

Agenda

Advancing economics in business

Efficiency and competition policy: an unconventional view

Where are the inefficiencies—in production, in allocation of resources, or somewhere else? Adriaan ten Kate, Head of the Economics Directorate at Mexico's Federal Competition Commission, addresses these questions. He explains why the greatest harm to welfare may come from 'lost opportunities'—transactions that never materialise—and points to some important lessons for competition policy

Almost 40 years ago Harvey Leibenstein, an economist, argued that what he referred to as 'X-inefficiencies' were far more significant than the allocative inefficiencies with which much of our economic policy is concerned.¹ Leibenstein did not provide a rigorous definition of the concept of efficiency, nor of its components, but he considered two kinds of allocative inefficiencies:

- those derived from supra-competitive pricing—particularly monopoly pricing—which are usually represented by deadweight-loss triangles in partial-equilibrium graphs;
- those resulting from trade restrictions, which generally lead to misallocation of resources among countries.

According to Leibenstein's terminology, X-inefficiencies are productive inefficiencies within firms, reflecting their failure to minimise costs given their output levels, or, conversely, to maximise output given their resource availability.

A decade earlier, another economist, Arnold Harberger had published his seminal article in which he estimated the aggregate deadweight loss from monopoly pricing in

the USA to be less than 0.1% of GDP.² Likewise, Leibenstein reported that welfare losses from existing trade restrictions had been estimated by various authors at, at most, 1% of the GDP of the countries in question, and often much less. From these findings, Leibenstein concluded that allocative inefficiencies of this kind were not really something to worry about and proposed that attention be turned to X-inefficiencies. Citing examples of firms that had achieved enormous productivity gains without major investment efforts, he claimed that the latter type of inefficiency could be enormous.

These findings were an unwelcome surprise to competition policy enforcers since they undermined their very *raison d'être*. After all, competition policy is ultimately about deadweight losses. At the same time, the disappointing results of the studies on the elimination of trade restrictions came as a blow to the supporters of trade liberalisation who firmly believe in the importance of open borders. Since then, many studies have attempted to reinstate the cause of trade liberalisation and competition policy. Most of them have criticised the methodologies used in previous research and adjusted percentages upwards, usually by adopting alternative assumptions.³

It is not my intention to review the evolution of this debate, which seems to be more a testimony of how science can be employed for ideological purposes than an objective assessment of evidence. Rather, the purpose of this article is to highlight yet another kind of inefficiency which is similar to the allocative inefficiencies derived from supra-competitive pricing, but which is brought about by incomplete information and the distortion of incentives, such as the firm's inability to appropriate the benefits of its productive efforts. I call it 'market insufficiency'. It reflects all the opportunities to conduct welfare-enhancing business that, for some reason, remain unexploited, and I believe—without actually being able to prove it—that such lost

Main types of inefficiency

- Allocative inefficiency: sub-optimal allocation of resources between firms, industries or countries, due to, for example, monopoly pricing or trade restrictions.
- Productive inefficiency: firms not producing at minimum cost given their output levels (or not maximising output given their resource availability).
- Market insufficiency: opportunities to conduct welfare-enhancing business, which, for some reason, remain unexploited.

opportunities are an even more important source of inefficiency than any of the others.

In the debate about the significance of allocative versus X-efficiency, it may be argued that, even if X-inefficiencies were more important than allocative inefficiencies, the latter, when derived from supra-competitive pricing or trade restrictions, are at least subject to direct government action—eg, by price regulation or by removing trade barriers. Achieving X-efficiency, however, is the responsibility of the firms themselves and it is not clear how governments can exercise influence over this form of efficiency other than in very indirect ways—eg, by setting rules for corporate governance and similar horizontal interventions. As I argue below, in addressing market insufficiencies, governments can play a role, albeit largely a facilitating one.

What is economic efficiency?

Economic efficiency is about generating welfare. The higher the welfare that is generated the more efficient the economy, and an economy is said to be entirely efficient when it creates the maximum amount of welfare given the availability of resources. Welfare is in turn generated by producing goods or services and selling them at prices higher than their production costs, and by buying goods or services at prices lower than what one would be willing to pay for them as a last bid (the private value to the consumer). The difference between the sales price and the production cost constitutes the 'producer surplus'; the difference between the acquisition price and the private value to the consumer constitutes the 'consumer surplus'. Social welfare is the sum of both surpluses. Thus, for an economy to be efficient, all opportunities to engage in welfare-enhancing transactions must be exhausted and there can be no transactions that destroy surplus. Moreover, to the extent that opportunities are mutually exclusive, the system must select those transactions that generate a maximum amount of surplus.

This way of describing economic efficiency and social welfare initially seems slightly different from the way these concepts are presented in the familiar partial-equilibrium diagrams, where producer and consumer surplus are represented by areas between the demand and supply curves. It is clear, however, that my interpretation of social welfare is entirely equivalent with conventional wisdom in the partial-equilibrium model, where supply curves are horizontal aggregations of firm-specific cost curves, and demand curves are derived from consumers' willingness-to-pay. However, my definition of the surplus has the advantage of being applicable in much broader circumstances. For example:

- it is not limited to markets for a single homogeneous good;

- it allows for inefficiencies in resource allocation among firms (which is implicitly excluded by the assumptions underlying the supply curve of the partial-equilibrium model);
- finally, it allows for price discrimination—ie, the same good may be sold at different prices from one transaction to another.

In these cases, welfare is simply selling at prices higher than production costs and buying at prices lower than consumers' willingness to pay, and its magnitude is the monetary sum of the differences.

As highlighted below, describing economic efficiency and social welfare in the way I propose sheds a different light on economic policies aimed at improving social welfare—particularly competition policies—a light the partial-equilibrium approach often fails to observe due to the restrictiveness of its assumptions.

Different kinds of inefficiency

In my approach, total inefficiency can be classified into five categories:

- i) intra-firm productive inefficiencies—productive inefficiencies of the Leibenstein kind;
- ii) inter-firm productive inefficiencies—inefficiencies resulting from a misallocation of resources among firms;
- iii) consumptive inefficiencies—those derived from a misallocation of goods among consumers;
- iv) lost opportunities—reflecting the failure to close welfare-enhancing transactions;
- v) inefficiencies due to excessive optimism, leading to welfare-destroying transactions.⁴

Intra-firm productive inefficiencies of the Leibenstein kind reflect the failure of firms to minimise costs or maximise output—ie, the output of firms falls short of its firm-specific production frontier. Such inefficiencies can be of either a technical or organisational nature. They have been written about extensively and there is little doubt that they are significant and pervasive.

Inter-firm productive inefficiencies arise from a misallocation of resources among firms. They are usually considered allocative rather than productive inefficiencies, but they effectively reflect a lack of cost minimisation or output maximisation at the industry level—ie, output falls short of the industry-wide production frontier. Thus, one may as well consider these productive inefficiencies. For the existence of inter-firm productive efficiency, all firms must produce at the same marginal cost.⁵

Consumptive inefficiencies occur when the goods and services produced in the economy are not allocated to

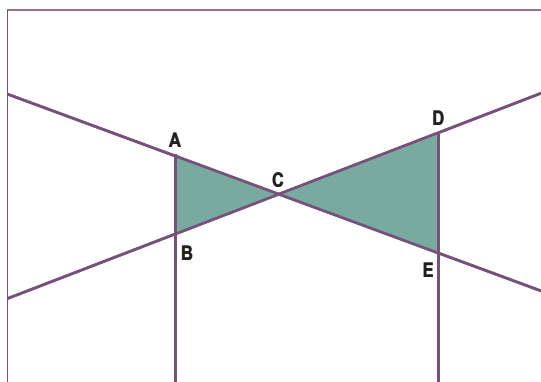
the consumers who value them most. For example, the radio is assigned to the deaf and the TV set to the visually impaired. Their principal source is a lack of information and obviously such inefficiencies can be eliminated by mutually beneficial exchange among consumers.

None of these first three types of inefficiency is properly represented in the partial-equilibrium model. In this model, the concept of supply curve assumes cost minimisation both within and among firms, and the concept of demand curve assumes that goods are bought by those who value them most. To get an idea of the remaining two types of inefficiency, it may be useful to look at the partial-equilibrium graph (Figure 1), in which the lost opportunities are represented by the deadweight-loss triangle ABC when output falls short of its optimal level, and excessive optimism by the triangle CDE when output exceeds demand.

The most common example of lost opportunities is that of monopoly pricing. Even though a monopolist can produce additional output at a cost that is lower than what some unserved consumers are willing to pay, it does not do so because it would have to sacrifice profits extracted from the existing consumer base, at least if it cannot price-discriminate. Most oligopoly settings lead to similar lost opportunities, albeit to a lesser extent.

Paradoxically, lost opportunities of this kind are usually referred to as allocative inefficiencies. This is surprising to a certain extent because there is neither a misallocation of resources among producers nor a misallocation of goods among consumers. Therefore, I believe that the term 'lost opportunities' indicates more clearly what these inefficiencies are about. Moreover, the proposed terminology broadens the scope of this type of inefficiency beyond the partial-equilibrium context to all situations in which economic agents—due to a lack of information or to conflicts between individual and collective incentives—leave opportunities for welfare-enhancing business unexploited.

Figure 1 Partial equilibrium chart showing lost opportunities and excessive optimism



Finally, inefficiencies due to excessive optimism occur when producers produce too much relative to demand (ie, when they produce goods at a cost higher than that which unserved consumers are willing to pay). The main source of this type of inefficiency is incomplete information and such inefficiencies are mostly self-corrective. That is why they have not been discussed to any great extent in the literature.

Lessons for competition policy

In my view the opportunities for welfare-enhancing transactions in an economy are much like an iceberg. Only the top of it materialises in actual economic activity and, for a variety of reasons, the great majority of such opportunities—the underwater part of the iceberg—remains unexploited. If this were the case, attempts to increase welfare would be more fruitful if they were aimed at bringing unexploited opportunities to the surface rather than at shaping existing economic activity in such a way as to obtain marginal welfare gains. What is more, if an intervention to make existing activity more competition-friendly at the same time negatively affects the exploitation of lost opportunities, as is sometimes the case with competition policy, such efforts may well be counterproductive.

The following example may clarify this point. In my opinion, the most important reason for many welfare-enhancing opportunities remaining unexploited is a lack of information. Producers do not know if there would be sufficient demand for goods they can produce, and consumers do not know how costly it would be to produce goods that could be, but are not actually, produced (if they give serious thought at all to how much they would be willing to pay for goods that are not even for sale). Selecting what to produce is a process of trial and error in which many feasible opportunities may remain unexploited. Likewise, once goods are actually produced and sold, there is often great uncertainty among both producers and consumers about which price levels would be reasonable. This is particularly the case for thin (illiquid) markets lacking a critical mass of transactions that would give guidance to sellers and buyers in their decision-making. In such circumstances there is enormous market-making potential for information exchange enhancing market transparency. However, competition officials often consider such information exchanges as devices to facilitate collusion, and occasionally take action to discourage them. In doing so, they may well diminish rather than increase social welfare.

A second reason why welfare-enhancing opportunities often remain unexploited is the firm's inability to appropriate the benefits of its efforts. This typically happens with public goods, but it also occurs when there is insufficient protection of intellectual property rights. Yet

another example is where antitrust action unduly punishes efficient firms for being successful—eg, by prohibiting the exploitation of market power obtained through ‘competition on the merits’ (eg, due to greater efficiency and innovative efforts). In the USA, there seems to be ample awareness that the exploitative (ab)use of dominance should be left alone—most powerfully expressed by the proverbial phrase of Judge Learned Hand:

The successful competitor, having been urged to compete, must not be turned upon when he wins.⁶

European competition enforcers, however, are less convinced by such a hands-off approach.

It is almost universally recognised that there should be some protection of intellectual property allowing monopolistic exploitation of patents for the sake of innovation; yet the same logic is hardly ever applied when it comes to allowing the exploitation of market power for the sake of encouraging competitive effort. However, competition law aimed at disciplining the exploitative (ab)use of market power can stifle competition in the same way as insufficient protection of intellectual property can stifle innovation. In both cases long-run social welfare is reduced.

Yet another reason why potentially welfare-enhancing transactions often do not materialise is that many such individual transactions do not enhance welfare, but they

do when carried out jointly. If so they involve not just two but sometimes a great many parties. In such cases cooperation between those parties, and even contracts restricting future competition, may be necessary to bring about the deal. For example, to develop an interconnected network among several competing service providers, individual competitors may have insufficient incentives to invest in the expansion of the network because the resulting increase in network value would not be fully appropriable. As a consequence, critical mass may never be reached. Moreover, realising that positive demand externalities are not limited to physical networks, one may wonder how many virtual networks simply never arose due to such incentive distortions. In such circumstances competition does not help to overcome the start-up problem but rather aggravates it, and an all-too-strict application of pure competition principles may be counterproductive.

Altogether, competition enforcers are advised to always keep in mind how their actions influence welfare-enhancing business. If, on the one hand, they encourage such business, as will usually be the case when they break up cartels or block anti-competitive mergers, they are almost certainly promoting economic efficiency. If, on the other hand, their actions turn into an obstacle to innovative business, as may well be the result when they meddle with the design of vertical contracts or prohibit price discrimination and similar conduct, they run the risk of promoting competition at the expense of efficiency.

Adriaan ten Kate

¹ Leibenstein, H. (1966), ‘Allocative Efficiency vs. X-Efficiency’, *American Economic Review*, **56**, p. 392.

² Harberger, A. (1954), ‘Monopoly and Resource Allocation’, *American Economic Review*, **44**, p. 77.

³ For a summary of such studies, see Ferguson, P. (1988), *Industrial Economics: Issues and Perspectives*, Macmillan. See also Viscusy, W.K., Vernon, J.M. and Harrington, J.E. (2000), *Economics of Regulation and Antitrust*, third edition, Cheltenham: Edward Elgar Publishers, p. 86.

⁴ One type of inefficiency not considered here refers to the possible sub-optimality of the tendency of individuals to work as members of a firm, rather than as individuals, and of the contractual relations between and within firms. It is sometimes called ‘transactional efficiency’. See Kolasky, W.J. and Dick, A.R. (2003), ‘The Merger Guidelines and the Integration of Efficiencies into Antitrust Review of Horizontal Mergers’, *Antitrust Law Journal*, **71**, p. 207.

⁵ As an example of inefficiencies of this kind, one may think of the Cournot equilibrium among asymmetric firms.

⁶ *United States v Aluminum Co. of America*, 1945, 148F 2nd at 430.

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