# A Doctrine in Turmoil: Three Responses to Early 20th Century Empirical Work on Firm Behavior

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## 1 : Introduction

The 'Marginalist Controversy', an attack on the dominant body of economic theory culminating from decades of empirical invalidations of said theory, ended in the first half of the 1950s with the self-declared victory of the marginalists. Lee and Irving-Lessman (1992: 273-4) have identified the winning strategies behind the defeat of the 'antimarginalists' as theoretical co-optation and institutional, political, and ideological suppression. In this essay I will attempt a brief description of the initial controversy, arguing that, while co-optation was a formally pursued strategy, its apparent success could not stand on its own. It would, instead, be held by declaration (its own form of intellectual suppression), requiring the supplementary strategies noted above.

In addition to discussing the marginalist controversy proper, I will attempt to go further, looking at some of the minority lines of inquiry that existed before and persisted after the controversy's conclusion. Specifically, I will discuss P. W. S. Andrews' establishment of the *Journal of Industrial Economics* in the UK as an institutional response to the institutional suppression of non-marginalist lines of inquiry, and the 'reformist' or 'revisionist' theories of the firm as theoretical responses to the general swath of doubts cut by empirical examinations of firm behavior.

In each case, my intention has been to focus on these three topics as responses, in one form or another, to a broader criticism of orthodox economic analysis rooted in the many and various findings of empirical researchers. The 'doctrine in turmoil' is thus marginalism, both generally and specifically conceived, and its implications for economic theory. Second, in discussing theories of the firm submitted as alternatives to the traditional 'black box' or 'production function' approach, I have limited the analysis to managerial, behavioral, and Coasian approaches. This, again, is the result of limited scope, and is not intended to suggest that these are the only alternative approaches to the matter.

## 2 : Disquieting evidence and the Marginalist Controversy

Prior to the Marginalist Controversy of the 1940s and 50s, marginalism had come to dominate economic theory with regard to firm and market behavior and, specifically, pricing and

prices (Lee and Irving-Lessman 1992: 275-6). Though the ensuing controversy did much to redefine, in word if not in practice, what marginalism meant, the doctrine may be crudely defined by a few key assumptions. Marginalism as applied to production or 'supply', first and foremost holds that firms act (or models firms as acting) to maximize profits, equating marginal cost to marginal revenue, given the circumstances of competition, demand, costs, and so on. This then is taken to apply to any time period pertinent to the firm's decisions, and implies that the firm has complete—"or at least the appropriate amount and kind" of—information to act toward this end (Lee 1984: 1108; cf. Gordon 1948: 265-6; the combination of optimization and certainty has been called "omniscient rationality" by Herbert Simon 1979, 1959).

The Great Depression gave impetus to numerous empirical surveys of prices and pricing, both from government entities and individual economists (Lee 1984: 1109-10; Mongin 1997: 1). For economic theory, the implications of these were threefold: firms did not in practice use marginalist tools, did not react to changes in demand, taxes, &c., and did not maximize short-run profits. The inevitable controversy within economics resulting from these empirical revelations would be put on hold during WWII so that, by the end of the war, a "broad groundswell of criticism of marginalism had built up waiting to burst into print," (Lee 1984: 1111-4).

While the mid-century attack on marginalism may be conceived broadly as occurring between Hall and Hitch's "Price Theory and Economic Behavior" of 1939 and Heflebower's NBER paper published in 1955 (though presented at the Conference on Business Concentration and Price policy three years prior (Lee 1984: 1119)), Mongin restricts the marginalist controversy proper to the AER from 1946 to 53 (Mongin 1997: 1). Machlup had similarly defined the controversy as within the AER, between Lester, Machlup, and Stigler, and from 1946 to 47—arguing further that similar attacks in the *Oxford Economic Papers* lacked both sides of the debate (Machlup 1967: 1).

Lester's initial attack in March 1946 reflected the author's doubts concerning the marginal productivity theory of wages and marginalism in general. The article was grounded in a survey of Southern manufacturing firms, giving Lester the 'empiricist' label (Oliver 1947: 375)[1] in contrast to the marginalists. The conclusions (cf. Lee 1984: 1114-5; Mongin 1997: 3) drawn from this, and others', work were as follows. First, demand was considered by the decision

[1] The term is used here and below to reflect the empirical roots of the so-called antimarginalist group, and not to suggest that this side was anti-theoretical (see Gordon 1948: 287-8; Nordquist 1965)—and perhaps, if I were pressed, as a backdoor comment on the explicit denial of reality's relevance in many of the defenses of the marginalists.

makers of firms to be much more important in determining employment as compared to wages or other costs—this in contrast to the emphasis placed by marginalism on wages and profits.

Second, unit variable costs tend to be stable or decreasing with increased output over a normal range. These conclusions were similarly drawn by Joel Dean and Theodore Yntema in the early 1940s (Lester 1946: 67). Moreover, this was the point on which Eiteman would attack conventional economic analysis nine months after Lester (cf. Lee 1984: 1116-8). The important result of this was the conclusion that "business men do not determine their scale of operations by reference to marginal cost and marginal revenues at all: they simply produce all that they can sell," (Eiteman 1947: 914). Lester had in fact found this to be the case in his survey: "unlike economists, business executives tend to think of costs and profits as dependent upon the rate of output, rather than the reverse (the rate of output as dependent upon the level of costs)," (Lester 1946: 81). Thus, importantly, Lester concluded that curtailment of output is relatively unimportant in responding to increased wages—contrary to marginalist predictions. Finally, Lester found that firms do not in practice adjust capital-labor ratios to changes in relative costs.

Knowing before hand that Lester's article was to go to print, Machlup responded in September of the same year by refining his pre-War redefinition of marginalism's purpose (Lee 1984: 1115). The argument began with a broad definition of marginalism, "the logical process of 'finding a maximum'," as a derivative of "the so-called *economic principle*—striving to achieve with given means a maximum of ends," (Machlup 1946: 519). Machlup similarly broadened the definitions of marginal cost and revenue (see Oliver 1947: 375-6). In light of these more liberal definitions, Machlup made specific the scope and depth of marginalist analysis and in the process significantly narrowed its applicability (again, in word, if not in practice).

To point, Machlup argued that marginalism was intended to explain and predict *changes* in prices given changes in conditions, not in any way to predict the actual behavior of firms or any particular level of price, output, &c. Managers, moreover, may be 'implicitly' considering marginal costs and revenues, the price elasticity of demand, and so on (Lee 1984: 1115-6) by looking to the effects of price changes on any given number of expected future conditions (Machlup 1946: 522-5). Similarly, adjustments in the ratio of utilized capital to labor can be hidden in, e.g., adjustments in machine maintenance and the frequency of replacement (Machlup 1946: 531, fn. 14). Empiricist evidence could thus generally, and with sufficient creativity, be interpreted in marginalist terms (Lee 1984: 1115-6).

In redefining marginalism, Machlup gave his classic automobile driver analogy in response to arguments that managers did not actually make the calculations made in marginalist analysis. In sketch, a driver passing a truck when an oncoming car is present does not literally calculate the speeds and distances that would be involved in a scientific explanation of the event; he has, rather, through experience developed the ability to unconsciously know if there is time to pass. Moreover, the driver may not even be capable of making the 'scientific' calculations. Thus, Machlup argued, a hypothetical scientist's 'naïve questionnaire' regarding the process would only produce "the most hopeless assortment of answers;" but "to call, on these grounds, the theory 'invalid', 'unrealistic', or 'inapplicable' is to reveal failure to understand the basic methodological constitution of most social sciences," (Machlup 1946: 523-35).[2]

Lester's 1947 reply both to Machlup and to Stigler's 1946 marginalist analysis of the minimum wage issue, and the latter two authors' rejoinders, took on a markedly antagonistic tone. Among many arguments, Lester assured Machlup that even a marginalist of infinite genius could not tease out a manager's explanation of employment adjustments in terms of marginal cost and revenue. Turning to Stigler, the criticism fell on the "questionable conclusions that are likely to follow from strict application of pecuniary marginalism to wage-employment problems," (Lester 1947: 142). From this line the 'antimarginalist' concluded that,

> At the heart of economic theory should be an adequate analysis and understanding of the psychology, policies, and practices of business management in modern industry. Contrary to the assumptions of marginalists, the quality of business management may not vary according to its compensation, nor is such management all cut to the same pattern, motivated by a single pecuniary purpose and making decisions by one method. (Lester 1947: 146)

Sparing the details, Machlup and Stigler's rejoinders would provide little additional argument not made in Machlup (1946), and even less toward Lester's 1947 communication. These would conclude, primarily by fairly patent misrepresentation, that Lester's key conclusions were 1) both compatible with and generally dealt with explicitly by marginalists'

[2] Machlup (1967: 6-7) would clarify that this argument only applies over many cases, not the individual, and with regards to changes in conditions (e.g. of driving conditions). His 1955 supplement argued further that even auxiliary assumptions (such as competitive type of firm) are a matter of theoretical specification, not empirical justification (Mongin 1997: 4). The argument reached perhaps an apex with,

> …a model of a theoretical firm in an industry consisting of a large number of firms can do with a much smaller number of assumptions, provided the model is used to predict, not the actual reactions of any one particular firm, but only the effects of the hypothetical reactions of numerous anonymous 'reactors' (symbolic firms). (Machlup 1967: 8)

The models, he argued, are simply not designed to do more.

work; 2) not supported by evidence—e.g., that decreasing wages did not lead to increased employment (Stigler 1947: 156); and, finally, 3) that Lester had presented no alternative theory—Machlup going further in attacking, in general and by way of misrepresentation, the 'full-cost pricing' doctrine (see Machlup 1947: 152-3).

Mongin (1990-91: 244-5) has noted that Machlup's automobile driver analogy did not play a major role in marginalists' defense; however, it has been my own reading that, while the analogy was not the direct focus of subsequent arguments on the antimarginalist side, it remained an implicit impasse in the controversy. While the above-quoted passage from Lester (1947) does not directly address Machlup's tautological reasoning, it suggests a place for economic theory that is at cross-purposes with Machlup's placing. That is, Lester's vision of economics was wider than Machlup's, being able to address and explain the actual economic behavior of firms and markets; whereas, Machlup expressly denied the discipline the majority of this capacity.

Moreover, while it was noted above that Machlup himself restricted the 'Marginalist Controversy' proper to the 1946-47 articles already discussed, the AER continued to publish responses to these initial arguments in the course of the following two years. Among these, the most insightful, and critical of Machlup's metatheoretical redefinition, were Oliver (1947) and Gordon (1948). Both of these articles summarily refuted the efficacy of expanding marginalist concepts to the point of saying nothing, and emphasized the need for theory to be grounded in actual processes. Oliver (1947: 381), for instance, argued that marginalism should explain not only price movements, but also why prices don't change when they don't, *and* why often all of this can be accounted for by simple 'rules of thumb'. Gordon (1948: 269), furthermore, found that Machlup's broadened definitions of marginal cost and revenue simply allowed for the rationalization of any and all behavior. Between this extreme and the extreme of profit maximization and perfect knowledge, Gordon thus hoped for a middle-ground that could explain actual behaviour with subjective approximations of objective magnitudes (Gordon 1948: 269). To this end Gordon found traditional marginalist tools lacking:

> Marginal theory can carry us only a limited distance in explaining the business decisions that are made under these conditions. Refuge in subjective interpretations of the cost and revenue functions is certainly no answer. It leaves theory saying that business men do what they do because they do it. (Gordon 1948: 287)

While the arguments set forth in the AER from 1946 to 49 appear to have, in some degree, favored the critique of marginalism—with only Machlup's 1946 article constituting a full

piece on the defending side—it would be widely held by 1952 that the antimarginalists' positions could simply be brought into marginalism, without substantially altering the latter. E. A. G. Robinson, Machlup, Cartwright, Clark, and Hawkins had each said that, if average direct cost is constant with respect to different levels of output, it would coincide with marginal cost; and, if the markup on which full cost pricing focused was based at all on demand considerations, and was flexible, it could be a proxy for price elasticity of demand. (Coase, in fact, defined "ordinary marginal analysis" as "taking account of demand" in his response to Heflebower (1955: 394).) Firms could therefore be conceived as indirectly equating marginal cost and revenue. "Thus," Lee (1984: 1118) concludes, "by 1952, there existed a widespread belief that full cost pricing was marginalism in a different language."

While Professors Lee (1984) and Mongin (1997: 2) both see Heflebower's article as the final word in the controversy, I should note that my own reading finds Heflebower to have made no definite conclusions regarding the controversy. He likely did perceive his own work as showing the commensurability of full cost pricing and marginalism *via* management consideration of demand—the manner in which empirical work in support of the former was denigrated, all the while implying work supporting the latter was more common than it likely was, is enough to make the point. However, Heflebower's theoretical analysis was restricted to dressing an essay on the inadequacy of the state of knowledge on the subject in the rather threadbare garb of a persuasive argument toward co-opting the antimarginalist side. The argument that full cost pricing was marginalism by another name or from a different vantage point was not made with sufficient coherence to pass for scientific rigor even amongst economists. Consideration of the market elasticity of demand was restricted to little—if anything—more than a qualitative judgment of its existence in the first place (see Lee 1990-91: 233-4). Mongin furthermore, notes that the *ad hoc* manner in which the defenders of marginalism interpreted their own doctrine was largely responsible for preventing detailed empirical comparisons of the two sides; the formal model, in which the profit markup was explained in terms of the elasticity of demand, was never tested empirically (Lee 1990-91: 237).

Rather than a definitive theoretical statement or a reconciliation of arguments, the 1952 article's primary function was as a gilded medal of self-proclaimed victory for the marginalists. Coase made just this point immediately following Heflebower's work:

> I have implied that Heflebower rejected the full-cost principle. Perhaps this is too strong. But I had the impression, at the end of reading his paper, that if the

> full-cost principle was still standing, it was only because it was supported by two old gentlemen, one of who was certainly Demand and the other of whom looked uncommonly like Marginal Analysis. (Coase in comment to Heflebower 1955: 393)

That Coase's reading left him only with the 'impression' of victory for marginalism only reinforces Lee and Irving-Lessman's (1992) analysis of the three approaches to the contradicting evidence presented by the antimarginalists. In the first, it is clear that Heflebower's was the ultimate of several arguments of co-optation by reinterpreting marginalism and full-cost pricing so that the latter appears to conform to the former.

In addition to this strategy of theoretical co-optation by declaration, however, the even-more-unseemly strategies of political, ideological, and institutional suppression appear to have been well at work. In the US, for instance, only articles in opposition to Eiteman's 1947 article were printed in the AER (Lee 1984: 1123). In the UK, where P. W. S. Andrew's normal-cost pricing had similarly been co-opted (Mongin 1990-91: 239; Lee and Irving-Lessman 1992: 300-1), attempts were made to take Andrews' fellowship, advancement was denied to Elizabeth Brunner (Andrews' collaborator), and graduate students were told they would suffer low career prospects for their association with Andrews (Lee and Irving-Lessman 1992: 298).

Thus, by the early- to mid-1950s the marginalist dominion over mainstream theory was effectively secure. The firm would remain essentially a black box designed to maximize profits, in the long run if not the short. From this then, profit maximization, as an empirically *un*verifiable tenet, became part of the neoclassical 'hardcore', establishing that the study of "decision-making processes was no task for a theoretician," (Lee and Irving-Lessman 1992: 300-1).[3] This, however, did not preclude ongoing inquiry outside of the marginalist approach.

## 3 : Andrews, Brunner, and the Journal of Industrial Economics

Perhaps in response to the institutional strategies of the marginalists (Lee and Irving-Lessman 1992: 300 n.), Andrews established the *Journal of Industrial Economics* in 1952, retaining general editorship until the year of his death in 1971. The editorial board was initially small—comprised of six editors with Brunner providing secretarial and editing assistance.

[3] Section 4 will effectually qualify this statement in light of the large body of work analyzing the theory of the firm that persisted after the conclusion of the marginalist controversy.

Andrews himself closed the first issue of the journal with a statement of the place of industrial economics (industrial organization in the US) in the wider discipline and the purpose of the JIE in particular. Industrial Economics, he argued, should *not* be the application of mainstream economic theory to particular problems and circumstances in industry, but rather, vice versa. Prevailing theory—the 'atomistic' theory of business—fails to provide a 'toolbox' for the industrial economist (Andrews 1952: 75). The discipline requires, rather, a working theory of individual firm behavior *and* the relationships—both competitive and complementary—between firms, and this will likely only come out of further empirical work. Thus, the journal was established with a focus on empirical work and, in the more theoretical enterprises, on practical implications to specific problems (Andrews 1952: 78).

This mission was carried out in earnest for at least the first decade and a half. Some articles in the JIE's inaugural issue discussed the particulars of pricing and costing in nationalized industries (Stones 1952; Shone 1952), while subsequent issues covered, for instance, rule-of-thumb pricing in the book trade (Blackwell 1954), costing and pricing in light of the threat of new competition (Andreano and Warner 1958; Gupta 1968), costs and time periods (e.g. the theoretical 'short-run' versus the planning period versus the budgeting period) (Gottlieb 1960). As Andrews had affirmed, the focus often remained empirical—as, for instance, in Bower's 1964 article on the brick industry, or Brownlie's 1965 econometric study of pricing—though the implications for theory were not neglected (see, e.g., Gold 1966, Jacoby 1964).

Albeit with severely limited precision, it may be possible to say that, in these earlier years, the journal remained generally non-neoclassical in content. Exceptions, of course, exist as in Holton's 1957 analysis of the retail industry in terms of profit maximizing equilibria. Moreover, concepts such as marginal cost were not avoided, but were, rather, openly discussed—frequently with regard to their inapplicability to the work at hand.

A less-than-exhaustive review of the JIE up to the mid-1980s suggests, however, that substantial neoclassical content began to show in the late 1960s. This trend is evidenced, for instance, by Maneke's econometric analysis of steel prices in terms of maximized industry profits, Crandall's formal, profit maximization model of the auto industry, and Sherman's analysis of trading stamps—all of which were published in 1968.

The early 1970s would see a number of important changes in the journal. With Andrews' death in 1971, Brunner would take over as general editor. By the beginning of the 22$^{nd}$ volume

in 1973, founding editors, and key figures in industrial organization, Heflebower and Mason, left and it was announced that the journal's scope would be broadened (see front matters of Vol. 21, No. 3; Vol. 22, No.1).

While it is difficult to say that the above events are necessarily the cause, the content of the journal at this time continued toward the mainstream in three general respects. First, formal neoclassical models, including the usual graphical representation of cost curves and the like, slowly became common where they were previously rare. This is evidenced early on by the discussion between Hawkins (1970), Formby (1973), and Davies (1973) regarding Baumol's Sales Maximization Hypothesis.[4]

Second, the trend in empirical work—on which the journal was originally to focus—moved away from exploratory, detailed case studies of industries and firms, and toward regression analysis. Phlips' (1969) empirical testing of the administered inflation hypothesis provides an early example. (See also subsequent discussion from Ross 1973 and Phlips 1973.) This trend, Bresnahan and Schmalensee (1987) argue, is general to industrial economics and stems firstly from the popularization of regression analysis in the 1960s following Bain's earlier work. Thus, Comanor had by 1971 noted that despite Mason's focus on detailed case studies, econometrics had become the favored method of empirical work (Bresnahan and Schmalensee: 1987: 372; cf. Wilson 1983: iii). The trend was further reinforced by persuasive critiques in the 1970s of cross-sectional industry analysis and a general decline in empirical work in the same decade (Bresnahan and Schmalensee: 1987: 372-3).

Finally, the assumption of profit maximizing firms increased in prevalence in the JIE of the 1970s. Initially, this took a more general, less orthodox form. For instance, Osborne's formal analysis of pricing for the purposes of discouraging entry assumes profit maximizing in the long run while noting that other long-run goals could also be accommodated (Osborne 1973: 71). Similarly, Boyle and Hogarty's (1975) analysis of the US auto industry posits a price leadership framework with joint-profit maximization.

By the early 80s the prevalence of neoclassical theory proper in the JIE had solidified. Thus for instance, Baye (1981) analyzed optimal advertising, adding novelty by examining

[4] Baumol's hypothesis constitutes a key work in the revisionist theories of the firm termed managerial economics. Further discussion of these theories has been saved for the next section; however, it should be noted that consideration of the marginalist content of many of these theories would likely complicate this section's analysis of the JIE's trend toward marginalism. I have decided to separate them for the most due to the additional questions these revisionist theories raise with regard to their relationship to marginalism proper and the traditional neoclassical approach to the firm..

advertising time rather than expenditure, but maintaining an orthodox model of profit maximization. Similarly, and notably, Wahlroos (1983) dismissed any theory of administered prices in favor of a formal, neoclassical model.

Wahlroos' article is further notable for its publication in the final issue for which Brunner acted as general editor (prior to her retirement and death shortly thereafter). Brunner would be replaced by Donald Hay, notable not only for being the first general editor not having founded the JIE, but also for being of a considerably younger generation of economists—having received his M. Phil. in 1968 (Hay N.D.). Under Hay's leadership the mission statement of the journal changed considerably.

The purpose of the journal given in the back matter had not been substantially altered since its establishment—stating in 1973 for instance, that the journal was "concerned with the individual business and its relation to the economy," that the focus would remain—as Andrews had laid out—on observed reality and contemporary problems, and that while "abstract theory is not barred," it should be explained so that the non-specialist could understand (Back matter of Vol. 22, No. 1, Sept. 1973). This statement, in fact, hardly changed at all in the ten years prior to Brunner's leaving. However, on the third issue under Hay's leadership the statement, and presumably the official editorial policy, changed.[5] Beginning in March of 1983, and entirely contrary to Andrews' statements at its founding, the journal would "specifically [seek] to bring the tools of modern economic analysis to bear on the analysis of real problems of industrial economies." (Back matter Vol. 32, No. 3). The position on empirical versus theoretical work would similarly be turned upside down. Rather than subjecting abstract theory to certain requirements, empirical work would be qualified:

> The Journal has a particular tradition of case studies of firms and industries, which the Editors would wish to continue. However, contributors of such studies are asked to remember that a study will be of interest to the international readership of the Journal only if it makes a particular contribution to the methodology of such studies, or if the empirical results are exceptionally interesting. (Back matter Vol. 32, No. 3)[6]

[5] I should note in fairness that this change may more accurately reflect the trend in content started long before Hay's term than any overt editorial decision. Some further discussion of these general trends, and possible reasons for them, will be discussed in the next section. In any case, the change in the official position of the journal remains a striking reflection of the journal's gradual move toward mainstream doctrine.

[6] The policy statement on case studies has since become somewhat less restrictive: "Case studies should be motivated by, and inform, economic theory and should avoid pure description," (Back matter Vol. 51, No. 3, Sept. 2003). However, the general purpose apparently remains the application of theory to industrial economics and not vice versa: "We at the *JIE* believe that industrial organisation is the disciplined application of economic principles to explain and predict real-world behaviour of firms, markets and industries," (JIE Mission 2009).

Ostensibly, the original direction of the journal with regard to industrial economics informing mainstream theory was reversed between the late 1960s and early 1980s; while, at the same, time the scope of empirical work was effectually narrowed to the testing of neoclassical hypotheses through econometric regressions.

The JIE's special issue on 'The Empirical Renaissance in Industrial Economics' (1987) provides a concise example of the state of affairs by the mid-1980s. As Bresnahan and Schmalensee (1987) note, where empirical work had been largely abandoned by 1980, industrial economics had since seen resurgence in this area, albeit with a different hue. According to the authors, the new trend in empirical work was directed at econometric testing of formal hypotheses, rather than exploratory analysis—the case study approach had survived only in the then-recent turn toward collecting new data (Bresnahan and Schmalensee 1987: 373).[7]

Thus, articles in that issue generally discussed formal neoclassical literature on maximizing production functions, game theory, and the like; then turned to a formalization of the models for econometric testing purposes; then to the regression analysis (see, e.g., Domowitz, Hubbard, and Petersen 1987; Leiberman 1987). Other articles, however, made little theoretical discussion, maintaining a greater focus on the econometrics, but still aimed, of course, at testing a formal hypothesis (for instance, Evans' 1987 regression of firm growth, &c. on size, age, and number of plants).

An interesting example, Bresnahan (1987) explains the unusual spike in US auto production and concomitant drop in prices in 1955 by way of a temporary breakdown in collusion—i.e. a price war. This, however, is explained with formal neoclassical modeling and regression analysis in which detection of 'market power' reduces to estimation of demand elasticity in the supply equation (Bresnahan 1987: 479; cf. prior, Aaronovitch and Sawyer 1981).[8]

Thus, whether Andrews' and then Brunner's deaths are the cause of the trend toward neoclassical content in the JIE *via* the resulting changes in editorial control, or simply indicative of neoclassical dominance of a new generation of economists as the old die out, remains uncertain. To be sure, by the mid-1980s formal marginalism and regression empirics had

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[7] It should also be noted that this generality of regression over case study analysis is not without its exceptions. Bothwell et al. (1984) for instance argue that regressions of profitability on concentration and the like are fundamentally flawed by specification uncertainty; and that, as such, empirical work in the area of structure-performance should return to the case study approach.

[8] Cf. Lee 1990-91 regarding the formalization of the full-cost pricing hypothesis through manipulation of the neoclassical monopoly pricing equation.

supplanted the focus of the journal's first 15 years or so on general empirical inquiry of actual firm behavior, relationships, and so on. However, Bresnahan and Schmalensee (1987) suggest that this reflects the general trend of industrial economics. Thus, while lacking any substantial certainty, it could at least be argued that the establishment and direction of the JIE by P. W. S. Andrews, Elizabeth Brunner, and the lot was done, at least in part, as an institutional response to the suppression of their heterodox theories; and, furthermore, that the eventual shift toward primarily neoclassical content was likely the consequence of both trends in industrial economics in general, as well as the retirement or death of the founding editors of the journal.

## 4 : Revisionist Theories of the Firm

In the above rudimentary attempt to describe the gradual trend toward neoclassical domination of the *Journal of Industrial Economics*, I have intentionally avoided discussing scholarship directed specifically at the theory of the firm. This area has been saved in part because its breadth warrants separate discussion, but, in the main, because it constitutes a distinguishable line of inquiry antecedent to, intimately part of, and stemming from the marginalist controversy of the late 1940s-early 1950s. Thus, while an essential component of the marginalist controversy (Cf. Cyert and March 1963: 4; Nordquist 1965: 33; Machlup 1967), this area further warrants separate attention because identifiable theoretical approaches continued to persist, evolve, commingle, and combine long after the controversy had waned in the memories of subsequent generations of economists.

Contrary to Foss and Klein's (2005: 8-10) assertion—following Pigou's statement that "it is not the business of the economists to teach…business men how to do their job," similar remarks by Joan Robinson, and Machlup's (1967) dismissal of the subject (to be discussed shortly)—the theory of the firm, its motivations, decision processes, and organization, was very much a lively area of scholarship at least as far back as the 1930s.[9]

As was discussed in section two, neoclassical doctrine had, by the 1920s, come to dominate the discipline. This was true of the pricing model as well as the underlying assumptions concerning firm behavior. In particular, it was Pigou's 'equilibrium firm' that established the neoclassical theory of the firm as a production function whose cost structure is

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[9] To be fair, Foss and Klein are speaking to a particular conception of the theory of the firm—namely, an explanation for the existence of firms, markets, &c. using "explicit efficiency rationales," (Foss and Klein 2005: 11). This is an interesting approach to note, however—particularly in the claim (Foss and Klein 2005: 10 n.) that no theory of the firm was developed in institutional economics (interesting, of course, as likely the most critical text in this school of thought is Veblen's *Theory of Business Enterprise*).

entirely technologically and exogenously determined, and whose behavior is independent of its organizational or ownership structure (Moss 1984; Foss and Klein 2005: 12). However, with the development of imperfect competition theory, whereby these equilibrium firms were assumed to pervade industries, the actual actions, and the motivations underlying these actions, became subject to empirical test (Moss 1984). The resulting wealth of studies then, in addition to laying doubt on the neoclassical pricing model, exposed a number of problems concerning the veridicality and efficacy of the neoclassical ('black box', 'production function', or entrepreneurial) theory of the firm (Nordquist 1965: 34-7).

These doubts developed in tandem with a growing role for economists as business consultants. As Simon (1979) wrote, prior to WWII, industrial engineers, public administrators, and other specialists formed 'operations research' to look directly at how decisions are made and how these decisions could be aided by the research. This was brought into the social sciences with the establishment of 'management science', where the common concern was with "the *ways* in which decisions are made, and not just with the decision outcomes," as well as "*how* to decide rather than…*what* to decide," (Simon 1979: 498). Thus, contra Lazear (2000: 126), there was, from a very early date in the modern history of economics, a good deal of normative work in the areas of microeconomics and industrial organization (Simon 1979, 1959; Shubik 1961; Farrar and Meyer 1970).

With the growth of 'normative microeconomics' and the theoretical doubts surrounding the neoclassical theory of the firm, it appears that is was inevitable that the post-war period would see an explosion of explanations of firm decisions—or 'revisionist theories of the firm'. These theories, moreover, would generally be taken from the observed behavior of actual firms. Thus, as an example, Drucker argued for a theory of business behavior that would be "the foundation of good practice," (1958: 83). This required a focus on the long-run survival of the firm which, he argued, is contingent on five interdependent dimensions of goals which the firm must work to satisfy.

The earlier of these *ad hoc* theories can be roughly understood in terms of their motivational and organizational considerations. Generally, it was argued that, given the existence of uncertainty of consequences and potential alternatives in action, the objectives of the firm must be considered in their variety. Additionally, it was recognized that the organization of the firm's several employees as well as its ownership relations could have a significant influence on its behavior (Cyert and March 1963: 8-13). Thus, Rothschild (1949) focused primarily on the

maximization of profits, but only on the condition that the firm's survival had been ensured (or maximized). Rothschild would further argue that "under oligopoly the price tends to be the outcome of a variety of *conflicting* tendencies *within* the firm," (1949: 313; emphasis mine). Along similar lines, Baumol modeled the firm as maximizing sales revenue, again subject to a minimum or adequate profit rate (Cyert and March 1963: 9-13). (See also Lee (1984: 1120-1) regarding Gordon's 1948 contribution and insights into the relation of these theories to the marginalist controversy.) Finally, Higgins first proposed in 1939 a model of the firm in which the preference function of the entrepreneur was maximized, allowing a determinate firm and market equilibrium, though not necessarily maximum profits (Nordquist 1965: 36-7). (For additional references to these early *ad hoc* theories, see Furubotn and Pejovich 1972: 1149 n.).

Hickman's 1955 article offers a concise appraisal of these early trends. The author observed that profit remained the primary motivation of firms, though often in a more ambiguous, long-term conception than previously; other motivations, including the economic (e.g. firm survival) and non-economic (e.g. amenities to management), and their complexities had been increasingly recognized; and most still treated "the manager as an autonomous, isolated individual rather than as a member of groups and a participant in a culture," (Hickman 1955: 546).

While perhaps the diversity of these early revisions tended only to make the issues more confusing (Nordquist 1963: 37-8), in the 1950s and 60s two relatively distinct lines of inquiry became apparent. These are best understood in relation to the manner in which they criticized the profit maximization assumption of the standard neoclassical theory of the firm (Cyert and Pottinger 1979: 238-9; Cyert and March 1963: 8; Nordquist 1965: 33; Williamson 1964: 5-6). The first line of attack argued that profits are not the only objective of the firm.

Generally termed 'managerial economics', this theoretical response to the problems exposed by decades of empirical work admitted of empirically grounded motivations for the firm or the management, but maintained the marginalist methodology of optimizing agents. On this framework, Papendreou (1952) is a commonly cited figure, though Williamson's dissertation (1964) is likely a more refined exposition (see also Farrar and Meyer (1970) for a somewhat later work and Lee (1984: 1122) for additional references). In these theories, the firm is modeled at the level of its management which maximizes not profits but a 'general preference' or utility

function in terms of salaries, staff, discretionary investment spending, and other costs (e.g. office remodeling) (see Williamson in Cyert and March 1963; Cyert and Pottinger 1979:206).[10]

As it relates to marginalism broadly conceived (Lee (1984) would call these theories "extended marginalism"), the managerial approach maintained a critical stance toward the traditional theory of the firm while allowing for certain concessions. For instance, modeling management as self-interested personal optimizers[11] put them on par with the conventional theory of the consumer (Nordquist 1965: 33), but at the same time showed that, barring certain unlikely constructions of the managerial utility function, the firm would not maximize profits (Williamson in Cyert and March 1963; Williamson 1964: 18-19, Ch. 4). Thus, by lowering the level of analysis from the firm to the controllers of the firm, the managerial approach could argue that the traditional theory of the firm was a specific case of this more general theory (cf. Lee 1984: 1122).

As noted from Hickman above, managerial economics tended to treat management *as* the firm (or vice versa), ignoring organizational structure or assuming the goals of all actors in the organization to be in harmony with those of management. Williamson (in Cyert and March 1963: 240-3), for instance, argued that management's (specifically, top management's) role in coordination and initiation and access to information suggests that, in normal cases, their demands alone can be considered to determine firm goals. Indeed, intra-organizational conflict would severely hinder operationalizing these models (Shubik 1961: 104; Cyert and March 1963: 27-8).

The second line of attack against the profit maximization assumption was focused primarily at the maximization component—that is, directly at the marginalist methodology. To point, this approach questioned the general realism and efficacy of modeling agents as optimizers—either in maximizing profits, utility, &c., or in minimizing costs or disutility. Psychologist and founding contributor to the 'behavioral approach', Herbert Simon, observed that while satiation is not considered in neoclassical theory, it is prominent in most psychological theories of motivation, where drives produce (potentially varying) aspiration levels spurring action which then ceases upon satisfying the drive (Simon 1959: 262-3). Thus, in light of discussions concerning the meanings of certainty, rationality, &c. Simon defined 'bounded

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[10] Williamson (1964: 32) more coherently organizes the various potential goals of a management, given a purported general consensus between organization theorists and knowledgeable economists. These are salary, security, dominance (status, power, prestige), and professional excellence.

[11] Indeed, Williamson cites this as a virtue of his model (in Cyert and March 1963: 252).

rationality' by the procedures within an organization directed toward transforming "intractable decision problems into tractable ones," including the search for satisfactory (as opposed to optimal) choices, the replacement of "abstract, global goals with tangible subgoals whose achievement can be observed and measured," and the delegation of decision-making to specialists whose work is coordinated "by means of a structure of communications and authority relations," (Simon 1979: 501).

From the work of Simon and others (Finch 2002: 226), Cyert and March (1963) authored their seminal work in behavioral economics. In this they pursued an "examination of how organizational objectives are formed, how strategies are evolved, and how decisions are reached within those strategies," (Cyert and March 1963: 19). This in turn requires "more satisfactory theories of organization *goals*, organizational *expectations*, organizational *choice*, and organizational *control*…the four major subtheories of a behavioral theory of the firm," (Cyert and March 1963: 21, emphasis in original). Without elucidating the theory in its entirety, it is worth noting that goals in this framework are defined through bargaining between members of the organization with different and changing demands, and through other short-term pressures (Cyert and March 1963: 43). Furthermore, goals are affected broadly by the identification of what is important which, in turn, rises from identified problems; and more specifically by those circumstances affecting particular 'aspiration levels' (including historical precedent, rules of thumb, and comparison to competitors), which are in turn, affected by past goals, performance, and performance of 'comparable' organizations (Cyert and March 1963: 115).

To be clear, in addition to the development of an empirically grounded theory of firm goals or motivations, the behavioral approach is further directed toward a realistic explanation of the processes of decision-making. That is, behavioral economics is directed toward understanding not simply behavior of the firm given its underlying motivations, but also the processes by which these motivations are formed and modified through time (see Cyert and Pottinger 1979: 217). This approach, necessarily grounded in empirical research (Finch 2002: 226), was shown by Simon (1979) to be important as conclusions drawn from theory can vary significantly based on assumptions of the decision processes.

The behavioral approach to the firm is clearly distinguished from marginalism (traditional and extended—or, managerial). Most saliently, behavioral economics dismisses optimizing behavior as not observed and not possible in the real world, preferring instead the concept of bounded rationality or satisficing (see also, Bianchi 1990). Furthermore, while

joining managerial economics in taking motivational assumptions from evidence, the behavioral approach goes further in analyzing the construction of the motivations themselves. As Cyert and Pottinger (1979: 220) would argue, all models involving firms have some kind of behavioral rules (implicit or not), and these should not be treated as *ad hoc*, but rather as the focus of the analysis. This approach then necessitates a realistic approach to the internal organization of the firm in which conflict is always present—a clear shortcoming of both the traditional and managerial theories of the firm.

Finally, these early formulations of the behavioral approach are not without their own difficulties. As Earl (1990-91: 266) has noted, Cyert and March's original models portrayed firm pricing as essentially reactive, "devoting little attention to competitive factors that decision-makers ought to bear in mind in setting prices." This fault may, in part, be responsible for Lee's (1984: 1122-3) conclusion that behavioral economics, while refuting marginalist methodology, remained consistent with the neoclassical approach to prices and pricing, therefore accommodating the view that full cost pricing could be incorporated into mainstream theory. Whether this issue has since been resolved within the behavioral tradition remains outside the scope of this paper.

As Nordquist (1965) wrote, from the mid-50s to the mid-60s, work on the theory of the firm followed the same battle lines as in the marginalist controversy. Specifically, the revisionists were met with essentially the same arguments, though perhaps with some new additions, designed to dismiss any need to change the traditional neoclassical framework or the profit maximization assumption. For instance, Alchian (1950) argued that long-run survival of a firm indicates that its management was maximizing profits regardless of their stated objectives (Nordquist: 1965: 41).

It would appear from a cursory review of the literature that the developments of normative microeconomics discussed above had also offered bulwarks for the defense of the traditional theory of the firm. Earley (1956) submitted survey evidence of purportedly "excellently managed" firms, suggesting that pricing behavior was consistent with marginal analysis—at least for the firms under consideration. Earley explained that his sample was intentionally restricted to "leading firms…presumably in the vanguard in the use of new management techniques." Earley continued, "through diffusion, direct imitation, and the competitive pressures they create, they are likely to set the dominant patterns of *future* business

practice," (1956: 44-5). By implication, profit maximization, or marginalist pricing, either is or, failing that, *should be* how firms behave.

In his 1963 *Journal of Business* response to revisionist theories of the firm Cohan made this argument explicit. There he argued that these theories would likely offer no important insights into positive or normative economics. On the normative side, Cohan boldly stated "it is palpably absurd…to argue that firms *should pursue* 'satisfactory' profits," (Cohan 1963: 316, emphasis mine). Interestingly, the argument was taken even further, suggesting that neoclassical analysis does not necessarily explain what firms do, but rather is directed toward explaining what they ought to do. Thus, for instance, the theory does not predict utility maximization, it postulates it; and, furthermore, Cohan argued, people would optimize if they knew how.[12]

These arguments aside, however, the primary defense remained unchanged since the marginalist controversy roughly ten to twenty years prior. Bodenhorn (1959) and Cohan (1963), for instance, both conjured Friedman's classic methodological treatise to argue that attacks on the motivational assumptions constituting the traditional neoclassical theory of the firm were irrelevant (cf. Cyert and March 1963: 13; Lee 1984: 1111). And again, it was Machlup who exposited the primary statement of defense in 1967. In this, Machlup argued that the revisionist theories operated on lower levels of analysis than the traditional theory and thus were not rivals (cf. Foss and Klein 2005: 13). More specifically, Machlup argued that there were numerous conceptions of the firm, depending on the area of analysis. Thus, it is,

> ludicrous…to attempt *one* definition of *the* firm as used in economic analysis, or to make statements supposedly true of 'the' firm, or of 'its' behavior… The concept of the firm in organization theory, for example, need not at all be suitable for accounting theory or legal theory; and I know it is not suitable for either competitive price theory or for oligopoly theory. (Machlup 1967: 28).

On the whole, Machlup left space for alternative lines of inquiry into the theory of the firm, but maintained the traditional, profit maximization approach as, ostensibly, the most applicable to the most common matters in economics—though managerial economics may be suited in certain cases where the traditional theory would not suffice (Machlup 1967: 30-1). The

[12] See Simon (1959: 259) who observed that advances in concepts and computation power in management science had allowed progress in calculating optimal choices under certainty or given known probability distributions. These developments, Simon continued, can be interpreted in two ways: 1) firms try to, or would like to maximize profits, and advances along these lines will allow them to do so: "nature will imitate art and economic man will become as real (and as artificial) as radios and atomic piles;" or 2) "even with the powerful new tools and machines, most real-life choices still lie beyond the reach of maximizing techniques—unless the situations are heroically simplified by drastic approximations." It would appear that Cohan had chosen the former interpretation.

implication was clear that profit maximization would remain the default model, though economists could 'specialize' in more peripheral topics as they saw fit.

Lacking a thorough review of the mainstream literature, and without knowledge of any other such review on this matter, an analysis here of the mainstream acceptance of these defenses versus the revisionist lines of research must necessarily rely on hearsay (from others) and conjecture (of my own). Mongin (1997: 5), for instance, has stated that these lines of inquiry were not representative of the profession. As stated above, Lee and Irving-Lessman (1992: 300-1) observe that, with the end of the normal-cost pricing debate, the accepted mainstream conclusion held that "studying decision-making processes was no task for a theoretician."

However, Simon received the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel in 1978 and the behavioral approach has clearly survived the dissipation of the marginalist controversy and Machlup's 1967 compartmentalization with some degree of strength; while, at the same time, it has not supplanted the accepted neoclassical 'black box' theory of the firm. Fortunately, Simon himself offered some observations in this regard.

In addition to the Chicago school methodological defense, the neoclassical framework enjoyed a 'revival' due to conceptual and technical developments in the 1960s and 70s: "the flowering of mathematical economics and econometrics has provided two generations of economic theorists with a vast garden of formal and technical problems that have absorbed their energies and postponed encounters with the inelegancies of the real world," (Simon 1979: 503-4). Additionally, the mainstream attempted to deal with its own limitations and to render realistic psychological assumptions unnecessary through three theoretical developments. First, the 'economics of information' approach incorporated search and specialization in decision making in optimal terms but with costs of information finding and transferring. In contradistinction to the behavioral approach, these information costs are not an innate part of the decision maker, but rather a product of the external environment. Thus, these developments don't actually deal with the limitations in perception and calculation faced by actual decision makers (cf. Bianchi 1990). "Hence," Simon (1979: 504) concluded, "the impression that these new theories deal with the hitherto ignored phenomena of uncertainty and information transmission is illusory. For many economists, however, the illusion has been persuasive."

Second, rational expectations theory, ironically developed out of work in which Simon had participated, was constructed to deal with problems of uncertainty in the formulation of expectations. Third, mainstream economics advanced statistical decision theory and game

theory to formally analyze the decisions and interactions of agents while maintaining the core of neoclassical doctrine (Simon 1979: 504-6).

Finally, Lee (2004: 753-4) has recently observed that, then managing editor of the AER, Geroge Borts' 1980 report stated that many heterodox articles were submitted in the 1970s but most were rejected "for being not of high quality and because his referees…did not want to allocate journal space to heterodox articles." Further examination of the report makes it clear that Borts held his own bias as well: "my own preference in choosing among theory and empirical papers has been to give preference to papers that emphasize the rational, choice theoretic aspects of whatever behavior is under investigation," (Borts 1981: 459).

These general trends, in addition to those considered for the *Journal of Industrial Economics* in the previous section, may shed some light on the changing landscape of economics from the 1960s to the 80s. However, given the close relationship of managerial economics to the mainstream (see Machlup 1967), its formal tractability in terms of optimizing agents, and so on, these observations leave something to be desired in explaining what happened to managerial economics—to which I would like to devote the majority of the remainder of this section. To answer this, I argue, we need to consider a third revisionist approach—the Coasian theory of the firm.

Coase's 1937 article on "The Nature of the Firm" contained the seeds of a substantial shift in the pursuit of a theory of the firm. In this relatively short and uncomplicated piece, Coase analyzed the firm from a marginalist perspective, but not in terms of how it behaves or why it does so; rather Coase attempted to explain why firms exist at all and, where they do, what determines their size. For this the starting point was to assume a society of only market transactions but, wherein all transactions had some costs associated with carrying them out. From there, the firm is organized, and, indeed, is defined by, the profitability of circumventing the market by organizing exchanges within the firm. The size of the firm is then limited by bureaucratic rigidities (or, 'diminishing returns to management') where the firm will continue to grow until it is no more profitable to organize exchanges within the firm than it is to buy on the market (see also Coase 1988c; Foss and Klein 2005: 30-1; Bowles and Gintis 2000: 1420). Thus, Coase reflected,

> like galaxies forming out of primordial matter, we can *imagine* the institutional structure of production coming into being under the influence of the forces

> determining the interrelationships between the costs of transacting and the costs of organization. (Coase 1988c: 47, emphasis mine)

The article was, however, cited only occasionally in the 40s and, owing to Stigler's decision to reprint it in the AEA's *Readings in Price Theory*, more in the 50s. However, it was not until the 70s and 80s that it was both cited and discussed (Kitch (ed.) 1983: 202; Coase 1988a, 1988b). Arguments that the analysis was without precedent or company until the 1970s (see Coase 1988c) are, nonetheless, unfounded. Several scholars have noted that Simon's 1951 article in *Econometrica* was essentially a formalization of Coase's approach (Bowles and Gintis 2000: 1420; Hart and Moore 1990: 1150) though Simon had made no mention of the 1937 article in this work.

In truth, and as Benjamin Klein has pointed out (Kitch (ed.) 1983: 202), "The Nature of the Firm" went largely unrecognized until Coase's much more influential article "The Problem of Social Cost," (1960) wherein the argument was essentially restated. This contribution was indeed so popular that citations of Coase's 1937 article grew exponentially from the late 1960s through the 70s (Cheung 1983: 1),[13] and probably long after (cf. Coase 1988c: 34; Williamson 1988: 65-6).

Thus, beginning in the early 1970s, many economists began dealing with business practices in terms of responses to transaction costs, and this approach (appropriately, the 'transaction costs approach') brought the Coasian theory of the firm—or, as Foss and Klein (2005: 11) have termed it, the 'modern theory of economic organization'—into the purview of orthodox analysis (Coase 1988c: 35).

Under the transaction costs approach a number of sub-theories have been put forward which may help explain the eventual unification of the Coasian theory of the firm with the managerial approach. Among these, the 'firm-as-nexus-of-contracts' view constituted a development of Coase's theory in the 1970s and 80s by such figures as Alchian, Demsetz, and Cheung (see Foss and Klein 2005: 24). With an upsurge of interest in the 1980s, this approach would become more or less synonymous with principal-agent theories, focusing on the incentives and conflicts of interest associated with the modern corporation (Foss and Klein 2005: 27).

A third sub-theory, the 'property-rights approach', retained utility maximizing individuals constrained by organization structure, and emphasized transaction costs and the effects of property rights systems on behavior. The particular apprach was thus put forward by Furubotn

[13] See Cheung (1983: 2 n.) for an extensive list of articles discussing "The Nature of the Firm," from Malmgren in 1961 to Barzel in 1982.

and Svetozar in 1972 as a means of integrating Coase's basic argument regarding the firm and the managerial approaches. It follows, for instance, that the corporate system can be understood in terms of the less-than-requisite control over management that owners would otherwise need for the firm to be profit maximizing. These limitations in owner control are, furthermore, analyzed as optimal to both management and owners. That is, owners optimize the benefits of ownership in light of the costs of policing and enforcing management behavior, while management optimizes their own utility, reducing firm profits, but still constrained by the owners' cost-benefit calculus (Furubotn and Svetozar 1972).

Continuing this work of integration, Yarrow, noting the "plethora of *ad hoc* and relatively untested models," (1976: 267) of managerial utility functions and constraints, utilized the property rights approach to compare a few of the more common managerial theories of the time. Hence, by the 1980s, Williamson—whose own dissertation had been a clear example of the managerial approach—was writing of a unified transaction costs approach in which economic institutions were functionally conceived in terms of economizing on transaction costs. (See Williamson (1998) for a more extensive discussion than is warranted here of this approach and its various branches or sub-theories.)

If follows then, that, while managerial economics may have sprung from commonly held doubts regarding the traditional neoclassical conception of the firm—doubts that were presumably largely laid to rest following the marginalist controversy, this approach did not simply dissipate as orthodox economics settled into its reign over the discipline. Rather, managerial economics, alongside the Chicago school theories of Coase, Becker, and the like, fed into a more general sub-discipline in which marginalist tools could be applied to topics traditionally outside the scope of economics.

Nor is this particularly surprising. Machlup himself had already in 1967 suggested a place for these alternative theories, ostensibly so long as the profit maximizing approach remained the standard in the usual areas of economic inquiry (e.g. market behavior):

> proponents of managerial theories…have never claimed to be anything but marginalists, and the behavior goals they have selected as worthy for incorporation into behavior equations, along with the goal of making profits, were given a differentiable form so that they could become part of marginal analysis. Thus, instead of a heated contest between marginalism and managerialism in the theory of the firm, a marriage between the two has come about. (Machlup 1967: 29)

Moreover, a common historical root can be found in that all of these various branches that came to form the transaction costs approach can be seen as responses to Berle and Means' observation that the modern corporation is marked by a separation of ownership and control (Foss and Klein 2005: 27; cf. Kitch (ed.) 1983: 174). The response in each case was to retain the optimization principles of marginalism, but to apply these principles to the organizations—in particular, firms—themselves.

With regard to the antimarginalist offensive discussed in section two above, I find my own analysis in agreement with Lee (1984: 1123) who argues that, through the managerial approach, "the extension of marginalism removed, in one sense, the conflict between [full cost pricing] and the [orthodox] doctrine." But to go further, it becomes clear that, in addition to deflecting attacks from the full cost pricing approach, these lines of inquiry effectively diverted interest in the theory of the firm from pricing behavior and the like toward the firm's organization as an interesting construct in itself (Foss and Klein 2005: 2). Moreover, this shift toward a new domain appears to have been an explicit part of the marginalist agenda. Coase (1988c: 33), for instance, reflected that his 1970 statement regarding the "parlous state of the study of industrial organization," at the time was a lament that "what was dealt with by economists under that heading had nothing to do with how industry was organized. It had become 'a study of the pricing and output policies of firms, especially in oligopolistic situations'." While a more positive statement requires further research, it may be speculated that this diversion of attention offered a convenient compartmentalization for marginalism, very much in accord with Machlup's wishes in 1967 for a peaceful coexistence between the traditional neoclassical firm and the managerial approach—to the neglect, of course, of any theory lacking self-interested, optimizing agents.

As described above, the many approaches taken in examining the firm itself were the product of decades of empirical work on firm behavior. In addition to this, it should not be neglected that a great deal of interdisciplinary work was done as well. That economics was 'importing' ideas from psychology and other disciplines has been noted by Shubik (1961), Williamson (1964), Earl (1990), Foss and Klein (2005), among others, and explicitly called for by behavioral economists (e.g. Simon 1978, 1979; Cyert and Pottinger 1979: 221; Earl 2005).

Early examples of mainstream economic literature borrowing directly from, specifically, the psychological literature include Katona (1946), which appeared in the AER immediately before Lester's infamous attack on marginalism; and Hickman in 1955, utilizing self-theory from

social psychology to study the roles of the manager within the socio-economic and political environment as well as in the firm as such. However, these articles went almost completely without notice. It is, furthermore, unclear as to what extent even behavioral economics has, at the social psychological level, sought to situate decision processes, motivations, and organization of the firm within a broader understanding of society. Finally, Earl (2005: 919) has recently noted that even among heterodox schools of economics, few have taken up a meaningful discourse with psychology. Thus, even where interdisciplinary work is explicitly done, there may remain a narrow focus as to what is acceptable to bring into economic analysis.

Still more troubling, and despite those who continued—and continue still—to call for grounding in realistic micro assumptions and for economic theory to be informed by the other social scientists (e.g. Downward 2004), the Coasian theory of the firm appears to have had, by the 1980s, the same general framework it would take, and little of this was borrowed from outside the discipline (Foss and Klein 2005). While Williamson (1998: 1) assures us that "transaction cost economics is, by design, an interdisciplinary approach," the discourse between this school of economic thought and the wider range of social sciences is hardly eclectic. Rather the trend appears to be one of borrowing from outside economics only where ideas can be reformed to fit neoclassical preconceptions; while still, as Foss and Klein (2005: 3) have noted, "the overwhelming tendency has been to show how economics may give alternative accounts of organization phenomena."

The isolation of mainstream economics from her sister social sciences—including most areas of the business literature—is further evidenced by citation studies in the leading academic journals. Pieters and Baumgartner (2002: 485) note that a study in 1980 found "almost no citations between economics, psychology, and anthropology." Their own study of citation data from major journals in the social sciences and business from 1995 through 1997 suggests that, while economics is fairly well cited in sister disciplines (especially finance), the reverse is not true. In fact, their data show no citations by first-tier economic journals of management, marketing, anthropology or psychology journals. More curious still, management, a sub-discipline of business, appears to rely much more heavily on sociology, psychology, and other business disciplines—and vice versa—than economics. These findings suggest that, contrary to Williamson's assurance, the 'modern theory of economic organization'—presumably enjoying the greatest mainstream exposure—has likely not been developed or elaborated in any substantially interdisciplinary light.

Moreover, while claiming to be empirically grounded, the Coasian approach has succeeded in bringing to fruition a fully optimized or optimizing model using essentially the methodology proposed by Machlup in the marginalist controversy, but generally dismissed at the time (see section two above). Namely, marginalism was extended into the organization of the firm, largely in neglect of empirical evidence, to show that, not only are firms organized through optimizing behavior, but, by extension, so are markets.

That the Coasian approach is not empirically grounded would seem anathema to Coase's own insistence that economists must understand the real world in order to build good theory (Kitch (ed.) 1983: 223-4; Coase 1988b: 23-4).[14] In actuality, Coase's requirements for realism in developing his theory of the firm were both weak and heavily constricted. In his original 1937 article the theory was argued to correspond to the 'real world' concept of the firm only in that the definition of the firm essentially agrees with the legal concept of the employer-employee relationship (based in the former 'directing' the latter) (Coase 1937: 404). Moreover, in his recounting of the development of the theory it appears that, though Coase's ideas were developed through extensive empirical research involving interview statements rather than statistics, the idea of a firm that didn't maximize profits was strictly untenable (Coase 1988a). Hence, in characterizing the literature on the firm in the 1930s as "bilge", Coase explained that what he "undoubtedly meant…was that it made assumptions which contravened some of Plant's basic positions," in particular "arguments which assumed implicitly that producers were not maximizing profits," (Coase 1988a: 12).

On the whole, then, it would appear that marginalism has not only retained control of economics through the strict adherence to the principle of maximization, it has diligently extended this doctrine into neighboring disciplines. In recent decades economic imperialism has colonized the fields of 'strategic management', organization behavior, marketing, law, politics, health, linguistics, and the derivation of the value of human life (Lazear 2000).

With regard to the empirical work that laid doubt on marginalist doctrine and set in motion these revisionist theories of the firm, the development of the transaction costs approach suggests a key point. As Simon (1978: 10) observed,

> the main motivation in economics for developing theories of uncertainty and mutual expectations has not been to replace substantive criteria of rationality with procedural criteria, but rather to find substantive criteria broad enough to extend the concept of

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[14] Similarly, Furubotn and Pejovich (1972: 1157) suggested the 'blending' of theory and empirical evidence for the purposes of producing testable hypotheses.

> rationality beyond the boundaries of static optimization under certainty…the interest lies not in *how* decisions are made but in *what* decisions are made.

Thus, while the revisionist theories of the firm, and in general economic imperialism as discussed in Lazear (2000: esp. 105-26), primarily took the form of looking into lower levels of abstraction, adherence to marginalist principles in the managerial and then transaction costs approaches appears to leave us only with vastly greater scope and the same shallow depth. To point, in the quest to explain firm behavior, the Coasian approach has buttressed neoclassical doctrine with a theory of optimization at a higher resolution; but, in doing so, only opens the theory to a new level of empirical dubiousness. It would therefore be unsurprising if this atavistic approach suffered a renewed attack on empirical grounds.

## 5 : Conclusion

In the preceding I have attempted a description of three responses within the economics discipline to the many empirical inquiries into economic behavior of the first half of the twentieth century. These include (but are not limited to) the direct attack on marginalism culminating in the marginalist controversy, the establishment of the *Journal of Industrial Economics* as an institutional refuge for non-marginalist inquiry after the mainstream had committed to marginalist doctrine, and various attempts to reconceptualize the firm in light of evidence that firms do not, in actuality, act to maximize profits.

Given the latter two responses, it is clear that the doubts of orthodox economics behind the marginalist controversy did not definitively end with Coase's declaration of the ill-state of full cost pricing—though this epoch, by and large, surely constituted the ousting of non-marginalist analysis from mainstream economic theory. On the other hand, it appears that by the 1980s marginalism had effectively subverted both the JIE and many approaches to the study of the firm itself—the behavioral approach being an apparent exception discussed in this paper. The above analysis gives some clues as to when and why this marginalist clenching of these peripheral pursuits in economics occurred; however, there clearly remains more to understand on this matter. To point, I am left asking, what exactly happened in or around the 1970s that directed these topics in industrial organization toward the doctrine of marginalism?

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