ARTICLES

CANADA'S (IN)EFFICIENCY DEFENCE: WHY SECTION 96 MAY DO MORE HARM THAN GOOD FOR ECONOMIC EFFICIENCY AND INNOVATION

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Since 1986, Canada's Competition Act has had an "efficiencies defence" for anticompetitive mergers that allows economic efficiency to be promoted at the expense of competition, instead of through competition. This paper questions whether that policy makes sense. We review a large body of literature and case studies demonstrating that competition spurs innovation and efficiency of enormous magnitude. However, these significant beneficial effects of competition are often overlooked under the current merger review framework because they are less susceptible to ex ante prediction or quantification. The perverse result, we argue, is that the Competition Act has a bias towards authorizing anticompetitive mergers in the name of economic efficiency even though such mergers are more likely to reduce efficiency overall.

Depuis 1986, la « défense fondée sur les gains en efficience » que prévoit la Loi sur la concurrence du Canada pour les fusions anticoncurrentielles permet de promouvoir l'efficience économique au détriment de la concurrence, plutôt que par la concurrence. Le présent article se penche sur le bien-fondé de cette disposition. Nous y examinons un vaste corpus d'ouvrages et d'études de cas démontrant que la concurrence est un catalyseur d'innovation et d'efficience d'une puissance remarquable. Or, l'importance de ces bienfaits considérables est souvent négligée par l'actuel cadre d'examen des fusions, puisqu'ils sont difficiles à prévoir ou à quantifier d'avance. L'effet pervers qui en résulte, à notre avis, est une propension de la Loi sur la concurrence à permettre les fusions anticoncurrentielles au nom de l'efficience économique, alors qu'elles sont en réalité plus susceptibles de réduire l'efficience globale.

I. Introduction

Canada adopted its "efficiencies defence" for anticompetitive mergers as part of a large set of reforms introduced in 1986 with the passage of the modern *Competition Act*. That legislative reform effort was largely inspired by a 1969 report from the Economic Council of Canada, which advocated a single objective for Canadian competition policy, namely: "the improvement of economic efficiency and the

avoidance of economic waste, with a view to enhancing the well-being of Canadians."[2] Although the *Competition Act* did not embrace this singular purpose overall,[3] efficiency considerations were given special status in the case of merger enforcement through a stand-alone defence contained in section 96.[4] As explained by the Supreme Court of Canada:

> A stand-alone statutory efficiencies defence was considered "particularly appropriate for Canada because a small domestic market often precludes more than a few firms from operating at efficient levels of production and because Canadian firms need to be able to exploit scale economies to remain competitive internationally". In the context of the relatively small Canadian economy, to which international trade is important, the efficiencies defence is Parliamentary recognition that, in some cases, consolidation is more beneficial than competition.[5]

In essence, section 96 serves as an economic efficiency "gut check" that merging parties can ask the Tribunal (or Commissioner) to undertake before intervening in an otherwise anticompetitive merger. Conceptually, that gut check poses an attractive question: do the costs to society of intervening in the merger exceed the costs of not intervening—or, more specifically, would Canadian welfare be better served by allowing the merger to proceed and tolerating its anticompetitive consequences than by imposing a remedy and losing out on the attendant economic efficiencies?[6]

While such a prospective balancing test is laudable in theory, this article argues that it breaks down in practice. It breaks down because of the empiricism that such a test demands in order to minimize subjective judgement. That empiricism necessarily focuses attention on a subset of effects that are the easiest to pin down *ex ante,* yet, as we explain, those effects turn out to be comparably unimportant for economic efficiency *ex post.*[7]

Specifically, we review a large body of literature that demonstrates that *competition* spurs innovation and efficiency of enormous magnitude. Competition is a unique and powerful force that pressures companies to innovate to improve efficiency and quality by bringing new products to markets and implementing new and more efficient production processes. However, these significant beneficial effects of competition are often overlooked in the section 96 trade-off because the dynamic process through which they occur makes them less susceptible to *ex ante* prediction or quantification. Put simply, on a balance of probabilities, it is relatively easy for merging parties to identify specific and measurable headcount reductions

or other resource savings that an anticompetitive merger is likely to bring about; it is much harder for the Commissioner to identify and measure the specific ways in which a merged firm will become sluggish or complacent with less competitive pressure. The result is that the former effects (which count in favour of approving the merger) are considered in the trade-off while the latter are not, even though the latter effects play a more significant role in driving innovation and economic efficiency in the economy in general. The perverse implication, we argue, is that the efficiencies defence has a bias towards authorizing anticompetitive mergers in the name of economic efficiency even though such mergers are more likely to reduce efficiency overall. We argue that this bias cannot be corrected by changing the way cases are argued as it is inherent in the trade-off framework itself and the limitations of case-specific evidence available in merger review.

The strong claim that competition is critical to efficiency is not based on theoretical musings or models at the periphery of economic debate. In fact, the claim that competitive pressure is a unique and powerful force that spurs innovation and efficiency has been the subject of economic investigation for arguably centuries and has culminated in a remarkable consensus over the past half century. For example, the OECD states that:

> [I]t is clear that industries where there is greater competition experience faster productivity growth. This has been confirmed in a wide variety of empirical studies, on an industry-by-industry, or even firm-by-firm, basis ... This finding is not confined to "Western" economies, but emerges from studies of the Japanese and South Korean experiences, as well as from developing countries.[8]

Importantly, in considering economic efficiency, one should not interpret innovation narrowly as new "flashy" products or technologies. Instead, one should also consider the importance of more "mundane" innovation in business processes, products, and services. While mundane, such innovation has enormous effects on efficiency. This article develops this theme in section II and section III and then provides an overview of some of the evidence that competition increases economic efficiency by spurring innovation in section IV.

With this context, the article then turns to a discussion of how different competition regimes affect innovation and efficiency in section V. While a regime like that reflected by section 96 might be facially appealing in that it aims to save economic efficiency from potentially overzealous enforcement action against anticompetitive mergers, that appeal is misleading. If one believes, as the evidence in section IV suggests, that competitive

pressure spurs innovation and efficiency of enormous magnitude, then it is worth asking whether there is a meaningful conflict between competition and efficiency to justify a defence for anticompetitive mergers in the first place.

Clarification

Before proceeding further, it is worth pausing here to distinguish our thesis from other critiques of section 96 levied by various commentators and senior officials.

First, we do not argue, as some have,[9] that consumer welfare is a normatively more worthy end goal than economic efficiency. In fact, we proceed by accepting that economic efficiency is the primary end goal of Canadian merger policy. Our thesis is that an end goal of economic efficiency might well be better served by repealing the efficiencies defence for anticompetitive mergers. We note that the vast majority of mergers, which are either procompetitive or competitively benign, would be unaffected by such a change.

Second, we do not take issue with the optics of a *Competition Act* that is capable of sanctioning "mergers-to-monopoly" *per se*.[10] We are concerned with mergers-to-monopoly inasmuch as they are likely to have significant anticompetitive consequences when they occur in markets with high entry barriers, and that this elimination of competitive pressure will generally serve to reduce economic efficiency. In other words, our concern with such mergers is strictly utilitarian.

Third, we are not arguing that the efficiencies defence be repealed to better align with international best practice.[11] Harmonization with trading partners is undoubtedly a good thing, where possible, and repealing the efficiencies defence *would* align Canada with other competition regimes.[12] However, our thesis is that such a change would be good for the Canadian economy regardless of the approach taken elsewhere.

Fourth, we do not argue that the efficiencies defence should be repealed because it is not tailored to its original statutory imperative, which was to enhance the ability of Canadian firms to compete in international markets through realization of scale economies.[13] The application of section 96 may very well be broader than Parliament intended, but if this was all that was wrong with the efficiencies defence it could be fixed simply by an amendment that would limit its application to situations where international competition and scale economies are important—we think that

a more fundamental change may be needed if the end goal is to promote economic efficiency and innovation.

Fifth, and more technically, we do not argue that the typical claims of cost savings in Canada are not merger-specific because they can be achieved in other less anticompetitive ways. In Canada, headcount reductions are frequently the most consequential cost savings made. However, such cost savings are, essentially, appeals to the existence of economies of scale, which can, in principle, be achieved without a merger.[14] This paper accepts that the usual efficiencies claims are merger-specific.

Lastly, we are not advocating for a change because the current legislative framework is too complex or costly to administer.[15] Repealing the efficiencies defence would likely go some way towards simplifying merger reviews, clarifying goals, and reducing overall administrative burden on businesses, however, more fundamentally, we think it should be considered because it could lead to better outcomes for the Canadian economy.

II. Improvements to business practices enhance economic efficiency and constitute an important form of innovation

Innovation is valuable not for its own sake, but because it allows us to produce more and higher quality output with less input. In the words of the current Prime Minister, "New technology is always dazzling, but we don't want technology simply because it is dazzling—we want it, create it and support it because it improves people's lives."[16]

This stress on the *effects* of innovation as opposed to the *nature* of innovation suggests that innovation be defined broadly. Not only can it be a dazzling new product or process, it can also be a more mundane business practice that improves productive efficiency or makes businesses more responsive to its customers. The importance of this latter form of innovation ought not be downplayed as it has been critical to economic development. For example, the eminent business historian, Alfred Chandler described how dazzling innovations in transportation and electrification led to a "second industrial revolution." But only more mundane innovation in improved business practices allowed firms to exploit those technological innovations.[17] The importance of innovation in business process has continued to be recognized by business and in the academic business literature. In fact, innovation in business practices has become so important that terminology such as "total quality control" and "lean supply management" is familiar to most. This view is widely recognized:

> Much innovation is mundane and incremental, depending more on a cumulation of small insights and advances than on a single, major technological breakthrough. It often involves ideas that are not even 'new'—ideas that have been around, but never vigorously pursued. It always involves investments in skill and knowledge, as well as in physical assets and brand reputations.[18]

Better business practices are the core of such innovation and can result in astounding gains in efficiency. That insight was highlighted by Harvey Leibenstein more than 50 years ago, who presented some empirical evidence that showed that firms *within the same industry* exhibit markedly different productive efficiency that was not explainable in obvious ways (e.g., economies of scale, application of different technology); Leibenstein attributed such differences to differences in a type of efficiency he denoted as "X-efficiency."[19] In this respect, X-efficiency (or its converse, "X-inefficiency") can be thought of as "the difference between the maximum (or theoretical) productive efficiency achievable by a firm and the actual productive efficiency attained."[20] For example, X-inefficiency is present if a company could produce 5 widgets per hour with a given set of inputs, but had only managed to organize itself to produce 4 with those same inputs. Leibenstein argued that reasonable decreases in *productive* X-efficiency would likely dwarf *allocative* inefficiency due to monopoly.

Leibenstein's original insight has withstood the scrutiny of subsequent inquiry remarkably well. Differences in X-efficiency have been shown to be ubiquitous and large. Chad Syverson's recent survey of the scholarly literature on the topic of productive efficiency summarizes the consensus succinctly.

> Thanks to the massive infusion of detailed production activity data into economic study over the past couple of decades, researchers in many fields have learned a great deal about how firms turn inputs into outputs ... They have documented, virtually without exception, enormous and persistent measured productivity differences across producers, even within narrowly defined industries.[21]

Syverson goes on to remark on the magnitude of the differences among firms. By one analysis of US firms across various industries, the firm that is more productive than 90% of firms in the same industry is *twice* as efficient as the firm that is more productive than only 10% of firms in the same industry. Astonishingly, this statistic means that an efficient maker

of widgets produces twice as many widgets with exactly the same inputs as an inefficient maker of widgets!

The next section sets out how competition plays a role in such large and persistent differences in firm-level productivity.

III. Competition spurs innovation in business practices

That competition spurs firms to adopt innovative business practices is an old observation. As early as the 18th century, Adam Smith wrote that "Monopoly ... is a great enemy to good management, which can never be universally established, but in consequence of that free and universal competition which forces every body to have recourse to it for the sake of self defence."[22] Perhaps most famously, Sir John Hicks wrote in 1935 that monopolists "are likely to exploit their advantage much more by not bothering to get very near the position of maximum profit, than by straining themselves to get very close to it. The best of all monopoly profits is a quiet life."[23] Later, Leibenstein himself recognized the role of competition in determining the degree of X-efficiency writing that "we have instances where competitive pressures from other firms or adversity lead to efforts toward cost reduction, and the absence of such pressure tends to cause costs to rise."[24]

Nevertheless, the proposition that competition is necessary for efficiency has turned out to be harder to explain rigorously than might be expected at first glance. Standard textbook economic theory allows no place for X-inefficiency. Specifically, textbook economics posits that firms maximize profits. And because profit maximization necessarily implies minimizing costs for a given level output, firms that maximize profits necessarily achieve maximum productive efficiency by assumption. There is simply no room for competition—or anything else—to lead to less than perfect productive efficiency.

A key implicit assumption of textbook microeconomic theory is that firms act as an "atomic decision-making unit." A more nuanced view recognizes that firms are composed of individuals who carry out imperfectly-defined and monitored tasks and have incentives that do not necessarily align with those of the firm's owners. From this observation, stylized theoretical models have been developed that allow a place for X-inefficiency. For example, de Bettignies and Ross exploit the limited liability the owners of a firm can place on the managers of a firm to show that when a manager's actions are not directly verifiable, X-inefficiency can increase as competition lessens.[25] Another example is due to Holmes and

Schmitz who argue that managers are less likely to effect change within their organizations when the opportunity costs of doing so are high.[26] Thus, only when those opportunity costs are low—perhaps because competition has reduced profits—will firms have an incentive to innovate to escape from such a state.[27] While these theories have intuitive appeal, they are not very useful for predictive purposes.

While theoretical models do not generally exhibit a strong link between competition and X-efficiency, the story is very different when it comes to empirical analysis. One prominent empirical examination of the relationship between competition and a narrowing of productivity differences across firms is due to Syverson.[28] He studies ready-mix concrete and compares geographies where many producers are active (i.e., large-demand markets) and geographies where few producers are active (i.e., low-demand markets). Consumers have more choices in the former markets than in the latter markets forcing low-performing producers out of business and, thereby, narrowing the heterogeneity in firm-level productivity.[29] Notably, these changes in productivity are not driven by the development or adoption of new technologies (in the case of ready-mix concrete, an important technological advance is the automatic mixing of a particular concrete "recipe" as opposed to manual mixing) or even achieving economies of scale; instead, these differences suggest differences in business practices across otherwise similar firms.

The mechanism at work in the ready-mix concrete example is simple and intuitive as it operates through a kind of Darwinian selection: in competitive environments inefficient firms lose sales and, at the limit, are driven out of business; more efficient and innovative firms gain sales. This mechanism does not increase the productivity of any given firm but operates *across firms* to increase the average level of productivity by shifting share to more efficient firms.

A second distinct mechanism sees competition increasing the productivity of individual firms (e.g., by lowering the opportunity cost of implementing a change that is costly in the short-run but enhances productivity in the longer-run). This mechanism operates *within firms* to increase the average level of productivity.

The next section will provide examples of each type of mechanism while providing a more detailed overview of the empirical evidence of the effects of competition on innovation.

IV. Empirical evidence that competition spurs innovation

Empirical analysis tests effects predicted by theory and can sometimes provide a sense of magnitudes of the predicted effects. Such insight is particularly valuable when it comes to assessing the effects of competition on innovation and economic efficiency. Specifically, the magnitude of the effects of competition on innovation and economic efficiency ought to be critical in assessing different competition policies, which is the topic addressed in section V. The current section provides a non-exhaustive summary of some of the available empirical results to set the stage for that later section.

The empirical analysis reviewed here mainly consists of case studies where the relationship between competition and innovation can be assessed very carefully. The advantage of such an approach is that questions of causality—that is, whether competition causes innovation, or whether another factor causes both competition and innovation—can be addressed very directly and the effects measured very precisely; the disadvantage of such an approach is that it is necessarily narrow. But while these case studies are individually narrowly focused, collectively they paint a compelling portrait of how competition spurs innovation. The following subsections describe the relationship between competition and productive efficiency, quality, and the adoption of technologies in novel ways.[30] And, critically, as Leibenstein first suggested, the magnitude of these effects can be enormous. The section concludes by recognizing more ambiguous results from a different literature that, while more general, is necessarily less precise and whose implications are less clear.

Competition spurs firms to improve efficiency

A large number of careful case studies have demonstrated that competition increases productive efficiency.

Studies of export activity across industries and countries provide some of the strongest and clearest evidence to support this conclusion. For example, in the 1980s, the distinguished business scholar Michael E. Porter conducted a four-year study of various industries in ten countries. From that study, Porter identified competition as key to innovation and competitive advantage:

> The presence of strong local rivals is a final, and powerful, stimulus to the creation and persistence of competitive advantage ... Conventional wisdom argues that domestic competition is wasteful: it leads to

> duplication of effort and prevents companies from achieving economies of scale. The 'right solution' is to embrace one or two national champions, companies with the scale and strength to tackle foreign competitors, and to guarantee them the necessary resources, with the government's blessing. In fact, however, most national champions are uncompetitive, although heavily subsidized and protected by their government ... Static efficiency is much less important than dynamic improvement, which domestic rivalry uniquely spurs. Domestic rivalry, like any rivalry, creates pressure on companies to innovate and improve. Local rivals push each other to lower costs, improve quality and service, and create new products and processes.[31]

Another type of study that has received significant attention concerns the impact of trade liberalization on productivity. For example, Daniel Trefler studied the effects of the Canada-US Free Trade Agreement, which came into effect in 1989 and opened up Canadian businesses to competition from the United States.[32] His analysis examines a number of Canadian industries and finds "enormous" increases in Canadian productivity caused by the Free Trade Agreement in industries that were most impacted by the agreement—with a suggestion that much of the productivity increase is from more efficient firms gaining share and less efficient firms losing share (i.e., the *across firms* mechanism described above).

Other studies exploit changes in competition in a particular industry over time. One of the more compelling and dramatic of such studies focuses on iron ore mining in the Canadian and US Great Lakes region in the 1980s.[33] Prior to the early 1980s, Great Lakes producers faced no competition from producers outside the region. But due to changes in the relative prices of ore in North America and Europe, that lack of competition changed dramatically when Brazilian producers suddenly found it profitable to sell into what had previously been a market served exclusively by production from the Great Lakes. In response, Great Lakes producers increased productivity dramatically: labor productivity *doubled* over a few years and other measures of productivity increased dramatically as well. Notably, those huge increases in productivity were not caused by the shuttering of less efficient mines or the adoption of new technologies; instead, those gains resulted from simple changes in work practices. For example, workers began to immediately carry out minor repairs to machinery themselves instead of calling in highly specialized repair technicians who were costly and necessarily caused productivity delays.

The gains in iron ore productivity represent the *within-firm* mechanism described above. Other case studies show that increased competition can

improve productivity through the mechanism that works across firms (i.e., by allocating more sales to efficient firms and taking away sales from less efficient firms). One interesting example is a study of a legal cartel in the United States for sugar, which lasted from 1934–1974.[34] The cartel had a significant negative impact on productive efficiency: the pounds of manufactured sugar recovered per ton of beets increased significantly before and after the cartel, but decreased significantly during the cartel—from 310 pounds per ton in 1934 to about 240 pounds per ton in 1974.[35] Interestingly, much of that productive inefficiency appears to have resulted from growing beets in the wrong areas of the United States. After the end of the cartel, production expanded in the Midwest and fell in the West: efficient producers made more sales and inefficient producers—no longer protected by the cartel—made fewer sales.

None of the results of these studies are easily explained by the adoption or development of new technologies. For example, in the iron ore example, new technology was specifically ruled out and innovative management practices were specifically identified as the determinative factor. Buttressing that result is the fact that there are significant differences across firms in the types and quality of management practices they employ. For example, a prominent study systematically tracked the quality of various management practices across a large number of firms in France, Germany, the United Kingdom, and the United States.[36] Just as there exists substantial variation in firm-level productivity, that study showed a substantial variation in the quality of firm-level management practices. Importantly, a key insight of that study was that increased competition leads to better management practices.[37]

Perhaps most critically for our purposes, it would be extremely difficult, *ex ante*, to identify how a reduction in competition due to a merger may worsen managerial "slack" in the ways illustrated above. It would be even more difficult to estimate or predict the productivity loss that such managerial slack was likely to bring about.

Competition spurs firms to improve quality

Case studies also suggest that competition spurs firms to offer attractive products and services that they would not have otherwise offered. A recent example is how non-traditional ride-sharing services like Uber have improved the quality and features offered by incumbent taxis. Traditional taxis now not only offer more conveniences such as apps, but some evidence indicates that competition has spurred them to improve

the quality of their service as measured by indicia such as the number of complaints about broken air conditioning or complaints about the driver being rude.[38] A Canadian example involves improvement in Canadian wine-making caused by increased competition due to the Canada-US Free Trade Agreement as well as the General Agreement on Tariffs and Trade.[39] Prior to trade liberalization, Canadian vintners were protected from competitive pressure through tariffs and preferential treatment by monopoly retail outlets; there was little interest from export markets for Canadian wine produced from the common and low quality *vitis labrusca* grape. When faced with competitive pressure, Canadian wine makers innovated and improved quality: they replaced low quality grape varieties with higher quality varieties, they implemented the "Vintners Quality Alliance" or VQA standard that served as a quality control and signal for select wines, and they encouraged the development of Icewine and wine tourism.

Another prominent and careful analysis of the effects of competition on quality concerns how "stockout" rates (i.e., the frequency of inventory shortfalls) in supermarkets respond to competitive pressures.[40] That study examined variation in competitive conditions *across* stores and found that firms that faced local market competition average 5% lower stockout rates than otherwise similar stores. It also examined how changes in competitive conditions affect *individual* stores. In particular, Walmart's entry into local markets caused stockout rates to decrease by 10%, on average.[41]

These examples show how increased business efficiency stemming from competitive pressure can lead to quality improvements for the consumer. And much like the examples above that described how competition decreased costs, quality improvements will often be difficult to quantify or even foresee *ex ante*—for example, an economic analyst would be forgiven for assuming that supermarkets act to minimize stockout rates regardless of the level of competition they face, so long as it is profitable for them to do so.

Competition can spur firms to incorporate new technologies

The insights above show that innovation and efficiency are not always related to new flashy technologies, but are frequently more mundane. That is an important and perhaps underappreciated perspective in light of the prominence of technology in the popular press and political discourse. Nevertheless, competitive pressure can undoubtedly promote the use of new technologies, too.

One example is technology that came to be used in the retail sector in the 1990s. That technology uses universal product codes and point-of-sale scanners "to better manage inventories, maintain and adjust prices more efficiently, and develop individual customer databases used to micromarket products."[42] Adoption of that technology has been the result of large chain stores, which use such technology extensively, growing significantly at the expense of less productive and innovative rivals.[43] This across-firm mechanism is only possible, of course, if incumbents can be displaced by more innovative entrants. In light of the active debate about the implications of increases in broad measures of concentration, it is interesting that in this case *increases* in retail concentration demonstrate a result of the competitive process, rather than the existence of a barrier to competition.[44]

Once again, it will often be difficult to predict or quantify how the adoption of new technology would be affected by a merger that lessens competition. Adoption of new technology is, by its nature, hard to predict—such is the nature of "innovation." The obstacle becomes even harder to overcome when one attempts to predict an *incremental* increase in the likelihood of adoption of a new technology due to an increase in competitive pressure.

Response to contrarian results on the relationship between competition and innovation

The examples cited above describe an unambiguous relationship between competition and economic efficiency spurred by innovation. A different literature, focused on economic growth, asks different questions and uses different techniques to call into question that unambiguous relationship. While the focus of this literature is not on competition policy *per se*, it has developed results that have been influential in the debate on competition policy that must be confronted here.

Perhaps the most prominent example of the influence of the growth literature on competition policy is an article written by Philippe Aghion, Nicholas Bloom, Richard Blundell, Rachel Griffith, and Peter Howitt. That article claims that the relationship between competition and innovation follows an "inverted-U" pattern.[45] The inverted-U relationship holds that innovation is highest at moderate levels of competition: when competition is too weak or too fierce, the pace of innovation declines. That insight was developed in the context of a highly stylized theoretical model

and tested with data on measures of patents and profitability in different UK industries over time.

The debate about how to appropriately interpret the inverted-U relationship between competition and innovation is extensive and unsettled. While it is perhaps tempting to interpret its implications literally, more careful consideration reveals that doing so is unwise. For example, Peter Howitt, one of the authors of the study mentioned above, notes quite plainly that his recommendations for competition policy are not those that follow directly from the growth literature:

> The key insight from this second-generation growth theory is that concerns of earlier researchers about a conflict between encouraging competition and fostering growth might have been misplaced. To the extent competition policy authorities, regulators, or trade liberalizers might have shrunk from promoting competition for fear that innovation-promoting profits might erode, the "new" new growth theory suggests they should take a more aggressive stand in favour of more competitive markets.[46]

In later writing, however, Howitt appears to argue that competition is more likely to stimulate innovation only in certain cases. Specifically, he claims that "tighter enforcement of competition law" is more likely to spur innovation only when firms are "on an even technological footing, producing similar products and facing similar costs of production." In cases "with an established technology leader," he claims that "tighter enforcement of competition law" is likely to lessen innovation.[47] Howitt does not specify what "tighter enforcement of competition law" might entail and its meaning is not obvious. Presumably, it is not a call for collusion in markets with a clear technology leader; similarly, a call for laxer merger or monopolistic practice enforcement in markets with a clear technology leader would also appear to be unorthodox.

Other references describe the debate on how to appropriately interpret the inverted-U relationship between competition and innovation very ably and at length.[48] While such a summary will not be attempted here, it is possible to get a flavour of that debate in considering its theoretical and empirical aspects.

The theoretical debate concerns whether the analysis conducted in the growth literature can be used to inform competition policy. To get some sense of this debate, it is useful to consider certain aspects of the influential theoretical model of Aghion *et al.* That model has only two competing firms and entry is impossible. The state of play can be such that either

each firm has access to the same technology or that one firm has successfully innovated to move "one step" ahead of its rival; no firm can innovate to move "two steps" ahead of its rival. The model asks how innovation varies when the degree of competition between the two firms changes and finds the inverted-U relationship.[49] Nevertheless, if competition is lessened through a *merger* of those two firms, any and all innovative activity is ended—a reduction in competition due to merger unambiguously lessens innovation in that model. Thus, while the model aims to study how differences in "competition" affect innovation, its implications cannot be literally applied to all aspects of competition policy.

Aside from these theoretical concerns, a number of empirical concerns have been raised when it comes to the relationship between competition and innovation as it is measured in the growth literature. In contrast to the studies described above, which mostly focus on a single industry and frequently a single firm or plant, the empirical strategy in the growth literature has been to focus on comparisons across industries. Drawing unambiguous inferences from cross-industry comparisons is generally much more difficult than drawing inferences from very narrow and focused studies of a particular industry. To illustrate this difficulty, consider summarizing "competition" across a large number of industries using a measure like market concentration or average profitability. Now, consider those proxies for competition in light of the following example adapted from Holmes and Schmitz.[50] Suppose some industries do not allow entry by efficient and innovative entrants due to some entry barrier (e.g., government regulation). In these industries, numerous inefficient entrants are active so that concentration is low and their high costs cause average profitability to be low also. In other industries, the entry barrier is absent so that efficient and innovative entrants can and have entered, leading to the exit of incumbents who were less efficient and innovative. While the former case involves less concentration and lower profits, the latter case is one that is unambiguously more competitive—it lacks an entry barrier. Nevertheless, one would incorrectly classify the former set of industries as more competitive than the latter set of industries and an attempt to associate "competition" with innovation would lead to exactly the wrong answer.

Whatever one takes away from that debate, a more agnostic perspective recognizes that antitrust enforcement is typically active only in cases where competition is far from perfect (e.g., entry barriers are important). Thus, even to the extent that one accepts an inverted-U relationship between competition and innovation, the only portion of that relationship

relevant for antitrust enforcement is likely that portion where innovation is increasing in competitive intensity.

A separate but related debate has emerged very recently. Inspired by the European Commission's investigation of the merger between Dow and DuPont, Giulio Federico, Gregor Langus, and Tommaso Valletti developed a simple model that has strong and unambiguous predictions when it comes to competition and innovation.[51] Similar to the logic underlying the development of "upward pricing pressure,"[52] the insight of Federico et al. relies on the observation that while a firm might have an incentive to innovate to steal business from a rival competitor pre-merger, a merger will internalize that business-stealing externality leading to a lessened incentive to innovate. Others have noted that this result may "provide only a partial picture of the impact of mergers on innovation and do not justify the authors' claim that 'a merger between two out of a limited number of innovators is likely to lead to a reduction of innovation in a market characterized by limited knowledge spillovers and in the absence of other possible countervailing efficiencies.'"[53] As a simple illustration of why such an argument provides "only a partial picture," consider the implications of complementary innovation. In that case, innovation involves developing a new product that increases the value of a competitor's products. In that case, a merger internalizes a positive externality and increases incentives to innovate. In any case, the observation that the *theoretical* relationship between innovation and competition is ambiguous is not particularly novel nor controversial. In such cases, best practices turn to empirical evidence, which the preceding sections have argued shows the substantial beneficial effects of competition on innovation and efficiency.

V. What competition regimes best promote innovation and economic efficiency?

The conclusion of the preceding sections is that competition is critical to innovation that enhances economic efficiency. Thus, a competition policy that promotes vigorous and sustained competition can be an important tool to support an ultimate policy goal of promoting innovation and economic efficiency. In that light, this section considers three different competition policies and discusses how they function to affect innovation and economic efficiency.

Consider a first regime that aims to protect and promote "fair competition." This regime does not focus on the outcomes of competition, but on the freedom of firms to compete in a fair marketplace—one where many

firms are able to compete. It puts substantial emphasis on the size and market shares of firms and looks at large firms with suspicion. In that sense, this regime seeks to promote the abilities and rights of firms to compete; it seeks to rein in the power of dominant firms, and, generally, ensure that economic activity is not dominated by a small number of interests. Critically, this regime does not seek to enhance any measure of welfare as much as it seeks to enhance fairness, opportunity, and, even, freedom. Such a regime was arguably in place in the United States through about the 1960s, as illustrated by decisions such as the United States Supreme Court's opinion in *Von's Grocery*.[54] This regime has seen a recent resurgence with calls to change some of the main objectives of current antitrust enforcement.[55]

While the "fair competition" regime may promote notions of fairness and opportunity, it is likely to do so at the expense of innovation and economic efficiency. Not only does it limit the exploitation of economies of scale or scope, it ultimately leads to a misallocation of resources as it supports less able firms that produce less attractive products at the expense of more efficient or innovative rivals. Widely cited and accepted research has shown that the effects of such misallocation are huge. Generally, that research considers a wide set of policies that artificially prop up specific firms or types of firms. Those policies include taxes or subsidies, protections given to state-owned enterprises, or regulations favouring firms of a certain size. The common theme of these policies in that they entrench the positions of certain firms and limit the ability of "outsider" firms to disrupt the *status quo*. For example a subsidy may support and entrench incumbent firms to the detriment of entrants; a law may require special and preferential treatment of state-owned enterprises; and a regulation may impose costs on firms of a certain size that other firms are not required to bear. Ultimately, these distortions lower the adoption of innovative techniques and technologies and economic efficiency significantly. But, perhaps surprisingly, they do so not by directly affecting the technology that is available, but by causing resources and capital to be allocated to the wrong places. For example, a regulation that requires firms with over one-hundred employees to obtain government permission for layoffs will entrench the position of small firms and cause capital and resources to flow away from large firms thereby limiting the beneficial exploitation of economies of scale, scope, or network effects. One prominent study, based on US data, found that such distortionary policies could reduce productivity by an astounding 30–50%.[56] While distortions in developed countries like the United States lead to very large reductions in productivity, those

effects appear even larger in developing countries. For example, another widely cited study calculated the effects of reallocating capital in India and China to mimic how it was allocated in the United States. That study showed that productivity in China would increase by 30–50% and productivity in India would increase by 40–60%.[57] But beyond specific studies that quantify the effects of specific instances of distortions, the "fair competition" regime can be usefully viewed in the context of the more general conclusion that highly regulated economies ultimately generate not only less wealth, but offer less economic opportunities than economies where market mechanisms are freer to function.

A second type of regime focuses on the utilitarian outcomes of competition. A "consumer welfare" regime blesses any industrial structure or conduct (short of *per se* conduct such as collusion) so long as high quality products sold at low prices result. Importantly, this regime only puts weight on benefits to consumers; it puts no weight on profits retained by producers. Similarly, it places no value, *per se*, on productive efficiency inasmuch as that efficiency does not redound to consumers. This regime, broadly speaking, is now in place in the United States.

A third regime is similar in that it focuses on outcomes as opposed to process. But unlike the consumer welfare regime, a "total welfare" regime considers producer surplus (i.e., profits) in addition to consumer surplus. Promotion of total welfare is the default standard Canadian courts have used in interpreting the efficiencies defence for mergers under the *Competition Act*.[58]

Proponents of the total welfare standard argue that its consideration of both consumer and producer surplus allows antitrust to focus on the maximization of total wealth available to society. That is not possible, those proponents claim, under a consumer welfare standard, which places no weight on producer surplus. If competition policy maximizes the total wealth available to society, other policy tools can be used to allocate that wealth in a way that is deemed socially desirable. That logic is compelling and has been embraced by many.[59]

Motivated by this logic, Canada adopted its "efficiencies defence" for merger review in 1986 with the introduction of the modern *Competition Act*. That legislative reform began with a 1969 report from the Economic Council of Canada that "identified economic efficiency as the overriding

policy objective."[60] That emphasis on efficiency has led to some praise for the sophistication of Canada's competition law.[61]

However, to accept that total welfare is the appropriate ultimate policy goal does *not* mean that antitrust enforcement should seek to maximize total welfare. Generally, the process of achieving a particular policy goal may not be direct. For example, lawyers that represent litigants are told to pursue vigorous advocacy, not because vigorous advocacy is the ultimate policy objective, but because vigorous advocacy is believed to lead to the ultimate objective: justice. In that case, the mechanism (vigorous advocacy) used to pursue the policy goal differs substantially from that policy goal (justice). The same is true when it comes to achieving a policy goal of maximizing total welfare: even if the ultimate goal of antitrust is to maximize total surplus, "it does not follow that antitrust agencies or courts should adopt a decision rule of the form: challenge or block behavior if and only if that behavior looks likely to lower total surplus."[62]

Proponents of the efficiencies defence usually emphasize the efficiencies that can be brought about by merger.[63] Fundamentally, these proponents argue that it is appropriate, in some circumstances, to accept a lessening of competition in exchange for an increase in the internal operational efficiency of firms. In contrast, the consumer welfare regime unabashedly rejects this trade-off and focuses solely on competition.

But while proponents of the efficiencies defence highlight innovation and efficiencies brought about by the merger, they do so to the exclusion of innovation and efficiencies brought about by competition. As the preceding sections argued, that is an important omission. Ultimately, this focus leads to the efficiencies trade-off focusing on very specific, but very short-run efficiencies predicted to result from merger-specific cost savings. For example, merging parties asserting the efficiencies defence frequently claim substantial savings from headcount reductions.[64] However, in practice, less weight is given to the less immediate and harder-to-quantify, dynamic effects of competition on innovation and efficiency described in the previous sections. This is through no fault of effort, of course, such effects are simply harder to pin down for all of the reasons explained. Instead, anticompetitive effects are usually restricted to reductions in allocative efficiency as measured by some estimation of deadweight loss.

Given that innovation and efficiencies brought about by competition have been less prominent in the trade-off analysis, one might ask, "why doesn't the Commissioner simply lead evidence on X-inefficiency effects

in future merger cases to make the trade-off analysis more complete?" While this is a reasonable suggestion, the problem is that increases in X-inefficiency stemming from a loss of competition are often not susceptible to *ex ante* prediction and so there often will not be case-specific evidence to lead in merger cases. For the reasons that follow, the lack of case-specific evidence presents the Commissioner with a formidable hurdle to overcome.

First, there is little basis to believe that the existence or degree of X-inefficiency can reliably be predicted in any particular case. That is not to say that the existence or degree of X-inefficiency has not been analyzed empirically. In fact, the case studies presented in the previous section demonstrate the substantial empirical literature that describes instances of X-inefficiency. Other substantial literatures have developed in response to the fact of differing degrees of X-inefficiency of firms. For example, the literature on stochastic frontier analysis has developed econometric techniques to account for the fact that while some firms appear to operate efficiently many others do not.[65] Thus, while economists have extensively and successfully *described* X-inefficiency in specific cases, no advances have been made to develop approaches that *predict* when X-inefficiency will arise in a given environment subjected to a particular stimulus such as, say, a merger.

The lack of ability to causally predict the existence and degree of X-inefficiency effects arising from a specific anticompetitive merger—despite knowing that such effects are likely to be important—suggests that they could be treated as an assumed anticompetitive effect of significant yet undetermined magnitude. However, Canadian jurisprudence has explicitly rejected that notion: even in a merger to monopoly "there has to be evidence of those effects."[66] Thus, while the collection of case studies described in section IV paints a compelling portrait of the effects of competition on innovation and efficiency, they remain case studies that are specific to the cases they study and may not be seen as evidence sufficiently tailored to the merger at hand. It would, of course, be open for the Commissioner to file briefs with the Tribunal summarising, in a general way, the literature and case studies described above; however, the Tribunal would likely see this as a call to read-in a "default" or "presumptive" harm to efficiency arising from anticompetitive mergers, applicable in all cases. It is unclear whether the Tribunal has the flexibility to do this.[67] In particular, a presumption that an anticompetitive merger will lead to X-inefficiency would require merging parties to prove cognizable

efficiencies exceeding a threshold level in all cases, an approach that the Supreme Court has explicitly rejected.[68]

Finally, the new primacy of quantified anticompetitive effects as articulated by the Supreme Court presents a significant obstacle.[69] On the one hand, merging parties can and routinely do provide quantitative evidence of the efficiency savings that result from static cost savings (e.g., headcount reductions). On the other hand, it seems unlikely that the Commissioner would be able to advance case-specific evidence—whether qualitative or quantitative—that speak to the magnitude and scope of X-inefficiency. At least in theory, X-inefficiency could be predicted by examining, for example, historical changes in competitive conditions and comparing them to contemporaneous productive efficiency for the industry in question. A finding that productive efficiency increased when competition increased and decreased when competition decreased would be evidence to support that a future reduction in competition is likely to lead to an increase in X-inefficiency. While the existence of such data—with the required variation—could be available in theory, it will rarely be available in practice.[70] Without such quantitative evidence, the Commissioner's alternative is case-specific *qualitative* evidence. But even that evidence—setting aside its "lesser importance"—will often be lacking. There are myriad ways that inefficient business practices can creep in from a reduction in competitive pressure, and they are unlikely to be found in any strategic plan or business document. What self-respecting manager is likely to believe, much less admit, that they will be more sluggish and less cost-conscientious after merging with their competitor?[71] The Commissioner will be ultimately faced with the prospect of confronting quantitative, case-specific evidence on cost savings with little in the way of case-specific rebuttal evidence on X-inefficiency—whether qualitative or quantitative. This is true even though we know from the discussion and examples above that a loss of competitive pressure has a strong tendency to produce large losses in efficiency and innovation.

If, as the discussion in the previous section suggests, competitive pressure spurs innovation and efficiency of enormous magnitude, these reasons imply that the efficiencies defence likely leads to a significant loss of economic efficiency. However, the efficiencies defence operates in the context of a merger review regime that challenges a merger only if it is likely to lessen competition *substantially*. That requirement reflects the case studies presented in the previous section in that they involved substantial changes in competitive pressure (e.g., local entry of a large chain store, the sudden viability of imported goods, the operation of a (legal) cartel); that

evidence should not be construed to speak to marginal changes in competitive pressure. Thus, when competition is marginally lessened, not only are traditional anticompetitive effects likely to be of marginal magnitude, but there is also a marginal risk of anticompetitive effects from X-inefficiency. These remarks are important because they suggest that any regime that only seeks to enjoin mergers that substantially lessen competition is unlikely to lose the benefits of substantial merger synergies that could lead to increases in total surplus despite small decreases in consumer surplus.

We hope that this discussion makes clear that the problem with the efficiencies defence is *inherent in the trade-off test itself.* The empiricism that such a balancing test demands in order to minimize subjective judgement necessarily focuses attention on effects that are the easiest to pin down *ex ante,* yet, those effects turn out to be comparably unimportant for economic efficiency *ex post.* In light of the empirical evidence that competitive pressure spurs innovation and efficiency of enormous magnitude, it is worth asking whether there is a meaningful conflict between competition and efficiency to justify a defence for anticompetitive mergers in the first place. Indeed, it may make more sense to pursue a policy goal of enhanced innovation and efficiency, not by a merger policy that tries to achieve such an objective *at the expense of* competition, but by a merger policy that unabashedly and without exception promotes that objective *through* competition.

VI. Conclusion

A focus on deadweight loss to the exclusion of the beneficial dynamic effects of competition on efficiency and innovation leads to a substantial downward bias in the estimation of anticompetitive effects. As noted above, Harvey Leibenstein first made this point over 50 years ago in his seminal article on X-efficiency. That article included two tables. The first reported welfare losses from studies associated with allocative efficiency. These losses were all well under one percent; and in the two studies that estimated welfare loss due to monopoly, the losses were estimated to be less than *one-tenth* of one percent. He went on to claim that reductions in productive efficiency due to monopoly were likely to dwarf losses in allocative efficiency:

> Is it possible that the lack of competitive pressure of operating in monopolized industries would lead to cost 3/10 of a per cent higher than would be the case under competition? This magnitude seems to be very small, and hence it certainly seems to be a possibility. The question essentially, is whether we can visualize managers bestirring themselves sufficiently, if

> the environment forced them to do so, in order to reduce costs by more than 3/10 of 1 per cent. Some of the empirical evidence available suggests that not only is this a possibility, but that the magnitudes involved are very much larger.

The evidence described in the preceding sections shows how subsequent research has strengthened Leibenstein's original observations. Fundamentally, that research supports the conclusion that if Canadian firms do not compete in competitive domestic markets, their future is not bright even if they are able to achieve some static cost savings from eliminating competition through merger. Michael E Porter, the distinguished business scholar, sums up the grim consequences when a country turns its back on competition:

> When local rivalry is muted, a nation pays a double price. Not only will companies face less pressure to be productive, but the business environment for all local companies in the industry, their suppliers, and firms in related industries will become less productive. This demonstrates in particular the danger in arguments about the creation of 'national champions' in an industry in the home country in order to gain the scale to compete internationally. Unless a firm is forced to compete at home, it will usually quickly lose its competitiveness abroad. Local competition matters for productivity and productivity growth, even in industries whose geographic scope is global.[72]

Previous calls to limit the application of the efficiencies defence have gone unheeded.[73] However, in light of the growing body of evidence described above, perhaps it is time to consider whether our efficiencies defence is doing more harm than good.

ENDNOTES

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[2] Economic Council of Canada, *Interim Report on Competition Policy*, (Ottawa: Queen's Printer, 1969) at 19. See also at 9, "Canadian competition policy should aim primarily at bringing about more efficient performance by the economy as a whole. *Competition should not itself be the objective* but rather the most important single *means* by which efficiency is achieved." (emphasis in original)

[3] *Competition Act*, RSC 1985, c C-34, s 1.1.

[4] *Report of the Advisory Panel on Efficiencies*, submitted to Sheridan Scott, Commissioner of Competition Ottawa: August 2005), online: <http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/01954.html> [*Report of the Advisory Panel on Efficiencies*].

[5] *Tervita Corp. v Canada (Commissioner of Competition)*, 2015 SCC 3 at para 87, [2015] 1 SCR 161 [citations omitted] [*Tervita*].

[6] *Commissioner of Competition v CCS Corporation et al.* (29 May 2012), CT-2012-002 at paras 391-392, Crampton J, concurring, online: <https://www.ct-tc.gc.ca/CMFiles/CT-2011-002_Reasons%20for%20Order%20and%20Order_189_38_5-29-2012_5291.pdf> [*CCS Corporation et al.*]. See also: *Canada (Commissioner of Competition) v Superior Propane Inc. (CA)*, 2001 FCA 104 at para 172, [2001] 3 F.C. 185 (CA), Létourneau J, dissenting in part. Excerpt: "The Act maintains and promotes competition. It assumes that economic efficiency will generally and primarily develop through competition. It also accepts in section 96 that, in some cases, a reduction in competition can and will produce more efficiency than competition as it existed before merger."

[7] This can be thought of as a manifestation of the "streetlight effect", a bias that occurs when analysts focus on data that are most available rather than the most important to the problem at hand.

[8] OECD, *Factsheet on how competition policy affects macroeconomic outcomes*, (Paris: OECD, October 2014).

[9] See, for example: Stephen F Ross, "Did the Canadian Parliament Really Permit Mergers that Exploit Canadian Consumers So the World Can be More Efficient?" (Winter 1997) 65:2 Antitrust LJ 641. See also: Derek Ireland and Michael Jenkin, "Embedding consumer protection in competition policy, *Policy Options* (18 July 2018), online: <http://policyoptions.irpp.org/magazines/june-2018/embedding-consumer-protection-in-competition-policy/>.

[10] See remarks by Commissioner Konrad von Finckenstein (delivered at the Standing Committee on Industry, Science and Technology, Ottawa, 31 March 2003). Excerpt: "The interpretation given to section 96 means that the *Competition Act* condones the creation of monopolies. In our view, it is a perverse result that the application of the *Competition Act* results in sanctioning the creation of a monopoly." See also remarks by Commissioner Sheridan Scott (delivered at the Standing Senate Committee on Banking, Trade and Commerce, Ottawa, 12 May 2004). Excerpt: "A merger which results in a monopoly, something that has occurred under the current approach..., I would submit, is contrary to the purpose and objectives of the *Competition Act*."

[11] Commissioner John Pecman, "Strengthening competition: Innovation, collaboration, and transparency" (delivered at the CBA's Competition Law Fall Conference, 6 October 2016), online: <http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04148.html>. Excerpt: "... Canada's approach to efficiencies is increasingly misaligned with other jurisdictions. My view is that this is bad for businesses and bad for consumers.". See also remarks by Commissioner Konrad von Fickenstein, *supra* note 10, excerpt: "In closing, I would reiterate

that section 96 of the *Competition Act* needs to be fixed … to provide Canadians with merger review provisions comparable to the provisions observed at an international level." See also remarks by Commissioner Sheridan Scott, *supra* note 10, excerpt: "Historically, Canada has looked at efficiencies from a different viewpoint than virtually all other jurisdictions in the world" and "we are not witnessing a move internationally to the existing Canadian model."

[12] In most jurisdictions, efficiency claims are considered as part of the overall assessment of *whether* a merger is anticompetitive, not as a stand-alone defence for mergers that *are* anticompetitive. See, for example: "Recommended Practices for Merger Analysis" (2008) International Competition Network at 30, online: <https://www.internationalcompetitionnetwork.org/portfolio/recommended-practices-for-merger-analysis/>. Excerpt: "The evaluation of efficiencies commonly is part of an agency's competitive assessment, focusing on whether the claimed efficiencies counteract the harm in the market in which the lessening of competition occurs."

[13] *Tervita, supra* note 5 at para 167. Excerpt: "While the efficiencies defence applies in this case under the terms of s. 96 as written, this case does not appear to me to reflect the policy considerations that Parliament likely had in mind in creating an exception to the general ban on anti-competitive mergers." See also address by Commissioner John Pecman (delivered at Bennett Jones, 17 February 2015), online: <http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/03873.html>. Note that each of the two instances where the efficiencies defence was successfully invoked involved purely domestic markets with no pretext of import or export competition.

[14] Joseph Farrell and Carl Shapiro, "Scale economies and synergies in horizontal merger analysis" (2001) 68:3 *Antitrust LJ* at 685.

[15] For a discussion on administrability issues associated with total welfare tests akin to section 96, see: Herbert J Hovenkamp, "Is Antitrust's Consumer Welfare Principle Imperiled?" (2018) *Faculty Scholarship at Penn Law*, 1985, online: <https://scholarship.law.upenn.edu/faculty_scholarship/1985/>.

[16] Right Honourable Justin Trudeau, Prime Minister of Canada, "The Canadian Opportunity" (delivered at the World Economic Forum Signature Session, Davos-Klosters, Switzerland, 20 January 2016), online: <https://pm.gc.ca/eng/news/2016/01/20/canadian-opportunity-address-right-honourable-justin-trudeau-prime-minister-canada>.

[17] Alfred D Chandler Jr, *The Visible Hand: The Managerial Revolution in American Business* (Cambridge: Harvard University Press, 1993).

[18] Michael E Porter, "The Competitive Advantage of Nations" (1990) 1:1 *Competitive Intelligence Rev* 73.

[19] Harvey Leibenstein, "Allocative efficiency vs. 'X-efficiency'" (1966) 56:3 *The American Economic Review* 392 [Liebenstein].

[20] Competition Bureau, *Merger Enforcement Guidelines* (Gatineau : 2011) [MEGs]. In general, three interrelated categories of efficiency are considered in merger review: allocative, productive and dynamic. For a more detailed discussion of these three categories of efficiency and their relationship with

X-efficiency, see MEGs at Part 12, as well as the Report of the Advisory Panel on Efficiencies, *supra* note 4.

[21] Chad Syverson, "What determines productivity?" (2011) 49:2 *Journal of Economic Literature* 326 [Syverson].

[22] Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, (London: Thomas Nelson & Sons, 1843) ch XI, part I. Smith goes on to cite empirical evidence of competition's beneficial effects. He states, "It is not more than fifty years ago, that some of the counties in the neighbourhood of London petitioned the parliament against the extension of the turnpike roads into the remoter counties. Those remoter counties, they pretended, from the cheapness of labour, would be able to sell their grass and corn cheaper in the London market than themselves, and would thereby reduce their rents, and ruin their cultivation. Their rents, however, have risen, and their cultivation has been improved since that time." The authors thank Tom Ross for pointing out this example to us.

[23] John R Hicks, "Annual survey of economic theory: the theory of monopoly" (1935) 3:1 *Econometrica* 1 at 8.

[24] Liebenstein, *supra* note 19 at 408–9

[25] Jean-Etienne de Bettignies and Thomas W Ross, "Mergers, Agency Costs, and Social Welfare" (2013) 30:*2 JL Econ & Org* 401.

[26] Thomas J Holmes and James A Schmitz Jr, "Competition and productivity: a review of evidence" (2010) 2:1 *Ann Rev Econ* 619 [Holmes & Schmitz].

[27] This is similar to Arrow's famous insight that vigorous competition and the associated low profits spur firms to innovate to "escape" a low profit environment. See: Kenneth Arrow, "Economic Welfare and the Allocation of Resources to Invention" in Universities-National Bureau Committee for Economic Research and the Committee on Economic Growth of the Social Science Research Councils, eds, *The Rate and Direction of Inventive Activity: Economic and Social Factors* (Princeton: Princeton University Press) 467.

[28] Chad Syverson, "Market structure and productivity: A concrete example" (2004) 112:6 *J of Political Econ* 1181.

[29] Syverson has conducted further research and found that the relationship between substitution and less firm-level differences in productivity holds beyond ready-mix concrete. See: Chad Syverson, "Product substitutability and productivity dispersion" (2004) 86:2 *Review of Economics and Statistics* 534.

[30] For surveys, see: Syverson, *supra* note 21; Holmes & Schmitz, *supra* note 26; Carl Shapiro, "Competition and Innovation: Did Arrow hit the Bull's Eye?" in *The rate and direction of inventive activity revisited*, (Chicago: University of Chicago Press, 2011) 361; and Centre for the Study of Living Standards, *Competitive Intensity as driver of innovation and productivity growth: a synthesis of the literature*, CSLS Research Report No. 2008-3 (Ottawa: June 2008), online: <http://www.csls.ca/reports/csls2008-3.pdf>.

[31] Porter, *supra* note 18.

[32] Daniel Trefler, "The long and short of the Canada-US free trade agreement" (2004) 94:4 *Am Econ Rev* at 870–895.

[33] James A Schmitz, Jr, "What Determines Productivity? Lessons from the Dramatic Recovery of the U.S. and Canadian Iron Ore Industries Following Their Early 1980s Crisis" (2005) 113:31 *J of Political Econ* 582 [Schmitz].

[34] US, Federal Reserve Bank of Minneapolis Research Department, Benjamin Bridgman, Shi Qi & James A. Schmitz, Jr, *The Economic Performance of Cartels: Evidence from the New Deal U.S. Sugar Manufacturing Cartel, 1934–74*, Staff Report 437 (2009).

[35] Schmitz, *supra* note 33 at Figure 4.

[36] Nicholas Bloom and John Van Reenen, "Measuring and explaining management practices across firms and countries" (2007) 122:4 *The Quarterly J of Econ* 1351.

[37] Beyond competition, the study found that whether management of the firm had been passed to the eldest son was another factor that affected the quality of management practices. Firms where the CEO was chosen by primogeniture tend to be very badly managed.

[38] Scott Wallsten, "The Competitive Effects of the sharing economy: How is Uber Changing Taxis?" (2015) 22 Technology Policy Institute.

[39] See Appendix 2 of CSLS Research Report No. 2008-3, *supra* note 30.

[40] David A Matsa, "Competition and Product Quality in the Supermarket Industry" (2011) 126:3 *The Quarterly J of E* 1539.

[41] There was significant variation around that average effect: Walmart's entry spurred large chain stores to decrease their stockout rates by 33% while independent stores responded by cutting price and were less likely to survive. Interestingly, Walmart's entry, which caused increases in quality and decreases in price, disproportionately benefited low-income consumers.

[42] Mark Sieling, Brian Friedman & Mark Dumas, "Labor productivity in the retail trade industry, 1987–99" (2001) 124 *Monthly Lab. Rev* 3.

[43] Lucia Foster, John Haltiwanger & Cornell J Krizan, "Market selection, reallocation, and restructuring in the US retail trade sector in the 1990s" (2006) 88:4 *The Review of Economics and Statistics* 748.

[44] Carl Shapiro, "Antitrust in a Time of Populism" (2018) 61(C) *Intl J of Industrial Org.*

[45] Philippe Aghion et al., "Competition and innovation: An inverted-U relationship" (2005) 120:2 *The Quarterly Journal of Economics* 701.

[46] Peter Howitt, "Innovation, Competition and Growth: A Schumpeterian Perspective on Canada's Economy" (April 2007) C.D. Howe Institute Commentary No. 246, online: <https://www.cdhowe.org/sites/default/files/attachments/research_papers/mixed//commentary_246.pdf>.

[47] Peter Howitt, "Mushrooms and Yeast: The Implications of Technological Progress for Canada's Economic Growth" (September 2015) C.D. Howe Institute Commentary No. 433, online: <https://www.cdhowe.org/sites/default/files/attachments/research_papers/mixed/Commentary_433.pdf>.

[48] See: Carl Shapiro, "Competition and Innovation: Did Arrow Hit the Bull's Eye?" in *The Rate and Direction of Inventive Activity Revisited* (Chicago: University of Chicago Press, 2011) 361 at ss 7.2 and 7.4.1. See also: Michael D

Whinston, "Comment on 'Competition and Innovation: Did Arrow Hit the Bull's Eye?'" in *The Rate and Direction of Inventive Activity Revisited* (Chicago: University of Chicago Press, 2011) 404 [Whinston]. See also Jonathan Baker, "Beyond Schumpeter vs. Arrow: How Antitrust Fosters Innovation" (2007) 74 *Antitrust LJ* at s II.C.

[49] Whinston, *supra* note 48, gives a very clear and succinct description of the intuition behind this result.

[50] Holmes & Schmidtz, *supra* note 26.

[51] Giulio Federico, Gregor Langus & Tommaso Valletti, "A Simple Model of Mergers and Innovation" (2017) 157 *Economics Letters* 136.

[52] Joseph Farrell and Carl Shapiro, "Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition" (2010) 10:1 *The BE Journal of Theoretical Economics*.

[53] Bruno Jullien and Yassine Lefouili, "Horizontal Mergers and Innovation" (2018) Toulouse School of Economics Working Paper No 18-892.

[54] *United States v. Von's Grocery Co.*, 384 US 270, 275 (1966). Excerpt: "Like the Sherman Act in 1890 and the Clayton Act in 1914, the basic purpose of the 1950 Celler-Kefauver Act was to prevent economic concentration in the American economy by keeping a large number of small competitors in business."

[55] See, generally: Barry Lynn, "Testimony before the Senate Committee on the Judiciary: Subcommittee on Antitrust, Competition, and Consumer Rights" (delivered at the Senate Committee on the Judiciary: Subcommittee on Antitrust, Competition, and Consumer Rights, Dirksen Senate Office Building 226, Washington, DC, 13 December 2017), online: <https://www.judiciary.senate.gov/imo/media/doc/12-13-17%20Lynn%20Testimony.pdf>. See also: Lina M Khan, "Amazon's antitrust paradox" (2016) 126:3 *Yale LJ* 710.

[56] Diego Restuccia and Richard Rogerson, "Policy distortions and aggregate productivity with heterogeneous establishments" (2008) 11:4 *Review of Economic Dynamics* 707.

[57] Chang-Tai Hsieh and Peter J Klenow, "Misallocation and manufacturing TFP in China and India" (2009) 124:4 *The Quarterly Journal of Economics* 1403.

[58] Section 96 has also been interpreted to allow for different weights to be placed on the surplus of consumers and producers, and for consideration of "socially adverse" wealth transfers. Having said that, the "Tribunal expects that in most cases, it will be readily apparent that the wealth transfer should be treated as neutral." See: *CCS Corporation et al., supra* note 6 at para 283. In any event, for simplicity, we abstract from these considerations here.

[59] Joseph Farrell and Michael L Katz, "The Economics of Welfare Standards in Antitrust" (2006) 2:2 *Competition Policy International* 3 [Farrell & Katz] at 4. Excerpt: "We believe that total surplus is an appropriate ultimate objective because, as others have argued, there is a natural division of labor between efficiency-oriented policies and policies aimed at improving the distribution of income, and antitrust policy fits much better into the first category. Thus, we conclude that a sensible final goal of antitrust policy is to maximize total surplus without regard to distributional considerations."

[60] *Tervita, supra* note 5 at paras 85–86.

[61] Michael J Trebilcock and Ralph A Winter, "The State of Efficiencies in Canadian Merger Policy" (Winter 1999–2000) 19 *Canadian Competition Record* 106. Excerpt: "Commentators have often claimed that Canada's competition legislation is among the most economically sophisticated in the world. In large part, this claim is based on the explicit recognition given to efficiency as an overall criterion in the *Competition Act* ... and as a specific criterion in the treatment of mergers."

[62] Farrell & Katz, *supra* note 59 at 4. See also: Mark Armstrong and John Vickers, "A Model of Delegated Project Choice" (January 2010) 78:1 *Econometrica* 212, discussing situations where "a regulator wishing to maximize total welfare is better off if he imposes a consumer welfare standard." See also: Russell Pittman, "Consumer Surplus as the Appropriate Standard for Antitrust Enforcement" (2007) 3:2 *Competition Policy International* 205. It cites various authors as support for the proposition that "given various factors in the process of merger investigation and enforcement, a total-welfare-maximizing outcome might be more likely to result from an agency's use of consumer surplus rather than total welfare as its own standard."

[63] Brian Facey and Joshua Krane, "Promoting Innovation and Efficiency by Streamlining Competition Reviews" (2 March 2017) C.D. Howe Institute E-Brief, online: <https://www.cdhowe.org/public-policy-research/promoting-innovation-and-efficiency-streamlining-competition-reviews>.

[64] Of course, headcount reductions benefit the Canadian economy only if terminated employees can find jobs that allow them to contribute as much to the Canadian economy. When efficiencies create job losses, there is a cost to the Canadian economy. See: OECD Competition Committee, *The Role of Efficiency Claims in Antitrust Proceedings*, Policy Roundtables, F M Scherer, "Merger Efficiencies in Competition Policy", DAF/COMP(2012)23 (2012) online: <http://www.oecd.org/competition/EfficiencyClaims2012.pdf>.

[65] Kumbhakar and Lovell describe how the development of stochastic frontier analysis relates to X-inefficiency while noting that while the developers of the former were aware of the latter, "it did not exert the impact that hindsight suggests that it should have." See: Subal C Kumbhakar and CA Knox Lovell, *Stochastic frontier analysis.* (Cambridge: Cambridge University Press, 2003) at 6.

[66] See: *Canada (Commissioner of Competition) v Superior Propane Inc* (4 April 2002), CT-1998-002 at para 232, online: Competition Tribunal <https://www.ct-tc.gc.ca/CMFiles/CT-1998-002_0238a_45QDJ-5222007-3468.pdf>. Excerpt: "The Commissioner [quotes authors] who make the point that the redistributive effects [of a merger] can have additional negative implications for efficiency. Citing articles by R. Posner and by R. Lande, these authors argue that the redistributed income will eventually be transformed into efficiency losses because the merged firm may become complacent and allow costs to rise. To the Tribunal, this interesting observation suggests that the estimated deadweight loss from the instant merger is too low. However, these inferences are unsupported by anything on the record and the Tribunal will not consider

them further." See also: *Canada (Commissioner of Competition) v Superior Propane Inc.* (CA), 2003 FCA 53 at para 51, [2003] 3 FC 529. Excerpt: "The question is one of evidence. If the condition of monopoly resulted in additional effects that had not already been taken into account by the Tribunal, there had to be evidence of those effects. In the absence of the Commissioner providing evidence of additional effects resulting from monopoly that had not already been introduced, I cannot say that the Tribunal erred in finding that a monopoly condition did not give rise to additional anti-competitive effects."

[67] Arguably, the Tribunal adopted this approach in the *CCS* case in the way that it interpreted the "offset" requirement under section 96. In particular, the Tribunal stated that the "loss of dynamic competition [from a merger] will *always* merit some non-trivial qualitative weighting in the trade-off assessment. Indeed, dynamic efficiencies and dynamic effects can have a *major* impact on the trade-off assessment." (emphasis added). See: *CCS Corporation et al., supra* note 6 at paras 247-248. While the Supreme Court did not specifically address this notion of default qualitative anticompetitive effects arising due to a loss of dynamic competition between merging parties—the word "dynamic" appears in the Supreme Court's decision exactly once—it nevertheless overturned the Tribunal's decision and generally lessened the importance of qualitative effects in section 96. Moreover, the Supreme Court's emphasis on quantification casts further doubt on the idea that dynamic effects can ever have a "major" impact on the trade-off analysis in merger cases. As the Tribunal has more recently opined, "dynamic competition is generally more difficult to measure and to quantify". See: *The Commissioner of Competition v The Toronto Real Estate Board* (27 April 2016), CT-2011-003 at para 471, online: Competition Tribunal <https://www.ct-tc.gc.ca/CMFiles/CT-2011-003_Reasons%20for%20Order%20and%20Order_385_66_4-27-2016_7296.pdf>.

[68] *Tervita, supra* note 5 at para 151. Excerpt: "Despite the flexibility the Tribunal has in applying this balancing approach, I cannot accept that more than marginal efficiency gains are required for the defence to apply. Had Parliament intended for there to be a threshold level of efficiencies, qualifying language could have been used to express this intention. The Commissioner's argument essentially asks this Court to read into the statute a threshold significance requirement where the statute does not provide a basis for doing so. In addition, it is not clear to me when efficiency gains become more than marginal. Determining when proven efficiency gains meet a more than marginal threshold would require overly subjective analysis."

[69] *Ibid* at para 146. Excerpt: "As the Federal Court of Appeal held, the overall analysis 'must be as *objective* as is reasonably possible, and where an objective determination cannot be made, it must be *reasonable*' … As such, in most cases the qualitative effects will be of lesser importance." Justice Karakatsanis' dissent, at para 185, strongly objected to this strong preference for quantified over qualitative evidence. She wrote, "However, I do not agree that the need for 'reasonable objectivity' justifies Justice Rothstein's hierarchical approach to quantitative and qualitative aspects under the efficiencies defence. Nor do

I accept his assessment that 'qualitative effects will be of lesser importance' ... I see no value in prioritizing quantitative over qualitative efficiencies. Both are relevant to the statutory test, and their significance depends on the circumstances of the case. The statutory language makes no such distinction. Moreover, many of the purposes set out in s. 1.1 of the Act may not be quantifiable ..."

[70] See also Ralph Winter, "Tervita and the Efficiency Defence in Canadian Merger Law" (Fall 2015) 28:2 *Canadian Competition Law Review*. Excerpt: "*Tervita* creates a hierarchy of quantitative evidence over qualitative evidence ... I believe that in its categorical prioritization of quantitative evidence, the Court in *Tervita* fails to recognize the potential limitations of this class of evidence. Meaningful estimation of parameters that are quantifiable in principle may be impossible, *even where data are plentiful*." (emphasis added)

[71] If anything, one would expect to find the opposite types of documents as the literature suggests that managers tend to be overconfident about the synergies likely to be realized from post-merger integration. See, for example: Bruce A Blonigen and Justin R Pierce, "Evidence for the Effects of Mergers on Market Power and Efficiency" (2016) Federal Reserve Board Divisions of Research & Statistics and Monetary Affairs Finance and Economics Discussion Series Working Paper No 2016-082 at 24, online: <https://doi.org/10.17016/FEDS.2016.082>. Excerpt: "We find that evidence for increased average markups from M&A activity is significant and robust ... In contrast, we find little evidence for plant- or firm-level productivity effects from M&A activity on average, nor for other efficiency gains often cited as possible from M&A activity, including reallocation of activity across plants or scale efficiencies in non-productive units of the firm."; Scott A Christofferson, Robert S McNish & Diane L Sias, "Where Mergers Go Wrong" (May 2004) *McKinsey Quarterly*, online: <http://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/where-mergers-go-wrong>. Excerpt: "The average acquirer materially overestimates the synergies a merger will yield." Laura Miles, Adam Borchert & Alexandra Egan Ramanathan, "Why Some Merging Companies Become Synergy Overachievers" (13 August 2014) Bain & Company E-Brief (Aug. 13, 2014), online: <http://www.bain.com/publications/articles/why-some-merging-companies-become-synergy-overachievers.aspx>. Excerpt: "In a Bain & Company survey of 352 global executives, overestimating synergies was the second most common reason for disappointing deal outcomes." Johannes Gerds, Freddy Strottmann & Pakshalika Jayaprakash, "Post merger integration: Hard data, hard truths" (1 January 2010) 6 Deloitte Review, online: <https://www2.deloitte.com/insights/us/en/deloitte-review/issue-6/post-merger-integration-hard-data-hard-truths.html>. Excerpt: "Empirical studies indicate that one of every two PMI [Post Merger Integration] efforts fares poorly."

[72] Michael E Porter, "Competition and Antitrust: Toward a productivity-based approach to evaluating mergers and joint ventures" (2001) 46:4 *The Antitrust Bulletin* 919.

[73] Report of the Advisory Panel on Efficiencies, *supra* note 4 at 55. Excerpt:

"The Superior Propane case had the paradoxical result of authorizing a merger that led to a near-monopoly. The irony of having the *Competition Act* justify a monopoly was not lost on most observers. An efficiency defence should not apply in cases in which a merger leads to the creation of a monopoly. The Panel believes that monopolies inevitably lead to a loss of productive efficiency. This is in addition to the loss of allocative efficiency (deadweight loss) resulting from the higher post-merger price of the monopoly's products or services (although this can be prevented with the proper regulations). Given that evidence suggests that competitive pressure contributes both to efficiency in general and to dynamic efficiency in particular, it would be inappropriate to allow efficiency gains to justify a merger when competitive pressure was all but removed. Among other things, the Panel notes that serious concerns respecting x-inefficiency may arise when a merger leads to a monopoly."