

Introduction

The view that competition and entry should promote efficiency and prosperity has now become a common wisdom worldwide. However, looking back only forty years, one finds a very different consensus among economic observers and policymakers. Latin American countries were pursuing import substitution policies, which allowed countries like Peru, Brazil, or Mexico to double their per capita GDP levels relative to the United States between 1945 and the early 1970s.¹ Southeast Asian countries and Japan were emphasizing export promotion and proactive industrial policies, which allowed them to grow at an annual growth rate of above 6 percent on average until the mid-1990s. Finally, European countries had granted legal monopolies to large domestic firms yet were rapidly catching up with U.S. productivity levels up until the early 1980s.

But these positive growth trends did not last. Latin American countries experienced chronic instability and stagnation from the 1970s onward. Growth in European Union (EU) countries petered out from the 1980s, with per capita GDP stuck at 70 percent of the U.S. level,² and growth performance recently deteriorating, both in absolute terms and in comparison to the United States. Finally, since 1994 the Japanese have faced a deep and prolonged recession that has forced them to reconsider their overall economic model.

Why then, under some circumstances, can high growth be maintained through more protectionist and entrenched policies, whereas under other circumstances growth seems to require higher competition and openness?

A tentative answer to this question, recently put forward by Acemoglu, Aghion, and Zilibotti (2003) and inspired by the work of Gerschenkron (1962), is that there is not one but several engines of growth, which do not require the same institutions or policies. In less

developed or middle-income countries, growth relies heavily upon factor accumulation (investment in physical capital, labor, and human capital or education) and upon imitating or adapting technologies from more advanced countries. Both factor accumulation and imitation can prosper under limited competition and entry (this relates to the well-known infant-industry argument). However, in advanced knowledge-based economies, where the growth potential of factor accumulation and imitation have been exhausted, frontier innovation becomes the main source of growth. To the extent that frontier innovation *may* require open markets and free entry, then countries should move from less competitive to more competitive institutions in order to sustain high growth rates throughout the various stages of their development process.

But are we so sure that competition always favors innovation in developed economies? In fact we often hear the opposite view being advocated by prominent innovators—for example, by Microsoft over the past five years—namely, that tough competition discourages innovation and inhibits productivity growth by reducing the expected rents from innovation (economists call this a “rent dissipation” effect of competition). If, as an entrepreneur, I anticipate future antitrust action, or future liberalization of entry in my market, why should I invest so much in new innovations if the rents from these are to be destroyed by new entrants or potential competitors? On the other hand, antitrust practitioners and competition authorities argue that competition is a necessary input into innovation, both because it encourages new entry and because it keeps incumbent firms on their toes and forces them to innovate in order to survive competition. So, who is right and who is wrong? Can one turn to economists for clear and definite views on this debate?

The answer is no. While competition features prominently in the history of economic thought, it is fair to say that economists still have a limited, and sometimes contradictory, understanding of its economic effects and, in particular, of the relationship between competition and growth. What we have accumulated so far are only bits and pieces: on the one hand, theoretical arguments that make predictions of either a positive or negative relationship; on the other hand, contrasting pieces of historical or empirical evidence. From this, a deep feeling of confusion arises. The main purpose of this book is to provide the first serious attempt at putting the various pieces of the puzzle together into a unified and coherent view of where and when one should expect competi-

tion policy or the deregulation of entry to boost productivity growth, and when we should expect them to have only limited or even negative effects on growth. What weight should policymakers place on rewarding successful innovation through granting monopoly power versus enhancing the competitive pressures markets place on firms to push forward the frontier? Is there really a trade-off to be made here, or can these policies be used as complementary mechanisms?

This book takes the form of a dialogue between an applied theorist and an econometrician. On the theory side, we build upon “Schumpeterian growth” models in which growth results from entrepreneurial innovations. Innovative activities are induced by the economic environment, and each new innovation destroys the monopoly rents generated by previous innovators. On the empirical side, we illustrate the use of new techniques that have been implemented by applied micro-econometricians to analyze the random process of innovation and patenting and to develop adequate measures and instruments for competition and entry. The dialogue between the theory and the econometrics is one in which, at each round or chapter, (1) models are systematically confronted with data, (2) the data either invalidate the models or suggest changes in the modeling strategy, and (3) new predictions emerging from the modified models are again confronted by the data, thereby initiating a new round of interaction between the two sides.

In contrast to previous studies on competition, we deliberately focus on the broad stance that competition policy should take. The voluminous industrial organization (IO) literature details the welfare effects of specific antitrust decisions, each emphasizing a different aspect and pointing to specific effects in different directions. This book focuses on the broader picture. For example, it can help governments in accession countries understand how to both achieve the benefits of tougher competition, while also limiting the negative impact this may have in terms of the dislocation of some sectors or industries. It also produces more coherent policy advice, for example, on the design of patent protection, proactive innovation policy, and competition policy as complementary instruments to foster productivity growth.

We start in chapter 1 by reviewing the early theoretical and empirical literatures. Although highly segmented and often contradictory, these provide foundations for our own approach. In particular, theory pointed to a detrimental effect of competition on innovation and growth, while the empirical literature instead suggested that more

competitive market structures are associated with greater innovative output, an idea that had much support in policy circles.

In chapter 2 we explore common wisdom, according to which competition is mainly growth-enhancing because it forces firms to reduce costs and innovate in order to survive. We find that, while this Darwinian view of competition may account for the impact of competition on some aspects of static efficiency, it is not fully vindicated by the data and also does not fully explain the impact of competition on the growth process.

In chapter 3 we explore an alternative route that allows us to both unify the theory and reconcile it more fully with the empirical evidence. We extend the Schumpeterian growth paradigm by distinguishing between *pre-innovation* rents and *post-innovation* rents, and by introducing the notion that innovation is a way to escape competition. More intense competition may lead to more innovation because it reduces pre-innovation rents by more than it reduces post-innovation rents. Whether this “escape competition” effect or the “rent dissipation” effect dominates will turn out to depend upon technological characteristics of a sector or industry. In particular, it will depend on the technological distance between firms in that industry, and which of these two effects dominates in the overall economy will depend upon the distribution of technological characteristics across sectors. Our analysis predicts an inverted-U relationship between competition and innovation, and shows that the prediction is fully consistent with the evidence.

In chapter 4 we introduce entry into the picture and look at the extent to which the effect of liberalizing entry on innovation and productivity growth depends upon the technological distance between the domestic incumbent and the world technology frontier. Reducing barriers to entry to foreign products and firms has an overall positive effect on innovation and productivity growth, but it has a more positive effect on economic performance for firms and industries that are initially closer to the technological frontier. In contrast, performance in firms and industries that are initially far from the frontier may actually be damaged by liberalization. The reason is that incumbent firms that are sufficiently close to the technological frontier can survive and deter entry by innovating. In contrast, firms and sectors that are far below the frontier are in a weaker position to fight external entry. For these firms, an increase in the entry threat reduces the expected payoff from innovating, since their expected life horizon has become shorter. An-

other finding is that the institutional environment in which firms function, has a central bearing on whether or not they benefit from liberalization. Thus, in relative terms, trade reforms hurt growth in regions with pro-labor regulations, while enhancing growth in regions with pro-employer regulations. These predictions are supported by empirical work in the United Kingdom, in India, and in cross-country analysis. They suggest that, for example, accession countries may want to have policies in place to foster the movement of labor out of industries far below the frontier.

Fully self-contained, this book can be read by anyone with an elementary acquaintance with basic economic principles and high school-level algebra.