

## IMPLICATIONS OF GLOBALIZATION FOR INDUSTRIAL STRUCTURE POLICY: LESSONS FROM THE FOOD INDUSTRIES

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Two years ago at this conference I argued that the concentration of market power in the United States was a malignant social problem that was largely ignored by both the policy makers and the policy educators of the day (Henderson). Indeed, since then there have appeared many signs of a growing tolerance for market power. To quote a recent article by Michael Porter, the highly respected professor of international business at Harvard University, “Slowly and almost imperceptibly . . . America has been retreating from one of the most fundamental principles that has distinguished our nation from others; our faith in competition . . . The words of the day are collaboration (and) relaxing anti-trust regulations . . .” (1990A, p.13).

Recently, I have turned my attention to the structure and performance of international markets. One theme that appears with some frequency in the international market literature is, domestic concentration of market power is not necessarily a bad thing; moreover, there is considerable support for the argument that it is a good thing and should be nurtured as a matter of public policy.

My purposes herein are, first, to review the current state of knowledge regarding the impacts of concentration of market power and related dimensions of industrial structure on market performance and social welfare, and second, to explore how these impacts may change when examined in a global market context. I’ll draw, in part, on our ongoing analysis of international market performance in the food manufacturing industries. To preempt my analysis, I intend to demonstrate that globalization does *not* allow us to dismiss concentration of market power from our list of legitimate policy concerns. In the end, I hope to provoke the policy education community to deal head-on with the “gold rule” — that is, the principle that those who have the gold, rule.

### **Industrial Structure and Economic Performance**

In brief, economic theory holds that the way in which industries and markets are structured affects the performance of firms in those industries and thus the overall welfare of society. The best understood

structure-performance relationships are at the extremes of market organization, i.e., perfect competition and perfect monopoly. Market power is absent in perfect competition and wholly concentrated in a perfect monopoly.

Microeconomic theory demonstrates that perfect competition, when universally obtained, leads to Pareto optimal social welfare. That is, there is no possible reallocation of goods or resources in the economy that can make one person better off without making someone else worse off. By contrast, with equal certainty, monopoly results in deadweight social loss from reduced production, higher prices and the reallocation of economic surplus from consumers to the monopolist.

In a legal context, it is the role of antitrust policy to limit the concentration of market power in order to assure that firms therein behave more as if they are in a perfectly competitive industry than a monopoly. While there is an argument in economic thought, known as the general theory of second best (Lipsey and Lancaster), as to whether social welfare is unambiguously improved by removing one competitive imperfection from a market if at least one other such imperfection exists, antitrust policy has rested on the principle that high concentrations of market power are not in the best interest of society. Justice William O. Douglas put it well when he wrote: "Industrial power should be decentralized so that the fortunes of the people will not be dependent on the whim or caprice, the political prejudices, the emotional stability of a few self-appointed men. The fact that they are not vicious men but respectable men is irrelevant" (U.S. v. Columbia Steel).

In practice, it is well understood that most of the commercial world is imperfectly competitive. That is, it falls somewhere between the two "perfect" extremes of competition and monopoly. This is where controversy over industrial structure policy is born. As Joseph Schumpeter stated: "The unbroken line from monopoly to competition is a treacherous guide" (p. 981). Indeed, there is no single, generally received explanation of how economic performance and social welfare change as industry structure changes from one extreme of the competitive continuum to the other. In short, there is only one way to be perfect, but many ways to be imperfect.

Microeconomic theory includes numerous models of imperfect competition: duopolies, kinked demand oligopolies, dominant firm oligopolies, monopolistic competition and the like. However, none of these models generate sufficient certainty about how firms behave under imperfectly competitive conditions to allow precise and unassailable predictions of market performance. As a result, proponents of nearly *any* structural configuration short of monopoly can muster *some* not entirely irrefutable logic in support of their position.

Industrial organization is the specialized branch of microeconomic theory that has been built up specifically to explain the behavior of imperfectly competitive markets. The old school of industrial organization, prevalent through the 1970s, followed the structure-conduct-

performance paradigm pioneered by Joe Bain (1959). The literature in this school is replete with ad hoc econometric studies showing a variety of statistically significant relationships between various measures of imperfectly competitive market structure, dominated by seller concentration, and various measures of market performance, dominated by price levels and profits.

A new school of industrial organization has been emerging since the early 1980s (Tirole). The literature in this school includes specifications of strategic firm behavior in imperfectly competitive markets, and is replete with such conceptual descriptions of strategic behaviors as non-cooperative games, Cournot competition, Stackelberg leaders, and Bertrand-Nash pricing.

These empirical and theoretical variations are all efforts to develop a deterministic understanding of how the "real world" of imperfect competition relates to economic performance and social welfare. While progress has been made, efforts still fall somewhat short of the deterministic objective. The new industrial economics teaches us that old school ad hoc econometric models of imperfectly competitive markets that do not include structural equations of price and quantity behavior are misspecified and thus may yield unreliable results. Yet, despite advances in the application of game theory to firm behavior, unambiguous specification of changes in a firm's price and output decisions in reaction to strategic moves by its rivals is not yet an accomplished task. Until such behavior can be estimated reliably, obtaining unbiased evidence of the relationship between structural variables — such as market power — and market performance variables — such as price-cost margins — will be elusive.

Nonetheless, many useful insights have been gained. Richard Schmalensee recently assessed more than 250 published results from interindustry (cross sectional) econometric studies that reported empirical findings on structure-performance relationships in imperfectly competitive industries. Based upon this comprehensive review, he concluded that such studies ". . . rarely if ever yield consistent estimates of structural parameters, but they can produce useful stylized facts . . ." (p. 952).

Given the potential for econometric misspecification that is inherent in such studies, the lack of consistent parameter estimates is hardly surprising. What is impressive, however, is that the collection of studies persuaded a scholar of Schmalensee's stature that empirical regularities do exist in the relationship between industry structure and economic performance. He states such empirical regularities as stylized facts, e.g., "In cross-section comparisons involving markets in the same industry, seller concentration is positively related to the level of price" (p. 988).

In another exceptionally ambitious empirical analysis, Leonard Weiss and his colleagues reexamined 121 industry data sets that had been used in econometric studies of the concentration-price relationship. Positive correlations between seller concentration and price levels were

found in 106 of these cases; 15 had negative correlations, of which only 4 were statistically significant. Generalizing across all 121 data sets revealed an average price increase of 3.3 percent associated with a 10 percent increase in the three-firm concentration ratio (CR3). In summing up, Weiss states: “. . . evidence that concentration is correlated with price is overwhelming” (p. 283).

Even so, Weiss was not able to find unambiguous empirical evidence of a generalized functional relationship between concentration and prices, concluding, “Our evidence on functional form is so diverse that we cannot justify any one oligopoly theory over the others” (p. 283). The lack of solid empirical findings on functional form is further evidence of specification problems that result from the absence of a good estimate of imperfectly competitive behavior.

Weiss did observe, however, that concentration seems to make little difference on price levels when the four-firm concentration ratio (CR4) is below 50 percent. From this he suggests that an empirical search for a critical concentration ratio (CCR) might bear fruit in terms of identifying a threshold level of market power below which undesirable performance implications are inconsequential. While no such search has yet been reported, the practical appeal of such a threshold for enforcement of antitrust policy is obvious.

Empirical work following the dictates of the new industrial organization school has also begun to emerge. This is conceptually attractive because data from single industries are used to estimate a system of structural equations that is derived from a clearly specified firm-level optimization problem. That is, this approach includes behavioral equations by which firms determine price and quantity. As such, parameter estimates can be tested against values with explicit economic interpretations, e.g., infinite price elasticity of demand equates with perfect competition. As such, this work represents an important step in removing ambiguity associated with potential specification error. However, in order to confine strategic behavior to that which can be represented in behavioral equations, these tend to be intraindustry studies. While this is an advantage methodologically, it also puts some limits on how broadly the findings can be generalized.

We are indebted to Timothy Bresnahan for a review of new empirical industrial organization research. He found twelve intraindustry studies from which conclusions could be drawn regarding empirical relationships between market power and price-cost margins (PCMs). While concentration ratios were not available because panel data on firms were used as points of observation rather than industry census data, in all cases the industries examined appear to be from the highly concentrated end of the market structure spectrum: food processing, tobacco manufacturing, electrical machinery, automobiles and gasoline retailing as examples. PCMs ranged from 2.5 percent of costs for the second largest coffee roasting firm to 88 percent for large banks prior to deregulation, and averaged 29.5 percent across sixteen observations.

From his review, Bresnahan draws three conclusions: (1) only a little has been learned so far from the new methods about market power and industrial structure, (2) one significant cause of high price-cost margins is collusive market behavior, and (3) some concentrated industries exercise a great deal of market power, resulting in high price-cost margins (pp. 1052-3). Given the relatively recent attention to empirical analysis in the new school, the first conclusion is hardly surprising. The second and third seem to be validations of the general although imprecise conclusions drawn from a couple decades of empirical work in the old school. Furthermore, about the new studies Bresnahan states, "the individual studies of particular industries are specific and detailed enough that alternative explanations of the findings can be rebutted" (p. 1053).

### The Anti-Antitrust Movement

Despite convincing theoretical and empirical evidence that concentration of market power works to the detriment of the social good, in the 100 years since the enactment of the Sherman Antitrust Act there have been a number of anti-antitrust movements in the United States. The first concerted attack came in the 1920s when President Coolidge appointed a lobbyist for western lumber interests, William E. Humphrey, as chairman of the Federal Trade Commission (FTC). Under Humphrey's guidance, the FTC changed from a role for "the preservation of fair methods of competition . . . into a device for limiting price competition itself" (Fainsod and Gordon, p. 520).

A resurgence of antitrust policy following World War II began to crumble during the events leading to Watergate. The direction was set by President Nixon's instructions to Deputy Attorney General Richard Kleindienst regarding the Justice Department's challenge to the pending merger between ITT and the Grinnell Corporation. The president's message was recorded by a secretly installed tape recorder, to wit, ". . . my order is to drop the God damn thing. Is that clear?" (as quoted in Mueller, p. 7). The virtual decimation of antitrust enforcement during the 1980s reflected the Reagan administration's views, as succinctly put by OMB Director David Stockman, "I disagree with the whole anti-trust tradition" (*Village Voice*).

Until the recent emergence of literature on industrial organization and international trade, there were two principal attempts to bring intellectual respectability to concentrations of market power — the concept of countervailing power, and the theory of contestable markets. I discussed — and dismissed — both of these concepts in my remarks two years ago, so I will offer only a brief reiteration here. Countervailing power was put forward in 1952 by J. Kenneth Galbraith in his first major book on industrial structure, *American Capitalism*, as an explanation of how the market power of one large corporation may offset that of another. However, by the time Galbraith published his more critical book on the organization of the industrial sector, *The New Industrial State*, in 1967, he had dropped that notion entirely. Indeed, microeconomic theory well demonstrates that about the only industrial

structure guaranteed to produce greater deadweight social loss than a unilateral monopoly is a bilateral monopoly.

The concept of contestable markets was put forward in the early 1980s by William Baumol and his colleagues. The essence of the idea is that firms with concentrated market power will act as if they had none in the absence of barriers to keep potential competitors out of their market. Contestability theory quickly generated a sizeable following, in part because of its obvious appeal to the critics of antitrust policy and in part because it generates specific conclusions that lend themselves to testing. And it is in the testing where the most telling damage to the concept resides. Gilbert recently reviewed a number of experimental studies of contestability from which he concluded that “. . . prices are controlled by *actual* entry, not by the threat of *potential* entry” (p. 116, emphasis added).

Another defense of concentrated market power has been advanced by the proponents of corporate takeovers. A prominent theory of takeovers is that well-run companies acquire poorly-run companies and improve their performance. Empirical evidence, however, is to the contrary. Michael Salinger has just published a comprehensive review of the merger literature. He found no evidence of improved efficiencies from takeovers and significant evidence that the performance of acquiring firms *declines* in the years following mergers. Salinger concludes, “there should be a strong presumption that mergers violating the concentration standards in the merger guidelines are illegal, and merging parties should bear a strong burden of proof that efficiencies justify overturning that presumption” (p. 320).

Despite my dismissal of attempts to bring respectability to the concept of concentrated markets, and much more eloquent exposé of the anti-antitrust movement by others (see Mueller for example), defenders of market power appear to be unconvinced. Just weeks ago, for example, Jens Knutson, director of economic research for the American Meat Institute, said of the beef processing industry, where the four leading firms have gained more than 80 percent of the market in recent years (Ward, p. 15), there is “solid economic evidence . . . that producers and cattle feeders have received tangible price benefits . . . There is equally compelling evidence that consumers, too, have benefitted . . . from lower prices . . .” (*AMI Newsletter*).

### Globalization of Markets

Defenders of concentrated market power have found some new solace in the phenomenon of market globalization. The intuitive appeal of one line of reasoning is straight-forward: given the possibility of international trade we do not need to be concerned about the exercise of market power in concentrated markets because of the competitive threat from foreign firms.

In the absence of actual imports, this argument is no more valid than contestability theory — essentially it is simply an extension of con-

testability to potential entry from foreign firms. But, when imports are present, they do have a procompetitive effect on market performance. Indeed, econometric studies of prices and price-cost margins routinely find that both are negatively related to levels of import penetration, and that the negative effect is more pronounced as domestic seller concentration increases (Esposito and Esposito; Pugel).

Recent years have seen an integration between international trade and industrial organization theories. While this merger of theories had its roots in the desire to explain bilateral international trade in similar goods, or what has come to be known as intra-industry trade (see Dixit and Norman, and Sheldon, for example), it has been extended to the assessment of strategic interdependent behavior in imperfectly competitive international markets. It is this theoretical interface that has also provided the conceptual underpinnings for our current World Food Systems research initiative (organized as regional research project NC-194).

One outcome of the integration between industrial organization and international trade has been the application of considerable intellectual effort to a defense of policies that *enhance* market power. This has come to be referred to as strategic trade policy. In brief, the strategic trade policy argument begins with the observation that, in a world of imperfect competition, a lucky firm can earn excess profits if other firms are dissuaded from entering the market. A country can, accordingly, raise its national income at the expense of other countries if it can somehow ensure that the lucky firm is domestic rather than foreign.

In two highly influential papers, Brander and Spencer demonstrated theoretically that government policies such as export subsidies and import restrictions can preclude foreign firms from competing for lucrative markets in industries that are characterized by significant scale economies and thus increase national income. In essence, these policies are used to enhance the market power of domestic firms, the purpose being to enable them to shift excess profits away from foreign firms.

For sake of clarity regarding a fairly unconventional economic concept, permit me to recreate a stylized example (this draws heavily on Krugman, 1987). Assume there are only two countries, let's call them the United States and Europe, each with one firm, called Boeing and Airbus, that can produce a product, called wide-body passenger aircraft, for sale in the global market. Assume that demand and production costs are such that if either firm produces the product, it will earn profits of 100 (call it millions of dollars). But if both produce and share the market, each will lose 5. Left alone, the firm with a head start would become the sole producer. Assume this is Airbus. Boeing will not produce and U.S. earnings are 0. Now suppose that the U.S. government commits to pay a subsidy of 10 to Boeing regardless of what Airbus does. This means that Boeing will earn profits of 5 even if Airbus also produces, but Airbus will lose 5 for doing so. Thus, Airbus is induced not to produce. The result is, a U.S. subsidy of just 10 raises the pro-

fits of the U.S. firm from 0 to 110.

In this example, 100 represents the transfer of national income from Europe to the United States brought about by a U.S. policy of reducing competition or increasing market power. In part because the idea appeals to the baser instincts of national greed, strategic trade policy has gained a following among many policy makers. In part because the Brander and Spencer proof uses the highly sophisticated mathematics that some economists find erotic, and in part because it has the appearance of being a tractable counterpoint to competition and free trade, it has also gained the interest of many economists.

However, it may be a trivial concept. That is, the circumstances necessary to produce the Brander and Spencer results may so seldom exist in the real world that it has no practical application. Most of the analysis of strategic trade policy to date has been theoretical; a few studies are just now emerging that attempt to produce quantifiable results by calibrating conceptual models to data from actual industries. Krugman (1989) reviewed much of this work and found little support of either a theoretical or quantitative nature, at one point concluding that, "The government would have been better off if it had never heard of Brander and Spencer, or had a constitutional prohibition against listening to them" (p. 1206).

Does this mean, then, that market globalization has nothing to teach us regarding the desirability of concentrated market power, or the lack thereof? To the contrary, a growing body of literature, granted more empirical than theoretical at this point, demonstrates that international market performance is positively related to competition and negatively related to concentrated market power.

In what I believe history will treat as a seminal works on industry structure and international markets, Michael Porter draws on a four-year study of more than one hundred industries in ten industrialized countries to formulate general postulates on factors that influence industrial performance in a global context (1990B). These ten countries — the United States, the United Kingdom, Switzerland, Sweden, Singapore, Korea, Japan, Italy, Germany and Denmark — account for fully 50 percent of all world trade, and the focus of Porter's study was on determinants of international competitive advantage.

The Porter study is too comprehensive to summarize in a few sentences here, and I prescribe the entire 855-page text for the top of your "must read" list. In essence, he found that in every nation, the industries that perform best in international markets are those in which there are a number of able local competitors that pressure one another to advance. That is, domestic industries without highly concentrated market power are the most successful in terms of penetrating global markets — not only in the United States but elsewhere. He concludes, "This study, in a way I could not anticipate, has led me to a conviction that incentives, effort, perseverance, innovation and *especially competition* are the source of economic progress in any nation and the basis



for productive, satisfied citizens” (1990B, p. 736, emphasis added).

In some of the early work done in the World Food Systems research project, Stuart Frank and I have examined how the international market performance of U.S. food manufacturers is affected by industrial organization (Henderson and Frank). With export propensity as our dependent variable, that is, exports as a share of total shipments, ordinary least squares regression was used to estimate the impacts of industry structure on export market performance. We used 1982 cross-sectional data on forty-two food manufacturing industries defined at the 4-digit SIC level, drawn primarily from the U.S. Census of Manufacturers. Our explanatory variables included seller concentration as a measure of market power, and other variables representing product differentiation, scale economies, and entry barriers.

Our findings are consistent with Porter’s less quantitative but more extensive analysis. In highly robust regression results that explained more than 85 percent of the interindustry performance variability in the export market for processed food, we found a statistically significant negative relationship between market power in domestic food manufacturing industries and export propensity. Specifically, export propensity declined by 4.9 percent for a 10 percent increase in market power as measured by the Herfindahl-Hirschman (HH150) Index. Using the 4-firm concentration ratio yielded similar but somewhat less robust results.

### Conclusions and Implications

The available evidence, both theoretical and empirical, strongly supports the conclusion that seller concentration and market power are negatively related to global, as well as domestic, market performance and economic welfare. That is, competition helps, and more is preferable to less, be the market local, regional, national or global.

The implications are clear. A strong antitrust policy is essential to upgrading the economic welfare of society. Leniency toward mergers is a trap. Leniency toward cartels, alliances and industrial combines is also a trap. The national champion theory, or the idea that domestic firms will be more efficient if they merge into one or two large national competitors, fails the tests of both logic and history. Regulations that protect existing firms and that restrict the entry of new firms into a market must be vigorously resisted. By contrast, policies that encourage active domestic competition should be nurtured and coveted.

Why, then, is the policy battle still joined by proponents of market power? Robert Baldwin, writing on the political economy of trade policy, offers keen insight: “In fact, economic self-interest almost always dominates a person’s concern for the welfare of other groups or the nation as a whole, when a significant part of an individual’s income is affected by a trade policy” (p. 130). That statement is equally relevant for domestic industrial structure policy, and all other policies in which the income of a few holds hostage the interests of the many.

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# ***WORKSHOPS***

