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On the difficulties of addressing collective concerns through markets: from market devices to accountability devices

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Abtract: In recent years market-based interventions have been positioned as the basis for addressing what the editors of this special issue have termed 'collective concerns' in fields as diverse as healthcare, the environment and crime. This paper considers the terms of such interventions and the market-like relations these terms pre- suppose. It does so through a comparison of two interventions: a market-based scheme to address concerns regarding electronic waste and a Social Impact Bond for children at-risk of going into care. Ideas from Science and Technology Studies are drawn on to explore the composition of market-based interventions, the terms established through accountability devices which decide on who and what gets to participate, and the consequences that follow.

Introduction

In recent years market-based interventions have been positioned as the basis for addressing what the editors of this special issue have termed 'collective concerns' in fields as diverse as healthcare, the environment and crime. Such interventions have included privatization, outsourcing and funding arrangements which emphasize notions of competition.[1] In these interventions the market is presented as a basis for efficiently

[1] For example in public sector purchasing of private sector services: see: http://www.

and effectively selling or allocating scarce, mostly public, resources.[2] This has inspired a range of critiques from scholars of neoliberalism regarding such matters as the marketization of the state (see for example, Brown, 2015; Peck, 2010). However, Mirowski (2013) sounds a note of caution about buying too swiftly into terms such as the market. He suggests: ' ... there is no such thing as "the market" as monolithic entity, and in any case, it does not come equipped with supernatural powers of truth production' (p. 101). In engaging with market-based interventions, we might then need to consider the specific feature of market activity around which such interventions are organized. To take two initial examples, although research assessment in UK universities through the Research Excellence Framework (REF) and environmental legislation developed in the EU's Emissions Trading System (ETS) are both critiqued as examples of marketization,[3] the former is organized around notions of competition and the latter around notions of trade and exchange. To make sense of market-based interventions into collective concerns like these, we will need to engage with the terms of each intervention and the market-like relations these terms pre-suppose in pushing forward notions of, for example, competition or trade and exchange.

Going further, if we are to move away as Mirowski suggests from the notion that 'the market' straightforwardly produces its own truth, we might also need to investigate the means by which interventions achieve their effects. Mitchell's (2002) work is useful here for suggesting that market phenomena come 'into being not by disembedding market relations from a larger social ground that previously contained them, but by embedding certain...practices of calculation, description and enumeration in new forms of intellectual, calculating, regulatory, and governmental practice' (p. 118). This suggests we might need to make sense of very specific phenomena to understand market-based interventions into collective concerns. In our initial examples, we would need to study the rankings and metrics used by interventions like the REF to bring about competition or the issuing of allowances to enable trade and exchange in the ETS, plus the forms of calculation, regulation and monitoring these interventions appear to require to achieve their effects.

One means to engage with these matters has been provided by Science and Technology Studies (STS) work on market devices. Here, the history of provocations produced through actor-network theory are drawn on to consider markets as heterogeneous assemblages (see for example, Callon, 1998; Callon et al., 2007; MacKenzie et al., 2007) through which participants including people, objects and resources are disentangled from pre-existing relations and then qualified and re-entangled into market relations. According to the work of Muniesa et al., (2007) and Callon and Muniesa (2007), devices play a role in dis- entangling and re-entangling participants in new economic relations by first creating spaces of calculation into which participants move. For example, people, goods or activities might be arranged in a contract, an accounting spreadsheet or in a

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oft.gov.uk/shared_oft/reports/comp_policy/OFT1314.pdf

[2] For example on resource allocation in the UK National Health Service, see: http://www.kingsfund.org.uk/publications/improving-allocation-health-resources-england

[3] For a discussion of the ETS and marketization, see Kama (2014) and for the REF, see Chubb and Watermeyer (2017).

price list. Second, a specific distribution of agency would be established to order the participants in the new space. In this way, who and what gets to set or negotiate prices, for example, would be an important feature of the distribution of agency prompted by the calculative space. Third, the rules that under- pin calculated exchanges and generate market outputs would be set. This is important, these authors suggest, for recognizing that market devices are involved in doing things. They are not abstract entities, but devices involved in articulating material transformations and enacting what it is to be economic.

For market-based interventions into collective concerns, this might include studying, for example, the ETS and its issuance of allowances as a device for entangling manufacturing plants and their emissions into a calculative space where emissions are made recordable and ordered, distributing agency for who and what can act and producing a system of trade and exchange (for some reflection on this, see Callon, 2009; MacKenzie, 2009). In this way, market devices involve more than just disentangling and re-entangling, they are also key to setting the terms of economic relations such as who and what participates with who and what in, for example, setting a price (Callon, 1998; Cochoy, 2010). For collective concerns, this would mean studying not only the entangling of participants, but also, for example, the ways in which the REF creates both a calculable space for scoring and ranking academic research in the United Kingdom and a distribution of agency, establishing who and what is scored and who and what does the scoring in order to create and provide an evidential basis for distributing government research funds. The market devices of the ETS and REF could thus be considered for the ways they entangle participants in new relations and set economic terms for those participants, giving effect to a form of trade and exchange in the ETS and a form of competition in the REF.

This usefully draws our attention to the possibility of treating market-based interventions as made up from a broad range of different participants, with a central, coordinating role played by devices. Yet, perhaps we might need to sound a second note of caution. In market-based interventions into collective concerns, much is at stake alongside financial or economic matters. As Callon (2015) suggests: 'Political and moral reflection is at the heart of markets and not pushed out to their fringes' (p. 18). With regard to collective concerns, interventions are often said to be required immediately[4] and the population targeted by these interventions often includes the most vulnerable members of society, for example children,[5] homeless people[6] or recently released prisoners.[7] Furthermore, these market-based interventions are part of democratic politics, with advocates supporting their introduction and opposition parties swift to point out the apparent problems they introduce. For example, firms are said to fail in delivering outsourced

[4] For example, environmental campaigners in the build up to the Paris summit on climate change called for effective and immediate interventions, see: http://www. green-alliance.org.uk/resources/Paris%202015-getting%20a%20global%20agreement %20on%20climate%20change.pdf

[5] See: https://data.gov.uk/sib_knowledge_box/essex-county-council-children-risk- going-care

[6] See: https://data.gov.uk/sib_knowledge_box/greater-london-authority-homeless- people

[7] See: https://data.gov.uk/sib_knowledge_box/new-york-state-reducing-reoffending And its apparent failure: http://www.bondbuyer.com/news/regionalnews/ny-city-officials-social-impact-bond-big-plus-1077971-1.html

contracts[8] and services delivered by private sector firms are said to cost more than the public sector services they replaced and are worse.[9] The terms of the market-based intervention into a collective concern also anticipate and attempt to establish expectations regarding participants' future role in the intervention. For example, making universities aware of the scoring basis of the REF and the eventual distribution of government research funds tied to this scoring, is a way to anticipate and entangle participants into a specific form of competition, one which steers the activities of academics and university managers (Strathern, 2002). The terms of market-based interventions do not just require investigation of their economic or market rationale. These are interventions into collective concerns and so the market devices involved need to be understood also in relation to the normative effects they anticipate and those they produce. Our suggestion will be that the economic terms and the normative terms of intervention are inseparable.

One option for analyzing these terms is to build on the suggestion of Mitchell (2002) to investigate the regulatory and calculative devices at the centre of market-based interventions. We can draw here on work on counting, accounting and accountability which suggests that devices of intervention help set in place expectations regarding the production, mobilizing, prioritizing and constraining of resources (Law, 1994; 1996). For Munro (1996, 2001, 2004; Neyland & Coopmans, 2014) these counting and accounting devices establish a kind of pre- figured normativity. That is, they help to establish in advance expectations regarding the normative terms on which participants will be assessed and the types of responses that will be permitted by establishing who and what ought to be responsible and accountable for who and what.[10] Hence, forms of calculation in market-based interventions could be considered as much accountability devices as they are market devices. In this sense a market-based intervention such as the ETS based on a trading scheme might provide one set of terms for intervening in a collective concern achieved through a particular account- ability device, providing one form of prefigured normativity that might stand in contrast to another type of market-based intervention such as the REF based on competitive ranking and the distribution of scarce resources. Explicating the precise terms and accountability devices through which an intervention can be recognized as market-based is thus an important step toward making sense of how the consequences of these interventions into collective concerns are brought about. Accountability devices, we suggest, do this work of prefiguring by setting in place who and what is responsible for who and what, and the obligations they each hold. The extent to which the obligations of such prefigured normativity are met can then also be assessed through the accountability device. The scoring system of the REF, the price of allowances in the ETS and the structures put in place to enact these systems, provide a means both to pre- figure what ought to happen and to hold participants to account as the

[8] For nine examples, see: http://www.newstatesman.com/uk-politics/2013/08/nine- spectacular-council-outsourcing-failures

[9] See for example G4S and the delivery of Olympic security: http://www.telegraph.co.uk/finance/newsbysector/supportservices/10070425/Timeline-how-G4Ss-bungled -Olympics-security-contract-unfolded.html

[10] The accountability device can take some inspiration from other work on audit and new public management (see for example, Power, 1999). The distinction here is to also make sense of the terms of economic and normative engagements through which the nature of participants in interventions are established and the consequences that follow.

action unfolds. Accountability devices are thus important because they give precise form to collective concerns and the commitments that need to be discharged for their resolution.

Hence, the central question for this paper is: how are accountability devices involved in establishing economic and normative terms for market-based interventions into collective concerns and with what consequences? To address this question, the paper will explore market-based interventions and the terms that are established through accountability devices. In order to explore the consequences of these interventions, literature from recent STS work on markets will be drawn together with longer-standing STS interests in counting and accountability. Moving beyond our initial illustrative examples, we consider two UK interventions in-depth: attempts to create an evidence trading market for addressing the collective concern of electronic waste and efforts to shape social investment markets through a Social Impact Bond for children at-risk of going into care. Analyzing the two interventions will enable a comparison to be drawn between different economic and normative terms and how these work in different ways to give effect to market-based interventions. The conclusion will offer a discussion of the challenges involved in using market- based interventions to address collective concerns. The paper begins with a methodological note.

Methodological note

The research presented in this paper is part of a larger 5-year project focused on market-based interventions and attempts to solve public problems. The larger corpus of data features over 100 interviews and several periods of ethnographic fieldwork. In this paper, the focus will be on 24 interviews on e-waste management and children at-risk of going into care. The interviews lasted between one and three hours and were mostly carried out in interviewees' place of work. The interviews were transcribed and then analyzed. For the study of electronic waste, interviewees included producers of electronic goods, waste managers, environmental organizations and campaigners, and members of the UK government department responsible for implementing electronic waste legislation. For the study of children at-risk, interviewees included members of the responsible UK government office, investors, advisors and those involved in implementing the intervention. Analysis of the interview data was carried out using an accumulative coding procedure. This involved reading through the transcripts multiple times and coding interview discussions into aggregate topics. Topics on similar themes were then further aggregated into accumulative codes. Rather than treat interview responses as straightforward factual accounts, distinct views on issues were drawn together and analyzed. These will form the basis for the following analysis.

Electronic waste[11]

Electronic waste (or e-waste) was constituted as an issue worthy of political concern in the late 1990s and early 2000s particularly among European Union policy makers. The

[11] The e-waste study is used here as an illustrative case. For a more extensive analysis solely focused on e-waste see (Neyland & Simakova, 2012). For more on the broader topic of e-waste and its global, environmental impact, see: Gabrys (2011); Kirby and Lora-Wainwright (2015).

creation of a recognizable e-waste problem involved a number of interlinked actions. These included: policy makers responding to concerns raised by environmental campaigners regarding the potential environ- mental damage caused by electronic products at the end of their lifespan (CEI, 2005; Greenpeace, 2008; The Guardian, 2002; STVC, 1999); categorizing e- waste into a manageable classification scheme;[12] and developing regulations to manage e-waste, most notably the Waste Electrical and Electronic Equipment (WEEE) Directive. These actions effectively problematized e-waste (Callon et al., 2009), making it into an issue (Marres, 2011, 2012) that could move between locations, be subjected to different arguments, but also retain some coherence.

Producing European-wide legislation ensured that e-waste became a 'collective' concern for a number of parties: producers and retailers of electronic goods, the governments of EU member states and consumers, who would go on to cover the costs of waste management through the price of electronic goods they consumed. However, as the legislative response to the problem was a Directive rather than a Regulation, it was the responsibility of EU member states to produce national interventions that could fulfil the responsibilities established in the legislation. The collective concern was thus not experienced in the same way across the European Union. For example, the WEEE Directive was designed using principles of Extended Producer Responsibility (EPR) set out in the EU's Environment Action Plan. EPR established a particular focus for responsibility in e-waste management whereby producers of electronic goods would be made responsible for taking back, even through an independent firm, electronic goods placed on the market at the end of their life-span. However, it was down to the governments of individual member states to figure out the precise terms of EPR including who would cover the costs and who would be held to account, through what device, when and how, and to what effect.[13] These terms would prefigure both an economic and normative basis for entangling participants in this intervention.

The implementation of the UK response to the WEEE Directive was led by the Department for Business, Innovation and Skills (BIS). In the United Kingdom, responsibility for e-waste was placed on producers of electronic goods in the following way. Producers were informed that all goods placed on the UK market after 13 August 2005 had to include a WEEE symbol in the form of a crossed-out wheelie bin. Producers also had to either set up their own or sign up to independent Producer Compliance Schemes that would handle the same weight of e-waste as the electronic goods they had placed on the market. For example, if a producer of washing machines placed 1,000 tonnes of washing machines onto the market, the Producer Compliance Scheme they signed up to would have to process 1,000 tonnes of e-waste on their behalf and the producer would have to cover the immediate cost, although costs could also be passed on to consumers through product price. These Producer Compliance Schemes had to be able to show evidence that they had handled enough weight of e-waste to cover all their members' obligations. The Producer Compliance Schemes' income also depended on this

[12] The classification scheme comprised large and small household appliances, IT and telecoms equipment, electronic and electrical tools, consumer equipment, lighting, toys, leisure and sports equipment, automated dispensers, medical devices and monitoring and control devices.

[13] Many of the interviewees who took part in this research complained of the disparate picture of legislative intervention that appeared across EU member states' responses to the WEEE Directive.

production of evidence: they would be paid by their members according to the Scheme's ability to produce evidence that they had processed the amount of waste for which their members were responsible.

In this way, BIS and the UK government Environment Agency would dis- tribute responsibility for e-waste processing to producers, who would then be held to account through Producer Compliance Schemes, the Schemes' processing of e-waste and their production of evidence of e-waste processing. This evidence was thus central in setting in place and holding in place a series of obligations for e-waste. These obligations would set the economic and normative terms for the intervention, distributing the costs associated with environ- mental responsibility between producers who would need to cover the costs of Producer Compliance Schemes, consumers who would cover costs through product price, and government who were responsible for infrastructural management costs. Setting the terms for this distribution of obligations and costs was central to putting in place a market-based intervention into this collective concern. It anticipated an intervention that would introduce market-like competition: Producer Compliance Schemes were now expected to compete with each other on the basis of cost and quality to attract producers and their waste management obligations, bringing into being an effective and efficient waste management scheme.

This arrangement was made organizationally more complex as much of the e-waste would be handled by a Distributor Take Back Scheme. This Scheme would take e-waste from retailers when consumers purchasing new electronic goods gave back their old equipment. Used goods would be delivered to Designated Collection Facilities that were newly set up as part of the UK's WEEE management initiative. From there used goods would be transferred to Approved Authorised Treatment Facilities (AATFs) that required approval from the UK Environment Agency. Although producers would be rendered responsible by BIS and the Environment Agency through the Producer Compliance Schemes to which they signed up, Designated Collection Facilities and AATFs would also be held to account. Producer Compliance Schemes would hold these facilities to account by requesting evidence of the distribution and processing of waste. The Environment Agency would also hold the Facilities to account as part of its system for granting or withholding approvals. Any organization deemed non-compliant with the responsibilities set out in the UK e-waste legislation would have their approval withheld meaning they no longer got to participate in or derive income from e-waste management. In this way, intervening into this collective concern required these economic terms around cost and normative terms that distributed responsibility and accountability in order for it to be given effect. Its endurance also depended upon a specific, numeric, accountability device.

If such an intervention seems complex, its central numeric was apparently straightforward: weight of electronic goods in tonnes. Measuring tonnes of goods placed on the market and tonnes of waste processed, preferably recycled, became the key accountability device. 38 newly established Producer Compliance Schemes would thus work with AATFs and be subject to monitoring by BIS and the Environment Agency in an attempt to ensure collection of accurate evidence of the weight of waste being managed and to try and ensure that waste was recycled as far as possible. Another new

organization, the WEEE Settlement Centre was established to receive evidence of weight of waste data from producers and Producer Compliance Schemes. This evidence comprised: how much weight of electronic goods producers had placed on the UK market every three months, notice that they had signed up for a Producer Compliance Scheme, evidence from the Producer Compliance Scheme that it had handled enough waste to cover its members' obligations, and evidence that the producers had covered the cost of waste management. The WEEE Settlement Centre would then perform an annual settlement based on ensuring the obligations of Producer Compliance Schemes matched the evidence of waste processing that the Settlement Centre received.

In this way, the UK implementation of the WEEE Directive created a new form of market-based intervention focused on e-waste. This did not just draw together participants such as producers, consumers and the government. Instead, the implementation transformed the role existing organizations were expected to play, with for example producers now deemed partly responsible for waste. It also created a range of new organizations such as Producer Compliance Schemes, AATFs, a Distributor Take Back Scheme, and the WEEE Settlement Centre. This intervention could thus be considered through the concept of a market device in that it created a new calculative space of e- waste management into which participants moved, entangling them in a set of economic terms that established who had agency to act, setting in place rules around cost and payment. However, as an intervention into a collective concern, this also introduced an accountability device. Weight of waste did not just establish economic terms around cost for entangling participants but it also prefigured normative expectations of who and what would be responsible for who and what, held to account through what means. To be clear, the system did not only anticipate normative expectations, it set these out within a system that would also hold to account the extent to which these expectations had been met. The centrality to the intervention of an evidential requirement expressed in tonnes of weight of waste was made apparent to all parties involved. Scales for weighing vehicles and their weight of waste were introduced, evidence notes were produced and began to circulate, economic terms around price of weight of waste processing were set and mostly paid, responsibilities were agreed, taken on and mostly discharged.

Yet, despite the normative demands of the accountability device central to the UK implementation of WEEE legislation, in practice problems around weight of waste evidence swiftly emerged. Evidence of weight of waste became central to establishing a trading component in the UK e-waste intervention. Evidence trading was designed as a means to ensure that Producer Compliance Schemes could make any necessary adjustments required to the amount of e-waste they had managed, to cover their members' obligations. It was noted by BIS that the precise amount of waste handling required in a given year would be difficult to predict as the exact amount of goods placed on a market in a given year, and hence how much waste should be handled, might only be known at the end of the year.

Buying or selling evidence of e-waste management would enable Producer Compliance Schemes to demonstrate to the WEEE Settlement Centre that they had covered just enough weight of waste for their members' obligations. For example, if a Producer Compliance Scheme had signed up 10 producers that each placed 1,000 tonnes of

washing machines onto the market, and the Scheme had only processed 9,000 tonnes of waste, they would need to buy up evidence of 1,000 tonnes of waste processing from another Scheme. Or if they had processed too much weight of waste, they would need to sell the evidence to another Scheme. As a form of adjustment, conceived as a means to tidy up discrepancies between amounts of waste that had been and that should have been processed, it was expected that the price of evidence would reflect the cost of e-waste processing. In this way, a specific set of economic and normative terms were anticipated for weight of waste evidence trading. Although it was referred to by participants as evidence trading, BIS anticipated that linking the price of evidence to its cost would remove such trading from many of the exigencies of market competition and that in any case the trading would be minimal. The WEEE Settlement Centre would oversee the evidence trading component of the scheme, establishing a total market size of waste that needed to be handled and ensuring that each Producer Compliance Scheme met its members' obligations by mostly processing waste and, if necessary, trading a small amount of evidence of waste processing. The accountability device of weight of waste in tonnes was central here to establishing total market size, costs, and who and what was responsible for who and what.

However, as the following interviewee asserts, the e-waste evidence trading scheme encountered a problem:

> Interviewee 5 (e-waste manager): well, [one] of the very small schemes ... over contracted to the tune of – well, one of them in particular had an obligation [through its members] of less than 1 per cent but contracted 25 per cent of the UK collection sites. Which has caused an evidence deadlock really and has kind of threatened the whole system really. And what happened, obviously that company saw an opportunity to secure a surplus supply of evidence and then because they anticipated that there would be a trading element to the evidence they assumed that they would be able to sell that evidence for a premium because there would be a fixed level of demand for it later in the year [when the 24 per cent of waste evidence they didn't need, would be required by others]. And what actually happened in practice is that because most compliance schemes have themselves covered quite well, we ended up with a deadlock between the largest compliance scheme and this smaller compliance scheme that had secured all of the supply. And what happened is that that [small] compliance scheme ran out of money because they weren't – basically [the larger scheme] refused to buy any evidence from them. And so they encountered cash flow problems which meant that collections actually – I believe they stopped in some cases because they weren't able to pay the collection companies and treatment companies.

As Producer Compliance Schemes had competed to sign up members and their weight of waste obligations, it turned out that they were not all willing to simply trade evidence at cost price. For two Producer Compliance Schemes in particular, the situation became difficult. The largest Producer Compliance Scheme in number of members, but also in terms of its organizational size as e-waste formed a small part of its portfolio of international operations, processed only minimal amounts of e-waste and far below the requirements obligated by its members. The large Scheme hoped to buy-up evidence of e-

waste processing cheaply, and certainly at a lower cost than they would have had to incur to process the waste. The small Scheme hoped to amass as much evidence of e- waste processing as possible and sell it at a profit to other Schemes in need. Neither Producer Compliance Scheme paid heed to the prefigured normativity established by BIS which set out a neatly delineated role for market-like relations. BIS assumed the market-like aspects of the intervention would end with competition between Schemes to sign up producers and then excess evidence of waste would be 'traded' at cost price and overseen by the Settlement Centre. Instead both Schemes looked to extract a profit from the trade of evidence. However, with only one buyer and one seller, market trading appeared impossible. The large Scheme refused to pay the small Scheme's price and used its network of other trading practices to subsidize its e-waste division. It waited for the smaller Scheme to run into financial trouble having paid out the costs of waste processing. The smaller Scheme waited for the larger Scheme to be forced by the WEEE Settlement Centre to buy waste evidence in order that the year's waste processing could be settled and completed.

This deadlock in evidence trading was followed by the e-waste management system in the United Kingdom grinding to an unspectacular halt. The WEEE Settlement Centre could achieve no settlement, the percentages of waste managed could not be clearly matched to the obligations of members of Producer Compliance Schemes and in some cases further collections of e-waste for processing did not take place due to financial uncertainties regarding the future of the e-waste management system. The participants drawn into the intervention more or less held together, but for a time little processing of electronic waste took place. The transformation of a concern regarding what to do with electronic goods at the end of their lifespan, into an issue through the efforts of environmental campaigners, into legislation through EU policy makers and their drafting of the WEEE Directive, did not lead to a straightforward intervention. The accountability device of weight of waste and the intervention's prefigured normativity of how weight of waste should be processed and by whom, how it needed to be evidenced and then how it ought to be minimally traded, did not endure as two parties sought to trade outside the terms established by BIS.

Although we have suggested that this is a market-based intervention that establishes specific economic terms for participation in, for example, who pays for what, the accountability device is also central to the arrangement. Weight of waste is crucial to establishing responsibilities for e-waste management and for assessing that these responsibilities have been fulfilled as anticipated. However, in the aftermath of the UK e-waste management system grinding to a halt, what we can see is that the terms of intervention are not settled in a single moment nor do they necessarily endure. For example, the UK government policy impact assessment of the e-waste scheme characterized it as: 'market failures borne from regulatory failures'. [14] This same assessment then suggested various distinct accountability devices, including for example, a new pricing mechanism for waste handling and encouraging Producer Compliance

[14] Available from: https://www.gov.uk/government/uploads/system/uploads/attac hment_data/file/249743/bis-13-1181-impact-assessment-waste-electrical-and-electron ic-equipment-weee-system.pdf

Schemes to work more closely together through new partnering arrangements. These proposals in turn swiftly became part of further discussions in the e-waste community. One Chief Executive of an e-waste firm agreed with the impact assessment, stating: 'the trading of evidence has to stop'.[15] However, at the same time, another firm suggested that changes pro- posed by government, in particular that Producer Compliance Schemes would be encouraged to work more closely, would be likely to lead to an increase in costs, as system changes would have to be paid for by Producer Compliance Schemes.[16] Accounts, accountability devices and possible futures were entangled.

The economic and normative terms of the intervention were inseparable and both sets of terms were caught up in this discussion of what had gone wrong and what should happen next. The participants were entangled in a calculative space in which agency for negotiating and setting such matters as cost and price were anticipated and rules at least in theory established. This prefigured a specific normativity of moral principles enshrined in policy texts, setting out who and what would take on what responsibilities, held to account through what means. However, participants sought their own rules on price-setting and looked to prefigure their own normative terms around how evidence of weight of waste ought to be treated. BIS's assumption that excess evidence would be exchanged at cost price anticipated normative terms that were not upheld in practice. Instead market-like relations pervaded the intervention, incorporating both competition between Producer Compliance Schemes and evidence trading.

Yet, e-waste is heavily focused on a specific type of market-based intervention that anticipates efficiency through competition among newly established Producer Compliance Schemes and a minimal amount of trade and cost-price exchange of evidence. Switching attention to a distinct market-based intervention focused on investment and return will be useful here for providing an alternative basis for considering the economic and normative terms, account- ability devices and consequences that emerge in trying to resolve the collective concern of children at-risk.

Children at-risk of going into care

Following the financial crisis of 2008, several experiments were carried out as the public sector and its costs were effectively problematized (to use again the language of Callon et al., 2009) as one feature of austerity government. While e-waste utilized competition as the basis for anticipating an efficient, cost-sensitive solution, these experiments sought as far as possible to shift certain costs away from the state. One focus for these experiments was on efforts to shape the social investment market (see SITF, 2010; cf. Barman, 2015) through Social Impact Bonds.[17] Relatively localized and small scale experiments with these Bonds have been introduced,[18] but with an expansionist agenda, providing a demonstrative means to address collective concerns from which others could learn.

[15] Available from: http://www.advantagewastebrokers.co.uk/news/evidence-tradin g-more-than-a-weee-problem

[16] Available from: http://www.letsrecycle.com/news/latest-news/bis-to-review- weee-evidence-trading/

[17] For more on the social investment market and its movement into Social Impact Bonds, see Warner (2013); Dowling and Harvie (2014); Bryan and Rafferty (2014); Mitropoulos and Bryan (2015).

[18] 30 have been introduced since 2009: https://data.gov.uk/sib_knowledge_box/

Shaping social investment is noted as a basis for saving money, correcting poor incentives, unlocking new funding, promoting evidence-based action, transferring risk away from public finances and generating returns (Mulgen et al., 2011). For investors such as Goldman Sachs, Social Impact Bonds provide a new and distinct means to leverage private finance and innovative thinking, whilst also earning returns.[19]

Social Impact Bonds have involved creating a distinct kind of market-based intervention. Here we will look at a Bond focused on children at-risk. The latter became a particular kind of collective concern within government austerity measures. Children at-risk of abuse, problems related to alcohol, drugs and in relation to their families had been long-standing concerns. But from 2010 onwards they were drawn together by the UK coalition government with such matters as homelessness and social care as a category of concern envisaged through cost. Children at-risk were perceived as one of a number of intractable costs for government that never diminished however much public money was spent. Social Impact Bonds were then presented as an alternative means of distributing these costs, a means of creating what were termed cashable savings (see below).

Social Impact Bonds were expected to operate as a particular kind of market device. The Bonds would create a calculative space populated with specific participants. Participants would include social investors who would work with service providers, often from the third sector, and national and local government who would act as commissioners of the Bond. Unlike e-waste wherein the market device was focused primarily on competition among Producer Compliance Schemes with a secondary component of trading of evidence, in Social Impact Bonds the focus was on investment and return primarily, with competition as a secondary component. Participants would need to agree on the nature of the collective concern, a means to address the concern, but also a means to set a cost and develop an outcome measure to assess the extent to which the concern had been addressed. Investors would then need to cover the costs and would receive a return on their investment according to the level of success achieved in addressing the concern, as evidenced by the outcome measure. If outcome targets were not achieved, investors would lose all or some of their investment. The calculative space of the Bond thus also introduced a distribution of agency involving the set-up and implementation of the intervention and a set of rules around costs. Hence the economic terms of Bonds would be clear for all participants prior to an intervention getting started.

At the same time, these economic terms were inseparable from a set of normative terms, that children at-risk were a worthy concern, that investors ought to take on responsibility and financial risk for the intervention, that commissioners ought to oversee the intervention, that measurement ought to be carried out by an independent third party and that a service provider ought to be given the contract to carry out the intervention. Unlike e-waste where weight of waste was the key accountability device for organizing who and what was responsible for evidence trading and for producing annual settlements, Social Impact Bonds were instead focused on outcome measures that would both assess the success of actions carried out – in this case, targeting children at-risk – and trigger returns to investors. In a similar manner to e-waste, normativity was prefigured as a basis for

[19] See: http://www.goldmansachs.com/our-thinking/pages/social-impact-bonds.html

distributing responsibilities, but also holding to account the extent to which responsibilities had been met, with moral imperatives becoming contractual expectations.

These economic and normative terms may appear high risk for investors – they seem to take on all the financial risk and depend upon service providers to meet targets in order to receive a return. But the UK government's Centre for Social Impact Bonds has overseen a variety of measures designed to enhance conditions for investors. First, Social Investment Tax Relief has been introduced, whereby investors 'can deduct 30 per cent of their investment from their income tax liability'.[20] Second, there has only been a loose tie between cashable savings envisaged in each Bond and payments to investors. Cashable savings must be projected by the commissioner launching each Bond as these savings will pay for the Social Impact Bond. For example, reducing the number of children in residential care might be used to project a cash- able saving such as closing down residential care homes. However, the measure that triggers returns to investors has to be something more immediate, such as whether or not children at-risk have gone into care, regardless of whether or not this creates a cashable saving and then outcome measures and payments to investors should be based on this more immediate goal. This more immediate kind of measure has been introduced in order that investors do not have to wait for cashable savings to be achieved. Third, although investors in order to receive returns on their investment depend upon service providers delivering a successful intervention, the Centre for Social Impact Bonds suggests that the intervention and service delivery firm should be monitored by participants and, if necessary, replaced.[21] Investment and return remain central to Social Impact Bonds, but competition is a significant secondary component. Once a Bond is in place, different service providers can compete to deliver the intervention and this is anticipated as a market-like incentive to ensure the effectiveness and efficiency of the Bonds.

The Centre for Social Impact Bonds oversees this prefigured normativity of how a collective concern will be defined, an outcome measure established, who will be responsible for what, how risks and costs will be distributed, and how accountability will be demonstrably achieved. The terms of the intervention modify the risks faced by investors through tax relief, a loosening of the tie between cashable savings and returns, and the possibility of switching between service providers. But this combination of economic and normative terms has been subject to interrogation. Concerns have been raised that interventions will look to save money through 'creaming' by just focusing on the easiest to solve cases, and 'parking' by abandoning the hardest cases. And further questions have been raised regarding the difficulties of attributing change through measurement (Fox & Albertson, 2011) or relying on narrow forms of measurement (Lottery Fund Commissioning Better Outcomes Report, 2014), the 'financialisation or commodification of social services' (OECD, 2015, p. 13), leading to an erosion of trust, a stifling of innovation (Oxfam, 2013) and a transformation of the most vulnerable into an investment proposition 'for the profit of those most able to pay' (Cooper et al., 2014, p.

[20] Up to £270,000 on investments up to £1 million in actions and organizations qualified by HMRC pre-assurance schemes. See HMRC guidance here: https://www.gov. uk/government/publications/social-investment-tax-relief-factsheet/social-investment- tax-relief

[21] Monitoring can take place through a board with representatives from different stakeholders.

36). Social Impact Bonds also appear to be resource intensive in their set up,[22] with contractual negotiations proving complex, time consuming and unfamiliar to most participants (PIRU, 2015).

In a similar manner to e-waste, then, the economic and normative terms of the intervention do not only distribute and measure responsibility for action, they also become a cause for concern. The extent of these concerns can be explored by analyzing the Social Impact Bond for children at-risk in more detail. The Bond was commissioned by Essex County Council, a local political authority in the south-east of England. It was the first Social Impact Bond com- missioned by a local authority. The aim was to produce a demonstrative example that worked and would be followed by other local authorities. It involved setting up a special purpose vehicle, Children's Support Services Ltd, as an organization that would receive funding from investors to pay for early interventions in children at-risk of going into care. In line with aforementioned issues regarding the difficulties of setting up a Bond (PIRU, 2015), putting together an appropriate intervention proved complex and time consuming. From first pursuing the idea, through negotiations, to then issuing a contract took around 29 months, including setting up the special purpose vehicle and deciding on the service to be delivered, how it would be measured and the level of payment to be made as a return on investment.

The agreed aim of the Social Impact Bond was to deliver a form of therapy that could prevent children from being taken away from their families and placed in Essex County Council residential care. Such care was costly to the local authority and was also said to lead to children experiencing further issues in education, crime and life opportunities. To introduce a specific therapy required an evidence-base to convince all parties that a particular therapy showed evidence of its likely success and, as we shall see, the evidence-base was also crucial to providing an accountability device. The only approach that the parties agreed upon as providing a sufficiently compelling evidence-base was developed in the United States and was called Multi-Systemic Therapy (MST). MST Inc. could provide training for UK therapists to engage with children identified as at-risk of going into care. A UK charity, Action for Children, was awarded the Service Provider Agreement to manage the trained therapists in delivering MST through two teams of four therapists, a team manager and business administrator, dealing with four cases at a time on a rolling basis.[23]

Putting together and holding together this intervention involving a local authority as commissioner, investors, Action for Children as service provider working with MST Inc., and the new special purpose vehicle, required the development of a very specific accountability device. This involved setting an outcome target: that over five years, 380 families should be taken through MST in 20 cohorts in order to try and prevent 110

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[22] See: https://www.biglotteryfund.org.uk/-/media/Files/Programme%20Documents/Commissioning%20Better%20Outcomes/CBO_ways_to_wellness_report.pdf

[23] MST involves in home or school therapy to try and get at the root of violence/sub- stance abuse. It involves 60 hours of contact over four months. In a US intervention on those who committed sex crimes, 89 per cent of participants who completed the study had 83 per cent fewer arrests for sex crimes and 70 per cent fewer for other crimes in comparison to a control group. See: http://www.mstuk.org/evidence-outcomes and: http://www.ncbi.nlm.nih.gov/pubmed/19170451

children from going into care. This prefigured the normativity of the arrangement by setting out a preferred outcome and by establishing a prevention target. This target was then tied to an outcome measure that would at least in theory demonstrate a cost saving. The outcome measure that was developed involved calculating 'days of care averted'. This involved attaching a cost to each day of care that a child might experience, monitoring those children who went through MST and did and did not enter care, then tracking those children over the lifetime of the Bond. Measuring how many children went into care set against the prevention target and calculating days of care averted, produced the economic and normative terms for the contractual set up of the Social Impact Bond – effectively tying together accountability, responsibility, financial risks and returns.

The lengthy contract negotiation produced the following economic and normative structure. £3.1 million would be provided by investors, including £825,000 from Bridges Ventures, and £825,000 from Big Society Capital. Essex County Council projected a cashable saving of £17 million in total through a reduction in costs of children going into care, of which they would retain £10 million and pay-out up to £7 million to investors. £120 was attached to each 'day of care averted' as a front-loaded payment to investors at the moment children entered into MST. This figure was achieved by calculating the average cost of care, in the range of £20,000–£180,000 per child per year[24] and a distribution of savings that would enable Essex County Council to achieve its £10 million savings target and pay investors around an 8–12 per cent annual return on investment. This economic and normative structure established a very specific and narrowly defined set of responsibilities: that children at-risk of going into care ought to go through MST, this ought to be funded by investors, and that cashable savings ought to be distributed between Essex County Council and the investors. In the same way that the e-waste intervention would be held together by the numeric accountability device of weight of waste, this Social Impact Bond would depend upon days of care averted.

Of 60 families that went through the therapy initially, 20 per cent (12) disengaged and in 10 per cent (6) children still went into care. The children of the remaining families did not go into care where there had been a risk this would happen. It should be noted, then, that despite the range of concerns raised regarding Social Impact Bonds, in this instance there were children who were not taken from their families and placed in care when this had been expected and the investors began to see a return. However, achieving the economic and normative terms of the Social Impact Bond was not straightforward.

For the accountability device to be effective and gain the confidence of the commissioner, investors and the service provider, the device and its prefigured normativity of who would be responsible and accountable for what, was contractually embedded. However, for those involved in implementing the intervention, the contractual commitment to MST turned out to be challenging:

> Interviewee 1 (Implementation of Social Impact Bond): what we've found ... is that in using a heavily licenced evidence based intervention with a number of restrictions we've actually... found we're much more constrained than we initially

[24] Depending on the level of care required.

thought.

MST was noted as the only acceptable therapy by all parties involved in setting up the Social Impact Bond because it had a strong evidence-base. The evidence- base of MST became central to establishing the accountability device of days of care averted that was used to trigger payments to investors. MST and the evidence it gathered on the children given therapy was thus crucial to the intervention. With no evidence base, there was no investment-return structure. However, for those implementing the intervention, contractually agreeing to maintain the evidence-base appeared to establish a contractually bound account- ability device that limited their ability to respond to the range of different circumstances the local authority had to manage.

> Interviewee 1 (Implementation of Social Impact Bond): What I feel though is and I suppose I can see this from my operational perspective – one of the challenges for MST is it actually isn't an intervention designed for crisis edge of care work [if you had an urgent problem] MST can't deliver that.

Due to the absence of a relevant evidence base for other forms of therapy, due to the constraints imposed by MST Inc. designed to maintain the evidence-base, due to the contractual tie between this specific agreed-upon evidence-base, the accountability device and payments to investors, it seemed to those implementing the intervention that no switching between forms of therapy could take place once the Social Impact Bond was set up. The contractual terms designed to reassure investors and set in place an investment-return structure seemed to prevent the kind of competition between service providers that would enable a switch in therapy.

In a similar manner to e-waste, the intervention held together but also ran into problems. Just like e-waste, it was efforts to exempt certain parties from the rigours of market-like aspects of the intervention that was the source of trouble. In e-waste, BIS anticipated evidence trading would be at cost price, exempting such trading from market-like conditions where parties might seek to set prices, compete over price or use price as a basis for making profit. In this Social Impact Bond, a tightly defined contract was developed in order to satisfy investors worried about the risks they might face in this scheme if they were not exempted from the market-like conditions of investment through which their capital would be placed wholly at stake. Investors were exempted from financial risk by the contract that used the evidence base of the chosen therapy to fix in place MST as the only option, at the same time fixing in place costs for each child and front loading payments to investors from the moment a child entered MST regardless of its suitability or outcomes. In line with the preferred path of development authorized by the UK government Centre for Social Impact Bonds, the collective concern of children at-risk of going into care had been transformed into a cost and then a financial risk that could be redistributed from local government to investors. However, the means to address this collective concern had also been transformed through the contractual commitments to supply a single evidence-based therapy tied to front-loaded payments. The single therapy, MST, appeared to limit the local authority's options for switching. Exempting investors from financial risk also prevented competition among service providers. The front loaded payments transformed the problem of financial risk faced by investors into a

payment arrangement in which they might have confidence. Unlike other Social Impact Bonds where investors' capital was entirely at stake, the 'days of care averted' accountability device enabled payments to investors to begin immediately, with the return calculated from a child's entry into MST rather than the therapy's long-term consequences or success. In both e-waste and the Social Impact Bond, market-based interventions into collective concerns also contained market exemptions. Market exemptions seemed to be the focus for trouble.

One focus for trouble was the economic terms of the Social Impact Bond that set out cashable savings for the commissioner that would pay for the intervention and provide returns to investors. As the following interviewee suggests, such cashable savings were not very apparent in this intervention:

> Interviewee 1 (Implementation of Social Impact Bond): Would Essex County Council look at this intervention and say this is saving us money? It probably wouldn't at the moment. It would probably not do that. At the moment it would probably say 'would we buy MST if the SIB [Social Impact Bond] was not here?' which is the key question, is it that important? And the answer is probably not.

This relatively damning assessment was tied to issues we have already noted, such as the complex and time-consuming set up period for the Bond and its associated costs. Further trouble emerged as it became apparent that the therapy had higher costs than initially forecast based on the US experience of using MST.[25] But for Essex County Council these costs were enhanced by a high turnover of staff during the intervention leading to extra recruitment and training costs. These troubles increased as Essex faced what a former UK Treasury advisor who took part in the research called 'a double spend': having to maintain children's services for cases where MST was not suitable or failed and having to cover the costs of MST through front loaded payments to investors.[26]

In place of a clear demonstration of how to utilize social investment to address collective concerns from which others could learn, came further problems. Anticipated savings turned into costs that then needed to be saved from else- where in the County Council budget. Even if the Council wanted to end these arrangements, the contractually agreed accountability device that tied MST and its evidence base to repayments to investors for a fixed time, ensured the endurance of this Social Impact Bond.[27] In this way, both the economic terms in relation to anticipated costs and the expected normative terms of MST providing a suitable basis for helping children at-risk, became problematic. The accountability device of days of care averted that was crucial to putting in place the intervention in the first place, appeared to limit the risks faced by investors and reduce

[25] The evidence from which was used to justify its selection in the United Kingdom.

[26] Days of care averted could be equivalent to a number of different cashable savings. 1. Reducing the immediate food and clothing costs of residential care 2. Reducing the care population enough to reduce staffing costs 3. Reducing the long-term costs associated with a predicted transition from problematic (and costly) childhood to problematic (and costly) adulthood. Only the first cost was calculated.

[27] Further questions raised by interviewees: scale, why the term Bond was used, the appropriate level and type of involvement by investors, the effects of turning children into an investment proposition and the costs of capital.

the role played by competition. What was conceived as a market-based intervention, utilizing the social investment market and competition among service providers to shift costs away from local government, ended up an expensive exercise in fixed contracting. In conclusion, we will turn our attention to what these interventions into e-waste and children at-risk can tell us about the difficulties of addressing collective concerns through markets.

Conclusion

This study of the difficulties of addressing collective concerns through market- based interventions began with a note of caution from Mirowski (2013) to not buy too swiftly into the notion that 'the market' exists as a singular entity capable of producing its own truth. As a result, we took a detour via recent STS work on market devices, to explore in detail the economic terms on which two market- based intervention into collective concerns were made. Our focus was on electronic waste and children at-risk. However, this produced its own note of caution: that when exploring collective concerns, economic terms are inseparable from normative terms that anticipate such matters as who and what will take responsibility for who and what, held to account by what means. To reflect this cautionary note, we suggested moving from discussing market devices and their economic terms alone to also thinking about accountability devices and their normative terms. Our exploration of e-waste and children at-risk suggests five points for consideration in researching market-based interventions into collective concerns.

First, in exploring market devices utilized in interventions into collective concerns, the precise form that the market is expected to take requires consideration. In our study of e-waste, a form of competition between Producer Compliance Schemes was anticipated as a basis for ensuring an efficient and effective intervention, with evidence trading playing a secondary role as a means to settle any discrepancies in weight of waste that required processing. By contrast, our study of a Social Impact Bond for children at-risk looked at a market-based intervention built around an investment-return structure in which competition between service providers was expected to play a secondary role. Investment and return was designed as a means to re-distribute what had appeared to be the intractable costs for the state of dealing with such matters as children at- risk, but also homelessness and social care.[28] The precise form of market-like relations that each intervention anticipates requires close study as the form is consequential. It is too reductive to say that the two interventions are solely examples of marketization as if they are the same and anticipate the same methods, problems or consequences. To understand the issues involved, the form of market-like relations at the centre of intervention must be brought to the fore.

Second, and following on from this first point, the form of market-like relations anticipated in each intervention helps give shape to particular sets of economic terms. In e-waste, economic terms focused on weight of waste, cost and payment. These were central to the market-like relations anticipated in the intervention with Producer Compliance Schemes competing to sign up producers on the basis of the cost and quality

[28] These have also recently been the subject of Social Impact Bonds.

of the service they provided. In children at-risk, by contrast, the economic terms involved costs of care, amounts to be invested, cashable savings and the anticipated returns to be achieved. Again these terms were crucial: re-distributing costs and bringing in an investment- return structure were the purpose of the intervention. In order to make sense of the problems experienced in using markets to address collective concerns, these economic terms are crucial and must be investigated because they prefigure expectations for how the market-like relations will be given shape and, in moments of breakdown, point to what has gone wrong.

Third, our suggestion has been that the economic terms analytically fore- grounded by adopting work on market devices with its focus on calculative spaces and rules, are in practice inseparable from normative terms of intervention. Collective concerns, we suggest, are often fraught with moral questions over who ought to do what, who and what ought to be responsible, with interventions often said to be required immediately and with conclusive effect. In e-waste, we noted normative terms involving who was responsible for what aspect of waste, who should produce evidence of waste, what should happen to that evidence and how evidence could be used to assess the viability of the intervention. In children at-risk, normative terms included how children at-risk should be treated, what should count as a viable target, how evidence of that target and the success of the intervention would be amassed and used. In this way, moral concerns became embedded in specific policies. Understanding the normative terms of market-based interventions into collective concerns is crucial, we suggest, for bringing into focus what is at stake and who and what will address the matter at stake.

Fourth, building on this point, we have suggested that accountability devices can be a useful way to augment market devices with a means to make sense of the ways normativity and calculation are combined. In both our cases, reasonably complex interventions were oriented around relatively straightforward account- ability devices: weight of waste in tonnes in e-waste and days of care averted in children at-risk. Accountability devices, we argue, are worthy of further attention in making sense of market-based intervention into collective concerns as they appear crucial to the organization of such interventions, the distributions of responsibility involved and provide the means through which the intervention and different participants might be assessed.

Fifth, our two examples of e-waste and children at-risk suggest that interventions hold no guarantee that they will run as anticipated by all participants. Close study of the potential messiness of outcomes is required in order to make sense of what happens to the market-like relations anticipated in the design of interventions. In both our examples, pushing market-like relations to the fore through specific economic and normative terms also involved introducing market exemptions. These were problematic in two different ways. In e-waste, it was anticipated by BIS that evidence trading would be exempt from market-like relations and exchanged, instead, at cost price. In practice two Producer Compliance Schemes sought to extract profit from such trading, resulting in the system for a time grinding to a halt. In children at-risk, lengthy contract negotiations produced an arrangement that exempted investors from financial risk and as a result exempted the service provider from competition, fixing in place MST as the only intervention, fixing in

place investors costs and, through front loaded payments, ensuring investors received swift returns. This seemed problematic as the commissioner faced rising costs and uncertainty regarding the broad suitability of the intervention, but could not switch. The prefigured normativity of accountability devices was again important here. Such devices set out expectations, but also provided the means to draw attention to moments when participants did not meet expectations. This suggests that exemptions from market-like relations in interventions that seek to address col- lective concerns require further study: in our examples, it was the exemptions that prompted further concerns.

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