| | |
|---|---|
| Old Consumer Goods | against Money |
| New Consumer Goods and Services | against Money |
| Capital Goods | against Money |
| Labor Services | against Money |
| Land Factors | against Money |

For durable goods, each unit may be sold *in toto*, or it may be hired out for its services over a certain period of time.

Now we remember from chapter 2 that the price of one good in terms of another is the amount of the other good divided by the amount of the first good in the exchange. If, in a certain exchange, 150 barrels of fish exchanged for three horses, then the price of horses in terms of fish, the "fish-price of horses," was 50 barrels of fish per horse in that exchange. Now suppose that, in a money economy, three horses exchange for 15 ounces of gold (money). The *money price* of horses in this exchange is *five ounces per horse*. The money price of a good in an exchange, therefore, is the quantity of units of gold, divided by the quantity of units of the good, yielding a numerical ratio.

To illustrate how money prices may be computed for any exchange, suppose that the following exchanges are made:

15 ounces of gold for 3 horses
5 ounces of gold for 100 barrels of fish
1/8 ounce of gold for 2 dozen eggs
24 ounces of gold for 8 hours of *X*'s labor

The money prices of these various exchanges were:

$$\frac{15 \text{ oz.}}{3 \text{ horses}} = \frac{5 \text{ oz.}}{1 \text{ horse}}$$

$$\frac{5 \text{ oz.}}{100 \text{ bbls. of fish}} = \frac{1 \text{ oz.}}{20 \text{ bbls. of fish}} = \frac{1/20 \text{ oz.}}{1 \text{ bbl. of fish}}$$

$$\frac{1/8 \text{ oz.}}{2 \text{ doz. eggs}} = \frac{1/16 \text{ oz.}}{1 \text{ doz. eggs}}$$

$$\frac{24 \text{ oz.}}{8 \text{ hrs. of } X\text{'s labor}} = \frac{3 \text{ oz.}}{1 \text{ hr. of } X\text{'s labor}}$$

The last ratios on each line are the money prices of the units of each good for each exchange.

It is evident that, with money being used for all exchanges, money prices serve as a *common denominator* of all exchange ratios. Thus, with the above money prices, anyone can calculate that if one horse exchanges for five ounces and one barrel of fish exchanges for 1/20 ounces, then one horse can, indirectly, exchange for 100 barrels of fish, or for 80 dozen eggs, or 5/3 of an hour of *X*'s labor, etc. Instead of a myriad of isolated markets for each good and every other good, each good exchanges for money, and the exchange ratios between every good and every other good can easily be estimated by observing their money prices. Here it must be emphasized that these exchange ratios are only hypothetical, and can be computed at all only because of the exchanges against money. It is only through the use of money that we can hypothetically estimate these "barter ratios," and it is only by intermediate exchanges against money that one good can finally be exchanged for the other at the hypothetical ratio.[1] Many writers have erred in believing that money can somehow be abstracted from the formation of money prices and that analysis can accurately describe affairs "as if" exchanges really took place by way of barter. With money and money prices pervading all exchanges, there can be no abstraction from money in analyzing the formation of prices in an economy of indirect exchange.

Just as in the case of direct exchange, there will always be a tendency on the market for *one money price to be established for each good.* We have seen that the basic rule is that each seller tries to sell his good for the highest attainable money price, and each buyer tries to buy the good for the lowest attainable money price. The actions of the buyers and sellers will always

[1]The exceptions are direct exchanges that might be made between two goods on the basis of their hypothetical exchange ratios on the market. These exchanges, however, are relatively isolated and unimportant and depend on the money prices of the two goods.

and rapidly tend to establish one price on the market at any given time. If the "ruling" market price for 100 barrels of fish, for example, is five ounces—i.e., if sellers and buyers believe that they can sell and buy the fish they desire for five ounces per 100 barrels—then no buyer will pay six ounces, and no seller will accept four ounces for the fish. Such action will obtain for all goods on the market, establishing the rule that, for the entire market society, every homogeneous good will tend to be bought and sold at one particular money price at any given time.

What, then, are the forces that determine at what point this uniform money price for each good tends to be set? We shall soon see that, as demonstrated in chapter 2, the determinants are the individual value scales, expressed through demand and supply schedules.

We must remember that, in the course of determining the "fish-price of horses" in the direct exchange of fish as against horses, at the same time there was also determined the "horse-price of fish." In the exchanges of a money economy, what is the "goods-price of money" and how is it determined?

Let us consider the foregoing list of typical exchanges against money. These exchanges established the money prices of four different goods on the market. Now let us reverse the process and divide the quantities of goods by the quantity of money in the exchange. This gives us:

$$\frac{1/5 \text{ horse}}{1 \text{ oz.}}; \quad \frac{20 \text{ bbls. of fish}}{1 \text{ oz.}}; \quad \frac{16 \text{ doz. eggs}}{1 \text{ oz.}}; \quad \frac{1/3 \text{ hr. of } X\text{'s labor}}{1 \text{ oz.}}$$

This sort of list, or "array," goes on and on for each of the myriad exchanges of goods against money. *The inverse of the money price of any good gives us the "goods-price" of money in terms of that particular good.* Money, in a sense, is the only good that remains, as far as its prices are concerned, in the same state that every

good was in a regime of barter. In barter, every good had only its ruling market price in terms of *every other good*: fish-price of eggs, horse-price of movies, etc. In a money economy, every good except money now has *one* market price in terms of money. Money, on the other hand, still has an almost infinite *array* of "goods-prices" that establish the "goods-price of money." The entire array, considered together, yields us the general "goods-price of money." For if we consider the whole array of goods-prices, we know what one ounce of money will buy in terms of any desired combination of goods, i.e., we know what that "ounce's worth" of money (which figures so largely in consumers' decisions) will be.

Alternatively, we may say that the money price of any good discloses what its "purchasing power" on the market will be. Suppose a man possesses 200 barrels of fish. He estimates that the ruling market price for fish is six ounces per 100 barrels, and that therefore he can sell the 200 barrels for 12 ounces. The "purchasing power" of 100 barrels on the market is six ounces of money. Similarly, the purchasing power of a horse may be five ounces, etc. *The purchasing power of a stock of any good is equal to the amount of money it can "buy" on the market* and is therefore directly determined by the money price that it can obtain. As a matter of fact, *the purchasing power of a unit of any quantity of a good is equal to its money price.* If the market money price of a dozen eggs (the unit) is 1/8 ounce of gold, then the purchasing power of the dozen eggs is also 1/8 of an ounce. Similarly, the purchasing power of a horse, above, was five ounces; of an hour of *X*'s labor, three ounces; etc.

For every good except money, then, the purchasing power of its unit is identical to the money price that it can obtain on the market. *What is the purchasing power of the monetary unit?* Obviously, the purchasing power of, e.g., an ounce of gold can be considered only in relation to *all* the goods that the ounce could purchase or help to purchase. *The purchasing power of the monetary unit consists of an array of all the particular goods-prices in the*

*society in terms of the unit.*[2] It consists of a huge array of the type above: 1/5 horse per ounce; 20 barrels of fish per ounce; 16 dozen eggs per ounce; etc.

It is evident that the money commodity and the determinants of its purchasing power introduce a complication in the demand and supply schedules of chapter 2 that must be worked out; there cannot be a mere duplication of the demand and supply schedules of barter conditions, since the demand and supply situation for money is a unique one. Before investigating the "price" of money and its determinants, we must first take a long detour and investigate the determination of the money prices of all the other goods in the economy.

## *2. Determination of Money Prices*

Let us first take a typical good and analyze the determinants of its money price on the market. (Here the reader is referred back to the more detailed analysis of price in chapter 2.) Let us take a homogeneous good, Grade A butter, in exchange against money.

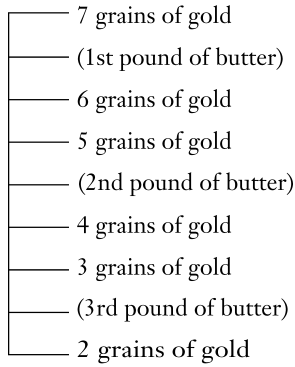
The money price is determined by actions decided according to individual value scales. For example, a typical buyer's value scale may be ranked as follows:

---

[2]Many writers interpret the "purchasing power of the monetary unit" as being some sort of "price level," a measurable entity consisting of some sort of average of "all goods combined." The major classical economists did not take this fallacious position:

> When they speak of the value of money or of the level of prices without explicit qualification, they mean the array of prices, of both commodities and services, in all its particularity and without conscious implication of any kind of statistical average. (Jacob Viner, *Studies in the Theory of International Trade* [New York: Harper & Bros., 1937], p. 314)

Also cf. Joseph A. Schumpeter, *History of Economic Analysis* (New York: Oxford University Press, 1954), p. 1094.




The quantities in parentheses are those which the person does not possess but is considering adding to his ownership; the others are those which he has in his possession. In this case, the buyer's *maximum buying money price* for his first pound of butter is six grains of gold. At any market price of six grains or under, he will exchange these grains for the butter; at a market price of seven grains or over, he will not make the purchase. His maximum buying price for a second pound of butter will be considerably lower. This result is always true, and stems from the law of utility; as he adds pounds of butter to his ownership, the marginal utility of each pound declines. On the other hand, as he dispenses with grains of gold, the marginal utility to him of each remaining grain increases. Both these forces impel the maximum buying price of an additional unit to decline with an increase in the quantity purchased.[3] From this value scale, we

[3]The tabulations in the text are simplified for convenience and are not strictly correct. For suppose that the man had already paid six gold grains for one ounce of butter. When he decides on a purchase of another pound of butter, his ranking for *all* the units of money rise, since he now has a lower stock of money than he had before. Our tabulations, therefore, do not fully portray the rise in the marginal utility of money as money is spent. However, the correction *reinforces*, rather than modifies, our conclusion that the maximum demand-price falls as quantity increases, for we see that it will fall still further than we have depicted.

can compile this buyer's *demand schedule*, the amount of each good that he will consume at each hypothetical money price on the market. We may also draw his demand curve, if we wish to see the schedule in graphic form. The individual demand schedule of the buyer considered above is as shown in Table 6.

TABLE 6

| MARKET PRICE<br>Grains of gold per pound of butter | QUANTITY DEMAND (PURCHASED)<br>Pounds of butter |
|---|---|
| 8 | 0 |
| 7 | 0 |
| 6 | 1 |
| 5 | 1 |
| 4 | 2 |
| 3 | 2 |
| 2 | 3 |
| 1 | 3 |

We note that, because of the law of utility, an individual demand curve must be either "vertical" as the hypothetical price declines, or else rightward-sloping (i.e., the quantity demanded, as the money price falls, must be either the same or greater), not leftward-sloping (not a lower quantity demanded).

If this is the necessary configuration of every buyer's demand schedule, it is clear that the existence of more than one buyer will tend greatly to *reinforce* this behavior. There are two and only two possible classifications of different people's value scales: either they are all identical, or else they differ. In the extremely unlikely case that everyone's relevant value scales are identical with everyone else's (extremely unlikely because of the immense variety of valuations by human beings), then, for example, buyers B, C, D, etc. will have the same value scale and

therefore the same individual demand schedules as buyer A who has just been described. In that case, the shape of the aggregate market-demand curve (the sum of the demand curves of the individual buyers) will be identical with the curve of buyer A, although the aggregate quantities will, of course, be much greater. To be sure, the value scales of the buyers will almost always differ, which means that their maximum buying prices for any given pound of butter will differ. The result is that, as the market price is lowered, more and more buyers of different units are brought into the market. This effect greatly reinforces the rightward-sloping feature of the market-demand curve.

As an example of the formation of a market-demand schedule from individual value scales, let us take the buyer described above as buyer A and assume two other buyers on the market, B and C, with the following value scales:

| *Buyer B* | *Buyer C* |
|---|---|
| 6 grains | 5 grains |
| (1st lb. of butter) | 4 grains |
| 5 grains | (1st lb. of butter) |
| (2nd lb. of butter) | 3 grains |
| 4 grains | (2nd lb. of butter) |
| 3 grains | (3rd lb. of butter) |
| 2 grains | 2 grains |
| (3rd lb. of butter) | (4th lb. of butter) |
| (4th lb. of butter) | (5th lb. of butter) |
| 1 grain | 1 grain |

From these value scales, we can construct their individual demand schedules (Table 7). We notice that, in each of the varied patterns of individual demand schedules, none can ever be leftward-sloping as the hypothetical price declines.

Now we may summate the individual demand schedules, A, B, and C, into the *market-demand schedule.* The market-demand

TABLE 7

| Buyer B | | Buyer C | |
|---|---|---|---|
| PRICE Grains/lb | QUANTITY DEMANDED lbs. butter | PRICE Grains/lb. | QUANTITY DEMANDED lbs. butter |
| 7 | 0 | 5 | 0 |
| 6 | 0 | 4 | 0 |
| 5 | 1 | 3 | 1 |
| 4 | 2 | 2 | 3 |
| 3 | 2 | 1 | 5 |
| 2 | 2 | | |
| 1 | 4 | | |

schedule yields the total quantity of the good that will be bought by all the buyers on the market at any given money price for the good. The market-demand schedule for buyers A, B, and C is as shown in Table 8.

Figure 33 is a graphical representation of these schedules and of their addition to form the market-demand schedule.

TABLE 8

| AGGREGATE MARKET-DEMAND SCHEDULE | |
|---|---|
| PRICE | QUANTITY DEMANDED |
| 7 | 0 |
| 7 | 0 |
| 6 | 1 |
| 5 | 2 |
| 4 | 4 |
| 3 | 5 |
| 2 | 8 |
| 1 | 12 |

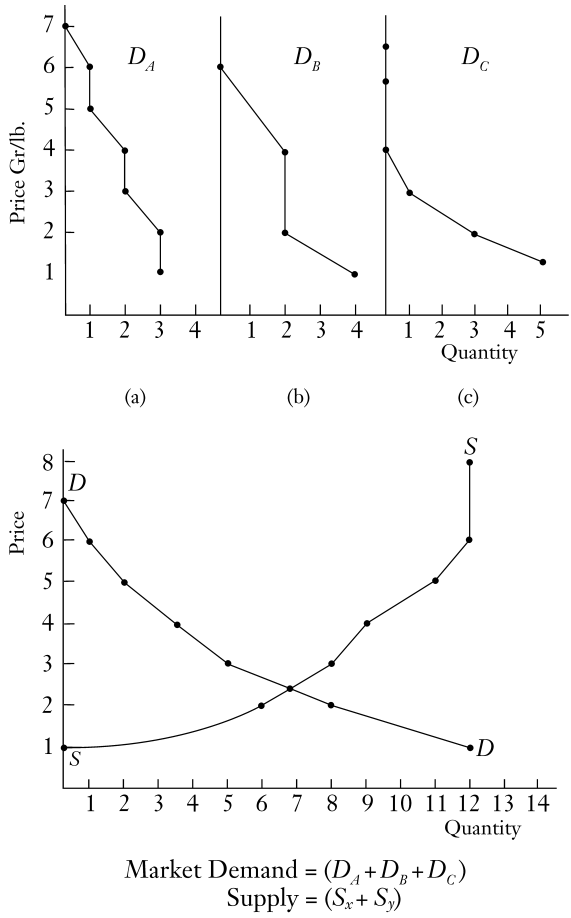



FIGURE 33. EFFECT OF ADDING MARKET-DEMAND AND MARKET-SUPPLY SCHEDULES

The principles of the formation of the market-supply schedule are similar, although the causal forces behind the value scales will differ.[4] Each supplier ranks each unit to be sold and the amount of money to be obtained in exchange on his value scale. Thus, one seller's value scale might be as follows:

[4]On market-supply schedules, cf. Friedrich von Wieser, *Social Economics* (London: George Allen & Unwin, 1927), pp. 179–84.

*Seller X*

(7 grains)
(6 grains)
6th lb. of butter
(5 grains)
5th lb. of butter
4th lb. of butter
(4 grains)
3rd lb. of butter
(3 grains)
2nd lb. of butter
1st lb. of butter
(2 grains)
(1 grain)

If the market price were two grains of gold, this seller would sell no butter, since even the first pound in his stock ranks above the acquisition of two grains on his value scale. At a price of three grains, he would sell two pounds, each of which ranks below three grains on his value scale. At a price of four grains, he would sell three pounds, etc. It is evident that, as the hypothetical price is lowered, the individual supply curve must be either vertical or leftward-sloping, i.e., a lower price must lead either to a lesser or to the same supply, never to more. This is, of course, equivalent to the statement that as the hypothetical price *increases*, the supply curve is either vertical or rightward-sloping. Again, the reason is the law of utility; as the seller disposes of his stock, its marginal utility to him tends to rise, while the marginal utility of the money acquired tends to fall. Of course, if the marginal utility of the stock to the supplier is nil, and if the marginal utility of money to him falls only slowly as he acquires it, the law may not change his quantity supplied during the range of action on the market, so that the supply curve may be vertical throughout almost all of its range. Thus, a supplier *Y* might have the following value scale:

*Seller Y*

(6 grains)
(5 grains)
(4 grains)
(3 grains)
(2 grains)
6th lb. of butter
5th lb. of butter
4th lb. of butter
3rd lb. of butter
2nd lb. of butter
1st lb. of butter
(1 grain)

This seller will be willing to sell, above the minimum price of one grain, every unit in his stock. His supply curve will be shaped as in Figure 34.

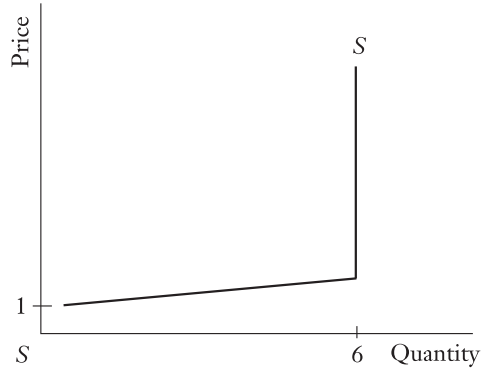



FIGURE 34. SELLER *Y*'S SUPPLY CURVE

In seller *X*'s case, his minimum selling price was three grains for the first and second pounds of butter, four grains for the third pound, five grains for the fourth and fifth pounds, and six grains for the sixth pound. Seller *Y*'s minimum selling price for the first

pound and for every subsequent pound was one grain. In no case, however, can the supply curve be rightward-sloping as the price declines; i.e., in no case can a lower price lead to more units supplied.

Let us assume, for purposes of exposition, that the suppliers of butter on the market consist of just these two, *X* and *Y*, with the foregoing value scales. Then their individual and aggregate market-supply schedules will be as shown in Table 9.

TABLE 9

| QUANTITY SUPPLIED | | | |
|---|---|---|---|
| Price | *X* | *Y* | Market |
| 8..... | 6 | 6 | 12 |
| 7..... | 6 | 6 | 12 |
| 6..... | 6 | 6 | 12 |
| 5..... | 5 | 6 | 11 |
| 4..... | 3 | 6 | 9 |
| 3..... | 2 | 6 | 8 |
| 2..... | 0 | 6 | 6 |
| 1..... | 0 | 0 | 0 |

This market-supply curve is diagramed above in Figure 33.

We notice that the *intersection* of the market-supply and market-demand curves, i.e., the price at which the quantity supplied and the quantity demanded are equal, here is located at a point *in between* two prices. This is necessarily due to the lack of *divisibility* of the units; if a unit grain, for example, is indivisible, there is no way of introducing an intermediate price, and the *market-equilibrium price* will be at *either* 2 or 3 grains. This will be the best approximation that can be made to a price at which the market will be *precisely* cleared, i.e., one at which the would-be suppliers and the demanders at that price are satisfied. Let us, however, assume that the monetary unit can be further

divided, and therefore that the equilibrium price is, say, two and a half grains. Not only will this simplify the exposition of price formation; it is also a realistic assumption, since one of the important characteristics of the money commodity is precisely its *divisibility* into minute units, which can be exchanged on the market. It is this divisibility of the monetary unit that permits us to draw continuous lines between the points on the supply and demand schedules.

The money price on the market will tend to be set at the equilibrium price—in this case, at two and a half grains. At a higher price, the quantity offered in supply will be greater than the quantity demanded; as a result, part of the supply could not be sold, and the sellers will underbid the price in order to sell their stock. Since only one price can persist on the market, and the buyers always seek their best advantage, the result will be a general lowering of the price toward the equilibrium point. On the other hand, if the price is below two and a half grains, there are would-be buyers at this price whose demands remain unsatisfied. These demanders bid up the price, and with sellers looking for the highest attainable price, the market price is raised toward the equilibrium point. Thus, the fact that men seek their greatest utility sets forces into motion that establish the money price at a certain equilibrium point, at which further exchanges tend to be made. The money price will remain at the equilibrium point for further exchanges of the good, *until* demand or supply schedules change. Changes in demand or supply conditions establish a new equilibrium price, toward which the market price again tends to move.

What the equilibrium price will be depends upon the configuration of the supply and demand schedules, and the causes of these schedules will be subjected to further examination below.

The stock of any good is the total quantity of that good in existence. Some will be supplied in exchange, and the remainder will be *reserved*. At any hypothetical price, it will be recalled, adding the demand to buy and the *reserved* demand of the supplier gives the *total demand to hold* on the part of both

groups.[5] The total demand to hold includes the demand in exchange by present nonowners and the reservation demand to hold by the present owners. Since the supply curve is either vertical or increasing with a rise in price, the sellers' reservation demand will fall with a rise in price or will be nonexistent. In either case, the total demand to hold rises as the price falls.

Where there is a rise in reservation demand, the increase in the total demand to hold is greater—the curve far more elastic—than the regular demand curve, because of the addition of the reservation-demand component.[6] Thus, the higher the market price of a stock, the less the willingness on the market to hold and own it and the greater the eagerness to sell it. Conversely, the lower the price of a good on the market, the greater the willingness to own it and the less the willingness to sell it.

It is characteristic of the total demand curve that it *always* intersects the physical stock available at the same equilibrium price as the one at which the demand and supply schedules intersect. The Total Demand and Stock lines will therefore yield the same market equilibrium price as the other, although the quantity exchanged is not revealed by these curves. They do disclose, however, that, since all units of an existing stock must be possessed by someone, the market price of any good tends to be such that the aggregate demand to keep the stock will equal the stock itself. Then the stock will be in the hands of the most eager, or most capable, possessors. These are the ones who are willing to demand the most for the stock. That owner who would just sell his stock if the price rose slightly is the *marginal possessor:* that nonowner who would buy if the price fell slightly is the *marginal nonpossessor*.[7]

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[5]The reader is referred to the section on "Stock and the Total Demand to Hold" in chapter 2, pp. 137–42.

[6]If there is no reservation-demand schedule on the part of the sellers, then the total demand to hold is *identical* with the regular demand schedule.

[7]The proof that the two sets of curves always yield the same equilibrium price is as follows: Let, at any price, the quantity demanded = $D$, the

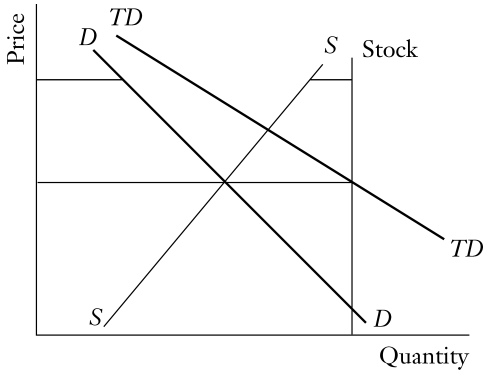


FIGURE 35. SUPPLY, DEMAND, TOTAL DEMAND, AND STOCK CURVES

Figure 35 is a diagram of the supply, demand, total demand, and stock curves of a good.

The total demand curve is composed of demand plus reserved supply; both slope rightward as prices fall. The equilibrium price is the same both for the intersection of the *S* and *D* curves, and for *TD* and Stock.

If there is no reservation demand, then the supply curve will be vertical, and equal to the stock. In that case, the diagram becomes as in Figure 36.

### *3. Determination of Supply and Demand Schedules*

Every money price of a good on the market, therefore, is determined by the supply and demand schedules of the individual buyers and sellers, and their action tends to establish a uniform

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quantity supplied = $S$, the quantity of existing stock = $K$, the quantity of reserved demand = $R$, and the total demand to hold = $T$. The following are always true, by definition:

$$S = K - R$$

$$T = D + R$$

Now, at the equilibrium price, where $S$ and $D$ intersect, $S$ is obviously equal to $D$. But if $S = D$, then $T = K - R + R$, or $T = K$.

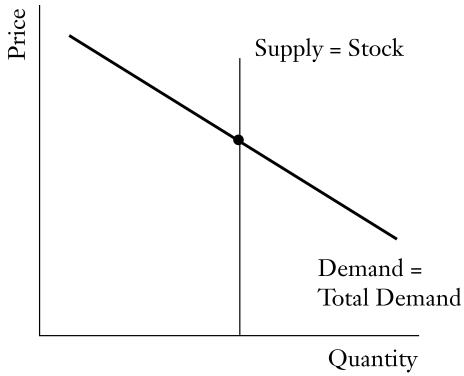


FIGURE 36. EFFECT OF THE ABSENCE OF RESERVATION DEMAND

equilibrium price on the market at the point of intersection, which changes only when the schedules do.[8] Now the question arises: What are the determinants of the demand and supply schedules themselves? Can any conclusions be formed about the value scales and the resulting schedules?

In the first place, the analysis of speculation in chapter 2 can be applied directly to the case of the money price. There is no need to repeat that analysis here.[9] Suffice it to say, in summary, that, in so far as the equilibrium price is anticipated correctly by speculators, the demand and supply schedules will reflect the fact: above the equilibrium price, demanders will buy less than

[8]Of course, this equilibrium price might be a *zone* rather than a single price in those cases where there is a zone between the valuations of the marginal buyer and those of the marginal seller. See the analysis of one buyer and one seller in chapter 2, above, pp. 107–10. In such rare cases, where there generally must be very few buyers and very few sellers, there is a zone within which the market is cleared at any point, and there is room for "bargaining skill" to maneuver. In the extensive markets of the money economy, however, even one buyer and one seller are likely to have one determinate price or a very narrow zone between their maximum buying- and minimum selling-prices.

[9]See chapter 2 above, pp. 130–37.

they otherwise would because of their anticipation of a later drop in the money price; below that price, they will buy more because of an anticipation of a rise in the money price. Similarly, sellers will sell more at a price that they anticipate will soon be lowered; they will sell less at a price that they anticipate will soon be raised. The general effect of speculation is to make both the supply and demand curves more elastic, viz., to shift them from *DD* to *D′D′* and from *SS* to *S′S′* in Figure 37. The more people engage in such (correct) speculation, the more elastic will be the curves, and, by implication, the more rapidly will the equilibrium price be reached.

We also saw that preponderant errors in speculation tend inexorably to be self-correcting. If the speculative demand and supply schedules (*D′D′* – *S′S′*) preponderantly do not estimate the correct equilibrium price and consequently intersect at another price, then it soon becomes evident that that price does not really clear the market. Unless the equilibrium point set by the speculative schedules is identical to the point set by the schedules minus the speculative elements, the market again tends to bring the price (and quantity sold) to the true equilibrium point. For if the speculative schedules set the price of eggs at two grains, and the schedules without speculation would set

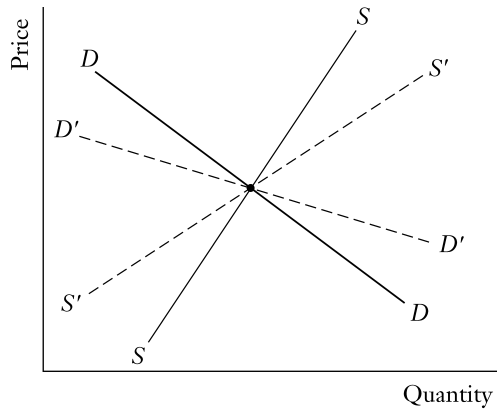


FIGURE 37. EFFECT OF SPECULATION ON SUPPLY AND DEMAND CURVES

it at three grains, there is an excess of quantity demanded over quantity supplied at two grains, and the bidding of buyers finally brings the price to three grains.[10]

Setting speculation aside, then, let us return to the buyer's demand schedules. Suppose that he ranks the unit of a good above a certain number of ounces of gold on his value scale. What can be the possible *sources* of his *demand for the good*? In other words, what can be the sources of the utility of the good to him? There are only three sources of utility that any purchase good can have for any person.[11] One of these is (*a*) the *anticipated later sale* of the same good for a higher money price. This is the speculative demand, basically ephemeral—a useful path to uncovering the more fundamental demand factors. This demand has just been analyzed. The second source of demand is (*b*) direct use as a consumers' good; the third source is (*c*) direct use as a producers' good. Source (*b*) can apply only to consumers' goods; (*c*) to producers' goods. The former are directly consumed; the latter are used in the production process and, along with other co-operating factors, are transformed into lower-order capital goods, which are then sold for money. Thus, the third source applies solely to the investing producers in their purchases of producers' goods; the second source stems from consumers. If we set aside the temporary speculative source, (*b*) is the source of the individual demand schedules for all consumers' goods, (*c*) the source of demands for all producers' goods.

What of the *seller* of the consumers' good or producers' good—why is he demanding money in exchange? The seller

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[10]This and the analysis of chapter 2 refute the charge made by some writers that speculation is "self-justifying," that it distorts the effects of the underlying supply and demand factors, by tending to establish pseudoequilibrium prices on the market. The truth is the reverse; speculative errors in estimating underlying factors are self-correcting, and anticipation tends to establish the true equilibrium market-price more rapidly.

[11]Compare this analysis with the analysis of direct exchange, chapter 2 above, pp. 160–61.

demands money because of the marginal utility of money to him, and for this reason he ranks the money acquired above possession of the goods that he sells. The components and determinants of the utility of money will be analyzed in a later section.

Thus, the buyer of a good demands it because of its direct use-value either in consumption or in production; the seller demands money because of its marginal utility in exchange. This, however, does not exhaust the description of the components of the market supply and demand curves, for we have still not explained the rankings of the good on the seller's value scale and the rankings of money on the buyer's. When a seller keeps his stock instead of selling it, what is the source of his *reservation demand* for the good? We have seen that the quantity of a good reserved at any point is the quantity of stock that the seller refuses to sell at the given price. The sources of a reservation demand by the seller are two: (*a*) anticipation of later sale at a higher price; this is the speculative factor analyzed above; and (*b*) direct use of the good by the seller. This second factor is not often applicable to producers' goods, since the seller produced the producers' good for sale and is usually not immediately prepared to use it directly in further production. In some cases, however, this alternative of direct use for further production does exist. For example, a producer of crude oil may sell it or, if the money price falls below a certain minimum, may use it in his own plant to produce gasoline. In the case of consumers' goods, which we are treating here, direct use may also be feasible, particularly in the case of a sale of an old consumers' good previously used directly by the seller—such as an old house, painting, etc. However, with the great development of specialization in the money economy, these cases become infrequent.

If we set aside (*a*) as being a temporary factor and realize that (*b*) is frequently not present in the case of either consumers' or producers' goods, it becomes evident that many market-supply curves will tend to assume an almost vertical shape. In such a case, *after* the investment in production has been made and the

stock of goods is on hand, the producer is often willing to sell it at any money price that he can obtain, regardless of how low the market price may be. This, of course, is by no means the same as saying that *investment in further production* will be made if the seller *anticipates* a very low money price from the sale of the product. In the latter case, the problem is to determine how much to invest *at present* in the production of a good to be produced and sold at a point *in the future*. In the case of the market-supply curve, which helps set the day-to-day equilibrium price, we are dealing with already given stock and with the reservation demand for this stock. In the case of production, on the other hand, we are dealing with investment decisions concerning how much stock to produce for some later period. What we have been discussing has been the market-supply curve. Here the seller's problem is *what to do with given stock*, with already produced goods. The problem of production will be treated in chapter 5 and subsequent chapters.

Another condition that might obtain on the market is a previous buyer's re-entering the market and reselling a good. For him to be able to do so, it is obvious that the good must be *durable*. (A violin-playing service, for example, is so nondurable that it is not resalable by the purchasing listeners.) The total stock of the good in existence will then equal the producers' new supply *plus* the producers' reserved demand *plus* the supply offered by old possessors *plus* the reserved demand of the old possessors (i.e., the amount the old buyers retain). The market-supply curve of the old possessors will increase or be vertical as the price rises; and the reserved-demand curve of the old possessors will increase or be constant as the price falls. In other words, their schedules behave similarly to their counterpart schedules among the producers. The aggregate market-supply curve will be formed simply by adding the producers' and old possessors' supply curves. The total-demand-to-hold schedule will equal the demand by buyers plus the reservation demand (if any) of the producers and of the old possessors.

If the good is Chippendale chairs, which cannot be further produced, then the market-supply curves are *identical* with the supply curves of the old possessors. There is no new production, and there are no additions to stock.

It is clear that the greater the proportion of old stock to new production, other things being equal, the greater will tend to be the importance of the supply of old possessors compared to that of new producers. The tendency will be for old stock to be more important the greater the durability of the good.

There is one type of consumers' good the supply curve of which will have to be treated in a later section on labor and earnings. This is *personal service*, such as the services of a doctor, a lawyer, a concert violinist, a servant, etc. These services, as we have indicated above, are, of course, nondurable. In fact, they are consumed by the seller immediately upon their production. Not being material objects like "commodities," they are the direct emanation of the effort of the supplier himself, who produces them instantaneously upon his decision. The supply curve depends on the decision of whether or not to produce—supply—personal effort, not on the sale of already produced stock. There is no "stock" in this sphere, since the goods disappear into consumption immediately on being produced. It is evident that the concept of "stock" is applicable only to tangible objects. The price of personal services, however, is determined by the intersection of supply and demand forces, as in the case of tangible goods.

For all goods, the establishment of the equilibrium price tends to establish a *state of rest*; a cessation of exchanges. After the price is established, sales will take place until the stock is in the hands of the most capable possessors, in accordance with the value scales. Where new production is continuing, the market will tend to be *continuing*, however, because of the inflow of new stock from producers coming into the market. This inflow alters the state of rest and sets the stage for new exchanges, with producers eager to sell their stock, and consumers to buy. When total stock is fixed and there is no new production, on the other

hand, the state of rest is likely to become important. Any changes in price or new exchanges will occur as a result of changes of valuations, i.e., a change in the relative position of money and the good on the value scales of at least two individuals on the market, which will lead them to make further exchanges of the good against money. Of course, where valuations are changing, as they almost always are in a changing world, markets for old stock will again be continuing.[12]

An example of that rare type of good for which the market may be intermittent instead of continuous is Chippendale chairs, where the stock is very limited and the money price relatively high. The stock is always distributed into the hands of the most eager possessors, and the trading may be infrequent. Whenever one of the collectors comes to value his Chippendale below a certain sum of money, and another collector values that sum in his possession below the acquisition of the furniture, an exchange is likely to occur. Most goods, however, even nonreproducible ones, have a lively, continuing market, because of continual changes in valuations and a large number of participants in the market.

In sum, buyers decide to buy consumers' goods at various ranges of price (setting aside previously analyzed speculative factors) because of their *demand for the good for direct use*. They decide to *abstain from buying* because of their *reservation demand for money*, which they prefer to retain rather than spend on that particular good. Sellers supply the goods, in all cases, because of their *demand for money*, and those cases where they reserve a stock for themselves are due (aside from speculation on price increases) to their demand for the good for direct use. Thus, the general factors that determine the supply and demand schedules of any and all consumers' goods, by *all persons on the market*, are the balancing on their value scales of their demand for the good for direct use and their demand for money, either

[12]See chapter 2 above, pp. 142–44.

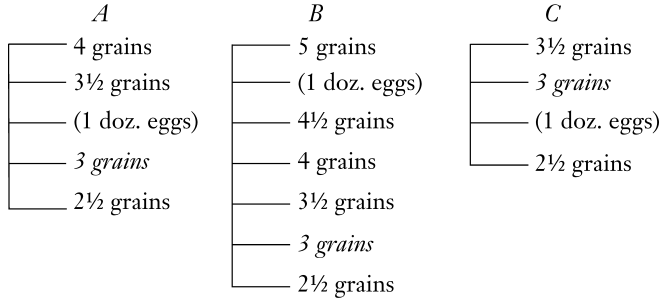
for reservation or for exchange. Although we shall further discuss investment-production decisions below, it is evident that decisions to invest are due to the demand for an expected money return *in the future*. A decision *not* to invest, as we have seen above, is due to a competing demand to use a stock of money *in the present*.

### *4. The Gains of Exchange*

As in the case considered in chapter 2, the sellers who are included in the sale at the equilibrium price are those whose value scales make them the most capable, the most eager, sellers. Similarly, it will be the most capable, or most eager, buyers who will purchase the good at the equilibrium price. With a price of two and a half grains of gold per pound of butter, the sellers will be those for whom two and a half grains of gold is worth more than one pound of butter; the buyers will be those for whom the reverse valuation holds. Those who are excluded from sale or purchase by their own value scales are the "less capable," or "less eager," buyers and sellers, who may be referred to as "submarginal." The "marginal" buyer and the "marginal" seller are the ones whose schedules just barely permit them to stay in the market. The marginal seller is the one whose minimum selling price is just two and a half; a slightly lower selling price would drive him out of the market. The marginal buyer is the one whose maximum buying price is just two and a half; a slightly higher selling price would drive him out of the market. Under the law of price uniformity, all the exchanges are made at the equilibrium price (once it is established), i.e., between the valuations of the marginal buyer and those of the marginal seller, with the demand and supply schedules and their intersection determining the point of the margin. It is clear from the nature of human action that all buyers will benefit (or decide they will benefit) from the exchange. Those who abstain from buying the good have decided that they would lose from the exchange. These propositions hold true for all goods.

Much importance has been attached by some writers to the "psychic surplus" gained through exchange by the most capable buyers and sellers, and attempts have been made to measure or compare these "surpluses." The buyer who would have bought the same amount for four grains is obviously attaining a subjective benefit because he can buy it for two and a half grains. The same holds for the seller who might have been willing to sell the same amount for two grains. However, the psychic surplus of the "supramarginal" cannot be contrasted to, or measured against, that of the marginal buyer or seller. For it must be remembered that the marginal buyer or seller also receives a psychic surplus: he gains from the exchange, or else he would not make it. Value scales of each individual are *purely ordinal*, and there is no way whatever of measuring the distance between the rankings; indeed, any concept of such distance is a fallacious one. Consequently, there is no way of making interpersonal comparisons and measurements, and no basis for saying that one person subjectively benefits more than another.[13]

We may illustrate the impossibility of measuring utility or benefit in the following way. Suppose that the equilibrium market price for eggs has been established at three grains per dozen. The following are the value scales of some selected buyers and would-be buyers:




[13]We might, in some situations, make such comparisons as historians, using imprecise judgment. We cannot, however, do so as praxeologists or economists.

The money prices are divided into units of one-half grain; for purposes of simplification, each buyer is assumed to be considering the purchase of *one unit*—one dozen eggs. C is obviously a submarginal buyer; he is just excluded from the purchase because three grains is higher on his value scale than the dozen eggs. A and B, however, will make the purchase. Now A is a marginal buyer; he is just able to make the purchase. At a price of three and a half grains, he would be excluded from the market, because of the rankings on his value scale. B, on the other hand, is a supramarginal buyer: he would buy the dozen eggs even if the price were raised to four and a half grains. But can we say that B benefits from his purchase *more than A*? *No, we cannot.* Each value scale, as has been explained above, is purely ordinal, a matter of rank. Even though B prefers the eggs to four and a half grains, and A prefers three and a half grains to the eggs, we still have no standard for comparing the two surpluses. All we can say is that *above* the price of three grains, B has a psychic surplus from exchange, while A becomes submarginal, with no surplus. But, even if we assume for a moment that the concept of "distance" between ranks makes sense, for all we know, A's surplus over three grains may give him a far greater subjective utility than B's surplus over three grains, even though the latter is also a surplus over four and a half grains. There can be no interpersonal comparison of utilities, and the relative rankings of money and goods on different value scales cannot be used for such comparisons.

Those writers who have vainly attempted to measure psychic gains from exchange have concentrated on "consumer surpluses." Most recent attempts try to base their measurements on the price a man would have paid for the good if confronted with the possibility of being deprived of it. These methods are completely fallacious. The fact that A would have bought a suit at 80 gold grains as well as at the 50 grains' market price, while B would not have bought the suit if the price had been as high as 52 grains, does not, as we have seen, permit any measurement of the psychic surpluses, nor does it permit us to say that A's gain was in any way "greater" than B's. The fact that even if we could

identify the marginal and supramarginal purchasers, we could never assert that one's gain is greater than another's is a conclusive reason for the rejection of all attempts to measure consumers' or other psychic surpluses.

There are several other fundamental methodological errors in such a procedure. In the first place, individual value scales are here separated from concrete action. But economics deals with the universal aspects of real action, not with the actors' inner psychological workings. We deduce the existence of a specific value scale on the basis of the *real act*; we have no knowledge of that part of a value scale that is not revealed in real action. The question how much one would pay if threatened with deprivation of the whole stock of a good is strictly an academic question with no relation to human action. Like all other such constructions, it has no place in economics. Furthermore, this particular concept is a reversion to the classical economic fallacy of dealing with the whole supply of a good as if it were relevant to individual action. It must be understood that only *marginal* units are relevant to action and that there is no determinate relation at all between the marginal utility of a unit and the utility of the supply as a whole.

It is true that the total utility of a supply increases with the size of the supply. This is deducible from the very nature of a good. Ten units of a good will be ranked higher on an individual's value scale than four units will. But this ranking is completely unrelated to the utility ranking of *each unit* when the supply is 4, 9, 10, or any other amount. This is true regardless of the size of the unit. We can affirm only the trivial ordinal relationship, i.e., that five units will have a higher utility than one unit, and that the first unit will have a higher utility than the second unit, the third unit, etc. But there is no determinate way of lining up the single utility with the "package" utility.[14] Total

[14]For more on these matters, *see* Rothbard, "Toward a Reconstruction of Utility and Welfare Economics," pp. 224–43. *Also see* Mises, *Theory of Money and Credit*, pp. 38–47.

utility, indeed, makes sense as a real and relevant rather than as a hypothetical concept only when actual decisions must be made concerning the whole supply. In that case, it is still *marginal* utility, but with the size of the margin or unit now being the whole supply.

The absurdity of the attempt to measure consumers' surplus would become clearer if we considered, as we logically may, *all* the consumers' goods at once and attempted to measure in any way the undoubted "consumers' surplus" arising from the fact that production for exchange exists at all. This has never been attempted.[15]

## *5. The Marginal Utility of Money*

### A. The Consumer

We have not yet explained one very important problem: the ranking of money on the various individual value scales. We know that the ranking of units of goods on these scales is determined by the relative ranking of the marginal utilities of the units. In the case of barter, it was clear that the relative rankings were the result of people's evaluations of the marginal importance of the direct uses of the various goods. In the case of a monetary economy, however, the direct use-value of the money commodity is overshadowed by its exchange-value.

In chapter 1, section 5, on the law of marginal utility, we saw that the marginal utility of a unit of a good is determined in the following way: (1) if the unit is in the possession of the actor, the marginal utility of the unit is equal to the ranked value he places

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[15]It is interesting that those who attempt to measure consumers' surplus explicitly rule out consideration of *all* goods or of any good that looms "large" in the consumers' budget. Such a course is convenient, but illogical, and glosses over fundamental difficulties in the analysis. It is, however, typical of the Marshallian tradition in economics. For an explicit statement by a leading present-day Marshallian, *see* D.H. Robertson, *Utility and All That* (London: George Allen & Unwin, 1952), p. 16.

on the least important end, or use, that he would have to *give up* on losing the unit; or (2) if the unit is not yet in his possession, the marginal utility *of adding* the unit is equal to the value of the most important end that the unit could serve. On this basis, a man allocates his stock of various units of a good to his most important uses first, and his less important uses in succession, while he gives up his *least* important uses first. Now we saw in chapter 3 how every man allocates his stock of money among the various uses. The money commodity has numerous different uses, and the number of uses multiplies the more highly developed and advanced the money economy, division of labor, and the capital structure. Decisions concerning numerous consumer goods, numerous investment projects, consumption at present versus expected increased returns in the future, and addition to cash balance, must all be made. We say that each individual allocates each unit of the money commodity to its most important use first, then to the next most important use, etc., thus determining the allocation of money in each possible use and line of spending. The least important use is given up first, as with any other commodity.

We are not interested here in exploring all aspects of the analysis of the marginal utility of money, particularly the cash-balance decision, which must be left for later treatment. We are interested here in the marginal utility of money as relevant to consumption decisions. Every man is a consumer, and therefore the analysis applies to everyone taking part in the nexus of monetary exchange.

Each succeeding unit that the consumer allocates among different lines of spending, he wishes to allocate to the most highly valued use that it can serve. His *psychic revenue* is the marginal utility—the value of the most important use that will be served. His *psychic cost* is the next most important use that must be forgone—the use that must be sacrificed in order to attain the most important end. The highest ranked utility *forgone*, therefore, is defined as the *cost* of any action.

The utility a person derives or expects to derive from an act of exchange is the marginal utility of adding the good purchased, i.e., the most important use for the units to be acquired. The utility that he forgoes is the highest utility that he could have derived from the units of the good that he gives up in the exchange. When he is a consumer purchasing a good, his marginal utility of addition is the most highly valued use to which he could put the units of the good; this is the psychic revenue that he expects from the exchange. On the other hand, what he forgoes is the use of the units of money that he "sells" or gives up. His *cost*, then, is the value of the most important use to which he could have put the money.[16] Every man strives in action to achieve a psychic revenue greater than his psychic cost, and thereby a psychic profit; this is true of the consumer's purchases as well. Error is revealed when his choice proves to be mistaken, and he realizes that he would have done better to have pursued the other, forgone course of action.

Now, as the consumer adds to his purchases of a good, the marginal utility which the added good has for him must *diminish*, in accordance with the law of marginal utility. On the other hand, as he gives up units of a good in sale, the marginal utility that this good has for him becomes greater, in accordance with the same law. Eventually, he must cease purchasing the good, because the marginal utility of the good forgone becomes greater than the marginal utility of the good purchased. This is clearly true of direct goods, but what of money?

It is obvious that money is not only a useful good, but one of the most useful in a money economy. It is used as a medium in practically every exchange. We have seen that one of a man's most important activities is the allocation of his money stock to various desired uses. It is obvious, therefore, *that money obeys the law of marginal utility, just as any other commodity does.* Money is a commodity divisible into homogeneous units. Indeed, one of

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[16]See chapter 2 above, p. 161.