

errors that could endanger later efforts to put men on the Moon. In other words, the first attempt was a mechanical success but a scientific failure.

Since disequilibrium is a state where at least one decision-maker is making errors, and since some of those errors may be part of a process of learning, it would be grossly misleading to base our understanding of disequilibrium economics on 'dynamic' tools such as optimal control theory and dynamic programming. While they may be appropriate techniques for well defined mechanical engineering problems, they are not obviously relevant for the questions of equilibrium processes where, as Hayek argues, learning from one's errors plays a central role.

7

Equilibrium vs Equilibrium Processes

In modern Austrian economics ... we find the problem of knowledge to be a matter of fundamental concern. In 1937 Professor Hayek divided the subject matter of economics into the pure logic of choice and the enquiry into the dissemination of knowledge. In 1946, in criticizing most modern theories of market forms, he pointed out that competition is a process, not a state of affairs, and that it reflects continuous changes in the pattern of knowledge.

Ludwig M. Lachmann [1976, p. 55]

When Professor Hayek, ... in presenting 'Economics and Knowledge', suggested that the most important task of economics as an empirical science consists in explaining how men come to acquire knowledge of the 'data' governing the markets in which they operate, ... the whole problem was stated in equilibrium terms. ... After what has happened in economics in the last 30 years we are today inclined to look askance at the whole notion of equilibrium, and even more so at the Hayekian version of 1936 in which we were told 'It can hardly mean anything but that, under certain conditions, the knowledge and intentions of the different members of society are supposed to come more and more into agreement'.... But even if we discard the equilibrium terms in which the problem was first stated, it nevertheless remains. In a stationary world ... time will in the long run, 'hammer logic into brains' and teach its human pupils what they must do to achieve success and stave off failure. Why this should be so in a changing world is by no means clear.

Ludwig M. Lachmann [1982, pp. 635–6]

While Hayek has long been closely associated with the ‘Austrian School of Economics’, his ideas still have a significance far beyond the narrow concerns of that school. The questions raised by Samuelson [1947/65] and Arrow [1959], about the relationship between the concept of equilibrium and the process that guarantees convergence to the equilibrium, were refinements of those introduced in the earlier work of Hayek. Everyone now agrees that in any equilibrium model the specification of the equilibrium process is no less important than the determination of the mathematical properties of an equilibrium point [Hahn, 1981; Fisher, 1983; etc.]. However, understanding the nature of an equilibrium process is more than a mere question of stating the logical requirements for equilibrium models.

Critics of neoclassical economics will call attention to the knowledge requirements for any state of equilibrium [Shackle, 1972; Lachmann, 1976, 1982]. However, the basis for such ‘requirements’ usually turns out to be a presumed theory of knowledge that is untenable [see Boland, 1978, 1981b, 1982b]. The important question is whether *any* theory of knowledge could be consistent with the knowledge requirements of a state of equilibrium [see Boland and Newman, 1979]. This question is not insignificant as there have been strong claims made that the information contained in any set of equilibrium prices is complete [e.g. Koopmans, 1957]. There is a related, and more fundamental, question that we must consider – one that addresses those questions raised by Samuelson and Arrow. Is the *process* of acquiring the necessary knowledge consistent with the requirements for a state of equilibrium? Perhaps, if the concept of equilibrium is properly specified, the necessary information for convergence to equilibrium can be provided automatically in any state of disequilibrium [Hayek, 1945/48]. We will examine these questions of the relationship between the equilibrium process and the learning process which would be consistent with a state of equilibrium.

1. Equilibrium and Theories of Knowledge

According to Tjalling Koopmans [1957, p. 53],

The [equilibrium] price system carries to each producer, resource holder, or consumer a summary of information about the productions possibilities, resource availabilities and preferences of all other decision makers. Under the conditions postulated, this summary is all that is needed to keep all decision makers reconciled with a Pareto optimal state once it has been established.

The conditions postulated are ordinary equilibrium conditions. But two questions need to be asked. How does the individual decision-maker acquire the information comprising the *whole* ‘price system’? Does the process of establishing the Pareto optimal state require information different from that which reconciles the independent decision making of individuals? Before we can consider these questions we need to examine the role of the information contained in an equilibrium price system with respect to the individual’s decision process.

From our previous discussions in Part I, if every individual knows the equilibrium price for every good that is considered, and if the individual actually faces those equilibrium prices, then maximizing behavior cannot yield a disequilibrium. But is knowledge of the equilibrium price system all that is required? Should we not also have some knowledge of the availability of the goods demanded [Hayek, 1937/48, 1945/48]? If we are really discussing an individual’s demand decision at an equilibrium point and all individual’s are facing the same price, the supply will be just enough to meet everyone’s demand. Viewed this way – that is, looking only at the quantities demanded and supplied at the equilibrium point where each individual knows all the relevant prices-- there cannot be a problem of availabilities, since the additional knowledge of availabilities is redundant.

There are two more questions to ask about the sufficiency of the knowledge of the equilibrium price system. Is the number of equilibrium prices that the decision-maker needs to know more than what we would consider reasonable? And, how does any ordinary individual know that those prices are the equilibrium prices? Whether the number of goods for which the individual must have information is unreasonable depends on the specific equilibrium model under consideration. Clearly a model in which it is assumed that there are an unlimited number of goods is one which would put a considerable strain on the credibility of Koopmans’ claim. Perhaps a more modest model with a small number of goods might seem reasonable. What does seem reasonable will depend on the theory of knowledge presumed to apply to the individuals in question. We will return to this issue a little later. For now, let us assume the number is reasonable and proceed to the other question.

In one sense the question of *how* the individual knows the given prices are equilibrium prices is beside the point. If they are equilibrium prices, any individual’s planned purchase pattern will be fulfilled. But if the individual cannot be certain that the prices faced are equilibrium prices, why should we expect that the planned purchase pattern would be the same as the plan formed when the prices are certainly equilibrium prices? Consider a simple decision situation facing the consumer. If we

recognize that any individual cannot be in two places at the same time, then the individual must decide which market to go to first (e.g. the butcher or the baker). Obviously, if you thought there might be a shortage in a particular market you might want to plan to go to that market first. In this sense, knowledge of the equilibrium nature of the price system is essential. If the individual does not know that the prices are equilibrium prices, his or her plan will be a bit more complicated. Nevertheless, if the prices are the equilibrium prices, the extra complications should not matter since all aspects of the plan are fulfilled in the end.

If we restrict our view of the economy to equilibrium price systems, certain liberal ideological implications follow. If the decision-makers all face the same equilibrium price system, their independent decisions are perfectly coordinated (i.e. demand equals supply in every market) and it does not matter how the prices were established. The definition of an equilibrium price system ‘does not necessarily presuppose the existence of a competitive market organization’ [Koopmans, 1957, p. 53]. As Koopmans claims, ‘[d]iscussions of pricing as a tool for planning and operating a socialist economy likewise derive from our [definition of an equilibrium price system]’ [Koopmans, 1957, p. 53]. So, if we restrict our discussion to equilibrium price systems, we do not have to be concerned with whether competition as a process is a necessary, or even a good, thing. This is optimistic liberalism at its best, but it sure misses the point of why one would ever want to argue in favor of market competition following the tradition promoted by Adam Smith.

What is most interesting, in retrospect, is that while Koopmans and Hayek seem to be in complete agreement concerning the informational efficiency of a market price system, their ideological conclusions are just the opposite. Hayek argues that only the competitive market price system is efficient, and even when based on prices, the socialist planning system is virtually impossible, let alone efficient [Hayek, 1945/48]. While Koopmans’ view of the price system promotes open-minded liberalism, Hayek’s would seem to be based on a conservative view of the nature of the competitive market system. If Hayek had focused his view of the informational efficiency of the price system on the logical properties of an equilibrium point, his view would be difficult to sustain for the following reason. In a truly competitive equilibrium where, of mathematical necessity, all production functions must be locally linear-homogeneous (i.e. exhibit constant returns to scale on the margin), a labor-theory of value yields the same conclusions concerning income distribution as does any other theory of value (such as a capital-theory of value). For example, a firm’s total cost measured in dollars is the sum of two terms, $WL + P_K K$, and these two terms are what has been paid to the

suppliers of the two inputs, L and K , given the prices W and P_K . These terms, in effect, represent incomes of the input suppliers. The income distribution between the suppliers of L and K is indicated by the ratio of the two terms, that is, by $(WL)/(P_K K)$. The value of this ratio does not change when we measure the total cost in units of labor as $L + (P_K/W)K$ or in units of capital as $(W/P_K)L + K$.

A competitive equilibrium is truly the domain of open-minded liberal economists [cf. Boland, 1977b, 1977d]. While we agree that open-minded liberalism is admirable, it is risky to base it only on the properties of conceptually narrow equilibrium models.

2. Equilibrium and Theories of Ignorance

Let us consider further the plight of an independent individual who only knows the going market prices for the goods that he or she wishes to purchase; but now we will assume that the individual does not know whether they are equilibrium prices and hence cannot be sure that there will be enough of everything nor whether, when some market does not clear, the price will rise or fall [cf. Fisher, 1983, p. 46]. Following the leads of Hayek and Fisher (as well as Hicks [1979]), let us think of the individual as forming a ‘plan’. We want to specify the essential elements of a plan as well as consider what some might call an ‘optimal plan’ [e.g. Fisher, 1983]. We must, however, be careful not to predispose the conception of a plan to be consistent only with the requirements of a state of equilibrium (as did Hayek [1937/48, 1945/48]) for that would make our explanation circular.

To keep the discussion simple let us focus on the plan of the individual consumer – consider Figure 7.1 which, let us say, truly illustrates the decision situation facing the individual. In accordance with traditional neoclassical theory we would assume that the individual knows his or her indifference map and budget, B ; and what is in doubt is the individual’s knowledge of the prices, P_x and P_y . But now, we wish to say just that Figure 7.1 illustrates the individual’s *expectations* of the decision situation.

The question to ask here is, what does the individual know before entering the market place, and about what does the individual, in his or her ignorance, have to form expectations or form a theory? As we said, prices depend on the behavior of all other individuals in the market, so it seems reasonable to think that it is unlikely for a independent individual to know what all other individuals will demand or supply and thereby to use such knowledge to calculate equilibrium prices. It is usually taken for granted that the individual knows his or her preference map (a

supposition that we will reconsider later). Some might question the *a priori* knowledge of the budget if the latter depends on income to be earned in another market. The other market may not be in equilibrium

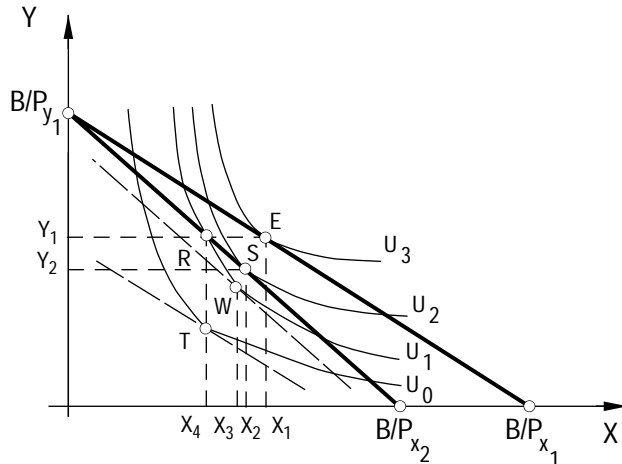


Figure 7.1. Choice facing unavailability

[Clower, 1965]. But for now, let us maintain the view that the budget, B , and the preference map are known.

Theories of an optimal plan are usually about the ability of the individual to form correct expectations of the equilibrium prices. Consider Figure 7.1. If the individual expects the prices to be P_{x_1} and P_{y_1} , the plan is to go to the respective markets and buy quantities X_1 and Y_1 . If the individual accidentally forms expectations of prices that happen to correspond to the equilibrium prices, these quantities will be successfully purchased. If they do not, the optimum point in the (*ex ante*) optimum plan, E , will not be the (*ex post*) optimum once the actual prices are known. How does the discrepancy between the expected situation and the actual one manifest itself? The individual must have a plan in mind which recognizes the possibility of erroneous expectations. Many strategies are possible, but for now let us just say that the individual thinks that if either market is to be short of supply it is likely to be the market for good Y and thus plans to go to that market first. Let us further say that the individual successfully purchases the planned amount of Y , Y_1 at the expected price, but when the individual arrives at

the market for X , things are not as expected.

There are two different ways the expectations could be wrong: There is the expected-price error where the actual price is not the expected price; and there is the expected-quantity error where the actual price is as expected but the supply is not sufficient. The unexpected shortage is the less obvious way, since it was not mentioned as part of the expected decision situation even though it is implicit in the view that the plan must recognize possible shortages (such as we said concerning the supply of good Y). Recognizing errors as expected-price errors is consistent with the theory of perfect competition where each individual is considered to have no effect on the market price. It is also consistent with the theories where the price responds instantly to shortages so that at the actual market clearing price there is a sufficient supply. But considering all errors to be expected-price errors may be predisposing the view of the plan to be one which is consistent only with an equilibrium model.

To illustrate the differences, consider again Figure 7.1. The expected-price error is viewed as follows. If the individual has already purchased Y_1 amount of good Y , but the actual price of X is P_{x_2} , when he or she arrives at the market for X , the planned optimum, X_1 is outside the budget line. The best that can be done is to buy the amount X_4 , which is not only less than the planned optimum, but is also less than the optimum for the actual prices. If the individual knew the actual prices, he or she would have wanted to purchase point S which represents Y_2 and X_2 ; but this is not possible since, as we said, the individual already purchased Y_1 . Here we say the individual buys X_4 because the actual price of X was not expected and point R is the best that can be done.

The expected-quantity error is viewed as follows. Let us say the individual buys X_4 because that was all that was available on the shelf. (Of course, this may only beg the question about why this individual was the last one to find anything on the shelf.) Under these circumstances, X_4 is still the best that can be done, even though the prices may be as expected. But if the actual prices are as expected, P_{x_1} and P_{y_1} , the optimum point is at T . Point W may be a more efficient way to achieve the level of utility of point R , but it still requires more X than is available – as before, the optimum point is not possible if the individual has already bought Y_1 . From either perspective (expected-price or expected-quantity errors) the individual is not optimizing. While the optimum plan said to go to Y 's market first, it turned out that it was the expectations for X 's market that were erroneous.

This illustration highlights a major concern of economic theorists who wish to recognize disequilibria without giving up equilibrium models. How does the individual become aware that the market is not in

equilibrium? Through expected-price errors or expected-quantity errors? Unfortunately, recognizing ‘disequilibrium awareness’, as Fisher calls it, is not enough. It will be argued below that we must also explain how the individual learns to respond in a manner which will promote a movement toward equilibrium and thereby ensure the future ability to fulfill consumption plans. In other words, we must explain how the individual learns to form more accurate expectations.

3. Responding to Disequilibrium Awareness

For many economists, and particularly the followers of Hayek [1945/48], there is no methodological problem here, since the awareness of disequilibrium carries with it sufficient information to ensure that expectations will always be revised in the correct direction. Moreover, awareness of disequilibrium is automatic, since a disequilibrium implies that someone is not able to fulfill his or her optimal plan. From the above considerations of optimal plans we can see that the awareness may be automatic for one individual (e.g. the last one to go to the market for X) but it is not necessarily automatic for everyone. This makes the question of how an individual learns to respond to an apparent disequilibrium even more important.

Traditionally, there are two response patterns that are almost always assumed in arguments based on the properties of equilibrium prices. In one, the individual adjusts quantities in response to expected-price errors; and in the other, the individual adjusts prices in response to expected-quantity errors. Which behavioral pattern is invoked depends on the type of expectation error claimed to result from the disequilibrium. While both of the assumed response patterns are well known and widely used, they have been criticized. The criticisms have been that the usual assumptions are *ad hoc* [Fisher, 1983], incomplete [Gordon and Hynes, 1970] or inconsistent [Arrow, 1959]. But all of these criticisms are concerned with the adequacy of the concept of equilibrium prices rather than merely the desire to understand the equilibrium process on its own terms.

It is still widely recognized that ‘[w]henver economics is used or thought about, equilibrium is a central organising idea’ [Hahn, 1973, p. 1]. For some it is merely a convenient way to explain the economy, and for others it is much more. To explain prices as outcomes of equilibrium processes is to appreciate the informational efficiency of the competitive price system [Hayek, 1945/48]. Many teachers see their primary task as that of convincing students that if we rely solely on the market system we will have the ‘best of all possible worlds’ – that is, we will achieve an optimum allocation of all of society’s resources, and that optimum will be determined solely by the individuals who choose to participate in the

market [cf. Friedman, 1962]. Hayek argued that the competitive market system was more efficient than any other system in this regard. Hidden away in such normative claims for the superiority of the competitive price system over all other systems (except perhaps a benevolent dictatorship) is an empirical claim about the necessary stability of any market system. If that claim were false, a competitive price system might not be a superior form of social organization. Let us look closer at this by reviewing the presuppositions that underlie the claim that prices should be determined in the market and thus that we should be dependent on such market determined prices to organize society.

Consider the following dialogue between the economics teacher (**ET**) and the inquisitive student (**IS**):

IS: Why is the price of any good (e.g. apples) what it is?

ET: Because the observed level of the price for any good is an equilibrium level – see Figure 7.2 where the equilibrium price is P_e .

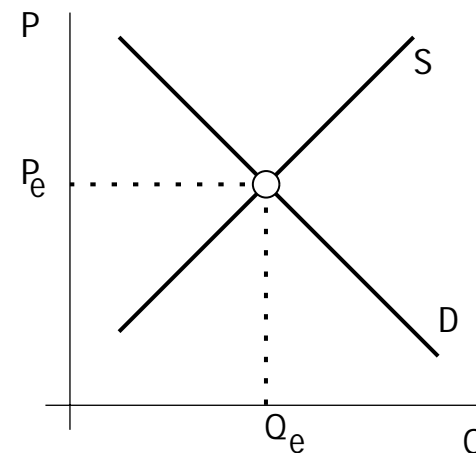


Figure 7.2. Equilibrium price

IS: What do you mean by an ‘equilibrium level’?

ET: Well, had the price (for any reason) been higher it would fall back down, and had it been lower it would rise back up.

IS: Why might this be so?

ET: Because it is the nature of any world of rational and price-competitive people: That is,

- (1) *The nature of the world is like this:* either the price, P , equals P_e and demand equals supply, or
 - (i) anytime $P > P_e$ there will be ‘excess supply’ (ES), and
 - (ii) anytime $P < P_e$ there will be ‘excess demand’ (ED).
- (2) *People are rational:*
 - (iii) demanders seek to maximize their utility, and
 - (iv) suppliers seek to maximize their profits
- (3) *People are price-competitive:*
 - (v) anytime there is excess supply, someone will bid the price down, and
 - (vi) anytime there is excess demand, someone will bid the price up.

IS: For me to understand your claim for the nature of the world, I need to be able to see how the world might conceivably be otherwise. Consider Figure 7.3 where I have drawn all six possible configurations of the slopes of demand and supply curves at their intersection (I have left out the special cases involving vertical or horizontal curves or equal slopes to keep things simple). I now see that your claim about the nature of the world is that it must be as shown in Figure 7.3(a), (b) or (c) and thus your claim is really that the world is not as shown in Figure 7.3(d), (e) or (f). This is because, had the world been as shown in Figure 7.3(d), (e) or (f) then the competitive behavior you claim for people would cause the price to move away from the equilibrium and thus the least likely price to observe would be the ‘equilibrium’ price, P_e . But I fail to see how you or anyone else can distinguish between Figure 7.3(a) and (d) or between Figure 7.3(c) and (f) without violating the methodological individualist view that demanders and suppliers make their decisions independently. For example, if both curves are downward sloping (perhaps it is in a market where the sellers give quantity discounts) how do we know the world is like Figure 7.3(a) rather than like Figure 7.3(d) without presuming that the slope of the sellers’ supply is not in some way constrained by the slope of the demander’s demand curve?

ET: You are right. There would seem to be a potential methodological problem here, but there are some disequilibrium responses hidden in our theory of the individual supplier to take care of this. Specifically, by saying that the individual firm produces where profit is being maximized for the given (demand) price, we are in effect saying that the firm responds to any difference between the

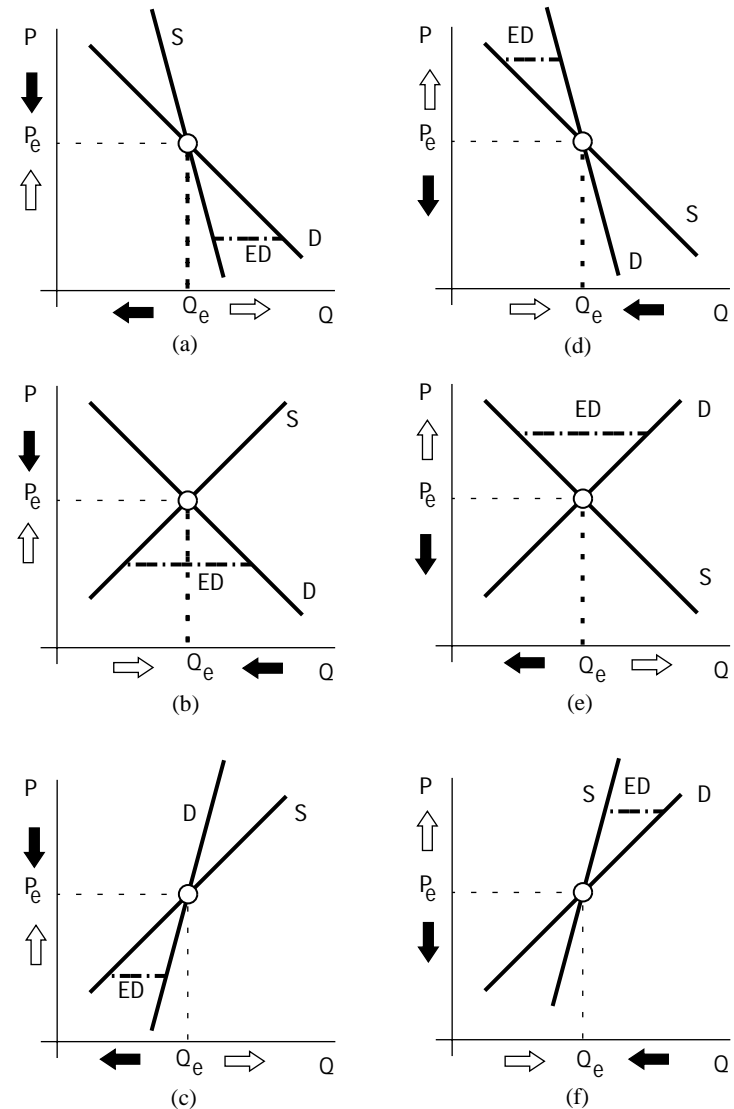


Figure 7.3. Possible markets

price and marginal cost, since the marginal cost indicates the supply price. That is, we can add to the list two implicit behavioral conditions of the profit maximizing behavior of price-taking firms:

- (v') if there is an excess supply-price ($P < MC$),
the firm will decrease the quantity supplied, and
- (vi') if there is an excess demand-price ($P > MC$),
the firm will increase the quantity supplied.

If I may use your Figure 7.3 to put things into your terms, we see that the implications of this are that my claim about the nature of the world is that additionally the profit maximizing behavior of the firm means that the world cannot be like Figure 7.3(a), (c) or (e). Thus, if people behave as I claim (as profit maximizers *and* price-competitors), then only Figure 7.3(b) could represent the possible world. So, the potential methodological problem that was bothering you disappears. My claim boils down to one that the world is like Figure 7.3(b) and in such a world profit maximizing with price-competitive behavior will always lead to equilibrium prices (and equilibrium quantities, too). And, given this necessary tendency towards states of equilibrium and the ability to show mathematically that any state of equilibrium can be shown to imply a Pareto optimum with respect to resource allocations, you can see why I am trying to convince you that we should all put a price on our services and get out there and compete in the market. If we all do so, it will be the 'best of all possible worlds'.

IS: Not so fast, I am not so convinced. Although it might be conceivable that people can be so competitive, why might the world necessarily be only like Figure 7.3(b)?

ET: Well, you can see that Figure 7.3(b) has very convenient properties. If we can show that all demand curves are downward sloping as a consequence of consumers' independent decision-situations and that all supply curves are upward sloping as a consequence of the firms' independent decision-situations, then the requirements of methodological individualism are satisfied. Before you jump on me to say that these are market curves and not individual curves, let me say that we wish to show this for each individual's demand or supply curve. Thus, if every individual's demand curve is downward sloping, then necessarily when I add the individually demanded quantities together at each price, the resulting market curve will be downward sloping. The same is true for the sum of the individual supplies at each price. The key issue that must be stressed here is that there is to be no collusion

between decision-makers.

IS: Leaving the question of collusion aside, you have not answered my question. You have told me what you want – a situation where everyone can be independent and still have the possibility that the unintended consequence is an equilibrium with all its Pareto efficiency benefits – but you have not yet told me why the world *is* like Figure 7.3(b).

ET: Very well, but you may still not be convinced. The reason all individual demand curves are downward sloping is because, psychologically, all individuals face given utility functions which have the common property that marginal utility is always diminishing. And supply curves are always rising because everyone's productive capabilities on the margin must be diminishing. These two concepts of diminishing margins are facts of nature and when combined with rational decision-making (constrained optimization) will necessarily lead to the proper slopes as shown in Figure 7.3(b).

IS: I am still not convinced since I read in our textbook that diminishing marginal utility is not sufficiently limiting because with it all that we can say is that for a demand curve to be rising the good must be an inferior good (a good which one will buy less of when one's income increases). Is there something more to your claim about the nature of the world?

ET: Does there have to be more? Even if some individuals have upward sloping demand curves, it is unlikely that all do and so when we add up their respective demand quantities we will find that the aggregate market curve is still downward sloping. In effect, if there are just a few perverse people, their behavior will be cancelled out by the dominant behavior of normal people.

IS: Now again you seem to be going for your convenience rather than trying to convince me about the nature of the world and why I should eagerly want to engage in the competitive market system. If some consumers have upward sloping curves and some have downward sloping curves, where do we draw the line? It is certainly possible that the number of people with downward sloping curves is just about enough to be cancelled out by the number with upward sloping curves and so, for the last person whose demand is to be added to the market total, how do we avoid violating methodological individualism if we have to exogenously constrain the last individual to have a downward sloping demand curve?

ET: I am beginning to wonder who the teacher is here since many of your questions are longer than my answers. You seem to be suggesting that either I violate methodological individualism in

order to convince you that competition is a good thing or I go back to the drawing board to see if I can come up with a separate way of ensuring the stability of the market without violating methodological individualism, perhaps by showing why an individual's method of responding to disequilibrium situations guarantees stability.

IS: Well, the latter would certainly help. But, I must caution you that I will not be satisfied unless the separate way assuredly does not violate methodological individualism. That is, it must only be determined by exogenous factors that are psychologically or naturally given. At the very minimum, I would like to know how individuals learn to respond in such a stabilizing manner.

ET: Now you have reached an easy question. Let us go back to the beginning and do it all over and I am sure you will see how this question is answered.

In this dialogue we see the seeds of many research programs. The inherent stability of textbook neoclassical models which correspond to Figure 7.3(b) is clearly necessary for the normative conclusions often promoted in economics classes. Yet the logic of individual decision-making does not by itself ensure that only Figure 7.3(b) is the true representation of the real world. That is to say, the stability of the market is not obviously endogenous. If it is possible for Figure 7.3(a), (c), (d), (e) or (f) to be true representations, there must be another way to ensure stability beyond analytically specifying mechanical responses to (positive or negative) excess demands or excess demand-prices. A not-so-obvious alternative is to explain the stability as an outcome of the learning process which is implicit in the recognition that every decision-maker's knowledge of the decision situation is limited and thus the correct expectations must be learned as part of the process of reaching the equilibrium. A too-obvious alternative is to ignore the difficulties of the microeconomic behavior and revert to the analysis of aggregates and thereby avoid the complexities of the questions of endogenous stability.

4. Learning vs. Knowing the Equilibrium Price

Providing a microeconomic explanation of disequilibrium behavior which is consistent with equilibrium behavior is admittedly a difficult and complex task. Besides retreating to macroeconomics, there is another way to avoid the complexities. We could give up any reliance on equilibrium models and equilibrium prices. This would seem to be the obvious advantage of Hayek's earlier writings which stressed the

need to recognize the role of information and knowledge. It is the optimality of the equilibrium *process* that shows the virtues of the competitive price system. If individuals could be seen to respond to the failures of their own unfulfilled personal plans, without having to consider what anyone else is doing, one might be able to agree with Hayek's view of the competitive price system. Namely, one could optimistically agree with the view that the methodological-individualist conception of free-enterprise capitalism would necessarily have a distinct advantage over any social organization that might be based on a socialist planner. As is apparent in Koopmans' liberal viewpoint, the socialist planner would have to calculate the equilibrium prices in advance.

The crux of Hayek's argument for a significant role for information and learning in any competitive equilibrium system is his argument against the possibility of any informationally adequate general equilibrium model which would take the existence of equilibrium as its central methodological problem [e.g. Wald, 1936/51; Koopmans, 1957]. From this perspective, understanding economics is not a matter of a rigorous examination of the mathematical properties of a state of equilibrium, but rather it is an appreciation of the equilibrium process as being one that always points in the direction of an equilibrium. As a matter of theoretical convenience, Hayek's view does find a certain degree of acceptance as it seems to deal directly with the relationship between learning and the equilibrium process. This relationship is recognized now as essential for the disequilibrium foundations of equilibrium economics [e.g. Arrow, 1959; Gordon and Hynes, 1970; Fisher, 1983]. Unfortunately, Hayek's emphasis on studying the learning inherent in the equilibrium process, rather than the knowledge requirements for any claimed state of equilibrium, relies too much on a questionable presumption which amounts to assuming exogenous stability. Consider again Figure 7.3. Only when the true world is represented by Figure 7.3(b) can the followers of Hayek's view be confident that the individual consumer or firm is learning to respond in the correct way, a way that will lead to a better allocation of resources. This is especially so whenever we give up basing our economic explanations on an assumption that eventually the optimum allocation is achieved.