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Chapter 1 : How to Determine the Factor Prices under Monopsony Market?

General equilibrium with imperfect competition to take over the part of price formation in a general equilibrium organization not under consideration.

Next Chapter Chapter 6 Market Equilibrium and the Perfect Competition Model The remaining chapters of this text are devoted to the operations of markets. In economics, a market refers to the collective activity of buyers and sellers for a particular product or service. In this chapter we will focus on what might be considered the gold standard of a market: The operations of actual markets deviate from the perfect competition model, sometimes substantially. Still, this model serves as both a good initial framework for describing how a market functions and a reference base for evaluating any market. An idealized market in which there are many buyers and sellers who are price takers, sellers are free to either enter or exit the market, the good or service being sold is the same for all sellers, and all buyers and sellers have perfect information. The market consists of many buyers. Any single buyer represents a very small fraction of all the purchases in a market. Due to its insignificant impact on the market, the buyer acts as a price taker A buyer who presumes his or her purchase decision has no impact on the price charged for the good; a seller who presumes its production decisions have no impact on the price charged for the good by other sellers. The buyer takes the price as given and decides the amount to purchase that best serves the utility of her household. The market consists of many sellers. Any single seller represents a very small fraction of all the purchases in a market. Due to its insignificant impact on the market, the seller acts as a price taker, meaning the seller presumes its production decisions have no impact on the price charged for the good by other sellers. The seller takes the price as given and decides the amount to produce that will generate the greatest profit. Firms that sell in the market are free to either enter or exit the market. Firms that are not currently sellers in the market may enter as sellers if they find the market attractive. Firms currently selling in the market may discontinue participation as sellers if they find the market unattractive. Existing firms may also continue to participate at different production levels as conditions change. The good sold by all sellers in the market is assumed to be homogeneous The characteristic that every seller sells the same good, and the buyer does not care which seller he or she uses if all sellers charge the same price.. This means every seller sells the same good, or stated another way, the buyer does not care which seller he uses if all sellers charge the same price. Buyers and sellers in the market are assumed to have perfect information Producers understand the production capabilities known to other producers and have immediate access to any resources used by other producers; both buyers and sellers know all the prices being charged by other sellers.. Producers understand the production capabilities known to other producers in the market and have immediate access to any resources used by other sellers in producing a good. Both buyers and sellers know all the prices being charged by other sellers. Since the good is viewed as being of identical quality and utility, regardless of the seller, and the buyers have perfect information about seller prices, if one seller is charging less than another seller, no buyer will purchase from the higher priced seller. As a result, all sellers that elect to remain in the market will quickly settle at charging the same price. In the case of the perfect competition model, since sellers are price takers and their presence in the market is of small consequence, the demand curve they see is a flat curve, such that they can produce and sell any quantity between zero and their production limit for the next period, but the price will remain constant see Figure 6. It must be noted that although each firm in the market perceives a flat demand curve, the demand curve representing the behavior of all buyers in the market need not be a flat line. Since some buyers will value the item more than others and even individual buyers will have decreasing utility for additional units of the item, the total market demand curve will generally take the shape of a downward sloping curve, such as Figure 6. The downward sloping nature of the market demand curve in Figure 6. This difference can be explained by the fact that any single seller is viewed as being a very small component of the market. Whether a single firm operated at its maximum possible level or dropped out entirely, the impact on the overall market price or total

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market quantity would be negligible. Although all firms will be forced to charge the same price under perfect competition and firms have perfect information about the production technologies of other firms, firms may not be identical in the short run. Some may have lower costs or higher capacities. Consequently, not all firms will earn the same amount of profit. As described in the description of the shutdown rule in Chapter 2 "Key Measures and Relationships", some firms only operate at an economic profit because they have considerable sunk costs that are not considered in determining whether it is profitable to operate in the short run. Thus not only are there differences in profits among firms in the short run, but even if the market price were to remain the same, not all the firms would be able to justify remaining in the market when their fixed costs need to be replenished, unless they were able to adapt their production to match the more successful operators. In the short run, there may be differences in size and production processes of the firms selling in the market. Some sellers may be able to make a healthy economic profit, whereas others may only barely make enough to justify continued operation and, as noted earlier, may not have sustainable operations although they may continue to operate for a while since a substantial portion of their short-run costs are sunk costs. Due to the assumption of perfect information, all sellers know the production techniques of their competitors. As a result, any firm that intends to remain in the market will revise its operations to mimic the operations of the most successful firms in the market. In theory, in the long run all firms would either have the most cost-efficient operations or abandon the market. However, when all firms use the same processes, the possibility for firms to continue to earn positive economic profits will disappear. Suppose all firms are earning a positive profit at the going market price. One firm will see the opportunity to drop its price a small amount, still be able to earn an economic profit, and with the freedom to redefine itself in the long run, no longer be constrained by short-run production limits. Of course, when one firm succeeds in gaining greater profit by cutting its prices, the other firms will have no choice but to follow or exit the market, since buyers in perfect competition will only be willing to purchase the good from the seller who has the lowest price. Since the price has been lowered, all firms will have a lower economic profit than they had collectively before they lowered the price. Some firms may realize they can even drive the price lower, again take sales from their competitors, and increase economic profit. Once again, all firms will be required to follow their lead or drop out of the market because firms that do not drop the price again will lose all their customers. And once again, as all firms match the lowered price, the economic profits are diminished. In theory, due to competition, homogeneous goods, and perfect information, firms will continue to match and undercut other firms on the price, until the price drops to the point where all remaining firms make an economic profit of zero. As we explained earlier, an economic profit of zero is sufficient to sustain operations, but the firm will no longer be earning an accounting profit beyond the opportunity costs of the resources employed in their ventures. Another necessary development in the long run under perfect competition is that all firms will need to be large enough to reach minimum efficient scale. Recall from Chapter 4 "Cost and Production" that minimum efficient scale is the minimum production rate necessary to get the average cost per item as low as possible. Firms operating at minimum efficient scale could charge a price equal to that minimum average cost and still be viable. Smaller firms with higher average costs will not be able to compete because they will have losses if they charge those prices yet will lose customers to the large firms with lower prices if they do not match their prices. So, in the long run, firms that have operations smaller than minimum efficient scale will need to either grow to at least minimum efficient scale or leave the market. Producers may also adjust the amounts they sell if the market price changes. Recall from Chapter 2 "Key Measures and Relationships" the principle that a firm should operate in the short run if they can achieve an economic profit; otherwise the firm should shut down in the short run. If the firm decides it is profitable to operate, another principle from Chapter 2 "Key Measures and Relationships" stated that the firm should increase production up to the level where marginal cost equals marginal revenue. In the case of a flat demand curve, the marginal revenue to a firm is equal to the market price. Based on this principle, we can prescribe the best operating level for the firm in response to the market price as follows: If the price is too low to earn an economic profit at any possible operating level, shut down. If the price is higher

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than the marginal cost when production is at the maximum possible level in the short run, the firm should operate at that maximum level. Otherwise, the firm should operate at the level where price is equal to marginal cost. Based on the preceding rule, a relationship between the market price and the optimal quantity supplied is the segment of the marginal cost curve that is above the shutdown price level and where the marginal cost curve is increasing, up to the point of maximum production. For prices higher than the marginal cost at maximum production, the firm would operate at maximum production. As is done with demand curves, the convention in economics is to place the quantity on the horizontal axis and price on the vertical axis. The upward sloping character reflects that firms will be willing to increase production in response to a higher market price because the higher price may make additional production profitable. Due to differences in capacities and production technologies, seller firms may have different firm supply curves. If we were to examine all firm supply curves to determine the total quantity that sellers would provide at any given price and determined the relationship between the total quantity provided and the market price, the result would be the market supply curve A curve that represents the relationship between total quantity provided in a market and the market price; a graphical illustration of the willingness of firms to increase production in response to improved profitability.. As with firm supply curves, market supply curves are generally upward sloping and reflect both the willingness of firms to push production higher in relation to improved profitability and the willingness of some firms to come out of a short-run shutdown when the price improves sufficiently. The market supply curve indicates the minimum price that suppliers would accept to be willing to provide a given supply of the market product. In order to have buyers and sellers agree on the quantity that would be provided and purchased, the price needs to be a right level. The market equilibrium The quantity and price at which there is concurrence between sellers and buyers; the point on a graph where the market demand curve and market supply curve intersect. If the market demand curve and market supply curve are displayed on the same graph, the market equilibrium occurs at the point where the two curves intersect see Figure 6. Recall that the perfect competition model assumes all buyers and sellers in the market are price takers. This raises an interesting question: If all the actors in the market take the price as given condition, how does the market get to an equilibrium price? One answer to this question was provided by the person who is often described as the first economist, Adam Smith. Adam Smith lived in the late 18th century, many years before a formal field of economics was recognized. In his own time, Smith was probably regarded as a philosopher. Smith ascribed the mechanism that moves a market to equilibrium as a force he called the invisible hand The price adjustment process that moves a market to equilibrium when the market price is above or below the equilibrium price.. In effect, if the price is not at the equilibrium level, sellers will detect an imbalance between supply and demand and some will be motivated to test other prices. If existing market price is below the equilibrium price, the provided supply will be insufficient to meet the demand. Sensing this, some suppliers will try a slightly higher price and learn that, despite perfect information among buyers, some buyers will be willing to pay the higher price if an additional amount would be supplied. Other sellers will see that the higher price has enough demand and raise their prices as well. The new price may still be below equilibrium, so a few sellers will test a higher price again, and the process will repeat until there is no longer a perception of excess demand beyond the amount buyers want at the current price. Some sellers will consider lowering the price slightly to make a sale of goods that would otherwise go unsold. Seeing this is successful in encouraging more demand, and due to buyers being able to shift their consumption to the lower priced sellers, all sellers will be forced to accept the lower price. As a result, some sellers will produce less based on the change in their firm supply curve and other sellers may shut down entirely, so the total market supply will contract. This process may be repeated until the price lowers to the level where the quantity supplied is in equilibrium with the quantity demanded. In actual markets, equilibrium is probably more a target toward which prices and market quantity move rather than a state that is achieved. Further, the equilibrium itself is subject to change due to events that change the demand behavior of buyers and production economics of suppliers. Changes in climate, unexpected outages, and accidental events are examples of factors that can alter the market equilibrium. As a result, the market

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price and quantity is often in a constant state of flux, due to both usually being out of equilibrium and trying to reach an equilibrium that is itself a moving target. For example, if a new product becomes available that is a viable substitute for an existing product, there is likely to be either a persistent drop in the quantity consumed of the existing good or a reduction in the market price for the existing good. The impact of these persistent changes can be viewed in the context of changes in the behavior of buyers or the operations of sellers that cause a shift in the demand curve or the supply curve, respectively. In the case of the new availability of a close substitute for an existing product, we would expect the demand curve to shift to the left, indicating that at any market price for the existing good, demand will be less than it was prior to introduction of the substitute. As another example, consider the supply curve for gasoline after an increase in the price of crude oil.

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Chapter 2 : Market Equilibrium and the Perfect Competition Model

In the third part price formation under imperfect competition is studied with both partial and general-equilibrium methods; it includes a theoretical basis for a price equation that is much used in industrial-organization studies, an analysis of the relation between marginal cost, average cost, and capacity utilization, a treatment of the.

What, in the end, have we really learned from it? General equilibrium theory is presented by Mas-Colell, Whinston and Green in two rather different ways. One can hardly quarrel with this ambition, if one is adopting an equilibrium approach at all. This particular attempt at parsimony will have to justify itself through its successes. If there were no relation then presumably the former would lose some of their interest. As is well known, Cournot, Marshall and others began to establish a mathematical framework for partial equilibrium analysis, and Edgeworth and Walras posed and to a degree addressed the problem of identifying the conditions under which a price system might enable supply to be equated to demand simultaneously in all markets for traded commodities. However, it was only in the early s, with the work of Arrow and Debreu, that research in the area of study that came to be called general equilibrium theory led to a formal demonstration of conditions for such an equilibrium to exist and to have specific desirable properties. Arguably, the importance attached to research in general equilibrium came in part from the need to address a contrary idea, which had been prominent in the late nineteenth century and the first half of the twentieth: General equilibrium has played a reassuring or even quietistic role in countering this view, as evinced from the fact that financial instability and business cycles appear in the theory only through suitable extensions e. The theory has also found other uses, from establishing the conditions under which there could be so-called micro-foundations for macroeconomic models to providing tools for policy analyses, such as computable general equilibrium models used in domains such as international trade and public finance. This result may not appear so impressive when considering only two agents, but with hundreds of individuals buying and selling multiple commodities, and firms producing them, it might be thought more surprising. Pareto efficiency is achieved seemingly effortlessly in a decentralized process, doing away with the need for a central planner to know preferences of concerned individuals or the technology of firms. Of course, such an outcome may not be desirable in other respects, as even from a narrowly consequentialist point of view, the outcomes generated may be severely unequal or indeed otherwise undesirable. They are often interpreted as separating the question of how to achieve efficiency the idea that decentralized competitive markets lead to Pareto efficient outcomes from that of how to achieve equitable outcomes since outcomes varying widely in terms of distributional characteristics can all be Pareto efficient [3]. The idea that such a separation is implied, however, presupposes both that government has sufficient information as well as capabilities for instance in the form of efficient ex-post tax and transfer instruments and that it can be relied upon to implement the desired distribution. Each of these suppositions is far from trivial. The proposition that unregulated markets provide a decentralized allocation mechanism leading to Pareto efficient outcomes the first theorem , and that any desired outcome among these can moreover be either achieved through suitable pre-market redistributive efforts the second theorem has provided a useful justificatory apparatus for existing capitalism. However, the resulting picture does not still put to rest all qualms. Although the existence of at least one Pareto efficient equilibrium can be guaranteed under certain theoretical conditions, stringent conditions are required to rule out the possibility of multiple or indeed an infinite number of equilibria, and only some of these will be stable. This calls for a cost-benefit assessment. Despite its very impressive intellectual armamentarium, the role of general equilibrium theory may have been more to provide clarification of the limits of certain ways of thinking than to provide answers to substantive questions. The rich multiplicity and variety of equilibria that are possible and the lack of specification of out-of-equilibrium dynamics leads to a range of possibilities in regard to whether equilibrium is approached at all, which one, and how quickly. An Embarrassment of Riches A major intellectual achievement of Arrow and Debreu in the s, extended and generalized subsequently, was the proof of the

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existence of general equilibrium using fixed point theorems under convexity assumptions for preferences and production sets, i. The Sonnenscheinâ€™Mantelâ€™Debreu theorem establishes that there are no restrictions on the shape of excess demand functions, meaning that under usual assumptions about consumer preferences, there are no meaningful restrictions on equilibria including on their stability and number that can be placed Sonnenschein, Both the number of equilibria and the behavior of an economy outside equilibrium i. At most what can be said of almost any economy is that it is regular [8] Debreu, , thereby ensuring local uniqueness. Combined with the index theorem [9] , this only establishes that the number of equilibria is odd and finite. Aside from very special cases [10] , the only readily economically interpretable conditions that imply uniqueness are that i the excess demand function satisfies the weak axiom of revealed preference [11] i. More generally, global stability is present in the limited cases where there is a unique Walrasian equilibrium. To quote MWG p. Fixed-point theorems Brouwer, Kakutani used to prove the existence of equilibrium do not provide for an algorithmic procedure that would result in choosing price sequences that may converge towards an equilibrium price vector and stop when such vector has been found. There are no forces that automatically lead economies to equilibria, and situations of multiple or indeed potentially infinite equilibria are less pathological than might originally have been imagined. Worse, it may not even be possible to identify all equilibria. Algorithms for isolating fixed points, for instance that developed by Scarf , can at best point to some of the possible locations of equilibria. By being compatible with so many possibilities, the theory lacks explanatory relevance, providing instead a language through which one can say both too much and too little. Economics textbooks do not typically suggest that this simplified account of price adjustment has much empirical validity as a description of the actual interaction of market participants, since that would be rather hard to argue, but instead propose that little is lost in the abstraction, which is presumably helpful in fixing ideas. This omission arguably flows from the very concept of equilibrium: One way to introduce more realistic models of trading and price formation is to drop the assumption that all market participants face identical prices, or to otherwise allow more agent-specific market processes. These might also include non-optimizing or out-of-equilibrium transactions, even at the cost of permitting minor departures from efficiency see e. Smale, ; Foley, ; A. For instance, if it is assumed that market participants make mutually advantageous trades in a random and disorderly fashion with every feasible mutually advantageous trade having the same probability of occurrence , it is still possible to identify the feasible distribution of agents over offer sets that can be realized in the largest number of ways although not what will happen to individual agents , i. This is one understanding of statistical equilibrium, and leads to an approximation of Pareto efficiency as well as a kind of stability Foley, Such approaches suggest that even if there are decentralized bargaining processes rather than simultaneous responses to market-wide prices, and even if self-interested agents can only use local information therefore not necessarily identifying all mutually beneficial transactions in which they can participate , the market may generate efficiency gains, even if it stops short of complete efficiency i. Understanding how technology and market structure are dynamically shaped by firms through their relations with each other and with the state and workers might call for a sociological as well as an economic study of markets see e. Consumers and workers are both shaped by markets. They do not come to them fully formed on which see e. A theory claiming to explain the dynamics of supply, demand, and prices in a whole economy cannot afford to ignore altogether these central topics. The addition of the assumptions of price-taking and profit-maximization does not add much by way of realism. Further, a very large part of a modern industrial economy operates in a context of markets exhibiting a degree of monopoly Kaldor, â€™ even if today sometimes on a world rather than a merely national scale, casting some doubt on the empirical validity of the pure price-taking assumption. Non-convexities, such as increasing returns to scale in production, are common in reality, and an important characteristic of modern production. Are the kinds of returns to scale effectively faced by firms determined by factors other than technology as classically understood, e. Does the shift in modern economies from traditional manufacturing to information technology enabled services based on social networks, information harvesting and matching think of Google, Facebook, Twitter or Uber mean that

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increasing returns to scale will become more pervasive? Is the idea of a competitive marketplace characterized by price-taking really tenable in the empirical conditions observed in the contemporary world economy, in which there is some evidence of growing market concentration on a world scale? Even if it is a sound assumption, is it because markets are contestable rather than actually contested? These questions must be reflected on in examining the relevance of the general equilibrium framework. Profit-maximization requires that firms equate marginal cost to market revenue. In convex economies with price-taking firms, this assumption eliminates the issue of market structure, with only aggregate production becoming relevant not the delineation of individual firms, as profit maximization ensures efficient market outcomes regardless of how production is sited, whether at one global firm or in decentralized units. Although the Second Welfare Theorem can be extended to non-convex economies through the concept of marginal cost pricing equilibrium which can be interpreted as the equalization of prices to marginal costs without profit maximization [21], guaranteeing efficient outcomes is not as straightforward. Some regulation of firms or other policies may be necessary to avoid the exploitation by firms of their monopoly pricing power at the loss of efficiency. Efficiency is certainly no longer a straightforward property of economic outcomes. The static characterization of markets also misses crucial insights about the nature of innovative enterprise. General equilibrium theory does not address how a firm or even a small number of firms may come to occupy leading positions in an industry through technological superiority. Various traditions and schools of thoughts e. Alternative characterizations of what markets are and what market participants seek to do may provide enlightenment. In this line of analysis firms are primarily driven by survival or reproduction rather than profit maximization. Arguably some steps taken by firm owners and managers may make more sense when understood in term of their goal of managing these various sources of uncertainty and maintaining stable markets rather than in term of profit maximization alone Fligstein, This perspective might also be helpful in understanding market concentration. The emergence of large firms as factors in advanced capitalism did not arise only from higher profitability of investment in such firms, but also from the risk reducing benefits of size; large firms face a lower risk of failure and their profit rates are less volatile than smaller firms Edwards, As Mehrling has recently argued, the maintenance of liquidity in order to meet a survival constraint can be a much more important short and medium term consideration than the maximization of profit. The perspective of firms as driven by survival may have significant implications as regards their behavior, in particular in times of adversity. It may also explain why many institutions take actions that reduce immediate profitability. For example, the conversion of Goldman Sachs and Morgan Stanley to Bank Holding Companies in the last financial crisis entailed significant internal restructuring costs due to regulatory requirements, such as deleveraging the balance sheet and reducing proprietary trading. This move can only very indirectly be interpreted in terms of maximization of expected profits, whereas it can be understood very directly in terms of managing funding liquidity risk amongst other things ensuring access to the Federal Reserve lending facilities in a period when credit markets froze and the Federal Reserve found itself serving as the dealer rather than lender of last resort, to ensure the liquidity of securities markets Mehrling, The lack of survival constraint is an element of the lack of realism of general equilibrium theory that applies not only to firms but indeed to people, who in real life can cease to exist due to starvation and indeed to become decreasingly productive as they come close to that point but in general equilibrium theory have generally assumed to be impervious to such weaknesses see Sen, , although as noted in footnote 6 above, there have been some efforts to remedy that lack. This brings us to another point. Why and how might such intervention be needed? Why and when do markets break down? Here the framework of general equilibrium seems particularly unhelpful because of its failure to provide what Keynes called a monetary theory of production Keynes, Money is only used as a transitory and neutral link in exchange transactions making for what Keynes called a real-exchange economy. Further, though commodities can be distinguished by when and where they are delivered, as well as by a specific state of nature Arrow-Debreu securities, finance is not explicitly modeled as a stand-alone sector having its own dynamics but rather as always tied to fundamentals in the form of the valuation of underlying

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assets. However, financial crises can only be credibly analyzed if money and financial markets are understood as playing a role of their own, affecting the actions and motivations of market participants. The possibility of bubbles arising whether due to rational or irrational exuberance is an intrinsic feature of asset markets that is not straightforward to rule out in theory see e. Burgstaller, ; Shiller, , ; and more generally the literature on rational and irrational bubbles such as for instance Blanchard and Watson, ; Brunnermeier, , let alone in practice. While general equilibrium theory has provided some of the abstract justification for the supposedly efficiency-enhancing role of certain derivatives markets, it has done relatively little to take into account their actual evolution and the increasing recognition that they may be potentially destabilizing. However, there is a further distinction to be made between those assets that are conditional on events that are external to the system e. This, according to Kenneth Arrow, a seminal figure in the extension of general equilibrium theory to contingent claims markets, is one of the reasons that general equilibrium theory does not guarantee efficient outcomes of securities markets trading, nor rule out financial instability see Arrow The existence of contingent commodities for every possible state of the world is in any event unlikely due to the presence of radical uncertainty. As the literature on incomplete contracting e. Hart has underlined, it is impossible to anticipate all contingencies, including ones that may have significant implications. There have been some recent efforts in the economics and finance literature to take note of the micro-structure and processual dynamics of financial markets and to integrate this knowledge into broader theorizing see e. That is rather contributed by specific observations or assumptions about the structure and workings of the markets concerned, for which general equilibrium theory can provide a broader theoretical reference point or not. Theory and Reality Even as areas of application that refer to it such as DSGE modeling have become areas of intensive research, general equilibrium theory itself has ceased to be an active area of research, perhaps for the reason that what could be said within its limits has largely been said, even as it maintains areas of theoretical inadequacy, some of which are even in theory unresolvable. To the extent that applied modeling requires adding substantive and substantial auxiliary assumptions, it is not wholly evident that much specific benefit is provided by deference to the general equilibrium framework. Sidestepping the stylistic and grammatical conventions of standard general equilibrium theory may have advantages in terms of freeing the mind. There may in contrast be much that is wrong with it when its external correspondence with the world, and usefulness in illuminating it, are the concerns. The ways forward may be many. We have emphasized the need throughout our blog entries for a greater concern with history [27] , institutions, politics, culture and norms, all of which can only be learnt about through diverse evidence-gathering methods. These in turn must be folded into economic analysis in creative ways [28]. Regardless of the framework adopted, there is a need for more realistic descriptions of the actors and their acts, so as to make for a better economics.

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Chapter 3 : Economic equilibrium - Wikipedia

o Imperfect markets are efficient because as price-makers, firms in the markets can guarantee that price will always equal marginal cost. ∴ This statement is false because under imperfect competition prices will not typically equal marginal cost and an efficient mix of output is not guaranteed.

Equilibrium of the Firm: Equilibrium indicates a situation in which there is a complete adjustment of the various forces operating there, and there is no inducement to change. It is an ideal state. That is why a consumer is said to be in equilibrium, when he is deriving maximum satisfaction. Why should he then make any change? A firm is said to be in equilibrium when it has no incentive either to expand or to contract its output. A firm would not like to change its level of output only when it is earning maximum money profits. The equilibrium of the firm is usually discussed in terms of marginal cost and marginal revenue. Average Revenue and Marginal Revenue: Average revenue must be carefully distinguished from marginal revenue. Average revenue is the revenue per unit of the commodity sold. It is found by dividing total revenue by the number of units sold. But, since different units of a commodity are sold at the same price, in the market, average revenue equals price at which the commodity is sold. Thus, average revenue means price. It is revenue for the seller and price for the consumer. It is the same thing as demand curve. Therefore, average revenue curve of the firm is really the same thing as demand curve of the consumer. Algebraically, it is the addition to total revenue earned by selling n units of product instead of $n-1$ units, where n is any given number. If the price of a product falls when more of it is offered for sale, then that would involve a loss on the previous units, which were sold at a higher price before and will now be sold at the reduced price along with the additional one. This loss in the previous units must be deducted from the revenue earned by the additional unit. For example, if a firm is selling 7 units of the output at the price of Rs. That will mean the loss of one rupee on each of the previous 7 units. The total loss on the previous units would be equal to Rs. Therefore, this loss of 7 rupees should be deducted from the price of Rs. The marginal revenue in this case, therefore, will be Rs. Marginal revenue can also be directly found by taking out the difference between the total revenue before and after selling the additional unit as follows: Total revenue when 7 units are sold at the price of Rs. Total revenue when 8 units are sold at the price of Rs. Generally speaking, marginal revenue is less than price as indicated by the above formula. But in perfect competition, when a firm can sell any amount at the ruling market price, marginal revenue is equal to average revenue, since there is no loss incurred on the previous units. Relationship between Marginal and Average Revenue: Let us consider the relationship between marginal, average and total revenue at various levels of output more fully with the help of a table given below. This table represents a situation of a hypothetical firm. Total, Average and Marginal Revenue Schedules: It is clear from the above table that average revenue and marginal revenue are two different things and, therefore, should not be confused. Marginal Revenue has been derived from the total revenue column of the table. Thus, in going from two to three units, the marginal revenue is 18 and this is found by subtracting 42 from 60, and so forth. The Table further shows that when the average revenue is falling, the marginal revenue is less than the average revenue. On converting the above schedules of Average Revenue and Marginal Revenue into curves, we get two downward sloping curves and find that marginal revenue curve is below average revenue curve. This is shown in Fig. This divergence between the average revenue and marginal revenue, as shown in the figure, is actually found when a firm is working under conditions of monopoly or imperfect competition. It is quite obvious that when price is falling, as indicated by the declining AR curve, the marginal revenue MR must always be less than the average revenue AR, because a falling price must mean some loss on the sale of additional supply. That is why MR curve lies below AR curve. We have stated above that when average revenue curve falls downward the marginal revenue curve will lie below it or to the left of it. Now the question arises how far to the left it will lie. When both the marginal revenue curve and the average revenue curve are straight lines and sloping downwards, as shown in the Fig. That is, if D is any point on the average revenue

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curve and if we draw DB a perpendicular from D to the Y-axis, then marginal revenue curve MR must pass through the middle of this perpendicular, i. In perfect competition, Fig. This is so because an individual firm under perfect competition by its own action cannot influence the price. The seller, under perfect competition, can sell any amount of the commodity at the ruling market price. In this case when average revenue curve is a horizontal line, marginal revenue curve coincides with the average revenue curve. This is so because additional units are sold at the same price as before and no loss is caused on the previous units, which would have resulted if the sale of additional units had forced the price down. The average revenue and marginal revenue curves of a firm under perfect competition are shown in Fig. We are now in a position to discuss the conditions of equilibrium of the firm. The rationality on the part of the entrepreneur implies that he tries to maximize his money profits. We further assume that the firm produces only one product. Our conditions would, however, remain valid also in the case of a multi-product firm. But when a firm produces two goods or more, certain other complications arise, which we wish to avoid at this stage. The equilibrium of the firm can be explained with the aid of marginal revenue and marginal cost curves. Equality of MR and MC: A firm will be in equilibrium when it is earning maximum profits: It is obvious that total profits can be increased by expanding output as long as the addition to revenue resulting from the sale of an extra unit of output is greater than the addition to cost caused by producing that extra unit. Now the additions to total revenue and total cost due to an extra unit of output are nothing else but marginal revenue and marginal cost respectively. Thus, a firm will go on expanding output as long as marginal revenue exceeds marginal cost of production. If at any output, marginal revenue falls short of marginal cost, i. The level of output, where marginal revenue and marginal cost are equal, is the point of maximum profit. But if production is carried beyond this point of equality, the profits will start decreasing as the extra revenue will be smaller than the extra cost of production of a unit of output. The whole argument can be explained with the help of Fig. AC and AR are the average cost and average revenue curves respectively. At Output OM, marginal cost equals marginal revenue. This represents the point of maximum profits, and hence of equilibrium. At outputs smaller than OM, marginal revenue exceeds marginal cost, and hence there is scope for increasing profits by increasing output. Similarly, for every other unit till the Mth one, the marginal revenue exceeds marginal cost, and, therefore, the firm can increase its total profits by producing up to OM output. If the output is increased beyond OM. Thus, production of additional units beyond OM would involve losses and thus reduce total profits. Therefore, the firm would not like to produce beyond OM. This is, however, only one condition, i. The condition that for a firm to be in equilibrium marginal cost must equal marginal revenue is no doubt a necessary condition, but not a sufficient condition of equilibrium. For attaining equilibrium, a second condition must also be satisfied. This is that MC must cut the MR from below at the point of equilibrium. In other words, beyond the equilibrium output, marginal cost must be greater than marginal revenue. If this condition is not met, a firm will not be earning maximum profits, and hence will not be in equilibrium. There can, however, be cost-revenue situation, which satisfies the first condition of MC being equal to MR, but does not satisfy the second condition of MC cutting MR curve from below. In this figure, MR is the straight line marginal revenue curve as we have already seen, a straight line marginal revenue curve is actually faced by a firm under perfect competition. MC represents the marginal cost of the firm. At point T, the two curves intersect and, therefore, the marginal cost equals marginal revenue. But from the figure it is clear that at T, marginal cost curve. MC is cutting marginal revenue curve MR from above and, therefore, marginal cost is less than the marginal revenue beyond the point T. Obviously, T cannot be a position of equilibrium since after T marginal cost is less than marginal revenue, and it will be profitable for the firm to expand output. At T or at output ON, the firm instead of making maximum profit is making maximum losses. At point P, however, in the same figure marginal cost curve is cutting marginal revenue curve from below and marginal cost beyond point P is greater than marginal revenue and, therefore, if the firm expands output beyond P, it will be adding more to cost than to revenue—clearly an unprofitable move. In this equilibrium position, the firm is producing equilibrium output OM. Thus, we conclude that, for a firm to be in equilibrium position, two conditions must be satisfied under perfect

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competition: These two conditions of equilibrium hold good in the short run as well as in the long run. Whether the period is short or long, a firm aims at the maximisation of profits, and the profits are maximised only when the above two conditions are satisfied. But one difference remains. In the short run, it is the short-run marginal cost curve, and, in the long run, it is the long-run marginal cost curve which is relevant for comparing with the marginal revenue curve. Again, these two fundamental conditions, of marginal cost being equal to marginal revenue, and MC curve cutting MR curve from below, are valid whether a firm is working under perfect competition, monopoly or imperfect competition. The difference lies only in the shape of the marginal revenue and marginal cost curves.

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Chapter 4 : Perfect and imperfect competition: types, types and features “ CL

suboptimality in a general equilibrium model with imperfect competition: 1. a misallocation of given input factors between different producers for the same aggregate output, i.e. lack of input.

Price Determination under Monopolistic Competition Price Determination under Monopolistic Competition
Imperfect competition covers all situations where there is neither pure competition nor pure monopoly. Both perfect competition and pure monopoly are very unlikely to be found in the real world. In the real world, it is the imperfect competition lying between perfect competition and pure monopoly. The fundamental distinguishing characteristic of imperfect competition is that average revenue curve slopes downwards throughout its length, but it slopes downwards at different rates in different categories of imperfect competition. The monopolistic competition is one form of imperfect competition. Monopolistic competition refers to the market situation in which many producers produce goods which are close substitutes of one another. Two important distinguishing features of monopolistic competition are: In contrary to perfect competition where there is only one homogeneous commodity, in monopolistic competition there is differentiation of products. In monopolistic competition, products are not homogenous nor are they only remote substitutes. These are the products produced by competing monopolists that have separate identity, brand, logos, patents, quality and such other product features. Product differentiation does not mean that goods are completely different. Rather it means that products are different in some ways, but not altogether so. These imaginary differences are created through advertising, marketing, packaging and the use of trademarks and brand names. Under monopolistic competition, there is fairly large number of sellers, let say 25 to Each individual firm has relatively small part of the total market so that each has a very limited control over the price of the product. And each firm determines its own price-output policy without considering the reactions of rival firms. Hence competition is no longer exclusive on price basis. The demand curve or AR curve under monopoly also slopes downwards, but there is a difference between demand curves facing under monopolistic competition and pure monopoly. Under monopolistic competition, the firm will be in equilibrium position when marginal revenue is equal to marginal cost. So long the marginal revenue is greater than marginal cost, the seller will find it profitable to expand his output, and if the MR is less than MC, it is obvious he will reduce his output where the MR is equal to MC. In short run, therefore, the firm will be in equilibrium when it is maximising profits, i. Short run equilibrium is illustrated in the following diagram: PT is the supernormal profit per unit of output. Total supernormal profit will be measured by multiplying the supernormal profit to the total output, i. The firm may also incur losses in the short run if it is facing AR curve below the AC curve. Total loss will be measured by multiplying loss per unit of output to the total output, i. Under monopolistic competition, the supernormal profit in the long run is disappeared as new firms are entered into the industry. As the new firms are entered into the industry, the demand curve or AR curve will shift to the left, and therefore, the supernormal profit will be competed away and the firms will be earning normal profits. If in the short run firms are suffering from losses, then in the long run some firms will leave the industry so that remaining firms are earning normal profits. The AR curve in the long run will be more elastic, since a large number of substitutes will be available in the long run. Therefore, in the long run, equilibrium is established when firms are earning only normal profits. It is further illustrated in the following diagram:

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Chapter 5 : Equilibrium of the Firm and Industry

The major developments in general equilibrium under imperfect competition have been elaborated within an "objective " approach, namely the cournotian tradition, pioneered by Gabszewicz and Vial ().

Property P1 is satisfied, because at the equilibrium price the amount supplied is equal to the amount demanded. Property P2 is also satisfied. Demand is chosen to maximize utility given the market price: Likewise supply is determined by firms maximizing their profits at the market price: Hence, agents on neither the demand side nor the supply side will have any incentive to alter their actions. To see whether Property P3 is satisfied, consider what happens when the price is above the equilibrium. In this case there is an excess supply, with the quantity supplied exceeding that demanded. This will tend to put downward pressure on the price to make it return to equilibrium. Likewise where the price is below the equilibrium point there is a shortage in supply leading to an increase in prices back to equilibrium. Not all equilibria are "stable" in the sense of Equilibrium property P3. It is possible to have competitive equilibria that are unstable. However, if an equilibrium is unstable, it raises the question of how you might get there. Even if it satisfies properties P1 and P2, the absence of P3 means that the market can only be in the unstable equilibrium if it starts off there. In most simple microeconomic stories of supply and demand a static equilibrium is observed in a market; however, economic equilibrium can be also dynamic. Equilibrium may also be economy-wide or general, as opposed to the partial equilibrium of a single market. Equilibrium can change if there is a change in demand or supply conditions. For example, an increase in supply will disrupt the equilibrium, leading to lower prices. Eventually, a new equilibrium will be attained in most markets. Then, there will be no change in price or the amount of output bought and sold " until there is an exogenous shift in supply or demand such as changes in technology or tastes. That is, there are no endogenous forces leading to the price or the quantity. Nash equilibrium[edit] Further information: Nash equilibrium and Cournot model Equilibrium quantities as a solution to two reaction functions in Cournot duopoly. The Cournot-Nash equilibrium occurs where the two reaction functions intersect and both firms are choosing the optimal output given the output of the other firm. The Nash equilibrium is widely used in economics as the main alternative to competitive equilibrium. It is used whenever there is a strategic element to the behavior of agents and the "price taking" assumption of competitive equilibrium is inappropriate. The first use of the Nash equilibrium was in the Cournot duopoly as developed by Antoine Augustin Cournot in his book. This determines the revenues of each firm the industry price times the quantity supplied by the firm. The profit of each firm is then this revenue minus the cost of producing the output. Clearly, there is a strategic interdependence between the two firms. If one firm varies its output, this will in turn affect the market price and so the revenue and profits of the other firm. We can define the payoff function which gives the profit of each firm as a function of the two outputs chosen by the firms. Cournot assumed that each firm chooses its own output to maximize its profits given the output of the other firm. The Nash equilibrium occurs when both firms are producing the outputs which maximize their own profit given the output of the other firm. In terms of the equilibrium properties, we can see that P2 is satisfied: P1 is satisfied since the payoff function ensures that the market price is consistent with the outputs supplied and that each firm's profits equal revenue minus cost at this output. Is the equilibrium stable as required by P3? Cournot himself argued that it was stable using the stability concept implied by best response dynamics. The reaction function for each firm gives the output which maximizes profits best response in terms of output for a firm in terms of a given output of the other firm. In the standard Cournot model this is downward sloping: Best response dynamics involves firms starting from some arbitrary position and then adjusting output to their best-response to the previous output of the other firm. So long as the reaction functions have a slope of less than -1, this will converge to the Nash equilibrium. However, this stability story is open to much criticism. Normative evaluation[edit] Most economists e. For example, food markets may be in equilibrium at the same time that people are starving because they cannot afford to pay the high equilibrium price. Indeed, this

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occurred during the Great Famine in Ireland in 1845-1852, where food was exported though people were starving, due to the greater profits in selling to the English the equilibrium price of the Irish-British market for potatoes was above the price that Irish farmers could afford, and thus among other reasons they starved. That is, any excess supply market surplus or glut would lead to price cuts, which decrease the quantity supplied by reducing the incentive to produce and sell the product and increase the quantity demanded by offering consumers bargains, automatically abolishing the glut. Similarly, in an unfettered market, any excess demand or shortage would lead to price increases, reducing the quantity demanded as customers are priced out of the market and increasing in the quantity supplied as the incentive to produce and sell a product rises. As before, the disequilibrium here, the shortage disappears. This automatic abolition of non-market-clearing situations distinguishes markets from central planning schemes, which often have a difficult time getting prices right and suffer from persistent shortages of goods and services. Modern mainstream economics points to cases where equilibrium does not correspond to market clearing but instead to unemployment, as with the efficiency wage hypothesis in labor economics. In some ways parallel is the phenomenon of credit rationing, in which banks hold interest rates low to create an excess demand for loans, so they can pick and choose whom to lend to. Further, economic equilibrium can correspond with monopoly, where the monopolistic firm maintains an artificial shortage to prop up prices and to maximize profits. Finally, Keynesian macroeconomics points to underemployment equilibrium, where a surplus of labor exists. Solving for the competitive equilibrium price [edit] To find the equilibrium price, one must either plot the supply and demand curves, or solve for the expressions for supply and demand being equal. An example may be:

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Chapter 6 : CiteSeerX " Citation Query Imperfect Competition in General Equilibrium: An Overview of Re

(b) Long Run Equilibrium: Under monopolistic competition, the supernormal profit in the long run is disappeared as new firms are entered into the industry. As the new firms are entered into the industry, the demand curve or AR curve will shift to the left, and therefore, the supernormal profit will be competed away and the firms will be earning normal profits.

The literature on non-parametric production analysis has formulated tests for profit maximizing behavior that do not require a parametric specification of technology. Negative test results have conventionally been interpreted as inefficiency, or have been attributed to data perturbations. In this paper, we exploit the possibility that negative test results reveal violations of the underlying neoclassical assumption that prices are exogenously fixed and perfectly certain. We propose non-parametric tests that do allow for endogenous price formation and price uncertainty. In addition, we investigate how to recover the technology and how to forecast behavior in new economic situations. Accessed March 12, " This paper examines the development and implementation of computable general equilibrium CGE models and examines their application to economies undergoing transition. The paper then examines the issue of closure rules in CGE models, and details the manner in which closure rules may be chosen to reflect specific features of the economy under study, particularly when applying CGE analysis to economies under transition. Finally the paper analyses the implementation and simulation of CGE models, including the steps necessary to construct benchmark datasets, calibrate the models, and to estimate counterfactual solutions. As price endogeneity is often complemented by price uncertainty, we consider both the case of certain prices and the case of uncertain prices. The extensions are fully compatible with existing tools for eliciting and representing technology and price information, and preserves the tractable mathematical programming structure of the original methodology. An empirical application to the Dutch electricity distribution sector illustrates our extension. Show Context Citation Context There is a wealth of theoretical models to explain firm behavior under conditions of imperfect competition see e. However, the empirical implementation of these theories is extremely difficult, because the information requirement is enormous. For example, one generally needs detailed assumption We introduce sunk costs into one such model calibrated with real-world data. Any views expressed here are those of the authors and not necessarily those of the Federal Reserve Bank of Minneapolis or the Federal Reserve System. An exciting portion of this research program aims to quantify and test the empirical relevance of some of the propositions of the new trade theory using numerical general Show Context Citation Context A finite number of sellers n compete in schedules to supply an elastic demand. The costs of the sellers have uncertain common and private value components and there is no exogenous noise in the system. A Bayesian supply function equilibrium is characterized; the equilibrium is privately revealing A Bayesian supply function equilibrium is characterized; the equilibrium is privately revealing and the incentives to acquire information are preserved. Price-cost margins and bid shading are affected by the parameters of the information structure: In fact, for large values of noise or correlation supply functions are downward sloping, margins are larger than the Cournot ones, and as we approach the common value case they tend to the collusive level. Private information coupled with strategic behavior induces additional distortionary market power above full information levels and welfare losses which can be counteracted by subsidies. The major developments in general equilibrium under imperfect competition have been elaborated within an "objective " approach, namely the cournotian tradition, pioneered by Gabszewicz and Vial Only a few contributions have been proposed within the "subjective" approach, In this paper, we study the main problems of the subjective approach to general equilibrium under imperfect competition, with regard to individual rationality, expectations, and coordination. In particular, we investigate the issues related to the adjustment processes, that have thus far received scarce attention in both the subjective and the objective approach. In such a way we clarify the nature of some fundamental problems concerning individual rationality and coordination. The main implication of our analysis is that, given the current state of the literature, no

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satisfactory solution has been provided within the subjective tradition to the problem of formulating a general equilibrium concept based on rationality criteria and coordination mechanisms suitable to be applied to the case of market power and strategic interaction.

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Chapter 7 : CiteSeerX Citation Query P.: "Monopolistic Competition

the situation under imperfect competition is more complex. Jankowitsch et al. () analyze a similar situation by introducing an ad-hoc parametric model of obligor price elasticity which.

Monopsonist means a single buyer. There can be a single buyer in the product market as well as in the factor market. Where there is a single buyer of a product, he is monopsonist in the product market. However, we are concerned here with monopsonist in the factor market. Monopsony in the factor market is said to exist when there is a single buyer of a specific factor of production. For instance, when in a particular area, there is only one employer of specific type of labour; he is monopsonist of that labour. Monopsony in the labour market also comes into existence when various employers of labour in an area form a collusion so far as recruitment of labour is concerned. While monopsony is very rare in product markets, it is more often found in factor markets. While a monopolist in the product market faces a downward sloping demand curve and can influence the price of the product by varying the level of his output, a monopsonist in the factor market faces an upward sloping supply curve of the factor and can affect the price of the factor by varying the level of its employment. By restricting employment it can lower the price of the factor. And if he wants to buy more amount of the factor, he will have to raise its price. Therefore, the supply curve of the factor or average cost AFC curve of the monopsonist will be rising upward to the right. MRP curve, as usual, will have an inverted U-shape. As we are assuming that perfect competition prevails in the product market, the value of marginal product VMP and marginal revenue product MRP would be equal. But here there is an important difference. The equilibrium of the firm under monopsony in a factor market assuming perfect competition in the product market is presented in fig. The difference EF between the marginal revenue product NE and the price paid to the factor of production NF is called monopsonistic exploitation of factor because this has arisen due to the monopsony in the factor market. EF is monopsonistic exploitation per unit of the factor. The degree of monopsony power can be measured as the difference between MRP and price of the factor AFC at the equilibrium employment. This is similar to measuring monopoly power as the difference between the price and marginal cost of a product at the equilibrium output in the product market. It should be noted that in Fig. The same general equilibrium conditions will also apply when there is monopsony in the factor market and monopoly in the product market. But since there is monopoly in the product market, MRP and VMP will not be equal; the latter will be greater than the former. Equilibrium of a monopolist-monopsonist firm is shown in Fig.

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Chapter 8 : General Equilibrium Theory: Sound and Fury, Signifying Nothing?

The equilibrium of the firm under monopolistic competition Because the product of any firm operating under conditions of monopolistic competitive differs slightly from those of its competitors, giving that firm a.

Perfect information – All consumers and producers know all prices of products and utilities each person would get from owning each product. Homogeneous products – The products are perfect substitutes for each other, i. Well defined property rights – These determine what may be sold, as well as what rights are conferred on the buyer. Every participant is a price taker – No participant with market power to set prices Perfect factor mobility – In the long run factors of production are perfectly mobile, allowing free long term adjustments to changing market conditions. Profit maximization of sellers – Firms sell where the most profit is generated, where marginal costs meet marginal revenue. Buyers make all trades that increase their economic utility and make no trades that do not increase their utility. No externalities – Costs or benefits of an activity do not affect third parties. This criteria also excludes any government intervention. Zero transaction costs – Buyers and sellers do not incur costs in making an exchange of goods in a perfectly competitive market. Non-increasing returns to scale and no network effects – The lack of economies of scale or network effects ensures that there will always be a sufficient number of firms in the industry. Anti-competitive regulation - It is assumed that a market of perfect competition shall provide the regulations and protections implicit in the control of and elimination of anti-competitive activity in the market place. Normal profit[edit] In a perfect market the sellers operate at zero economic surplus: Normal profit is a component of implicit costs and not a component of business profit at all. It represents the opportunity cost, as the time that the owner spends running the firm could be spent on running a different firm. The enterprise component of normal profit is thus the profit that a business owner considers necessary to make running the business worth her or his while i. Only normal profits arise in circumstances of perfect competition when long run economic equilibrium is reached; there is no incentive for firms to either enter or leave the industry. Economic profit does not occur in perfect competition in long run equilibrium; if it did, there would be an incentive for new firms to enter the industry, aided by a lack of barriers to entry until there was no longer any economic profit. New firms will continue to enter the industry until the price of the product is lowered to the point that it is the same as the average cost of producing the product, and all of the economic profit disappears. Normally, a firm that introduces a differentiated product can initially secure a temporary market power for a short while See "Persistence" in Monopoly Profit. At this stage, the initial price the consumer must pay for the product is high, and the demand for, as well as the availability of the product in the market , will be limited. In the long run, however, when the profitability of the product is well established, and because there are few barriers to entry , [7] [8] [9] the number of firms that produce this product will increase until the available supply of the product eventually becomes relatively large, the price of the product shrinks down to the level of the average cost of producing the product. When this finally occurs, all monopoly profit associated with producing and selling the product disappears, and the initial monopoly turns into a competitive industry. Profit can, however, occur in competitive and contestable markets in the short run, as firms jostle for market position. Once risk is accounted for, long-lasting economic profit in a competitive market is thus viewed as the result of constant cost-cutting and performance improvement ahead of industry competitors, allowing costs to be below the market-set price. In uncompetitive markets[edit] A monopolist can set a price in excess of costs, making an economic profit shaded. Economic profit is, however, much more prevalent in uncompetitive markets such as in a perfect monopoly or oligopoly situation. In these scenarios, individual firms have some element of market power: Though monopolists are constrained by consumer demand , they are not price takers, but instead either price-setters or quantity setters. This allows the firm to set a price which is higher than that which would be found in a similar but more competitive industry, allowing them economic profit in both the long and short run. In cases where barriers are present, but more than one firm, firms can collude to limit production, thereby

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restricting supply in order to ensure the price of the product remains high enough to ensure all of the firms in the industry achieve an economic profit. The economic profit is equal to the quantity of output multiplied by the difference between the average cost and the price. Government intervention[edit] Often, governments will try to intervene in uncompetitive markets to make them more competitive. Antitrust US or competition elsewhere laws were created to prevent powerful firms from using their economic power to artificially create the barriers to entry they need to protect their economic profits. Microsoft ; after a successful appeal on technical grounds, Microsoft agreed to a settlement with the Department of Justice in which they were faced with stringent oversight procedures and explicit requirements [12] designed to prevent this predatory behaviour. With lower barriers, new firms can enter the market again, making the long run equilibrium much more like that of a competitive industry, with no economic profit for firms. This does not necessarily ensure zero Economic profit for the firm, but eliminates a "Pure Monopoly" Profit. Although a regulated firm will not have an economic profit as large as it would in an unregulated situation, it can still make profits well above a competitive firm in a truly competitive market. This situation is shown in this diagram, as the price or average revenue, denoted by P , is above the average cost denoted by C . However, in the long run, economic profit cannot be sustained. The arrival of new firms or expansion of existing firms if returns to scale are constant in the market causes the horizontal demand curve of each individual firm to shift downward, bringing down at the same time the price, the average revenue and marginal revenue curve. The final outcome is that, in the long run, the firm will make only normal profit zero economic profit. Its horizontal demand curve will touch its average total cost curve at its lowest point. In a perfectly competitive market, the demand curve facing a firm is perfectly elastic. As mentioned above, the perfect competition model, if interpreted as applying also to short-period or very-short-period behaviour, is approximated only by markets of homogeneous products produced and purchased by very many sellers and buyers, usually organized markets for agricultural products or raw materials. In real-world markets, assumptions such as perfect information cannot be verified and are only approximated in organized double-auction markets where most agents wait and observe the behaviour of prices before deciding to exchange but in the long-period interpretation perfect information is not necessary, the analysis only aims at determining the average around which market prices gravitate, and for gravitation to operate one does not need perfect information. In the absence of externalities and public goods, perfectly competitive equilibria are Pareto-efficient, i. This is called the First Theorem of Welfare Economics. The basic reason is that no productive factor with a non-zero marginal product is left unutilized, and the units of each factor are so allocated as to yield the same indirect marginal utility in all uses, a basic efficiency condition if this indirect marginal utility were higher in one use than in other ones, a Pareto improvement could be achieved by transferring a small amount of the factor to the use where it yields a higher marginal utility. A simple proof assuming differentiable utility functions and production functions is the following. With our choice of units the marginal utility of the amount of the factor consumed directly by the optimizing consumer is again w , so the amount supplied of the factor too satisfies the condition of optimal allocation. Monopoly violates this optimal allocation condition, because in a monopolized industry market price is above marginal cost, and this means that factors are underutilized in the monopolized industry, they have a higher indirect marginal utility than in their uses in competitive industries. Of course this theorem is considered irrelevant by economists who do not believe that general equilibrium theory correctly predicts the functioning of market economies; but it is given great importance by neoclassical economists and it is the theoretical reason given by them for combating monopolies and for antitrust legislation. Profit[edit] In contrast to a monopoly or oligopoly , in perfect competition it is impossible for a firm to earn economic profit in the long run, which is to say that a firm cannot make any more money than is necessary to cover its economic costs. Neoclassical theory defines profit as what is left of revenue after all costs have been subtracted; including normal interest on capital plus the normal excess over it required to cover risk, and normal salary for managerial activity. This means that profit is calculated after the actors are compensated for their opportunity costs. Thus, the classical approach does not account for opportunity costs. Profits in the classical meaning do not necessarily disappear

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in the long period but tend to normal profit. With this terminology, if a firm is earning abnormal profit in the short term, this will act as a trigger for other firms to enter the market. As other firms enter the market, the market supply curve will shift out, causing prices to fall. Existing firms will react to this lower price by adjusting their capital stock downward. Laboratory experiments in which participants have significant price setting power and little or no information about their counterparts consistently produce efficient results given the proper trading institutions. By shutting down a firm avoids all variable costs. The size of the fixed costs is irrelevant as it is a sunk cost. The same consideration is used whether fixed costs are one dollar or one million dollars. The rule is conventionally stated in terms of price average revenue and average variable costs. If the firm decides to operate, the firm will continue to produce where marginal revenue equals marginal costs because these conditions insure not only profit maximization loss minimization but also maximum contribution. Another way to state the rule is that a firm should compare the profits from operating to those realized if it shutdown and select the option that produces the greater profit. However, the firm still has to pay fixed cost. A decision to shut down means that the firm is temporarily suspending production. It does not mean that the firm is going out of business exiting the industry. Shutting down is a short-run decision. A firm that has shut down is not producing. The firm still retains its capital assets; however, the firm cannot leave the industry or avoid its fixed costs in the short run. Exit is a long-term decision. A firm that has exited an industry has avoided all commitments and freed all capital for use in more profitable enterprises. In the long run, the firm will have to earn sufficient revenue to cover all its expenses and must decide whether to continue in business or to leave the industry and pursue profits elsewhere. The long-run decision is based on the relationship of the price and long-run average costs. These comparisons will be made after the firm has made the necessary and feasible long-term adjustments. In the long run a firm operates where marginal revenue equals long-run marginal costs. Portions of the marginal cost curve below the shut down point are not part of the SR supply curve because the firm is not producing in that range. Technically the SR supply curve is a discontinuous function composed of the segment of the MC curve at and above minimum of the average variable cost curve and a segment that runs with the vertical axis from the origin to but not including a point "parallel" to minimum average variable costs. An example is that of a large action of identical goods with all potential buyers and sellers present. By design, a stock exchange resembles this, not as a complete description for no markets may satisfy all requirements of the model but as an approximation. The flaw in considering the stock exchange as an example of Perfect Competition is the fact that large institutional investors e. This, of course, violates the condition that "no one seller can influence market price". Horse betting is also quite a close approximation. When placing bets, consumers can just look down the line to see who is offering the best odds, and so no one bookie can offer worse odds than those being offered by the market as a whole, since consumers will just go to another bookie. This makes the bookies price-takers. Furthermore, the product on offer is very homogeneous, with the only differences between individual bets being the pay-off and the horse. Of course, there are not an infinite amount of bookies, and some barriers to entry exist, such as a license and the capital required to set up. These criticisms point to the frequent lack of realism of the assumptions of product homogeneity and impossibility to differentiate it, but apart from this the accusation of passivity appears correct only for short-period or very-short-period analyses, in long-period analyses the inability of price to diverge from the natural or long-period price is due to active reactions of entry or exit. Some economists have a different kind of criticism concerning perfect competition model. They are not criticizing the price taker assumption because it makes economic agents too "passive", but because it then raises the question of who sets the prices. Indeed, if everyone is price taker, there is the need for a benevolent planner who gives and sets the prices, in other word, there is a need for a "price maker". Therefore, it makes the perfect competition model appropriate not to describe a decentralize "market" economy but a centralized one. This in turn means that such kind of model has more to do with communism than capitalism. The Austrian School insists strongly on this criticism, and yet the neoclassical view of the working of market economies as fundamentally efficient, reflecting consumer choices and assigning to each agent his contribution to social

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welfare, is esteemed to be fundamentally correct. On this few economists, it would seem, would disagree, even among the neoclassical ones. Thus when the issue is normal, or long-period, product prices, differences on the validity of the perfect competition assumption do not appear to imply important differences on the existence or not of a tendency of rates of return toward uniformity as long as entry is possible, and what is found fundamentally lacking in the perfect competition model is the absence of marketing expenses and innovation as causes of costs that do enter normal average cost.

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Chapter 9 : Imperfect Competition: Monopolistic Competition and Oligopoly

Over the last decade, general equilibrium macroeconomic models { with few commodities and few agents { allowing for market power and imperfect competition, have been recognized as Reprinted from Annales d'Economie et de Statistique, 37/38, {,

Competition is an economic process aimed at the interaction, relationship and struggle between the companies acting on the market, with the aim of ensuring all sales opportunities of their own products, and meet customer needs. Functions of competition In the specialized literature there are the following functions, which performs the competition: There is various classification of this economic indicator. For example, perfect and imperfect competition. Let us, in this article in more detail some more. Species competition in the context of scale development Under this classification, it is necessary to allocate the following types: Types of competition in terms of character development This economic indicator by the nature of the development is divided into regulated and free. Also in the economic literature one can find the following types of competition: So, price competition may occur through lower prices for specific products by artificial means. This type of competition most often used in transporting goods or products often it is the transportation of products non-durable storage with one outlet to another , as well as in the service sector. Non-price competition occurs mainly due to the improvement of product quality, production technologies, nanotechnology and innovation and the patenting conditions of realization of finished products. This type of competition based on the desire to capture part of the market of a particular industry through the issuance of completely new goods that fundamentally differs from any modernization of the previous model. Characteristics of perfect and imperfect competition Such a classification takes place, depending on the competitive equilibrium in the market. So, perfect competition is based on the performance of any assumptions of equilibrium. They can be classified as: Imperfect competition is based on the violation of any assumptions of equilibrium. This competition is characterized by the following properties: Advantages and disadvantages of competition Perfect and imperfect competition have their advantages and disadvantages. So, based on the definition of perfect competition that shows the state of the market, where there are producers and consumers that do not affect market price, which means no reduction in demand for products with increasing sales volumes, the advantages include: Thus, perfect and imperfect competition contribute to the achievement of optimal and competitive market conditions in which there is no profit and loss. With these advantages, there are some disadvantages of these types of competition: Perfect and imperfect competition allow us to understand how market mechanism, but actually quite rare. The second type of competition determines the impact of producers and consumers on price and its changes. The volume of finished products and the access of producers to the market has some limitations. The following conditions exist in which have some types of competition perfect and imperfect: These factors can contribute to violations of any market equilibrium in light of limited number of manufacturers that establishes and subsequently supports fairly high prices with the aim of obtaining high monopoly profits. In practice, you can find the following types of competition perfect and imperfect: Classification of competition in accordance with supply and demand of goods or services Within this classification, perfect and imperfect market competition take the following forms: If we look in detail above, it can be noted that oligopolistic competition in General, may relate to imperfect sight. As the key characteristics of a functioning market accepted: Pure competition " the kind that can be attributed to perfect competition. As the key characteristics of this market are the following: There is another kind of competition " monopoly. Its main characteristics include: We must not forget the increasing market power with differentiation of products that can help to protect the business entity and make a profit above the market average. Classification of markets The model of perfect and imperfect competition assumes the presence of competitive and noncompetitive markets. As criteria of distinction of these markets is considered to be the main features, which are peculiar in some degree to the models: Market perfect and imperfect competition has the following features: Firm under conditions of perfect

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and imperfect competition The behavior of the enterprise is not so dependent on the time from the competition. Considering the rational behaviour of companies in conditions of perfect competition, the following should be noted. The purpose of any business entity is profit maximization, obtained by increasing the gap between price and cost. The price should be set under the influence of supply and demand in the market. If the company will significantly increase the price of their own finished products, it may lose customers that purchase similar products from a competitor. And sale of the specified entity can be significantly reduced. As for costs, in this case their value is determined by the technologies used by the enterprise. Thus, before any entity, a question arises about determining the number of manufactured and sold products for maximum profit. Therefore, the company has continuously compare the market price of the products and the marginal cost of its manufacture. The enterprise in the conditions of imperfect competition To achieve the rationality of enterprise behavior in the presence of imperfect competition in the market, you must fulfill the following conditions. In contrast to the example above, under imperfect competition, the producer can influence the price of its products. If the conditions of functioning on the market of perfect competition, the income from the sale of products does not contain any changes equivalent to the market price , in the presence of imperfect competition in the growth of sales may reduce the price that is given to the reduction of the additional income. In addition to maximizing profits, there are other types of motivation of enterprise activity: Summarizing the material described in this article, the following should be noted. Competition between producers leads to the release of large stable companies, which are already difficult to "compete" for other manufacturers. Before each of the newly created producer that wants to occupy a certain place in a particular industry or market can be quite complicated barriers. In this case we are talking about the availability of the necessary financial resources. There are some administrative barriers, which provide for quite stringent requirements for "beginners" on the market.