George Christopher Archibald and the Quest for the Substance of Monopolistic Competition

by Julien Gradoz

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Julien Gradoz, Center for the History of Political Economy, Duke University, julien.gradoz@duke.edu

https://orcid.org/0009-0005-1455-3073

Abstract: This article examines George Christopher Archibald's contributions to monopolistic competition theory, which he approached from multiple perspectives throughout his career. In the 1950s, he critiqued this theory for its vague definitions and for prompting several economists to abandon profit maximization by firms. In the 1960s, influenced by the debates at the LSE on falsificationism and qualitative economics, he analyzed this theory's capacity to generate testable predictions, sparking a controversy with Stigler and Friedman. Finally, in the 1970s, he incorporated the characteristics approach, popularized by Lancaster, into this theory, thereby contributing to the modern reformulation of the theory of monopolistic competition.

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George Christopher Archibald (1926-1996) was a British economist who worked at the London School of Economics from 1955 to 1964, at Essex University until 1971, and at the University of British Columbia until his retirement in 1991. His most celebrated work, "Chamberlin versus Chicago" (1961), published in the *Review of Economic Studies*, critiques both Edward Hastings Chamberlin's (1933) theory of monopolistic competition and the criticisms of this theory by George Joseph Stigler (1949) and Milton Friedman (1953), whom he associates with the "Chicago School." Archibald contends that Stigler and Friedman's criticisms contradict their endorsement of falsificationism in economics. Consistent criticisms, in his view, would have involved identifying the testable predictions of this theory and comparing them to those of alternative theories, such as perfect competition and monopoly, something that Stigler and Friedman neglected to do. Archibald then took on this task himself. Specifically, he constructs two models, each accounting for certain aspects of monopolistic competition theory, and demonstrated their failure to yield testable predictions, indicating a lack of substantive content. Archibald's article is crucial for studies examining the reception of monopolistic competition theory (Keppler 1998; Aslanbeigui and Oakes 2011), the role of falsificationism in economics (de Marchi 1988; Cozic 2018), or early references to the "Chicago School" (Freedman 2016; Medema 2024). However, most of these studies do not examine the content of this article, the context in which it was written, or its relationship to Archibald's other works on monopolistic competition, a topic on which he worked throughout his career.

Regarding the context, when Archibald wrote this article, he was a staff member of the LSE and served as secretary of the "LSE Staff Seminar on Methodology, Measurement, and Testing in Economics" (M^2T). Influenced by Karl Popper, this seminar gathered LSE members such as Richard George Lipsey, Kelvin John Lancaster, and Joseph Agassi (from the philosophy department) to examine the testability of economic theories and approaches to falsifying predictions. Archibald also attended Lionel Robbins' seminar at a time when many LSE economists were interested in comparative statics (Lipsey 2001), namely the study of how model equilibrium responds to parameter changes. Within this circle, Archibald and Lancaster took a particular interest in "qualitative economics," which investigates outcomes derived from comparative statics in models in which several functional forms are unspecified. Qualitative economics was a central theme of Archibald's 1961 article. Revisiting this article therefore allows for a better understanding of the intellectual environment at the LSE in the late 1950s. Conversely, this intellectual environment helps to better understand how Archibald approached the theory of monopolistic competition in his 1961 article.

Regarding his other work, Archibald first discussed Chamberlin's theory of monopolistic competition in 1954 and continued to do so throughout his career, often in critical terms. In his early work, he criticized the presence of "vague" definitions and observed that it led many studies to abandon the notion of profit maximization by firms. In 1961, in "Chamberlin versus Chicago," he demonstrates that his two models, each accounting for certain aspects of monopolistic competition theory, fail to yield testable predictions. Later, he criticized the theory for lacking a theory of consumer choice and for assuming that a firm's actions have the same impact on all firms in the market (Archibald and Rosenbluth 1975)—a critique originally raised by Nicholas Kaldor (1935). Studying Archibald's work therefore allows us to review the various criticisms of monopolistic competition theory since Chamberlin's 1933 book, as Archibald addressed most of these criticisms during his career. However, it would be reductive to view Archibald merely as a detractor of this theory. Indeed, throughout his career, he sought to propose solutions to the different criticisms he identified. For instance, in his 1975 article, after criticizing the lack of a theory of consumer choice, he developed a model that incorporates this aspect, using the characteristics approach. In this sense, he contributed to the modern reformulation of monopolistic competition theory, alongside Michael Spence (1976), Avinash Dixit and Joseph Eugene Stiglitz (1977), Steven Salop (1979) and Oliver Hart (1979). Revisiting Archibald's work therefore offers insights into the transformations of monopolistic competition theory during the second half of the 20th century.

The first section introduces the two major influences behind Archibald's 1961 article—falsificationism and comparative statics—which were widely discussed at the LSE when he joined the institution in 1955. It also covers his early analyses of monopolistic competition theory. The second section examines his 1961 article, along with responses from Stigler (1963) and Friedman (1963). The third section examines the extensions Archibald offered in 1964 and 1965, his shift away from falsificationism and qualitative economics in the mid-1960s, and his 1975 article, which contributed to the modern reformulation of monopolistic competition theory. The fourth section concludes.

1 The Intellectual Environment at the LSE Between 1955 and 1961

After earning a BSc in Economics from LSE in 1951, Archibald spent four years at the University of Otago in New Zealand (1951-1955), where he published his first works (Archibald 1954; 1955a; 1955b). In 1955, he was recruited back to the LSE, where he remained until 1964, when he joined Essex University to support its expansion, following the recommendations of the Robbins Report (Committee on Higher Education 1963). Archibald's early research spanned various topics, including monetary economics (Archibald and Lipsey 1958), inventory problems (Archibald 1955a), and the normative theory of taxation (Archibald 1955b). Up to 1961, he frequently referenced and critiqued monopolistic competition theory, noting its "vague" definitions and observing that it led some studies to abandon the concept of profit maximization by firms. Moreover, between 1955 and 1961, Archibald was immersed in the intellectual environment of the LSE, where falsificationism and comparative statics were central topics—both of which would play a critical role in shaping his 1961 article.

1.1 Falsificationism and Monopolistic Competition Theory

In 1933, Edward Hastings Chamberlin published *The Theory of Monopolistic Competition*, based on his doctoral thesis from 1927. In this book, he introduced a new market structure, between monopoly and perfect competition, called "monopolistic competition." In a monopolistic competition setting, product differentiation implies that firms in the "group" associated with a market are in competition with each other due to the imperfect substitutability of their products, yet they also hold market power because of this imperfect substitutability. Chamberlin also distinguished between the "small group," where firms engage in strategic interactions, and the "large group," where a single firm's decisions do not influence those of others. Archibald's article, "'Large' and 'Small' Numbers in the Theory of the Firm" (1959a), sought to provide a foundation for this distinction, which he regarded as entirely arbitrary in Chamberlin's work. For the large group, Chamberlin introduced several assumptions, including the "symmetry assumption"—that one firm's actions have an identical impact on all firms in the group—and the "uniformity assumption," which posits that "both demand and cost curves for all the 'products' are uniform throughout the group" (1933, 82). Chamberlin's book has been extensively analyzed, including comparisons with Joan Robinson's *The Economics of Imperfect Competition* (1933), critiques of its assumptions, and discussions on how it redirected economists' focus from market scale to individual firm scale (Skinner 1983, 61). This shift prompted increased scrutiny of the theory of the firm and led to various critiques. As Kenneth Ewart Boulding observed, these criticisms fell into two main categories in the late 1940s:

> The first is that the theory is unrealistic because it does not have enough variables in it, or because the variables of the theory do not in fact correspond to the significant variables of the firm. The second is more fundamental; it attacks the principle of maximization itself, on the grounds that it does not correspond to the actual principles which motivate and direct behavior (Boulding 1952, 35).

The theory of the firm at the time therefore faced critiques focused on the *realism* of its assumptions. These critiques led some economists to pursue a more "realistic" theory of the firm, consulting business executives or conducting surveys to inform model assumptions (e.g., Lester 1946; 1947; Hall and Hitch 1951). This raised a fundamental epistemological question: should the assumptions in the theory of the firm be more realistic? In his influential essay "The Methodology of Positive Economics," Friedman (1953) argued against this, asserting that theories should be judged by their capacity to generate testable predictions rather than the realism of their assumptions—a position that popularized falsificationism in economics (Keppler 1998, 261). In his review of Tjalling Koopmans' *Three Essays on the State of Economic Science* (1957), Archibald (1959b) noted that this endorsement of falsificationism succeeded Lionel Robbins' (1932) methodological approach, which held that economic theories should be based on "indisputable facts of experience" that did not require experiments or tests for validation. It also succeeded Terrence Wilmot Hutchison's (1938) methodological approach, which Archibald interpreted as emphasizing tests of a model's assumptions over its conclusions (Archibald 1959b, 60)—a somewhat contested interpretation (de Marchi 1988). In Archibald's view, the studies on the theory of the firm criticized by Friedman in his essay adhered to Hutchison's methodological approach, and Archibald himself had critiqued these studies. In a 1959 article, after identifying sampling issues in their surveys, he remarked:

> the answers they got were, roughly speaking, that businessman did not try to maximise profits: they sought a "fair profit" or a "normal profit"; they determined price by adding to the cost of raw materials and labour a mark-up to "cover overheads and a reasonable profit"—except when market conditions prevented them (1959b, 60).

Archibald criticized the concepts of "fair profit" and "normal profit" as "vague" (Archibald 1955a, 258), and explicitly connected the work of these economists to Chamberlin, referring in his first article to a "Chamberlin-Hall and Hitch" demand function (Archibald 1954, 191). In another article, Archibald aimed to explain this mark-up while maintaining firms' profit-maximizing behavior (Archibald 1955a). He later formulated a similar critique to William Jack Baumol's *Business Behavior, Value and Growth* (1959), in which Baumol proposed revenue maximization as an alternative to profit maximization (Archibald 1960). Therefore, he agreed with Friedman that a negative consequence of Chamberlin's monopolistic competition theory was its encouragement of alternatives, "more realistic" theories of firm behavior, which often implied renouncing firms' profit-maximizing behavior.

More broadly, from the mid-1950s to the mid-1960s, Archibald was a proponent of falsificationism. He acknowledged a "great debt" to Friedman's writings on economic methodology (Archibald 1959b, 61), though he also voiced certain critiques (*ibid*.). However, Friedman was not his sole influence. During this period, Archibald was also influenced by Karl Popper, professor of "logic and scientific method" at the LSE. Other members of the economics department, including Lipsey—who founded the "LSE Staff Seminar on Methodology, Measurement, and Testing in Economics" (M^2T) in 1957—were similarly inspired by Popper. Archibald was a founding member and secretary of this seminar, taking minutes of the discussions.[1] In a retrospective article on his career, Lipsey (2001) recalled Popper's impact on seminar discussions, where presented works were scrutinized for their ability to yield testable predictions and methods for falsifying them. Popper himself never attended the seminar due to his aversion to tobacco smoke, a staple at the gatherings (de Marchi 1988; Lancaster 1997). Charles Carter Holt (2000, 309) recounts that when Alban William Housego Phillips presented his famous article on what would become the "Phillips Curve" (1958), Archibald and Lipsey discussed his article by sketching a theory to account for the curve and exploring the testable predictions derivable from this theory. This discussion occupied the seminar for six months (de Marchi 1988, 150), eventually resulting in an influential article by Lipsey (1960), with Archibald later writing his own article on the Phillips Curve (Archibald 1969). For further details on this seminar, known for its "fervor for a scientific approach to economics" (Hendry and Mizon 2000, 354), see Neil de Marchi's book chapter dedicated to it (1988). Given his years in the M^2T seminar, Archibald approached the theory of monopolistic competition in his 1961 article through the lens of testable predictions. To fully understand how he identified the predictions of this theory, it is necessary to consider a second major influence from the LSE's intellectual environment at the time: the ongoing discussions on comparative statics and their connection to qualitative economics.

[1] Personal communication of Jim Thomas to the author, which participated to the seminar in the 1960s.

1.2 Comparative Statics and Qualitative Economics

The shift away from Robbins' methodology within the M²T seminar did not prevent Archibald from actively participating in Robbins' seminar at the LSE, which was a prominent event at the time (Lancaster 1997). In fact, Archibald frequently mentioned that his articles from the mid-1950s to mid-1960s, including his 1961 article, had been presented at either Robbins' seminar or the M²T seminar. He also acknowledged specific participants, such as Lipsey, Lancaster, Agassi (from the philosophy department), Klappholz, and Robbins himself.

Robbins is often regarded as a proponent of comparative statics, defined as "the method of analyzing the impact of a change in a model's parameters by comparing the resulting equilibrium with the original equilibrium" (Kehoe 1989, 76). Lipsey even suggests that Robbins "recognized comparative statics as the only valid tool of economic theorizing" (2009, 851). The "parameters" of a model are sometimes called "exogenous variables," which are determined before the model is resolved, as opposed to "endogenous variables," whose values are determined at equilibrium—or remain undetermined if there is no equilibrium (Archibald and Lipsey 1967, 67). For instance, in the basic model of consumer theory, where a consumer maximizes her utility function subject to a budget constraint, income is an exogenous variable, while the quantities of products demanded are endogenous variables, as they correspond to Marshallian demands. A comparative statics problem, then, might involve examining the effect of a small increase in income on Marshallian demands. Robbins' interest for comparative statics was evident in seminar presentations and broader discussions at LSE, prompting Lipsey to state that "comparative statics was the stock in trade of conventional economists at LSE in the 1950s and 1960s" (Lipsey 2000, 232). Archibald and Lancaster engaged more specifically with these ideas through the study of "qualitative economics" (Lipsey 2000, 232).

James Patrick Quirk describes qualitative economics as "the analysis of economic systems for which qualitative information is available, that is, information about the direction of change (+, -, 0) of the values of the functional relations defining the system in response to changes in the values of its variables" (Quirk 2018, 11055). According to this definition, most economic systems (or models) could fall under qualitative economics. What distinguishes qualitative economics is its focus on economic systems in which the *only* known information about changes in certain functional relationships in response to variable changes is qualitative information. Quirk differentiates "purely qualitative" economic systems, where only qualitative information is available, from those which also include quantitative information. Lancaster defines "qualitative information" as:

> Information such as the fact that a curve slopes up or down, unqualified by any information about the degree of steepness of the slope (Lancaster 1974, 24).

For example, consider a consumer with a utility function $U(x_1, x_2)$, where x_i denotes the quantity of product i (with $i \in \{1,2\}$). The form of the utility function is unknown. It could be Cobb-Douglas, quasi-linear, or Leontief. If we assume that the utility function increases with respect to x_1, i.e. $\frac{\partial U(x_1,x_2)}{\partial x_1} > 0$, we provide *qualitative information* about the function. This information is qualitative because it only tells us the direction of change in utility with a small increase in x_1, not the *magnitude* of this increase.

Qualitative economics is primarily applied to comparative statics problems, though it can also extend to simple dynamic systems. Its objective is to determine whether the direction of change in a model's endogenous variables can be known when exogenous variables are altered (Lloyd 1969, 343). For example, can we predict the directional change in Marshallian demands after a small income increase, even without specifying the utility function's form? If this prediction is not possible, it is referred to as *indeterminacy* of the comparative statics results. In our example, indeterminacy means that the model cannot establish a definitive relationship between income changes and demand for a product. Qualitative economics therefore enables us to assess the predictions a model can offer when information on some aspects of this model is limited to qualitative information (Archibald and Lipsey 1967, 65).

According to Quirk (2018), the roots of qualitative economics can be traced to John Richard Hicks' general equilibrium model in *Value and Capital* (1939), written while Hicks was a lecturer at LSE. However, it was developed and popularized by Paul Anthony Samuelson in *Foundations of Economic Analysis* (1947), a foundational text for many LSE members in the mid-1950s, including Lancaster and Archibald (de Marchi 1988). Lancaster emerged as a prominent figure in qualitative economics in the early 1960s (Lancaster 1962; 1964; 1965; 1966c), though he eventually lost interest in the field in the mid-1960s, as did Archibald during the same period (see *infra*). Nonetheless, in his 1961 article, Archibald employed qualitative economics to identify the testable predictions of Chamberlin's monopolistic competition theory.

2 Archibald versus Chicago versus Chamberlin

Archibald's 1961 article is divided into two parts. In the first part, he critiques Stigler's (1949) and Friedman's (1953) attacks on Chamberlin's theory of monopolistic competition, arguing that these critiques contradict their endorsement of falsificationism in economics. Archibald argues that a critique consistent with falsificationist principles would require identifying the testable predictions of Chamberlin's theory and comparing them with those of the theories favored by Stigler and Friedman—namely, perfect competition and monopoly. In the second part, Archibald applies this approach by analyzing two models that capture certain aspects of monopolistic competition theory, ultimately demonstrating that these models fail to yield testable predictions. Stigler (1963) and Friedman (1963) responded dismissively to this "controversial" article (Lipsey 1996).

2.1 Archibald versus Chicago

Stigler's criticisms of Chamberlin's theory of monopolistic competition were extensive and enduring. Craig Freedman (2016) dedicated over 150 pages to chronicling Stigler's grievances and exploring various explanations for his enduring opposition, supported by interviews with Milton Friedman, Sherwin Rosen, Paul Anthony Samuelson, and Gary Stanley Becker. Possible explanations include Chamberlin's unfavorable review of his book *The Theory of Price* (Stigler 1946; Chamberlin 1947); Frank Knight's influence, who was his PhD supervisor, and who held Chamberlin in low regard, accusing him of stealing his ideas and discrediting him on religious grounds; and Stigler's broader view in the 1940s that any departure from perfect competition theory—or, more broadly, from neoclassical "orthodoxy"—was heretical and needed to be eradicated.[2] Stigler's criticisms culminated in *Monopolistic Competition in Retrospect* (1949), a text included in *Five Lectures on Economic Problems*. The title itself carried a dismissive tone, suggesting that monopolistic competition theory was obsolete (Keppler 1998). This text was based on a lecture Stigler delivered at the LSE in 1948 at the invitation of Robbins, during Archibald's first year in the BSc Economics program. Although it's unclear if Archibald attended, he later concentrated on this text to identify Stigler's stance on monopolistic competition.

One of Stigler's main criticisms—shared by Friedman—was that monopolistic competition theory fails to predict market behavior any better than the theories of perfect competition and monopoly. Friedman famously illustrated this point with the example of the cigarette market, arguing that monopolistic competition's focus on realism led it to overlook the importance of testable predictions. Comparing the predictions from monopolistic competition with those from the theories of perfect

[2] This is why Stigler does not approach Robinson with the same level of critique as Chamberlin. He views Robinson's imperfect competition as compatible with "orthodoxy" (Stigler 1949), whereas Chamberlin is considered a "revolutionary" (*ibid.*), in a negative sense.

competition or monopoly, Stigler and Friedman argued, would readily reveal the superiority of these theories. Friedman wrote:

> The relevant question to ask about the "assumptions" of a theory is not whether they are descriptively "realistic," for they never are, but whether they are sufficiently good approximations for the purpose in hand. And this question can be answered only by seeing whether the theory works, which means whether it yields sufficiently accurate predictions. […] The theory of monopolistic and imperfect competition is one example of the neglect in economic theory of these propositions. The development of this analysis was explicitly motivated, and its wide acceptance and approval largely explained, by the belief that the assumptions of "perfect competition" or "perfect monopoly" said to underlie neoclassical economic theory are a false image of reality. And this belief was itself based almost entirely on the directly perceived descriptive inaccuracy of the assumptions rather than on any recognized contradiction of predictions derived from neoclassical economic theory (1953, 15).

While Archibald agreed with Stigler and Friedman's general critique, he argued that their criticism was flawed because they made no attempt to identify the testable predictions of monopolistic competition theory. Moreover, their argument amounted to an *a priori* defense of the theories of perfect competition and monopoly, as they also failed to identify the testable predictions for these theories—some of which, Archibald argued, could indeed be falsified. For instance, if one accepts Friedman's claim that the cigarette market is better explained by perfect competition than by monopolistic competition, how can one account for the presence of advertising in this market, given that perfect competition theory predicts that firms would not engage in advertising (Archibald 1961, 4)?

A second critique holds that monopolistic competition theory is "badly flawed (or even unrepairable) and thus wasted the valuable time of the profession" (Freedman

2016, 189). This critique mainly targets Chamberlin's concept of a "group" and several of his key assumptions. The challenge to the "group" was notably advanced by Robert Triffin (1940), Chamberlin's doctoral student, who argued that in a differentiated products market, there is no clear theoretical criterion to define a "group," potentially allowing it to span from a single firm to the entire economy. Stigler regarded this ambiguity as a fatal flaw in monopolistic competition theory, deeming it unworthy of further study. Archibald, however, saw the "group" as an empirical concept, one that could be defined hypothetically with testable predictions derived from the hypothesis, which could then be discarded if falsified. From Stigler and Friedman's methodological perspective, the "group" should therefore not be problematic. Archibald even acknowledges that he had been overly critical of it in his article "'Large' and 'Small' Numbers in the Theory of the Firm" (1959a). Concerning Chamberlin's assumptions:

> Stigler goes on to present what appears to be an extremely damaging argument, that we cannot have downward sloping demand curves *and* the tangency solution together, and that if we drop the former we have perfect competition, while if we lose the latter we lose the equilibrium condition for the group and therefore the ability to do comparative statics. The reason advanced is that the tangency solution in monopolistic competition requires two assumptions, "uniformity" and "symmetry", which, Stigler argues, are inconsistent with downward sloping demand curves. "Uniformity" is Chamberlin's "heroic assumption" of identical cost and demand curves throughout the group. This, according to Stigler, is meaningless unless the products are homogeneous, in which case we have horizontal demand curves. "Symmetry" is the assumption that the effects of an adjustment by any one firm are so evenly spread round the group that no single firm need be expected to react. This assumption is held to be inconsistent with marked heterogeneity of products; but, if we drop it, we have oligopoly instead of monopolistic competition (Archibald 1961, 6).

Archibald first contests the idea that the uniformity assumption implies homogeneity. Regarding the symmetry assumption, he argues that although it may not accurately describe many markets, this issue should be irrelevant to Stigler and Friedman. For them, the primary concern should be whether predictions derived from this assumption are testable and falsifiable. Moreover, drawing on Kaldor's work (1934; 1935), Archibald demonstrates that neither identical demand curves nor the uniformity assumption is essential for achieving equilibrium in monopolistic competition theory. Therefore, no fundamental flaws exist in the theory that would prevent identifying its testable predictions and attempting to falsify them. This is precisely what Archibald seeks to achieve in the second part of his article, following his "critique of the critiques" by Stigler and Friedman against Chamberlin's monopolistic competition theory.

2.2 Archibald versus Chamberlin

In the second part of his article, Archibald examines two models. The first is a diagrammatic model aimed at identifying the testable predictions derived from the mobilization of the "group" concept, which omits product variations and selling costs for simplicity, though these are core aspects of Chamberlin's theory. This model therefore entirely focuses on the group. Archibald demonstrates that this model fails to yield testable predictions, since Chamberlin's theory lacks a clear definition of the relationship between the "share-of-the-market" and "partial" demand curves within the group concept. This ambiguity renders the model "incomplete," preventing it from generating testable predictions. Even when considering Nicholas Kaldor's (1935) proposal to clarify this relationship, the results remain indeterminate in comparative statics. Archibald ultimately concludes that the model is empty, due to an insufficient characterization of the "group" concept.

The second model examines a profit-maximizing firm that makes decisions based on quantity, the amount of advertising and a "quality index," with price being a function of these three endogenous variables. A unit tax on production, corresponding to an exogenous variable, is also introduced. Since this model studies the firm in isolation, the "group" concept is irrelevant here, unless viewed as a group of one firm. This algebraic model is purely qualitative, without explicit functional relations, and Archibald associates it with the "Robbins-Samuelson programme" (1961, 9), underscoring a connection between the LSE and qualitative economics. His goal is to assess whether the direction of change in the endogenous variables can be predicted following a small increase in the unit tax on production. He focuses on this tax because it is the simplest exogenous variable to analyze in comparative statics (1961, 14), a method he previously referred to as "tax tests" (Archibald 1960, 275). Therefore, if results are indeterminate with a unit tax on production, Archibald argues they are likely to be indeterminate with other exogenous variables. Although he doesn't formally prove this assertion, he cites Samuelson, who wrote:

> What is the nature of the dependence of our variable upon the tax rate regarded as a parameter? Will an increased unit tax result in a larger or smaller output? It is a poor theory indeed which will not answer so simple a question (1947, 15).

Following the distinction proposed by Robert Dorfman and Peter Otto Steiner (1954), Archibald models the quality index as a unidimensional variable, where an increase in quality raises both unit production costs and the product's value to consumers. Similarly, he models the amount of advertising as a unidimensional variable, where an increase in advertising raises fixed production costs and enhances the product's perceived value.[3] These are simplifications, as Chamberlin's concept of "selling costs" is reduced to a unidimensional "amount of advertising" variable, and the concept of "product variations" is reduced to a unidimensional "quality index." Archibald justifies these simplifications by arguing that if the results are indeterminate in comparative statics under these conditions, they are likely to remain indeterminate in more complex scenarios. Before presenting the results, Archibald demonstrates that

[3] For more information on this distinction, see Gradoz (2024a).

when the model's endogenous variables are limited to price and quantity, the comparative statics results are determinate following a small increase in the unit tax on production (1961, 14 ; 1964, 21). Specifically, quantity decreases, and price increases. However, when he adds the amount of advertising and the quality index, the results become indeterminate, as is also the case when only one of these variables is introduced. The indeterminacy arises because quantity and advertising/quality move in opposite directions when the tax increases. Since price depends on both quantity and advertising/quality, its direction of change cannot be determined without quantitative information on the magnitude of the variables' changes (Archibald 1961, 26). Consequently, the model cannot predict the effect of a small increase in the unit tax on production, unlike the theories of perfect competition and monopoly (which correspond to the situations where the amount of advertising and the quality index are excluded). Archibald explains this result by the level of generality in this purely qualitative model.

> All that has happened, after all, is that monopolistic competition has proved to be barren at a level of generality at which perhaps we should not expect much. Of course, the [Robbins-Samuelson] programme has been relatively successful in simple cases—Marshallian monopoly and perfect competition; but in both these cases the number of variables is smaller, and, in the second case, there are particularly convenient restrictions on the demand and cost functions for the individual firm. The qualitative calculus has failed in the Chamberlin case simply because the relations between the variables and the parameters are such that the traditional qualitative restrictions are not sufficient (Archibald 1961, 14).

Archibald's article, therefore, is far from a definitive condemnation of Chamberlin's theory of monopolistic competition (Sutton 1989), as some later works suggest. Instead, it simply demonstrates that two purely qualitative models—each capturing different aspects of the theory—fail to yield testable predictions, unlike the theories of monopoly and perfect competition. Archibald acknowledges that introducing quantitative information into his second model would resolve the indeterminacy of the results in comparative statics. However, at the time, his primary goal was to investigate what qualitative economics, a program he described as "important and fascinating" and "ambitious and exciting" (Archibald and Lipsey 1967, 65), could reveal. This investigation of qualitative economics was especially meaningful to him in his commitment to falsificationism, which views the *ad hoc* addition of quantitative information in models with some skepticism.[4] Therefore, it is crucial to consider Archibald's article for what it is: an exploration of qualitative economics' potential, which ultimately proves limited in the context of Chamberlin's monopolistic competition theory. Moreover, this article is a response to Stigler and Friedman. Therefore, once Archibald demonstrated that the theories of perfect competition and monopoly could yield testable predictions where Chamberlin's theory could not, there was no need to extend the analysis with further models or consider the quantitative information necessary to resolve the indeterminacy of his second model. For such developments, we would have to wait until the mid-1970s.

2.3 The Responses of Stigler and Friedman (and Chamberlin)

In 1963, Stigler and Friedman responded to Archibald in the *Review of Economic Studies* with dismissive critiques of his article. Stigler began by emphasizing that he had formulated his various criticisms of monopolistic competition theory while at Columbia and in London, implying that Archibald was mistaken in associating him with "Chicago." However, this overlooks the fact that Archibald was simply adopting a term used by Chamberlin in *Towards a More General Theory of Value* (1957), where

[4] "In the absence of empirical evidence, restrictions on the functions are sometimes assumed because they are convenient, or 'seem reasonable'. The trouble with this procedure is that, if the prediction that follows is then refuted by empirical test, we have no means of telling whether the fault lies with the theory or the particular restriction chosen. […] Restrictions are also sometimes chosen in order to make the theory predict something already known to be true. Unless there is some means of checking empirically on the restriction chosen, this procedure guarantees the theory against refutation!" (Archibald 1961, 15).

"Chicago" referred to a group of economists united in their critique of monopolistic competition theory. Stigler also asserted that his critiques were consistent with his defense of falsificationism, suggesting that Archibald had misinterpreted his work and misunderstood most of his arguments. While he praised Archibald's criticisms of Chamberlin, he claimed that all criticisms of his own views were off the mark. Stigler further noted that he had since altered his stance on economic methodology, now considering methodological debates unproductive, as they had never yielded any "positive marginal product" (Stigler 1963, 63). He took this opportunity to mock Archibald by declaring he would not attempt to falsify this prediction. Friedman, by contrast, was much harsher, even suggesting that Stigler's response was too lenient. Friedman's opening sentence reveals his disdain for Archibald's article:

> Theorists of monopolistic competition contend that firms have a strong tendency to differentiate their product and that, when there are no "real" differences, firms will seek to create trivial and "artificial" differences to establish a separate market. Whatever else Archibald's piece may contribute to monopolistic competition, it is a striking confirmation that these predictions are as applicable to professional writing as to toothpaste (Friedman 1963, 65).

Like Stigler, Friedman argued that Archibald had misunderstood his work and selectively quoted it, adding that reading Archibald's interpretation of his work felt like reading the work of someone else. Reflecting on the critiques Archibald had made in an earlier article (Archibald 1959b), Friedman accused him of exaggerating their differences, creating "artificial differences" similar to those discussed in monopolistic competition theory. Friedman even claimed that Archibald's reading of his work was so problematic that there were real doubts whether "any communication between Archibald and me is possible" (Friedman 1963, 67), outright rejecting Archibald's approach and acknowledging no contribution in his article. Notably, neither Stigler nor Friedman addressed Archibald's use of qualitative economics, despite it being a central feature of the article.

Archibald responded in the same issue of the *Review of Economic Studies*, adding new quotations from Stigler (1949) and Friedman (1953) that had not appeared in his 1961 article to support his argument that their critiques of monopolistic competition theory conflicted with their defense of falsificationism. He also criticized Stigler's dismissal of methodological debates as obscurantist, doubting that Stigler truly believed his own statement. However, Archibald did acknowledge several poor formulations in his article, particularly in his discussion of Friedman's work, and expressed regret that Friedman had focused solely on the critiques directed at him, despite Archibald's repeated admiration for Friedman's contributions to economic methodology in both his 1959 and 1961 articles.

In contrast, Chamberlin did not respond to Archibald through an article. During the 1960s, Chamberlin published little, as he was preoccupied with an unfinished book project and significantly weakened by a heart attack in 1959. In the final edition of *The Theory of Monopolistic Competition*, published posthumously in 1968, he made no mention of Archibald's article. Our only insights come from Chamberlin's annotations on a copy of the published article, which Archibald had sent him "with compliments."[5] The precise date of these annotations is unknown. Chamberlin's notes largely consist of checkmarks, underlined phrases, "yes!" next to Archibald's criticisms of Stigler, and "no!" next to his critiques of monopolistic competition. Stigler, in his response to Archibald, did the opposite. Therefore, Archibald's article appears to have rekindled tensions between Stigler and Chamberlin rather than stimulating reflection on the role of qualitative economics or the predictive value of monopolistic competition theory. Next to the passage where Archibald notes that monopolistic competition theory fails to offer testable predictions at the level of abstraction of the Robbins-Samuelson programme, Chamberlin annotated, "yes, so what?"—suggesting either indifference or a lack of understanding of Archibald's approach. Firmly rooted in the LSE's

[5] Duke Library, Rubenstein Library, Edward H. Chamberlin papers, 1896-2017/Box 4/Folder "France, 1959".

intellectual environment, Archibald's article ultimately received a cold reception from Stigler, Friedman, and Chamberlin. Though several works acknowledged it positively in the years following its publication (e.g., Demsetz 1964; Telser 1964; Johnson 1968; Hadar 1969), it did not alter prevailing views on monopolistic competition theory in the economics profession.

3 The Modern Reformulation of Monopolistic Competition Theory

Following his 1961 article, Archibald gradually moved away from both qualitative economics and falsificationism. Between 1964 and 1971, his publications were sparse, as he was deeply involved in his responsibilities at Essex University, which he had joined to support its expansion in line with the Robbins Report recommendations (Committee on Higher Education 1963). In 1975, he published "The 'New' Theory of Consumer Demand and Monopolistic Competition" with Gideon Rosenbluth, an article that contributed to the modern reformulation of monopolistic competition theory, alongside the articles by Spence (1976), Dixit and Stiglitz (1977), Salop (1979), and Hart (1979). In this article, Archibald incorporated the characteristics approach popularized by his former colleague Lancaster (1966a; 1971) into monopolistic competition theory, which he argued addressed several issues he had identified in this theory over the preceding two decades.

3.1 Archibald's Move Away from Falsificationism and Qualitative Economics

Following his 1961 article, Archibald proposed several extensions that applied qualitative economics to the theory of the firm (Archibald 1964; 1965). In these extensions, he demonstrated that using the Robbins-Samuelson programne in the theory of the firm often led to indeterminate comparative statics results unless highly specific assumptions—such as treating price as an exogenous variable—were imposed.

Even then, determinate results were not guaranteed in all scenarios. Therefore, the same issues that had emerged in Chamberlin's theory of monopolistic competition resurfaced here. Archibald began to recognize the limitations of qualitative economics and gradually distanced himself from it—a shift similar to that of his former LSE colleague Lancaster, who was a central figure in qualitative economics during the early 1960s (Lancaster 1962; 1964; 1965; 1966c) before abandoning it in favor of the characteristics approach (Lancaster 1966a; 1966b; 1971). Simultaneously, Archibald also began to distance himself from falsificationism, a shift mirrored by most members of the M²T seminar. According to Neil de Marchi, two main factors contributed to this distancing from falsificationism among seminar members:

> [Firstly] the stochastic nature of economic propositions quickly posed a problem for the strong interpretation of falsifiability. Help from Popper himself was available in his writings—advice, such as to truncate distributions—to resolve the difficulty. But the economists, while practicing such commonsense methodology themselves, seem to have hoped for something more objective from *logical* falsifiability. Secondly, the paucity of unambiguous predictions from theory alone emerged in the course of trying to spell out the testable content of the theory of the firm in a qualitative, comparative statics framework. This seems to have been taken as a sign that a central part of economic theory has almost no testable content, and it produced disenchantment not only with the theory but also with falsifiability as a criterion (de Marchi 1988, 29).

These two arguments are closely connected to Archibald's work. The first was explicitly addressed by Archibald in a 1967 article, where he proposed replacing the falsification criterion with a comparison criterion (Archibald 1967), marking a shift away from Popper. In his review of *Method and Appraisal in Economics*, edited by Spiro Latsis (1976) and centered on Imre Lakatos's influence in economics, Archibald mentioned attending Lakatos's seminars at LSE in 1963. He noted that, while he might once have been considered a "naive falsificationist" (Archibald 1979, 304), this label no longer applied after his 1967 article. Lipsey also noted Lakatos's influence—Lakatos was a personal friend of his (Lipsey 2009, 846)—on the members of the M^2T seminar and their gradual move away from Popper, remarking that in the seminar's early years, members could indeed be seen as naive falsificationists (Lipsey 1996, 1005). The second argument stemmed directly from Archibald's 1961 article and his subsequent applications to the theory of the firm. After 1967, Archibald published no further work on qualitative economics or falsificationism.

Although Archibald distanced himself from qualitative economics and falsificationism, he never disavowed his 1961 article. For instance, he included it in his collection of selected readings on the theory of the firm (Archibald 1971). In the "Monopolistic Competition" entry he wrote for the 1987 edition of the *New Palgrave Dictionary of Economics* (Archibald [1987] 2018), he also referenced the article. In the "Criticisms" section, he noted that critiques of monopolistic competition theory were numerous and, for conciseness, limited his discussion to the three criticisms he viewed as most relevant. First, he cited the problematic definition of the "group," followed by Kaldor's critique of the symmetry assumption. Finally, he referenced his own 1961 article, describing it as demonstrating that Chamberlin's monopolistic competition theory was "empty" from a qualitative economics perspective. Therefore, even after revising his views on qualitative economics and falsificationism, Archibald still regarded the article as a relevant critique of monopolistic competition theory in 1987. Notably, he made no mention of Stigler or Friedman's work in this entry. Instead, he highlighted his 1975 article, which he saw as part of a series of works that revived interest in monopolistic competition theory after a period of disinterest from the mid-1960s to the mid-1970s. This view was shared by many economists (Eaton and Lipsey 1989; Lancaster 1990; Beath and Katsoulacos 1991).

3.2 Monopolistic Competition and the Characteristics Approach

In 1975, Archibald and Rosenbluth published “The ‘New’ Theory of Consumer Demand and Monopolistic Competition” in the *Quarterly Journal of Economics*. The “New Theory of Consumer Demand” refers to the characteristics approach popularized by Lancaster (1966a; 1966b; 1971), where products are described as vectors of measurable characteristics, and characteristics serve as the arguments of the consumers’ utility function. Consumers therefore purchase products for their specific combination of characteristics. Rosenbluth, Archibald’s colleague at the University of British Columbia (where Archibald joined in 1971 and remained until his retirement in 1991), had previously collaborated with Lipsey in 1971 to apply the characteristics approach to explain “Giffen goods” (Lipsey and Rosenbluth 1971). Lipsey himself had moved to Canada in 1969, first at the University of British Columbia for one year and later at Queen’s University in Kingston, Ontario.

Therefore, we can note that the professional and intellectual ties among Archibald, Lipsey, and Lancaster were both close and enduring. Early in their careers, they worked together at LSE, co-authoring several works (Archibald and Lipsey 1958; 1960; 1967; Lipsey and Lancaster 1956; Lancaster and Lipsey 1959), and participating actively in the M²T seminar and Robbins’ seminar. They frequently acknowledged one another’s feedback in their late-1950s work. At the time Archibald published “Chamberlin versus Chicago” (1961)—where qualitative economics and falsificationism were central themes—Lancaster was drafting his key works on qualitative economics (Lancaster 1962; 1964; 1965; 1966c), and Lipsey was preparing *An Introduction to Positive Economics* (1963). They shared common intellectual interests influenced by the LSE environment. After Lancaster moved to the United States in 1961, Archibald and Lipsey both joined Essex University in the early 1960s, and Lipsey later moved to Canada in 1969, followed by Archibald in 1971. By then, all three had moved away from qualitative economics and falsificationism, and Lancaster had published his work on the characteristics approach. This approach was later used by Archibald and Lipsey in various publications (e.g., Eaton and Lipsey 1989; Archibald and Eaton 1989), notably allowing further collaboration (Archibald, Eaton, and Lipsey 1986). Following Archibald and Rosenbluth's article, Lancaster published extensively on monopolistic competition (Lancaster 1979b; 1979a; 1980a; 1980b; 1984), as Lipsey with Curtis Eaton, later compiling their articles into the book *On the Foundations of Monopolistic Competition and Economic Geography* (Eaton and Lipsey 1997). The close professional connections among these three economists, with their shared trajectories and research interests, have been largely overlooked by historians of economic thought.

Archibald and Rosenbluth begin their article by noting that one of the main limitations of monopolistic competition theory is the lack of an analytical definition of the "group" concept. In his 1961 article, Archibald had argued that this lack of definition was not a major issue, as one could assume a group by assumption and attempt to falsify any predictions arising from this assumption. However, his perspective had since shifted. They argued, "a further weakness is that, even if a group is assumed somehow to exist, the theory is qualitatively empty, since conventional demand theory does not tell us what may happen as differentiated goods are added to or removed from the group" (Archibald and Rosenbluth 1975, 569). Here, they reference qualitative economics and cite Archibald's 1961 article in a footnote, indicating continuity between the two articles. However, Archibald had not addressed the issue of new products in his 1961 article. This statement is a strange synthesis of two different things. Lancaster's 1966 article argued that conventional demand theory struggled to account for new products, as new products require redefining the preference relation of the consumer. The characteristics approach resolves this issue, as the preference relation of the consumer is based on the characteristics, not on the products. Therefore, a new product (which simply represents a new available combination of characteristics) is not an analytical problem, especially when assuming a complete preorder on characteristics. Archibald and Rosenbluth therefore combine Lancaster's analysis (which doesn't reference qualitative economics) with Archibald's earlier work (which doesn't address the issue of new products) to argue that the introduction of new products demonstrates the qualitative emptiness of monopolistic competition theory.

According to them, the characteristics approach enables to establish a foundation for the "group." Specifically, if products sharing common characteristics absent in other products can be identified, these products form a group that doesn't encompass the entire economy—addressing a criticism raised earlier by Triffin (1940). Product differentiation within the group simply reflects variations in the quantity of the different characteristics defining the group. This provides an objective definition of the group. However, challenges remain, as universal characteristics (such as sales location) are shared across all products, making it impossible to isolate groups if all characteristics are considered in the model. To address this issue, Archibald and Rosenbluth adopt a solution proposed by Lancaster:

> We follow Lancaster's suggestion that a useful [group] concept can be retained if we can distinguish between "core" characteristics, peculiar to the goods of a given [group], and "universal" characteristics, shared by goods in more than one [group], and if the goods in the [group] contribute either a small or a constant proportion of the so-called "universal" characteristics (Archibald and Rosenbluth 1975, 571).

They therefore propose salvaging their group definition by introducing a largely arbitrary distinction between characteristics. Moreover, certain product-specific characteristics, such as "brand image" (*ibid*., 572), which is central to Chamberlin's monopolistic competition theory, must be excluded to get a workable definition of the group. Later, Archibald acknowledged that proving the existence of groups meeting Lancaster's definition remains an empirical challenge ([1987] 2018, 9091). After using the characteristics approach to define the "group" concept, Archibald and Rosenbluth apply it to distinguish between "large group" situations, characterized by the symmetry assumption, and the "linked and overlapping 'local' oligopolies" situations—a concept echoing Kaldor's (1934; 1935) criticisms of Chamberlin's symmetry assumption. They note that Chamberlin's monopolistic competition theory is a partial equilibrium analysis, which applies to their model "if the effects outside the group of changes within the group have no significant repercussions for the group" (*ibid.*, 573), a significant assumption they adopt for the sake of analysis. Their main result is that the observation of these two situations depends on the number of characteristics included in the model. The observation of the "large group" situations is only possible when numerous characteristics are included in the model. This insight—that market structure depends on the number of characteristics included in a model—has become foundational in contemporary monopolistic competition literature. As a matter of fact, if one considers the distinction between the "goods-are-goods" approach and the "characteristics approach" (Gradoz 2024b), which allows to categorizing the various monopolistic competition models, Archibald and Rosenbluth's model has become a benchmark for studying monopolistic competition within the characteristics approach. In contrast, the models by Spence (1976), Dixit and Stiglitz (1977), and Hart (1979) belong to the "goods-are-goods" approach.

4 Conclusion

Monopolistic competition is closely associated with Edward Hastings Chamberlin, who dedicated much of his career to developing a theory to describe this market structure and defending it against numerous criticisms. However, the modern study of monopolistic competition bears little resemblance to Chamberlin's original theory. This transformation was the result of efforts in the latter half of the 20th century to identify and address flaws in Chamberlin's theory, ultimately leading to a comprehensive reformulation in the 1970s. George Christopher Archibald played a pivotal, albeit often overlooked, role in this transformation. In the late 1950s, he provided a foundation for Chamberlin's distinction between the "small group" and the "large group" and sought to reconcile profit-maximizing behavior with certain insights from Chamberlin-inspired research. In 1961, responding to critiques of monopolistic competition theory by Stigler and Friedman—which he viewed as inconsistent with their methodological approach to economics—and influenced by debates at the LSE on falsificationism and qualitative economics, he demonstrated that the theory failed to produce testable predictions at the level of abstraction defined by the Robbins-Samuelson programme. However, this conclusion did not condemn monopolistic competition theory, as it could still be preserved by adding more structure (Sutton 1989). In 1975, Archibald took this step by incorporating Lancaster's insights into monopolistic competition theory, contributing to its revival in the 1970s. This movement, sometimes referred to as the "second revolution of monopolistic competition" (Brakman and Heijdra 2001), saw Archibald and Rosenbluth propose a benchmark model for describing monopolistic competition within the characteristics approach framework.

References

Archibald, George Christopher. 1954. "The Factor Gap and the Level of Wages." *Economic Record* 30 (1–2): 187–99. https://doi.org/10.1111/j.1475-4932.1954.tb03083.x.

———. 1955a. "Inventory Investment and the Share of Wages in Manufacturing Income." *The Economic Journal* 65 (258): 257–70. https://doi.org/10.2307/2227896.

———. 1955b. "Saving and the Welfare Theory of Taxation." *Economic Record* 31 (1–2): 90–94. https://doi.org/10.1111/j.1475-4932.1955.tb02919.x.

———. 1959a. "'Large' and 'Small' Numbers in the Theory of the Firm." *The Manchester School* 27 (1): 104–9. https://doi.org/10.1111/j.1467-9957.1959.tb01384.x.

———. 1959b. "The State of Economic Science." *The British Journal for the Philosophy of Science* 10 (37): 58–69. https://doi.org/10.1093/bjps/X.37.58.

———. 1960. "Review of Business Behavior, Value and Growth, by William Jack Baumol." *Economica* 27 (107): 274–75. https://doi.org/10.2307/2601680.

———. 1961. “Chamberlin versus Chicago.” *The Review of Economic Studies* 29 (1): 2–28. https://doi.org/10.2307/2296178.
———. 1964. “Profit-Maximising and Non-Price Competition.” *Economica* 31 (121): 13–22. https://doi.org/10.2307/2550923.
———. 1965. “The Qualitative Content of Maximizing Models.” *Journal of Political Economy* 73 (1): 27–36. https://doi.org/10.1086/258990.
———. 1967. “Refutation or Comparison?” *The British Journal for the Philosophy of Science* 17 (4): 279–96. https://doi.org/10.1093/bjps/17.4.279.
———. 1971. *The Theory of the Firm*. London: Penguin.
———. 1979. “Method and Appraisal in Economics.” *Philosophy of the Social Sciences* 9 (3): 304–15. https://doi.org/10.1177/004839317900900304.
———. 2018. “Monopolistic Competition.” In *The New Palgrave Dictionary of Economics. Third Edition*, edited by Steven Neil Durlauf and Lawrence Blume, 9088–93. London: Palgrave Macmillan. https://doi.org/10.1057/978-1-349-95121-5_1153-2.
Archibald, George Christopher, and Curtis Eaton. 1989. “Two Applications of Characteristics Theory.” In *The Economics of Imperfect Competition and Employment: Joan Robinson and Beyond*, edited by George Richard Feiwel, 409–36. London: Palgrave Macmillan. https://doi.org/10.1007/978-1-349-08630-6_12.
Archibald, George Christopher, Curtis Eaton, and Richard George Lipsey. 1986. “Address Models of Value Theory.” In *New Developments in the Analysis of Market Structure*, edited by Joseph Eugene Stiglitz and Frank Mathewson, 3–52. London: Palgrave Macmillan. https://doi.org/10.1007/978-1-349-18058-5_1.
Archibald, George Christopher, and Richard George Lipsey. 1958. “Monetary and Value Theory: A Critique of Lange and Patinkin.” *The Review of Economic Studies* 26 (1): 1–22. https://doi.org/10.2307/2295854.
———. 1960. “Monetary and Value Theory: Further Comment.” *The Review of Economic Studies* 28 (1): 50–56. https://doi.org/10.2307/2296250.
———. 1967. *An Introduction to a Mathematical Treatment of Economics*. London: Weidenfeld and Nicolson.
Archibald, George Christopher, and Gideon Rosenbluth. 1975. “The ‘New’ Theory of Consumer Demand and Monopolistic Competition.” *The Quarterly Journal of Economics* 89 (4): 569–90. https://doi.org/10.2307/1884693.
Aslanbeigui, Nahid, and Guy Oakes. 2011. “Hostage to Fortune: Edward Chamberlin and the Reception of The Theory of Monopolistic Competition.” *History of Political Economy* 43 (3): 471–512. https://doi.org/10.1215/00182702-1346896.
Baumol, William Jack. 1959. *Business Behavior, Value and Growth*. London: MacMillan.
Beath, John, and Yannis Katsoulacos. 1991. *The Economic Theory of Product Differentiation*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511720666.
Boulding, Kenneth Ewart. 1952. “Implications for General Economics of More Realistic Theories of the Firm.” *The American Economic Review* 42 (2): 35–44. http://www.jstor.org/stable/1910583.

Brakman, Steven, and Ben Heijdra, eds. 2001. *The Monopolistic Competition Revolution in Retrospect*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511492273.

Chamberlin, Edward Hastings. 1933. *The Theory of Monopolistic Competition. A Re-Orientation of the Theory of Value.* Cambridge: Harvard University Press.

———. 1947. "Review of The Theory of Price, by George Joseph Stigler." *The American Economic Review* 37 (3): 414–18. http://www.jstor.org/stable/1802680.

———. 1957. *Towards a More General Theory of Value*. Oxford: Oxford University Press.

Committee on Higher Education. 1963. *Higher Education: Report of the Committee Appointed by the Prime Minister under the Chairmanship of Lord Robbins 1961-63*. London: HMSO.

Cozic, Mikaël. 2018. "Philosophy of Economics." In *The Philosophy of Science: A Companion*, edited by Anouk Baberousse, Denis Bonnay, and Mikaël Cozic, 542–94. Oxford: Oxford University Press. https://doi.org/10.1093/oso/9780190690649.003.0015.

Demsetz, Harold. 1964. "The Welfare and Empirical Implications of Monopolistic Competition." *The Economic Journal* 74 (295): 623–41. https://doi.org/10.2307/2228300.

Dixit, Avinash, and Joseph Eugene Stiglitz. 1977. "Monopolistic Competition and Optimum Product Diversity." *The American Economic Review* 67 (3): 297–308. https://www.jstor.org/stable/1831401.

Dorfman, Robert, and Peter Otto Steiner. 1954. "Optimal Advertising and Optimal Quality." *The American Economic Review* 44 (5): 826–36. https://www.jstor.org/stable/1807704.

Eaton, Curtis, and Richard George Lipsey. 1989. "Product Differentiation." In *Handbook of Industrial Organization. Volume 1*, edited by Richard Schmalensee and Robert Willig, 723–68. Amsterdam: North-Holland. https://doi.org/10.1016/S1573-448X(89)01015-0.

———. 1997. *On the Foundations of Monopolistic Competition and Economic Geography*. Cheltenham: Edward Elgar Publishing.

Freedman, Craig. 2016. "The Chicago School of Anti-Monopolistic Competition: Stigler's Scorched Earth Campaign Against Chamberlin." In *In Search of the Two-Handed Economist: Ideology, Methodology and Marketing in Economics*, edited by Craig Freedman, 165–342. London: Palgrave Macmillan. https://doi.org/10.1057/978-1-137-58974-3_5.

Friedman, Milton. 1953. *Essays in Positive Economics*. Chicago: Chicago University Press.

———. 1963. "More on Archibald versus Chicago." *The Review of Economic Studies* 30 (1): 65–67. https://doi.org/10.2307/2296033.

Gradoz, Julien. 2024a. "Introducing a Quality Variable in the Theory of Product Differentiation: Abbott (1953) and Dorfman and Steiner (1954)." Working Paper. Center for the History of Political Economy.

———. 2024b. “Kelvin John Lancaster and the Distinction between the ‘Goods Are Goods’ Approach and the ‘Characteristics’ Approach to Demand Theory.” CHOPE Working Paper No. 2024-05. Duke University. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4959495.
Hadar, Josef. 1969. “On the Predictive Content of Models of Monopolistic Competition.” *Southern Economic Journal* 36 (1): 67–73. https://doi.org/10.2307/1056810.
Hall, Robert Lowe, and Charles Hitch. 1951. “Price Theory and Business Behaviour.” In *Oxford Studies in the Price Mechanisms*, edited by Philips Andrews and Thomas Wilson, 107–38. Oxford: Clarendon Press.
Hart, Oliver. 1979. “Monopolistic Competition in a Large Economy with Differentiated Commodities.” *The Review of Economic Studies* 46 (1): 1–30. https://doi.org/10.2307/2297169.
Hicks, John Richard. 1939. *Value and Capital. An Inquiry into Some Fundamental Principles of Economic Theory*. Oxford: Clarendon Press.
Hutchison, Terrence Wilmot. 1938. *The Significance and Basic Postulates of Economic Theory*. London: MacMillan.
Johnson, Harry Gordon. 1968. “The Economic Approach to Social Questions.” *Economica* 35 (137): 1–21. https://doi.org/10.2307/2552159.
Kaldor, Nicholas. 1934. “Mrs. Robinson’s ‘Economics of Imperfect Competition.’” *Economica* 1 (3): 335–41. https://doi.org/10.2307/2548808.
———. 1935. “Market Imperfection and Excess Capacity.” *Economica* 2 (5): 33–50. https://doi.org/10.2307/2549105.
Kehoe, Timothy Jerome. 1989. “Comparative Statics.” In *General Equilibrium*, edited by John Eatwell, Murray Milgate, and Peter Newman, 76–83. London: Palgrave Macmillan UK. https://doi.org/10.1007/978-1-349-19802-3_7.
Keppler, Jan Horst. 1998. “The Genesis of ‘Positive Economics’ and the Rejection of Monopolistic Competition Theory: A Methodological Debate.” *Cambridge Journal of Economics* 22 (3): 261–76. https://doi.org/10.1093/oxfordjournals.cje.a013716.
Koopmans, Tjalling. 1957. *Three Essays on the State of Economic Science*. New York: McGraw-Hill Book Company.
Lancaster, Kelvin John. 1962. “The Scope of Qualitative Economics.” *The Review of Economic Studies* 29 (2): 99–123. https://doi.org/10.2307/2295817.
———. 1964. “Partitionable Systems and Qualitative Economics.” *The Review of Economic Studies* 31 (1): 69–72. https://doi.org/10.2307/2295937.
———. 1965. “The Theory of Qualitative Linear Systems.” *Econometrica* 33 (2): 395–408. https://doi.org/10.2307/1909797.
———. 1966a. “A New Approach to Consumer Theory.” *Journal of Political Economy* 74 (2): 132–57. https://doi.org/10.1086/259131.
———. 1966b. “Change and Innovation in the Technology of Consumption.” *The American Economic Review* 56 (1/2): 14–23.

———. 1966c. "The Solution of Qualitative Comparative Static Problems." *The Quarterly Journal of Economics* 80 (2): 278–95. https://doi.org/10.2307/1880693.

———. 1971. *Consumer Demand: A New Approach*. New York: Columbia University Press.

———. 1974. *Introduction to Modern Microeconomics. Second Edition*. Chicago: Rand McNally College Publishing Company.

———. 1979a. "Monopolistic Competition with a Non-Uniform Distribution of Consumers." Discussion Paper 15. Columbia University Department of Economics.

———. 1979b. "Product Uniqueness under Perfect Monopolistic Competition." Discussion Paper 13. Columbia University Departement of Economics.

———. 1980a. "Intra-Industry Trade under Perfect Monopolistic Competition." *Journal of International Economics* 10 (2): 151–75. https://doi.org/10.1016/0022-1996(80)90052-5.

———. 1980b. "Perfect Monopolistic Competition in a Multi-Characteristics Setting." Paper Presented at Fourth World Congress of the Econometric Society, Aix-en-Provence.

———. 1984. "Protection and Product Differentiation." In *Monopolistic Competition and International Trade*, edited by Henryk Kierzkowski, 137–56. Oxford: Oxford University Press.

———. 1990. "The Economics of Product Variety: A Survey." *Marketing Science* 9 (3): 189–206. https://doi.org/10.1287/mksc.9.3.189.

———. 1997. "Welfare, Variety and Economic Modelling." In *Makers of Modern Economics. Volume 3*, edited by Arnold Heertje, 55–73. Cheltenham: Edward Elgar Publishing.

Lancaster, Kelvin John, and Richard George Lipsey. 1959. "McManus on Second Best." *The Review of Economic Studies* 26 (3): 225–26. https://doi.org/10.2307/2295750.

Latsis, Spiro. 1976. *Method and Appraisal in Economics*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511572203.

Lester, Richard. 1946. "Shortcomings of Marginal Analysis for Wage-Employment Problems." *The American Economic Review* 36 (1): 63–82. http://www.jstor.org/stable/1802256.

———. 1947. "Marginalism, Minimum Wages, and Labor Markets." *The American Economic Review* 37 (1): 135–48. http://www.jstor.org/stable/1802863.

Lipsey, Richard George. 1963. *An Introduction to Positive Economics*. London: Weidenfeld and Nicolson.

———. 1996. "Obituary: George Christopher Archibald, 1926-1996." *The Canadian Journal of Economics* 29 (4): 1004–6.

———. 2000. "The Famous Phillips Curve Article." In *A. W. H. Phillips: Collected Works in Contemporary Perspective*, edited by Robert Leeson, 231–42. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511521980.026.

———. 2001. “Successes and Failures in the Transformation of Economics.” *Journal of Economic Methodology* 8 (2): 169–201. https://doi.org/10.1080/13501780110047273.
———. 2009. “Some Legacies of Robbins’ An Essay on the Nature and Significance of Economic Science.” *Economica* 76 (1): 845–56. https://doi.org/10.1111/j.1468-0335.2009.00792.x.
Lipsey, Richard George, and Kelvin John Lancaster. 1956. “The General Theory of Second Best.” *The Review of Economic Studies* 24 (1): 11–32. https://doi.org/10.2307/2296233.
Lipsey, Richard George, and Gideon Rosenbluth. 1971. “A Contribution to the New Theory of Demand: A Rehabilitation of the Giffen Good.” *The Canadian Journal of Economics* 4 (2): 131–63. https://doi.org/10.2307/133523.
Lloyd, Peter John. 1969. “Qualitative Calculus and Comparative Static Analysis.” *Economic Record* 45 (3): 343–53. https://doi.org/10.1111/j.1475-4932.1969.tb00175.x.
Marchi, Neil de. 1988. “Popper and the LSE Economists.” In *The Popperian Legacy in Economics*, edited by Neil de Marchi, 139–66. Cambridge: Cambridge University Press.
Medema, Steven. 2024. “Identifying A ‘Chicago School’ of Economics: On the Origins, Diffusion, and Evolving Meanings of a Famous Name Brand.” *Journal of the History of Economic Thought* 46 (2): 169–200. https://doi.org/10.1017/S1053837223000123.
Phillips, Alban William Housego. 1958. “The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957.” *Economica* 25 (100): 283–99. https://doi.org/10.2307/2550759.
Quirk, James. 2018. “Qualitative Economics.” In *The New Palgrave Dictionary of Economics. Third Edition*, edited by Steven Neil Durlauf and Lawrence Blume, 11055–58. London: Palgrave Macmillan. https://doi.org/10.1057/978-1-349-95189-5_1487.
Robbins, Lionel. 1932. *An Essay on the Nature and Significance of Economic Science*. London: MacMillan.
Robinson, Joan. 1933. *The Economics of Imperfect Competition*. London: MacMillan. https://doi.org/10.1007/978-1-349-15320-6.
Salop, Steven. 1979. “Monopolistic Competition with Outside Goods.” *The Bell Journal of Economics* 10 (1): 141–56. https://doi.org/10.2307/3003323.
Samuelson, Paul Anthony. 1947. *Foundations of Economic Analysis*. Cambridge: Harvard University Press.
Skinner, Andrew. 1983. “E. H. Chamberlin: The Origins and Development of Monopolistic Competition.” *Journal of Economic Studies* 10 (4): 52–67. https://doi.org/10.1108/eb002569.
Spence, Michael. 1976. “Product Selection, Fixed Costs, and Monopolistic Competition.” *The Review of Economic Studies* 43 (2): 217–35. https://doi.org/10.2307/2297319.

Stigler, George Joseph. 1946. *The Theory of Price*. New York: MacMillan.
———. 1949. “Monopolistic Competition in Retrospect.” In *Five Lectures on Economic Problems*, 12–24. London: The London School of Economics and Political Science.
———. 1963. “Archibald versus Chicago.” *The Review of Economic Studies* 30 (1): 63–64. https://doi.org/10.2307/2296032.
Sutton, John. 1989. “Is Imperfect Competition Empirically Empty?” In *The Economics of Imperfect Competition and Employment: Joan Robinson and Beyond*, edited by George Richard Feiwel, 225–40. London: Palgrave Macmillan. https://doi.org/10.1007/978-1-349-08630-6_6.
Telser, Lester. 1964. “Advertising and Competition.” *Journal of Political Economy* 72 (6): 537–62. https://doi.org/10.1086/258962.
Triffin, Robert. 1940. *Monopolistic Competition and General Equilibrium*. Cambridge: Harvard University Press.