

The Rise, Fall, and Legacy of the Structure-Conduct-Performance Paradigm

Matthew T. Panhans*

January 2023

Introduction

In 1982, Joe Bain was designated a Distinguished Fellow of the AEA, with an accompanying statement referring to him as “the undisputed father of modern Industrial Organization Economics.” The Structure-Conduct-Performance paradigm that Bain developed and deployed had been the core framework of industrial organization for two decades, and had a significant impact on competition policy from the 1950s through the 1970s. And yet by the time of Bain’s designation as a Distinguished Fellow, industrial organization was shifting away from SCP and instead relying on a foundation of game theory. This essay considers what made the SCP framework so influential, what shortcomings economists identified in the framework that caused the shift to the “new IO” in the late 1970s, and what lasting contributions from Bain earned him recognition as the “undisputed father of modern Industrial Organization Economics.”

1 Origins of SCP

The Structure-Conduct-Performance paradigm came out of Harvard in the 1930s. The label “Industrial Organization” for a distinct sub-field of economics was born at this time as well, and the American Economic Association recognized industrial organization as a subdivision of economics in 1941 (Mosca 2016; Phillips and Stevenson 1974). Up to this point, research papers and economics courses had in their titles terms such as: utilities, trusts, corporations, agriculture, marketing, etc. A topic would be discussed in depth, but without much integration with economic theory and without a unifying framework. This changed once SCP offered a single paradigm under which various industrial issues could be analyzed.

Edward S. Mason was the earliest developer of what would become known as the SCP paradigm. Mason received his Ph.D. from Harvard in 1925, and was a faculty member there

*U.S. Federal Trade Commission. I thank Steve Medema and John Berdell for helpful comments. The views expressed in this article are those of the author and do not necessarily reflect those of the Federal Trade Commission or any individual Commissioner. Corresponding email: mpanhans@ftc.gov.

for much of his career, receiving tenure in the Economics Department in 1936. Edward H. Chamberlin, who received his Ph.D. from Harvard in 1927, was also at Harvard, and it was the interaction between Mason and Chamberlin that inspired this new analytical approach to the study of industry. Of particular importance was the publication of Chamberlin's book *The Monopolistic Theory of Competition* in 1933, the same year that Joan Robinson published her book on the same topic (Chamberlin 1933; Robinson 1933). These two books opened up a new avenue of economic inquiry for markets that resembled something in between the two poles of perfect competition and pure monopoly. Mason traveled down this new avenue with even "greater strides into the real world," pulled by empirical methodologies and public policy relevance (Grether 1970, p. 83). Mason's blend of theory and empirics stimulated a research program that followed his approach of analyzing firms in their own actual market structures instead of a representative market, and his framing of market structure acting on market outcomes (Phillips and Stevenson 1974, p. 339). Mason's studies in this research program were collected into his 1957 work *Economic Concentration and the Monopoly Problem* (Mason 1957).

This environment at Harvard in the 1930s galvanized a group of economists to shape a unified framework, empirically driven yet integrated with theory, for the study imperfectly competitive markets. The most important scholar inspired by these ideas was Joe Staten Bain, who pushed them further scientifically and empirically than anyone else. After receiving a bachelor's degree from UCLA in 1935, Bain went to Harvard to study economics. He received an M.A. in 1939, and a Ph.D. in 1940, while also teaching in Harvard's Economics Department from 1936-1939. Bain's advisors while at Harvard were Joseph Schumpeter, Edward Chamberlain, Edward Mason. Mason in particular had a significant influence on Bain, who wrote in the preface to his 1959 textbook: "a primary obligation must be recognized to Professor E. S. Mason of Harvard, who in large part created and developed the modern Industrial Organization field and who introduced me to it in the 1930's" (Bain 1959, p. x). After graduating from Harvard, Bain obtain a faculty position at the University of California at Berkeley, where he would remain until he retired in 1975 (Shepherd 2017).

Following Mason and Bain were many younger scholars who worked to create the body of research known as the Structure-Conduct-Performance literature, and among the most important for that literature was Leonard W. Weiss (Audretsch and Siegfried 1995; Scherer 1995). "While Edward Mason introduced some of the fundamental concepts, and Joe Bain established the original framework, it took the painstaking research of a younger generation of scholars to implement the agenda first conceived by Mason and Bain. And, among those scholars, Leonard Weiss contributed some of the most original and pathbreaking studies relating market structure and firm conduct to subsequent economic performance" (Audretsch and Siegfried 1995, p. 121). Weiss, who attended Columbia University for graduate studies in economics after serving in the navy, was not a direct student of Bain or Mason.¹ But he became involved in the research program, with most of his published work falling under the SCP research program. After teaching stints at a few institutions, Weiss moved to the

¹As F. M. Scherer remarked: "I will leave it for Len to explain how a World War II veteran studying at Columbia University, after a digression of several years teaching urban economics and other esoterica, became enmeshed in the "Harvard" tradition of industrial organization research. But enmeshed he was, and he has enriched the field in many ways" (p. 129).

University of Wisconsin in 1961 and remained there until he retired in 1990.

These individuals laid much of the intellectual format for the SCP research program, and therefore also for the field of industrial organization from the 1940s-1970.

2 Key elements of the SCP paradigm

In SCP research, technical elements determined a market's structure, which in turn influenced the behavior of firms (conduct) and the market outcomes in terms of prices and output (performance).

Bain's work in the 1940s culminated in two landmark books, *Barriers to New Competition* published in 1956 and *Industrial Organization* in 1959 (Bain 1956; Bain 1959). *Industrial Organization* is a textbook that lays out how Bain approached the problems of analyzing industry. A key goal in this work was to explain the way that prices were determined in imperfectly competitive markets. Bain used as the unit of analysis the industry or group of competing firms, rather than a single firm or the economy-wide aggregate of firms. With this framing, he was setting the scope of inquiry as the partial equilibrium analysis of a single "market", where a market was delineated by a set of competing firms. This analysis was distinct from the analysis of the internal decision-making of a firm, which he left to the field of management science. The field of industrial organization today makes use of the same unit of analysis and scope that Bain used to frame his inquiry.

While Bain relied on economic theory - and specifically *a priori* price theory - for concepts and hypotheses, the SCP program was not one of developing and elaborating theory itself. The textbook *Industrial Organization* is not formulated in mathematical terms. Instead, Bain's focus was empirical. "The emphasis is dominantly on empirical study concerning issues raised by such theory, or on the implementation, application, and critical testing of such theory" (Bain 1959, p. viii). An important endeavor of the SCP research was to determine from theory which hypotheses could be tested, which predictions from theory could be evaluated with available data, and how that could be accomplished.

Two main elements of economic price theory informed the SCP approach. First was the theoretical analysis of atomistic, oligopolistic, and monopolistic markets. This is the idea that in an atomistic market, firms are all price-takers and prices should approach marginal costs. Monopolists are price setters, and tend to restrict output and raise price. Finally, the oligopolistic market was the most difficult to analyze, requiring more assumptions to be theoretically determinate. Bain discussed many possible outcomes in such markets including express or tacit collusion, imperfect collusion, or open price rivalry. The second key element of price theory for the SCP program was product differentiation, ranging from homogenous products to differentiated. Recognizing product differentiation opened up new theoretical dimensions of pricing policies and market conduct. This was the theoretical stage in which the SCP researchers aimed to take theory to data.

SCP researchers found cross-sectional analyses to be a fruitful empirical approach. The search was for generalizations regarding the relationships between structure and conduct on the one hand, and performance on the other, and cross-sectional studies were amenable to

uncovering such statistical relationships. This is accomplished in two steps. The first task Bain identified for the SCP program was “to identify, describe, and classify the significantly different types of structure and conduct which are found in the markets for goods and services” (Bain 1959, p. 3). The second task was to then empirically find associations or even causal relationships from structure and conduct to performance. The ultimate interest was public policy, and being able to inform policy-making so that markets led to the most desirable outcomes.

The “conduct” piece of structure-conduct-performance is important and receives a significant amount of attention. This includes the degree to which firms in an industry are acting independently or interdependently or even collusively, and whether firms engage in policies that can be considered “predatory tactics” or “exclusionary tactics.” However, Bain also acknowledges that the conduct piece is hard to observe in data, and therefore hard to pin down empirically. Thus, in practice, empirical work in the SCP framework focused on associations between market structure and market performance, leaving “conduct substantially unascertained” (Bain 1959, p. 295). To the extent conclusions were drawn about conduct, they tended to be from case studies of individual industries. Bain’s text discusses light bulbs, oil, cigarettes, and steel to draw some general tendencies, namely that very high seller concentration seems related to interdependent actions without collusion, more so than moderate seller concentration. Where there is evidence of collusion, it tends to be imperfect collusion. And that entry barriers do not seem to have much systematic effect on conduct.

The most important analytical question in the SCP framework, then, was how market structure related to market performance in cross-sectional industry data. On this question, Bain claimed the empirical evidence showed a definite relationship that “high seller concentration tends to be connected with substantially higher rates of excess profit than does moderate or low seller concentration” (Bain 1959, p. 412). But this was not a linear relationship; instead, there was a critical degree of seller concentration, with the threshold at 70 percent of the market controlled by the largest 8 firms. Above this threshold, firm profits were much higher, at an average of 11.8 percent, compared to 7.5 percent in industries with concentration below this threshold. Within each group, the rate of profit was not related to concentration. To Bain, this suggested that there were two type of oligopolists in the economy: those sufficiently concentrated that monopolistic pricing policies are usually successful, and those sufficiently unconcentrated that an approximation to competitive pricing is likely to ensue.

A second main finding in the cross-section studies was that industries with very high barriers to entry had “distinctly higher average profit rates than industries protected by lower barriers to entry” (Bain 1959, p. 414). Bain claimed that the effects of barriers to entry were distinguishable and separate from the influence of seller concentration. Finally, Bain noted that industries with very high average profit rates also were the industries with a very high degree of production differentiation, such as automobiles, liquor, cigarettes, typewriters, and high quality fountain pens.

For Leonard Weiss, the two main predictions of the SCP paradigm were “(1) that concentration will facilitate collusion, whether tacit or explicit, and (2) that as barriers to entry rise, the optimal price-cost margin of the leading firm or firms likewise will increase” (Weiss

1979, p. 1105). He noted that both Edward Chamberlain and George Stigler “predicted that the effectiveness of collusion and therefore the level of price-cost margins will rise with concentration” (p. 1106). Reviewing numerous empirical studies across a wide variety of industries, he concluded that “In short, this evidence shows that concentration really makes a difference in prices as well as in profits” (p. 1115).

3 Policy implications of the SCP research

The policy implications of these findings were first to preserve and create market structures no more than moderately concentrated. This is because very high seller concentration appeared in the data as generally conducive to poor performance, without offsetting advantages in other dimensions of market performance. Secondly, the reduction of high barriers to entry should improve performance, though many acknowledged that lowering barriers to entry may be difficult to achieve through policy.

Assessing the competition policies in the United States through the lens of SCP, Bain found the law deficient. “If workably competitive performance throughout the economic is our general goal, we may say that the existing antitrust laws are considerably better than no such laws at all, but that they have fallen significantly short of the task of entirely or largely suppressing monopolistic performance tendencies in the economy” (Bain 1959, p. 533). Deficiencies in antitrust were not because of lax enforcement. “The major difficulty seems to lie in the content of the laws and in their judicial interpretation” (Bain 1959, p. 533).

But Bain didn’t see a need for sweeping or radical changes to the antitrust laws.² He viewed antitrust law as acceptable and useful, and a better alternative to direct government regulations. So instead of sweeping changes, he focused on improving existing policies through revisions or elaborations to the current statutes.

The SCP literature inspired proposals for revision to antitrust policy centered around one key theme: the primary deficiency of the Sherman Act is that it is a “conduct oriented” law (Bain 1959, p. 607). That is, the basic offense against the law is market conduct which excludes competitors. But this means that a monopolistic market with undesirable market performance can only be attacked indirectly, by casting the monopolistic firms as undertaking predatory or exclusionary conduct. There was no scope in the law to directly attack a firm for having a dominant market position. Showing such conduct has been undertaken by a firm is more difficult than directly showing a market is monopolistic in a structural sense. Also, litigation centered around conduct was necessarily lengthy and expensive. Thus, the law left a great deal of ambiguity about what conduct a firm can and cannot undertake.

This framing suggested to Bain three avenues for legislative change, which were also proposed in Kaysen and Turner 1959’s *Antitrust Policy, A Legal and Economic Analysis* (a book for which Edward Mason wrote the preface). First and foremost, he suggested the law might state that structural situations with monopolistic tendencies should be generally illegal,

²Some institutional economists in the interwar period were more willing to advocate for sweeping reforms to competition policy in response to deficiencies they saw in the antitrust laws, see Panhans and Schumacher 2021. For a history of the cycles of deconcentration movements in the US, see W. Kovacic 1989.

“without particular reference to market conduct through which the undesirable structure has been created, maintained, and exploited” (Bain 1959, p. 608). Second, he thought the standard of liability should be spelled out in sufficient detail so as to limit the discretion of the courts. And third, the law should instruct the courts that dissolution should be the typical remedy for illegal monopoly, unless there would be significant adverse side effects from dissolution or a better alternative remedy existed.

Weiss likewise called for a substantive change to the law that would allow for dissolution in industries with extreme concentration even when no anti-competitive conduct has been shown. “My proposal is that dissolution proceedings continue to require a market share of a relevant market sufficiently high and persistent that the firm can reasonably be considered dominant - perhaps a share of 50% or more of a market with no close rival - but that the apparent requirement of anti-competitive conduct be eliminated” (Weiss 1979, p. 1140). Weiss thought that a dominant firm should be able to offer as defense evidence that its dominant position was due to economies of scale or valid patents, and that such a policy would be well-grounded in economic theory and evidence. “The adoption of such a standard by the courts or by Congress seems to be a highly desirable reform of monopolization law” (p. 1140).

Joe Bain, Leonard Weiss, and other advocates thought that such revisions to the antitrust law would lead to more expedient and effective antitrust policy, that could more directly attack the problem of monopoly. Bain also viewed the current resource for antitrust enforcement as far insufficient, and thought increasing the overall budget of the Antitrust Division by several times the current levels as warranted. And he approved of using litigation through the courts as a means of enforcement. He did not view as warranted a shift toward administrative procedures as at the Federal Trade Commission for antitrust issues. In fact, Bain even suggested moving all antitrust enforcement to the Department of Justice, and leaving the FTC with a jurisdiction of only unfair methods of competition. But because generalist courts were often ill-equipped to deal with the very specialized and complicated issues of antitrust suits, he did suggest a separate court system with specialized knowledge and experience to deal only with antitrust. This “would be more efficient, consistent, and fair than the system we have today” (Bain 1959, p. 615).

4 Growth and Efficiency

Though the SCP paradigm did find that very high levels of concentration led to poor market performance, scholars in this research program absolutely did recognize benefits of economies of scale.³ Joe Bain described that structural changes leading to more concentration should, as the norm, be condoned as realizing greater efficiency in the economy. Policy makers did need to make sure that real efficiencies were being realized, but cases where concentration

³There is a misconception today that SCP rarely considered efficiencies. For example, “This [SCP] paradigm invariably downplayed efficiency claims of large-scale enterprises due to the disruption such companies caused to the market structure” (Wright and Portuese 2019, p. 10); “both the courts and economists of this time [the 1950s and 1960s] tended to downplay efficiencies associated with large-scale enterprises (W. E. Kovacic and Shapiro 2000, p. 52).

increased without efficiency were more of the exception rather than the rule. And in fact, one of Bain's clearest concerns was that small firms sometimes had sufficient political power that they would obtain regulations only to protect themselves: "the sorts of interference sought and obtained ordinarily involve limiting *competition* in order to preserve *competitors*" [emphasis in original] (Bain 1959, p. 440).

In fact, Bain spent a quite large amount of space in his textbook (nearly ten pages) describing the structural changes in grocery retail and distribution since World War I. This period saw a radical change in the structure of grocery retail with the rise of supermarket chains, which were hardly existent in the 1920s but widespread across the country by the 1950s. There were social and political questions about such a rapid transformation of the sector. In Bain's assessment: "The weight of evidence strongly supports the assertion that, as compared to the nonintegrated small retailers and wholesalers who occupied most of the market before they entered, the large chain stores were markedly more efficient. Through advantages of integration and large-scale management they attained substantially lower operating costs than the old style independents could..." (Bain 1959, p. 445). Bain recognized that some portion of the lower inputs costs were likely due to large chains exploiting monopsony power, but that "the substantial reduction in operating costs reflected a real gain in efficiency" (445). The chains could sell 10-15% below the prices of independent competition and still make profits. This in turn spurred small enterprises to increase efficiency in response, and so "the structural revolution in question was in the net a favorable change" (445).

What Bain was quite concerned about was government regulations that protected the small independents and thus prevented the realization of economies of scale. This included antichain-store tax laws, the prohibition of discriminatory buying-price advantages of large purchasers as specified in the Robinson-Patman Act of 1936, and local fixing of minimum retail prices. Bain favored a full repeal of the Robinson-Patman Act of 1936. He was quite unsparing in his critique of that law, writing that "the overall vigor and effectiveness of price competition has probably been reduced by the enforcement of the Robinson-Patman Act" (Bain 1959, p. 619). He added that the effects of these government interventions have not been as noxious as might have been feared, only because they didn't work well in accomplishing their intents; retailers integrated with suppliers to avoid price discrimination charges, and offered private label products to avoid resale price maintenance.

Leonard Weiss also recognized that an important efficiency to consider in merger reviews was the possibility for decreasing the "suboptimal capacity" of an industry, which is the condition in which some plants are too small to be efficient. Bain had shown that the size of the suboptimal fringe was unrelated to concentration, but new evidence in work by Weiss and F. M. Scherer on relationships between concentration and extent of suboptimal capacity led Weiss to reconsider his views. "It now appears that increased concentration creates social gains in the form of less suboptimal capacity, so merger policy must trade off that gain against the social losses caused by more effective collusion" (Weiss 1979, p. 1117)⁴

⁴Weiss was also willing to change his recommendations on merger policy in light of new evidence of critical thresholds that lead to harm: "It is obviously much too early to make precise recommendations to the antitrust authorities. However, if Kwoka's results withstand subsequent research and analysis, they would mean that we should not contest horizontal mergers that cannot increase the two-firm concentration

Given the attention to scale economies and suboptimal capacity of small firms, it is perhaps undeserved that today the SCP paradigm has a reputation of being only a deconcentration agenda that rarely recognized efficiencies.

5 Battles with the Chicago School

While the First Chicago School of the 1930s and 1940s, exemplified by writings of Henry Simons, was emphatically anti-monopolist, the post-WWII Second Chicago School was equally against government intervention even for antitrust or competition policy reasons.⁵ This put the Chicago school scholars of the 1950s and 1960s at odds with researchers in the SCP paradigm.

The Chicago school attacked the SCP program on two main points, one empirical and one theoretical. On the empirical front, Chicago school scholars argued that the SCP had a massive endogeneity problem, such that their empirical results were invalid. Rather than market structure leading to performance, the Chicago school argued that the causality ran the other way (Brozen 1971; Demsetz 1973). Market performance of firms in the industry affected the market structure. Efficient firms were able to grow faster than their less efficient rivals, and these efficient firms were also more profitable because their costs were lower.⁶ Correlations found in cross-sectional industry studies were impossible to interpret as competitive problems, and could form no basis on which to form public policy.

The second attack on SCP was theoretical. Chicago school scholars argued that markets tended quickly toward long-run equilibria that were approximately competitive. If this equilibrium had firms with significant amounts of persistent market power, a new entrant would be able to profitably enter. While barriers to entry could exist, they were likely to be small and fleeting. And thus market power tended also to be fleeting. The foundation for these arguments was what Chicago scholars called a new and rigorous price theory. They accused the “old IO” of Harvard of being only loosely based on theory, and argued that a rigorous theoretical approach would in fact lead to the opposite logical conclusions.

Richard Posner, reflecting on the economics of industrial organization of the 1950s and 1960s, described the field as “untheoretical, descriptive, ‘institutional,’ and even metaphorical... The result was that industrial organization regularly advanced propositions that contradicted economic theory” (Posner 1979, p. 928). A rigorous application of price theory, in the view of Chicago school advocates, was needed to remedy the field of IO. Conduct such as predatory

ratio above 35 or the four-firm ratio above 50 and we should not contest horizontal mergers unless they affect firms that rank first or second in the market or would rank first or second after the merger. By these criteria, many of the horizontal merger cases that reached the Supreme Court in the 1960’s were decided too strictly” (Weiss 1979, p. 1119).

⁵For an excellent example of the perspective of the First Chicago School, see Simons 1934. For more on the shifting views of the Chicago school on questions of antitrust and monopoly, see Horn 2011, Martin 2007, and Medema 2011.

⁶Scherer 1995 recounts how “in a contest of heavyweights, Weiss and Demsetz were brought together by Columbia Law School to debate this ‘new learning’ ” (p. 131), and while Weiss conceded several of Demsetz’ points, Weiss then proposed tests for the contending hypothesis, and in the end a “modified variant of the structure-conduct-performance paradigm was supported” (p. 133).

pricing and tying that had been concerning to scholars of competition was shown, with the application of price theory, to be irrational to undertake. Indeed by following price theory to its conclusions, Aaron Director and the proponents of the Second Chicago school found that “a conclusion of great significance for antitrust policy emerges: firms cannot in general obtain or enhance monopoly power by unilateral action - unless, of course, they are irrationally willing to trade profits for position” (Posner 1979, p. 928).

For Posner, another confusion that was sorted out by price theory was the concept of barriers to entry. Suppose it costs \$10 million to build an efficient plant to serve a market. Posner argued that the traditional perspective viewed this entire amount as the hurdle a new entrant would have to overcome to compete on the same level as incumbent firms. “But is there really a hurdle?”, he asks (p. 929). If the plant has an expected ten year lifespan, then the cost is only \$1 million per year. “Existing firms bear the same annual cost, assuming that they plan to replace their plants. The new entrant, therefore, is not at any cost disadvantage after all” (Posner 1979, p. 929).

Even cartels and collusion were seen as fairly benign through the lens of Second Chicago school price theory. Cartels were unstable, as member firms had incentives to cheat for greater profits; moreover, because true barriers to entry were negligible, cartels could not survive for long periods of time. While collusion was a possibility, price theory predicted that it would rarely occur, and when it did, the welfare consequences were small and likely lower than the costs of enforcement. “By 1969, then, an orthodox Chicago position (well represented in the writings of Robert Bork) had crystallized: only explicit price fixing and very large horizontal mergers (mergers to monopoly) were worthy of serious concern” (Posner 1979, p. 933).

The main argument of Posner’s 1979 essay is that it no longer makes sense to talk about a Chicago school and a Harvard school, as insights from both sides of that earlier debate have been integrated into a single consensus framework with rigorous price theory as the foundation. In a comment on Posner’s essay, Richard R. Nelson takes issue with Posner’s characterization, calling it a “good old-fashioned polemic disguised as a reasonable man’s survey of today’s consensus position” (Nelson 1979, p. 949). Nelson argues that Posner’s history conveniently ignores recently developments in economic theory, on models of signaling, consumer search costs, imperfect and asymmetric information - in short, the integration of game theory into economics:

But the price theory to which Posner refers is the old-fashioned price theory of the textbooks of twenty years ago. What Posner does not see is that over the last decade or so a newer price theory is replacing the old. I suggest that the new price theory probably provides better support for the old industrial organization that it does for what Posner calls the new. Indeed, the journals are full of a “new new” industrial organization literature based on the newer price theory, viewing the problem in a way that is more consistent with the old Harvard than the new Chicago. (Nelson 1979, p. 949)

What Nelson pointed out was that in the 1970s, game theory began changing industrial organization in fundamental ways that took it in a far different direction than the research

programs of either the SCP paradigm or the Chicago school.

6 ‘New IO’ and the Legacy of SCP

Game theory transformed industrial organization in such a fundamental way in the 1970s that the field felt a need to re-brand as the ‘new Industrial Organization’. As Richard Nelson pointed out in 1979 and others since him, the introduction of incomplete and imperfect information through game theoretic models opened up the possibility for many types of anti-competitive conduct that had been a concern for SCP scholars but that Chicago price theory had deemed impossible.⁷ The theoretical frameworks to which SCP researchers sought to bring to data implicitly assumed perfect and complete information. Anticompetitive conduct was mostly discussed in industry studies and not through axiomatic economic models. Once Harasanyi and others showed how game theory allowed for the formal modeling of information in markets, and that the assumptions about information were critical for a model’s outcomes, there was no going back (Giocoli 2009).

When the SCP paradigm is mentioned today, it is often described as dead, discredited, and defunct.⁸ Some criticisms are valid, even given that the empirical and theoretical tools available to IO economists mid-century were less developed (Schmalensee 1989 provides a good assessment). But in context, the SCP paradigm did break ground on understanding of market structures and the economic considerations of competition policy.⁹

One valid criticism of the SCP paradigm is how they considered the consequences of product differentiation for market analysis. Bain certainly did not ignore product differentiation; it is one of the four key market characteristics described in his textbook, and Chapter 7 of the textbook spends a great deal of time discussing the degrees of product differentiation in various industries of the US economy. In terms of the empirical relationship to profits: “the industries in our sample of 20 with the highest average excess profit rates over the two 5-year periods... are also *all* industries with very high degrees of production differentiation (those producing automobiles, liquor, cigarettes, typewriters, and quality fountain pens”

⁷For example: “Like Pandora, who loosed the ills of the world and found they could not be closed up again, the Second Chicago School invoked formal theory in its contest with the S-C-P approach, and found it could not close it up again. Faced with the fact that game theoretic models reproduce, as often as not, the conclusions of the S-C-P paradigm, the reaction of the Second Chicago School was to reject the use of game-theoretic models” (Martin 2007, p. 43); “It is crucial for our story to realize that, exactly when the Chicago approach made its breakthrough, by convincing ever more US courts of the validity of the economic arguments supporting pro-competitive explanations of several, supposedly anti-competitive, business conducts - *exactly then*, a series of new results in industrial economics seemed to prove the contrary, namely, that there could well be an anti-competitive rationale behind these very same conducts!” (Giocoli 2009, p. 43).

⁸“Within the field of industrial organization, the structure-conduct-performance approach has been discredited for a long time” (Berry, Gaynor, and Morton 2019, p. 46); “The critique of the S-C-P paradigm has been effective. Antitrust policy has largely abandoned the paradigm’s core presumptions” (Orbach and Rebling 2012, p. 638)

⁹Schmalensee 1989 takes such a position: “Cross-section studies also fail to be persuasive when they ignore serious measurement problems... these problems deserve to be taken seriously but, if handled sensibly, they are not so severe as to render cross-section work valueless” (p. 952).

(Bain 1959, p. 415, emphasis in original). Bain interpreted this relationship as suggesting that product differentiation was harmful to market outcomes, as it was associated with high profit rates, perhaps through increased entry barriers or facilitated tacit collusion. Bain refused to think about product differentiation as most do today, that increasing variety and better meeting consumers' varied preferences are things consumers value, and those firms garner higher profits as a consequence of better serving the market. Bain also did not draw out the implications to consider that the high degree of product differentiation could imply that different market delineations, with different concentration measures, might be the more relevant unit of analysis than the ones he used in the statistical tests.

Yet for the most part, understanding the context of the SCP research program shows that some criticisms are based on an overly simplistic characterization, and that the contributions of SCP researchers have had a lasting impact on pushing the field of industrial organization to where it is today. Mid-century, there was an understanding that perfectly competitive industries of price-taking firms would achieve zero profits, that monopolies could dictate price and make large profits, and that the oligopolistic structure was more complicated to model and likely somewhere between those two poles. But there was no empirical evidence on that theoretical relationship, and SCP researchers were the first to answer some very basic empirical questions: how should researchers actually measure industry concentration? how should one actually measure market performance? how are these measures changing over time? and is there any statistically detectable relationship between the two?¹⁰ Once these empirical studies were conducted and published, economists were then pushed to extend both theory and econometric techniques to better interpret the results.

One reason that the SCP paradigm receives criticism today seems to be due to the understanding that SCP researchers took a strong stance on the causality from structure to performance. And there is certainly truth to that, as SCP researchers did think that structure affected market performance to an extent. And moreover, that was one of the key predictions of the theories of perfect competition, monopoly, and oligopoly of the time, where prices were the equilibrium outcome of a given market environment. But SCP researchers did recognize that market structure could also be endogenous, and that structure was affected by underlying conditions of supply and demand, as well as by firm conduct. Bain described that market structure, conduct, and performance are an “interrelated complex of phenomena” (p. 20). And Bain himself made significant contributions to the concept of limit pricing, which is a case where conduct affects the market structure (Martin 2007, pp. 31–32).¹¹ Once one considers the context in which the SCP research was undertaken, and appreciates that their goal was to uncover empirical patterns in the economy as a first step to connecting theory with empirical evidence, then the contribution of the SCP paradigm to the development of

¹⁰After critiquing the SCP paradigm, Berry, Gaynor, and Morton 2019 suggest a research approach that is arguably what much the SCP program did: “As a starting point, we might seek to establish a descriptive baseline for analysis, without jumping to causal statements. Is concentration in general rising across many firms and industries or a relatively small number? Are accounting markups rising? Are prices rising? What are the descriptive correlations across these variables? The answers to these questions can often point to fruitful areas for detailed study as well as rule out concerns that are unsupported by the facts” (p. 48).

¹¹Martin 2007 describes the argument that the SCP paradigm took market structure as exogenous “a difficult position to defend” (p.31).

industrial organization becomes more apparent.

The SCP paradigm certainly had significant influence during its heyday. Writing in 1970, Ewald Grether wrote that the SCP approach was then the basis for much of the analysis and judgements about antitrust at the FTC and DOJ, it influenced the merger guidelines issued in 1968, and “of even greater significance, courts - and especially the United States Supreme Court - are drawing heavily upon some of the hypotheses, research results, and generalizations of the literature” (Grether 1970, p. 86). Leonard Weiss used the SCP framework in his expert testimony on behalf of the Department of Justice in its antitrust case against IBM, which began in January of 1969. In that case, the DOJ alleged that IBM tried to monopolize the market for “general purpose” computer systems. Weiss used the SCP framework to show that IBM was a dominant firm, that it was protected by high barriers to entry, and that it had earned exceptionally high profits (Weiss 1979, p.1124-1139).

And there are also some lasting legacies to how SCP shaped the field of industrial organization. The discussions of market characteristics and classifications made in Bain 1959 hold up very well today, such as the identification of four key market characteristics (seller concentration, buyer concentration, the degree of product differentiation, and the conditions of entry), and the detailed discussions of each of these elements. The SCP paradigm also had a lasting influence on merger guidelines and court decisions, by taking the position that economic evidence and logic can be an input into determining which concentration levels are likely and unlikely to be problematic. Another key area where SCP had a lasting influence is in defining the scope for inquiry by the field of industrial organization in various dimensions. Joe Bain explicitly said that his focus would be limited to narrow material outcomes, and he was not going to consider the argument that “concentrated big business undermines the foundations of a Jeffersonian democracy.” He acknowledged that it was an important question, but considered it as outside the scope of his research program (Bain 1959, p. 21). By taking the unit of analysis to be the industry (i.e. a competing group of firms), Bain was also delineating his scope of inquiry from both management science, to which he left questions about the internal decision-making of single firms, and macroeconomics, to which he left questions about the economy in aggregate. This delineation has largely been the focus of most industrial organization research ever since.

Finally, there are some areas where the SCP program may be useful in pointing the field of IO forward. One example might be the SCP emphasis on the study of collusion. SCP researchers acknowledged the difficulty of measuring the effects of conduct and collusion in particular, especially when collusion could be tacit. But they thought it was a key element in the risk of concentration. If concentration made it easier for an oligopolistic market to achieve a monopolistic pricing regime, then this could be a significant mechanism by which markets could produce adverse performance. The new IO research since 1970 has led to an enormous development in the tools to study unilateral conduct, but with relatively less emphasis on the development of tools to measure and evaluate coordinated effects. Recent evidence on coordination suggests that collusion may be a significant issue in the economy (Miller, Sheu, and Weinberg 2021; Kawai and Nakabayashi 2022; Kawai, Nakabayashi, et al. 2022). This is an area that was core to the SCP paradigm, and that is now perhaps poised for a reexamination.

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