

**WORKING PAPERS**

Investigação - Trabalhos em curso - nº 105, Maio de 2001

# **CHAMBERLAIN ON PRODUCT DIFFERENTIATION, MARKET STRUCTURE AND COMPETITION: AN ESSAY**

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# CHAMBERLIN ON PRODUCT DIFFERENTIATION, MARKET STRUCTURE AND COMPETITION: AN ESSAY\*

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## ABSTRACT

In the 1930s the imperfect competition - monopolistic competition debate took new approaches to the analysis of economic equilibrium with two main works which derived independently came published almost simultaneously in time: Mrs. Robinson's *Economics of Imperfect Competition* [1933] and Chamberlin's *Theory of Monopolistic Competition* [1933]. They face the competitive structure in completely different ways in aim, methodology and content. His work can be considered revolutionary in the sense that he considers a market structure characterized by both competitive and monopoly elements and this is the "little" difference that made his work so important to the modern microeconomic theory with so important concepts such as product differentiation, the role of advertising and the randomness associated to the choice process: with Chamberlin, advertising and product differentiation lead to new market structures, opening up field of industrial organization. Two dimensions are enormously relevant: product differentiation linked to selling costs (advertising, non-price competition, etc.) and numbers (includes oligopoly and competition linked to large numbers, even if demand curves not horizontal).

**Keywords:** *oligopoly, monopolistic and imperfect competition, product and price differentiation, selling costs, advertising, demand curves.*

## RESUMO

O aceso debate entre competição imperfeita e concorrência monopolística levado a cabo nos anos 1930, com dois trabalhos fundamentais, elaborados de forma independente mas publicados quase simultaneamente em 1933, permitiu novas abordagens no âmbito da análise do equilíbrio económico: Robinson com *Economics of Imperfect Competition* e Chamberlin com *Theory of Monopolistic Competition*. Ambos os trabalhos encaram a estrutura de mercado competitivo em duas abordagens completamente distintas em objectivo, metodologia e conteúdo. O trabalho de Chamberlin pode, no entanto, ser considerado revolucionário no sentido em que considera uma estrutura de mercado caracterizada por elementos competitivos e de monopólio. É esta "pequena" diferença que distingue o trabalho de Chamberlin no âmbito da moderna teoria microeconómica onde a diferenciação de produto, o papel da publicidade ou a aleatoriedade associada ao processo de escolha desempenham papel relevante: com Chamberlin, a publicidade e diferenciação de produto conduzem a novas estruturas de mercado alargando os horizontes da economia industrial. Duas dimensões se destacam: diferenciação de produto ligada a *selling costs* (publicidade, *non-price competition*, etc.) e números (inclui oligopólio e competição com grande número de concorrentes mesmo se as curvas de procura não são horizontais).

**Palavras-Chave:** *oligopólio, concorrência imperfeita e monopolística, diferenciação em preço e produto, selling costs, publicidade, curva de procura.*

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\* Working paper produced under the Doctoral Program in Economics at Faculdade de Economia do Porto, Universidade do Porto, under the supervision of Professor Roger Backhouse (University of Birmingham, UK). General comments and suggestions by Professor Roger Backhouse are gratefully acknowledged. This research was partially financed by the PRODEP Program of the Portuguese Government.

## **1. INTRODUCTION**

In the 1930s, the imperfect competition - monopolistic competition debate took new approaches to the analysis of economic equilibrium with two main works, derived independently and published almost simultaneously in time: Mrs. Robinson's *Economics of Imperfect Competition* [1933] and Chamberlin's *Theory of Monopolistic Competition* [1933]. They face the competitive structure in completely different ways in aim, methodology and content. His work can be considered revolutionary, in the sense that he considers a market structure characterized by both competitive and monopoly elements, and this is the "little" difference that made his work so important to the modern microeconomic theory. He analyzes oligopoly, accounting to the mutual dependences between competitors, and monopolistic competition, when the number of competitors is sufficiently large, mutual dependences are relaxed and elements such as advertising, product differentiation and selling costs are important in the development of his theory.

This work consists of several sections: in section II we analyze the main elements which characterize the work of Chamberlin, in section III we attempt to link Chamberlin and Marshall and some other sources of his work, in section IV we compare, positively and negatively, with some detail, the work of Chamberlin to the work of Robinson, attempting, with this procedure, to better understand and clarify Chamberlin in his historical time, and, finally, in section V we make some considerations on the development of the Chamberlin work, attempting to reflect about his contributions to modern economic theory.

## **2. CHAMBERLIN AND MARKET STRUCTURE. SOME CONSIDERATIONS.**

About the market structure, producers face different environments. Some producers face a competitive or a monopolist market of inputs but selling their products in a market structure such as monopoly, (im)perfect competition or monopolistic competition or different degrees of oligopoly; others can face monopsony or oligopsony, combined with different structures in (some) inputs' markets. Any combination between sellers and buyers is possible. Some industries face homogeneous products, that consumers can't distinguish; others face perfect substitute products but different at the consumers' point of view (case of industry of cigars).

So, market structure is important because not only by the differences we can distinguish between them, but because of the behaviours associated to each one and that can generate different perceptions and actions between competitors, between consumers and between competitors and consumers. With this perspective in mind, a question comes up: which market structures do really exist? Perfect competition and monopoly? Something between these two kinds of market structures? What really does mean the term imperfect competition? Imperfect in the sense of competitive behaviour with market failures (information failures, for instance) or imperfect in the opposite sense of “perfect” competition? Why not a mix between the two most exhaustively studied cases: pure competition and monopoly? But, will such a market structure really exist and how can we combine them in the real world? Attempting to analyze and getting answers to these questions, in the 1930’s a “revolution” in the microeconomic field was starting. A revolution implies new perspectives with respect to the “status quo” and orthodoxy, debates and controversy in order to reveal new ways of thought, even if using (why not?) elements of the orthodoxy statements.

Many economic scientists contributed to this so-called “revolution” but, it is peacefully accepted by almost economic researchers, a man contributed a lot to this questions research: Chamberlin. With his 1933’s book *The Theory of Monopolistic Competition*, which became published after his PhD thesis, written in 1927 under direction of Allyn Young, he attempts to better clarify his position in relation to the then dominant theory of the firm and market structure. Both works (the thesis and the book) are important, and, if we can see the later as a natural corollary of the first, his thesis was not merely a “piece in the whole” with relative importance<sup>1</sup>. In both works (and many other papers), he attempts to achieve a more realistic approach to the theory of the firm. In fact, his work although dealing with the theory of the firm, doesn’t create a “new theory of the firm”; despite not seeing the firm as irrelevant, he approaches the matter from the point of view of market structure. This matter is not peaceful, in the sense that many economist researchers referred often to Chamberlin’s work, facing it in the field of the theory of the firm, “more or less” identical in spirit to other “typical” works (the reference to Mrs. Robinson work is inevitable). And Chamberlin tries harder to distinguish his work from the Cambridge welfare tradition in its main elements.

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<sup>1</sup> In fact, it was a bound volume in the Harvard University Library, extensively consulted, not only in the 1927-1933 period, as well as later on.

Chamberlin distinguishes “imperfect competition” from “monopolistic competition”<sup>2</sup>. It’s not just a question of an homogeneous good sold in an imperfect market, but the diversity of conditions surrounding each producer faced as monopolist of his own variety. Monopolistic competition embodies elements of monopoly and perfect competition, assuming a great number of sellers, such that the actions of one individual producer have no effects on his competitors. But it is related with monopoly and oligopoly with differentiation, for the differentiated product of each seller has a demand curve with negative slope<sup>3</sup>.

Chamberlin had a special view of market structure, claiming about the power of a producer to differentiate a product as part of the competitive strategy. For him, the market nature is characterized both by the number of firms and the product differentiation, where firms control product (differentiated) prices, quantities, product quality, and, in this process, they use tools such as advertising in result of differentiated production, attempting to “better” sell his own (differentiated) product<sup>4</sup>. In his view, it can exist competition without the meaning of pure competition; in a certain way he’s opposite to static equilibrium, allowing the possibility of desequilibrium. In an industry with many producers and small firms in relation to the market as a whole, selling differentiated substitutes, it can exist market power, in a way that each competitor can get some degree of control of his variety price. For him, perfect competition, per se, is such like an abstraction, because the real economic world’s behavior, although allowing (and being) competitive behaviour, gets both elements of free competition and monopoly<sup>5</sup>. His work is not based in (just) the firm structure, it’s related specially to the market structure. He claims that each producer in an industry has a monopoly of his own variety, he doesn’t claim that the industry is monopoly. It can exist intense competition in this process, although built on different theoretical and empirical basis (monopoly theory, but taking into account the interrelations between groups of producers). In this way, pure competition eliminates “part of the picture”, not taking in account the monopoly elements presence<sup>6</sup>.

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<sup>2</sup> The first, refers to “actual perfect competition” taking into account market imperfections and this is a concept that (at least inconsciously) tends to separate in closed departments pure competition and monopoly.

<sup>3</sup> Assuming linear demand curves, the price that each seller gets, is a function of the quantity of output sold by each one of the  $n$  firms in the industry.

<sup>4</sup> So, imperfect competition is not limited to markets with few sellers and buyers; for its existence it is sufficient the product differentiation.

<sup>5</sup> Chamberlin’s work concerns in a significant manner with monopolistic competition, being particularly interested in the oligopoly question.

<sup>6</sup> Each “monopolist” faces the competition of substitutes and other products with different degrees of differentiation, and he uses technical apparatus such as a demand curve “appropriately” elastic and “appropriately” located with relation to the cost curve.

He pays attention on oligopoly structure, remarking the mutual dependences between competitors' actions, and considers the possibility of monopolistic competition with a number of competitors sufficiently large, in a way that the mutual dependences between competitors become irrelevant. Monopolistic elements are not merely the result of consumers' irrational behaviour, because products are assumed to be differentiated in several degrees. The relation between price and sales to an individual seller, depends on the market organization in which he acts<sup>7</sup>. For duopolists and oligopolists, the construction of a demand curve faces new problems<sup>8</sup>: price variations of an individual producer, will lead to unknown effects, in a way that his competitors may react with uncertainty to his price changing. But, if the product is differentiated, with bigger prices in relation to his competitors, the individual producer will not loose all his sales, because if some of his buyers will move to his competitors, also some of his loyal clients will keep buying his (differentiated) product, for preference motivations<sup>9</sup>. The individual behaviour is, in general, affected by the actions and reactions of his competitors<sup>10</sup>. The behaviour of individual sellers (and consumers) is strongly interrelated: the behaviour of a firm has important effects on quantities, prices and profits of the other firms. The individual firm doesn't control all the variables that affect its profit, so, it's impossible the unconditional (free) maximization of profits.

In his work, choice (with implicit uncertainty and randomness), is a variable to be considered in welfare: the producer aims at profit maximisation, but market conditions are not homogeneous, in a way that wants may be altered, it may exist product differentiation (more than "product variation") with, or without, adjustment price, to get new buyers, more consumers, (selling) costs and the possibility of advertising<sup>11</sup>. The differentiation leads to a situation in which the presence of monopoly elements it's not simply the result of irrational behaviour on the part of consumers, it's part of the real world. So, price and product are two key variables in the competitive process towards

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<sup>7</sup> To a monopolist, the demand curve is the market demand curve; to a "perfect competitor", it is not directly related to the market demand curve of his product in a way that he can't affect the price (horizontal line at the level of market price).

<sup>8</sup> Considering homogeneous goods from competition between producers, there will be a unique price for all sellers, but each seller is sufficiently capable of interaction with the market in a way that his behaviour can affect his competitor's behaviour. So, the consequences of any individual action, made up by a duopolist or an oligopolist, depends on the reaction of his competitors, and, being these affected of uncertainty and randomness, we can't define accurately general price-selling relations to an individual seller.

<sup>9</sup> We can't define a market demand curve covering the industry as a whole, because each producer offers a different consumption good, in the consumers' point of view. To each producer, there is a distinct demand curve, but the quantity of output sold by him is function of his price and of his competitors' prices.

<sup>10</sup> A profit maximizer monopolist acts without interference of close competitors; in a group with a great number of firms, the differentiated individual producer knows that his actions will produce negligenciable effects on each of his competitors, maximizing his profits in a way very similar to the maximization behaviour of a producer under conditions of perfect competition.

<sup>11</sup> In his view, differentiation relates to quality of service, location, trade-marks and advertising, in a manner that we can take a consumer's utility function  $U(i) = F[P(i), a(i), Y, E(i)]$  for each variety  $i$ , being  $P(i)$  the variety's price,  $Y$  the income,  $a(i)$  a quality index, and  $E(i)$  a random variable.

equilibrium: price equilibrium versus product equilibrium, considering three possibilities: price adjustment (given product), product adjustment (given price) and a third way, considering both price and product endogenous<sup>12</sup>. These considerations appart Chamberlin from pure and perfect competition.

### 3. CHAMBERLIN AND MARSHALL

*“A man is likely to be a better economist if he trusts to his common sense, and practical instincts, than if he prefers to study the theory of value and is resolved to find it easy”*, Marshall says in his *Principles of Economics* [1920, p368].

Is the Chamberlin’s work an attack on Marshall, a reformulation of his statements, or is it a radically distinct way of facing the welfare economics? In a word, we can say that he started by rejecting the Cambridge welfare tradition. Marshall is a very influential source to Chamberlin’s work, but he drew upon a wide range of sources, namely his thesis’s supervisor Allyn Young or J. M. Clarke, from theorists such like Pareto or Edgeworth, and from the american institutionalists with their use of selling costs<sup>13</sup>. Also the strong tradition of american empiricism, contributed to the Chamberlin view of the importance of the adequacy of theory to the real world<sup>14</sup>. He attempts to extend Marshall’s work, based in an economic environment characterized by a market structure with elements such as product differentiation and advertising. In fact, he makes use of many elements that Marshall faces as relevants. The main difference is that those common framework elements are not analyzed and integrated in the same direction. Marshall takes perception of many elements that are extensively analyzed by Chamberlin, but he’s unable to “get all the picture”, in the Chamberlinian sense, in a way to incorporate those common elements in order to build up a theory, clearly

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<sup>12</sup> Admitting product as deterministic (no technical change, same location, no differentiation), the negative slope of demand, define maximum profits associated to higher prices and higher production costs with relation to pure competition. Product variation involves, in general, changes in the cost of production curve, in the sense that technical (qualitative) changes in the product alter the cost of production and the product’s demand. For each variety of product, the amount demanded is limited, taking in account the nature and price of substitute products and its own, and the seller chooses the degree of variation (the differentiated variety) which maximises his profit, given these interrelations. As Chamberlin points out, the profit maximizer choice doesn’t imply necessarily in the minimum cost variety: it may be a variety associated to a greater cost of production or with less demand. Adjustment based in the endogeneity of price and product is achieved through simultaneous adjustment, in the sense of price and product equilibrium: considering the price adjustment to each variety (or, by alternation, adjusting in product for all possible prices), it can be obtained the price-product combination which maximizes profit.

<sup>13</sup> About the influences, positive and negative ones, on Chamberlin, O’Brien [1983, p33] remarkably refers: *“The overwhelming impression left by Chamberlin’s book is that of very broad reading, from writers like Cournot on the one hand to the patent literature on the other, taking in along the way the business literature including that on price determination with business. (...)It is important to emphasise that Chamberlin’s thesis was not influenced by either Sraffa’s 1926 article or the “increasing returns controversy (...)/Nor dit it have anything to do with the 1930s depression which (...)influenced Joan Robinson. (...)It is highly significant that Chamberlin did not accept the welfare conclusions drawn by Pigou”*.

<sup>14</sup> Chamberlin is interested in conditions of disequilibrium, rather than of static equilibrium, in unorganized markets, refusing simple conclusions, and basing his way of thought in empirical evidences.

differing from the orthodoxy. Chamberlin explicitly tries to supplement rather than to attack Marshall's work, although not refusing non-Marshallian sources<sup>15</sup>. In an appendix (Appendix H), of Chamberlin's eighth edition book, he attempts to clarify his position, agreeing with opinions that complain that much analysis, even of purely competitive conditions, that is today presented as Marshallian is quite foreign to his thought<sup>16</sup>. Chamberlin claims that Marshall analyzes the general problems of value as a matter of demand and supply, with a single chapter on monopoly<sup>17</sup>.

Despite claiming for consistent, clear and robust microeconomic theory, realism, rather than abstraction, is a characteristic of Marshall, appealing for realistic models, facing the real microeconomic behaviour of real life, based on empirical evidence and testing. Marshall's work faces both partial and general equilibrium approaches. He distrusts of simple models aware of reality (he says they are full of snares)<sup>18</sup>. Marshall refers to business men experiences and behaviours in real life, referring to mutual dependences between distinct forces and variables in the economy, faces both internal and external knowledge, analyzing these questions in terms of firm sizes and facing them as dynamic with time, implicitly referring the relation of knowledge and the interactions between firms in the market. He refers also to the role of information problems, organization, pricing, product differentiation, decision taking, particular markets, competitive structure, technical progress and faces cost relationships as they really existed, rather than with what was analytically convenient. With these considerations in mind, Chamberlin's *Monopolistic Competition*, rather than an attack on Marshall, is more likely to be faced as an attack on the theory of perfect competition, on those to whom the theory in Chamberlin's work is perfect competition, and those who insist to regard competitive and monopolistic competition as separate and closed fields related to different principles with well defined boundaries. For Chamberlin, monopolistic competition is part of the competitive structure, although with particular specificities.

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<sup>15</sup> About this O'Brien [1994, p255] says: "(...)he (Chamberlin) did not regard the firm as irrelevant but he saw his work as building on that of Marshall, not supplanting it".

<sup>16</sup> But he also claims [p316]: "But the question must also be raised of whether much of Marshall's analysis which seems to be in terms of monopolistic competition and which is being resurrected today as such, is not also foreign to his thought in the sense that is inadequate as an expression of it".

<sup>17</sup> He asks again in a mix of deep respect and irony [p317]: "Is it not fair to say that he himself in his general treatment regarded competition as the fundamental force, and monopoly as a different and alternative principle? (...) In this Marshall was typical of his period, indeed in view of his great influence upon it, one would better say that the period was typically of him". He insists [p.317]: "Every plains and simple doctrine about Marshall is necessary false (...) simply by attributing to Marshall theories more precise than they really were, or than he ever intended them to be. His well-known positions of the mathematical method in economics is quite to the point (...) A fine distinction between theory and real life in Marshall's economics is impossible to draw because Marshall himself did not draw it, and never tired of warning others against drawing it".

<sup>18</sup> As O'Brien [1994, p248] says "he (Marshall) thinks about the firm in an historical perspective. For him, allocation takes place within a continuously evolving framework of possibilities, leading to new techniques, new processes, new products (...) and new profit opportunities".

#### 4. CHAMBERLIN AND ROBINSON

To better understand specific differences between the Chamberlin's sight and the dominant orthodoxy at the time, I believe it is useful to compare his work with a little detail with the work of Mrs. Joan Robinson, a member of Cambridge welfare economic tradition, very influenced by Pigou, Sraffa and Shove, and author of the famous book *Imperfect Competition*. To compare them is important, in the sense that they can be viewed as two very different, in aim and content, "representative" ways of thought. Attempting to explain and to characterize market structures, two main works, which each one generated different Scientific Research Programmes, came out: Joan Robinson's *Imperfect Competition*, and Chamberlin's *Theory of Monopolistic Competition*. These two works greatly differ in aim and content, not just in the methodology used, but also in the view of the competitive structure and the conclusions achieved.

Joan Robinson's book is viewed as an essay in welfare economics. She assumes the world as a set of monopolists, rather than competitors, attempting to clarify her position about the concept of perfect competition versus imperfect competition and monopoly. Neglecting a lot about the entrepreneurial motivation, she attempts to get conclusions about general equilibrium using partial equilibrium analysis<sup>19</sup>. In this way, there is an ambiguous relation to Marshall, and, in this matter, Chamberlin and Robinson clearly disagree<sup>20</sup>.

Although the main differences, both authors focus in a vague manner about the concept of profit (profit maximization is seen as necessary condition in Robinson work), as Shackle [1967, pp 62-63] points out. Although under influence of Marshall (in a positive way or not), doesn't mention (at least consistently and explicitly), the role of the variable time in the adjustment process<sup>21</sup>. They (Robinson and Chamberlin) also use

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<sup>19</sup> Briefly, we can say that Robinson's analysis focus on monopoly, takes technology as fixed, ignores monopolistic competition, uses a downward sloping average revenue curve, neglects average cost curves and fixed costs. Assumptions of uniformity of behavior and nature (the representative firm and the equilibrium firm), had to be imposed to get the desired results. She makes a wide use of the tangency solution and geometrical framework devices, doesn't mention differentiation, advertising or empirical situations in conformity (no concerning to testing the theory, conducting to an abstract type, rather than a realistic type of approach). She also claims about the exploitation of labor under monopolistic competition.

<sup>20</sup> About Marshall in the Robinson's work O'Brien [1983, p32] writes: "*The origins of Joan Robinson's analysis undoubtedly lie in the Cambridge welfare economics tradition, especially in the work of Marshall (who had begun the habit of using partial equilibrium apparatus to attack general equilibrium problems) and Pigou. Although the references to Marshall in "Imperfect Competition" are almost invariably negative, there was extensive debts. Indeed, the whole apparatus used was, mathematically speaking, only a trivial variant on that used by Marshall himself*".

<sup>21</sup> Robinson assumes it quite clearly, arguing that in her book no reference is made to the effects of passage of time. Short-period and long-period equilibria are introduced, but no study is made about the process of moving from one position to another.

many geometrical devices<sup>22</sup>, and had, strongly, something in common: oligopoly (she ignores it, he analyses it exhaustively). If some economists consider the two works as incursions and attemptings in constructing a theory of the firm (under different perspectives), many economists say both didn't construct really a theory of the firm (although some of them making clear that Chamberlin achieved to built a theory of the competitive process). Another weakness may be the fact that Chamberlin theory remained at the level of partial equilibrium analysis, in a manner that he didn't succeed in providing a more general theory of value to supplant the competitive theory [Backhouse,1985].

Marshall is a common source to these two researchers, but with different consequences: Chamberlin explicitly tries to supplement, rather than to attack Marshall's work, although not refusing non-Marshallian sources. Robinson uses the typical Marshallian framework, in the way that she attempts to get general equilibrium from partial equilibrium approach. Her book is a study in the theory of static equilibrium (opposite to the Marshall's view of equilibrium, who criticises the stationary and correctly predictable equilibrium). The mathematical tools and procedures used by her are variations of those used by Marshall, but latter she diverges from him. The Marshall's realism is irrelevant in her approach, in a way that economic conclusions came out after some restriction assumptions (very criticised by Chamberlin and called by him as "heroic assumptions"), not very similar to those found in the real entrepreneurs' world. She assumes clearly that Marshall's realistic method and her highly formalized method do not operate in the same terrain. Backhouse [1985], remarks that her purpose is not to consider real world problems, but to provide a "box of tools<sup>23</sup>". About this, O'Brien [1983], very critical in two pages dedicated to Robinson's *Imperfect Competition*, also points several failures in Chamberlin's work in the same paper.

Because Chamberlin faces the question of elements of monopoly and pure competition in his analysis, both authors diverge clearly about the framework used by them, because of her extensive use of marginal curves rather than average curves (obviously important

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<sup>22</sup> Shackle [1967, p59] is clear: "No argument could be more against the spirit of Marshall than one which explicitly (...) abstracts from the influence of time".

<sup>23</sup> She assumes quite clearly that her book is presented as a box of tools, an essay in the technique of economic analysis that can make only an indirect contribution to our knowledge of the actual world. O'Brien [1983, p32,33] says that, for her, "(...) testing was not only an irrelevance, it was almost an impertinence". (...) if in one hand she's against simpliste conclusions, in the other hand she claims about strong conclusions without much accuracy. (...) a particular geometric technique was employed with virtuosity (and awe-inspiring confidence) (...) although unfortunately, a number of the results were in fact not proved".

to Chamberlin)<sup>24</sup>. His famous book deals persistently with the issues described in section II, making use in his technical apparatus, of both marginal and average curves, opposing to the fundamental technical apparatus based in marginal theory, used by his oppositor number one (Robinson). For her, the use of marginal curves contains the heart of the whole matter; in Chamberlin's view (not related to the Cambridge welfare tradition), the use of marginal curves is not a "pole" (in a direct criticism to Robinson), being faced as a merely mathematical device<sup>25</sup>.

The so called "tangency solution" is not so important to him (he works in the differentiated product field). He argues that it's merely an expositional and academical device, because to obtain it, we would need firms facing the same demand curve and the same cost structure (heroic assumptions). Clearly they (Chamberlin and Robinson), were related to different approaches, to different competitive market situations. Although he opposes the "heroic assumptions", he's criticised for the fact that sometimes he uses the "uniformity" assumption, in the sense that the demand and cost curves for the individual producers are alike throughout the group, although making clear that the use to which is put to the "uniformity" assumption is strikingly different<sup>26</sup>. The shape of the cost curve contributes to the equilibrium, but it is the shape of demand curve that distinguishes monopolistic competition from pure competition. So, in equilibrium may be excess capacity, with firms operating below the output at which average cost is minimized (monopolist profits)<sup>27</sup>.

Chamberlin also argues that sometimes she contradicts herself, when she writes about the individual producer may be viewed in pure competition, for some purposes, as a monopolist<sup>28</sup>. Although, she also says (supported by Kaldor), that imperfect competition doesn't carry monopoly elements. Kaldor argues that imperfect and monopolistic

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<sup>24</sup> In fact, the two approaches depend clearly about the (different) assumptions in relation to the competitive market structure: the use of marginal curves, applied to the monopolistic competition, is not sufficient because it contains both competitive elements of the traditional market structure.

<sup>25</sup> Even in the problem of equilibrium for the single firm, the marginal curves are merely an alternative technique for reaching the same results as by the use of the average curves, and the use of marginal analysis tends to contribute too little (even nothing) to distinguish Robinson's imperfect competition from pure competition and monopoly. Shackle [1967] clarifies both positions very clearly.

<sup>26</sup> Despite this, both use marginal revenue curves and the "tangency condition", in a way that, considering free entry to a market where firms face downward-sloping demand curves for their own products, the equilibrium will be attained where each firm's demand curve is tangent to its average cost curve (assuming the other firms do not react).

<sup>27</sup> Shackle [1967, p63] argues: "*Equilibrium of the firm is represented in Mrs Robinson's language by the output at which the marginal cost curve cuts the marginal revenue curve from below; in Professor's Chamberlin language, by the output at which the average cost curve has the same slope as the average revenue curve and does not lie above it. (...) Equilibrium of the group (the "industry") is represented in both languages by the tangency, for every firm, of the average revenue and average cost curves (...) the equality of two functions of output and also equality of their first derivatives*".

<sup>28</sup> Chamberlin writes [1933, p209]: "*Mrs. Robinson's analysis, in spite of a limited technical similarity with that of monopolistic competition, misleads in precisely the same way as does the theory of perfect competition by describing a hybrid situation in terms which omit completely the monopoly side of the picture, together with all manifold implications*".

competition are just terminology, and no producer possesses an “institutional monopoly” over varieties produced<sup>29</sup>.

Also empirical situations are quite absent from Robinson’s work, for reasons that she explicitly made clear (under certain assumptions, the real world adjusts very well to her theory), very criticised by Chamberlin and furtherly agreed by O’Brien<sup>30</sup>. Robinson also claims that there is “exploitation” of labor under imperfect competition in benefit of other factors<sup>31</sup>. She claims a wage less than the marginal physical product of labor, valued at its selling price. Chamberlin argues that she’s right, but not only this factor is affected: all earnings of all factors are affected (including capital and entrepreneurship). In a way, the gain achieved by variety (consumers prefer variety), compensates the higher selling prices (higher with relation to marginal cost) of imperfect competition. She concludes in a less welfare under imperfect competition because she neglects differentiation<sup>32</sup>.

Mrs. Robinson claims that profits are analysed as competitive even under imperfect competition (monopoly elements dropped out). Chamberlin reacts, pointing that a theory of profits which accounts for monopoly profits “*may yet to be written*” (his words), considering that the problem pointed by Robinson is irrelevant, in the sense that in the “imperfect” competition no monopoly is considered. For him, in the economic system, are to be found profits arising from the control of the outputs of particular products, monopoly profits, in the true sense that they would not be there if competition were pure.

Also “Free Enterprise” is not exclusive to pure competition, as postulates economic theory. He claims that, in free enterprise, the producer tries to get his own monopoly,

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<sup>29</sup> About the notion of industry Shackle [1967, p65] says: “*Marshall began with the commodity and called the list of firms which produced it an industry. Mrs Robinson still speaks of the industry, and Professor Chamberlin of the group*”. But Shackle [1967, p66] asks if, because of expositional purposes the “heroic assumptions” of Chamberlin, “*yet what can the industry be, in a theory whose “raison d’être” is de distinctness of the goods produced by the various firms?*”.

<sup>30</sup> O’Brien [1994, p261] writes: “*The new material had a quasi-technical appeal with geometry as a compromise between words and algebra. This (...) helped to explain its success – it was accessible to the non-mathematical student with effort, but not to every business man – and to ensure, too, the success of the textbooks which embodied it. (...) The empirical material, which had survived in the american, if not the british journals, simply dropped out of sight*”. (...) it caused some second thoughts even amongst those who had been in the textbook vanguard”.

But he (O’Brien), also recognizes that the role of textbooks is important, considering that although the full-scale textbook treatment based on her analysis did not appear until the 1940’s, a number of writers in the 1930’s incorporated references to her work, some followed the geometrical analysis and some of the welfare conclusions.

<sup>31</sup> In the sense that labor is paid according to its marginal product multiplied by marginal revenue, which is smaller than its marginal product multiplied by price.

<sup>32</sup> He writes [1933, p217]: “*(...)the increase in the number of firms (under monopolistic as compared with pure competition) affects not only the number of entrepreneurs, but the number of laborers, of general managers, of plants, and of other factors as well. It is resources in general which are redundant (i. e. again by purely competitive criteria), and a priori there is nothing to indicate which particular one, if any, is increased relative to others.(...)in modern economic society, “entrepreneurship” seems to be as highly divisible and capable of being redistributed as any factor. It would seem that, if entrepreneurship is taken to be divisible, there is no one left to assume the onus of “exploitation”*”.

and commodities are differentiated by nature (no demand involved), consumer locations, consumer utilities (advertising helping to increase the degree of differentiation). He claims that the problem can be viewed like products within a class, instead of merely products between classes. For him, the restriction of entry doesn't mean monopoly or imperfection. If it is true that freedom of entry is surely compatible with pure competition, under monopolistic competition there can be freedom of entry, in the sense of freedom to produce substitutes. Anyway, in his view, this is a matter of concept: what the concept of freedom of entry is? He also disagrees about the product differentiation and the relation to the number of firms in the market (in the sense that, with larger numbers, the demand curves for the individual firms could be more elastic toward to obtain pure competition)<sup>33</sup>. Robinson argues that the same product may be produced by different firms associated with different buyers' preferences. Chamberlin claims that this is not his definition of differentiation, but, if the same product is faced with different patterns of preferences, so it's a differentiated (at least to the consumer point of view), implicitly admitting both subjective and objective differentiation. Using his definition of differentiation, he argues that it's a sufficient condition of monopolistic competition (rather than imperfect competition). Chamberlin also claims that infinite divisibility does nothing to the shape of the cost curves, and the number of firms does nothing to the shape of the demand curves (they don't become horizontal). So, monopolistic competition doesn't become pure competition, even if all factors become perfectly divisible.

## **5. CONSEQUENCES OF CHAMBERLINIAN THOUGHT: CONTRIBUTIONS TO MODERN ECONOMICS.**

For many years, imperfect competition became orthodoxy, partly because of (the then dominant) idea that the establishment of a scientific orthodoxy results in a rewriting of text books in terms of the new paradigm [O'Brien, 1994], and partly because of its use as "*Normal Science*"<sup>34</sup>.

Britain and USA were, perhaps, the two countries who played a major work in the orthodoxy of the New Establishment, although in different ways. American literature played an important role in the diffusion of the New Establishment until the 1960s,

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<sup>33</sup> He wrote [1933, p196]: "*This idea I have encountered astounding – and disconcerting – vitality (...)Do larger numbers make the demand curves approach more nearly to the horizontal position? (...)That is the question (...)clearly there is no assumption that they do (...)The general conclusion must be that with a differentiated product (...)generalization as to the effect of numbers upon the elasticities of the demand curves for individual producers is no longer possible*".

based in journal papers and textbooks, despite the fact that the American literature was much more diffuse and critical than the British. common in UK). British teaching tradition tried, at the beginning, and by a considerable period of time, to join the two works of Chamberlin and Robinson together as a whole, either as in a positive type approach, as in a negative one in the sense that (with Chamberlin's disapproval), in the essential they were almost identical (apparently the divergences about the two works together, were less frequent)<sup>35</sup>. In Britain reviews such like *Economic Journal*, *Review of Economic Studies* and *Economica* had a great role on the stability of the establishment, where economists such as Hicks, Robinson and Pigou, wrote a lot of scientific papers about the issue. Anyway, sometimes some articles more critical of the "Normal Science" status quo arose, such as those of Bauer and Coase, this later ambiguous, because he had a nearly neutral view between the two "school of thoughts" (imperfect competition and monopolistic competition). In USA, the American journal literature, being much more pragmatic about the New Establishment with relation to British literature, also links in "Normal Science" but more in terms of monopolistic competition, where reviews such as *Quarterly Economic Journal* and *American Economic Review* (this later more pragmatic), publish many papers, many of them using empirical applications (not so common in UK).

Chamberlin himself had a great influence and personal role in the development of the Chamberlinian SRP<sup>36</sup>. In this development, some weaknesses in his book were persistently ignored, namely the fact that he didn't return to some of his thesis's topics, such as the question of allocation of overheads and of multiproduct firms. Anyway, the positive development of Chamberlinian SRP had some authors directly involved, who contributed a lot to modern economics, such as the probabilistic approach to the Chamberlin work in order to deal with uncertainty due to A . J. Nichol, or the attempt to deal with the Chamberlinian framework in a context of general equilibrium approach made by Robert Triffin. Hans Brems, Liebenstein, Bloom, Whitin and Peston.

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<sup>34</sup> In the sense of "(...)research within the framework of a particular matrix of interrelated theories, solving puzzles but not questioning the dominance of the paradigm even though anomalies may begin to accumulate", O'Brien [1994, p259].

<sup>35</sup> O'Brien [1983, p40] writes: "The habit of treating the work of these two writers as in "all" essential respects identical began at an early stage after the publication of their books. A number of writers simply lumped them together and this became the tradition in British teaching. Boulding also habitually conflated their work and other textbooks followed his example. Sometimes this reflected a simple failure to discern the existence of two SRPs, as Chamberlin himself lamented. One important writer, Triffin, seems to have exhibited an attitude almost schizophrenic, in distinguishing Robinson and Chamberlin and then attempting (unsuccessfully) to exhibit their parallelism through tables of corresponding passages".

<sup>36</sup> As O'Brien [1983, p34, 35] writes, "(...)much larger than did Joan Robinson in the development of her SRP. A significant element in this role was work in the negative heuristic rather than the positive one. For Chamberlin devoted a good deal of energy to an attempt to distance his work from that of Joan Robinson and her associates. (...)His work within the positive heuristic was rather less productive".

Empirical applications of Fellner, Enke, Machlup, between others, were of vital importance. Many other authors, not directly involved in this SRP, tried (and are still committed in doing it), to develop and analyze, explicitly and implicitly, the Chamberlin work.

With time, both works were studied (and criticised) in detail. Although different in essence, sometimes the two Scientific Research Programmes (SRP) have intersected (empirical and theoretical incursions of some Cambridge researchers in Chamberlin soul, focusing essentially in the Cambridge welfare tradition<sup>37</sup>, but incorporating Chamberlinian elements such as advertising, empirical experiments and others<sup>38</sup>). Chamberlin work would be later on, connected with probabilistic choice models and theory of games, for instance. Although the economists of the so called “Chicago school” are very critical about Chamberlin<sup>39</sup> and the intersections of Chamberlin’s SRP with Oxford Research Programme were also important<sup>40</sup>.

The Chamberlinian thought influenced the industrial economics, namely in the question of the structure-conduct-performance paradigm. The basic paradigm of industrial economics emphasizes links between market structure and business conduct in determining market performance<sup>41</sup>. Recent studies suggest that one should be cautious in treating structure-conduct-performance relationships in a one-way causation, emphasizing the complexity of relationships between structure, conduct and performance<sup>42</sup>. Costs, demand and technology underlie the structure-conduct-performance paradigm, and performance in markets<sup>43</sup> depends on the conduct of firms in the market, which in turn affects pricing, advertising, product development, research and development<sup>44</sup>. Market structure<sup>45</sup> also affects market conduct. We’ll rely in three schools of thought, in order to identify possible intersections and differences. In USA,

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<sup>37</sup> Lerner, a Cambridge theorist, made research in the field of location, based in Chamberlin SRP, Norris in the theory of demand as a counterpart to the theory of supply of Chamberlin and Henry Smith very concerned by empirical work (namely in the field of advertising) and in the theory of demand (as counterpart to the Chamberlin’s theory of supply).

<sup>38</sup> But O’Brien [1983, p40] writes that “*Most of the genuine intersections seem, in summary, to have arisen in the work of American economists; the English adherents of the Cambridge welfare programme by and large insisted that there was no difference between the two SRPs*”.

<sup>39</sup> They claim his work is (an) original, but he was wrong, and conclusions (and predictions) made by him are very similar, under some circumstances, to others related to monopoly and pure competition. They also criticise some uniformity assumptions made by him, in a diversified world where there were no industries and affected by extreme competition.

<sup>40</sup> Chamberlin doesn’t reject the Full Cost Approach, Fellner analyzed oligopoly in a special way, Hall and Hitch with the kinked demand curve and the DD and dd curves of Chamberlin, and their links to Cassel (a Chamberlin SRP researcher).

<sup>41</sup> Early writers, such as Mason in the 1930s and 1940s and, latter in the 1950s and 1960s, J. S. Bain, emphasized a one-way relationship in the sense that there is a causal link from market structure to conduct and, consequently, to performance.

<sup>42</sup> They can be jointly determined in a given market situation or conduct, and performance may also affect structure, for example. Advertising competition may be linked to market structure if moderate concentration leads to increases in mutually offsetting advertising expenditure (falling in the structure-conduct-performance paradigm), but successful advertising campaigns also affect market shares and concentration. So, concentration may affect advertising in an industry, but the reverse may also happen.

<sup>43</sup> Efficiency, profitability, technical progress or market growth.

<sup>44</sup> Business goals, business strategy and competitive practices.

the Harvard and Chicago schools differ in the treatment to the structure-conduct-performance paradigm. The Harvard school, influenced by the paradigm, linked to the Chamberlinian thought, emphasis has been placed on empirical work and on the study of market structure as a unifying basis for industrial economic analysis, stressing the importance of monopoly power linked to certain market structures. Linked to industrial economics (Chamberlin, Mason), with empirical studies of individual industries using informal theory and statistical methods, we can refer the contribution of Bain with entry barriers, structure-conduct-performance paradigm and the value of large cross-section data sets (relating conduct to performance), influencing research in the 1960s. The Harvard school were challenged by Chicago emphasis on perfect competition (Stigler, Friedman). The Chicago school base their work in the analysis on standard and competitive economic theory, and, in general, are sceptical of hypotheses related to policy matters, using traditional price theory under basic neoclassical profit-maximizing assumptions. They are very sceptical on policy intervention in private industry, arguing that elements of conduct and structure offer no real case for government intervention. Finally, a reference to the new austrian school. They look sceptically to the structure-conduct-performance paradigm and to the neoclassical microeconomic analysis, basing in the consideration that competition is essentially a process that cannot be analysed using conventional static models. For them, profit, rather than being an indicator of possible monopoly power, is, in fact, an integral feature of the competitive process, playing an important role in the dynamic process of competition, in which entrepreneurs reallocate resources in order to satisfy consumer demands.

## 6. CONCLUSIONS

Chamberlin's work may be considered revolutionary<sup>46</sup>, in the sense that he changed (until now) the way the market competitive structure was faced, considering the role of product differentiation in the establishment of the economic process. His theory remained in the field of partial equilibrium analysis and, in this sense, he did not succeed in providing a more general theory of value to supplant the competitive theory, but he

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<sup>45</sup> Associated to product differentiation, market concentration, barriers to entry, vertical integration, etc.

<sup>46</sup> O'Brien [1983, p41] writes that "(...)It was Chamberlin who made the serious attempt to deal with the problem of oligopoly, and for this, at least, he deserves credit. That he did not succeed, and that his successors did not succeed, either in dealing with this matter or in solving tricky matters like market share, should not lead us to underestimate the importance (...) in the 20th history of economics".

But O'Brien [1983, p36] has no doubt arguing whether favorable or not that "(...)economists rarely felt to ignore Chamberlin's work. (...)His research programme moved powerful and persuasive".

was able to characterize and analyze different market structures between perfect competition and monopoly. Chamberlin clearly attempts to demark his work from that typical of the economic welfare Cambridge tradition and, in my point of view, he's successful in that task. He considers a market structure characterized by both competitive and monopoly elements, and this is the "little" difference that made his work so important to the modern microeconomic theory. Many framework elements are typically Marshallian (he doesn't refuse Marshall thought as a whole), but Chamberlin "made the difference" because he linked monopoly and pure competition theory, claiming that each producer in the group has some monopoly power, although bounded by competition of other firms which produce substitute commodities.

Briefly, we can say that he uses also a considerable geometrical framework to achieve clear relations about the variables involved in the competitive process and attempts to link his work to the real world (although he doesn't analyse real firms, he's aware that it is important to do it). He characterizes monopolistic competition and oligopoly in its various forms, distinguishes imperfect competition with relation to monopolistic competition, refers the existence of competition even in circumstances not identical to those of pure competition and monopoly (intermediate cases with both elements presence), and analyses selling costs, advertising and implicit randomness in the choice process linked to the degree of differentiation of products. Despite, there are other weaknesses usually pointed to his book<sup>47</sup>: little attention is devoted to the role of the entrepreneur and to variable time, to managerial coordination, absence of business decision analysis, etc. Some Chamberlin uniformity assumptions are also criticised: O'Brien [1983, p41] refers that Chamberlin failed in deal with oligopoly not merely because a lack of some specified relationship between his DD and dd curves, but because reaction curves of the DD type have no meaning in a situation of interdependence.

He claims for new approach mechanisms to analyse differentiated market structures with selling costs and advertising costs (considering price, product and advertising as key variables in the process). There is not a great deal of mathematical sophistication in

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<sup>47</sup> In what refers to this matter, O'Brien [1983] says: "(...)the emphasis on consumer preferences for the output of individual producers results ultimately in the destruction of the concept of industry, thereby removing the entrepreneurial frame of reference". Backhouse [1985, p139] also writes that, "Triffin claimed that monopolistic competition had abolished the "inner boundary" between the firm and the industry, going beyond Chamberlin in arguing that the concept of the industry, or "group" of firms, had to be dropped from value theory. There was, however, no inconsistency in this, for when, by abolishing the industry, the transition is made to a general equilibrium analysis, the macroeconomic implications of any changes have to be considered, something neither Chamberlin nor Triffin achieved".

his work (opposite to modern microeconomics and industrial economics), but he contributed strongly to the advance of oligopoly analysis, game theory and to modern economics. The Chamberlin work's soul anticipates and influences many studies of modern economics, although not always focusing in the same details. He is concerned more with the market than with the industry (the firms belong to a same group depending on elasticity of substitution, so it can be inferred by empirical applications in a way to evaluate nearly homogeneous groups).

Chamberlin argues that quality of product and choice product is part of the firm strategy, so also models of vertical differentiation have been developed lately<sup>48</sup>. Many works based in his Scientific Research Program linked theory with empirical applications and, in present time, research in oligopoly linked with choice process mechanisms is made with appeal to new fields of Economic (such as Mathematical Economics) making use of sophisticated mathematical and statistical tools<sup>49</sup>. Logit Oligopoly Models and Multiproduct Oligopoly (Nested Logit Approach) are also aim of studies in present time. Spatial competition, also analyzed by Chamberlin, has been studied lately with extensive mathematical and statistical framework<sup>50</sup>.

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<sup>48</sup> For instance, when firms in oligopoly decide simultaneously prices and quality, it exists a price equilibrium given by marginal cost and to that equilibrium position corresponds the highest quality. In duopoly, and admitting that consumers are sufficiently heterogeneous in terms of their capacity to pay quality, one firm offers the lowest quality product, the other offers the best product.

<sup>49</sup> Perloff and Salop [1985], Sattinger [1984] using random utility for consumers assuming pure Nash strategies of equilibrium and using topological (such as  $\rho$ -concavity and fixed point theorems) associated to constrained optimization and statistical requirements prove, under different assumptions to the random variables associated with the choice process, the uniqueness and existence of the symmetric equilibrium price in oligopoly (which depends on the number of firms (varieties), diversity of preferences among varieties and depending of the distribution assumption made to randomness). They conclude (as predicted), that equilibrium prices for each variety are greater than marginal costs, and analyze it in long run terms (they conclude that the long run equilibrium is achieved to a greater number of firms with relation to the social optimum. Depending on the assumptions made, the price equilibrium varies with the number of firms differently: it may become the marginal cost as the number of firms tends to infinity or may become or greater than this).

<sup>50</sup> Providing some assumptions about the utility function of consumers, can be proved the existence of a symmetric equilibrium price, again greater than the pure competitive one.

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