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in a Capitalist Economy

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General Equilibrium Models, Transaction Costs, and the Concept of Efficient Allocation in a Capitalist Economy

by

EIRIK G. FURUBOTN

1. Introduction

Modern welfare theory demonstrates that, under certain simplifying assumptions, a competitive capitalist system reaches an equilibrium that is also a first-best Pareto-optimal configuration of the economy. In effect, idealized market institutions are interpreted as the “means” through which the marginal equivalences for the general optimum of production and exchange are met. The theory makes clear, however, that institutional means other than market capitalism could just as easily be used to realize the basic optimality conditions¹, and the general impression conveyed is that institutional arrangements play an inconsequential role in the optimization process. But this orthodox approach is open to question. Recent developments in microeconomic theory suggest that transaction costs, and hence economic institutions, exert significant influence on market outcomes and efficiency. It is of interest, therefore, to consider the extent to which the traditional conclusions concerning the Pareto efficiency of a competitive capitalist system are disturbed by the new line of institutionalist thinking.

During the postwar years, dissatisfaction with the standard neoclassical model led to a growing revisionist literature focused on property-rights/transaction-cost analysis.² This body of writings, now widely referred to as the “new institutional economics,” attempted to extend the range of applicability of neoclassical theory by considering how property-rights structures and transac-

¹ The marginal conditions required for the general optimum of production and exchange, and the “technocratic” formulation of the economic problem from which they emerged, were said to be: “... antiseptically independent of institutional context, notably of competitive market institutions” (BATOR [1957, 31]). This argument asserts that a point on the grand utility-possibility frontier can be reached when operations are being conducted by genuine profit maximizers, Lange-Lerner-type bureaucrats, or central planners using electronic machines (BATOR [1957, footnote 14]). For a different view, see MYRDAL [1956], FURUBOTN [1971].

² The essential features of this line of research, and some of its important areas of application, have been summarized in: FURUBOTN and PEJOVICH [1972], DE ALESSI [1980], [1987], FREY [1984], WILLIAMSON [1979], [1981], EGGERTSSON [1990].

tion costs affect incentives and economic activity. From the standpoint of the new institutionalists, orthodox microeconomics was seen as simply incapable of dealing with situations in which transaction costs were greater than zero, and in which property rights to resources took forms different from the idealized pattern hypothesized for classical capitalism (ALCHIAN and DEMSETZ [1972]). Nevertheless, these writers were confident that the older theory could be fitted into a larger, more flexible scheme. DE ALESSI [1983, 66] has explained how resolution was attempted:

Neoclassical theory... can be generalized to eliminate some of these limitations. A major step is to end the dichotomy between the theory of consumer choice and the theory of the firm by extending the utility-maximization hypothesis to all individual choices, including those made by business managers, and government employees. Another step is to broaden the concept of the limits on individual choices to include institutional constraints (the system of property rights) as well as more of the constraints (for example, including transaction and adjustment costs) imposed by nature and the state of the arts.

This "generalization" of the neoclassical apparatus made it possible to go beyond the artificial world of costless transactions, and to explore the economic consequences of many different forms of institutional organization. As a result, interest in the conventional, or "classical," capitalist model tended to diminish.³ Indeed, modern institutionalists came to regard classical market equilibrium (and its accompanying Pareto-optimal welfare configuration) as an abstract and rather insignificant polar case.

In a world of zero transaction costs, the solution of the economic problem is trivial. All individual and market demand and supply conditions are known instantaneously to everyone, and the rules of the game specified by the system of property rights are enforced instantaneously and costlessly, yielding the appropriate general equilibrium solution (DE ALESSI [1987, 27]).

On this assessment, the findings of the new institutional economics are not in actual conflict with traditional theory. The neoclassical model is merely extended by the new work. Idealized competitive equilibrium still emerges as a limiting case that appears when transaction costs are zero and full private ownership of resources exists.

The shift to so-called generalized neoclassical theory does solve some problems, and may seem to place the idea of perfect competition in proper theoretical perspective.⁴ Reflection, however, suggests that the new approach suffers

³ The following passage suggests the basis for the change in attitude: "The fundamental economic problem, however, arises precisely because in the real world knowledge of the continually changing individual circumstances of time and place is costly to obtain, because contracts are costly to form, monitor, and enforce, and because property rights are costly to define, allocate, and enforce, ... the existence of positive transaction costs introduces a new constraint and yields new, efficient solutions (DE ALESSI [1987, 27])."

⁴ The new-institutional reasoning has now been incorporated into current doctrine and has reached the level of advanced textbooks. Both static and multiperiod general equilibrium models of this genre are available in the literature. See: HESS [1983], especially chapter 3 and the assumptions on pp. 23–24, and chapter 5.

from certain conceptual difficulties. The argument of the present paper is that, once the full implications of a “frictionless” world are considered, it becomes evident that capitalist competition is not consistent with costless transactions, and that the hypothesized “first-best” Pareto optimum will not be realized under decentralized capitalist organization. Troubles exist because the assumption of zero transaction costs plays an ambivalent role in competitive theory. On the one hand, costless transactions are essential to ensure the existence of basic structural conditions that are needed for the operation of an efficient atomistic system (as complete information about market prices). On the other, costless transactions serve to bring about circumstances that permit the formation of stable collusive agreements among decision makers and, thus, encourage behavior that effectively rules out perfect competition (and optimality). A fundamental contradiction appears to exist in the standard argument for idealized competitive equilibrium in a private-ownership system. And unless price-taking behavior is merely assumed, regardless of the opportunities and motivations presupposed in the orthodox model, the problem noted is unresolvable.

In general, the attempt to integrate property-rights and transaction-cost concepts into neoclassical theory raises issues that have not been discussed adequately in the literature.⁵ While progress has been made in developing microeconomic theory along the lines suggested by the new institutional economics, unsettled questions still remain. Accordingly, one objective of the paper is to undertake a systematic discussion of how profit-maximizing firms and utility-maximizing consumers can be expected to act in a capitalist economy operating subject to zero transaction costs. Against this background, it is possible to explain why the traditional theory of perfect competition requires major revision when account is taken of the concept of transaction costs, and to describe the nature of the allocative and welfare results that appear in a capitalist system when transactions are costless. Attention is given to the first welfare theorem. However, the incentive effects created in a zero-transaction-cost economy are such that the impossibility case made in the paper draws upon the criticisms normally advanced against the usefulness of the second welfare theorem (DUFFIE and SONNENSCHN [1989, 582–583 and 594]).

2. Generalized Neoclassical Theory and the Traditional Competitive Model

While the assumptions underlying the new-institutional model of competition are generally consistent with those of the older neoclassical construct, the institutional approach goes more deeply into certain matters of structure and, thus, deserves additional discussion. First, in the capitalist case, private owner-

⁵ It is interesting to note that in two recent survey articles on general equilibrium theory, no mention is made of transaction costs or of the significance of transaction costs for the determination of equilibrium prices and outputs. See: NOVSHEK and SONNENSCHN [1987], DUFFIE and SONNENSCHN [1989].

ship is taken to be ubiquitous. Each decision maker has exclusive rights to the use of the resources he owns and to the income generated by such resources. Moreover, he is free to sell (or transfer) his property rights to others if he wishes. Second, the assumption of costless transactions is interpreted as meaning that the costs of obtaining and utilizing information about alternatives, and of negotiating, policing and enforcing contracts, are zero (DAHLMAN [1979, 143–150]).

Transaction costs are not identified as such in traditional expositions of the theory of competition. Nevertheless, there can be no doubt that the theory does presuppose a “frictionless” world.⁶ Essential to any formal proof of the existence of idealized competitive equilibrium in a capitalist system is the understanding that producers are perfectly informed about the market prices and technical properties of the inputs that enter into their (known) production functions. Similarly, consumers are assumed to know the prices and characteristics of the commodities specified in their preference functions.⁷ For such complete and accurate information to be available to decision makers, however, transaction costs must surely be zero.⁸ Further, if valuable resources had to be used to “produce” and enforce private property rights, the achievement of *full* ownership conditions would, in general, be prohibitively expensive, and would not be attempted.⁹ Whether the assumption is made explicitly or not, the idea that transaction activities can be accomplished without the use of real resources is central to conventional competitive theory.¹⁰

It is true, of course, that in an environment where all transactions are costless, the firm takes on a special character. Some writers would say that the firm does not exist because, given a frictionless world, each decision maker in the system can act as an independent contractor and seek his own welfare through partic-

⁶ This is not to say that there was not some ambiguity in discussions of the relation between transaction costs and competitive equilibrium. For example, ARROW and HURWICZ [1960, 36] argue that: “...It is the minimization of information requirements for each participant in the economy which constitutes the virtue of decentralization.” Compare: NORTH [1981, 5].

⁷ Interpretation of the term “perfect information” can pose difficulties. For example, if knowing about the properties of a commodity such as a book implies that the contents of the book are fully known before its purchase, an anomalous situation exists. Conceivably, however, the concept of complete information can be defined less broadly. A consumer might know enough to make an informed judgement about the desirability of buying the book without necessarily knowing its contents.

⁸ Information must not only be acquired but processed. Thus, each decision maker is assumed to be characterized by “unbounded rationality,” and to have the ability to make decisions instantly and costlessly.

⁹ It is also clear that the elaborate structure of forward markets needed for multiperiod equilibrium models is dependent on zero transaction costs.

¹⁰ For example, see the list of assumptions used by HESS [1983, 23–25]. Assumption eight reads as follows: “... the competitive price mechanism itself uses no real resources to arrange for the allocation of property rights. The discovery of equilibrium prices, the drawing of contracts, and the enforcement of exchanges of property rights are costless activities.”

ipation in free markets. With costless information and bargaining, there is no economic gain to be had by replacing market exchange with “organization” (hierarchy). Nevertheless, it is arguable that a firm of sorts can exist in the circumstances described.¹¹ An entrepreneur wishing to undertake production of some commodity for consumers can negotiate a series of contracts with independent contractors who own productive factors. The entrepreneur, however, has no authority over the respective input suppliers (HESS [1983, 2–3]). He acts merely as a coordinator and as a contract monitor. The “firm” in this situation is based purely on market relations and is different from the organizations found in a world of positive transaction costs. As the new institutionalist literature points out, positive transaction costs are important because they can make the market a relatively expensive and uneconomic institution for arranging productive activity compared with authoritarian organization.

3. *The Wider Implications of Zero Transaction Costs*

In view of the far-reaching nature of the zero-transaction-cost assumption, what seems necessary is a more systematic examination of the assumption’s implications for behavior in all sectors of the economy. And, when such an examination is undertaken, one point stands out sharply. In a world of unbounded rationality and costless transactions, there is nothing to prevent decision makers from engaging in *collusion*. The matter is important because it means that the behavior of producers, consumers and resource owners will tend to deviate from the simple patterns normally envisioned for them in a decentralized competitive system. This situation suggests, then, that some revision of existing doctrine may be necessary.

To explore the question of collusion, it is helpful to consider some elementary cartel theory. We know that a small group of firms producing a homogeneous commodity may be able to collude and then choose a profit-maximizing industry output. By forming a cartel and acting as a multiplant monopoly, the various firms in the group can serve their own interests. For this result to be feasible, though, several special conditions have to hold. First, it is obvious that the firms in question must all recognize that they can affect commodity price. Further, they must be able to coordinate their decisions and agree on individual output levels that are consistent with maximum profits for the industry. They must also be able to negotiate and reach agreement on how the monopoly profits earned by the cartel are to be shared. At each step of the cartelization process, *the acquisition and utilization of information loom large*. In particular,

¹¹ The firm considered here strongly resembles the “pure-rental” firm that has been discussed in connection with the theory of labor management. See, for example: JENSEN and MECKLING [1979]. Note, however, that the “entrepreneur,” apart from coordinating activities, may bring to the firm some valuable input that he owns. A coalition owning land might undertake the production of some agricultural commodity.

detailed knowledge of individual cost conditions and of market demand is essential. Moreover, if the organization is to be preserved over the long term, the authorities directing the cartel have to have continuing flows of information on member activities so that they can monitor the actual behavior of the cooperating firms and prevent any deviations from the agreements reached. All this is familiar and straightforward. What should be pointed out, however, is that *transaction costs* play a crucial role in the formation and operation of the cartel. To state that oligopolistic firms may be capable of coordinating their output policies and establishing a sharing rule for monopoly profits is just another way of saying that transaction costs may be sufficiently low to make cartel arrangements possible.

In the real world, where transaction costs are positive, cartels are said to be feasible only when the *number* of firms in an industry (n) is relatively small. There is general agreement that, as the number of firms increases, the oligopolistic solution will tend to approach the competitive solution. With n very large, price-taking behavior will become ubiquitous. This interpretation suggests that, for the real-world case, the variable n is being used as a rough surrogate for the level of transaction costs associated with collusion. In effect, it is argued that only when n is quite small are negotiation, monitoring, and enforcement costs *low enough* to favor cartel operation. But the approach leads to the confusion of numbers with transaction costs. This difficulty becomes apparent when the assumption of zero transaction costs is made. *Ceteris paribus*, ten thousand independent firms in a competitive industry have as much interest in organizing a cartel (and increasing profits) as four firms – if only transaction costs permitted. And, under zero transaction costs, the ten thousand could effect such a transformation. If any information desired can be acquired and processed instantaneously and costlessly (KREPS [1990, 745]), communication is easy and the preconditions for cartel (or coalition) formation exist. According to generalized neoclassical theory, incentives for monopolization exist too because, in a zero-cost world, each monopolist is said to be able to discriminate perfectly among consumers (DE ALESSI [1983, 65]). If this account is to be believed, producers enjoy quite favorable conditions in an environment characterized by zero transaction costs.

The obvious question to be asked at this point is: why the asymmetry? Why do consumers acquiesce to exploitation by monopolists when, given costless transactions, they have both the capacity to understand the situation they face, and the possibility of taking collective action to limit exploitation? Presumably, there is nothing to prevent consumers from coming together and forming a monopsonistic organization or coalition that can influence the terms on which they can acquire a commodity.¹² As they move from market to market, consumers are always free to establish coalitions that are well attuned to the

¹² The conventional argument is that communication among large numbers of consumers is expensive, and that such high transaction costs prevent coalitions from being formed or bargains struck. For example, see: WHITCOMB [1972, 123].

conditions they face. The logic of the case, then, suggests that utility-maximizing consumers, operating in a world of zero transaction costs, have the motivation and the opportunity to form coalitions or cooperatives to advance their interests. But so do all other groups in the system. Workers or natural resource owners, for example, will find it expedient to establish cartels. And input purchasers will see advantage in setting up monopsonistic associations which can serve to offset some of the market power enjoyed by organized suppliers. The general result would seem to be clear. With costless transactions, a competitive economy based on price-taking agents will tend to degenerate into a system of contending coalitions. The coalitions that form will possess some degree of market power and will be conscious of their ability to take action to influence the terms of trade.

It is important to stress that the term "coalition" can be used in more than one sense in theoretical discussions. For example, a coalition of the type that is relevant to the theory of the core is quite distinct from a "pressure group" that attempts to gain advantage through manipulation of output. A coalition compatible with core theory attempts to improve the payoffs of all of its members, but operates subject to some limits on the actions it is expected to take. HILDENBRAND and KIRMAN [1976, 51] explain the situation as follows:

... The power of a coalition with a monopoly of some essential good is involved in the threat to the welfare of others if they, the monopolists, refuse to exchange it. This sort of power is not reflected in the core and the reader should view with circumspection facile interpretations of coalitions as modern pressure groups.

In the present paper, interest centers on coalitions that can properly be regarded as pressure groups. These coalitions differ from the coalitions associated with core theory both in the way they are formed and in the way they behave. Certainly, the literature recognizes that the behavior of coalitions can be quite varied. MYERSON [1991, 430], for example, notes that:

... given a game v and a feasible allocation x that is not in the core of v , we cannot conclude that the players could not cooperatively agree to the allocation x . If a coalition can make binding agreements that its members cannot subsequently break without the consent of all others in the coalition, then the existence of a coalition that can improve on x may be irrelevant, because some players in S could be prevented from acting as members of this coalition by their previous binding agreements with other coalitions.

This type of behavior is of direct importance to the argument being developed here because, granting that the preconditions for cartel or coalition formation hold in a zero-transaction-cost economy, there is still a question as to whether any coalition formed is likely to be a cohesive and stable unit over time.

In the coalition world envisioned in the paper, movement toward a larger economic system (through the introduction of more and more decision makers into the system) does not imply a growing number of *independent* bargaining agents in the various markets, and progress towards a competitive equilibrium. Rather, the situation is such that the respective coalitions will merely grow

larger by acquiring additional members. Newly arriving decision makers, driven by self interest, will find it expedient to join existing coalitions. But, then, with coalitions always small in number and possessed of market power, there can be no convergence to competitive allocation no matter how large the economy becomes. In short, core theory is not directly relevant to the case discussed here.¹³ The next section will attempt to justify this claim. The focus will be on how pressure groups, involving large numbers of individual units, may form and *survive* as operating entities.

4. Zero Transaction Costs and the Formation of Stable Coalitions

To be worthwhile to their founders, the coalitions that are established must be capable of holding together and maintaining internal discipline period after period. It can be shown however that, in the economic environment posited, this basic requirement can be met. Specifically, contracts can always be devised (and enforced) that regulate the behavior of cartel members and ensure that the collusive agreements entered into will be honored.

In explaining how cartels or coalitions are able to make arrangements to guarantee their long-term survival, it will be convenient to begin by considering the traditional model of an idealized competitive system operating at long-run equilibrium. Initially, then, all private decision makers are assumed to act as price takers who shun other possible behaviors. Industry j is one sector in this competitive economy; and, within j , n equal-sized firms are producing a homogeneous product. Under the assumed state of general equilibrium, each firm is a profit maximizer and is earning a normal profit. In principle, things could go on in this way indefinitely. With unchanging data, the equilibrium solution reached by industry j would be replicated period after period. Let us assume, however, that the firms in j suddenly recognize the opportunities inherent in a zero-transaction-cost environment. Specifically, they now consider the possibility of acting in concert as an n -firm, multiplant monopolist and securing extra-normal returns through the exercise of market power.¹⁴ The assumption that the firms in j wish to form one coalition, rather than several, is convenient but the basic argument being made in the paper does not depend on this simplification. In any event, for a collusive agreement to be feasible, certain crucial conditions must be met. There must be confidence on the part of each potential coalition member that any agreement reached will provide for an acceptable quota scheme and for an acceptable profit-sharing rule. Moreover, the various

¹³ In addition, see DUFFIE and SONNENSCHNEIN [1989, footnote 17], SHUBIK [1982, 311 – 314].

¹⁴ As section 5 will explain, this strategy may merely be the prelude to other actions that can promise even greater advantage to the firms of industry j .

parties must be convinced that the agreement can be monitored and enforced cheaply and effectively.¹⁵

A problem might seem to exist in ensuring rigorous enforcement of a collusive agreement involving many small firms. Given costless transactions, monitoring compliance with the agreement would present no difficulty. But strict enforcement also depends on the means the coalition has available to punish violators. At first view, defections would seem possible. If the firms in the coalition restrict industry output and raise commodity price, each coalition member could have incentive to cheat on the agreement, expand output beyond his individual quota, and seek greater gains from "free trade." At the same time, price cutting by the multifirm coalition would not be the most advantageous way of disciplining deviant firms.

While different methods may conceivably be used by a cartel to make certain that there will be no defections from a collusive agreement, a simple contractual approach seems most in keeping with the conditions presupposed for a zero-transaction-cost system. Thus, we can assume that the decision makers in industry j adopt the following rules:

(i) Each firm wishing to join the cartel would be expected to accept the cartel's regulations with respect to market shares, profit distribution, etc., and show good faith by signing a special contract providing for "hostages." That is, each firm would be required to put up a bond (secured by property) that would be forfeited to the group in the event the firm in question chose to defect or otherwise violate the collusive agreement. The value of the bond would be set high enough to more than offset any gains that might be realized by a firm through defection.

(ii) A coalition member's obligation to abide by the terms of the agreement would end only when all members voted to end the cartel's operations. Presumably, a move to terminate the agreement (and the bonding arrangement) would occur only if the organization is perceived by the membership as having no further advantage for the foreseeable future.

(iii) Ideally, the formation of the cartel would be based on the willingness of all n firms in industry j to accept the agreement. Such unanimous acceptance would prevent "free riders" from functioning outside the cartel and using the cartel's output restrictions for their own gain. The existence of some free riding, however, would not rule out the possibility of a viable coalition.¹⁶

¹⁵ Since the model being considered abstracts from a government sector, laws concerning collusion are absent, and no state mechanism exists either to enforce collusive agreements or to suppress them.

¹⁶ To be workable, the agreement need not be as strong and rigid as conditions (i)–(iii) seem to require. In particular, all n firms need not join the coalition. The situation is not characterized by a "prisoners' dilemma" game, and coercion is not essential to bring about the formation of the coalition. If the coalition is relatively large and promises to yield its members gains that are greater than normal profits, there is incentive for individuals to join the organization. In short, the solution can be such that some firms make moderate sacrifices and join, while a few others free ride. See: DE JASAY [1989].

In order to establish adequate safeguards for the cartel's participants and assure mutual trust, the specific contractual provisions reflecting points (i)–(iii) would have to be developed carefully, and through extensive communication among the potential members. Nevertheless, since the assumption of costless transactions holds, no serious obstacles exist for decision makers. No problem of private or asymmetric information exists to deter negotiation (FARRELL [1987]) and, at worst, even if a grand coalition involving all n firms in the industry cannot be sustained, the general conditions are such that (large) stable subcoalitions can still emerge (AIVAZIAN, CALLEN and LIPNOWSKI [1987]). In the basic case, when a possible contract has been formulated, it can be placed before the n members of industry j for approval. If the document is accepted unanimously, property rights in the new organization have been defined and the cartel plan can be effectuated. If the initial contract is rejected by some of the voters, an attempt can be made to reformulate the agreement so that it can be resubmitted to the industry members.¹⁷ Insofar as gain is in prospect for firms if an acceptable agreement can be devised and a large coalition formed, there is incentive for the contract to be written in a fair and reasonable way. In general, the forces of the system conduce to agreement.¹⁸ The effective “contribution” required to join the coalition is not very large but, in a zero-transaction-cost world, complete enforcement can be anticipated of the individual bonding arrangements that exist within the overall contract. The enforcement activity relating to “hostages” is similar to the full enforcement of private property rights in this competitive model, and is both certain and costless. Thus, once a firm joins the coalition, it is effectively bound to the group for the long term, and cannot withdraw at will to pursue other plans. At the same time, those who reject the coalition can be precisely identified, and it is understood that the group may take sanctions against defectors in the future. The special environment in existence also permits industry members to recognize that, unless a viable coalition is established, no firm can realize more than a normal profit. Presumably, the well informed decision makers in j can foresee the consequences of individual actions that tend to lead the system to full competitive equilibrium – and they can avoid such actions. Should foresight be lacking, all can learn through experience that a stable cartel is essential if any chance is to exist for them to improve their welfare positions. The conclusion that emerges,

¹⁷ Presumably, some control of the agenda would have to be exercised to prevent cycling.

¹⁸ Conceivably, more than one group of firms in the industry might try to form a coalition. The greater the differences among firms, the greater the likelihood of such action. Assuming, however, that all firms in j share a common technology, the single group solution seems most likely. This is so because when more than one coalition exists in an industry, potential gains from the exercise of market power tend to diminish. Rival coalitions can find it difficult to agree on price-output policy, and may be less able to deal with a consumer monopsony.

then, is this: In a zero-transaction-cost world, not only can cartels be formed but they can be disciplined, long-lasting entities, too.

Once action is taken by members of industry j , the consumers of commodity j can be expected to discover the possibilities of costless transactions and establish a monopsonistic organization to oppose the j cartel. To prevent defections, the monopsony can require of its members the same general type of bonding procedure that was discussed earlier. As suggested above, the primary purpose of the monopsony group may be *defensive*. Then, the group's function would be to exercise countervailing power in any bargaining process that takes place in the market, and prevent the j producers from operating as a discriminating monopolist. It is clear, however, that a monopsonistic coalition can have offensive capabilities, too. In the limit, a coalition of consumers could act as a discriminating monopsonist and secure relatively favorable terms of trade from unorganized firms. What we see, then, is that either the prospect of gain or the hope of limiting loss can cause atomistic decision makers to depart from simple price-taking behavior and attempt the organization of coalitions possessed of market power.

Returning to the problem confronting the firms of industry j , there now seems little doubt that the best course of action open to a decision maker is to join the proposed cartel. By remaining an independent unit, a firm cannot even be assured of making a normal return and remaining in the industry – given the threat of monopsony. On the other hand, by cooperating with other industry members within the terms of a well-defined contractual scheme, opportunities are much greater. A coalition of firms can achieve some degree of bargaining power;¹⁹ and, at worst, each member firm will be protected from the most unfavorable market outcomes. Of course, there will always be some uncertainty about prospective gains or losses; the actual results of any round will be determined by a bargaining process. On both the supply side and the demand side of industry j , transformation can be expected. Thus, what began as a true competitive equilibrium in market j , an equilibrium based on large numbers of atomistic units acting as price takers, inevitably turns into something quite different when transaction costs are zero and collusion becomes feasible.

Even if it is assumed that all n firms in industry j are willing to establish a cartel and are successful in securing extranormal profits through bilateral bargaining, there is still a question as to how long such profits can last. Insofar as the profit situation is favorable in industry j , incentives would seem to be created for new firms to try to enter this industry. If, however, many new units (not in the cartel) try to enter sector j , the interests of the cartel would be

¹⁹ To the extent that market conditions favor producers (e.g., demand for commodity j may be strong and inelastic), each firm has a good chance of securing significant extranormal profits.

threatened and it would have to react. The cartel could, of course, respond effectively by increasing output and lowering price. Sacrifices would not be made by cartel members to hold up price in a situation where new entrants could claim much of the benefit. To the extent that the n original firms in j plus the new firms that enter the industry represent *excess* productive capacity, problems arise for all. All participants in the overcrowded industry would be condemned to low or negative profits and some existing firms would ultimately be forced to leave. Such an outcome could be *anticipated*, however, and thus any large movement of new firms into the cartelized industry would not be very likely in the first place. Independent, profit-seeking entrepreneurs would not be anxious to enter a sector where profitability is sure to be unsatisfactory in the short-run, and where acceptable returns can only be a possibility for the future when the exit of firms may reduce overcapacity.²⁰ It is also true that, with coalitions in all markets, the risks are high for unsupported, independently operating firms, i.e., would-be “new entrants.” Thus, single firms, or small groups of firms, will tend to be discouraged from trying to proceed on their own.

Assuming, though, that overcrowding does occur in industry j , it still does not mean that j will experience intra-industry competition and poor bargaining power indefinitely. In the longer run, as attrition takes place and productive capacity is reduced sufficiently to improve industry bargaining strength, the firms remaining in j have broader options. As a group, they can decide to end rivalry, form a new cartel, and secure greater returns through the use of market power.²¹ Some cycling in and out of cartel-dominated price policy may occur over time if numerous independent firms persist in trying to force their way into the industry. Such developments, however, hold little promise for first-best allocative efficiency. Even in the worst case, where coalitions are able to hold on to rents for only brief periods, the opportunities provided by zero transaction costs must constantly prompt attempts at cartelization somewhere in the system and produce misallocation. From what has been said, then, an industry such as j will depart from a perfectly competitive equilibrium position either because a stable coalition pushes for a non-competitive solution favoring the interests of its membership, or because the attempts of new firms to participate in rents result in overcapacity and subnormal returns. While various patterns of dynamic adjustment are possible for an industry, there is no basis for believing that normal, profit-driven reallocations will eliminate all market power and bring a capitalist system back to universal price-taking behavior and long-run competitive equilibrium.

²⁰ The “pure-rental” firm would have to engage in long-term leasing if durable capital is to be readily available. This is so because some private contractor would have to make a long-term investment in durable, specialized equipment.

²¹ At equilibrium, the number of firms in an industry (or coalition) will be no fewer than the number that can provide productive capacity consistent with opportunity returns in the given conditions of the economy.

5. *A World of Coalitions and the Impossibility of First-best Efficiency*

It is clear that insofar as large, stable coalitions exist, these organizations can control supply (or demand) levels and affect the terms on which goods are exchanged.²² Certain groups gain by such manipulative behavior, but, since policies of output restriction are fostered, the economy operates below its potential and first-best Pareto optimality is not achieved. The question that suggests itself, therefore, is whether such a coalition-dominated economy can take action that will result in the *restoration* of allocative efficiency. An obvious plan would be to follow the Coase theorem and attempt private negotiations in order to bring about something akin to an efficient competitive solution. That is, in a world of costless transactions where everybody is perfectly informed about the preferences and technologies of everybody else in the economy, and where communication and calculation are so easily accomplished, it is at least arguable that a general bargaining process could be used to maximize wealth. By reaching agreements on operating levels and sharing rules within the framework of a "joint-profit" maximization scheme, it would appear that monopolistic coalitions could be induced to mimic competitive behavior and ensure that all resources in the system were directed to their highest valued uses. On this logic, of course, coalitions do not represent an obstacle to Pareto-optimal production and commodity distribution.

While the preceding argument has some plausibility and seems to offer an escape from the problems created by coalitions, the case made for first-best efficiency does not stand up to close inspection. Quite simply, the Coasian analysis is incomplete; it does not consider the impact that income transfers exert on factor supply decisions. Private bargaining to improve allocation involves the giving and taking of "bribes," and leads inevitably to income effects that distort incentives and prevent the attainment of certain conditions required for Pareto efficiency. It can be shown that, even in an idealized, frictionless system, the very nature of the bargaining process rules out a first-best equilibrium (FURUBOTN [1991]). In what follows, then, conventional welfare theory will be used to explain precisely why negotiation cannot be effective in overcoming the deleterious consequences of coalitions.

As a first step, figure 1 is introduced to show the economy's *hypothetical* welfare frontier (*AA*). This curve, defined for an idealized competitive system, establishes the most favorable utility options open to society, given initial preferences and technology. Each point on *AA* represents a first-best Pareto-optimal configuration of the economy. The frontier is also said to be independent

²² Similarly, it can be shown that, in a pure exchange economy involving two participants, a decision maker is able to change equilibrium prices and improve his welfare by destroying some part of his initial commodity endowment (HILDENBRAND and KIRMAN [1976, 13–14]). As explained earlier, the inefficiencies of this two-person case also obtain in a large-numbers economy if transaction costs are zero.

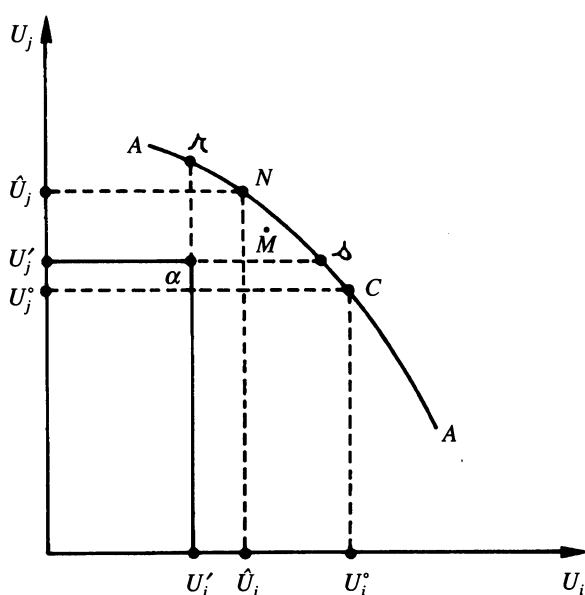


Figure 1

of institutional context; in theory, AA can be reached by using any institutional arrangements that permit the technical optimality conditions to be met. The conventional argument is, of course, that a well-behaved capitalist system will achieve a Pareto-optimal solution. By simply *assuming* price-taking behavior on the part of the atomistic decision units, the theory is able to avoid problems, and the market system can be said to move to a competitive equilibrium on the frontier (as C). The particular point reached in utility space depends on the initial pattern of factor ownership assumed (DAHLMAN [1979, 151]). Figure 1 indicates that at point C the equilibrium distribution of welfare that is consistent with the given ownership conditions is: U_i^0, U_j^0 . The outcome here is important because it is this welfare distribution that we would expect to see changed as a consequence of movement from a world of independent, competitive atoms to a world of major coalitions. Presumably, those coalitions possessing significant market power and bargaining strength (given the data) would like to have the competitive distribution (U_i^0, U_j^0) modified. Moreover, such powerful, self-seeking coalitions will be prepared to use their economic influence to secure a different welfare distribution more favorable to themselves.

Given the effects that zero transaction costs have on a capitalist system, the competitive solution C in Figure 1 is merely a *hypothetical* position. As noted, the emergence of coalitions means that there will be pressure for a departure from C (and distribution U_i^0, U_j^0). Dominant coalitions can draw upon their ability to manipulate supply or demand in order to bring about more remuner-

ative market outcomes for their memberships. Insofar as these strategies involve restrictionist measures to achieve redistribution, allocation must shift from the pattern associated with point C , and a new equilibrium solution will appear at some point such as α lying *inside* the welfare frontier AA . At this inefficient operating position, the welfare distribution is U'_i, U'_j . The implication is that, if necessary, j people can restrict output and use their bargaining power to gain a welfare level superior to the one they would otherwise have as price takers in a competitive economy operating at point C – i.e., $U'_j > U_j^0$.

In the example, there is potential gain for coalition j in a move from C to α . But even greater gain may seem possible. Relative to the welfare distribution at α , both j and i could improve their positions by a shift from α to any point on the welfare frontier within the limits r and s . Moreover, if such a move could be brought off, a first-best Pareto-efficient allocation and an effective competitive optimum could be realized. Since all decision makers in the zero-transaction-cost economy must recognize the virtue of remaining on the welfare frontier AA and achieving a first-best solution, a plan might be devised to *mimic* the operation of an atomistic competitive system. That is, coalitions might be persuaded to forego the use of market power and allow their members to behave as competitive units – provided compensation (or bribes) were paid to strong coalitions such as j . As the diagram indicates, j can achieve at least some improvement over its position at the competitive point C by forcing an inefficient operating point (α) on the system. If, as argued, the very existence of coalitions ensures departure from C and *some redistribution* of welfare, it is rational for members of coalitions with limited bargaining strength to accept the need to pay bribes to members of the economically stronger coalitions. Presumably, decision makers in vulnerable coalitions would seek a solution (say N) that would reduce the welfare losses they incur because of departure from C , e.g., $U_i^0 > \hat{U}_i > U'_i$.

In an economy of costless transactions, it seems plausible to assume that general agreement on a redistributive plan (such as N) can be reached by self-interested decision makers.²³ By following a policy of “joint-profit” maximization and by negotiating acceptable sharing rules, the community can attempt to achieve more than at point α . To implement the program, a certain structure of “taxes” and “bounties” would have to be adopted. Then, each atomistic decision unit would either gain or lose relative to the situation in the hypothetical competitive distribution at point C . The existence of durable coalitions means that a shift in the welfare distribution must occur and that, ideally, movement should take place along the welfare frontier AA from, e.g., C to N . The problem is broadly parallel to the familiar one that arises in welfare

²³ The argument here parallels the one made earlier concerning the formation of stable coalitions. Of course, if agreement cannot be reached on a redistributive plan through bargaining among coalitions, the system would remain at a sub-optimal equilibrium inside the welfare frontier.

economics when equity considerations demand a redistribution of welfare. While a Bergsonian social welfare function plays no role in the present case, the desire to ensure a Pareto-optimal solution means that movement from C to the new distribution should be carried out so as not to disturb the marginal conditions for optimality. This requirement means, in turn, that *lump-sum* taxes and bounties are needed to effect the shift.

It is clear, however, that true “lump-sum” redistributions of wealth are not possible in the economic circumstances described above. By definition, a lump-sum transfer is one whose magnitude cannot be changed by a change in the behavior of either the loser or the gainer.²⁴ To meet this strong condition, the bargaining process, which is designed to bring about competitive-like actions on the part of the coalitions, would have to be carried out in a very special way.²⁵ Specifically, the size of the “bribe” paid by a firm in a coalition such as i would have to be *completely independent* of that firm’s gains from the desired competitive reorganization. But this type of solution is inconsistent with the nature of a bargaining process. The general understanding is that a rational negotiator (such as j) will demand: “...an additional dollar so long as the resulting increase in the probability of non-cooperation creates an expected loss of less than a dollar” (COOTER [1987, 459]). In other words, given self-seeking behavior, the expectation must be that the size of the “tax” or “bribe” a weak firm i is forced to pay will tend to be larger as the i firm’s prospective gain from reorganization becomes larger and the firm’s ability to pay grows correspondingly. Hence, transfer payments are not lump sum but, rather, are similar to income tax payments. As such, they lead to difficulties for efficient allocation. Indeed, there is a direct linkage between the bargaining behavior just described and factor supply decisions. A firm’s prospective gain from renewed competition depends, in part, on the amount of effort (or investment) an entrepreneur is willing to make available to his firm. At the same time, utility maximization requires that each decision maker establish an appropriate balance between the sacrifices he makes and the income he actually receives for these sacrifices. The result is that any redistributive program carried out via bargaining must affect individual incentives, change behavior, and alter factor supplies.

The discussion so far can be summarized by saying that, for the case considered, the marginal equivalences required for the general optimum of production and exchange cannot be met. The difficulty here is most easily thought of in

²⁴ LAYARD and WALTERS [1978, 36], for example, define a lump-sum transfer as follows: “A lump-sum transfer is one in which neither the loser nor the gainer can affect the size of the transfer by modifying his behavior.”

²⁵ The condition might be met if “taxpayers” and “bounty” recipients do not anticipate the transfers and cannot modify their behavior in response to them. But, in the bargaining undertaken to move the equilibrium solution from α to N , the transfers to be made among units are negotiated in advance, with each decision unit giving due consideration to his own best interest. Under these conditions, there is no way that transfers can come as a surprise to individuals in the economy.

terms of the substitution of leisure for work (or product). The concept of "leisure," however, is open to wide interpretation and can be related to any factor that is withheld from use. In any event, given, e.g., a tax on income, the standard argument is that a decision maker will work up to the point at which his wage *net* of the tax is just sufficient to compensate him for his extra effort. The bribes needed to ensure competitive behavior by coalitions are, of course, analogous to taxes and, thus, have the effect of causing a divergence between certain marginal rates of substitution and transformation.²⁶ In general, the attempt to move from *C* to *N* along the welfare frontier leads to results similar to those that are described in orthodox welfare economics as the tradeoff of "efficiency" for "equity." Specifically, as transfers (that are not lump sum) are made from some individuals to others, incentives are distorted and the supplies of certain productive factors will be reduced. Then, the equilibrium of the system will be established at some point *inside* the initially given welfare frontier *AA*. A relative reduction in the availability of factors can be expected because the incentives for both those who gain and those who lose in the transfer process are unfavorable to positive factor supply. The recipients of transfers are, after all, members of coalitions and, as such, are not anxious to dilute their market power by expanding productive capacity. In any event, the system cannot reach a first-best equilibrium because, under the transfer process, the wrong signals are given by the net rewards going to decision makers, and the marginal conditions for optimization will not be met.²⁷

The inability of coalitions to successfully mimic the operation of an atomistic competitive economy reflects itself in figure 1 as a departure of the system from the welfare frontier. Assume that, after the factor supply reactions have been accounted for, equilibrium occurs at point *M*. This point, of course, is associated with an *inefficient* configuration of the economy. While *M* may represent an outcome superior to that obtaining at α , the solution is still not one that is compatible with Pareto-efficient production and commodity distribution. In short, it appears that, in a world of zero transaction costs, a capitalist system is unable to achieve the first-best optimum that orthodox theory claims for it.

²⁶ When an income tax is imposed, the general optimum is destroyed because as GRAAFF [1967, 78–79] states: "The social rate of indifference between rendering more of the productive service and consuming more of the product is no longer equal to the technological social rate at which the service can be transformed into the product at the margin."

²⁷ Other schemes than that of mimicking competition might be tried in the attempt to improve upon solution α . Nevertheless, as long as stable coalitions of some sort exist, redistribution must take place (relative to the outcome at *C*) and transfer payments must be required. The general result is that the factor-supply reactions described above will occur, and the first-best optimality conditions will not be realized.

6. *The Literature and Arguments for Efficiency*

It is true, of course, that the negative conclusions reached concerning the efficiency of an idealized capitalist system can be overturned if sufficiently restrictive assumptions are made about the characteristics of the economic system, or if an unorthodox definition of allocative efficiency is adopted. Such attempts to rationalize the efficiency claim are, however, not very persuasive. As the following brief review suggests, the special assumptions usually introduced are neither reasonable in themselves nor consistent with the fundamental logic of neoclassical analysis.

Obviously, disagreements can arise concerning the existence of efficiency if there is no commonly accepted definition of the term. So far, the paper has focused on the *traditional* definition and linked discussion to welfare theory. Thus, following the conventional argument, it was said that with given ownership of the factor endowment, a well-behaved general-equilibrium system yields a unique equilibrium price vector, and a unique operating point on the welfare frontier. The allocation of resources associated with this solution is defined as optimal. The paper's thesis, however, is that such first-best efficiency will not be realized by a capitalist economy in a zero-transaction-cost world. Pareto-nonoptimal allocation is predicted because income redistribution leads to factor supply reactions that force the system to a point (like *M*) *inside* the welfare frontier. This line of argument is based on the idea that unambiguous efficiency benchmarks exist on the welfare frontier. If, however, a different approach is taken and it is asserted that a system's solutions are always efficient if they meet the constraints that characterize it (DE ALESSI [1983, 69], DAHLMAN [1979, 152–154]), the interpretation of events changes radically. Here, no distinction is made between first-best and second-best solutions; indeed, the indication is that the choices made in any economic situation are *necessarily optimal*.²⁸ From this standpoint, the fact that supply reactions may occur (because of bribe giving and receiving) does not prevent the achievement of Pareto efficiency. Rather, the supply reactions are regarded merely as a manifestation of *additional constraints* that must be met by the system as part of its optimal adjustment process.

Insofar as one can accept the idea that inefficiency should be ruled out by definition, the preceding argument is correct. There is, however, an obvious problem with the constrained maximization approach because of its tautological nature. Moreover, as LEIBENSTEIN [1985, 11] has pointed out:

... any decision procedure that does not permit nonoptimal choices denies the essential meaning of the word optimization, that is, the necessarily comparative element involved.

²⁸ When interest centers on *constrained* Pareto optimality, any solution consistent with constrained maximization is considered to be efficient; and all observed solutions can meet this criterion because, ex post, there is always some previously neglected constraining factor that can be found to explain poor performance and apparent "inefficiency."

There is, of course, a good deal more that can be said about the definition of efficiency.²⁹ Yet, even under the most generous interpretation, it seems clear that the constrained maximization approach has serious deficiencies, and cannot be accepted as a truly satisfactory guide to ideal resource allocation.

Next, returning to the traditional efficiency concept, it is interesting to note that quite special assumptions are used to ensure that the idealized model of market capitalism will possess first-best efficiency properties. The simplest contrivance is to assert that all decision makers in the system operate as price takers. What is done here is to deny that any relation can exist between costless transactions and the formation of durable coalitions having market power. The desired efficiency results are, in effect, merely assumed. Equally unconvincing is the approach which argues that decision makers do not respond to the incentive structure generated by redistribution and behave as though there were no relation between income transfers and the provision of labor services, or between wealth "taxes" and wealth accumulation. It is true, of course, that if redistributive measures leave factor quantities unchanged, a favorable position such as N on the welfare frontier may be achieved via bargaining. Pareto efficiency will rule despite the existence of monopolistic coalitions. The extreme assumption about inputs, however, violates the full generality of the neoclassical model and runs counter to our basic understanding of the nature of a capitalist economy. If factor supplies are unresponsive to changes in "tax" rates, consistency requires that these supplies also be insensitive to price changes occasioned by demand shifts. In the limit, all factors would be forthcoming subject to zero elasticity;³⁰ and, for the system as a whole, the assumption might be that material incentives no longer elicit systematic responses from decision makers. Then, the normal allocative and adjustment process of a capitalist system would be altered profoundly, and only a highly specialized case would remain for study.

The fact that some market models, as, e.g., DEBREU [1959, chapt. 5], are based on inelastically supplied factor endowments has tended to cloud a central issue in this area. If competitive behavior is already assumed in a model, the presence of fixed factor supplies does not play a critical role in efficiency analysis; but if the economy is assumed to be dominated by durable coalitions, the absence of factor-supply reactions is important and can create a false case for efficiency. Indeed, it seems fair to say that to overlook factor-supply reactions (and the complete set of technical conditions for the general optimum) is to overlook a major aspect of the efficiency problem.

Cartels or coalitions pose no fundamental threat to the efficiency of market capitalism if they are undisciplined organizations that tend to fall apart easily.

²⁹ The extensive literature by Leibenstein and other writers concerning the problem of X-efficiency makes clear that the debate over what constitutes an appropriate efficiency criterion is still unsettled. See FURUBOTN [1986].

³⁰ It could be suggested that factor-supply changes come about only when very large price (or transfer) changes occur.

But, as the discussion of section 4 has indicated, there is little reason to believe that, in a world of zero transaction costs, the units bound together in coalitions will be induced to forsake collusion and revert to competitive behavior. The environment is such that self-interested groups can always organize quickly, form enforceable agreements, and then move to take advantage of opportunities for gain. Moreover, information is so freely available that individual decision makers are able to assess the perils of independent action and recognize that their long-term welfare is best served by maintaining group solidarity (MYERSON [1991, 430]). As long as all transactions are costless, it appears that the problem of durable coalitions must be faced. Significantly, the attainment of pure competition, or an approximation to it, requires different conditions. To ensure price-taking behavior, transaction costs have to be *greater than zero*, and relatively high in large-number situations.

Clearly, however, if competition depends on *positive* transaction costs, a dilemma is created. Once transactions are assumed to be resource using and costly, it follows that property rights cannot be completely defined and enforced, that neither consumers nor producers can be perfectly informed about the prices and properties of the things they buy, etc. Such deviations necessarily prevent the realization of idealized competitive equilibrium. Moreover, it is clear that even an approximation to competitive behavior will not be possible if transaction costs become too large. There is, presumably, a comparatively narrow range of values within which positive transaction costs must lie if effective competition is to be feasible. In short, difficulties exist whether transaction costs are greater than zero or zero.

At this point, one might argue that escape from the dilemma just described is quite possible provided the competitive model is reinterpreted. Specifically, it can be said that the zero-transaction-cost assumption is not meant to be a general assumption and does not apply uniformly to all sectors of a competitive system. If transaction costs are conceived as positive in some areas and zero in others, the problems noted above can be made to disappear. Large-number coalitions become impossible to form if the particular activities associated with collusion involve substantial transaction costs. At the same time, other characteristics essential to the competitive order can be preserved if zero transaction costs are assumed to rule elsewhere in the system. In a purely formal sense, then, such specialized assumptions about costs can be used in an attempt to justify orthodox theory. The approach is, however, fundamentally misleading and is open to major criticisms.

When there is departure from the convention that *all* transaction costs are zero, the economic model becomes difficult to interpret. Questions arise concerning which sectors of the system experience positive costs, how large the costs are in each sector, and what specific factors account for the positive costs stipulated. Moreover, if the respective transaction-cost levels are not determined empirically, but are merely assumed at the whim of the theorist, the door is open to all sorts of strange outcomes. Special cases can be designed to show

virtually anything desired. This difficulty plagues the argument used to defend the conventional explanation of perfect competition in a market system. What stands out is the inconsistency with which transaction activities are treated. It is unreasonable to say that the *same general types* of information gathering, communication, and enforcement operations are costless when undertaken to establish, e.g., private ownership rights, but prohibitively costly when undertaken to bring about the formation of cartels. Logically, then, this theoretical position cannot be accepted.³¹

The motive for introducing positive transaction costs into the competitive model on a selective basis is, presumably, one of convenience. The procedure is best understood as simply another way of *assuming* price-taking behavior. But this treatment of price-taking, while traditional, goes against the thrust of recent work on general equilibrium theory (NOVSHEK and SONNENSCHNEIN [1987]). An important theme reflected in the newer literature relates to the explanation of why price taking occurs. Instead of merely asserting that all decision makers act competitively regardless of their ability to influence price, the revised analysis accepts the idea that, in general, decision units take account of the linkage between their marketed quantities and price. Then, the term “perfect competition” is reserved for situations in which entry is free and decision units are extremely small relative to their markets.³² In such cases, of course, the *number* of participants is very large, and it is argued that decision units can have no influence over market price. This line of analysis, which draws on Marshallian concepts, is significant because the changed view that it represents places emphasis on the need to explain the pricing behavior of decision makers *within* the general equilibrium framework. The insistence on linking behavior to the opportunities presupposed by the structure of the competitive model is crucial to the development of an adequate theory. From the standpoint of the present paper, however, contemporary equilibrium theory reaches the wrong conclusions. By focusing solely on the number of market participants, and ignoring the role played by zero transaction costs, the analysis fails to provide a convincing case for the appearance of price-taking behavior.

³¹ It should also be noted that once it is assumed that transaction costs are positive in *any sector* of the system, it follows that the welfare frontier associated with first-best optima cannot be reached. Insofar as real resources have to be used for transactions purposes, there must be some diversion of factors from the production of standard commodities. Thus, *ceteris paribus*, a system forced to deal with costly transactions will have what amounts to an effectively smaller factor endowment than an otherwise comparable system operating with zero transaction costs throughout.

³² Specifically, it is said: “We will apply the term *perfectly competitive economy* to a regime in which firms are arbitrarily small relative to their markets. We adopt the classical position that consumers have no market power.” See NOVSHEK and SONNENSCHNEIN [1987, 1287–1288]. The revised general equilibrium model argues that perfect competition represents a limiting case of regimes in which firms can influence price (NOVSHEK and SONNENSCHNEIN [1987, 1291]).

7. Conclusions

Orthodox theory argues that a capitalist market economy will achieve a first-best Pareto-optimal configuration if all relevant decision makers are price takers, and if transactions are costless so that information problems and other difficulties can be effectively assumed away. By contrast, the paper concludes that, even when major simplifying conditions are posited, capitalist organization will not lead to first-best allocative efficiency. The equilibrium position reached by an idealized capitalist system will lie inside the economy's theoretic welfare frontier rather than on the frontier. Moreover, this suboptimal result is unavoidable unless price-taking behavior is just assumed, or unless other highly restrictive and unrealistic assumptions are made.

Criticism of the conventional theory of competition seems justified because the theory fails to interpret the role of transaction costs in a consistent manner. In the standard model, there is acceptance of the idea that large numbers of participants will ensure competition and price-taking behavior. At the same time, the (implicit or explicit) assumption of zero transaction costs is relied upon to establish an appropriate environment for free market activity – i.e., an environment in which property rights can be fully defined and enforced, decision makers can be informed, etc. But if the assumption of costless transactions is carried through the model symmetrically, problems arise. Specifically, when all transaction activities are costless, it is always possible for self-seeking decision makers to form and enforce durable, collusive agreements. In this special environment, numbers provide no protection against collusion; and the general result is that an atomistic, competitive economy will tend to degenerate into a system of contending monopolistic coalitions.

In principle, any well positioned coalition can restrict output, secure some market advantage, and improve the welfare of its members relative to the outcome under pure price-taking behavior. However, by mimicking competition and following a “joint-profit-maximization” strategy, such a coalition can achieve even greater gain. For the system as a whole, Pareto improvement is possible if bribes are used to reintroduce competitive-like behavior. That is, the gains implicit in more efficient allocation can be shared among the weaker and stronger coalitions in such a way as to induce cooperation. To achieve a Pareto-optimal configuration of the economy, though, the redistributive process would have to be carried out with *lump-sum* taxes and bounties. But lump-sum transfers are not feasible in the circumstances considered and, thus, factor-supply reactions must be anticipated. The consequence is that, while some welfare improvement can be realized by mimicking competition, a capitalist system operating in a world of costless transactions will not achieve a first-best Pareto-optimal equilibrium.³³

³³ The problem considered in the paper is fundamental but other, less central, difficulties exist. For example, the existence of specialized (or “named”) commodities may lead to situations in which a market contains only one buyer and one seller. Then,

If capitalist organization is incapable of bringing about Pareto-optimal allocation under conditions of zero transaction costs, it is true, a fortiori, that such an ideal equilibrium position will not be reached when transaction costs are positive.³⁴ What can be said, however, is that the capitalist model is quite consistent with workable competition when transaction costs are greater than zero, but not excessively large. Given positive transaction costs, it follows that scarce resources must be used to acquire and process information. Thus, communication and monitoring problems reassert themselves, and this means, in turn, that collusion becomes impossible in large-number situations. The economy may not be free of externalities and other difficulties but it can be competitive. What also has to be recognized is that once transaction costs are greater than zero, the role of institutions can no longer be neglected.³⁵ Institutional arrangements exert a direct effect on economic operations by influencing the level of transaction costs and the structure of incentives. Institutions, then, represent key “variables” that have to be included in the optimization problem. Insofar as competitive processes are to be studied in a capitalist context, analysis cannot be institution free.

Summary

Conventional theory asserts that an idealized capitalist system moves to a Pareto-optimal equilibrium. This result depends, either implicitly or explicitly, on the assumption that transaction costs are zero. When a capitalist economy operates subject to costless transactions, however, durable collusive agreements can be formed and enforced. The consequence is that atomistic competition tends to break down. Income transfers (or bribes) can be used to induce coalitions to mimic competitive behavior and improve efficiency. But such transfers, which cannot be lump-sum, distort incentives and cause departures from the technical conditions that must be met to ensure first-best Pareto efficiency.

Zusammenfassung

Die konventionelle Wirtschaftstheorie behauptet, daß in einem idealtypischen kapitalistischen Wirtschaftssystem ein Pareto-optimaler Gleichgewichtszu-

price-taking behavior and full competitive equilibrium are hard to justify. See HESS [1983, 32–33], STARRETT [1972].

³⁴ The failure of capitalist organization to achieve Pareto-optimal allocation does not necessarily mean that, in a zero-transaction-cost world, other forms of institutional arrangement cannot be successful in pushing an economic system to the welfare frontier. See: HURWICZ [1985].

³⁵ Welfare theory has long accepted the fact that the welfare frontier would be difficult to achieve in practice. Accordingly, the concept of the “efficiency locus” was introduced to consider situations in which institutions are present and sub-optimal solutions are likely to be reached. However, it was still believed that the efficiency locus could coincide with the welfare frontier and that a true Pareto-optimal solution could be attained even in the presence of capitalist institutions. See: GRAAFF [1967, 76].

stand erreicht wird. Dieses Ergebnis beruht auf der Annahme, daß die Transaktionskosten null betragen. Wenn die Transaktionen jedoch keine Kosten verursachen, können Absprachen getroffen und durchgesetzt werden, die Bestand haben. Dies führt tendenziell zu einer Aufhebung des atomistischen Wettbewerbs. Zwar können Einkommensübertragungen (oder Bestechungsgelder) dazu benutzt werden, um Wettbewerbsverhalten auch in einer Welt von Koalitionen nachzuahmen und die Effizienz zu erhöhen. Da die Höhe dieser Transferzahlungen jedoch nicht unabhängig vom Verhalten der Wirtschaftssubjekte gewählt werden kann, ist eine Verzerrung der Anreize und eine Verletzung der notwendigen Bedingungen für die unbeschränkte Pareto-Optimalität einer Allokation unvermeidlich.

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