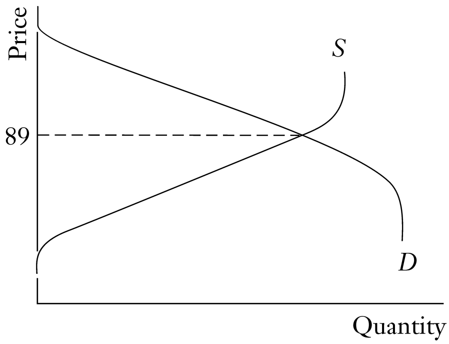

FIGURE 18. SIMPLIFIED DEMAND CURVE

underbidding, until the equilibrium price is finally reached. To the extent that buyers foresee the final equilibrium price, however, they will not buy at a higher price (even though they would have done so if *that* were the final price), but will wait for the price to fall. Similarly, if the price is below the equilibrium price, to the extent that the buyers foresee the final price, they will tend to buy some of the good (e.g., horses) in order to resell at a profit at the final price. Thus, if exchange-value enters the picture, and a good number of buyers act on their anticipations, the demand curve might change as shown in Figure 19. The old demand curve, based only on demand for use, is *DD*, and the new demand curve, including anticipatory forecasting of the equilibrium price, is *D′D′*. It is clear that such anticipations render the

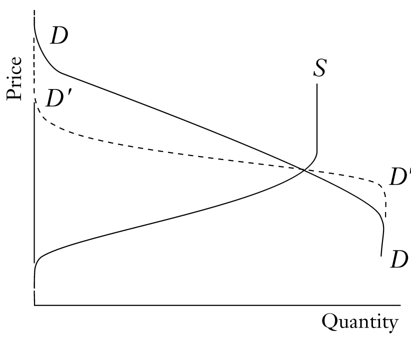

FIGURE 19. DEMAND CURVE MODIFIED BY SPECULATION

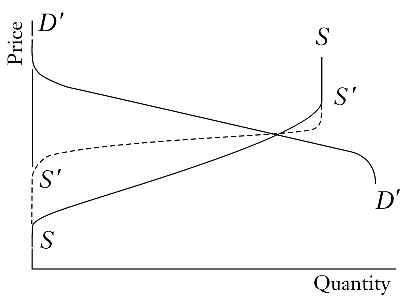

FIGURE 20. SUPPLY CURVE MODIFIED BY SPECULATION

demand curve far more *elastic*, since more will be bought at the lower price and less at the higher.

Thus, the introduction of exchange-value can restrict demand above the anticipated equilibrium price and increase it below that price, although the final demand—to consume—at the equilibrium price will remain the same.

Now, let us consider the situation of the seller of the commodity. The supply curve in Figure 13 treats the amount supplied at any price without considering possible equilibrium price. Thus, we may say that, with such a supply curve, sales will be made en route to the equilibrium price, and shortages or surpluses will finally reveal the path to the final price. On the other hand, suppose that many sellers anticipate the final equilibrium price. Clearly, they will refuse to make sales at a lower price, even though they would have done so if *that* were the final price. On the other hand, they will sell more above the equilibrium price, since they will be able to make an arbitrage profit by selling their horses above the equilibrium price and buying them back at the equilibrium price. Thus, the supply curve, with such anticipations, may change as shown in Figure 20. The supply curve changes, as a result of anticipating the equilibrium price, from *SS* to *S′S′*.

Let us suppose the highly unlikely event that *all* demanders and suppliers are able to forecast *exactly* the final, equilibrium price. What would be the pattern of supply and demand curves on the market in such an extreme case? It would be as follows: At a price above equilibrium (say 89) no one would demand the good, and suppliers would supply their entire stock. At a price below equilibrium, no one would supply the good, and everyone would demand as much as he could purchase, as shown in Figure 21. Such unanimously correct forecasts are not likely to take place in human action, but this case points up the fact that, the more this anticipatory, or *speculative*, element enters into supply and demand, the more quickly will the market price tend toward equilibrium. Obviously, the more the actors anticipate the final price, the further apart will be supply and demand at

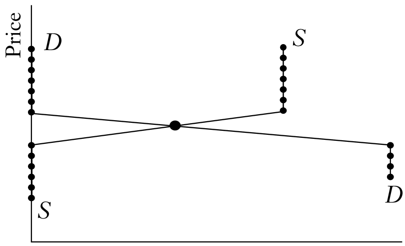

FIGURE 21. UNANIMOUSLY CORRECT FORECASTS OF FINAL PRICE

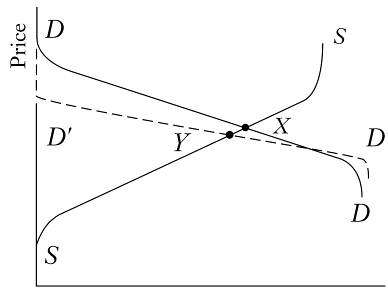

FIGURE 22. DEMAND CURVE MODIFIED BY ERRONEOUS ANTICIPATION

any price differing from equilibrium, the more drastic the shortages and surpluses will be, and the more quickly will the final price be established.

Up to now we have assumed that this *speculative* supply and demand, this anticipating of the equilibrium price, has been correct, and we have seen that these correct anticipations have hastened the establishment of equilibrium. Suppose, however, that most of these expectations are erroneous. Suppose, for example, that the demanders tend to assume that the equilibrium price will be lower than it actually is. Does this change the equilibrium price or obstruct the passage to that price? Suppose that the demand and supply schedules are as shown in Figure 22. Suppose that the basic demand curve is *DD*, but that the demanders anticipate lower equilibrium prices, thus changing and lowering the demand curve to *D′D′*. With the supply curve given at *SS*, this means that the intersection of the supply and demand schedules will be at *Y* instead of *X*, say at 85 instead of 89. It is clear, however, that this will be only a provisional resting point for the price. As soon as the price settles at 85, the demanders see that shortages develop at this price, that they would like to buy more than is available, and the overbidding of the demanders raises the price again to the genuine equilibrium price.

The same process of revelation of error occurs in the case of errors of anticipation by suppliers, and thus the forces of the market tend inexorably toward the establishment of the genuine equilibrium price, undistorted by speculative errors, which tend to reveal themselves and be eliminated. As soon as suppliers or demanders find that the price that their speculative errors have set is not really an equilibrium and that shortages and/or surpluses develop, their actions tend once again to establish the equilibrium position.

The actions of both buyers and sellers on the market may be related to the concepts of psychic revenue, profit, and cost. We remember that the aim of every actor is the highest position of psychic revenue and thus the making of a psychic profit compared to his next best alternative—his cost. Whether or not an individual *buys* depends on whether it is his best alternative with his given resources—in this case, his fish. His expected revenue in any action will be balanced against his expected cost—his next best alternative. In this case, the revenue will be either (*a*) the satisfaction of ends from the direct use of the horse or (*b*) expected resale of the horse at a higher price—whichever has the highest utility to him. His cost will be either (*a*) the marginal utility of the fish given up in direct use or (*b*) (possibly) the exchange-value of the fish for some other good or (*c*) the expected future purchase of the horse at a lower price—whichever has the highest utility. He will buy the horse if the expected revenue is greater; he will fail to buy if the expected cost is greater. The expected revenue is the marginal utility of the added horse for the buyer; the expected cost is the marginal utility of the fish given up. For either revenue or cost, the higher value in direct use or in exchange will be chosen as the marginal utility of the good.

Now let us consider the seller. The seller, as well as the buyer, attempts to maximize his psychic revenue by trying to attain a revenue higher than his psychic cost—the utility of the next best alternative he will have to forgo in taking his action. The seller will weigh the marginal utility of the added sale-good (in this case, fish) against the marginal utility of the purchase-good given up (the horse), in deciding whether or not to make the sale at any particular price.

The psychic revenue for the seller will be the higher of the utilities stemming from one of the following sources: (*a*) the value in direct use of the sale-good (the fish) or (*b*) the speculative value of re-exchanging the fish for the horse at a lower price in the future. The cost of the seller's action will be the highest utility forgone among the following alternatives: (*a*) the value in direct use of the horse given up or (*b*) the speculative value of selling at a higher price in the future or (*c*) the exchange-value of acquiring some other good for the horse. He will sell the horse if the expected revenue is greater; he will fail to sell if the expected cost is greater. We thus see that the situations of the sellers and the buyers are comparable. Both act or fail to act in accordance with their estimate of the alternative that will yield them the highest utility. It is the position of the utilities on the two sets of value scales—of the individual buyers and sellers—that determines the market price and the amount that will be exchanged at that price. In other words, it is, for every good, *utility* and utility alone that determines the price and the quantity exchanged. Utility and utility alone determines the nature of the supply and demand schedules.

It is therefore clearly fallacious to believe, as has been the popular assumption, that utility and "costs" are equally and independently potent in determining price. "Cost" is simply the utility of the next best alternative that must be forgone in any action, and it is therefore part and parcel of utility on the individual's value scale. This cost is, of course, always a *present* consideration of a *future* event, even if this "future" is a very near one. Thus, the forgone utility in making the purchase might be the direct consumption of fish that the actor might have engaged in within a few hours. Or it might be the possibility of exchanging for a cow, whose utility would be enjoyed over a long period of time. It goes without saying, as has been indicated in the previous chapter, that the present consideration of revenue and of cost in any action is based on the present value of expected future revenues and costs. The point is that both the utilities derived and the utilities forgone in any action refer to some point in the future, even if a very near one, and that *past costs* play no role in human action, and hence in determining price. The importance of this fundamental truth will be made clear in later chapters.

8. Stock and the Total Demand to Hold

There is another way of treating supply and demand schedules, which, for some problems of analysis, is more useful than the schedules presented above. At any point on the market, suppliers are engaged in offering some of their stock of the good and withholding their offer of the remainder. Thus, at a price of 86, suppliers supply three horses on the market and withhold the other five in their stock. This withholding is caused by one of the factors mentioned above as possible costs of the exchange: either the direct use of the good (say the horse) has greater utility than the receipt of the fish in direct use; or else the horse could be exchanged for some other good; or, finally, the seller expects the final price to be higher, so that he can profitably delay the sale. The amount that sellers will withhold on the market is termed their *reservation demand.* This is not, like the demand studied above, a demand for a good *in exchange*; this is a demand to *hold stock*. Thus, the concept of a "demand to hold a stock of goods" will always include both demand-factors; it will include the demand for the good in exchange by nonpossessors, *plus* the demand to hold the stock by the possessors. The demand for the good in exchange is also a demand to hold, since, regardless of what the buyer intends to do with the good in the future, he must hold the good from the time it comes into his ownership and possession by means of exchange. We therefore arrive at the concept of a "total demand to hold" for a good, differing from the previous concept of exchange-demand, although including the latter in addition to the reservation demand by the sellers.

If we know the total stock of the good in existence (here, eight horses), we may, by inspecting the supply and demand schedules, arrive at a "total demand to hold"—or *total demand schedule* for the market. For example, at a price of 82, nine horses are demanded by the buyers, in exchange, and 8 - 1 = 7 horses are withheld by the sellers, i.e., demanded to be held by the sellers. Therefore, the total demand to hold horses on the market is 9 + 7 = 16 horses. On the other hand, at the price of 97, no horses are withheld by sellers, whose reservation demand is therefore zero, while the demand by buyers is two. Total demand to hold at this price is 0 + 2 = 2 horses.

Table 4 shows the total demand to hold derived from the supply and demand schedule in Table 2, along with the total stock, which is, for the moment, considered as fixed. Figure 23 represents the total demand to hold and the stock.

It is clear that the rightward-sloping nature of the total demand curve is even more accentuated than that of the demand curve. For the demand schedule increases or remains the same

TABLE 4

PRICE	TOTAL DEMAND TO HOLD	TOTAL STOCK	PRICE	TOTAL DEMAND TO HOLD	TOTAL STOCK
80	17 horses	8 horses	91	6 horses	8 horses
81	16	8	92	4	8
82	16	8	93	4	8
83	15	8	94	4	8
84	14	8	95	4	8
85	13	8	96	2	8
86	12	8	97	2	8
87	11	8	98	2	8
88	10	8	99	1	8
89	8	8	100	1	8
90	6	8	101	0	8

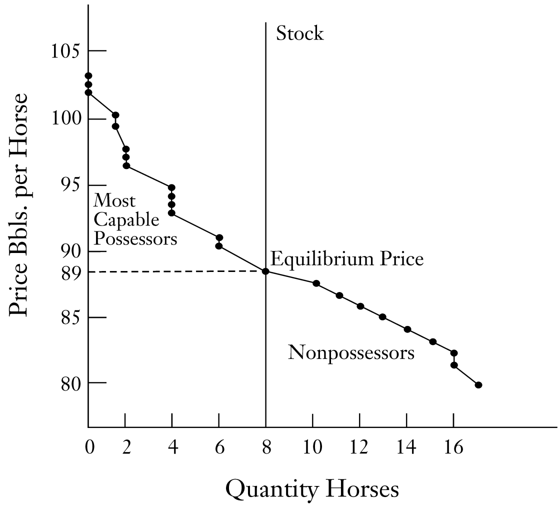

FIGURE 23. STOCK AND TOTAL DEMAND TO HOLD

as the price falls, while the reservation demand schedule of the sellers also tends to increase as the price falls. The total demand schedule is the result of adding the two schedules. Clearly, the reservation demand of the sellers increases as the price falls for the same reason as does the demand curve for buyers. With a lower price, the value of the purchase-good in direct use or in other and future exchanges relatively increases, and therefore the seller tends to withhold more of the good from exchange. In other words, the reservation demand curve is the obverse of the supply curve.

Another point of interest is that, at the equilibrium price of 89, the total demand to hold is eight, equal to the total stock in existence. Thus, the equilibrium price not only equates the supply and demand on the market; *it also equates the stock of a good to be held with the desire of people to hold it, buyers and sellers included.* The total stock is included in the foregoing diagram at a fixed figure of eight.

It is clear that the market always tends to set the price of a good so as to equate the stock with the total demand to hold the stock. Suppose that the price of a good is higher than this equilibrium price. Say that the price is 92, at which the stock is eight and the total demand to hold is four. This means four horses exist which their possessors do not want to possess. It is clear that *someone* must possess this stock, since all goods must be property; otherwise they would not be objects of human action. Since all the stock must at all times be possessed by someone, the fact that the stock is greater than total demand means that there is an imbalance in the economy, that some of the possessors are unhappy with their possession of the stock. They tend to lower the price in order to sell the stock, and the price falls until finally the stock is equated with the demand to hold. Conversely, suppose that the price is below equilibrium, say at 85, where 13 horses are demanded compared to a stock of eight. The bids of the eager nonpossessors for the scarce stock push up the price until it reaches equilibrium.

In cases where individuals correctly anticipate the equilibrium price, the speculative element will tend to render the total demand curve even more "elastic" and flatter. At a higher-than-equilibrium price few will want to keep the stock—the buyers will demand very little, and the sellers will be eager to dispose of the good. On the other hand, at a lower price, the demand to hold will be far greater than the stock; buyers will demand heavily, and sellers will be reluctant to sell their stock. The discrepancies between total demand and stock will be far greater, and the underbidding and overbidding will more quickly bring about the equilibrium price.

We saw above that, at the equilibrium price, the most capable (or "most urgent") buyers made the exchanges with the most capable sellers. Here we see that the result of the exchange process is that the stock finally goes into the hands of the *most capable possessors*. We remember that in the sale of the eight horses, the most capable buyers, X1–X5, purchased from the most capable sellers of the good, Z1–Z5. At the conclusion of the exchange, then, the possessors are X1–X5, and the excluded sellers Z6–Z8. It is these individuals who finish by possessing the eight horses, and these are the most capable possessors. At a price of 89 barrels of fish per horse, these were the ones who preferred the horse on their value scales to 89 barrels of fish, and they acted on the basis of this preference. For five of the individuals, this meant exchanging their fish for a horse; for three it meant refusing to part with their horses for the fish. The other nine individuals on the market were the less capable possessors, and they concluded by possessing the fish instead of the horse (even if they started by possessing horses). These were the ones who ranked 89 barrels of fish above one horse on their value scale. Five of these were original possessors of horses who exchanged them for fish; four simply retained the fish without purchasing a horse.

The total demand-stock analysis is a useful twin companion to the supply-demand analysis. Each has advantages for use in different spheres. One relative defect of the total demand-stock analysis is that it does not reveal the differences between the buyers and the sellers. In considering total demand, it abstracts from actual exchanges, and therefore does not, in contrast to the supply-demand curves, determine the quantity of exchanges. It reveals only the equilibrium price, without demonstrating the equilibrium quantity exchanged. However, it focuses more sharply on the fundamental truth that price is determined solely by *utility*. The supply curve is reducible to a *reservation demand curve* and to a *quantity of physical stock*. The demand-stock analysis therefore shows that the supply curve is not based on some sort of "cost" that is independent of utility on individual value scales. We see that the fundamental determinants of price are the value scales of all individuals (buyers and sellers) in the market and that the physical stock simply assumes its place on these scales.[28]

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[28]On the total demand-stock analysis, *see* Philip H. Wicksteed, *The Common Sense of Political Economy and Selected Papers* (London: Routledge and Kegan Paul, 1933), I, 213–38; II, 493–526, and 784–88. *Also see* Boulding, *Economic Analysis*, pp. 51–80.

It is clear, in these cases of direct exchange of useful goods, that even if the utility of goods for buyers or sellers is at present determined by its subjective exchange-value for the individual, the sole *ultimate* source of utility of each good is its direct use-value. If the major utility of a horse to its possessor is the fish or the cow that he can procure in exchange, and the major value of the latter to their possessors is the horse obtainable in exchange, etc., the ultimate determinant of the utility of each good is its direct use-value to its individual consumer.

9. Continuing Markets and Changes in Price

How, then, may we sum up the analysis of our hypothetical horse-and-fish market? We began with a stock of eight horses in existence (and a certain stock of fish as well), and a situation where the relative positions of horses and fish on different people's value scales were such as to establish conditions for the exchange of the two goods. Of the original possessors, the "most capable sellers" sold their stock of horses, while among the original nonpossessors, the "most capable buyers" purchased units of the stock with their fish. The final price of their sale was the equilibrium price determined ultimately by their various value scales, which also determined the quantity of exchanges that took place at that price. The net result was a shift of the stock of each good into the hands of its most capable possessors in accordance with the relative rank of the good on their value scales. The exchanges having been completed, the relatively most capable possessors own the stock, *and the market for this good has come to a close.*

With arrival at equilibrium, the exchanges have shifted the goods to the most capable possessors, and there is no further motive for exchange. The market has ended, and there is no longer an active "ruling market price" for either good because there is no longer any motive for exchange. Yet in our experience the markets for almost all goods are being continually renewed.

The market can be renewed again only if there is a change in the relative position of the two goods under consideration on the value scales of at least two individuals, one of them a possessor of one good and the other a possessor of the second good. Exchanges will then take place in a quantity and at a final price determined by the intersection of the *new* combination of supply and demand schedules. This may set a different quantity of exchanges at the old equilibrium price or at a new price, depending on their specific content. Or it may happen that the new combination of schedules—in the new period of time—will be identical with the old and therefore set the same quantity of exchanges and the same price as on the old market.

The market is always tending quickly toward its equilibrium position, and the wider the market is, and the better the communication among its participants, the more quickly will this position be established for any set of schedules. Furthermore, a growth of specialized speculation will tend to improve the forecasts of the equilibrium point and hasten the arrival at equilibrium. However, in those cases where the market does not arrive at equilibrium before the supply or demand schedules themselves change, the market does not reach the equilibrium point. It becomes *continuous*, moving toward a new equilibrium position before the old one has been reached.[29]

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[29]This situation is not likely to arise in the case of the *market equilibria* described above. Generally, a market tends to "clear itself" quickly by establishing its equilibrium price, after which a certain number of exchanges take place, leading toward what has been termed the *plain state of rest*—the condition after the various exchanges have taken place. These equilibrium market prices, however (as will be seen in later chapters), in turn tend to move toward certain long-run equilibria, in accordance with the demand schedule and the effect on the size of stock produced. The supply curve involved in this *final state of rest* involves the ultimate decisions in producing a commodity and differs from the market supply curve. In the movements toward this "final state," conditions, such as the demand curve, always change in the interim, thus setting a new final state as the goal of market prices. The final state is never reached. *See* Mises, *Human Action*, pp. 245 ff.

The types of change introduced by a shift in the supply and/or the demand schedule may be depicted by the diagrams in Figure 24.

These four diagrams depict eight types of situations that may develop from changes in the supply and demand schedules. It must be noted that these diagrams may apply *either* to a market that has already reached equilibrium and is then *renewed* at some later date *or* to one continuous market that experiences a change in supply and/or demand conditions before reaching the old equilibrium point. Solid lines depict the old schedules, while broken lines depict the new ones.

In all these diagrams straight lines are assumed purely for convenience, since the lines may be of any shape, provided the aforementioned restrictions on the slope of the schedules are met (rightward-sloping demand schedules, etc.).

In diagram (a), the *demand schedule* of the individuals on the market *increases*. At each hypothetical price, people will wish to

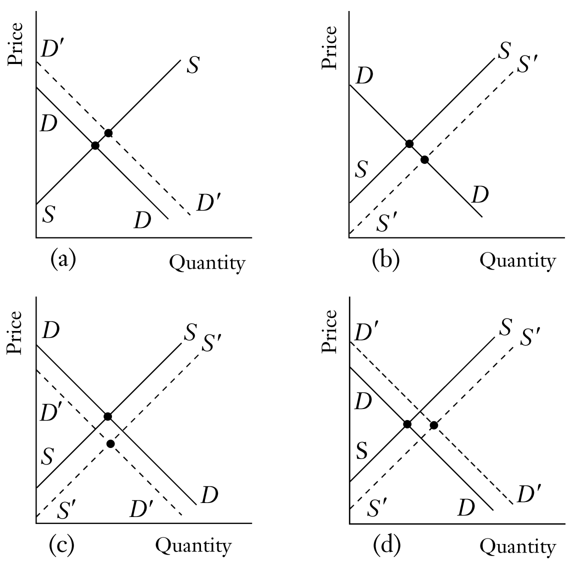

FIGURE 24. CHANGES IN SUPPLY AND DEMAND SCHEDULES

add more than before to their stock of the good—and it does not matter whether these individuals already possess some units of the good or not. The supply schedule remains the same. *As a result, the new equilibrium price is higher than the old, and the quantity of exchanges made at the new equilibrium position is greater than at the old position.*

In diagram (b), the *supply schedule increases*, while the demand schedule remains the same. At each hypothetical price, people will wish to dispose of more of their stock. The result is that the new equilibrium price is *lower* than the old, and the equilibrium *quantity exchanged is greater.*

Diagrams (a) and (b) also depict what will occur when the demand curve decreases and the supply curve decreases, the other schedule remaining the same. All we need do is think of the broken lines as the old schedules, and the solid lines as the new ones. On diagram (a) we see that a *decrease in the demand schedule* leads to a fall in price and a fall in the quantity exchanged. On diagram (b), we see that a *decrease in the supply schedule* leads to a rise in price and a fall in the quantity exchanged.

For diagrams (c) and (d), the restriction that one schedule must remain the same while the other one changes is removed. In diagram (c), the demand curve decreases and the supply curve increases. This will definitely lead to a *fall in equilibrium price*, although what will happen to the quantity exchanged depends on the relative proportion of change in the two schedules, and therefore this result cannot be predicted from the fact of an increase in the supply schedule and a decrease in the demand schedule. On the other hand, a decrease in the supply schedule plus an increase in the demand schedule will definitely lead to a *rise in the equilibrium price.*

Diagram (d) discloses that an *increase* in both demand and supply schedules will definitely lead to an *increase in the quantity exchanged*, although whether or not the price falls depends on the relative proportion of change. Also, a decrease in both supply and demand schedules will lead to a *decline in the quantity exchanged.* In diagram (c) what happens to the quantity, and in diagram (d) what happens to the price, depends on the specific shape and change of the curves in question.

The conclusions from these diagrams may be summarized in Table 5.

If these are the effects of changes in the demand and supply schedules from one period of time to another, the next problem is to explain the causes of these changes themselves. A change in the demand schedule is due purely to a change in the relative utility-rankings of the two goods (the purchase-good and the sale-good) on the value scales of the individual buyers on the market. An increase in the demand schedule, for example, signifies a general rise in the purchase-good on the value scales of the buyers. This may be due to either *(a)* a rise in the direct use-value of the good; (*b*) poorer opportunities to exchange the sale-good for some other good—as a result, say, of a higher price of cows in terms of fish; or (*c*) a decline in speculative waiting for the price of the good to fall further. The last case has been discussed in detail and has been shown to be self-correcting, impelling the market more quickly towards the true equilibrium. We can therefore omit this case now and conclude that an increase in the demand schedule is due either to an

TABLE 5

IF		. . . THEN	
DEMAND SCHEDULE &	SUPPLY SCHEDULE	EQUILIBRIUM PRICE &	QUANTITY EXCHANGED
increases	the same	increases	increases
decreases	the same	decreases	decreases
the same	increases	decreases	increases
the same	decreases	increases	decreases
decreases	increases	decreases	
increases	decreases	increases	
increases	increases		increases
decreases	decreases		decreases

increase in the direct use-value of the good or to a higher price of other potential purchase-goods in terms of the sale-good that buyers offer in exchange. A decrease in demand schedules is due precisely to the converse cases—a fall in the value in direct use or greater opportunities to buy other purchase-goods for this sale-good. The latter would mean a greater exchange-value—of fish, for example—in other fields of exchange. Changes in opportunities for other types of exchange may be a result of higher or lower prices for the other purchase-goods, or they may be the result of the fact that new types of goods are being offered for fish on the market. The sudden appearance of cows being offered for fish where none had been offered before is a widening of exchange opportunities for fish and will result in a general decline of the demand curve for *horses* in terms of fish.

A change in the market supply curve is, of course, also the result of a change in the relative rankings of utility on the sellers' value scales. This curve, however, may be broken down into the amount of physical stock and the reservation-demand schedule of the sellers. If we assume that the *amount of physical stock is constant* in the two periods under comparison, then a shift in supply curves is purely the result of a change in reservation-demand curves. A decrease in the supply curve caused by an increase in reservation demand for the stock may be due to either (*a*) an increase in the direct use-value of the good for the sellers; (*b*) greater opportunities for making exchanges for other purchase-goods; or (*c*) a greater speculative anticipation of a higher price in the future. We may here omit the last case for the same reason we omitted it from our discussion of the demand curve. Conversely, a fall in the reservation-demand schedule may be due to either (*a*) a decrease in the direct use-value of the good to the sellers, or (*b*) a dwindling of exchange opportunities for other purchase-goods.

Thus, with the total stock constant, changes in both supply and demand curves are due solely to changes in the demand to hold the good by either sellers or buyers, which in turn are due to shifts in the relative utility of the two goods. Thus, in both

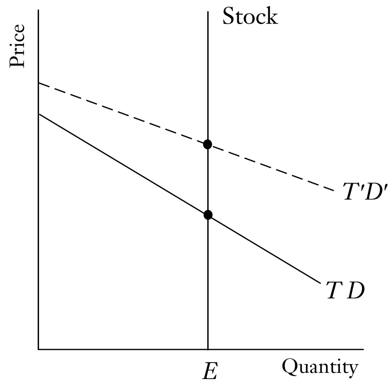

FIGURE 25. INCREASE IN THE TOTAL DEMAND TO HOLD

diagrams *A* and *B* above, the *increase* in the demand schedule and a *decrease* in the supply schedule from *S′S′* to *SS* are a result of increased total demand to hold. In one case the increased total demand to hold is on the part of the buyers, in the other case of the sellers. The relevant diagram is shown in Figure 25. In both cases of an increase in the total demand-to-hold schedule, say from *TD* to *T′D′*, the *equilibrium price increases.* On the contrary, when the demand schedule declines, and/or when the supply schedule increases, these signify a general decrease in the total demand-to-hold schedule and consequently a *fall in equilibrium price.*

A total demand-stock diagram can convey no information about the quantity exchanged, but only about the equilibrium price. Thus, in diagram (c), the broken lines both represent a fall in demand to hold, and we could consequently be sure that the total demand to hold declined, and that therefore price declined. (The opposite would be the case for a shift from the broken to the solid lines.) In diagram (d), however, since an increase in the supply schedule represented a fall in demand to hold, and an increase in demand was a rise in the demand to hold, we could not always be sure of the net effect on the total demand to hold and hence on the equilibrium price.

From the beginning of the supply-demand analysis up to this point we have been assuming the existence of a constant physical stock. Thus, we have been assuming the existence of eight horses and have been considering the principles on which this stock will go into the hands of different possessors. The analysis above applies to *all goods*—to all cases where an existing stock is being exchanged for the stock of another good. For some goods this point is as far as analysis can be pursued. This applies to those goods of which the stock is fixed and cannot be increased through production. They are either once produced by man or given by nature, but the stock cannot be increased by human action. Such a good, for example, is a Rembrandt painting after the death of Rembrandt. Such a painting would rank high enough on individual value scales to command a high price in exchange for other goods. The stock can never be increased, however, and its exchange and pricing is solely in terms of the previously analyzed exchange of existing stock, determined by the relative rankings of these and other goods on numerous value scales. Or assume that a certain quantity of diamonds has been produced, and no more diamonds are available anywhere. Again, the problem would be solely one of exchanging the existing stock. In these cases, there is no further problem of *production*—of deciding how much of a stock should be produced in a certain period of time. For most goods, however, the problem of deciding how much to produce is a crucial one. Much of the remainder of this volume, in fact, is devoted to an analysis of the problem of production.

We shall now proceed to cases in which the existing stock of a good *changes* from one period to another. A stock may increase from one period to the next because an amount of the good has been *newly produced* in the meantime. This amount of new production constitutes an *addition to the stock*. Thus, three days after the beginning of the horse market referred to above, two new horses might be produced and added to the existing stock. If the demand schedule of buyers and the reservation

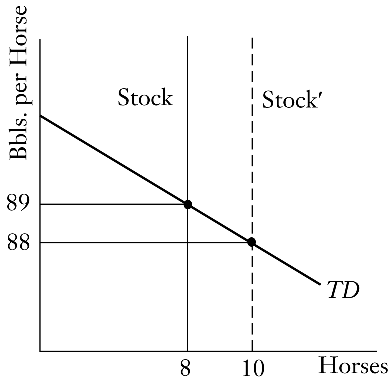

FIGURE 26.
EFFECT OF AN
INCREASE IN STOCK

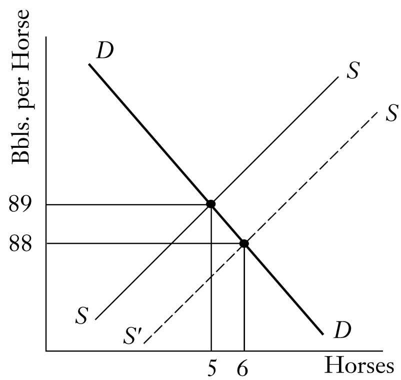

FIGURE 27.
EFFECT OF AN INCREASE
IN THE SUPPLY SCHEDULE

demand schedule of sellers remain the same, what will occur can be represented as in Figure 26.

The increased stock will lower the price of the good. At the old equilibrium price, individuals find that their stock is in excess of the total demand to hold, and the consequence is an underbidding to sell that lowers the price to the new equilibrium.

In terms of supply and demand curves, an increase in stock, with demand and reservation-demand schedules remaining the same, is equivalent to a *uniform increase in the supply schedule* by the amount of the increased stock—in this case by two horses. The amount supplied would be the former total plus the added two. Possessors with an excess of stock at the old equilibrium price must underbid each other in order to sell the increased stock. If we refer back to Table 2, we find that an increase in the supply schedule by two lowers the equilibrium price to 88, where the demand is six and the new supply is six.

Diagrammatically, the situation may be depicted as in Figure 27.

The increased stock is reflected in a uniform increase in the supply curve, and a consequent fall in price and an increase in the quantity exchanged.

Of course, there is no reason to assume that, in reality, an increased stock will necessarily be accompanied by an unchanged reservation-demand curve. But in order to study the various causal factors that interact to form the actual historical result, it is necessary to isolate each one and consider what would be its effect if the others remained unchanged. Thus, if an increased stock were at the same time absorbed by an equivalent increase in the reservation-demand schedule, the supply curve would not increase at all, and the price and quantity exchanged would remain unchanged. (On the total demand-stock schedule, this situation would be reflected in an increase in stock, accompanied by an offsetting rise in the total-demand curve, leaving the price at the original level.)

A *decrease* in stock from one period to another may result from the *using up* of the stock. Thus, if we consider only consumers' goods, a part of the stock may be consumed. Since goods are generally used up in the process of consumption, if there is not sufficient production during the time considered, the total stock in existence may decline. Thus, one new horse may be produced, but two may die, from one point of time to the next, and the result may be a market with one less horse in existence. A *decline* in stock, with demand remaining the same, has the exactly reverse effect, as we may see on the diagrams by moving from the broken to the solid lines. At the old equilibrium price, there is an excess demand to hold compared to the stock available, and the result is an upbidding of prices to the new equilibrium. The supply schedule uniformly decreases by the decrease in stock, and the result is a higher price and a smaller quantity of goods exchanged.

We may summarize the relation between stock, production, and time, by stating that the stock at one period (assuming that a period of time is defined as one during which the stock remains unchanged) is related to the stock at a previous period as follows:

If: S_t equals stock at a certain period (t)

S_{t-n} equals stock at an earlier period ($t - n$) which is n units of time before period (t)

P_n equals production of the good over the period n

U_n equals amount of the good used up over the period n

Then: $$S_t = S_{t-n} + P_n - U_n$$

Thus, in the case just mentioned, if the original stock is eight horses, and one new horse is produced while two die, the new stock of the good is $8 + 1 - 2 = 7$ horses.

It is important to be on one's guard here against a common confusion over such a term as "an increase in demand." Whenever this phrase is used by itself in this work, it always signifies an *increase in the demand schedule*, i.e., an increase in the amounts that will be demanded at each hypothetical price. This "shift of the demand schedule to the right" always tends to cause an increase in price. It must never be confused with the "increase in quantity demanded" that takes place, for example, in response to an increased supply. An increased supply schedule, by lowering price, induces the market to demand the larger quantity offered. This, however, is *not* an increase in the demand schedule, but an *extension along the same demand schedule*. It is a larger quantity demanded in response to a more attractive price offer. This simple movement along the same schedule must not be confused with an increase in the demand schedule at *each* possible price. The diagrams in Figure 28 highlight the difference.

Diagram I depicts an increase in the demand schedule, while diagram II depicts an extension of quantity demanded along the same schedule as a result of an increase in the supply offered. In both cases, the value scales of the various individuals determine the final result, but great confusion can ensue if the concepts are not clearly distinguished when such terms as "increase" or "decrease" in demand are being used.

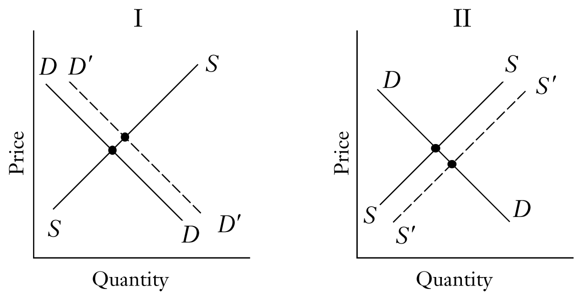

FIGURE 28. INCREASE IN THE DEMAND SCHEDULE AND IN THE QUANTITY DEMANDED

10. Specialization and Production of Stock

We have analyzed the exchanges that take place in existing stock and the effect of *changes* in the stock of a good. The question still remains: On what principles is the size of the stock itself determined? Aside from the consumers' or producers' goods given directly by nature, *all goods must be produced by man.* (And even seemingly nature-given products must be searched for and then used by man, and hence are ultimately products of human effort.) The size of the stock of any good depends on the rate at which the good has been and is being *produced*. And since human wants for most goods are continuous, the goods that are worn out through use must constantly be replaced by new production. An analysis of the rate of production and its determinants is thus of central importance in an analysis of human action.

A complete answer to this problem cannot be given at this point, but certain general conclusions on production can be made. In the first place, while any one individual can at different times be both a buyer and a seller of existing stock, in the *production* of that stock there must be *specialization*. This omnipresence of specialization has been treated above, and the further an exchange economy develops, the further advanced will be the specialization process. The basis for specialization has been shown to be the varying abilities of men and the varying location of natural resources. The result is that a good comes first into existence by production, and then is sold by its producer in exchange for some other good, which has been produced in the same way. The initial sales of any new stock will all be made by original producers of the good. Purchases will be made by buyers who will use the good either for their direct use or for holding the good in speculative anticipation of later reselling it at a higher price. At any given time, therefore, new stock will be sold by its original producers. The old stock will be sold by: (*a*) original producers who through past reservation demand had accumulated old stock; (*b*) previous buyers who had bought in speculative anticipation of reselling at a higher price; and (*c*) previous buyers on whose value scales the relative utility of the good for their direct use has fallen.

At any time, then, the *market supply schedule* is formed by the addition of the supply schedules of the following groups of sellers:[30]

(*a*) The supply offered by producers of the good.
1. The initial supply of new stock.
2. The supply of old stock previously reserved by the producers.

(*b*) The supply of old stock offered by previous buyers.
1. Sales by speculative buyers who had anticipated reselling at a higher price.
2. Sales by buyers who had purchased for direct use, but on whose value scales the relative utility of the good has fallen.

[30]The *addition* of supply schedules is a simple process to conceive: if at a price X, the class *(a)* sellers will supply T tons of a good and the class *(b)* sellers will supply T' the total market supply for that price is $T + T'$ tons. The same process applies to each hypothetical price.

The market demand schedule at any time consists of the sum of the demand schedules of:

(*c*) Buyers for direct use.
(*d*) Speculative buyers for resale at a higher price.

Since the good consists of equally serviceable units, the buyers are necessarily indifferent as to whether it is old or new stock that they are purchasing. If they are not, then the "stock" refers to two different goods, and not the same good.

The supply curve of the class (*b*) type of sellers has already been fully analyzed above, e.g., the relationship between stock and reservation demand for speculative resellers and for those whose utility position has changed. What more can be said, however, of the supply schedule of the class (*a*) sellers—the original producers of the good?

In the first place, the stock of newly produced goods in the hands of the producers is also *fixed* for any given point in time Say that for the month of December the producers of copper decide to produce 5,000 tons of copper. At the end of that month their stock of newly produced copper is 5,000 tons. They might regret their decision and believe that if they could have made it again, they would have produced, say, 1,000 tons. But they have their stock, and they must use it as best they can. The distinguishing feature of the original producers is that, as a result of specialization, the direct use-value of their product to them is likely to be almost nonexistent. The further specialization proceeds, the less possible use-value the product can have for its producer. Picture, for example, how much copper a copper manufacturer could consume in his personal use, or the direct use-value of the huge number of produced automobiles to the Ford family. Therefore, in the supply schedule of the producers, the direct-use element in their reservation demand disappears. The only reason for a producer to reserve, to hold on to, any of his stock is speculative—in anticipation of a higher price for the good in the future. (In direct exchange, there is also the possibility of exchange for a third good—say cows instead of fish, in our example.)

If, for the moment, we make the restrictive assumptions that there are no class (*b*) sellers on the market and that the producers have no present or accumulated past reservation demand, then the market supply-demand schedules can be represented as *SS*, *DD* in Figure 29. Thus, with no reservation demand, the supply curve will be a vertical straight line (*SS*) at the level of the new stock. It seems more likely, however, that a price below

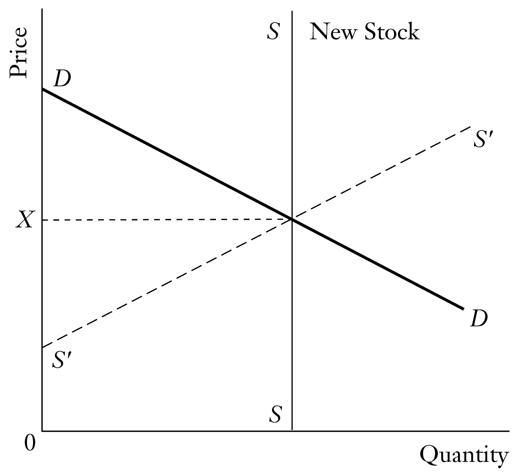

FIGURE 29. EFFECT OF NEW STOCK OF CLASS (*A*) PRODUCERS

equilibrium will tend to call forth a reservation demand to hold by the producers in anticipation of a higher price (called "building up inventory"), and that a price above equilibrium will result in the unloading of old stock that had been accumulated as a result of past reservation demand (called "drawing down inventory"). In that case, the supply curve assumes a more familiar shape (the broken line above—*S′S′*).

The removal of direct use-value from the calculation of the sellers signifies that all the stock must eventually be sold, so that *ultimately* none of the stock can be reserved from sale by the producers. The producers will make their sales at that point at which they expect the market price to be the greatest that they can attain—i.e., at the time when the market demand for the given stock is expected to be the greatest.[31] The length of time that producers can reserve supply is, of course, dependent on the durability of the good; a highly perishable good like strawberries, for example, could not be reserved for long, and its market supply curve is likely to be a vertical line.

Suppose that an equilibrium price for a good has been reached on the market. In this case, the speculative element of reservation demand drops out. However, in contrast to the market in re-exchange of *existing stock*, the market for *new production* does not end. Since wants are always being renewed in each successive period of time, new stock will also be produced in each period, and if the amount of stock is the same and the demand schedule given, the same amount will continue to be sold at the same equilibrium price. Thus, suppose that the copper producers produce 5,000 tons in a month; these are sold (no reservation demand) at the equilibrium price of $0X$ on the foregoing diagram. The equilibrium quantity is $0S$. The following month, if 5,000 tons are produced, the equilibrium price will be the same. If more is produced, then, as we saw above, the equilibrium price is lower; if less, the equilibrium price will be higher.

If the speculative elements are also excluded from the demand schedule, it is clear that this schedule will be determined solely by the utility of the good in direct use (as compared with the utility of the sale-good). The only two elements in the value of a good are its direct use-value and its exchange-value, and the demand schedule consists of demand for direct use plus the speculative demand in anticipation of reselling at a higher price.

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[31]Strictly, of course, costs of storage will have to be considered in their calculations.

If we exclude the latter element (e.g., at the equilibrium price), the only ultimate source of demand is the direct use-value of the good to the purchaser. If we abstract from the speculative elements in a market, therefore, the *sole* determinant of the market price of the stock of a good is its relative direct use-value to its purchasers.

It is clear, as has been shown in previous sections, that production must take place over a period of time. To obtain a certain amount of new stock at some future date, the producer must first put into effect a series of acts, using labor, nature, and capital goods, and the process must take time from the initial and intermediary acts until the final stock is produced. Therefore, the essence of specialized production is *anticipation of the future state of the market by the producers.* In deciding whether or not to produce a certain quantity of stock by a future date, the producer must use his judgment in estimating the market price at which he will be able to sell his stock. This market price is likely to be at some equilibrium, but an equilibrium is not likely to last for more than a short time. This is especially true when (as a result of ever-changing value scales), the demand curve for the good continually shifts. Each producer tries to use his resources—his labor and useful goods—in such a way as to obtain, in the production of stock, the maximum psychic revenue and hence a psychic profit. He is ever liable to error, and errors in anticipating the market will bring him a psychic loss. The essence of production for the market, therefore, is entrepreneurship. The key consideration is that the demand schedules, and consequently the future prices, are not and can never be definitely and automatically known to the producers. They must estimate the future state of demand as best they can.

Entrepreneurship is also the dominant characteristic of buyers and sellers who act speculatively, who specialize in anticipating higher or lower prices in the future. Their entire action consists in attempts to anticipate future market prices, and their success depends on how accurate or erroneous their forecasts