the competitive product. Because it evaluates the legality of bundled discounts on a product-by-product basis — specifically, whether the packaged price covers the LRAIC of adding a product to the bundle — the Commission test retains absolute efficiency in production as a relevant benchmark for analysis.[16] In that sense, it continues to advance efficiency as a primary objective of NPT by creating a legal safe harbor for dominant undertakings that do not price any individual product within a bundle inefficiently low.

The discount attribution standard, by contrast, examines only the relative efficiency of the competitive product in the bundle after artificially calculating its price. The dominant undertaking could fail the discount attribution test while still producing the competitive product efficiently.

The Commission test also permits package consumers to benefit to a greater extent from the various discounts that a dominant undertaking can offer in a bundle. Concomitantly, the Commission test permits dominant undertakings to exploit their diversification more fully. In the history of EU enforcement, the Commission has not chosen to pursue any multiple product discount claims outside of merger analysis, so the General Court and the Court of Justice have not had an opportunity to develop this area of monopolization law.

In attempting to sort-out the merits of an under-developed legal claim, and the U.S. Supreme Court has not reviewed a bundling claim either, the temptation to classify the practice as analogous to an existing abuse will prove irresistible when similarities facially exist.[17] The judiciary nevertheless should exercise care that similarities between conduct do not obfuscate differences in the method and consequences of exclusion. The risk of analytical error increases when the benchmark for one analog historically has curtailed enforcement, as cost tests have done with predation. The more closely a judge or competition authority conceptualizes bundled discounts to predatory pricing, the more closely that judge or competition authority will view the practice as price competition, subject to cost tests that, at least in the predation context, strictly assess liability based on a

[16] Guidance (2009/C 45/02) at ¶ 60. After the General Court's *Intel* decision, EU courts could view bundled discounts as conceptually similar to rebates that induce exclusivity. This would prompt an approach that does not assess efficiency or competitive effects. For a discussion of the case, *see* Hans Zenger, CRA Competition Memo, *Intel & the Future of Article 102* (June 2014), *available at*: http://www.crai.com/ecp/assets/Intel_and_the_future_of_Article_102.pdf. I do not find that result likely, however.

[17] For a more detailed discussion of categorical thinking, *see supra* pp. 25-31, and particularly IOANNIS LIANOS, *Categorical Thinking in Competition Law & the 'Effects-based' Approach in Article 82 EC*, *in* ARTICLE 82 EC: REFLECTIONS ON ITS RECENT EVOLUTION 19 (Ariel Ezrachi ed., 2009).

relational formula. If a judge or competition authority conceptualizes bundled discounts as an alternative form of tying or exclusive dealing, then a potentially more lenient standard that focuses on anticompetitive foreclosure could apply.[18] Even within the NPT framework, therefore, a crucial conceptual question governing what legal standard to use when assessing bundling is whether the practice more closely resembles predatory pricing, tying, both, or neither.

To answer that question legally and economically, an examiner must inquire into both how, exactly, bundling produces anticompetitive effects, and into how closely those effects approach the competitive concern raised by predation or tying. In the section below, I examine the analogy to predatory pricing.

A. Bundling as Predation

1. General Similarity Between Single- & Multiple-Product Discounts

A defining characteristic of predation — and one that principally explains the law's deep-seated reluctance to condemn the practice, thus justifying the applicability of cost tests — is the inherent profit sacrifice required.[19] By lowering prices, a dominant undertaking bestows on consumers additional consumer surplus and gratuitously forfeits producer surplus — or the difference between the lowest price at which a manufacturer would sell a product, around cost, and the price of the actual sale. Because the practice looks identical to merit competition, which benefits consumers and market-wide efficiency, and because Neoclassical Price Theory (NPT) assumes that all undertakings operate to maximize profits, price-cuts violate competition law only if lower prices today appear likely to produce higher prices later, enough to convert any sacrifice into a profit. Outside of examining market conditions, a judge or regulator might attempt to discern the anticompetitive potential of lower prices by determining whether a dominant undertaking purposefully forgoes profits or additional revenues by pricing below cost. The below-cost pricing does not harm consumers, however. Only recoupment through subsequent price increases does.

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[18] *Cf.* Case C-95/04 P *British Airways v. European Comm'n* (15 Mar. 2007) Judgment of the Court of Justice (Third Chamber) at ¶ 45 (comparing loyalty rebates to price competition and exclusive dealing) (*listed in*: Ioannis Lianos, *Is The Availability of 'Appropriate' Remedies A Limit To Competition Law Liability Under Article 102 TFEU? The Mischiefs of 'Discretionary Remedialism' In Competition Law*, *in* COMPETITION LAW & THE ENFORCEMENT OF ARTICLE 102, 165, 187-202 (Federico Etro & Ioannis Kokkoris eds., 2010)).

[19] Nicholas Economides, *Tying, Bundling, and Loyalty / Requirement Rebates*, in RESEARCH HANDBOOK ON THE ECONOMICS OF ANTITRUST LAW 121, 141 (Einer Elhauge ed., 2012).

Bundling provincially can resemble predatory pricing if the effective price of a product in the package falls below cost.[20] This can occur, for instance, when the dominant undertaking maintains the price of the tying equivalent but adds a product or service "at no additional charge or at some price less than cost".[21] In such instances, consumers initially gain from the attractively priced package but lose if the exclusion or weakening of competitors permits the dominant undertaking subsequently to raise prices to monopoly levels and to recoup the original investment in lower prices.[22]

(i) Bundling Does Not Require Profit Sacrifice

Not all bundling requires an initial profit sacrifice or subsequent recoupment. Because multiple products exist in a bundle, according to Neoclassical Price Theory (NPT), the need for sacrifice and recoupment may depend on the elasticity of demand of the individual products in the package. A higher price on an inelastic product may prompt some customers to buy alternatives, but a discount on the elastic product may attract many more customers to the dominant undertaking. Its market power suggests that it will have great scope to adjust prices to minimize customers switching away from its products. Bundling allows dominant undertakings to arbitrage varying degrees of elasticity of demand for linking and linked products.

The net effect of such discounts can generate revenues for a dominant undertaking, while further enhancing medium-term profitability by excluding rivals that restrain price increases in the linked market. If demand for one or both packaged products is inelastic for a substantial portion of output, meaning the uncontested portion of demand for one or both products is sizable, then by manipulating prices within the package, the dominant undertaking still can exclude while avoiding any profit sacrifice.[23]

For instance, if a dominant undertaking has cornered 80% of the market for product A and 40% of the market for product B, and if 65% of consumers who buy product A also buy product B, then the dominant undertaking can lower the price of product B and collect additional sales there at a greater rate than the loss of sales caused by higher prices in the

[20] *See generally* Sean P. Gates, *Antitrust By Analogy: Developing Rules for Loyalty Rebates & Bundled Discounts*, 79(1) ANTITRUST LAW JOURNAL 99, 136 (2013).
[21] HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION & ITS PRACTICE 466 (4th ed. 2011).
[22] *Id*.
[23] *Cf*. Economides, *supra* n.19 at 141.

mostly uncontested A market. The package earns immediate profits and thus requires neither a net sacrifice of revenues nor recoupment. Yet if the discount reduces competition in the B market, then the dominant undertaking subsequently might be able to raise B prices.[24]

The plaintiffs in the U.S. *British Airways* case did not assert a bundling claim but rather challenged single product discounts on plane tickets. Nevertheless, the example demonstrates how multiple product discounts could operate without profit sacrifice and the corresponding need for recoupment, if British Airways were to have conditioned the discounts on purchasing multiple tickets.

In the actual case, plaintiffs argued that British Airways lowered ticket prices below costs to "marginal" passengers, or those who would not otherwise have flown, on contested routes from London to the United States, while simultaneously raising prices on uncontested routes out of Heathrow.[25] British Airways held a material portion of uncontested routes out of Heathrow because of a significant advantage in landing spots that Virgin Atlantic could not replicate. The spots originated in a government monopoly and were perpetuated as a property interest, which the Second Circuit Court of Appeals considered a "legitimate" competitive advantage.[26]

The Court applied the predatory pricing rubric and dismissed the claim essentially because of insufficient evidence. It found that because marginal passengers accounted for only between three and 14 percent of passengers to the United States, and because the number of passengers to the United States increased substantially in the decade prior to the case, plaintiffs failed to establish that the additional flights that allegedly lowered prices below costs "were entirely attributable to the use of incentive agreements."[27] If British Airways added those flights because of increased demand for transatlantic air travel, then selling a small portion of tickets on such flights below cost did not render the entire flight unprofitable.

Even if Virgin Atlantic were able to establish below-cost pricing, continued the Second Circuit, it failed to show recoupment. Virgin Atlantic proffered evidence only that British

[24] Nalebuff, *supra* n.11 at 7-10, 14-18.
[25] *British Airways*, 257 F.3d at 266 ("[P]redatory foreclosure" is "pricing a good or service below cost with the object of deterring and/or delaying the entry or expansion of a competitor. Losses on sales priced below cost are [] immediately recouped by setting prices substantially above costs on other sales."); *Id*. at 259.
[26] *Id*. at 266.
[27] *Id*. at 268.

Airways raised prices by 14 percent on "five challenged routes prior to Virgin's entry and expansion," not that those additional revenues "balance[d] out the losses on below-cost tickets."[28] Absent proof that British Airways recouped or likely would have recouped the below-cost discounts, Virgin Atlantic could not establish consumer harm.

To alter the facts slightly to fit the bundling context, assume that British Airways sold bundled flights to travel agents, who sell a substantial percentage of airline tickets in the United Kingdom. For example, British Airways offered discounts for economy class tickets on flights between London and New York, which reflect elastic demand. However, it increased prices for business travelers on that route. Because of perks derived from loyalty schemes such as upgrades and free tickets, and because employers usually pay their fare, business travelers exhibit inelastic demand for flight tickets and thus have a greater tolerance for fare increases. To complete the bundle, British Airways raises prices, to varying degrees, for both economy and business travelers on flights between London and Hong Kong, which has a minimal effect on capacity. Most customers on this route are business travelers, whether in economy or business class.[29]

Further assume that British Airways designed the scheme to weaken Norwegian Airways, a hybrid low-cost and flag carrier that recently entered the London to New York market. Consumers are willing to fly Norwegian — which, to offer lower prices, has unbundled passenger amenities such as baggage handling and cabin service — only on flights less than eight hours.[30] This demand constraint means that Norwegian profitably could not enter the London and Hong Kong route. Norwegian does not offer business or first-class seats, so it has much less scope to engage in price discrimination.

Finally, assume that an oligopoly characterizes competition on routes between London and New York, but that a duopoly characterizes competition on flights between London and Hong Kong, with British Airways enjoying a dominant position while competing only against Virgin Airlines. Landing spots in London and Hong Kong constitute formidable entry barriers on that route. Virgin also operates flights between London and New York.

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[28] *Id*. at 271-72.
[29] On the profitability of bundled discounts because of differences in elasticity, *see* Nalebuff, *supra* n.11 at 7-10, 14-18.
[30] *Cf. "European Airlines: Here Come the Vikings*," THE ECONOMIST (Apr. 27, 2013).

Travel agents are willing to purchase the bundle because, although they can charge smaller mark-ups on the London to Hong Kong route, they earn much greater profits on the London to New York route because of both higher mark-ups and greater sales. They thus absorb a portion of the price increase on flights to Hong Kong, and a portion of the price decrease on flights to New York, but not enough to obstruct demand forces: more consumers choose British Airways when flying to New York.

Virgin Atlantic benefits from the bundle offered by British Airways even though it loses sales on the London to New York route because the discount simultaneously weakens competition on that route by eliminating Norwegian Airlines. Its exit enables higher prices for transatlantic flights. Because Virgin also gains sales and additional profits on the London to Hong Kong route, it does not lower prices on those flights. Sizable price-cuts would render the bundled discount unprofitable to British Airways. In fact, Virgin raises prices on the Hong Kong route to right below the British Airways rate. Virgin understands the objective of the discount, and anyway does not wish to antagonize its larger rival on the Hong Kong route.

While British Airways previously was selling in the elastic portion of demand on all flights, such that increases and decreases in capacity, respectively, if taken in isolation, would lower profits,[31] several factors mitigate any potential profit sacrifice: (1) the response of travel agents, which introduce another layer of pricing on top of those set by British Airways; (2) rewards schemes, which make demand less responsive to price fluctuations; and (3) the collusion of Virgin Airlines, which increases profits on the London and Hong Kong route.

The discount would sacrifice even less profits, if any, assuming that other airlines on the London to New York route also institute the same type of bundle, raising prices on routes where they hold a duopoly-like position. Under such circumstances, the bundling does not represent a form of price discrimination.[32] Rather, its design and effect is to exclude Norwegian without engaging in head-to-head competition on the merits, and to restore previous profit margins on the London and New York route relative to the "but-for" level that would have existed had Norwegian continued to service that route. New York and

[31] On why undertakings always price in the elastic portion of demand, *see* RICHARD A. POSNER, ANTITRUST LAW 90 (2d ed. 2001).
[32] *Id*. at 235.

London customers initially gain short-term lower fares but eventually pay higher prices because of the discount. The success of the bundling scheme is by no means guaranteed, however, and it depends on a number of factors:

- the cooperation of other competitors on the New York and London route, and the cooperation of Virgin Airlines on the London and Hong Kong route;
- the duration of the discount required to exclude Norwegian and thus the tolerance of even loyal consumers who eventually might switch to other carriers, particularly for business travelers on the London and New York route,
- the willingness of the British and Hong Kong governments to expand airport capacity,
- the then-existing strength of the British brand, which sustains both leisure and business travel to the United Kingdom, and
- the then-existing price of fuel, among other factors.

As the hypothetical example shows, regardless of whether the discount actually lowers prices below cost, bundled discounts can exclude "less diversified but [potentially] more efficient producers".[33] Norwegian Airlines could not compete on the London and New York route not because consumer demand would not support its low-cost model of service. If given a chance to compete, perhaps that model could have overcome brand loyalty, transformed consumer tastes for mid-haul travel, and reduced costs and prices further by gaining scale. Rather, Norwegian could not compete on the London and New York route because of consumer demand in entirely separate markets and collusion.[34]

Conceptually integrating bundling and predatory pricing can sanction, in certain instances, the foreclosure of an efficient, undiversified competitor providing a product desired by consumers merely because, according to the discount attribution test, all the relevant discounts do not fall below the incremental cost of the competitive product. In the example above, the dominant undertaking actually increased prices on the other segment of the bundle, which protected against liability under the discount attribution standard. Such a test takes no account of such relevant factors under NPT as the purpose, determined from market conditions, motivating the dominant undertaking to price at cost, below total cost, avoidable cost, long-run average incremental cost, or slightly above AVC. Rather, "[t]he

[33] *Cascade Health Solutions*, 515 F.3d at 897.

[34] Single-product rebates might accomplish a similar objective. Although bundling might be easier to detect in this instance, evading legal liability for exclusivity rebates is much more difficult.

Supreme Court has forcefully suggested that we should not condemn prices that are above some measure of incremental cost."[35]

Identifying the likely effects of bundling requires a closer analysis.[36] A cost test for bundling considers many contextual factors that distinguish bundling from predation as either irrelevant or exculpatory, since "unless the discounts resemble the behavior that the Supreme Court in *Brooke Group* identified as predatory,"[37] no liability exists. Yet bundling never will resemble predation fully, since multiple products are involved.

2. Discount Attribution Standard

The discount attribution standard attempts to approximate the cost-based test applied to predation. According to the Ninth Circuit, equally efficient competitors can match all discounts, once aggregated, at or above the dominant undertaking's average variable cost to produce the competitive product.[38] The theoretical soundness of the test under Neoclassical Price Theory (NPT) hinges on the practical validity of the claim that only discounts that exclude a hypothetical equally efficient competitor can cause consumer harm.[39] A higher level theoretical explanation for the equally efficient competitor test relates to the sanctity of price-cuts. Discounts offered by non-dominant undertakings predominantly advance consumer interests. Competition law seeks to encourage price-cuts unless blatantly anticompetitive. A more nuanced or contextual rule, by creating legal uncertainty, could deter dominant undertakings from offering price-cuts or bundled discounts.[40] Consider closely each of the arguments above.[41]

(i) Discount Attribution Standard Both Under- and Over-Deters

From the perspective of Neoclassical Price Theory (NPT), the discount attribution standard both under-deters and over-deters bundled discounts. As discussed above, the test does not account sufficiently for the inelastic demand that characterizes a substantial portion of production for at least one product in the bundle. The ability to price profitably while

[35] *Cascade Health Solutions*, 515 F.3d at 901 (*interpreting Brooke Group*, 509 U.S. at 223, 113 S.Ct. at 2588). As the Ninth Circuit knows, the Supreme Court actually left this issue open, notwithstanding intimating to the contrary in prior precedent.
[36] For a similar argument, *see* Economides & Lianos, *supra* n.8 at 511.
[37] *Cascade Health Solutions*, 515 F.3d at 903.
[38] *Id*. at 910.
[39] *See id*. at 906.
[40] *Id*. at 907.
[41] Guidance (2009/C 45/02) at ¶ 60.

excluding even equally efficient suppliers by manipulating prices within a bundle could reduce the need for either single or aggregated prices below cost. The discount attribution standard under-deters price-cuts in at least the following three examples.

In a traditional market context, a dominant undertaking, D1, bundles two products, A and B. Inelastic demand characterizes most of the production of good A, so D1 normally prices A at $100 despite a marginal cost of $50. More elastic demand characterizes product B, which D1 has marketed (using revenues from its hefty advertising budget for A) as an up-market, differentiated version of alternatives. So D1 prices it at $50 notwithstanding a marginal cost of $40. A competitor, C1, normally prices its non-advertised version of product B at $45, and produces it at a marginal cost of $40.

Assuming that A and B are complementary products and that the potential for significant overlapping demand exists,[42] then D1 can offer a package in which it keeps the bundled price of A at $100 and lowers both the bundled and standalone price of B to marginal cost, or $40, but raises the standalone price of A to $102. The bundled price is now $140, a $10 discount off normal prices.

D1 loses some revenue but threatens the existence of C1, an equally efficient competitor, without ever having to lower the price of product A or the price of product B below marginal cost. The lower package price, moreover, causes additional consumers to buy both A and B from D1, so D1 earns incremental profits on the increased sales of A.[43] Even if C1 lowers the price of B to marginal cost, or $40, C1 still cannot compete with the package — since the price of C1's B and D1's A together, at $142, still exceeds D1's package price of $140. Neither can C1 compete on a standalone basis, given that many consumers, because of D1's strong brand, prefer B individually from D1 rather than C1.

C1, in any event, cannot operate indefinitely without covering a portion of fixed costs. Moreover, the bundle gives D1 a massive advantage in developing a better B product, as it can invest a portion of the $50+ in profits earned on product A toward research and development in product B. Once C1 exits the market, D1 can return the price of B to $50 or higher. The discount attribution standard would not assess liability because the packaged discount, subtracted from, and allocated exclusively to, B, never falls below marginal cost.

[42] Posner, *supra* n.31 at 198.
[43] *See generally* Nalebuff, *supra* n.11 at 14-20.

Another example where the discount attribution standard under-deters anticompetitive price-cuts mirrors the very same weakness of cost tests in the predation context, that is when a competitor operates less efficiently, yet its presence in the market still lowers prices.[44] If C1 instead produces B at a marginal cost of $45 but prices the product at $47, the product, though inefficiently produced, still might restrain D1 from raising prices on B much above $50. D1 can offer a bundled discount in which it lowers the packaged price of either A or B by $6, so the discount remains well above the marginal cost of B. Even if C1 lowered the price of B to marginal cost, therefore, consumers would prefer D1's package over individually buying A from D1 and B from C1.

Assuming sufficient overlapping demand between A and B existed, the discount itself could exclude C1. If D1 also lowered the standalone price of B by $5 or $6, a tactic that would negate the need to bundle, then C1 either eventually or immediately would have to exit the market. D1 similarly would have eliminated a restraint on raising the price of B above $50. Both methods of excluding C1 and raising prices in the B market occur without violating the discount attribution standard.

Notwithstanding the fact that bundling can promote lower prices and efficiency, consider the third example of how the discount attribution standard can under-deter anticompetitive price-cuts, this time in new economy markets. In traditional markets, the bundle might allow the dominant undertaking to lower costs by achieving greater economies of scale or scope. In new technology markets where marginal costs can approach zero and where additional users can make a platform more desirable to advertisers, adding to profitability, a bundle may create demand and thereby contribute substantial revenues above cost. Google can earn additional advertising revenues when Android customers use its search engine over Bing. Aside from earning limited advertising revenues, Microsoft has monetized free teleconferencing by charging a fee to Skype members who call and text mobile phones and landlines.[45]

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[44] For a discussion of the competitive restraints provided by inefficient competitors, *see* Economides, *supra* n.19 at 139.

[45] On the law and economics of free goods, *see* Michal S. Gal & Daniel L. Rubinfeld, *The Hidden Costs of Free Goods: Implications For Antitrust Enforcement* (2014) at 31, *available at*: http://www.eale.org/conference/Aix-Marseille2014/paper/view/1030/309. Thanks to Dr. Wagner von Papp and Professor Lianos for reminding me of this issue.

Notwithstanding potential efficiencies and the welfare generating capacity of bundling, applying the discount attribution standard to such hypothetical bundles provides great scope for evading liability. If no price exists, as in the example of the implicit Google bundle, then no discount exists. The test does not even apply. Alternatively, *assuming* dominance existed in the Skype example, when an undertaking offers one product for free but offers a discount off list prices for the linked product to encourage more people to become members, the discount attribution standard collapses into a single product cost test. The undertaking might offer the discount to boost advertising revenues on the platform. The discount attribution standard allows the undertaking to avoid establishing recoupment on a single product discount. By approximating a simple cost test, the discount attribution standard in this instance also fails to account for the potential exclusionary objective of the bundle: linking the demand features of two separate products. Receiving two products for the price of one, itself offered at a discount, greatly enhances the effectiveness of a bundle.

The following example conversely demonstrates how the discount attribution standard can over-deter bundled price-cuts when undertakings operate rationally under NPT. It does so by not properly weighting the benefits that discounts provide to packaged consumers, and by not considering other relevant factors that determine the exclusionary potential of discounts. Assume again that both D1 and C1 manufacture product B at a marginal cost of $40. C1 prices B at $45. Now assume that D1 offers a bundled discount in which it lowers the price of A from $100 to $92, and the price of B from $50 to $47, meaning that the aggregated discount on the bundle of $11, if applied only to product B, would lower its price below D1's marginal cost, thereby violating the test.[46]

The lower prices on both A and B substantially benefit consumers who otherwise would have bought both products, along with consumers who were enticed to buy both products because of the discount. Because D1 kept the individual prices of products A and B at $100 and $50, respectively, the bundled discount would exclude C1 only if consumer demand shifted toward the package. Foreclosure depends on the market power of D1 in A, a measure of coercive potential, but also on the strength of overlapping demand to consume products A and B concurrently.[47] When weak, the amount of the combined price-cut — on which the

[46] Nalebuff, *supra* n.11 at 7-10, 14-18.
[47] Posner, *supra* n.31 at 198.

discount attribution standard exclusively focuses — need not exclude C1. The extent of a bundled discount can affect that willingness, but it still must exist independent of the discount. Perhaps because of the supra-competitive price of A or of the package, enough consumers would continue to purchase only product B to support continued production by C1.

Moreover, the extent of a discount, while partially reflecting exclusionary potential, also represents the potential to benefit consumers. After all, the greater the discount, the greater the contribution to consumer surplus, and under NPT, consumer surplus embodies a significant component of consumer welfare.[48] Because consumers gained $11 on each purchase of the package, even if the discount excluded C1, it still would have benefitted package consumers materially, unless they ultimately pay higher prices for the linked product or package. The discount still would have represented a net benefit to consumers, notwithstanding the exclusion of C1, if subsequent higher prices in the packaged and linked markets do not exceed $11 in additional consumer surplus per packaged sale during the discount period. And that would depend on D1's market power in A, the popularity of the package, and on competitive conditions in market B after the discount.

(ii) Discount Attribution Standard Nevertheless Complies with Rule of Law

Now consider the legal rejoinder that any restraint on price-cuts, including a more nuanced or contextual pricing standard, might deter monopolists from cutting prices by creating legal uncertainty. Advocates of cost tests argue that such tests can promote competition by creating safe harbors for dominant undertakings to lower prices.

The first response stresses context, in that only few companies actually achieve dominance. Even fewer have dominance that fuels exclusionary bundled discounts: the monopolist must operate in several markets where consumer demand would support bundling. Eliminating a strict cost test in bundling cases, or deemphasizing its importance, will not discourage price-cuts by the vast majority of market participants, who operate in imperfectly competitive markets, or at least in individual markets.

Secondly, if a company achieves dominance, then as the Neoclassical Price Theory (NPT) model of monopoly has shown, competition already operates in that market deficiently. Entry barriers exist. A price-cut will harm consumers when prices subsequently

[48] Consumers also benefit from the elimination of deadweight loss.

rise, which they will when the price-cut weakens competitive restraints.[49] Monopolization law wants to deter price-cuts by dominant undertakings that lower prices only over the short-term and that ultimately produce higher market-wide prices. Dominant undertakings will work hard to ensure that price-cuts achieve that objective.[50] While efficiency matters, even short-term efficiency, so too does maintaining competition.[51] Consumer welfare in monopolized markets usually depends on an adequate balance between these two basic tenets of NPT.[52]

However, dominant undertakings must be able to assess the legality of bundled discounts prior to implementing them. Safe harbors provide legal certainty that promotes economic activity. In the absence of cost tests, another legal or economic mechanism must replace such attributes.

(iii) The Discount Attribution Standard Does Not Measure Efficiency

In the predatory pricing context, cost tests attempt to promote efficiency by protecting price-cuts by dominant undertakings that do not fall below the most efficient level. Conversely, cost tests do not nurture competition by sheltering competitors from price-cuts above cost. Cost tests thus force competitors to achieve equal potential efficiency as the dominant undertaking or risk exclusion from the market.[53] The Neoclassical Price Theory (NPT) concern is that striking down price-cuts above cost could propagate inefficiency by legally protecting smaller, higher cost rivals that have not achieved the scale necessary to compete effectively, thus weakening the competitive process, all while denying customers the benefits of lower prices.[54]

Two related but distinct issues under NPT determine the ultimate merits of this analysis. The first is whether excluding competitors with price-cuts that lower the price to the dominant undertaking's AVC actually promotes efficiency and competition. Consumer demand may support only one undertaking operating at minimum efficient scale. Meaning

[49] On competitive restraints, *see* Evans, *supra* n.4 at 60.
[50] *A.A. Poultry Farms, Inc. v. Rose Acre Farms, Inc.*, 881 F.2d 1396, 1401 (7th Cir. 1989) (Easterbrook, J.).
[51] This argument is implicit to, and pervades, the work in: Economides & Lianos, *supra* n.8; *see, e.g.*, *id*. at 542. For additional critique of the as-efficient competitor test, *see* Wouter P.J. Wils, *The Judgment of the EU General Court in Intel& the So-Called 'More Economic Approach' to Abuse of Dominance*, 37(4) WORLD COMPETITION 405 (29) (forthcoming Dec. 2014), available at: http://ssrn.com/author=456087.
[52] *See, e.g., Wallace v. IBM Corp.*, 467 F.3d 1104, 1107 (7th Cir. 2006) (Easterbrook, J.).
[53] *Cf. Cascade Health Solutions*, 515 F.3d at 901.
[54] *See id*. at 907.

that, to compete, rivals would have to differentiate sufficiently to alter consumer preferences before operating efficiently in a relative sense. Yet success in differentiation may eliminate the applicability of cost tests, if the two undertakings compared have different costs because they essentially produce different products. When a market can support only one undertaking operating at minimum efficient scale, protecting competitors from price-cuts above the AVC of the dominant undertaking both might foster inefficiency and dull the differentiation process.

To the extent possible in many monopolization contexts, judges and competition authorities attempt to weigh the allocative and productive efficiencies produced by a challenged practice against the lower prices that competition might offer. The objective remains to maximize medium- to long-term consumer welfare in the immediate market and in markets where the monopolist operates. Investment concerns always influence such inquiries whether in the context of natural monopolies or otherwise. The potential indeterminacy of such an inquiry underlines the centrality of lower prices to consumer welfare, so long as adequate incentives to produce necessary and desirable goods and services persist.

From a legal perspective, demonstrating allocative inefficiency, rather than predicting it, could prove beyond the capability of the judicial system. Pricing power can exist only within a properly defined market. A dominant undertaking has the ability to raise price above the competitive level only to those consumers who buy its goods or services, not to consumers generally. In the context of bundling, the dominant undertaking has market power in the linking product, and the legal question is whether the bundled discount allows it to strengthen or extend that market power to the linked market. Higher prices constitute the primary societal harm that justifies legal action.

As discussed previously, allocative efficiency essentially is a macroeconomic concept, as it refers to the ability of an economy to allocate capital and labor to those many markets where consumers are willing to pay production costs. When allocative inefficiency exists, either too few or too many resources are flowing to markets under- or overvalued by consumers. Because of the ability to raise price and under-produce the relevant good or service, a dominant undertaking generates allocative inefficiency.

Courts would have great difficulty deciding bundling disputes based on evidence attempting to demonstrate the actual magnitude of allocative inefficiency. The plaintiff would have to identify consumers and producers who are currently buying and manufacturing other products, but who would buy or manufacture the linking or linked products if the dominant undertaking did not bundle, or adjusted the price of the bundled products. Existing and excluded competitors provide a benchmark, as do consumers and producers in related markets, and the distribution of consumers before and after the bundle. Needless to say, this process would involve sifting through large amounts of economic data.

NPT allows judges and competition authorities to examine the difference between price and cost as a means to deduce the extent of allocative inefficiency. Comparing price levels, which can demonstrate absolute harm to consumers, and examining price-cost margins, which indicate the opportunity cost to consumers of monopolization, provide a far more tangible, and thus legally cognizable, basis to measure anticompetitive conduct.

Determining consumer welfare by weighing efficiency against lower prices might incorporate other market characteristics, including the potential efficiency of rivals, which cost tests ignore. A competitor may be capable of producing as efficiently or even more efficiently as the dominant undertaking but lack the scale to match current price-cuts down to AVC.[55] Given additional time to compete, such a competitor might equal or even surpass price-cuts offered by the dominant undertaking. Those price-cuts in turn would have created incentives for the dominant undertaking to operate more efficiently or to differentiate.[56]

Preventing the dominant undertaking from slashing single product prices down to AVC need not always impair the process of competition, nor promote inefficiency, because nothing prevents existing or potential rivals from continually reducing prices to the dominant undertaking's AVC or lower. Under a long-run cost measure that incorporates recoverable fixed costs, only the dominant undertaking in the first instance cannot cut prices down to AVC to exclude competition.[57]

Advocates of the AVC rule might respond that competitors will have less incentive to lower prices continually if monopolization law prevents dominant undertakings from

[55] Economides, *supra* n.19 at 139.
[56] Price-cuts down to AVC can impair the expandability of potentially equal or more efficient rivals. Einer Elhauge, *Tying, Bundled Discounts, & the Death of the Single Monopoly Profit Theory*, 123 HARV. L.R. 397, 463 (2009).
[57] But it can to meet competition.

competing by cutting prices to AVC. Preventing a dominant undertaking from cutting prices reduces the urgency of rivals to cut prices as well. This concern carries less weight at the AVC benchmark because the dominant undertaking cannot sustain operations at AVC, and neither could an equally efficient competitor. Competitors still must contend with the dominant undertaking's ability to lower prices down to the minimum sustainable level, where competition over the medium- to long-term would settle in an efficient market. Pricing around that level because of competition provides added incentive to lower costs as a method to increase profits. As a snapshot of market conditions, long-run incremental cost represents the best available proxy for the equilibrium price under NPT.[58]

The second issue that informs the merits of efficiency-targeting when evaluating price-cuts is the likely consequences of additional competition. If it will produce lower prices and better quality goods and services while not deterring existing productive investments or similar future investments, then the additional competition will contribute to consumer welfare. The judge or competition authority should know that, absent competition, market prices likely will return to levels far above any cost measure.

Promoting efficiency by allowing price-cuts down to AVC could mean preventing undertakings other than the monopolist from investing resources in the monopolized market. The AVC benchmark increases returns on investment, both economy-wide and in the market under consideration. All else equal, this will enhance investment incentives. Promoting competition by adopting a longer-term cost measure, on the other hand, ultimately could provide greater incentives to lower costs and prices. The welfare maximizing potential of cost tests may require a judgment concerning the relative weight to attach to efficiency, competition, and investment incentives given the particular characteristics of the relevant market.

Cost tests nevertheless exhibit weaknesses. They ignore historic price levels and, unless the price falls below cost, the likely direction of prices after a price-cut excludes or disciplines a target. Cost tests reward the potential efficiency of dominant undertakings even if used exclusively as a tool to raise prices. Cost tests fail to account for the possibility that a dominant undertaking more likely will price towards efficient levels going forward if

[58] Judge Posner recommends long-run marginal costs. Posner, *supra* n.31 at 215-16.

competition, even relatively inefficient competition, remained in the market. Cost tests therefore only questionably promote efficient pricing in the single product context.

Applied to multiple products, the discount attribution standard does not even promote absolute efficiency, let alone lower prices, or does so more tenuously. At least in the predation context, cost tests attempt to determine the efficiency of a price after a discount. By contrast, a price-cut to the competitive product in a bundle may qualify as efficient yet still violate the discount attribution standard if the price-cuts of other products in the bundle, however efficient, when added to the competitive product, lower the price below cost. By aggregating discounts, the discount attribution standard eliminates the relationship between single-product efficiency and liability. Efficiency in an absolute sense no longer provides a safe harbor.

(iv) Peculiar Consequences of the Discount Attribution Standard for Competition

As a consequence of the theoretical ease of establishing liability under the discount attribution standard relative to a predation test,[59] the discount attribution standard may encourage dominant undertakings to cut prices exclusively on the competitive product to win market share. That result does not necessarily count as welfare maximizing, however. The test could discourage a dominant undertaking from utilizing competitive advantages to offer discounts that move pricing and efficiency in several markets closer to the competitive ideal under Neoclassical Price Theory (NPT). This is so at least for purchasers of the package, and possibly for purchasers of the competitive product as well.

Bundling doctrine should focus on the welfare tradeoffs between purchasers of the package who potentially gain considerable amounts of consumer surplus, and single product purchasers who, because of the discount, ultimately might pay more for the linked product. Balancing tradeoffs does not inherently benefit either set of consumers at the expense of the other. Instead, the approach adopts a Kaldor-Hicks, or utilitarian, view of welfare, assessing liability only when higher prices in the linked market outweigh lower prices in the packaged market.

[59] *But see LePage's Inc. v. 3M*, 324 F.3d 141, 155 (3d Cir. 2003) (Sloviter, J.) (quoting 2 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 794 at 83 (Supp. 2002) (Professors Areeda & Hovenkamp have argued, to the contrary, that cost tests do not capture "the inherent anticompetitive effect of bundled rebates," since most packaged discounts "yield aggregate prices above cost")).

Judges and competition authorities more easily can identify the benefits secured by package purchasers, which amount to the aggregated discounts. The loss to consumers of the linked product depends on whether the discount excludes rivals operating in the linked market, and on competitive conditions there after exclusion — whether prices are likely to rise. They will when the market more closely features characteristics of monopoly. The absolute number of package consumers relative to linked product consumers also would affect the analysis.

Instead of tallying gains against prospective losses, the discount attribution standard attempts to protect competition in the linked market by capping the level of discounts that a dominant undertaking can offer in a bundle. The existing profitability of the linked product oddly determines that limit. The test therefore favors the interests of linked product consumers over package consumers, and it protects consumers of competitive linked products more vigorously than consumers of monopolistic linked products. Tying and bundling will prove most effective as an exclusionary device in linked markets where competitive conditions are weakest. The single monopoly profit theorem more likely applies when the linked market is competitive. The discount attribution standard thus favors liability when the discount unlikely produces anticompetitive effects, while it becomes most difficult to satisfy when bundling poses the greatest risk of anticompetitive effects.

The test further finds liability even if the dominant undertaking, while producing the competitive product less efficiently than rivals, lowers the price of that product above the rival's price, if the other discounts in the bundle, once aggregated, reduce the effective price of the competitive product below the cost of the dominant undertaking. In other words, the test assesses liability on price-cuts that leave the standalone price of the linked product above that of competitive alternatives.

The discount attribution test offers theoretical clarity as a counterweight. It attempts to address the unfairness of losing customers because of an inability to compete in separate markets. When single-product competitors survive bundled discounts, the dominant undertaking will have difficulty subsequently raising prices in the linked market and recouping the investment in lower prices without losing market share. If prices remain low, the discount will have produced more efficient pricing in the linked market.

The concern for merit competition in the linked market serves to promote the process of competition, and precisely matches the original concern of tying law. Unlike tying jurisprudence, however, the discount attributions standard ignores critical information relevant to identifying anticompetitive effects.

(v) Discount Attribution Standard Ignores the Effects of Differentiation

Product differentiation further inhibits the ability of the discount attribution standard to assess accurately the welfare effects of bundling under NPT. Product differentiation means that rivals do not offer the same products as the dominant undertaking. They instead sell up-market or down-market versions of the relevant product, or an alternative that provides similar or partial functionality.[60] Using a dominant undertaking's costs to determine the competitive survival of a product tailored to comparable, but distinguished, consumer interests raises the potential of incongruent comparisons, of likening different products, and thus potentially of depriving a subset of consumers of desirable combinations at lower prices.[61]

Take the example of laptop computers and Apple's IPad. The IPad caters to consumers more interested in recreation, but it still siphons revenues from laptop computers because of comparable functionality, including browsing the Internet, checking email, connecting with friends and family via Facebook and Twitter, watching movies, listening to music, and reading books.[62]

Price-cuts in one market likely affect demand in the other, but the products are not identical, not least given the lack of a keyboard and other word processing features on the IPad, so the costs of each product will differ markedly. Apple has invested significant resources in display, visual effects, and sound quality,[63] as one would expect of a manufacturer marketing a device for entertainment, while such features have limited utility when drafting documents or filling-out spreadsheets. The premium that IPads command, however, probably relates more to the faddish popularity of all Apple products, which combine novel, elegant, and user-friendly packaging of predominantly pre-existing

[60] For an extended discussion of product differentiation, *see* Evans, *supra* n.4 at 53.
[61] Economides & Lianos, *supra* n.8 at 509-510.
[62] http://ipad.about.com/od/iPad-Tutorials/tp/What-Can-An-Ipad-Do.htm, *last visited* 3 December 2013.
[63] *Id*.

functionality.[64] IPads and laptop computers likely operate in separate but highly correlated markets.

To limit the ability of Apple to cut prices on IPads based on discounts applied to Apple's laptop computers makes little sense, as the exercise compares divergent supply-side structures. Such an analytical framework eviscerates any ability to evaluate properly the relative efficiency of each respective production process. A judge or competition authority cannot determine whether Apple produces an efficient computer screen when IPad screens and laptop screens decidedly differ. On the demand side, supply-side considerations such as different cost structures risk helping one set of consumers at the expense of another: here, protecting consumers who use laptop computers predominantly for work, while harming recreational users of laptop computers.

To flush-out the example more fully, if Apple were to bundle the IPad and Mac computer, and Acer were to bring a monopolization claim, focusing on the cost of the Mac computer as the benchmark to assess the anticompetitive potential of discounts on both Mac computers and IPads appears, at best, odd, and at worse, misleading. Assume that Apple has a dominant position in the tablet computer market and that it offers a significant discount on both IPad and Mac computers if bought simultaneously, which materially raises the market share of Mac computers relative to Acer. Apple already took great pains to differentiate the Mac from alternative computers, in much the same way that it attempted to differentiate IPads from laptops, by designing and marketing Macs more for entertainment and artistic purposes, though they retain work functionality such as word processing. Assume that the cost of Mac computers exceeds that of most Acer models, but that the cost of most Acer computers exceeds the cost of most IPads.[65] Further assume that profit margins on IPads dwarf that of computers, whether Mac or Acer, though the margins on Mac computers exceed that of Acer computers.

In this instance, Apple's ability to exclude Acer would stem from:

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[64] However, the Ipod, an MP3 player, combined with the Apple I-Tunes store, arguably created an original service — that of legally enabling consumers to listen to and pay an affordable price for unbundled music.

[65] *See generally* Webcast: *How Much Does It Cost Apple to Make New IPad?*, (Wall Street Journal, broadcast 3/19/2012), available at: http://live.wsj.com/video/how-much-does-new-ipad-cost-apple-to-make/AC9D9B25-A695-425B-99FF-1188DDBA8033.html#!AC9D9B25-A695-425B-99FF-1188DDBA8033, last viewed 10 Nov. 2014 (quoting $316 as the likely cost).

a. the tremendous room that Apple has to lower prices because of high profit margins on both products, particularly the IPad;

b. the popularity of the IPad and thus from the willingness of many computer consumers to try a Mac, and thus to invest simultaneously in both products in exchange for lower prices, rather than purchasing only a computer or both products separately from different manufacturers; and

c. the socioeconomic background of both computer and package purchasers, whether they can afford to buy both devices, even given substantial discounts.

The cost of the Mac computer informs the exclusionary potential of the discounts only partially and only in conjunction with other market information, including the follow factors:

- the cost of producing Acer computers **—** which helps indicate the level of differentiation between the products;
- consumers' preferences for desktop computers over laptops — which might influence their willingness to buy IPads;
- consumer preferences for IPads over gaming consoles — which constitute a substitute for entertainment;
- the percentage of computer purchasers that are businesses, and the extent to which businesses purchase computers for employee use rather than providing a fixed-sum for purchase — since businesses generally will not purchase IPads for their employees, but employees might buy an IPad if the employer pays for the Mac; and
- entry barriers to Acer, in terms of expense and time, to develop and market a viable rival to the IPad — because low entry barriers likely would prevent the bundle from excluding Acer from the computer market.

If a cost comparison between Mac and Acer computers reveals significant differentiation between the products, and if the profit margin on Mac computers is modest relative to IPads, then the discount attribution standard produces questionable results. It would protect the lower cost Acer model and consumers who use computers primarily for work purposes at the potentially significant expense of consumers who use computers for both work and entertainment purposes as well as IPads for entertainment. The bundled discount could increase efficiency in both the personal computer and tablet computer markets by a tremendous amount.[66] Measured against consumer welfare, product differentiation exacerbates the divisions between consumers created by bundling, for which the discount attribution standard cannot account.

[66] Thanks to Professors Kokkoris & Jones for requesting that I relate the argument to NPT.

3. Anticompetitive Potential of Bundling

The previous discussion on the weaknesses of the discount attribution standard and the potential consumer benefits of bundling cannot erase the potential harm that bundling poses to consumer welfare. A diversified dominant undertaking can use a bundled discount to exclude an equally or more efficient competitor that produces only a single product. That equally or more efficient single product competitor may not be able to operate above cost after matching the steep discounts only possible because of the bundle.[67]

To continue with the IPad example, if Apple determined that the most profitable course for the company involved expanding Mac sales, it could offer the bundle discussed above, and the discount could reach prodigious proportions. The discount further might remain above Apple's long-run average incremental costs to produce each product, and the AVC of the Mac computer after having aggregated the discounts. Buyers of the package would receive an immense boost to consumer surplus, and the package could help Apple secure a dominant share of the personal computer (PC) market if consumers began to prefer, and were willing to pay for, the extra features included in Mac computers.

Consumers who prefer cheaper, more basic computers designed only for work functions would lose if computer manufacturers such as Acer exited the PC market because the bundle permitted Apple to siphon off its most profitable customers, leaving insufficient profitability at the lower-end of the market. Such consumers also would lose if the likes of Acer instead redesigned their computers to compete directly with Mac computers, thus forcing value consumers either to forgo the purchase altogether or to buy a product with expensive, undesirable extra features.

A bundled discount may harm consumers in another fashion. It may not provide any discount at all, but merely disguise a price hike. This can occur, for instance, if the dominant undertaking raises the standalone price on the product in which it holds market power, while keeping the bundled price at the level existing prior to the discount. Consumers of the bundle receive no discount at all relative to pre-existing price levels, but they secure a discount off the standalone price of the linking product. Only an undertaking with significant market power in the linking product profitably could enact such a discount.[68]

[67] *Cascade Health Solutions*, 515 F.3d at 896.
[68] Elhauge, *supra* n.56 at 450-51. Professor Elhauge recommends analyzing bundling under tying doctrine.

Bundling allows dominant undertakings to manipulate prices on multiple products, a luxury that predatory pricing does not permit. The coercion created by simultaneously fiddling with several linked prices fundamentally distinguishes bundling from predatory pricing, and further weakens the propriety of evaluating its potential anticompetitive effect exclusively with a cost test.

4. Lessons from Predation to Apply to Bundling

In the bundling context, assuming prices actually fall, the price-cut achieves the objective of competition. Even if the price-cut excluded a competitor that restrained price increases in the linked market, the alleged anticompetitive act actually lowered prices, at least initially. Absent the motivation to exclude such competitors, the dominant undertaking may have refrained from cutting prices. A monopolization test designed to maintain competitive restraints may sacrifice price-cuts to protect a competitor whose ability to restrain price increases justified its competitive existence. Sustained lower prices negate the justification for the continued existence of the competitor. Only if the dominant undertaking subsequently increases prices and recovers the investment in discounts would exclusion of a competitor raise antitrust concern.

The prospect of recoupment, therefore, should accompany anticompetitive bundling.[69] Examining the extent of dominance in the linking product is indispensable to identifying anticompetitive effects because market power will facilitate subsequent price increases that harm consumers. The greater the dominance that the discounts achieve in the linked market in terms of weakening the countervailing effectiveness of competitive restraints, the more likely prices will rise. While recoupment particularly applies to the predation context because the profit sacrifice itself excludes, and while recoupment can occur simultaneous to the packaged discount or exclusion, recoupment from some source, either now or later, also must occur in the bundling context. Otherwise the price-cut generates losses that benefit consumers, eliminating any need to punish the conduct.[70]

Similar to predation, subsequent recoupment will depend on various market conditions, including the extent and duration of any profit sacrifice, the extent of foreclosure in the

[69] Thanks to Professors Kokkoris & Jones for recommending that I take a definitive position on this issue.

[70] The Antitrust Modernization Commission, tasked with assessing the then-current state of U.S. antitrust laws, also has recommended conducting a recoupment analysis when evaluating bundling claims. ANTITRUST MODERNIZATION COMMISSION, FINAL REPORT & RECOMMENDATIONS 100 (2007), *available at*: http://govinfo.library.unt.edu/amc/report_recommendations/amc_final_report.pdf.

linked market, the extent of entry barriers protecting both markets,[71] in addition to the tenacity of competitive restraints remaining in the linking and linked markets.[72] In the context of bundling, requiring recoupment is just another way of requiring anticompetitive foreclosure, since recoupment unlikely will occur absent foreclosure, and since foreclosure that does not contribute to recoupment will not harm consumers. The Commission's recommended test for bundling could support a showing of recoupment.[73]

To satisfy the rule of law, a challenged act must violate a norm or rule that warrants further scrutiny by enforcement authorities.[74] Monopolization law does not condemn successful companies that achieve high market shares by operating efficiently or by adeptly serving consumer interests. A dominant undertaking must engage in some practice that weakens the competitive process. In the predation context, the exclusionary act consists of pricing below cost; with tying, it involves forcing the purchase of separate products together. Only a voluntary, designated act should lead to monetary damages or injunctive relief. Similar to predation, a bundle excludes competitors by lowering prices, which at least initially enhances consumer welfare. Something else about the bundle and the surrounding market conditions must justify legal inquiry.

Attempting to limit, as the discount attribution standard does, the amount of consumer surplus and the extent of lower prices that packaged discounts bestow on consumers itself harms consumer welfare. Dominant undertakings should have the freedom to improve market conditions without risking either single or treble damages. Bundling poses less risk of exclusion to linked competitors than tying does to tied competitors because consumers of the linking product always retain the option to buy the linked product from competitors. Even those consumers inclined to buy both the linking and linked products still can purchase the linked product from rivals. Unless demand conditions support the bundle, meaning they

[71] On the interaction between such factors in the predation context, *see* Strader, *supra* n.3 at 228-234.
[72] For competitive restraints, *see* Evans, *supra* n.4 at 60.
[73] Guidance (2009/C 45/02) at ¶ 50.
[74] *See* discussion on categorization, *supra* pp. 25-31 & Lianos, *supra* n.17.

allow the dominant undertaking to limit the contested share of demand in the linked market,[75] rivals generally will have ample opportunity to compete and to avoid exclusion.[76]

As long as the dominant undertaking can earn incremental revenue that matches the LRAIC cost of supplying the linked product, the EU Commission test will not find liability.[77] It complies with the rule of law, while promoting efficiency and the interests of packaged consumers. Because the Commission test does not account for the coercive effect of linking discounts, it more readily would permit exclusion in the linked market, even of more efficient rivals. It thus does not target merit competition. In terms of strengths and weaknesses, the Commission test essentially mirrors the discount attribution standard.

Another potential approach might focus on curtailing only those bundled discounts that pose the highest risk of foreclosure. Monopolization law might allow dominant undertakings to set prices freely within a bundle, to prevent linked product consumers from blocking the lower prices, greater efficiency, and greater consumer surplus generated by bundled discounts. When dominant undertakings couple bundled discounts with individual lower prices in the linked market, or individual higher prices in the linking market, however, the practices together enhance the coercive and exclusionary effect of the bundle by framing it with discounts on the individual products. The combination of discounts reaches all consumers of the linked product.

If the dominant undertaking wishes to win over linked product consumers, it should do so by lowering prices in the linked market, *or* by offering a bundled discount, but it should not be able to conjoin both practices. The manipulation of prices outside the bundle could represent the abuse that justifies an expanded inquiry into anticompetitive foreclosure or recoupment.[78] This test also would abide by the rule of law.

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[75] *Cf*. Case T-286/09 *Intel v. European Commission*, Judgment of the Court, Seventh Chamber (12 June 2014) (discussing single product rebates), *on appeal* to the Court of Justice, Case C-413/14 P *Intel v. European Commission*.

[76] On the differing competitive threats raised by contractual and technological tying and mixed bundling, *see* Ioannis Lianos & Abel Mateus, *Antitrust In the New U.S. Administration: A Transatlantic View*, 2 GLOBAL COMPETITION POLICY ONLINE MAGAZINE 1, 24-31 (2009), *available at*: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1399693.

[77] Guidance (2009/C 45/02) at ¶ 60.

[78] Assuming dominance exists. To avoid gaming, the rule should measure the price of the individual linking and linked products prior to the bundled discount taking effect.

B. Bundling as Tying

Bundling resembles tying in many facets. A dominant undertaking sells two or more separate products together to raise profits either by altering consumer demand or increasing efficiency, *or* by excluding rivals from a linked market, which weakens pricing restraint in that market or potential pricing restraint in the linking market. But the practices nevertheless differ in a material respect: Tying actually forces consumers to buy two separate products from the dominant undertaking, while bundling provides financial incentives, in the form of lower prices, to comply with the linking condition.

In the sections that follow, the chapter considers the relevance of applying certain elements of the tying test under the quasi-per se rubric — specifically market power, coercion, and anticompetitive foreclosure — to bundling practices.[79] The purposes are, first, to continue to delineate the influence of Neoclassical Price Theory (NPT) over bundling law, whether viewed as a form of predatory pricing or tying, and second, to continue to evaluate the EU Commission test and the discount attribution standard as methods to assess anticompetitive bundling claims, particularly if viewed as another form of tying.

1. Market Power

For tying or bundling to cause anticompetitive foreclosure, the undertaking must have dominance in the linking product. In the tying context, market power must be capable of forcing the purchase of an unwanted product.[80] Healthy competition in the tying market would preclude coercion.

The coercion employed by bundling derives at least partially from lower prices. Under Neoclassical Price Theory (NPT), to lower prices while avoiding a profit sacrifice, an undertaking must have been pricing above cost in either the linking or the linked market. This fact suggests that, the greater the market power that a bundling undertaking holds, the greater it will be able to lower prices and coerce consumers. In that sense, a market power inquiry in both the tying and bundling contexts achieves a similar objective: to gauge the extent to which an undertaking can coerce or force purchases of another product.

Profit margins alone do not prove market power. Both oligopolistic markets and differentiated markets feature prices above cost, and dominant undertakings can bundle many

[79] Separate products also must exist. The same discussion of separate products in the tying chapter would apply here as well.
[80] *Cascade Health Solutions*, 515 F.3d at 915.

differentiated products. Market power further hinges on the extent of existing and potential competitive restraints.[81] Entry barriers must exist. While an integral element, therefore, the extent of a discount does not fully indicate the degree of market power that a linking undertaking wields.

If an undertaking bundles two competitive products, it will have no scope to reduce prices on the package unless the bundle itself enhances productive efficiency, or to raise prices on the individual products to make the bundle more attractive. In fact, competitive markets in both products leave little scope to recoup or to raise prices if the bundle excluded rivals, unless potential competitors cannot match the undertaking's efficiency. Such bundles thus generally benefit consumers, otherwise they simply would buy the products separately, and therefore raise little competitive concern.

The market power necessary to produce anticompetitive foreclosure in the bundling context likely exceeds the market power required to produce the same effect in the technological tying context, though not necessarily in the contractual tying context.[82] The reason is that technological tying fully integrates two products. The undertaking that technologically ties must invest initially to manufacture a unique product, but neither the contractual nor the technological tying undertaking needs to expend any additional resources above production costs to perpetuate the tie-in.

By contrast, when producing a variety of products, a bundling undertaking does not need to incur up-front costs to link them. Yet it must offer the discounts during the entire course of the bundle to produce and maintain the same coercive effect, whether competitive or anticompetitive. Factors derived from behavioral economics could lessen the extent of the requisite discount, but many customers still will require a financial incentive to continue purchasing both products together. Depending on the duration of the discounts offered and the market power of linked product competitors, to achieve anticompetitive foreclosure, bundling could prove far more expensive than tying, requiring greater profit sacrifice and a larger financial war chest to exclude and recoup. The investment could demand a higher degree of market power than tying.

[81] Evans, *supra* n.4 at 60.
[82] Thanks to Professor Lianos for emphasizing that I distinguish between tying arrangements.

Applying the concepts of rationality, competition, and efficiency, for bundling to produce ongoing anticompetitive effects, market power ultimately must exist in the linked product as well. More specifically, entry barriers must prevent re-entry after the dominant undertaking excludes linked rivals. The bundling itself may allow the dominant undertaking to transfer entry barriers from the linking market to the linked market. Absent entry barriers in some form, if the dominant undertaking attempts to raise prices in the linked market, excluded rivals or others will enter that market and thwart any attempt at higher profits or recoupment. The dominant undertaking often will need to raise prices in the linked market to recover at least a portion of any investment in discounts, unless it boasts nearly perfect inelastic demand in the linking or packaged markets, an unlikely prospect. A bundling scheme that does not increase linking market power or that does not create entry barriers in the linked market will generate losses or be revenue-neutral for the dominant undertaking. It further will benefit all consumers, both linking and linked, even if it excludes linked competitors.

The discount attribution standard only indirectly incorporates the market power variable in the sense that dominant undertakings have greater scope to lower individual product prices and to violate the rule relative to competitive undertakings. The Commission test accounts for market power only in a limiting sense, by preventing the dominant undertaking from lowering the incremental price of an additional product within a bundle beneath the long-run incremental costs of producing the product. Both tests thus ignore other indicators of market power that may enable the discount to produce anticompetitive effects.

The costs of an undertaking have no necessary relationship to its market power. The marginal or variable costs of a dominant undertaking likely will be lower than that of most rivals, however, because of the economies or other benefits that dominance brings. When economies of scope allow the dominant undertaking to lower the costs of producing the linked product, plaintiffs will have greater difficulty establishing liability under either test. But lower costs translate into lower prices only if competitive restraints remain in the relevant market. The bundle may improve efficiency while supporting higher prices that harm consumers.

As intimated above, the objective of the dominant undertaking may not be to weaken linked rivals, but to eliminate remaining competitors in the linking market. A more accurate inquiry than either the cost test advocated by the Commission or the discount attribution

standard systematically would measure market power in both the linking and linked products in relation to the discounts offered. Combined with demand conditions in the linking and linked markets, these factors determine the accuracy of predicting the anticompetitive potential of discounts under NPT.

2. Coercion

Both lawyers and economists might expect competition law to treat forcing more severely than coercing, and so tying more strictly than bundling. The reality depends on the legal test applied. A structured rule of reason test in the bundling context could resemble a technological tying inquiry. It is difficult to say practically how stringent the cost test discussed by the Commission would operate in practice, since no examples of its application exist. Because it isolates prices and costs on each bundled product, or at least on adding each product to the bundle, the test permits great scope for coercive discounts. The discount attribution standard — because it allocates all discounts to the competitive product — theoretically will find liability more frequently than either a structured rule of reason or the Commission's cost test, though any cost test poses practical and evidentiary difficulties to apply.[83]

At some juncture, the difference between coercion and forcing dissipates. Also given the significant ability that dominant undertakings have to manipulate both the standalone and bundled prices of multiple products, a packaged discount could present consumers of the linking product with no practical or viable alternative but to purchase the linked product as well from the dominant undertaking. In such circumstances, employing separate tests to evaluate two practices that achieve identical results simply creates an artificial incentive to design the exclusionary practice to fit the more lenient standard.

On the other hand, because coercing rather than forcing generally does not impair consumer choice as extensively, competition law actually may want to channel vertical linking practices towards discounts and away from technological or contractual tying, where consumers have no option to purchase the tying product alone. Tying jurisprudence, particularly the test applied to technological tying, because it more closely examines the potential and actual effects of the exclusionary act, may encourage precisely the opposite

[83] Thanks to Professor Lianos for raising this issue.

result by implementing both a more accurate and a conceptually more difficult test to satisfy than the discount attribution standard.[84]

Because consumers generally pay a higher price for the bundle relative to purchasing the linking product alone, when consumers buy the bundle, they must want both products. The mechanism of coercion and exclusion in the bundling context is price. A price-cut at least initially offers packaged buyers additional consumer surplus.

Even if tying jurisprudence aimed to prohibit forcing, bundling jurisprudence cannot endeavor exclusively to prohibit coercion, since coercion initially manifests in lower prices for some consumers. The pricing mechanism constitutes a market-based device that inherently coerces, to both pro- and anticompetitive effect. While potentially pro-competitive, dominant undertakings do not offer discounts to keep prices low. The question is not simply whether the discount coerces because it surely does. The more relevant accompanying question under NPT is whether the discount excludes or disciplines rivals whose market presence otherwise prevents price increases or promotes merit competition.[85]

When a dominant undertaking offers discounts to encourage customers to purchase two products together, the discount will affect five possible sets of customers. The customers who already buy the dominant undertaking's linking product may decide, because of the discount, to buy the linked product as well from the dominant undertaking. Coercion there does not harm competitors and unlikely will cause anticompetitive effects, because in this instance the dominant undertaking merely grows the linked market: It does not take customers away from linked competitors. If the dominant undertaking subsequently attempts to raise prices, consumers at least can switch their purchases of linked products to competitors. The same antitrust consequences follow both for consumers originally purchasing only the dominant undertaking's linked product and for consumers previously purchasing neither product.

Alternatively, the bundled discount may prompt the customers of linked competitors to try the dominant undertaking's linking product and purchase the bundle. Or it may persuade consumers buying the dominant undertaking's linking product and competitors' linked

[84] Because of the difficulty of proving costs, however, cost tests historically have constituted a significant barrier to enforcement. Thanks to Professor Lianos for pointing this out.
[85] For closest competitors, *see* GIORGIO MONTI, EU COMPETITION LAW 146, 153, 251 (2007). For competitive restraints, *see* Evans, *supra* n.4 at 60.

product to switch and now buy the linked product from the dominant undertaking. While the dominant undertaking surely would welcome customers who bought only the linked product from competitors, and while such bundling could harm linked rivals, multiple product discounts likely target the last group, those originally buying the linking product from the dominant undertaking and the linked product from competitors. If enough such customers switch to the bundle, then the dominant undertaking will have weakened competitive restraints by driving linked competitors from the market. Once excluded, if entry barriers exist, the dominant undertaking has greater leeway to increase prices in the packaged or linked markets because of weakened competition. Coercion in that instance causes anticompetitive foreclosure.

A more fundamental question is whether coercion exists at all in the bundling context. The answer depends on the definition used. While dominant undertakings can manipulate prices so that rational consumers inclined to buy the linking product from the dominant undertaking also buy the linked product from it, a bundle never eliminates the option of buying the linked product from competitors unless exclusion occurs, unlike tying. If coercion means the absence of choice, then bundling does not coerce. However, if coercion means altering market conditions so that a particular segment of consumers will act irrationally by purchasing the linked product from competitors, then bundling can coerce. Coercion would appear strongest when consumers focus primarily on price.

The degree of price-cuts and their distribution, accounting for the baseline from which prices fall, certainly influences the existence and extent of coercion, as does the duration of the price-cuts. Drastic price-cuts exclude acutely, particularly if the dominant undertaking can cut prices on several products in a bundle. The longer the price-cuts last, the more coercive they become.

Yet severe price-cuts over extended periods also contribute most to the consumer surplus of package purchasers, so a tension or direct proportional relationship generally exists between the coercive potential of discounts and their ability to increase consumer surplus. Significant price-cuts still raise the issue of motivation: They may require longer periods of recoupment, which in turn necessitate higher levels of market power.

Product quality and the efficiency with which dominant undertakings and linked competitors produce the linked product also may affect coercive potential. Greater efficiency

allows greater price-cuts, which coerce more. On the other hand, even significant price-cuts on a package may not influence customers to switch to the dominant undertaking's linked product if that product offers inferior quality.

Like in the tying context, therefore, demand conditions also influence the potential extent of coercion in the bundling context. Consumers may not wish to purchase a second or third product with the primary product, no matter how steep the discount. The degree of complementarity or overlapping demand between the products,[86] or the extent to which consumers want to consume the relevant products together, also will indicate the exclusionary potential of a bundled discount.

Because consumers generally operate to maximize utility given budget restraints (and access to credit), the *individual* strength of demand for the products bundled separately influences coercive and exclusionary potential under NPT. Two popular bundled products more likely will exclude rivals relative to a popular and unpopular product, even if complementary. If consumers otherwise would purchase two products, then they would be more eager to buy them together at a discount than acquiring a linked product that they customarily do not purchase, even at a more significant discount. An example might consist of a discount off a popular brand of laundry detergent and a popular brand of paper towels, compared to a popular brand of tennis shoes and rock-climbing spikes. Even if the relative discount off the athletic apparel were steeper, the discount off the detergent and paper towels might exclude competitors more effectively.

The individual prices of the goods bundled, aside from their profitability, also influences coercive and exclusionary potential. Consumers are more likely to purchase two separate toys together rather than two separate cars, because of budget constraints. Bundled discounts are less likely to exclude producers of expensive products.

Another supply concept derived from NPT that can affect the extent of coercion is the potential for differentiation around the linked market.[87] A successful, profit-generating bundling scheme will attract competition, most likely at the weakest point of market entry. New rivals will initiate competition by attempting to differentiate around the linked market. Depending on the strength of entry barriers, differentiation may permit rivals to chip away at

[86] Posner, *supra* n.31 at 198.
[87] *See generally* RICHARD WHISH & DAVID BAILEY, COMPETITION LAW §6.1 at 20-22 (7th ed. 2012).

profitability without having to compete directly against the linking product or the bundle. Entry barriers also will influence the time frame over which differentiation can restrain the pricing power of the dominant undertaking.[88]

Whether differentiation around the linked market already exists or ultimately mushrooms, it will reduce the coercive impact of the bundling scheme by providing opportunities to switch back to alternative linked products. Differentiation can increase the willingness of consumers to forgo the discount or to pay higher prices to enjoy distinctive product features. Successful differentiation further creates pricing power, permitting rivals to cut prices as another method to lure customers. Extensive differentiation around the linked market therefore will raise the cost of sustaining a coercive discount.

On the other hand, after attaining a dominant position in the linked market, consumer inertia, perpetuated by switching costs and brand loyalty, will inhibit differentiated competition. Because of the corresponding potential for greater profitability in differentiated markets, bundling to acquire dominance in such markets still might constitute an attractive exclusionary strategy.[89] Consumer preferences interacting with supply conditions, two building blocks of NPT, matter at least as much to coercion as price and the extent of discounts.[90]

3. Anticompetitive Foreclosure

The EU Commission formulated the concept of anticompetitive foreclosure to refer to foreclosure that harms consumers. The discussion of bundling in the Article 82 Guidance Paper is sufficiently ambiguous to support requiring anticompetitive foreclosure as an element of the abuse. The Commission addresses tying and bundling under the same heading and specifically discusses anticompetitive foreclosure in the context of bundling.[91]

However, the Guidance Paper also supports a presumption of anticompetitive foreclosure if the discount fails a basic cost test targeted at LRAIC. The Commission discusses the as-efficient competitor test as applied to bundling under a sub-section entitled "Multi-product

[88] On differentiation, *see* Evans, *supra* n.4 at 53.
[89] Thanks to Professor Lianos for raising this point.
[90] Bundling both can weaken and strengthen dominance; it represents both a competitive sword and shield. Bundling can counteract the fact that demand sometimes responds to endogenous factors other than price that shape consumer preferences, such as brand capital, experience, and country of origin. *See, e.g.*, Bart J. Bronnenberg, Jean-Pierre H. Dubé & Matthew Gentzkow, *The Evolution of Brand Preferences: Evidence from Consumer Migration*, 102(6) AM. ECONOMIC REV. 2472 (2012).
[91] Guidance (2009/C 45/02) at ¶¶ 53-54.

rebates". A separate "Efficiencies" sub-section follows, but the test articulated intrinsically incorporates the potential efficiencies of producing several products at once. This reading of the Guidance Paper just about equates bundling to predation, effectively eliminating the claim as an independent abuse under A.102 TFEU. The Commission takes-up the topic of "Predation" after "Tying and bundling". Such a reading certainly could signal a continued unwillingness to devote enforcement resources to pursuing anticompetitive bundling practices.

(i) Foreclosure Effects of Bundling

While a dominant undertaking may bundle in response to consumer demand — to win market share or to exploit greater efficiencies — Neoclassical Price Theory (NPT) also supports other objectives to bundling, such as excluding rivals and thereby relieving pricing pressure. Bundling can foreclose a substantial share of the linked market and raise rivals' costs, particularly when fixed costs are high, since reducing the market share of rivals will increase their unit costs, which could marginalize or force them to exit the market.[92]

Anticompetitive effects occur when, to secure discounts off a necessary purchase, consumers buy the bundle even if they prefer the price and quality mix of competitors' linked products.[93] Demand then may not be capable of supporting the continued efficient operation of rivals in the linked market. A bundle could eliminate competitors who can produce more desirable linked products relative to the dominant undertaking but who cannot compete in the linking market.[94]

As a subtle alternative method to foreclose, if consumers initially have relatively little preference between the price and quality mix of competing linked products, and thus if relatively competitive conditions characterize the linked market, a bundle might coerce by providing an inexpensive opportunity to advertise. Because consumers must buy product A from the dominant undertaking, by providing a minimum discount on a product from which it already earns a high profit margin, the dominant undertaking can direct consumers' attention to another product, B. The bundle thus provides a competitive advantage in

[92] Economides, *supra* n.19 at 135.
[93] For this standard in the tying context, *see United States v. Microsoft Corp.*, 253 F.3d 34, 87 (D.C. Cir. 2001) (per curiam).
[94] Economides, *supra* n.19 at 138.

capturing demand for product B unrelated to merit competition.[95] In a perfectly competitive market, rivals could not utilize existing profit margins or advertising budgets in one market to lower prices in another market. Unable to bundle because of market power in A, rivals in the B market that already operate near cost would have to raise prices to unsustainable levels to achieve the same degree of advertising and growth prospects.

Multiple product price-cuts further may create market power and foreclose rivals because the discount allows consumers to experience the additional utility of purchasing two products rather than one. It allows consumers to purchase an individual product that they previously valued a little less than the asking price. The added value of this product may prompt consumers to spend more money. Afterwards, consumers may have less money, but higher utility. In other words, a discount on one product increases consumer surplus on that product, but a discount on two products, while perhaps increasing combined consumer surplus by an equivalent amount, also allows some consumers to purchase a product previously unaffordable. The discount empowers dominant undertakings to win sales by transferring producer surplus earned in another market, which weakens the ability of rivals to compete in the linked market.[96]

Bundling additionally capitalizes on deviations from NPT, particularly the short-term rationality of consumers, which can contribute to foreclosure in the linked market. If exclusion occurs, then many consumers will have taken the short-term savings on several desirable products rather than strategically supporting medium-term lower prices in the linked market by not buying the bundle.[97] Competition law cannot expect most or even many consumers to work-out the cumulative competitive consequences of their purchases. Consumers irrationally may forsake products that they prefer, leading to their exclusion from the market, in exchange for short-term discounts.

Unlike the consumers depicted in NPT models, many consumers do not have the ability or information necessary to determine whether the immediate individual benefit of lower prices on several products ultimately outweighs higher overall prices. A collective action

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[95] Nalebuff, *supra* n.11 at 20.

[96] *Cf.* Opinion of Advocate General Kokott in Case C-95/04 P *British Airways v. Commission* (23 February 2006) at ¶ 71 (discussing how loyalty rebates can exclude by "making it difficult or impossible for [] competitors to have access to the [relevant] market").

[97] *Cf.* Frank H. Easterbrook, *Predatory Strategies & Counterstrategies*, 48 U. CHI. L. REV. 263, 282-88 (1981) (discussing the rationality of rivals).

problem adversely might influence their judgment, justifying intervention by competition authorities. Anticompetitive effects in such scenarios follow from market failure, or the cumulative irrationality of consumers.

Neoclassical Price Theory (NPT) explains a great deal about bundling, including:

1. the primary source of anticompetitive concern, market power;
2. the means by which a dominant undertaking achieves anticompetitive effect, through lower prices, manipulating demand and supply conditions, or compulsion derived from market power, all of which can foreclose competitors, affecting elasticity and initially shifting the supply curve outwards; and
3. the harm to consumer welfare that foreclosure can enact, namely the higher prices, lower efficiency, and reduced variety and quality characteristic of monopolization, of ultimately shifting the supply curve inwards.

Yet also because of NPT, the mere act of foreclosure does not raise anticompetitive concern unless it also produces anticompetitive effect.

Determining the anticompetitive effects of bundling requires balancing lower prices to package purchases against medium- to long-term price effects in the linked market if the discount forecloses rivals. The objective justification prong of the technological tying test applied to Microsoft by the EU General Court conceptually could support this inquiry.[98] In the context of bundling, however, it would need to occur earlier to determine whether the bundle produced anticompetitive foreclosure. Such a test would need to balance tangible, short-term discounts against the direction of competition in the linked market: whether the discount yields recoupment or otherwise generates additional profits from exclusion. A bundled discount that created significant additional consumer surplus for packaged consumers, but that decimated competition in a linked market of material size, unlikely would avoid liability.

(ii) Exclusionary Limits to Bundling Relative to Tying

The rationality tenet of NPT demonstrates a few inherent limitations to bundling. Most bundles will include the linking product and either a complement or an unrelated product,

[98] Case T-201/04 *Microsoft Corp. v. Commission*, Judgment of the Court of First Instance (Grand Chamber), ¶¶ 1091-1150 (17 Sept. 2007).

since consumers generally will not pay twice for similar functionality.[99] Like tying, bundling can produce genuine productive efficiencies by, for example, reducing double marginalization.[100] While bundling could enhance market power in the linking product, when it prompts consumers of linking rivals to switch producers or otherwise raises barriers to entering the linking market, the linked product unlikely will enhance functionality enough to warrant a massive increase in demand for the linking product. A bundle will not, for instance, create a new product by technological integration.

Rather, dominant undertakings more likely target the linked market intending to create a new source of revenue and profits. To succeed, dominant undertakings must raise price and thereby extract profits from the linked market. Dominant undertakings will finance price-cuts from existing or future profits. The more popular the linking product is, the lower the quantity of discounts that they will have to offer to capture linked market share. Notwithstanding the cost to dominant undertakings, by implementing a bundled discount, they must have reason to believe that it ultimately will succeed in raising prices. Because dominant undertakings participate in the market far more than other entities, they will have far more information about demand conditions than either rivals or enforcement authorities.

Aside from the provincial observation that tying coerces to a greater degree than bundling, foreclosure depends on joint-product customers diminishing the contested portion of demand in the tied or linked markets by purchasing the tying or bundled package. Competition depends on a sufficient percentage of the tied or linked market remaining open or contested after accounting for package purchases. To the extent that package purchasers make-up most of the tied or linked market, leaving single-product suppliers too few consumers to sustain operations, the package almost surely will foreclose competitors.

Forcing is a much cheaper method than offering discounts to limit the contested portion of demand in a linked market. Some tied customers will not have wanted to pay for the dominant undertaking's tied product, so a percentage of tied customers will be unattainable to a dominant undertaking that bundles. Because elasticity of demand varies among customers, the bundling undertaking would have to provide a range of discounts, both high

[99] On the potential effects of vertically integrating complements and substitutes, *see* Nicholas Economides & Steven C. Salop, *Competition & Integration Among Complements, & Network Market Structure*, 40 J. OF INDUSTRIAL ECONOMICS 105, 114, 118 (1992).
[100] *See, e.g.*, Giuseppe Dari-Mattiacci & Francesco Parisi, *Substituting Complements*, *available at*: http://www.unisaarland.de/fak1/fr12/csle/workshop/program/Dari-Mattiacci_Parisi.pdf.

and low, to accomplish the same degree of foreclosure as a tying undertaking does by contract or product design. Consequently, all else equal, the uncontested portion of demand in a tied market likely will exceed, sometimes by a significant degree, the uncontested portion of demand in a corresponding linked market.[101]

As a knock-on effect, a tying undertaking should have greater revenue left over, from not having to offer discounts, to lower prices or improve features in the individual market for the tied product, where demand is contested. Relative to bundling undertakings, tying undertakings not only can improve the tying product through a technological tie-in, but they also have greater scope to improve the tied product. Such advantages may improve consumer welfare, but only after accounting for weaker competition in the tied market. Absent the tie-in, the dominant undertaking would not be able to exploit advantages that rivals cannot replicate, no matter how efficient they are.

Certain forms of tying also raise higher entry barriers than bundling: Technological tying can merge two markets, completely eliminating the opportunity to compete in the tied market. After uncontested demand reaches a certain threshold, competitors have to enter the integrated product market to compete at all. With bundling, no matter how high the percentage of uncontested demand, excluded and potential competitors still can improve, or differentiate around, the linked product alone. Competitors generally will need less ingenuity and financial capability to compete in the linked market relative to the tied market.

Bundling thus presents less risk of sustained foreclosure: Plaintiffs should have more difficulty satisfying the applicable legal test for bundling relative to tying, since bundling monopolizes less effectively than tying.

(iii) Most Relevant Indicators of Anticompetitive Foreclosure

Cost tests ignore the actual effects of discounts on price levels. In addition to the relationship between the extent of the discounts once aggregated, and the costs of the dominant undertaking to produce the competitive product, other conditions of demand and supply, derived from Neoclassical Price Theory (NPT), also determine the exclusionary potential of bundled discounts. The following list, which mostly summarizes the discussion so far, includes:

[101] This argument does not apply if the linking product is relatively more popular than the tying product, and overlapping demand is greater for the bundle compared to the tying package.

- the extent of market power in the linking product;
- the extent of market power in the linked product;
- the extent of differentiation in the linked market;[102]
- the strength of complementarity between bundled products;
- the extent of overlapping demand between bundled products;
- the extent of the discount regardless of its relation to cost; and
- the individual strength of demand or popularity for each bundled product, which gauges the exclusionary potential of the discount by examining whether consumers are likely to purchase the bundled products anyway.

In addition to the above factors, which indicate the *exclusionary* potential of the bundled discount, the following factors, many of which both U.S. and EU antitrust agencies consider during merger review, indicate whether the exclusion further will produce *anticompetitive effects*, specifically by raising prices, generally in the linked market. The importance of these additional factors signifies that exclusion itself represents an integral part of the competitive process. Other market conditions must interact with exclusion to produce anticompetitive effects. They include:

(1) the extent to which the price-cuts excluded competition, which relates to diversion ratios caused by the packaged discount, or the proportion of sales gained at the expense of various substitutes because of the discount;[103]

(2) whether remaining rivals produce close substitutes to the linked product[104] and further retain the ability to restrain the pricing of the dominant undertaking by, for example, profitably expanding output,[105] further differentiating, or otherwise neutralizing the advantages secured by the discount;[106]

(3) whether, for example, the bundle weakened or excluded the dominant undertaking's closest competitor in the linked market, or the competitor to which many consumers would turn if the dominant undertaking subsequently were to increase prices;[107]

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[102] U.S. Dep't of Justice & Fed. Trade Comm'n, Horizontal Merger Guidelines §6.1 at 20-22 (2010) [hereinafter "U.S. Horizontal Merger Guidelines"].
[103] *Diversion Ratios: Why Does It Matter Where Customers Go If A Shop Is Closed?*, Oxera Agenda, at 1 (February 2009), *available at*: http://www.oxera.com/Oxera/media/Oxera/downloads/Agenda/Diversion-ratios.pdf?ext=.pdf.
[104] U.S. Horizontal Merger Guidelines §6.1, p. 22.
[105] *Id*. at §6.3, p. 23.
[106] *Id*. at §6.1, p. 21.
[107] *Id*. at §6.1, p. 20.

(4) whether the bundle weakened or excluded a maverick in the linked market, or an undertaking that historically had assumed a particularly disruptive role in lowering prices;[108]

(5) whether potential or excluded rivals later could respond to higher prices by entering the linked market;

(6) whether the dominant undertaking devised the bundled discounts specifically to exclude particular competitors because of recent entry, or because the target had begun to exert tangible restraint on the dominant undertaking's pricing; and generally

(7) whether prices likely will rise.

4. The Rule of Law

A different version of the technological tying test applied in the *Microsoft* case, altered to fit the bundling context, more accurately would identify anticompetitive bundling than either the discount attribution standard or the cost test advanced by the EU Commission. However, any such test that failed to incorporate a cost test or a similar benchmark for liability would violate the rule of law when applied to bundling. Bundling does not merge two markets. Unlike tying where the tie itself constitutes the abuse, where the dominant undertaking does not stumble into tying unaware, and where the test partly determines whether a tie exists, bundling as a practice cannot constitute an abuse because it generally lowers prices in the first instance. Lowering prices, as a category of conduct, represents a fundamental method to compete on the merits.

From the perspective of the judiciary, something else about the bundling must indicate an abuse and prompt a more searching inquiry into anticompetitive effects.[109] From the perspective of dominant undertakings, a particular aspect of a bundling practice or particular characteristics of the surrounding market must give them notice that they risk liability. Concerning pricing practices, perhaps the greatest conceptual attribute to cost tests is that they separate-out conduct that might lead to liability, namely pricing below some measure of cost.

Simple foreclosure does not provide a workable alternative in the bundling context because pro-competitive price-cuts also exclude. The act that raises the prospect of abuse

[108] *Id*. at §2.1.5, pp. 3-4.
[109] For a discussion of similar considerations that motivated the Ninth Circuit's decision in *PeaceHealth*, *see* Economides & Lianos, *supra* n.8 at 491.

ideally must capture conduct the majority of which produces anticompetitive effects. Or certain clearly identifiable market characteristics must give the dominant undertaking prior warning that short-term pro-competitive behavior likely will yield medium-term anticompetitive effects, prompting liability. Pricing below cost in the predation context might satisfy the first condition, but as I have argued throughout this chapter, it fails in the bundling context.

C. Comparing The Bundling As Predation Approach (*PeaceHealth*) To The Bundling As Tying Approach (*LePage*) In Practice

The discount attribution standard appeals most to those courts that view bundling as a form of predation. Because Neoclassical Price Theory (NPT) has defined efficiency generally and the proxy used for market-wide efficiency — namely the difference between the costs of a dominant undertaking and its prices — by adopting the discount attribution standard, the Ninth Circuit relied on NPT to decide *PeaceHealth*. While the discount attribution standard theoretically could support liability in a variety of instances, in practice, it will assess liability rarely when the dominant undertaking earns high profit margins in the linked market.

An approach that does not turn exclusively on the relationship between prices and costs, but rather more closely examines the competitive effects of a bundled discount, reflects a view of the practice as closer to tying. The Third Circuit in *LePage* adopted just such an approach, termed anticompetitive foreclosure by Professors Economides and Lianos.[110] This mode of analysis also derives exclusively from NPT principles, since it focuses on competitive restraints and the likely direction of prices after exclusion.

At the conceptual level, the Ninth Circuit views multiple product discounts fundamentally as price discounts on a collection of goods.[111] This starting point impels the Court down a path that leads to a benign and deferential view of price-cuts. Seeking to attach liability to the chief lever of competition, plaintiffs must establish that the discount lowers prices below the dominant undertaking's incremental costs.[112] Any other standard provides insufficient guidance to dominant undertakings considering discounts,[113] potentially "denies

[110] *Id*. at 493-495.
[111] *Cascade Health Solutions*, 515 F.3d at 902-3.
[112] *Id*. at 906.
[113] *Id*. at 907.

customers the benefits of the defendant's lower costs,"[114] and overly protects higher cost and smaller rivals. The plaintiff in *PeaceHealth* could not establish that the various discounts, once aggregated, lowered the price of the competitive product below the dominant undertaking's average variable cost (AVC), so the Ninth Circuit affirmed dismissal of the bundling claim.

Interestingly, however, the Ninth Circuit failed to dismiss the accompanying tying claim, reasoning that the plaintiff hospital provided enough evidence (to avoid dismissal) that the prices of defendant's tied services were higher than plaintiff's rival services. Plaintiff therefore could ask a jury whether sufficient coercion existed such that "a rational customer would not [have] purchase[d] [defendant's] allegedly overpriced product in the absence of a tie." Enough evidence existed such that a jury could determine whether, through the exercise of market power, defendant forced consumers "to do something that [they] would not do in a competitive market".[115] Defendant, owning three hospitals,[116] surely exercised monopoly power in the tying product, as no other hospital in the relevant market provided tertiary medical services,[117] or complex medical services like invasive cardiovascular surgery.[118] Yet plaintiff competed with the defendant in the provision of primary and secondary medical services, or more typical medical services like MRI scans.[119]

The Ninth Circuit undoubtedly understood the irony of the accompanying holdings. On the one hand, dismissing a bundling claim in which monopoly power in tertiary medical services financed discounts of 30% to 40% in primary and secondary medical services,[120] simply because the discounts, once aggregated, did not fall below the AVC of providing primary and secondary medical services. That peculiarity indicates the extent of the dominant undertaking's pricing power in tertiary medical services, and existing profit-levels in primary and secondary medical services. On the other hand, the Court upheld a tying claim that utilized that very same market power in tertiary medical services to force insurance companies to buy tertiary, primary, and secondary medical services from the defendant.

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[114] *Id*.
[115] *Id*. at 915.
[116] *Id*. at 891.
[117] *Id*.
[118] *Id*. at 891.
[119] *Id*.
[120] *Id*. at 892.

In each case, the need of some patients to use tertiary medical services constituted the most decisive factor for insurance companies deciding whether to accept the tying or bundling conditions. While insurance companies with patients using tertiary medical services had no choice but to accept the tying arrangement, the bundled discount arguably coerced to an equal measure. After all, the bundling arrangement bestowed on insurance companies discounts upwards of 30% to 40% of the cost of primary and secondary medical services as well.

In both cases, the arrangements excluded not because the plaintiff hospital operated inefficiently by providing lower quality or more expensive primary or secondary medical services. Indeed, it provided cheaper such services.[121] Rather, the arrangements excluded because the plaintiff hospital did not, and possibly could not, compete in an entirely separate market, that for tertiary medical services.

The Ninth Circuit partially based the separate legal treatment on the fact that insurance companies and their patients secured an immediate tangible benefit in the form of discounts of 30% to 40% off all medical services.[122] Of course, a bundling standard consistent with NPT must account for the appreciable immediate benefit that lower prices provide to packaged consumers, in the form of additional consumer surplus. And a 30% to 40% discount constitutes a tremendous savings.

But the discount attribution standard does not consider what happens to the prices of primary, secondary, and tertiary medical services once the bundling arrangement disappears, after having disciplined or excluded plaintiff from the market. If the defendant were unlikely to recoup the discounts, perhaps because entry barriers to opening a fully integrated hospital were low, then the price-cuts unambiguously would have benefitted consumers. Entry barriers likely were high, however, since neither the plaintiff hospital nor anyone else in the relevant market had attempted to provide tertiary medical services.

Given the incongruity of allowing one exclusionary scheme that accomplishes the precise objective as a prohibited alternative, perhaps the Ninth Circuit implicitly was inviting the plaintiff to seek further review so that the Supreme Court better could rationalize the legal principles governing both the freestanding legal claim of bundling, and the interaction

[121] *Id*. at 897, 915.
[122] *Id*. at 907.

between bundling and tying claims. The Supreme Court almost surely is interested in whether competition law channels similar conduct into one or the other practice solely because of the differing stringency of the applicable legal tests. Yet the plaintiff did not appeal the Ninth Circuit's decision.

Prior to *PeaceHealth*, the Third Circuit in *LePage* took a more skeptical view of bundling practices. Instead of focusing exclusively on the relationship between the dominant undertaking's costs of producing the competitive product and the aggregated discounts, the Third Circuit looked to various factors that contributed to the exclusionary potential of the discount, such as:

- "the increase in the defendant's market share,
- the effects of foreclosure on the market,
- benefits to customers and the defendant, and
- the extent to which customers felt they were precluded from dealing with other manufacturers."[123]

Such factors closely track the elements to a structured rule of reason in the technological tying context: market power, coercion, and anticompetitive foreclosure, while also counting potential efficiencies. Note that this more expansive market-focused inquiry need not exclude the obvious relevance of cost evidence. The Third Circuit considered both (1) the level of the hypothetical discount that LePage would have had to offer on the competitive product to match all of 3M's bundled discounts, and (2) the effect of having to offer those discounts on LePage's ability to compete — as the most critical factors in the bundling analysis.[124] The importance of the relationship between prices and costs mattered because it attempted to quantify the exclusionary and coercive potential of the bundled discount. The discount attribution standard thus assisted the Court in determining whether LePage could have remained viable in the linked market after matching the discounts of the dominant undertaking. The paramount question remained, however, whether the discount likely would have caused anticompetitive foreclosure, or whether it would have excluded a competitor that historically had restrained, and likely would have continued to restrain, the dominant undertaking from raising prices.[125]

[123] *LePage*, 324 F.3d at 162.
[124] *Id*. at 161.
[125] Economides & Lianos, *supra* n.8 at 493-495.

The difference in focus between the analytical approaches of the Ninth and Third Circuits is material. Instead of examining evidence relating only to the dominant undertaking, the Court also scrutinized the competitive position of the plaintiff and other rivals or potential rivals in the relevant market. The purpose of examining the competitive position of rivals was not to protect their profit margins. Thus evidence that LePage earned margins over 30% in the private label tape market prior to 3M instituting the bundled discount did not support a finding of liability.[126] But the fact that LePage's profit margins not only declined, but actually fell to negative 10% because the bundling arrangement lowered the efficiency of its manufacturing process, at least delineated the exclusionary potential of the discount. Efficiency fell because, in the transparent tape market, companies must retain large volume customers to achieve economies of scale.[127] In certain instances, 3M's rebates to LePage's customers "were as much as half of LePage's entire prior tape sales to that customer." The loss of indispensable large volume customers can demonstrate the likely foreclosure of a rival.[128]

Other evidence indicated the anticompetitive effect of that foreclosure, given that, although 3M held over 90% of the transparent tape market,[129] LePage represented a viable and growing threat to 3M's dominance.[130] After 3M instituted the discount, LePage's market share declined 35% over the next five years.[131] As additional evidence of anticompetitive foreclosure, the weakening and ultimate foreclosure of LePage allowed 3M to raise the price of Scotch-brand tape, the linking product.[132] The totality of the evidence suggested that "3M entered the private-label market only to 'kill it'."[133]

Other evidence supporting liability included the fact that the bundling arrangement generated few productive efficiencies, which were, at any rate, not nearly enough to compensate for the millions of dollars that 3M gifted to LePage's customers in the form of bundled rebates.[134] In considering efficiencies, the Third Circuit did not attempt to balance

[126] Rubinfeld, *supra* n.14 at 260.
[127] *LePage*, 324 F.3d at 161.
[128] *Id*. (because of the bundled discounts, LePage lost Kmart, Staples, American Drugstores, Office Max, and Sam's Club).
[129] *Id*. at 146.
[130] *Id*. at 156 ("LePage's had begun to enjoy a small but rapidly expanding toehold in the transparent tape market.").
[131] *Id*. at 161-62.
[132] *Id*. at 163.
[133] *Id*. at 164.
[134] *Id*.

the lower prices enjoyed by packaged purchasers against potentially higher prices in the private label tape market. After forcing LePage to exit that market, plaintiffs argued that the discounts ultimately would have compelled private label tape purchasers to buy branded tape from 3M.

However, a recoupment analysis would have indicated the weakness of this claim. Private label tape is a fungible product. If 3M attempted to raise the price of either branded or private label tape far above competitive levels, entry barriers could not have prevented alternative suppliers from entering the private label tape market.

If recoupment were possible, 3M would have done so gradually, as any drastic price increase would have drawn competitors into the private label tape market. Given 3M's overwhelming market share advantage over LePage, and its then-existing profitability, perhaps the discounts to 3M's customers amounted to a relatively small investment, easily recoverable before potential rivals could have entered the private label tape market.

If the Third Circuit had applied the discount attribution standard to 3M's bundled rebates, it would not have found liability, since the sum of the rebates did not lower the price of private label tape below the average variable cost of 3M to produce it. Again, this result highlights the extent of profit margins that 3M earned on private label tape prior to the bundled discount.

Overall, the case demonstrates the difficulty of evaluating the pricing practices of dominant undertakings. If the discounts were not as steep, and LePage could have remained viable in the private label tape market, then such price-cuts would not have substantially lessened competition either. Yet if the price-cuts were not as steep, then consumers who bought the bundle would have benefitted less, and they likely benefitted a great deal, at least over the short-term, given the damage that the discounts did to LePage.

To protect the welfare and efficiency generating attributes of competition under NPT, pro-competitive price-cuts essentially must lower prices without excluding rivals that restrain the pricing of the dominant undertaking. Or if the price-cuts do exclude such rivals, others must be able to take their place. Substantial market power means that existing rivals only faintly restrain the pricing of the dominant undertaking, and that price-cuts are capable of further weakening an already-debilitated competitive process.

Aside from the accuracy of its determination, and despite more thoroughly considering the relevant indicators of anticompetitive effects, the *LePage* judgment arguably does not abide by the rule of law. Determining liability after-the-fact by weighing competitive effects represents an economic standard, not a legal one.

D. Behavioral Economic Considerations

People exhibit bounded rationality, meaning that they systematically deviate from rational decision-making and instead rely on heuristics, or mental-short cuts, under certain defined, predictable circumstances.[135] Because bundling represents an attempt by dominant undertakings to influence consumer preferences by altering the selection process rather than competing head-to-head against rivals on price and quality in the single product setting, it could limit the ability of consumers to maximize utility beyond the short-term.

Bundling particularly takes advantage of loss aversion and the endowment effect. By purchasing a bundle, consumers do not need to give-up a desired product or lose any existing utility. In fact, a bundle merely invites consumers to add to existing utility levels. It does so by improving the experience of consuming the linking product, or by lowering the price of that product in exchange for trying another product. This offer might appeal to consumers more than tying, because at least a technologically tied package more fully represents a new product that consumers would have to test, thereby risking lower utility levels. With bundling, consumers buy an old product alongside an additional good.

Once consumers buy the package, assuming that they like the linked product, both loss aversion and the endowment effect will work in favor of repeat purchases. The bundle will have added to pre-existing utility levels, increasing the baseline amount to which loss aversion and the endowment effect applies. Consumers now will dislike losing the higher utility level relative to the level existing prior to the bundle.

Exploiting these heuristics does not necessarily raise anticompetitive concern. Loss aversion and the endowment effect merely may constitute components of demand. Consumers may prefer certain products for both rational and boundedly rational reasons. Yet their operation further demonstrates the coercive and exclusionary potential of bundled discounts implemented by dominant undertakings.

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[135] Avishalom Tor, *The Fable of Entry: Bounded Rationality, Market Discipline, And Legal Policy*, 101 MICH. L. REV. 482, 484 (2002). For more on behavioral economics, including a definition for loss aversion and the endowment effect, *see supra* pp. 19-21 (& sources cited therein).

III. Recommendations

No perfect pricing rule exists. The approach that I proposed after examining bundling as a form of predation — per se legal unless the dominant undertaking also manipulates the individual prices of the linking or linked products — may not have found liability either in *PeaceHealth* or in *LePage*, even if:

(1) entry barriers hypothetically existed in the private label tape and hospital markets;

(2) the discounts contributed to excluding all other competitors; and

(3) the discounts allowed the defendants to raise the price of the linked products far above but-for levels.

As the sole measure of anticompetitive effects, such a test, therefore, appears inadequate. It nevertheless could help establish the potential exclusionary effect of certain bundled discounts.

All the tests discussed in this chapter derive from Neoclassical Price Theory (NPT). In selecting the most appropriate standard, judges and competition authorities may have to choose between promoting short-term consumer benefit at any cost, including the risk of medium-term consumer harm, or instead attempting to advance medium- to long-term consumer benefit at the potential cost of short-term lower prices. Administrative costs and the incentive effects of dominant undertakings also matter. In the final analysis, the underlying choice requires a policy judgment that incorporates political considerations. Strictly adhering to NPT does not provide the answer.

In the paragraphs that follow, I propose an approach that attempts to address the most critical issues that determine the competitive effects of bundling, while complying with the rule of law. Bundling liability would hinge on market power in the linking product, including robust entry barriers, and the existence of separate products, similar to tying analysis. In addition to these two elements, to avoid an anticompetitive foreclosure analysis, the dominant undertaking must establish that one of the following two safe harbors apply.

A market share in the linked product below 45%-50% qualifies as the first safe harbor. Reaching the second safe harbor would require evidence that overlapping demand between the linked and linking products is less than 60%.[136] By overlapping demand, I mean that less than 60% of linked product purchasers also buy the linking product. In setting guidelines,

[136] In many national and even regional industries, such statistics already exist. A legal rule based on this suggestion would help create a market for such statistics where they do not currently exist.

enforcement authorities might adjust these figures, or offer a band, to account for potential movement in market share figures around the time that plaintiff files suit.

As a rule of law matter, these safe harbors depend on the dominant undertaking accurately defining the relevant markets prior to offering, or continuing to offer, a bundled discount. Antitrust litigation often becomes bogged-down in market definition issues, which can involve complicated questions concerning demand and supply elasticity, or the general substitutability of consuming and producing goods and services. A dominant undertaking in a separate product would have to focus on this issue when the discount risks instituting dominance in a linked market, or when the bundle protects market power in the linking product.

If a court determines that the safe harbors are unavailable, the consequence would be that an anticompetitive foreclosure analysis would apply instead. The court would balance efficiency concerns and the benefit to package purchasers against the existing and likely effects of the discount on competition and consumer welfare in the linked market.

When bundling effectuates significant foreclosure and risks dominance in a separate market, monopolization law reasonably might place the ex ante risk of accurately defining the relevant markets on the dominant undertaking. If the dominant undertaking determines that the prospect of antitrust damages outweighs the continued profitability of the bundled discount, it simply can offer the products separately. By that juncture, it likely will have secured material demand and supply advantages in the linked market that could survive offering single-product discounts.

As another guideline, the vast majority of bundled discounts, even offered by dominant undertakings, are temporary. Depending on the relevant industry, antitrust authorities could refuse to review bundling claims unless the discount lasted longer than a minimum period generally thought necessary to produce lasting anticompetitive effects, determined by social scientific evidence. I suggest one year.

As a defense to bundling claims, dominant undertakings further might proffer evidence that the market share of its linking product was declining by more than 10% during the full year prior to the plaintiff filing suit. Declining linking market power decreases the dominant undertaking's ability to fund and sustain exclusionary discounts in the linked market.

Bundling could require a unique remedy. I do not consider Professor Oliver Williamson's timing remedy that recommended preventing dominant undertakings from raising prices again for a period of one to two years after lowering prices below a designated benchmark appropriate for predatory pricing.[137] I object because the remedy interferes with dominant undertakings' pricing decisions too severely, and because rivals strategically could manipulate the rule to avoid merit competition.

Yet the remedy might apply more appropriately to bundled discounts. If antitrust authorities prevented dominant undertakings from increasing prices only in the linked market for a year after finding anticompetitive foreclosure, then the remedy would prevent recoupment. Because the dominant undertaking presumably earned its market power in the linking market through merit competition, it would retain the ability to increase prices there. And because consumers simply could buy the products individually if the dominant undertaking raised prices in the packaged market above their reservation price, the dominant undertaking reasonably might retain pricing flexibility in that market as well.[138]

The timing rule more appropriately fits the bundling context because, first, investment incentives generally do not affect the motivation to bundle, and bundling predominantly does not generate the innovation that boosts productivity. Antitrust authorities do not have to worry, therefore, that deflated prices in a linked market either will deter innovation or fail to reward previous investment. If pro-competitive, bundling instead creates efficiencies and provides additional consumer choice and lower prices.

Second, for bundling to harm consumers, the dominant undertaking generally must increase and maintain market power in the linked product, which requires the existence or transfer of entry barriers to keep prices high, at least long enough to recoup any initial investment in lower prices.

Competition authorities can refrain from applying the timing rule if the dominant undertaking demonstrates that it has improved the linked product. The timing rule further would protect linked product consumers from having to pay higher prices to fund discounts enjoyed by packaged consumers.

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[137] Oliver E. Williamson, *Predatory Pricing: A Strategic & Welfare Analysis*, 87 YALE L.J. 284, 295-302 (1977).
[138] Linked product competitors might complain about artificially low prices in the linked market after the remedy. The remedy thus may serve to deter both anticompetitive bundled discounts as well as private bundling suits brought by competitors.

CHAPTER 6: CONCLUSION

I began this thesis by attempting to delineate the contours of Neoclassical Price Theory (NPT) as conceived by legal scholars and as originally applied by U.S. federal appellate judges. At its core, NPT relies on the interaction between quantity and price depicted in the demand and supply curves that feature in the perfectly competitive and monopolistic models of neoclassical economics. By examining market conditions and how alleged exclusionary practices influence the interaction of these approximations for consumer and producer activity, judges and competition authorities can predict whether particular acts will harm consumers generally by their effect on prices (and output).[1]

Three principles discussed throughout the thesis embody NPT. First, rationality means that consumers and firms interact to maximize their own utility and profits. Second, NPT seeks to promote the competition that exists in the model of perfect competition, where suppliers respond most attentively to consumer needs. Doing so compels suppliers to price at the market-wide long-run incremental costs of production, which represents the efficient price. Suppliers still earn an economic rate of return. Competition thus generates efficiency, the third proxy for NPT, and maximizes consumer surplus, or the difference between what consumers pay and what they are willing to pay for a product. Efficient production occurs when sufficient competition exists to promote lower costs. More than any other set of principles, rationality, competition, and efficiency have guided judges and enforcement authorities when evaluating whether a challenged practice will enable a dominant undertaking to operate more like a monopolist.

In the first substantive chapter, I set-out to demonstrate that NPT has dictated the legal principles and tests applied to predatory pricing, and that enforcement levels in the United States have fallen through the years, most precipitously after 1993 when the U.S. Supreme Court decided *Brooke Group*. I criticized this development at one level because reliable evidence should support all legal judgments, and NPT, particularly through the application of cost tests, often involves predicting the effects of exclusionary practices based on a sometimes minor component of the relevant evidence. For the rest of the thesis, however — in the EU predatory pricing chapter, and in the tying and bundling chapters — I first identify

[1] For focusing on output, *see* ROBERT H. BORK, THE ANTITRUST PARADOX 116-17 (1978); RICHARD A. POSNER, ANTITRUST LAW 2, 9 (2d ed. 2001).

the NPT principles that most influence the likely effects of the challenged practices, then I examine how closely the relevant legal tests incorporate those principles. I therefore open myself to the very same criticism that by adopting NPT as the predominant mode of analysis, I also conjecture without sufficient proof or evidence.

I would respond to this potential criticism by indicating that throughout the thesis, I closely have considered all (so far as I know) the primary legal sources, and leading secondary sources,[2] that could influence the analysis, at least as applied to predation, tying and bundling. While additional secondary sources certainly could alter the evolution of NPT, it is supple enough to incorporate the various inputs that determine consumer welfare in a market economy — including lower prices, greater efficiency, strong incentives to invest and innovate, and greater quality and variety. Economists have exerted tremendous influence on NPT through their scholarship and testimonies in court.[3] I nevertheless have amended the basic tenets of NPT to accord with the principles discussed within the opinions issued by U.S. and EU judges. NPT has a distinct legal bend that does not ignore the boundaries of judicial decision-making.

The fundamental microeconomic tenets that partially constitute NPT adequately explain a great deal of economic behavior and empower foresight. This fact particularly has aided enforcement. I still have criticized predatory pricing law because, on noteworthy occasions, it has misapplied NPT by insufficiently weighting medium- to long-term consumer welfare. Existing economic evidence does not support almost eliminating the ability of plaintiffs to establish liability based on a proxy for anticompetitive effects that is often difficult to measure. Cost tests serve important legal and economic objectives, but they only partially determine price levels beyond the immediate term.

Other intra-institutional considerations also have influenced the development of legal rules and enforcement levels. Judges and competition authorities have favored theoretically simple rules like cost tests because they supposedly promote greater transactions by reducing transaction costs. If parties better understand how to abide by legal rules, such rules lower the costs of acquiring legal knowledge, which in turn lowers the costs of conducting

[2] A particular thanks to Professor Lianos for guidance here.
[3] For further discussion on the influence of economists within competition litigation, *see* Ioannis Lianos, *Judging Economists: Economic Expertise In Competition Litigation: A European View*, *in* TOWARDS AN OPTIMAL COMPETITION LAW SYSTEM (Ioannis Lianos & Ioannis Kokkoris eds., 2009).

business[4] — or of engaging in exclusionary practices, whether price-based or not. In the context of competition law, the choice of simple rules or more complicated standards determines which institution, the market or the judiciary, has greater influence over the actions of dominant companies. Simple rules "mean sweeping allocations of responsibility to other decision makers,"[5] in this case the market.

The theoretical simplicity of cost tests has undergirded their expansion. Because of the data and resources required to conduct cost tests properly, however, they are anything but simple to implement.[6] Cost tests thus deter claims for which they represent the primary legal test.[7]

As the complexity of a legal claim increases, both the market and the judiciary will provide less reliable answers.[8] The existence of significant market power casts enormous doubt over the reliability of the market process.

Externalities prevent individuals or companies from internalizing the full costs and benefits of their actions.[9] If clear rules allocate decision-making to the market process, and the competitive process fails to restrain the dominant undertaking from increasing prices above the competitive level, then the dominant undertaking will not fully internalize the anticompetitive consequences of its actions. In such circumstances, clear rules would harm consumers by deferring to a faulty market process.

A healthy market process depends on a multitude of transactions and exchanges, each of which bears little concern for the aggregate result.[10] To a high degree, consumers and competitors must participate in the market process. Variation in that participation affects its efficacy.[11] High market shares combined with entry barriers allow dominant undertakings to limit the participation of rivals. By raising prices to monopoly levels, moreover, dominant undertakings exclude consumers who otherwise would buy the product at the competitive

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[4] NEIL K. KOMESAR, LAW'S LIMITS: THE RULE OF LAW & THE SUPPLY & DEMAND OF RIGHTS 138 (2001).
[5] *Id*. at 159.
[6] *But see* Wouter P.J. Wils, *The Judgment of the EU General Court in Intel & the So-Called 'More Economic Approach' to Abuse of Dominance*, 37(4) WORLD COMPETITION 405 (7) (forthcoming Dec. 2014) (mentioning the 150 pages devoted to the as-efficient competitor test in the *Intel* judgment), available at: http://ssrn.com/author=456087.
[7] Thanks to Professor Lianos for this insight.
[8] Komesar, *supra* n.4 at 159.
[9] *Id*. at 127.
[10] NEIL K. KOMESAR, IMPERFECT ALTERNATIVES: CHOOSING INSTITUTIONS IN LAW, ECONOMICS, & PUBLIC POLICY 121 (1994).
[11] *Id*.

level. Depending on other market conditions, the net effect can be market failure. Monopoly materially reduces market participation such that consumers lack the ability to register their preferences, and too few competitors exist to identify and satisfy those preferences.[12] Judges have little reason to defer to outcomes generated in a market characterized by dominance.

In the context of monopolization enforcement, judges have good reason to distrust the adjudicative process as well. It often will lack the expertise and information to decide production and distribution issues better than even a weakened market process.[13] NPT has strengthened enforcement by providing analytical tools to identify when weakened market conditions insufficiently serve consumer needs.

A consensus began to build in the mid- to late-1970s that because companies must price above variable costs to cover fixed costs, fund investments, and to innovate, the cost of falsely condemning pro-competitive practices was high. In addition, because entry barriers often cannot withstand competitors drawn to high prices, dominant undertakings have little ability to sustain supra-competitive prices. The cost of failing to penalize exclusionary practices is small.[14] Restraint therefore should characterize monopolization enforcement. This error-cost analysis[15] mixes principles of NPT and a political desire to promote investment and innovation with assumptions about the strength of entry barriers, the general responsiveness of the market, and the ineffectiveness of exclusionary practices.

Take each claim in turn. While dominant undertakings must price above variable costs to sustain operations, they do not need to price above average total costs (ATC) to do so. A price at ATC covers all operating expenses, including investment costs. A price at avoidable costs allows an undertaking to recover those costs it could have avoided by ceasing operations.[16] And a price at long-run average incremental cost (LRAIC) permits the recovery of long-run costs required to produce an extra increment of output.[17] Prices above these measures, standing alone, should not warrant liability; such prices may embody a reward for innovation and investment.

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[12] *Id*. at 103.
[13] *Id*. at 108.
[14] PINAR AKMAN, THE CONCEPT OF ABUSE IN EU COMPETITION LAW 205 (2012).
[15] Richard A. Posner, *Economic Approach to Legal Procedure & Judicial Administration, An*, 2 JOURNAL OF LEGAL STUDIES 399 (1973) (*cited* by David S. Evans, *Lightening Up On Market Definition*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF ANTITRUST LAW 53, 76-77 (Einer Elhauge ed., 2012)).
[16] For a definition of avoidable costs, *see* http://www.economicshelp.org/blog/glossary/avoidable-costs/.
[17] For a definition of LRAIC, *see* http://en.wikipedia.org/wiki/LRIC.

But exclusionary practices strictly designed to sustain supra-competitive prices, without benefiting consumers over the medium term, do not reward productive activities. Innovation, for instance, does not justify indefinite profitability. Rather, practices unrelated to merit competition reward exclusionary ingenuity and anticompetitive intent. The costs to companies from the judicial process inaccurately condemning such practices unlikely will deter the desire to survive in the marketplace or to earn the sizable profits that innovation generates, and that the law, in so many contexts, protects.

On the other side of the calculation, while few monopolies last indefinitely, dominant undertakings often persist for years and even decades, as IBM, Microsoft, and Google have demonstrated. Nothing in law and economics or NPT justifies prolonging the massive transfer of surplus and the creation of inefficiency that dominant undertakings can perpetrate with exclusionary practices that do not benefit consumers. Undertakings with market power "can significantly affect or determine market outcomes."[18] NPT recognizes that by exploiting market power to weaken competitors, anticompetitive practices actually can prevent rivals from lowering prices and providing more desirable products and services, costing consumers billions of pounds sterling in forgone surplus. Entry barriers are factors to examine, not presume away.

As a large, anonymous, and highly diffuse group, consumers often fare badly in the political process.[19] Monopolists similarly have the advantage of concentrated interests and significant resources to expend in the administrative setting.[20] Given dominance, consumers can fare badly in the market process as well, where monopolists can extract huge sums without consumers switching to competitors.[21] From an inter-institutional perspective, consumers thus represent strong candidates for judicial protection.

Yet judges have not intervened vigorously to guard their interests, choosing to ignore the potential harm of many exclusionary practices because of the complexity and the high administrative costs of determining whether practices that immediately benefit consumers

[18] Komesar, *supra* n.10 at 99.
[19] *Id*. at 228.
[20] *Id*. at 95-96; *see also* Akman, *supra* n.14 at 18.
[21] Komesar, *supra* n.10 at 228.

ultimately will harm them.[22] An absolute weakness in institutional capacity, rather than a relative weakness, has driven judicial decision-making in the U.S. monopolization context.

Absent judicial intervention, juries ultimately decide antitrust disputes in the United States, and they often favor competitors against big, successful companies. Add in the threat of treble damages and a hyperactive private litigation system, and legal rules that cultivate expansive monopolization enforcement potentially could influence the competitive vigor of existing or striving dominant undertakings. Against this concern, when operating outside of financial turmoil, the U.S. has deep and fluid capital markets, courts committed to enforcing the Commerce Clause of the U.S. Constitution, and over 235 years of integrating its national market.

In Europe, the Commission and EU Courts have sought to implement a different institutional balance. Aside from a stronger emphasis on competition, non-existent or mostly underdeveloped private litigation systems and the original reality of compartmentalized national markets have strengthened the inter-institutional capacity of EU public enforcement relative to the market. Particularly in early decisions, counteracting nationalist business sentiment and forging a single market were important overarching objectives to competition policy.[23] More recently, the Commission has discussed enforcing competition law based on the principle of integrating the single market as a last resort, applicable when "the protection of consumers and the proper functioning of the internal market cannot otherwise be adequately ensured."[24]

Notwithstanding incredible strides, the EU still grapples with different languages and customs, sovereignty issues that sustain diverse regulatory regimes, and much longer histories of shifting allegiances between member states — all of which impedes market integration. EU Institutions still have good reason to distrust the ability of the EU market, and even the desire of EU member states, to allocate capital and labor according to the

[22] *See* Bruce H. Kobayashi, *The Law & Economics of Predatory Pricing*, *in* ANTITRUST LAW & ECONOMICS 116, 129-130 (Keith N. Hylton ed., 2010) (quoting *Barry Wright v. ITT Grinnell Corp*., 724 F.2d 227, 234 (1st Cir. 1983) (Breyer, J.)).

[23] *See, e.g.*, Case T-228/97 *Irish Sugar plc v. Commission of the European Communities*, Judgment of the Court of First Instance (Third Chamber) at ¶¶ 147-48 (7 Oct. 1999) (*listed in*: Ioannis Lianos, *Is The Availability of 'Appropriate' Remedies A Limit To Competition Law Liability Under Article 102 TFEU? The Mischiefs of 'Discretionary Remedialism' In Competition Law*, *in* COMPETITION LAW & THE ENFORCEMENT OF ARTICLE 102, 165, 187-202 (Federico Etro & Ioannis Kokkoris eds., 2010)).

[24] Guidance on the Commission's Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings (2009/C 45/02) at ¶ 7.

efficiency criterion of NPT. For both political and institutional reasons, consumer welfare has encompassed broader concerns. As another critical impetus to monopolization enforcement, EU-wide dominant companies have become richer from the Commission breaking-down barriers to trade between member states.

Active judicial decision-making carries costs, notwithstanding the "greater contemplation, reason, and disinterestedness" associated with it. The judicial process may not discern consumer preferences as well as an unfettered market process.[25] Yet judges are not substituting freestanding opinions for that of a well-functioning market. Rather, they are substituting their judgment for the uniform desire and insufficiently restrained ability of dominant undertakings to accumulate profits in a weakened market. By targeting lower prices, while sensitive to investment incentives, NPT allows judges to counteract the information costs of bypassing the market process.

The error cost framework, most commonly applied, stresses the supply-side of institutional competition: "the dire implications of judicial intervention," such as "floods of cases, the substantive difficulty of the decisions, and the dangers of adjudicative mistakes".[26] In the predatory pricing context, particularly in the United States, and in other areas of monopolization law where cost tests have expanded to anchor the analysis, this thesis has stressed the demand side, "asking courts to expand their role."

In doing so, of course, the discussion must highlight the weaknesses of the current system.[27] Any adjustment required should proceed cautiously. The ability to test different approaches in district courts and in state courts constitutes a material strength to a federal and common law system. Focusing uniformly on cost tests as an immutable filter to liability for pricing practices, particularly in contexts outside of predation, could allow too many anticompetitive price-cuts to escape liability.

While EU Institutions have relied on principles derived from NPT to evaluate predation and tying claims, which explains my comfort level with the existing state and direction of tying jurisprudence in both jurisdictions, EU monopolization law includes strands that potentially incorporate reasoning outside the scope of NPT. As the most recent exhibit, the EU General Court decided in *Intel* that loyalty rebates (which I do not examine in this thesis),

[25] Komesar, *supra* n.10 at 260.
[26] Komesar, *supra* n.4 at 178.
[27] *Id*.

when classified as exclusivity rebates, "inherently" or "by their nature" restrict competition.[28] Categorizing the conduct as an exclusivity rebate relieved the Commission from having to show either actual foreclosure or anticompetitive effects.[29] An exclusivity rebate that merely makes access to the market more difficult for competitors establishes the requisite foreclosure effect.[30] In evaluating a single-product discount in *British Airways*, the General Court similarly determined that, to find an abuse, the Commission did not have to establish that the rebate actually harmed consumers.[31] But the Commission did have to show that the challenged conduct was "capable of" or "likely to" harm competition.[32]

NPT does not necessarily require an exhaustive effects-based approach. It does not dictate the evidentiary burden for courts and competition authorities to apply. When a court decides that a particular practice always or almost always harms consumers and the competitive process when implemented by a dominant undertaking, it still had to reason from NPT premises. The court first had to apply NPT to find dominance. The court then would have considered whether the practice harms competition and consumers consistently enough by raising prices and/or curtailing variety, quality, or innovation to avoid further examination. A court might base this decision on the existing state of economic evidence, which might demonstrate that the practice invariably prevents merit competition from functioning as it customarily does under perfect competition.[33] In the EU *British Airways* case, the General Court found likely anticompetitive effects.[34] The treaty obligation to promote the undefined concept of "undistorted competition" could approximate this analysis.

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[28] Wils, *supra* n.6 at 4-5.
[29] *Id*. at 4-5 (discussing Case T-286/09 *Intel v. European Commission*, Judgment of the Court, Seventh Chamber, ¶ 143 (12 June 2014), *on appeal* to the Court of Justice, Case C-413/14 P *Intel v. European Commission*).
[30] *Id*. at ¶¶ 149-150.
[31] Case T-219/99 *British Airways v. Commission* (17 Dec. 2003) Judgment of the Court of First Instance (First Chamber) at ¶ 293 (*listed in*: Lianos, *supra* n.23 at 187-202); *see also* Orit Dayagi-Epstein, *The Evolution of the Notion of Consumer Interest in Light of the Modernisation of Article 82*, *in* ARTICLE 82 EC: REFLECTIONS ON ITS RECENT EVOLUTION 67, 70 (Ariel Ezrachi ed., 2009) (*quoting* Case T-219/99 *British Airways*, at ¶ 264).
[32] *Id*. at ¶ 293.
[33] For a discussion of the distinction between form-based and effects-based analysis, *see* IOANNIS LIANOS, *Categorical Thinking in Competition Law & the 'Effects-based' Approach in Article 82 EC*, *in* ARTICLE 82 EC: REFLECTIONS ON ITS RECENT EVOLUTION 21-36 (Ariel Ezrachi ed., 2009). On NPT and the evolving core of economic content, *see* Ioannis Lianos, "*Lost in Translation?*" *Toward a Theory of Economic Transplants*, Jean Monnet Working Paper 08/09 (2009) at 9-10, *available at*: http://ssrn.com/abstract=1485378.
[34] Case T-219/99 *British Airways*, at ¶ 295.

Abandoning the as-efficient competitor test as a legal requirement to establish exclusivity rebates,[35] as the *Intel* Court did, likewise says nothing about the general applicability of NPT to the practice under consideration.[36] Throughout this thesis, I have attempted to demonstrate that NPT is a far broader mode of analysis than simply comparing prices to the costs of a dominant undertaking.

Other readings of undistorted competition are possible. Professor Wouter Wils has argued that it protects "the right to compete" and "equality of opportunity."[37] Competition as an instrumental device, used to ensure equal access to every market and the opportunity to displace successful rivals notwithstanding consumer preferences and efficiency, may nurture small businesses. But such objectives unavoidably would cultivate higher prices and extensive misallocations of capital. Protecting *competing* does not equate with protecting competition. Competition generates profitability and exclusion, and the pursuit of winning serves consumers.

For courts and competition authorities to target competing, they would have to enjoin lower prices and product improvements to create market space for more expensive and unpopular substitutes. Courts and competition authorities therefore would have to replace consumers and producers as the primary determinants of what is produced, at what price, and with what quality. To assess whether even a weakened market process sufficiently provided a business the right or opportunity to compete, judges and competition authorities could rely on little more than favored notions of fairness. Unlike testing for perfect competition by considering market shares, entry barriers, and competitive restraints, decoupling undistorted competition from NPT eliminates objectivity from the analysis, replacing it with boundless discretion.

Professor Wils also has discussed undistorted competition as equivalent to undistorted access to the internal market.[38] Economic decline surely would follow if undertakings were not permitted to block access to markets with productive investments. NPT supplies analytical tools to separate productive from non-productive investments, and pro- from

[35] Case T-286/09 *Intel* at ¶¶ 146, 151.
[36] For instance, Professor Wils has pointed out that, for loyalty rebates, the requirement of exclusivity, not a particular price, causes anticompetitive effects, reducing the relevance of the as-efficient competitor test as a device to determine liability. Wils, *supra* n.6 at 28.
[37] For further explication on this line of argument, *see id*. at 12-13.
[38] *Id*. at 17.

anticompetitive acts based on how they affect consumer welfare. If undistorted competition does not aim to maximize consumer welfare or wealth creation more generally, then it no longer represents an economic concept. A legal policy governing economic activity that lacks market restraints would destroy far more wealth and welfare than it creates.

Whether the Commission and Courts, if presented with an appropriate dispute, would conceptualize bundling as closer to exclusivity rebates or tying, I cannot say definitively. Because of the benefits that bundling offers to package purchasers, I doubt that EU Courts would adopt an equally skeptical view of bundling. Unlike exclusivity rebates, bundling also does not fall within a long line of case law precedent discussing the practice as severely anticompetitive. Because the U.S. Supreme Court recently has expanded cost tests to other corners of monopolization law, it is more likely to side with the benevolent view of bundling advanced by the Ninth Circuit rather than the more measured view adopted by the Third Circuit. Notwithstanding the ubiquity of NPT within monopolization law, it unlikely will produce symmetrical enforcement levels in both jurisdictions, despite the efforts of the Commission in the bundling context.

In the final analysis, NPT cannot explain every subtlety of present day monopolization enforcement in either jurisdiction, but it explicates a great deal. When choosing between NPT principles, or when deciding which tenets to emphasize, legal considerations have exerted notable influence. In the early days of monopolization enforcement, when per se rules were more prevalent, such considerations even outweighed more indicative evidence of likely effects.[39] NPT has incorporated the rule of law, which historically has confined more sophisticated economic tests and more expansive analyses of effects.

While NPT incorporates the influence of investment and innovation on economic activity — through shifts to, and alternations in the shape of, demand and supply curves — price and efficiency may constitute subsidiary concerns for monopolization abuses not examined in this thesis, particularly refusals to deal. When deciding such claims, courts and competition authorities instead may emphasize economic incentives and more explicit political considerations that produce results more tenuously consistent with NPT.

[39] Professor Wils has argued that the decision in *Intel* does not reflect a per se rule, as I thought, *see* Jay Matthew Strader, *Post Danmark's Recoupment Element*, 10(2) COMPETITION LAW REVIEW 205, 236 (Dec. 2014), since dominant undertakings can justify the exclusivity rebate by demonstrating its objective necessity, or that the efficiency and lower prices produced outweigh any potential foreclosure effect. Wils, *supra* n.6 at 5, 20.

Nevertheless, in the current enforcement climate on both sides of the Atlantic, and particularly for predatory pricing, tying, and bundling claims, NPT at least represents the leading mode of analysis. It achieved that position because, when trying to promote competition, efficiency, and lower prices in a market economy, judges and competition authorities risk inapposite results by adopting legal tests that run counter to the most reliable set of theoretical principles available for that purpose.

BIBLIOGRAPHY

ABBOTT, A.F. & WRIGHT, J.D. (2010) Antitrust Analysis of Tying Arrangements & Exclusive Dealing. In HYLTON, K.N. (ed.). *Antitrust Law & Economics*. Cheltenham: Edward Elgar.

AKMAN, P. (2012) *The Concept of Abuse in EU Competition Law: Law & Economic Approaches*. Oxford: Hart Publishing.

ALBAEK, S. (2011) The European Commission's Priorities For Enforcement of Article 102 TFEU. In BASEDOW, J. & WURMNEST, W. (eds.). *Structure & Effects in EU Competition Law*. The Netherlands: Wolters Kluwer.

Antitrust Modernization Commission, Final Report & Recommendations (2007) *available at*: http://govinfo.library.unt.edu/amc/report_recommendations/amc_final_report.pdf.

AREEDA, P.E. & HOVENKAMP, H. (Aspen Publishers 1978, Supplement No. 2009, 2009) An Analysis of Antitrust Principles & Their Application.

-- (Supp. 2006) Antitrust Law, Vol. 3.

AREEDA, P. & TURNER, D.F. (1975) Predatory Pricing And Related Practices Under Section 2 of the Sherman Act, 88 *Harv. L. Rev*. 697.

ARMSTRONG, M. (2006) Competition in Two-Sided Markets, 37 *RAND J. Econ.* 669.

BACKHOUSE, R.E. (2010) *The Puzzle of Modern Economics: Science or Ideology?* Cambridge: Cambridge University Press.

BAKER, J.B. (2007) Beyond Schumpeter v. Arrow: How Antitrust Fosters Innovation, *available at*: http://ssrn.com/abstract=962261.

BAKER, J.B., REITMAN, D. (2012) Research Topics in Unilateral Effects Analysis. In ELHAUGE, E. (ed.). *Research Handbook on the Economics of Antitrust Law*. Cheltenham: Edward Elgar.

BASEDOW, J. (2011) Introduction. In BASEDOW, J. & WURMNEST, W. (eds.). *Structure & Effects in EU Competition Law*. The Netherlands: Wolters Kluwer.

Behavioral Law & Economics (2000) In SUNSTEIN, C.R. (ed.). Cambridge: Cambridge University Press.

BINGHAM, T. (2010) *The Rule of Law*. London: Penguin Books.

BLAIR, R.D. & ESQUIBEL, A.K. (1995) Some Remarks on Monopoly Leveraging, 40 *Antitrust Bull* 371.

BORK, R.H. (1978) *The Antitrust Paradox: A Policy At War With Itself*. New York: The Free Press.

BOWMAN, Jr. W.S. (1957) Tying Arrangements & the Leverage Problem, 67 *Yale L.J.* 19.

BÖHM, F. (1960) *Reden und Schriften*.

-- (1982) The Non-State ('Natural') Laws Inherent in a Competitive Economy. In STÜTZEL, W. et al. (eds.). *Standard Texts on the Social Market Economy — Two Centuries of Discussion*.

BRONNENBERG, B.J., DUBÉ, J.-P. H. & GENTZKOW, M. (2012) The Evolution of Brand Preferences: Evidence from Consumer Migration, 102(6) *Am. Economic Rev.* 2472.

CAILLAUD, B & JULLIEN, B. (2001) Competing Cybermediaries, 45 *European Econ. Rev*. 797.

CAMERER, C. et al. (2003) Regulation for Conservatives: Behavioral Economics And The Case For "Asymmetric Paternalism," 151 *U. Pa. L.R.* 1211.

CARLTON, D.W. & WALDMAN, M. (2002) The Strategic Use of Tying to Preserve & Create Market Power in Evolving Industries, 33 *RAND Journal of Economics* 194.

COASE, R. (1960) The Problem of Social Cost, 3(1) *Journal of Law and Economics* 1.

DARI-MATTIACCI, G. & PARISI, F., Substituting Complements, *available at*: http://www.unisaarland.de/fak1/fr12/csle/workshop/program/Dari-Mattiacci_Parisi.pdf.

DAYAGI-EPSTEIN, O. (2009) The Evolution of the Notion of Consumer Interest in Light of the Modernisation of Article 82 EC. In EZRACHI, A. (ed.). *Article 82 EC: Reflections on Its Recent Evolution*. Oxford: Hart Publishing.

DG Competition Discussion Paper on the Application of Article 82 of the Treaty to Exclusionary Abuses (Brussels, 19 December 2005), *available at*: http://europa.eu.int/comm/competition/antitrust/others/discpaper2005.pdf.

DIRECTOR, A. & LEVI, E.H. (1956-1957) Law and the Future: Trade Regulation, 51 *Nw. U. L. Rev*. 281.

Diversion Ratios: Why Does It Matter Where Customers Go If A Shop Is Closed? (Feb. 2009) *Oxera Agenda*, *available at*: http://www.oxera.com/Oxera/media/Oxera/downloads/Agenda/Diversion-ratios.pdf?ext=.pdf.

EASTERBROOK, F.H. (1981) Predatory Strategies and Counterstrategies, 48 *U. Chi. L. Rev*. 263.

-- (1984) The Limits of Antitrust, 63 *Tex. L.R.* 1.

-- (1986) Workable Antitrust Policy, 84 *Mich. L. Rev*. 1696.

EC Merger Regulation (20 Jan. 2004) No. 139/2004, on *the Control of Concentrations between Undertakings*, L24/1.

ECONOMIDES, N. & SALOP, S.C. (1992) Competition & Integration Among Complements, & Network Market Structure, 40 *J. of Industrial Economics* 105.

ECONOMIDES, N. & LIANOS, I. (2009) The Elusive Antitrust Standard on Bundling in Europe and in the United States in the Aftermath of the Microsoft Cases, 76 (2) *Antitrust Law Journal* 486.

ECONOMIDES, N. (2012) Tying, Bundling, and Loyalty / Requirement Rebates. In ELHAUGE, E. (ed.). *Research Handbook on the Economics of Antitrust Law*. Cheltenham: Edward Elgar.

EDLIN, A. (2012) Predatory Pricing. In ELHAUGE, E. (ed.). *Research Handbook on the Economics of Antitrust Law*. Cheltenham: Edward Elgar.

ELHAUGE, E. (2003) Defining Better Monopolization Standards, 56 *Stan. L. Rev*. 253.

-- (2009) Tying, Bundled Discounts, & the Death of the Single Monopoly Profit Theory, 123 *Harv. L.R.* 397.

-- (2003) Why Above Cost Price Cuts to Drive Out Entrants Are Not Predatory — And The Implications for Defining Costs and Market Power, 112 *Yale L.J.* 681.

ELHAUGE, E. & WICKELGREN, A.L. (Oct. 2011) Anti-Competitive Exclusion & Market Division Through Loyalty Discounts. *Univ. of Texas Law & Economics Research Paper No. 216*.

-- (Aug. 2012) Robust Exclusion Through Loyalty Discounts With Buyer Commitment. *John M. Olin Ctr. For Law, Economics, And Business, Discussion Paper No. 722*.

EUCKEN, W. (1942) Wettbewerb als Grundprinzip der Wirtschaftsverfassung. In SCHMÖLDERS, G. (ed.). *Der Wettbewerb als Mittel volkswirtschaftlicher Leistungssteigerung und Leistungsauslese*.

European Airlines: Here Come the Vikings (Apr. 27, 2013) *The Economist*.

EVANS, D.S. (2012) Lightening Up On Market Definition. In ELHAUGE, E. (ed.). *Research Handbook on the Economics of Antitrust Law*. Cheltenham: Edward Elgar.

EVANS, D.S. & PADILLA, A.J. (2005) Designing Antitrust Rules for Assessing Unilateral Practices: A Neo-Chicago Approach, 72 *U. Chi. L. Rev*. 73.

EVANS, D.S. & SCHMALENSEE, R. (2007) Industrial Organization of Markets with Two-Sided Platforms, 3 *Comp. Policy Int'l* 151.

EZRACHI, A. & GILO, D. (2009) The Darker Side of the Moon: Assessment of Excessive Pricing & Proposal for a Post-entry Price-cut Benchmark. In EZRACHI, A. (ed.). *Article 82 EC: Reflections on its Recent Evolution* 169. Oxford: Hart Publishing.

FARRELL , J. & SHAPIRO, C. (2010) Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition, 10(1) *The B.E. Journal of Theoretical Economics* Art. 9 (Policies_perspectives), *available at*: http://www.bepress.com/bejte/vol10/iss1/art9.

-- (Feb. 2010) Upward Pricing Pressure & Critical Loss Analysis: Response, *CPI Antitrust Journal*, *available at*: https://www.competitionpolicyinternational.com/assets/Free/Shapiro-FarrellFEB10.pdf.

FELDMAN, R.C. (1998-99) Defensive Leveraging in Antitrust, 87 *Geo. L.J*. 2079.

FIELD A. (2009) *Discovering Statistics Using SPSS*. 3d. Ed. London: SAGE Publications Ltd.

FOX, E.M. (1986) The Politics Of Law And Economics In Judicial Decision Making: Antitrust As A Window, 61 *N.Y.U. L. Rev*. 554.

GAL, M.S. & RUBINFELD, D.L. (2014) The Hidden Costs of Free Goods: Implications For Antitrust Enforcement, *available at*: http://www.eale.org/conference/Aix-Marseille2014/paper/view/1030/309.

GATES, S.P. (2013) Antitrust By Analogy: Developing Rules for Loyalty Rebates & Bundled Discounts, 79(1) *Antitrust Law Journal* 99.

GERARD, D. (2012) Looking Back at a 2012 Highlight: Post Danmark, *available at*: http://kluwercompetitionlawblog.com/2013/01/07/looking-back-at-a-2012-highlight-post-danmark/comment-page-1/.

GERBER, D.J. (Winter 1994) Constitutionalizing the Economy: German Neo-Liberalism, Competition Law and the "New" Europe, 42(1) *The Am. J. of Comparative Law* 25.

GRIMES, W.S. (1993-1994) Antitrust Tie-In Analysis After Kodak: Understanding the Role of Market Imperfections, 62 *Antitrust L.J.* 263.

-- (2002) The Antitrust Tying Law Schism: A Critique of Microsoft III & A Response to Hylton & Salinger, 70 *Antitrust L.J.* 199.

GORMSEN, L.L. (2010) *A Principled Approach To Abuse Of Dominance In European Competition Law*. Cambridge: Cambridge University Press.

Guidance on the Commission's Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings (2009/C 45/02).

GUSTAFSSON, D. (2 Feb. 2007) Tying Under EC Competition Law, The Tetra Pak II Case, Lund University, downloaded at: lup.lub.lu.se/luur/download?func=downloadFile&recordOId=1335665&fileOId=1646325.

HACKNEY Jr., J.R. (2007) *Under Cover of Science: American Legal-Economic Theory & The Quest for Objectivity*. London: Duke University Press.

HAYEK, F.A. (1976) The Mirage of Social Justice. *Law, Legislation & Liberty*, Vol. II.

HICKS, J. (1939) The Foundations of Welfare Economics, 49 *Economic Journal* 696.

HOVENKAMP, H. (2011) *Federal Antitrust Policy: The Law of Competition & Its Practice*. 4th Ed. St. Paul: West Publishing Co.

-- (2005) *The Antitrust Enterprise: Principle & Execution*. Boston: Harvard University Press.

-- (2008) The Harvard & Chicago Schools & the Dominant Firm. In PITOFSKY, R. (ed.). *How the Chicago School Overshot the Mark*. Oxford: Oxford University Press.

HYLTON, K.N. & SALINGER, M. (19 Apr. 2001) Tying Law & Policy: A Decision Theoretic Approach, *Boston University Law & Economics Working Paper No. 01-04, available at*: http://www.bu.edu/law/faculty/papers.

JACOBS, M.S. (1995) An Essay on the Normative Foundations of Antitrust Economics, 74 *N.C. L. Rev*. 219.

JOLLS, C. et al. (1998) A Behavioral Approach to Law & Economics, 50 *Stan. L. Rev.* 1471.

-- (1998) Behavioral Economics Analysis of Redistributive Legal Rules, 51 *Vand. L. Rev.* 1653.

JONES, A. & SUFRIN, B. (2011) *EU Competition Law*. 4th Ed. Oxford: Oxford University Press.

JOSKOW, P.L. & KLEVORICK, A.K. (1979) A Framework for Analyzing Predatory Pricing Policy, 89 *Yale L.J.* 213.

KALDOR, N. (1939) Welfare Propositions in Economics and Interpersonal Comparisons of Utility, 49 *Economic Journal* 549.

KAPLOW, L. (1985) Extension of Monopoly Power Through Leverage, 85 *Colum. L. Rev.* 515.

KOBAYASHI, B.H. (2010) The Law & Economics of Predatory Pricing. In HYLTON, K.N. (ed.). *Antitrust Law & Economics* 116. 2d. Ed. Cheltenham: Edward Elgar.

KOMESAR, N.K. (1994) *Imperfect Alternatives: Choosing Institutions in Law, Economics, and Public Policy*. London: The University of Chicago Press.

-- (2001) *Law's Limits: The Rule of Law & The Supply & Demand of Rights*. Cambridge: Cambridge University Press.

KORAH, V. (1993) The Paucity of Economic Analysis In The EEC Decisions On Competition — Tetra Pak II, 46 *Current Legal Problems* 148.

KOVACIC, W.E. (2007) The Intellectual DNA of Modern U.S. Competition Law for Dominant Firm Conduct: The Chicago / Harvard Double Helix, 2007 *Colum. Bus. L. Rev.* 1.

KRATTENMAKER, T.G. & SALOP, S.C. (1986) Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power Over Price, 96 *Yale L.J.* 209.

KRATTENMAKER, T.G., LANDE, R.H. & SALOP, S.C. (1987) Monopoly Power & Market Power in Antitrust Law, 76 *Geo. L.J.* 241.

LANDE, R.H. (1999) Wealth Transfers as the Original and Primary Concern of Antitrust: The Efficiency Interpretation Challenged, 50 *Hastings L.J.* 871.

LANGER, J. (2007) *Tying & Bundling as a Leveraging Concern under EC Competition Law*. The Netherlands: Kluwer Law International.

LAWSON, T. (2013) What Is This "School" Called Neoclassical Economics?, 37 *Cambridge Journal of Economics* 947.

LEIBENSTEIN, H. (1966) Allocative Efficiency v. 'X-Efficiency', 56 *American Economic Review* 392.

LESLIE, C.R. (2013) Predatory Pricing & Recoupment, 113 *Colum. L.R.* 1695.

-- (2010) Rationality Analysis in Antitrust, 158 *U. Pa. L.R.* 261.

LIANOS, I. & MATTEUS, A. (2009) Antitrust In the New U.S. Administration: A Transatlantic View, 2 *Global Competition Policy Online Magazine* 1, *available at*: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1399693.

LIANOS, I. (2009) Categorical Thinking in Competition Law & the 'Effects-based' Approach in Article 82 EC. In EZRACHI, A. (ed.). *Article 82 EC: Reflections on Its Recent Evolution*. Oxford: Hart Publishing.

-- (2010) Is The Availability of 'Appropriate' Remedies A Limit To Competition Law Liability Under Article 102 TFEU? The Mischiefs of 'Discretionary Remedialism' In Competition Law. In ETRO, F. & KOKKORIS, I. (eds.). *Competition Law & The Enforcement of Article* 102, 165. Oxford: Oxford University Press.

-- (2009) Judging Economists: Economic Expertise In Competition Litigation: A European View. In LIANOS, I. & KOKKORIS, I. (eds.). *Towards an Optimal Competition Law System*. The Netherlands: Wolters Kluwer.

-- (2009) 'Lost in Translation'? Towards a Theory of Economic Transplants, Jean Monnet Working Paper 08/09 (2009), *available at*: http://ssrn.com/abstract=1485378.

-- (Jan. 2013) Some Reflections on the Question of the Goals of EU Competition Law, *CLES Working Paper Series 3/2013*, *available at*: http://www.ucl.ac.uk/cles/research-paper-series/research-papers/cles-3-2013.

LIANOS, I. & KORAH, V. (forthcoming 2015) *Competition Law: Cases & Materials*. Oxford: Hart Publishing.

London's Tech City: Start Me Up (Oct. 5, 2013) *The Economist*.

LOUGHLIN, M. (2003) *The Idea of Public Law*. Oxford: Oxford University Press.

MANTZAVINOS, C. (2001) *Individuals, Institutions, and Markets*. Cambridge: Cambridge University Press.

MASSING, D. (2011) Discussion. In BASEDOW, J. & WURMNEST, W. (eds.). *Structure & Effects in EU Competition Law*. The Netherlands: Wolters Kluwer.

MATEUS, A.M. (March 22, 2010) Predatory Pricing: A Proposed Structured Rule of Reason, *available at* SSRN: http://ssrn.com/abstract=1576434.

McMAHON, K. (2009) A Reformed Approach to Article 82 & the Special Responsibility not to Distort Competition. In EZRACHI, A. (ed.). *Article 82 EC: Reflections on Its Recent Evolution*. Oxford: Hart Publishing.

MEDEMA, S.G. (2009) *The Hesitant Hand: Taming Self-Interest in the History of Economic Ideas*. Oxford: Princeton University Press.

MEESE, A.J. (1997) Tying Meets the New Institutional Economics: Farewell to the Chimera of Forcing, 146 *U. Pa. L.R.* 1.

MENGER, C. (2011) *Principles of Economics*. Eastbourne: Terra Libertas Ltd.

MONTI, G. (2007) *EU Competition Law*. Cambridge: Cambridge University Press.

MOSSO, C.E. (2011) The More Economic Approach Paradigm — An Effects-Based Approach to EU Competition Policy. In BASEDOW, J. & WURMNEST, W. (eds.). *Structure & Effects in EU Competition Law*. The Netherlands: Wolters Kluwer.

NALEBUFF, B. (2004) Bundling as a Way to Leverage Monopoly, *Yale School of Management Working Paper #36, available at*: http: //ssrn.com/abstract=586648.

NAZZINI, R. (2011) *The Foundations of European Union Competition Law: The Objective & Principles of Article 102*. Oxford: Oxford University Press.

O'DONOGHUE, R. & PADILLA A.J. (2006) *The Law & Economics Of Article 82 EC*. Oxford: Hart Publishing.

-- (2013) *The Law & Economics Of Article 102 TFEU*. 2d Ed. Oxford: Hart Publishing.

PAGE, W.H. (1989) The Chicago School And The Evolution Of Antitrust: Characterization, Antitrust Injury, And Evidential Sufficiency, 75 *Va. L. Rev*. 1221.

PINDYCK, R.S. & RUBINFELD, D.L., (2013) *Microeconomics*. 8th Ed. Boston: Pearson Education, Inc.

POSNER, R.A. (2001) *Antitrust Law*. 2d. Ed. Chicago: The University of Chicago Press.

-- (2007) *Economic Analysis of Law*. 7th Ed. The Netherlands: Wolters Kluwer.

-- (1973) Economic Approach to Legal Procedure & Judicial Administration, An, 2 *Journal of Legal Studies* 399.

-- (2008) *How Judges Think*. Cambridge: Harvard University Press.

-- (1998) Rational Choice, Behavioral Economics, and the Law, 50 *Stan. L. Rev.* 1551.

-- (1979) The Chicago School of Antitrust Analysis, 127 *U. Pa. L. Rev*. 925.

-- (1981) The Next Step in the Antitrust Treatment of Restricted Distribution: Per Se Legality, 48 *U. Chi. L. Rev*. 6.

PRENTICE, R.A. (2003) Chicago Man, K-T Man, and the Future of Behavioral Law and Economics, 56 *Vand. L. Rev*. 1663.

RIETER, H. & SCHMOLZ, M. (1993) The Ideas of German Ordoliberalism 1938-45: Pointing the Way to a New Economic Order, 1:1 *The European Journal of the History of Economic Thought* 87, *available at*: http://dx.doi.org/10.1080/10427719300000064.

ROCHET, J.C. & TIROLE, J. (2006) Two-Sided Markets: A Progress Report, 37 *RAND J. Econ*. 645.

ROUSSEVA, E. (2010) *Rethinking Exclusionary Abuses in EU Competition Law*. Oxford: Hart Publishing.

RUBINFELD, D.L. (2005) 3M's Bundled Rebates: An Economic Perspective, 72 *U. Chi. L. Rev*. 243.

SHAHANI, A. (16 Jan. 2015) Tech Giants Will Pay $415 Million To Settle Employees Lawsuits, *NPR, available at*: http://www.npr.org/blogs/alltechconsidered/2015/01/16/377614477/tech-giants-will-pay-415-million-to-settle-employees-lawsuit.

SIMON, H.A. (1997) *Administrative Behavior*. 4th Ed. New York: The Free Press.

SMITH, A. (1981) *An Inquiry into the Nature & Causes of the Wealth of Nations*. Oxford: Oxford University Press (1776 Liberty Classic, reprint of 1976 version).

STIGLER, G.J., (1966) *The Theory of Price*. 3d Ed. MacMillan.

STRADER, J.M. (2014) Post Danmark's Recoupment Element, 10(2) *Competition Law Review* 205.

-- (2012) The Consequences Of Neoclassical Price Theory For U.S. Predatory Pricing Law, *University College London Centre For Law, Economics & Society, Working Paper No. 7-2012, available at*: http://www.ucl.ac.uk/cles/research-paper-series/research-papers/cles-7-2012.

STUCKE, M.E. (2007) Behavioral Economists at the Gate: Antitrust in the Twenty-First Century, 38 *Loy. U. Chi. L.J*. 513.

SULLIVAN, L.A. & GRIMES, W.S. (2000) *The Law of Antitrust: An Integrated Handbook*. St. Paul: West Group.

Tablet Computers: Overdose (Oct. 26, 2013) *The Economist*.

Taking Sides: Microsoft & Yahoo! Strike a Long-Awaited Deal (July 29, 2009) *The Economist*.

THÉPOT, F. (2013) Market Power in Online Search and Social Networking: A Matter of Two-Sided Markets, 36(2) *W. Comp*. 195.

THALER, R.H. & SUNSTEIN, C.R. (2009) *Nudge: Improving Decisions About Health, Wealth & Happiness*. New Haven: Yale University Press.

The Alibaba Phenomenon (Mar. 23, 2013) *The Economist*.

The Global Limits of Competition Law (2012) In LIANOS, I. & SOKOL, D. (eds.). Redwood City: Stanford University Press.

TOR, A. (2002) The Fable of Entry: Bounded Rationality, Market Discipline, And Legal Policy, 101 *Mich. L. Rev.* 482.

U Turn: Much Is Riding on the Success of Nintendo's Latest Console (Dec. 1, 2012) *The Economist*.

U.S. Dep't of Justice (2008) Competition & Monopoly: Single-Firm Conduct Under Section 2 of the Sherman Act.

U.S. Dep't of Justice & Fed. Trade Comm'n (2010) Horizontal Merger Guidelines § 4, *available at*: http://www.ftc.gov/os/2010/08/100819hmg.pdf.

VAN DEN BERGH, R. & CAMESASCA, P.D. (2006) European Competition Law & Economics: A Comparative Perspective. 2d. Ed. London: Thomson: Sweet & Maxwell.

VANBERG, V.J. (2005) Market & State: The Perspective of Constitutional Political Economy, 1 *Journal of Institutional Economics* 23, *available at*: http://journals.cambridge.org/abstract_S1744137405000032.

-- (2004) The Freiburg School: Walter Eucken & Ordoliberalism, *Freiburg discussion paper on constitutional economics*, No. 04/11, *available at*: http://hdl.handle.net/10419/4343.

VEBLEN, T. (1898) Why Is Economics Not An Evolutionary Science?, 12(4) *Quarterly Journal of Economics* 373.

VON BOHM-BAWERK, E. (2012) Capital *& Interest: A Critical History of Economical Theory*. CreateSpace Independent Publishing Platform.

VON MISES, L. (1985) *Liberalism: In The Classical Tradition, available at*: http://mises.org/Literature.

When Clouds Collide: Microsoft's Bid for Yahoo! Is Not Just About Online Advertising (Feb. 7, 2008) *The Economist*.

WHINSTON, M.D. (Sept. 1990) Tying, Foreclosure, & Exclusion, 80(4) *The American Economic Review* 837.

WHISH, R. & BAILEY, D. (2012) *Competition Law*. 7th Ed. Oxford: Oxford University Press.

WILLIAMSON, O.E. (1977) Predatory Pricing: A Strategic & Welfare Analysis, 87 *Yale L.J.* 284.

WILS, W. (2014) The Judgment of the EU General Court in Intel & the So-Called 'More Economic Approach' to Abuse of Dominance, 37(4) *World Competition* 405, available at: http://ssrn.com/author=456087.

WRIGHT, J.D. & GINSBURG, D.H. (2012) Behavioral Law And Economics: Its Origins, Fatal Flaws, And Implications For Liberty, 106(3) *NW. U. L. Rev*. 1033.

WRIGHT, J.D. & STONE II, J.E. (2012) Misbehavioral Economics: The Case Against Behavioral Antitrust, 33 *Cardozo L. Rev.* 1517.

WURMNEST, W. (2011) Predatory Pricing: From Price/Cost-Comparisons to Post-Chicago Thinking. In BASEDOW, J. & WURMNEST, W. (eds.). *Structure & Effects in EU Competition Law*. The Netherlands: Wolters Kluwer.

ZENGER, H. (June 2014) CRA Competition Memo, Intel & the Future of Article 102, *available at*: http://www.crai.com/ecp/assets/Intel_and_the_future_of_Article_102.pdf.

ZIMMER, D. (2011) Protection of Competition v. Maximizing (Consumer) Welfare. In BASEDOW, J. & WURMNEST, W. (eds.). *Structure & Effects in EU Competition Law*. The Netherlands: Wolters Kluwer.

APPENDIX TO CHAPTER 2: U.S. PREDATORY PRICING

** Thanks to Professors Kokkoris & Jones for suggesting that I add information on market share, market structure, and basic facts concerning the alleged abuse.

Case Name	**Claim**	**Disposition**	**Neoclassical Price Theory**						
			NPT, Effects ***Intent***	***Costs***	***Profit Sacrifice***	***Recoupment***	***Market Power / Dominant Position***	***Intent***	***Effects***
1. *Mackey v. Sears, Roebuck & Co.*, 237 F.2d 869 (7th Cir. 1956)	Monopolization & unreasonable conduct	No § 2 claim; founded under RP, but no private right of action	NPT / Effects	Below-cost sales		Defendant must have dangerous probability of achieving monopoly **(predict)**	Defendant must have power to monopolize; market insufficiently defined, Sears is the largest supplier	Defendant must have intent to monopolize; intent here to exclude and discipline suppliers and competitors **(claim)**	No showing here that defendant's actions threatened monopoly; but conduct unreasonably anticompetitive

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
2. *Gen. Gas Corp. v. Nat'l Utilities of Gainesville, Inc.*, 271 F.2d 820 (5th Cir. 1959)	Unprofitable price-cut monopolizes	No claim	Effects	Price-cut not below cost of defendant or several competitors; around cost of plaintiff		Public loses from price-cut only if it eliminates competitors and prices again rise	Price-cutter non-dominant with 25% of the market		Price-cut could eliminate or lower profits of plaintiff and perhaps other competitors; public benefitted from lower prices; Court ordered amendment to injunction limiting price-cut, but still recommended setting a price that protected some rivals
3. *Gold Fuel Serv. v. Esso Std. Oil Co.*, 306 F.2d 61 (3d Cir. 1962)	Attempt to monopolize by unreasonably low prices	No claim	Intent / Effects	Cannot infer intent from below-cost bidding				No evidence of intent	
4. *John Wright & Assoc. v. Ullrich*, 328 F.2d 474 (8th Cir. 1964)	Monopolization by loss-making bids	No claim	NPT	No below-cost pricing	Profit earned	Recoupment not shown		No intent to damage plaintiff's business or to eliminate a competitor	

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
5. *Utah Pie Co. v. Continental Baking Co.*, 386 U.S. 685 (1967)	Discriminatory and predatory pricing	Founded	Effects	Pet incurred substantial losses on sale of frozen pies in Salt Lake City; Continental priced frozen pies at less than "direct cost plus an allocation for overhead"; Carnation priced at a level "well below" its costs			Market shares of defendants at end of predation were: (1) 8.8%; (2) 8.3%; and (3) 29.4%; plaintiff's was 45.3%, while its sales volume steadily increased during predation period, and its net worth more than doubled	Intent indicates "likelihood of injury to competition"; evidence existed concerning the predatory intent of each defendant	Price-cuts injured "competition": caused plaintiff to lower prices to an historic low and incur opportunity costs in a market of declining prices; plaintiff's prices were lowest in the market during the predatory period; price war made plaintiff "a less effective competitive force"; some competitors in the market continued to operate at a profit
6. *Food Basket v. Albertson's, Inc.*, 383 F.2d 785 (10th Cir. 1967)	Discriminatory & low pricing	Founded	Intent / Effects	Pricing at unprofitable levels				Intent to drive plaintiff out of business	
7. *Greenville Publ'g v. Daily Reflector, Inc.*, 496 F.2d 391 (4th Cir. 1974)	Monopolization by predation	Founded	NPT	Prices below costs	Price unprofitable		Disputed market share of defendant, either 84% or 23.34%	Intent to eliminate plaintiff	

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
8. *Int'l Air Indus. v. Am. Excelsior Co.*, 517 F.2d 714 (5th Cir. 1975)	Predation: price discrimination, attempted monopolization	No claim	NPT / Effects	Need price below AVC; price above ATC	Profit sacrifice actionable if significant entry barriers exist	Recoupment not necessary but implicit to claim	Entry barriers virtually non-existent, relevant market was "very competitive"		Even if price below AVC, no liability if price-cut has beneficial or insignificant effects
9. C.O. *Hanson v. Shell Oil Co.*, 541 F.2d 1352 (9th Cir. 1976)	Predation: attempted monopolization	No claim	NPT	No proof price below marginal cost (MC) or average variable cost (AVC)	Must prove defendant foregoing profit	Recoupment required		No specific intent	
10. *Pac. Eng'g & Prod. Co. of Nev. v. Kerr-McGee Corp.*, 551 F.2d 790 (10th Cir. 1977)	Predation: price discrimination, attempted monopolization, monopolization	No claim	NPT	No inference from price below average total cost (ATC) but above AVC			Only two competitors in relevant market		
11. *Janich Bros. v. Am. Distilling Co.*, 570 F.2d 848 (9th Cir. 1977)	Predation: price discrimination, attempted monopolization	No claim	NPT / Effects	Price above MC or AVC legal	Must prove defendant foregoing profit	Recoupment required		Defendant knew plaintiff could not survive after price-cut	Prices adjusted based on viability of plaintiff

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
12. *Cal Computer Prod. v. IBM Corp.*, 613 F.2d 727 (9th Cir. 1979)	Predation: attempted monopolization, monopolization	No claim	NPT	Price above MC and AVC	Profit earned after price-cut		Market share contested, but court assumed market power		

13. *Chillicothe Sand & Gravel v. Martin Marietta Corp.*, 615 F.2d 427 (7th Cir. 1980)	**Claim**	**Disposition**	**NPT, Effects, Intent**	**Costs**	**Profit Sacrifice**	**Recoupment**	**Market Power**	**Intent**	**Effects**
	Predation: attempted monopolization, monopolization	No claim	NPT / Effects	Price above AVC, not protect inefficient rivals	Price above AVC rational, avoids profit sacrifice	Recoupment required			Other market conditions than prices and costs matter

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
14. *Ernest W. Hahn v. B. Codding*, 615 F.2d 830 (9th Cir. 1980)	Predation: attempted monopolization, monopolization	Founded	NPT	Price below cost		Court inferred recoupment from 90% market share **(predict)**	*See* Recoupment	Infer specific intent from anticompetitive conduct	*See* Intent
15. *Pierce Packing v. John Morrell & Co.*, 633 F.2d 1362 (9th Cir. 1980)	Attempted monopolization	Founded	NPT / Intent	Price must be below MC or AVC unless high entry barriers	Must forego profits	Cost rules not necessarily apply if likelihood of recoupment exists **(predict)**	Defendant had 50% of relevant market	More flexible rules than cost test apply if proof of specific intent exists **(claim)**	
16. *SuperTurf, Inc. v. Monsanto Co.*, 660 F.2d 1275 (8th Cir. 1981)	Predation: attempted monopolization, monopolization	No claim	NPT / Intent	Price not below AVC			Only two competitors, market power presumed	Above AVC pricing, plus intent, could establish predation **(claim)**	
17. *William Inglis & Sons Baking Co. v. ITT Continental Baking Co.*, 668 F.2d 1014 (9th Cir. 1981)	Discriminatory & predatory pricing, attempted monopolization	Founded	NPT	Price not below MC or AVC, so not presumptively illegal; price below ATC, so plaintiff bears burden to prove price is predatory	Price-cuts were profitable; must forgo short-term profits; legal if price maximizes profits or minimizes losses	Predatory to profit sacrifice, exclude, raise prices & recoup; need high entry barriers **(predict)**	Market power & dangerous probability of success are "not equivalent"		

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
18. *Northeastern Tele. Co. v. AT&T Co.*, 651 F.2d 76 (2d Cir. 1981)	Predation: attempted monopolization, monopolization	No claim	NPT	Price not below MC or AVC		Liability requires recoupment in near future; recoupment will invite new entry **(predict)**	Court assumed presence of monopoly power	No specific intent to eliminate competitors by unfair or unreasonable means	
19. *Zoslaw v. MCA Dist. Corp.*, 693 F.2d 870 (9th Cir. 1982)	Predation: attempted monopolization, monopolization	No claim	NPT	Price not below AVC	Predate if forego short-term profits or incur unnecessary losses to eliminate prey	Recoupment "usually, although not necessarily," associated with market power; 10% market share incompatible with recoupment **(predict)**	Robust competition & insignificant market power		
20. *Richter Concrete Corp. v. Hilltop Concrete Corp.*, 691 F.2d 818 (6th Cir. 1982)	Predation: attempted monopolization	No claim	NPT / Effects	Pricing above AVC but below ATC; AVC test fails to capture predatory lending & subsidization	Predation is profit sacrifice to recoup	*See* Profit Sacrifice	Even at prices below ATC, defendant's market share dropped from 40% to 30% to 20%; "highly competitive" market; hardly any entry barriers	Predation differs from merit competition in its motive; high entry barriers significant to determining predatory intent; no entry barriers given continuous entry into market	Plaintiff not establish that price below ATC had "any effect whatsoever" on market **(consumer welfare)**

	Claim	Disposition	NTP, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
21. *D&S Redi-Mix v. Sierra Redi-Mix & Contracting Co.*, 692 F.2d 1245 (9th Cir. 1982)	Predation: attempted monopolization	Founded	NPT / Effects	If price below AVC, must justify	Predation is profit sacrifice to recoup	*See* Profit Sacrifice	Must prove anticipated benefits of price-cuts depended on its tendency to discipline or eliminate competition and enhance long-term ability to increase monopoly power & raise prices	Defendant set prices to drive plaintiff out of business, not to meet competition	Owners provided subsidiary favorable prices and credit to lure away plaintiff's customers & outlast the more limited cash reserves of plaintiff; where intent established, lower burden to prove injury; here lost profits and sales
22. *Sunshine Books, Ltd. v. Temple Univ.*, 697 F.2d 90 (3d Cir. 1982)	Predation: attempted monopolization	Founded	NPT	Presume proper test is price below AVC; dispute about allocation of costs, so remand	Predation is profit sacrifice to recoup	*See* Profit Sacrifice		Prices calculated to "destroy," not "reflect," competition are illegal	

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
23. *Barry Wright Corp. v. ITT Grinnell Corp.*, 724 F.2d 227 (1st Cir. 1983)	Predation: maintaining monopoly	No claim	NPT	Lawful to price above incremental cost: moving price in right direction	Profit-maximizing price depends on elasticity of demand, competitors' responses to price shifts, and cost changes relative to production volume		Market power stipulated	Intent too vague a standard **(unimportant)**	
24. *Transamerica Computer Co. v. IBM Corp.*, 698 F.2d 1377 (9th Cir. 1983)	Predation: attempted monopolization, monopolization	No claim	NPT / Effects	Predation possible above ATC, though rare; plaintiff must prove price unreasonably restricted competition by clear and convincing evidence (recoupment); uncertain & imprecise to calculate costs, especially for multi-product companies	Predatory when price not minimize losses while eliminating rivals: limit pricing	Predatory if prices create a market structure enabling recoupment; may be difficult to assess long-run consequences of pricing policies, *see also* Costs **(predict)**	Court assumed monopoly power, *see also* Effects	*See* Effects	An exclusive cost-based test forecloses consideration of other important factors, such as intent, market power, market structure, and long-run behavior in evaluating effects

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
25. *D.E. Rogers Assoc. v. Gardner-Denver Co.*, 718 F.2d 1431 (6th Cir. 1983)	Discriminatory & predatory pricing, attempted monopolization, monopolization	No claim	NPT / Intent Effects	No proof price below AVC; cost test surrogate for intent	Predation is profit sacrifice to recoup	*See* Profit Sacrifice	Court assumed monopoly power	Insufficient proof that defendant designed its dual-pricing strategy to discipline or eliminate competition	Loss of business & profits not count
26. *MCI Comm'cn Corp. v. AT&T Co.*, 708 F.2d 1081 (7th Cir. 1983)	Predation: monopolization	No claim	NPT	Price above long-run incremental costs, so no predatory intent	Hinging liability on profit sacrifice "rob[s]" consumers of price reductions		Court upheld finding of monopoly power	Subjective test based solely on intent is incapable of distinguishing between pro- and anticompetitive price-cuts **(unimportant)**	
27. *S. Pac. Commc'n Co. v. AT&T Co.*, 740 F.2d 1011 (D.C. Cir. 1984)	Predation: monopolization	No claim	NPT / Intent	Price above ATC			Court upheld finding of monopoly power	Plaintiff not show clear and convincing proof of predatory intent	
28. *Arthur S. Langenderfer v. S.E. Johnson Co.*, 729 F.2d 1050 (6th Cir. 1984)	Predation: attempted monopolization, monopolization	No claim	NPT / Intent	Liability requires price below total cost; price above ATC	Profits earned; profit sacrifice test would "rob" consumers of price-cuts; administratively too cumbersome		Defendant larger, more efficient	Intent is distinguishing characteristic of predation **(claim)**	

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
29. *Adjusters Replace-A-Car v. Agency Rent-A-Car, Inc.*, 735 F.2d 884 (5th Cir. 1984)	Predation: attempted monopolization	No claim	NPT / Intent	As entry barriers increase, so does degree that price may exceed AVC and still be deemed predatory; price at least 40% above AVC	Pricing is predatory when sacrifice profits to recoup	Low, or "slight," entry barriers prevent recoupment **(predict)**	Question is whether market conditions probably enable defendant to control market price; plaintiff was original entrant to the market, *see also* Costs	Court unwilling to relegate intent to an automatic and irrebuttable inference	
30. *C.E. Serv., Inc. v. Control Data Corp.*, 759 F.2d 1241 (5th Cir. 1985)	Predation: attempted monopolization, monopolization	Founded	NPT	Enough evidence existed to support finding price 20% below AVC			Enough evidence existed to support 83% share in sub-market		
31. *Nat'l Reporting Co. v. Alderson Reporting Co., Inc.*, 763 F.2d 1020 (8th Cir. 1985)	Predation: attempted monopolization, monopolization	No claim	NPT		Profit sacrifice and recoupment define the offense	Defendant lacked pricing power, so it could not recoup losses **(predict)**	Even if prices were predatory & intent existed, no evidence of monopoly power	Without market power, no need to consider intent **(shift to objective intent)**	

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
32. *Conoco Inc. v. Inman Oil Co., Inc.*, 774 F.2d 895 (8th Cir. 1985)	Discriminatory & predatory pricing, attempted monopolization	No claim	NPT / Effects	Price not below cost	Pricing is predatory if sacrifice profits to recoup; no proof bid represented profit sacrifice	Because no profit sacrifice, not need to consider recoupment		Intent to control prices or unreasonably restrict competition; intent alone insufficient to establish predation: also need conduct	Conduct must produce benefits dependent on ability to discipline or eliminate competition and raise prices **(consumer welfare)**
33. *Marsann Co. v. Brammall, Inc.*, 788 F.2d 611 (9th Cir. 1986)	Predation: attempted monopolization	Founded	NPT	Price below AVC presumed predatory; also predatory if price above MC or AVC and if anticipated benefits depend on exclusion; AVC measured against costs to sell product to customer, not costs to produce product	Price is predatory if fail to minimize losses for purpose of later recouping	*See* Profit Sacrifice		Need specific intent to control prices or destroy competition; difficult to establish that sophisticated entities harbored anticompetitive intent, so may infer intent from below cost pricing	

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
34. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574 (1986)	Predation: conspiracy to monopolize	No claim	NPT / Effects	Predation is pricing below appropriate measure of cost to recoup	Profit sacrifice required, which is costly: practice self-deterring	To be rational, to have motive to predate, profit sacrifice requires recoupment; substantial losses demand long recoupment period; predation rarely tried & more rarely successful **(predict)**	No market power here, as the market share of the alleged predators were less than the market leaders; their market share remained unchanged during predation period	*See* Recoupment	Predation made no practical sense, as plaintiffs would have had to destroy companies larger and better established; no recoupment after more than two decades of conspiracy **(consumer welfare)**
35. *Instructional Sys. Dev. Corp. v. Aetna Casualty & Surety Co.*, 817 F.2d 639 (10th Cir. 1987)	Predation: conspiracy to monopolize, monopolization	Founded	NPT / Effects	Predatory if "unreasonably anticompetitive behavior" accompanies price above AVC; here price below ATC, above AVC		Evidence creates fact issue as to whether short-term price-cutting secured long-term profits; prices rose when competitors left the market but fell when competitors entered the market **(effects)**		Intent present to obtain monopoly by exclusion, as defendant expressed intent to sacrifice profits to win business from rival, and an ability to outlast rival in "underbidding situation"	Question whether tactics unrelated to increased efficiency, *see also* Recoupment

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent
36. *Kelco Disposal v. Browning-Ferris Indus. of Vt., Inc.*, 845 F.2d 404 (2d Cir. 1988)	Predation: attempted monopolization	Founded	NPT	Price below AVC presumed predatory; $65 fee well below $81 AVC	Predation is profit sacrifice to exclude and recoup	*See* Profit Sacrifice, Market Power **(predict)**	Market share ranged from 55% to 100%; high entry barriers present; only two competitors from 1981-1987; few substitutes to relevant product; inelastic demand	Defendant frequently reaffirmed goal of eliminating plaintiffs, which, along with proof of below-cost pricing, established specific intent
37. *H. Floyd McGahee v. N. Propane Gas Co.*, 858 F.2d 1487 (11th Cir. 1988)	Discriminatory & predatory pricing, attempted monopolization	Founded	NPT / Intent	If price below AVC, rebuttable presumption of predatory intent; need additional objective or subjective evidence of predatory intent when, as here, prices are above AVC but below ATC; stronger supporting evidence must exist as price approaches ATC; if price above ATC, no predation		Claim requires dangerous probability of recoupment, or more extensive proof of market power: measured prior to commencement of predation; market share most critical factor **(predict)**	Insignificant entry barriers, but defendant had a 60-65% market share when predation began, so issue could go to jury, *see also* Recoupment	Subjective intent relevant; for attempted monopolization claim, need specific intent satisfied by showing below-cost pricing; other intent evidence included an investigation into plaintiff's financial position, policy of rent-free products, and an internal memo expressing desire to worsen plaintiff's financial position **(claim)**

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
38. *U.S. Philips Corp. v. Windmere Corp.*, 861 F.2d 695 (Fed. Cir. 1988)	Predation: attempted monopolization, monopolization	Founded	NPT / Effects	Jury question whether price below AVC	Re-introduction of retired products at discounted prices sacrificed profits by siphoning revenue away from existing lines		90% market share and substantial entry barriers, including brand name and advertising	Discounts adopted to eliminate entrant	Drastic price-cuts in response to competition from a new entrant, which excluded rival from the market; defendant then discontinued product lines that sacrificed profits
39. *Stitt Spark Plug Co. v. Champion Spark Plug Co.*, 840 F.2d 1253 (5th Cir. 1988)	Discriminatory & predatory pricing, attempted monopolization	No claim	NPT	Need predatory price "across" both primary market and replacement parts market		Predate to exclude and later raise prices; economic disincentives to predate often justify a presumption of implausibility; no proof that recoupment depended on excluding plaintiff **(effects)**	Predation is anticompetitive if it contributes to monopoly power		

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent
40. *A.A. Poultry Farms v. Rose Acre Farms, Inc.*, 881 F.2d 1396 (7th Cir. 1989)	Discriminatory & predatory pricing, monopolization	No claim	NPT	Price below ATC & AVC for a year	Price below cost generally reflects profit sacrifice; predation is profit sacrifice to exclude or discipline rivals and recoup: an investment in future monopoly; without likelihood of success, conduct is self-deterring	If a monopoly price later is impossible, then the sequence is unprofitable: consumers benefit; easier to examine market conditions for possible recoupment than cost evidence; cost evidence relevant only if market structure makes recoupment feasible; persistent entry and market expansion here; egg production is unconcentrated **(predict)**	1% market share nationally; 10.4% to 23.1% in Indiana; 3.4% to 8.6% in the mid-west region	Intent cannot be basis for liability; almost all intent evidence shows both a desire to succeed and "glee" at exclusion; intent unrelated to whether recoupment is possible, and recoupment determines competitive effects **(unimportant)**

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
41. *Ocean State Physicians Health Plan v. Blue Cross & Blue Shield of R.I.*, 883 F.2d 1101 (1st Cir. 1989)	Predation: monopolization by buyer	No claim	NPT / Effects	Price above incremental cost is merit competition			Conduct by monopolist destroying competition may be legal if taken without market power; primary purpose of antitrust laws is to encourage competition, and to prevent monopolists from excluding on basis other than merit competition	Monopolist may improve its position when objective is not to "smother" competition; intent to eliminate rival not actionable in itself	Whether conduct goes beyond ordinary business dealings and ordinary skill and unnecessarily excludes competition from the relevant market

	Claim	Disposition	NPT, Effects, Intent	Costs	Recoupment	Market Power	Intent	Effects
42. *William Royce Morgan v. L. Ponder*, 892 F.2d 1355 (8th Cir. 1989)	Predation: monopolization	No claim	NPT / Effects	When price is below AVC, presume predatory; when price is above AVC but below ATC, strong presumption of legality; when price is above ATC, legal per se; here price is barely above ATC; low incremental costs exist in two-sided advertising market		Need dominant share of relevant market; evidence that defendant can earn substantial profits in absence of direct competition can demonstrate monopoly power	Because ambiguous and misleading, futile to attempt to identify predation solely from predatory intent **(unimportant)**	Anticompetitive conduct eliminates competition without legitimate business purpose; exclusion alone does not indicate anticompetitive conduct: must affect viability of equally efficient competitor; failure to secure legal advertising clients because of alleged predatory price had little impact on viability of plaintiff newspaper, whose circulation dropped by half soon after opening

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
43. *Abcor Corp. v. AM Int'l Inc.*, 916 F.2d 924 (4th Cir. 1990)	Predation: attempted monopolization, monopolization	No claim	NPT / Effects	Predatory if price below cost to exclude and to subsequently charge monopoly prices; price here above cost		*See* Costs	Plaintiff supplied vigorous competition	Intent to exclude not actionable	Injury to plaintiff, if any, is the result of more competition, not predation; must show monopolization by circumventing the competitive process; price-cuts not cause plaintiff to lose customers or market share, just profits; exclusion of single rival does not show anticompetitive effects **(consumer welfare)**

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
44. *Am. Academic Suppliers v. Beckley-Cardy, Inc.*, 922 F.2d 1317 (7th Cir. 1991)	Discriminatory & predatory pricing, attempted monopolization	No claim	NPT	Predation is pricing below incremental cost to recoup; Court assumed price below incremental cost		Without monopoly power, cannot recoup by raising price above competitive levels; defendant faced hundreds of competitors; plaintiff's market share continued to grow despite price-cut; the longer exclusion takes, the longer supra-competitive pricing must persist to recoup **(predict)**	Must show that lower prices today become higher, monopolistic prices tomorrow, which requires existing monopoly power, even in attempt case; here defendant has a 3% national market share, and in some categories, a regional share of 25%; entry is exceedingly easy		
45. *Irvin Indus. v. Goodyear Aerospace Corp.*, 974 F.2d 241 (2d Cir. 1992)	Predation: attempted monopolization, monopolization	Founded	NPT	Areeda & Turner test: presume illegal if price below AVC, as here		If market structure renders recoupment unlikely, then price not predatory	Court presumed monopoly power		

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
46. *Liggett Group, Inc. v. Brown & Williamson Tobacco Corp.*, 964 F.2d 335 (4th Cir. 1992)	Discriminatory & predatory pricing	No claim	NPT / Effects	Price must be below appropriate measure of cost		Below-cost prices were not predatory because no economically rational basis to recoup and attain monopoly power; to rely on an oligopoly to ensure recoupment is economically irrational **(predict)**	Defendant had only 12% market share; plaintiff alleged conscious parallelism of oligopoly instead of monopoly power	Price-cuts designed to discipline plaintiff into reducing discount between branded and generic cigarettes	Since 1986, generic cigarette prices have risen twice a year, in tandem with branded cigarettes, reducing the price discount between branded and generic cigarettes from a high of 40% in 1985 to 27% in 1989; the six cartel members raised prices in lockstep regardless of the cost of tobacco, without the entry of any significant new competitors in several decades; sales of generic cigarettes increased from 2.8 billion to 80 billion; their market share increased from 0.4% to 15%

	Claim	Disposition	NPT, Effects, Intent	Costs	Recoupment	Market Power	Intent	Effects
47. *Int'l Travel Arrangers v. NWA, Inc.*, 991 F.2d 1389 (8th Cir. 1993)	Predation: attempted monopolization, monopolization	No claim	NPT minus Recoupment	Price above ATC is legal; presume legal if price is above AVC & below ATC; presume illegal if price is below AVC; cost test is hard to meet; predation is pricing below appropriate measure of cost to exclude & reduce competition; airline priced some seats below ATC, but plaintiff failed to show overall price structure was predatory	Recoupment evidence can be ambiguous and misleading		Futile to discern predatory conduct by predatory intent **(unimportant)**	
48. The *Vollrath Co. v. Sammi Corp.*, 9 F.3d 1455 (9th Cir. 1993)	Predation: attempted monopolization, conspiracy to monopolize	No claim	NPT	Predation requires price below appropriate measure of cost; no evidence that price was below AVC	Predation requires dangerous probability of recoupment; ease of entry into market and number of potential participants on every level of it demonstrates the impossibility of recoupment **(predict)**	No possibility of achieving monopoly power by predation because defendant controlled only 10% of the market		

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
49. *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993)	Predation: attempted monopolization; injury from primary-line price discrimination of same character as predation	No claim	NPT / Effects	Must prove price below appropriate measure of cost; satisfied here		For primary-line price discrimination, need reasonable possibility of substantial injury to competition, which Court held to mean dangerous probability of recoupment; insufficiently established here; recoupment supplies rationality to profit sacrifice; it depends on extent and duration of sacrifice, relative financial strength of predator and prey, along with their "incentives and will"; structure and conditions of relevant market also critical; conscious parallelism of oligopoly unlikely to deliver recoupment: losses incurred exclusively by	Alleged predator had 12% market share; price discrimination illegal only if it threatens competition; price-cut instituted to exclude and gain control over price	Defendant cut prices intending to recoup; 20% of consumers who switched to generics previously bought cigarettes from B&W	Generic prices went up during competition; afterwards, list prices for both branded and generic cigarettes increased in lockstep, twice a year, for several years, regardless of inflation, production costs, or shifts in consumer demand; this caused the percentage gap between the list price of branded and generic cigarettes to narrow, from approximately 38% to 27%; on the other hand, following defendant's entry, the market share of generics continued to increase, doubling by more than 2% per year; after predation,

predator, profits must be shared; recoupment must come from ability to price generic cigarettes supra-competitively, but their output increased; Court ignored potential recoupment from compressing the price difference between branded and generic cigarettes; notwithstanding recoupment, dismissal appropriate because lower prices benefit consumers over short-term **(predict / short-term effects)**

generic segment expanded from 4% to more than 15%;

notwithstanding improbability of predation, actual market conditions outweigh

theory

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
50. *R.W. Int'l Corp. v. Welch Food, Inc.*, 13 F.3d 478 (1st Cir. 1994)	Predation: attempted monopolization	No claim	NPT / Effects	Price was not below cost; even if so, still must show threat to competition					Price-cut on new product to expand sales does not harm competition
51. *Rebel Oil Co. v. Atl. Richfield Co.*, 51 F.3d 1421 (9th Cir. 1995)	Discriminatory & predatory pricing, attempted monopolization	No claim	NPT / Effects	Predation requires price below MC		Predation also requires recoupment, or pricing at supra-competitive levels long enough to recover initial losses	Insufficient proof of market power, so predation could not threaten consumer welfare; while 44% market share normally is sufficient to establish pricing power in attempt case, no entry barriers existed; it was easy to convert full-service stations to self-service stations; nothing prevented rivals from increasing output		Reduction of competition must harm consumers: allocative efficiency, high quality & low prices maximize consumer welfare; anticompetitive if act lowers allocative efficiency *and* increases prices or lowers quality **(consumer welfare)**

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
52. *Bathke v. Casey's Gen. Stores, Inc.*, 64 F.3d 340 (8th Cir. 1995)	Predation: monopolization and primary line price discrimination are of same character	No claim	NPT	Price must be below appropriate measure of cost		Scheme must pose dangerous probability of recoupment	Insufficient evidence concerning relevant market & market power, so claim not viable	Defendant developed and implemented plan to destroy rivals	Effects measured by **consumer welfare**
53. *Advo, Inc. v. Phil. Newspapers, Inc.*, 51 F.3d 1191 (3d Cir. 1995)	Predation: attempt to monopolize	No claim	NPT / Effects / Intent	Insufficient evidence price below appropriate measure of cost		Insufficient evidence of reasonable prospect to recoup losses; low entry barriers: the business is simple, capital requirements are modest, a variety of methods to compete exist; high prices would attract entrants **(predict)**	*See* Intent	Insufficient evidence of specific intent to monopolize; cannot infer intent from below-cost pricing here; must have intent and market power **(claim)**	Price-cuts prompted corresponding price-cuts; customers did not switch suppliers; they simply received lower prices; harm to competition means **consumer harm**

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Effects
54. *Cost Mgmt. Serv., Inc. v. Wash. Nat'l Gas Co.*, 99 F.3d 937 (9th Cir. 1996)	Predation: attempted monopolization, monopolization	No claim	NPT / Effects	Predation normally requires pricing at least below ATC; regulated entity may predate by cutting price below the approved rate; defendant not regulated			Power to control prices or exclude competition; defendant has 90% market share; regulated entity can have market power	

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
55. *Springfield Terminal Ry. Co. v. Canadian Pac. Ltd.*, 133 F.3d 103 (1st Cir. 1997)	Predation: attempted monopolization	No claim	NPT / Effects	Defendant bid for less than its estimated AVC		Recoupment was not possible here because no evidence of predation beyond one bid or within 3.5 years of action commencing **(effects)**	Although defendant's facilities were among the largest, 29 other plants served the market; defendant had only 10% market share; Court willing to aggregate market share of predator and prey in "exceptional circumstances," when merger or sale of assets is imminent, and when predator is dominant in another market, has access to unlimited financing, and has created a record of persistent anticompetitive conduct; criteria not met here; no minimum market share, even 30%, required in attempt cases		*See* Recoupment

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Intent	Effects
56. *Nat'l Parcel Serv. v. J.B. Hunt Logistics, Inc.*, 150 F.3d 970 (8th Cir. 1998)	Predation: monopolization	No claim	NPT	Price must be below appropriate measure of cost		Dangerous probability of recoupment must exist; insufficient evidence here because of low entry barriers and presence of stronger companies in closely differentiated markets **(predict)**		

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
57. *Stearns Airport Equip. Co., Inc. v. FMC Corp.*, 170 F.3d 518 (5th Cir. 1999)	Discriminatory & predatory pricing, monopolization	No claim	NPT / Effects	Predation requires pricing below AVC; bids here were above AVC	Predation exists when no rational business purpose justifies price-cut except exclusion	Monopolist must have reasonable chance of recoupment, which supplies rationality to predation; insufficient proof here; must demonstrate (1) price-cut actually could exclude rivals — depends on relative strength of parties & extent and duration of alleged predation, and (2) monopolist then could raise prices to supra-competitive levels long enough to recoup without drawing new entrants into market **(predict)**	Court assumed existence of monopoly power	Exclusionary if conduct has no rational business purpose other than its adverse effect on competitors	No evidence of exclusion or sales lost to sporadic predation: 60% of plaintiff's business involved other markets; it had a strong corporate parent; and only 5 of 240 to 400 bids were below cost; low entry barriers ensured consumer windfall; foreign entrants would block recoupment **(consumer welfare)**

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
58. *Taylor Publ'g. Co. v. Jostens, Inc.*, 216 F.3d 465 (5th Cir. 2000)	Discriminatory & predatory pricing, attempted monopolization	No claim	NPT / Effects	Predation requires price below appropriate measure of cost; some discounts were below AVC		Predation requires reasonable chance of recoupment; insufficient likelihood here; must prove potential for actual exclusion, allowing monopolist to raise prices to supra-competitive levels long enough to recoup losses before rivals enter the market **(predict)**	Defendant has 40%-50% market share		Effects judged at time conduct occurred; actual effects unnecessary to sustain attempt claim; exclusionary conduct determined by business justification proffered; irrational conduct but-for effect on rivals is exclusionary; challenged pricing won about 27 customers per year, or two-fifths of one-percent of plaintiff's customer base

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
59. *U.S. v. AMR Corp.*, 335 F.3d 1109 (10th Cir. 2003)	Predation: attempted monopolization, monopolization	No claim	NPT	Predation requires price below marginal cost or a proxy; all four cost measures were invalid here; price was not below AVC for any route as a whole; ATC is not an appropriate proxy	By increasing capacity, defendant sacrificed profits, which made economic sense only if exclusionary; Court unwilling to accept cost tests that measure profit sacrifice because they are too speculative and competition inhibiting **(effects)**	Successful predation requires exclusion & supra-competitive pricing long enough to recoup, which signifies damage to competition; once plaintiff ceased or moved its operations, defendant generally resumed higher prices & lower capacity	American had 70% market share at DFW		*See* Recoupment

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
60. *Spirit Airlines, Inc. v. Northwest Airlines, Inc.*, 431 F.3d 917 (6th Cir. 2005)	Predation: monopolization	Founded	NPT / Effects	Predation requires price below appropriate measure of cost; if price is above AVC but below ATC, plaintiff bears burden to prove predatory rationale or effect; price was below AVC here; potentially valid claim even if price was above AVC because of expanded capacity		Predation requires supra-competitive pricing long enough to recover initial investment, which measures injury to competition; actual recoupment here: within months following plaintiff's exit from the disputed routes, NW raised prices by multiple of seven **(effects)**	Market power is the ability to raise price above competitive level, restrict output, and exclude competition; for Detroit-Philadelphia route, NW had a 60-75% market share; for Detroit-Boston route, NW had an 89% market share; NW also benefitted from high entry barriers; in such markets, competition will not exist without competitors	Only when high entry barriers exist will incentive to predate follow; NW controlled 64/78 gates at Detroit airport; hub-and-spoke system itself constitutes entry barrier; NW determined that competition from low fare carriers at its hubs could cost it $250-$375 million in annual revenue; NW executive published article advocating profit sacrifice in response to low fare competition	*See* Recoupment **(consumer welfare)**

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
61. *Wallace v. IBM Corp.*, 467 F.3d 1104 (7th Cir. 2006)	Predation: attempted monopolization, conspiracy to monopolize	No claim	NPT / Effects	Marginal cost of using intellectual property is zero; the efficient price of an extra copy is also zero, "for that is where price equals marginal cost"; donations of time help cover fixed costs; forcing authors to charge for fixed costs would reduce efficiency and consumer welfare		Absent exclusion or other indicators of probable recoupment, no monopoly ensues, and prices remain low; rivals continue to enter this market; many more people use proprietary software; healthy competition precludes recoupment **(effects)**	Goal of antitrust law is to use rivalry to keep prices low for the benefit of consumers, *see also* Recoupment & Effects		When exit does not occur, or recoupment is improbable, no antitrust problem exists; plaintiff does not claim that software available for free subsequently will lead to monopoly prices: legislation "keeps price low forever" and blocks the output reductions necessary to effectuate monopoly; people willingly pay for substitutes **(consumer welfare)**

	Claim	Disposition	NPT, Effects, Intent	Costs	Profit Sacrifice	Recoupment	Market Power	Intent	Effects
62. *Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co., Inc.*, 549 U.S. 312 (2007)	Predatory bidding: attempted monopolization, monopolization	No claim	NPT	Must prove bidding on the input-side caused the cost of the predator's output to exceed the revenues earned on sales	A rational business rarely will sacrifice profits on the chance of earning supra-competitive future profits	Without likelihood of recoupment, predatory bidding makes no economic sense; must be able to recoup losses incurred bidding up input prices through subsequent input cost savings that more than offset the profits that would have been earned on output sales **(predict)**	Monopsonist purchased 65% of the relevant product		Plaintiff accused defendant of driving it out of business by bidding up input costs; acquiring more inputs *usually* leads to producing more output, which lowers consumer prices; predatory bidding *potentially* harms consumer welfare less than predatory pricing because recoupment can occur without affecting output prices