3

Basis of Exchange
An important implication of our postulates is their interpretation of \textit{trade}, or \textit{exchange}. To expose that implication easily and clearly, we shall at first use "toy" problems, devoid of unessential, cluttering details. Real-world applications will be made in succeeding chapters.

Mutually Advantageous Trade and the Middleman

Cuban and Hungarian Refugee Camp

Imagine a camp where Cuban and Hungarian refugees are temporarily housed. Weekly, each person receives a gift parcel of twenty bars of chocolate candy and twenty cigarettes. Into this camp a new refugee, for whom there are no gift parcels, arrives from an unknown country. He is clever and knowledgeable about human nature. To a Cuban he suggests the possibility of a favor—he could arrange for the Cuban to have thirty candy bars and thirteen cigarettes instead of twenty each. "Merely give me seven of your twenty cigarettes," he says, "and I will give you ten bars of candy." The Cuban considers and accepts; his acceptance reveals that to him ten extra candy bars are worth \textit{more than} seven of his cigarettes. He thinks to himself that he is taking advantage of the newcomer, because, while he would have been willing to forswear as many as eight cigarettes for ten more bars of candy, he was asked to give only seven.

Table 3–1 gives the composition of three different consumption-combination "baskets": $A$, $B_1$, and $B_2$. The Cuban started with $A$ and voluntarily accepted a move to $B_2$. Now, consider basket $B_1$, which has the \textit{same} utility as basket $A$; although it is different in composition from $A$, it is no better or worse. The reduction in cigarettes, eight, exactly offsets the increase of ten candy bars—which is another way of saying that ten more candy bars are as valuable to the Cuban as eight cigarettes, given his present circumstances. But in fact he is asked to forswear only seven, so since $B_1$ is equally as desired as $A$, and since $B_2$ is bigger than $B_1$ (more cigarettes and the same amount of candy), $B_2$ is a better basket than $B_1$ or $A$. He achieves a more desired combination with $B_2$.

<table>
<thead>
<tr>
<th>Equivalent:</th>
<th>Basket $A$</th>
<th>Candy</th>
<th>20</th>
<th>Basket $B_1$</th>
<th>Candy</th>
<th>30</th>
<th>(+10)</th>
<th>12</th>
<th>Basket $B_2$</th>
<th>Candy</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(+10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3–1
Equivalent and Preferred
Baskets for Cuban

Cigarettes

20

(-8)

(-7)
Personal values. The ratio between eight cigarettes and ten candy bars, 8/10, is our old friend the marginal consumption-substitution ratio between candy and cigarettes. It is the individual's personal subjective value of candy relative to cigarettes, his indifference ratio between candy and cigarettes. It is simply that ratio of exchange to which the person is indifferent, or which leaves him at the same level of utility.

Choice: value and cost. What underlying concepts are involved here? One is substitutability, evidenced by his willingness to give up some of one good in order to have more of another. Another is cost. When the Cuban is faced with a choice between options (twenty each of candy and cigarettes versus thirty candy and thirteen cigarettes), whichever combination he chooses means that he will have sacrificed the other. Choice, by definition, involves cost. His personal valuation of the option selected is assumed to exceed his personal valuation of the best of all the other available options. The value of the selected option exceeds its cost—cost being the highest-valued rejected option.\(^1\)

Exchange and personal values. How do we know whether the opportunity rate of exchange presented to a person is in fact less or greater than his personal value? We rarely know; but by assumption, "A person chooses to accept an opportunity only if he feels it will put him in a preferred position—whatever may be the factors that he regards as relevant." We need not know his personal valuation at each possible situation. We need to know only that the person has accepted some of these opportunities and refused others. For the moment, we assume that we know the exchange rates at which he would and would not trade—simply to help expose the underlying concepts.

Where does the newcomer acquire candy for the Cuban? From some other refugee—say, a Hungarian. To the Hungarian he offers five cigarettes for ten candy bars. Faced with this trading opportunity, the Hungarian accepts. The Hungarian's personal value of cigarettes relative to candy is (as we can see in Table 3–2) 10/4 or 2.5, but he is offered cigarettes at a cost of only two candies. His personal value of cigarettes (in units of candy), 2.5 candy bars, exceeds the cost of getting more cigarettes.

The Hungarian in effect trades his basket \(A\) for basket \(B_2\). Basket \(B_2\) is superior to \(B_1\), for it contains more cigarettes and as much candy; and since basket \(B_1\) is to the Hungarian exactly as desirable as basket \(A\), the Hungarian has moved to a more preferred consumption basket, \(B_2\), as shown in Table 3–2.

And so—by the newcomer’s transferring some candy from a Hungarian to a Cuban and some cigarettes to the Hungarian from the Cuban—both the Cuban and the Hungarian have moved to improved situations. They both hope that

\(^1\) All choice involves the concepts of substitutability, cost, and value. In most real circumstances, the estimation of cost is not so simple. In a later chapter we shall explain various measures in some detail.
the newcomer will repeat his offer next week, after the new gift parcels arrive.

<table>
<thead>
<tr>
<th>Table 3-2</th>
<th>Equivalent and Preferred Baskets for Hungarian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equivalent:</td>
<td>Candy</td>
</tr>
<tr>
<td>Basket A</td>
<td>20</td>
</tr>
<tr>
<td>Basket B_1</td>
<td>(-10)</td>
</tr>
<tr>
<td>Preferred:</td>
<td>Basket B_2</td>
</tr>
<tr>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

*Gain from trade.* We now have an amazing situation. The newcomer has two cigarettes left over for his own use. He has taken two cigarettes from the total stock of forty cigarettes previously divided between the Cuban and Hungarian. Yet—although they have less goods in total—both say they are better off. How can they be better off with a smaller stock of goods? Hasn't the newcomer exploited them, when all the time they thought they were being benefited? Suppose the Hungarian and Cuban get together and find they have, between them, lost two cigarettes? How can the newcomer explain or defend this odd result? Using our postulates, he could explain as follows:

"You have not been cheated. In fact, you both have been made better off. Although, of course, you both could use all the candy and cigarettes that you formerly had, each of you preferred a slightly different combination. I made it possible for you to shift to preferred combinations. The cigarettes can be considered a payment for my helpful services. To be sure, I did not do all this with the sole intention of helping you. I helped you revise your baskets because I was interested in myself. And—admit it—each of you thought you were outwitting me, because you were prepared to give up more (or receive less) than you did. Certainly you would have been even more benefited if I had kept fewer than two cigarettes, but there is no denying that you are now better off than initially because of the revised proportions of candy and cigarettes. None of us has been foolish."²

*Conditions for gains from trade.* To isolate the essential condition in which people gain from (that is, prefer to) trade, even if they have to pay middlemen to facilitate trade, compare the initial personal valuations of the Cuban and the Hungarian. Table 3-3 shows the Cuban's personal value of candy is .8 (in cigarette units), while the Hungarian's personal value of candy is .4 (in cigarettes). To each, his personal value of candy indicates the price below which he would buy candy and above which he would sell candy. For example, the Cuban would buy more candy if the price of candy were lower

² For an alternative, more powerful explanation of the principles of exchange, see the Appendix to this chapter, where the Edgeworth Box is utilized.
than .8 cigarettes; but he would sell and hence consume less candy, if the price were over .8. The Hungarian, whose initial personal value of candy is .4 cigarettes, would buy more candy at any price below .4 cigarettes but would sell if the exchange rate were over .4. The direction of trade will always be such that commodity $X$ moves from the person with the lower personal value of $X$ to the person with the higher personal value of $X$. Candy, in our example, moves from the Hungarian to the Cuban. In summary, in any situation in which personal values differ, an opportunity exists wherein appropriate exchange will result in a more preferred position for each person.

Table 3–3

<table>
<thead>
<tr>
<th>Equivalent:</th>
<th>Cuban</th>
<th>Hungarian</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Candy</td>
<td>Cigarettes</td>
</tr>
<tr>
<td>Basket A</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>(+10)</td>
<td></td>
<td>(-8)</td>
</tr>
<tr>
<td>Basket $B_1$</td>
<td>30</td>
<td>12</td>
</tr>
<tr>
<td>(-7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preferred:</td>
<td>30</td>
<td>13</td>
</tr>
</tbody>
</table>

This exchange proposition is one of the most important in economics. An inequality of personal substitution rates (or values) is a condition of "inefficient," and hence improvable, allocation. It will be applied again later in numerous different contexts: production, specialization of labor, bearing of risks, and interregional trade. Exactly the same kinds of numerical examples will illustrate the principle in these later applications.

Warning: Do not confuse efficiency with equity. The preceding proposition refers to efficiency in re-allocation of goods given an initial allotment. When no further revision would increase the utility of any pair engaging in further trade, we have an efficient exchange situation. But it may not be equitable, depending upon who is judging. The initial allotment from which each person started in our toy problem was "equal," at least in terms of amounts of each good. But that may or may not be equitable. "Equitable" is a matter of personal judgment. I may think it equitable for brown-eyed people to be born smarter, to inherit more, and to be taxed less, while someone else may think the opposite or whatever he likes. Economic analysis contributes nothing to the judgment of an "equitable" situation. All we have analyzed is efficiency of exchange, whatever the initial allotment was.

Obviously, this "toy" example abstracts from many details, but that is precisely its purpose: to reveal the crucial aspects of the explanation of trade in bold, uncluttered fashion. For example, we did not ask whether the Cuban likes candy more than the Hungarian likes candy. As explained in our discussion of postulate 5 in the preceding chapter, no interpersonal comparison of absolute psychological level of desire for each good is involved. The Cuban may regard candy and cigarettes as barely desirable goods, while the Hun-
garian drools and pants for both. As long as the Cuban has a combination in which he subjectively values candy relative to cigarettes at a rate different from that of the Hungarian, trade with the Hungarian (via a middleman, if need be) is to the benefit of each.

In this example, the middleman seems to serve only a trivial role that could just as well have been performed by the Cuban and Hungarian themselves. But we cannot ignore the costs of collecting, transporting, displaying, and searching out offers and bids of potential buyers and sellers. The service of the middleman in “making a market” is no trivial task, as anyone will discover who attempts to sell his own used car to some other car user directly rather than via a used-car dealer. It has even been argued that such examples show how capitalistic middlemen exploit the ignorance of the consumer. Indeed, that is true, in exactly the same way a teacher exploits the ignorance of students, doctors the ignorance of patients, and authors the ignorance of their readers. (Do not confuse ignorance with stupidity or carelessness.) A most economical way to behave is not to try to learn everything, but to specialize and exchange information for other information or goods. Of course, it is much more spectacular to call this “exploitation.”

We have learned why trade will occur and in what direction it will occur. We have not yet discerned the extent to which people will revise their consumption patterns. How much will the Cuban, for example, revise his consumption pattern by trading cigarettes for more candy before he says, “Stop; I have reached a most preferred combination of candy and cigarettes”? The answer postulate, which states how personal values of goods depend upon the combinations of the goods available.

Our newcomer (middleman) has just completed his first trade. Why not buy still more candy from the Hungarian to sell to the Cuban for an extra gain of .2 cigarettes per bar of candy sold per week? But when the trader tries to buy additional candy from the Hungarian, he discovers he cannot get more at the old price. Although the Hungarian happily gave up the first ten bars of candy for five cigarettes when he had twenty of each, he is not willing to give up another bar for the same old price of .5 cigarettes for a candy bar. As he puts it, “When I have less candy and more cigarettes than formerly, cigarettes become less valuable relative to candy. More than .5 cigarettes is now required to compensate me for having one less candy bar this week.” In our economic terms, his subjective or personal value of candy has risen (relative to cigarettes). Therefore, only at a higher price of candy would he be willing to revise his consumption pattern toward even less consumption of candy.

The middleman is experiencing postulate 4. One’s personal valuation of any good is higher the less he has of that good (with constant or greater amounts of other goods). Since the same postulate holds for the Cuban (with goods changing in the opposite direction), the middleman will now have to offer even more candy than before to the Cuban for the purchase of cigarettes. In
sum, if the middleman wants to expand the amount of weekly exchange between the Cuban and the Hungarian, he will have to pay a higher price to buy candy from the Hungarian and accept a lower price for the candy he seeks to sell to the Cuban. The middleman must determine how much candy, in total, he should sell each week to the Cuban and buy from the Hungarian, and conversely for cigarettes—so as to yield for himself the maximum profits. That solution would be the equilibrium extent of exchange, assuming that he is the only middleman.

Competition between Middlemen

Before the first middleman discovers how much to revise prices and trade to increase profits, his wonderful world of profits is shattered by the appearance of another wily refugee. An old hand at the art of trading, this newly arrived dealer offers better terms to the Cuban: ten units of candy at a price of only six and a half, rather than seven, cigarettes—the old price of the first dealer. The Cuban accepts, happy to buy candy at a lower price, and (what is the same thing) to sell cigarettes at a higher price.

To the Hungarian, the new middleman offers five and a half, rather than only five, cigarettes for ten bars of candy. This, too, is a better offer than that of the first established middleman—who argues that the new middleman is an unreliable fly-by-night who will not deliver; or, if he does, will deliver stale candy or dry, wrinkled cigarettes, and will not give service with a smile, and in any event cannot possibly cover costs of good service with such prices. But the Hungarian takes his chances and buys from the new trader. Both the Cuban and Hungarian prefer the new prices. The price at which the Cuban can now buy one candy bar is down to .65 (from .70) cigarette. The selling price available to the Hungarian from the middleman is up to .55 (from .50) cigarette for each bar of candy. Buyers like lower prices, and sellers like higher prices.

If bigger baskets are better than smaller ones, the Cuban and the Hungarian are better off, since each has .5 cigarettes more than when trading via the first middleman, as shown in Table 3–4.

The old dealer, outbid by the new and spurned by the Cuban and the Hungarian, no longer gets any gain. Competition between middlemen has reduced the spread between buying and selling prices. The consumer now pays a lower price and receives a higher price for what he sells. The spread between the buying and selling price for candy is narrowed from .2 to .1 cigarette per candy, and the gain to the middleman is now one instead of two cigarettes.

Competition between middlemen reduces the buying-selling price spread until it just covers the "costs" of providing the service at the quality wanted by the consumers. If the spread were larger, more middlemen would be attracted; and they would shave the margin in order to get business. If the profits were negative, some middlemen would not survive as middlemen; and only those who could produce the middleman's service at lowest costs would be left in the business. The competition that reduces profits is the competi-
Table 3-4
Consumption Baskets before and after Competition
among Middlemen

<table>
<thead>
<tr>
<th></th>
<th>Candy</th>
<th>Cigarettes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CUBAN</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before Trade</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>After trade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>via First middleman</td>
<td>30</td>
<td>13</td>
</tr>
<tr>
<td>via Second middleman</td>
<td>30</td>
<td>13.5</td>
</tr>
<tr>
<td><strong>HUNGARIAN</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before Trade</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>After trade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>via First middleman</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>via Second middleman</td>
<td>10</td>
<td>25.5</td>
</tr>
</tbody>
</table>

tion of middleman against middleman, not consumer (or seller) against the middlemen. Middlemen do not compete with consumers; they compete with other middlemen.

Open Markets, Costs of Exchange, and Profit Elimination

The smaller spread between buying and selling prices is a consequence of free-entry market competition or, as we shall call it, open markets. Open markets mean that access to markets is open to all people without legal or arbitrary barriers—not that there are no costs involved in providing exchange-facilitating services.

When there are no artificial barriers to exchange, the price paid by the buyer will be lowered until it leaves just enough to cover the costs (the middleman’s services). A difference between the price at which the middleman buys candy from the Hungarian and the price at which he sells it to the Cuban does not necessarily indicate “profits.” There are costs of conducting exchange; these include rent for space in which transactions can be conducted and materials can be stored for inspection and immediate delivery; costs of record keeping; the cost of inventory, advertising, light, heat, and insurance. In part, lower-cost discount houses permit the consumer directly to bear part of the costs of exchange—for example, collecting information about the item, return privileges, credit buying, delivery service, convenience of shopping conditions and location, speed of service by salesmen. All of these can be substantial portions of the total cost. Exchange costs could be reduced to zero only if everyone
knew (without incurring any costs) all the characteristics of what everyone else was willing to sell or buy, at what time, and at what price.

And in this extreme case, the personal values of every person for any good would be equated among everyone. Any spread between two people’s personal values for any good would mean that a trade between the two people would be profitable. Trade would occur until everyone’s personal value moved to equality with each other’s, as the initially widely disparate personal values of the Cuban and Hungarian converged toward each other with the execution of trade and revision of the combinations of goods possessed by each party. If there are costs of negotiating and conducting trade, the buying and selling price spread will reflect those costs and prevent complete equality of everyone’s personal value for the particular good. (Ignoring the values of those services. But if the values of such services are included, then there will be equality of values for “goods plus services of negotiating exchanges.”)

Constrained Markets

An open market is not a universal condition. Constraints are interposed—often at the urging of those already in the business, in order to protect or increase their wealth. A brief description of a possible episode in the refugee camp will illustrate some common types of constraints; in later chapters we shall analyze the constraints in more realistic settings.

Threat of Violence

The original middleman thinks: “The gains to the Cuban and to the Hungarian (and my profit) were the result of my acuteness, and now someone has stolen my discovery.” To protect his interest, he therefore warns the new trader that any poaching will cost him his teeth. But if the Cuban and the Hungarian promise to protect the new trader, the first trader must turn to other tactics.

Control of Business Hours

The original trader notes that the refugees are trading with the new trader at unheard of hours of the day, at nights, and even on Sundays. Arguing that it is improper to work at night or on Sundays, he suggests that trading be permitted only from 8 to 5 on weekdays. The camp manager agrees, thinking that this will be conducive to order and genteel life in the camp. Unfortunately, the new trader is so busy during the hours of 8 to 5 that he is then unable to offer his services so cheaply as a middleman to all his former customers. Furthermore, for some refugees it is inconvenient to negotiate with middlemen during the designated hours. Thus, some who had formerly
found it preferable to deal with the new trader after working hours are now restricted to dealing with the old trader, whose prices are less favorable. However, difficulties of enforcing this 8 to 5 restriction soon lead to its abandonment.

Coalition by Merger or Collusion

Cunningly, the old trader approaches the new and offers to merge businesses. He points out that both have been forced to lower their selling prices and raise their buying prices to a very narrow spread. Through agreement, they might restore the buying—selling spread to two cigarettes per candy (with one going to the new trader and one to the old). This proposal appeals to the new trader, for it will give him a one-cigarette margin on all the candy trades at the new prices instead of one cigarette on only those exchanges that he himself would have conducted at the previous prices; the old trader will get the same benefit. The profitability of this coalition will attract new middlemen, who either have to be bought off or let in on the group profits. In either case the attempt to maintain high profits for the two middlemen will fail as profits are spread over more and more new middlemen, until the net gains per middleman over and above costs of exchanges are brought back to zero—a result achieved not by reducing prices to consumers but by raising costs of exchange because of the excess number of middlemen.

Compulsory Licensing and Self-Regulation

A means of preserving the profitability of the collusive group is the prohibition of new entrants. To this end, the two original middlemen persuade the camp manager to permit only “approved” (that is, duly licensed, properly trained, ethical) traders. The camp manager naturally agrees that the best judges of “proper training, competence, and ethics” are those already in the business (who automatically get licenses). They, of course, determine when “public necessity and convenience” calls for additional licensed middlemen. This arrangement, called self-regulation, is supposed to protect the unwary, unsophisticated customers from unscrupulous, incompetent, quack middlemen. As expected, the “standards” are so high and their concern for consumer welfare is so great that they award no more licenses. So the price spread is maintained at a level sufficient for a few respectable, qualified middlemen to enjoy the standard of living they think they deserve.

To make life easier for the “self-regulating” middlemen, the cartel (which is the name of a group with the right to exclude newcomers from the market) permits trade only between the hours of 9 and 3, weekdays. The traders say longer hours would serve no purpose, since they can take care of everyone during that time. Customer convenience is somehow forgotten.

Yet, all is not tranquil. Every existing licensed member has an overwhelming temptation to get more customers by special services, gifts, and advertising. Thus, pains and costs must be incurred to prevent such mutually damaging
competition. Costs must be incurred to hire spies and agents to detect secret price cutting by members of the cartel.

Franchise Fees

Not long after initiation of the self-regulating, licensing scheme, the camp manager realizes that he can capture part of the dealers' enhanced wealth by charging a "fee" for the right to be licensed. He calls it a license or franchise fee. This fee happens almost to equal the value of the anticipated future profits earned by the licensees in excess of what they would have earned if there were an open market. Or he could levy a special "tax" on them. In this way, the camp manager transfers to himself the present and future monopoly-protected profit.

A Few Implications of Exchange Analysis

We can more fully appreciate the problems of maintaining constraints or recognize the forces that operate in their absence, if we investigate real markets, wherein millions of people are involved with uncounted numbers of goods and services and money. We shall start on that task in the next chapter, but before doing so, a few other implications should be elaborated.

Exchange Directed by Personal Values of Goods, Not by Importance of the Users

The feasibility of exchange arose because people had combinations of goods for which they had different personal, subjective values. Neither the Cuban nor the Hungarian had to tell what he was going to do with the goods or to determine who had the more important function to perform with his goods. Interpersonal comparison of importance was totally irrelevant... for exchange. But it is important for deciding how large a basket to give each person initially.

An excellent example of this is provided by the Army and the Navy. We might decide the Army should have twice the total budget or amount of goods that the Navy should. That would depend upon how much another batch of goods devoted to the Army would provide in the form of defense capability compared to the same batch, if given to the Navy. But once that decision was made and the Army and Navy were given a pile of resources, might both their defense potentials be increased if they could exchange some goods with each other? Perhaps the Army would trade some men for more nuclear material.

For that nothing whatsoever must be known about the ultimate importance or value of Army relative to Navy services. That is relevant only in deciding how big a batch of goods, or budget, to give each. All we have to know is the
Army's own subjective value of nuclear materials in terms of men and the Navy's own valuation of nuclear material in terms of men. Each service branch could compute its own valuation. The one that places a higher value on more nuclear material (in terms of men) will find it advantageous to trade some men for some more nuclear material, and the other branch will find it advantageous to give up some of its nuclear material for those men. To see why, go back to our preceding example and change the names of the two people from Cuban and Hungarian to Army and Navy, and the Cokes and cigarettes to men and nuclear material.

Yet until about 1960 such calculations and exchanges between the military services were not systematically performed. Subsequently, however, the services have begun to make intra-service valuations and negotiate exchanges. Simple economics can have enormous benefits.

Marginal Values, Not Total Values

The value of a commodity is defined and measured only in terms of one unit more—that is, what a person will give up for one more unit or what he will insist on getting if he is to have one unit less. Prices do not measure the total value of the community's total stock of any good. Multiplying the price of a good by the total number in existence is sometimes treated as a measure of the value of the total stock of those goods. This can be very misleading; it certainly is not a legitimate extension of the meaning of a price, as we shall see later. And for the questions we are trying to answer here, there is no point in seeking a measure of the "total value of the total stock." Only the marginal values, or prices (the value of one more or one less), are involved in explaining trade and how mixes of goods are determined for each person.

There remain the questions "Why is a gram of diamonds more highly valued than a gram of wheat?" and "Why are prices what they are?" We will consider these later—not simply for the sake of seeing how prices are determined, but because social and individual behavior is better understood by learning what determines prices.

Some Analytical and Ethical Aspects of Exchange

The preceding analysis is helpful in appreciating (1) assertions about the reasons for trade, (2) the productivity of middlemen, (3) ethical arguments for and against free trade in open markets, and (4) criticisms of economic analysis.

Reasons for Trade

Trade between two people is sometimes said to rest on the fact that one has a "surplus" to dispose of. Even responsible social scientists have held this falla-
cious notion: "The development of cities rests ultimately on food surpluses of agricultural producers above their own requirements." But nowhere in the preceding was there any "surplus" of cigarettes or candy. Surplus has nothing whatever to do with the possibility of exchange.

Productivity of Exchange

Our analysis implies also that trade is productive. Middlemen (retailers, salesmen, brokers, wholesalers, transporters, to name a few) are productive in the only sense in which the word "production" has economic meaning. Production means an act that increases utility. A productive act improves the shape, place, or even the time of availability of something. Profit-making middlemen are not "parasitical intermediaries." They enable the rest of us more easily to reach preferred mixtures of goods.

Ethics and Free Trade

Economic analysis does not demonstrate that exchange makes people better off in some moral or objective sense. It does not even show they should have the right to trade. If you believe it is "good" for a person to get what he thinks he will prefer, then you can conclude that trade contributes to "goodness." However, the trader may find that his new chosen position is not as nice as he imagined it would be. Information before the exchange is sometimes inaccurate and inadequate; the assumption that the trader preferred to get what he actually did get is then open to doubt. Could someone else be so well informed about the consequences of various choices and about other persons' preference patterns that he could make a better choice for the individual than the individual could make for himself? As an answer to this vexing question, one may hear that individuals know "well enough" what the consequences are. Or that although other people may know more about consequences, their inferior knowledge of individual preferences more than offsets knowledge of consequences. Or that you can't trust other people to act in your interest. Or that people, as a moral duty, ought to make their own choices because this will produce in them the responsibility and self-reliance that ought to be characteristic of the "good" society. Some believe that whether or not people ought to, they do in fact want the right to make their own choices. It is wrong, they say, to restrict the actions that other people can mutually agree upon, even if what they do doesn't accord with what we think is "for their own good."

On the other hand, some humanitarian and thoughtful persons believe that some people are not capable of proper understanding and therefore should be influenced or controlled "for their own good," much as with children. In many instances—for example, for medical care, food, education—adults are prohibited from entering into mutually agreeable exchanges with whomever they please to exchange whatever they please.
The critics of free exchange in open markets probably attach more weight to the regrettable consequences for those who make unfortunate choices; they attach less weight to (1) the forsaken gains removed from those who would otherwise have made fortunate choices and (2) the desirability of individual choice per se. Those who favor enlarging the range of individual choice of exchanges and responsibility probably make exactly the opposite evaluation. Neither group is necessarily more humanitarian or socially conscious than the other.

Very different from these two groups—both of which profess to be helping the individual live more freely and expressively—are those who contend that other people’s tastes and preferences are simply wrong or improper and that they should learn to have the right kinds of tastes and preferences. People ought to prefer classical music to jazz and modern music; realistic art to surrealistic and abstract art; clean, upright literature to immoral, decadent literature; wine to beer; opera and theater to TV and movies; compact, severe cars to chromium-splashed cars; adult education to bridge and poker; and study to football. These critics would rebuild the world to accord with their preferences. They would reduce the scope of the free-exchange market (because access to that market enables people to realize their “idiosyncratic, cruder” preferences and odd tastes, just as the Cuban chose more fatness and the Hungarian more cigarette cough); or they might try to change tastes and preferences by educating, informing, persuading, or propagandizing.

Freedom: As You Like It

This evaluation of the right to voluntary exchange of goods in the open market is part of the clash between the capitalist and socialist cultures. We have advisedly not expressed the matter as “free versus unfree” or “democratic versus undemocratic.” The socialist could say that people are freer in Russia, because they are free from the task or risk of making uninformed choices. They are freed from the danger of making certain kinds of later-regretted choices, just as you and I are “freed” (prevented) from the risk of hiring a quack to perform an operation or advise us about our illnesses, or from the possibility of buying whole milk with too low a cream content, or from all sorts of possibilities of acquiring inferior things—substandard food, substandard airplane flights, substandard houses. In all these instances, we are supposed to be protected from our own folly; we are “freed” from doing things that someone thinks we do not really want to do or ought not to do. This may seem an unusual meaning of “free,” but it is a widely accepted meaning in Russian and American life. It is easy to allege that one’s proposed restrictions on other people are those that give them “more freedom,” promote “good” and prevent “bad” consequences. Restraint from doing what is “bad” is, we all like to think, no restraint on “true” freedom. But different individuals have different notions of what is good and what is bad. Thus, to use the term “freedom” is to beg the question.
Nor do we speak of democratic versus undemocratic economic rights. Democracy is a way of allocating political power, not a criterion of what is done with it. A dictatorship which is undemocratic could enforce economic and legal rules that are conducive to what some might call a desirable society. A democracy can, by majority revision of various economic and legal rules, produce an "undesirable" society. Indeed, it is not perfectly self-evident that democracy as such is more conducive than any other system to the emergence or continuance of a society that many, but not all, would call "free," "open," or "desirable."

Criticisms of Methodology

A misconceived objection to the economic analysis of exchange contends it assumes an unwarranted degree of rationality or of calculating behavior. Economic postulates, as we pointed out earlier, are formulated only on the basis of observed behavior. Economics describes how people react in exchange situations. And people are not necessarily aware of the principles of economics when they exchange. Sticks and stones and birds behave according to the law of gravity, even though they do not know what it is; human beings obey this same law even before they have learned anything about it—and their behavior conforms to the economic postulates in the same way.

Of course, people do calculate, and habit itself is a form of purposeful behavior. People, in large part, resort to habitual patterns. If a person discovers that these habitual or conventional purchase patterns are less useful than other patterns, he forms a new habit or customary pattern. Habits are economic ways of avoiding unnecessary mental effort. Thinking, comparing, calculating, and deciding are difficult and costly activities. They take time away from other, more pleasant activities—as every college student knows.

A partially effective criticism of the preceding analysis of exchange is that one party to a potential exchange may dislike the other or fear his motives and refuse to trade because an improvement given to the second party may be turned against the first. Witness our restrictions on trading with communist countries: we fear their consequent gain in economic strength may ultimately be used against us; therefore, we forego immediate gains and refuse to trade. In our analysis, we assume that each person's utility is independent of what other people own. More generally, we assume that each person does not regard a more preferred position for the other person as undesirable in itself. If we were to consider motivations of envy or fear, then the analysis is even more complex. We would have to consider each person's attitude not only toward the effect of exchange on his own "basket" but also toward the relative effect on the other person's basket. With envy or interpersonal animosity, trade may still be implied.

Another criticism notes that some days a person eats candy, and on others he may smoke. He varies his daily consumption mixture. Hence, the preceding concentration on a particular mixture that is supposed to be preferred over some other mixture is "artificial." Not at all. We said only that a person can in the course of a week consume candy and cigarettes. He is at liberty to eat all the candy at once or spread it out over time, any way he wants.
Summary

As long as there is a revealed disparity between the personal values of goods for any two persons, the allocation of these goods can be revised by trade so that each person moves to a more preferred situation, provided the costs of discovering the people whose values are unequal and negotiating the exchange contracts and transporting goods are not prohibitory.

Every choice has a cost—the highest valued option forsaken.

Each party shifts toward more of the particular goods for which his personal value exceeds the market-exchange rate (price). Trade moves goods toward the higher personal values.

Each party will increase (reduce) his stock of a good, relative to other goods, until the personal value he places on it is reduced (increased) to equality with market price.

At equilibrium, each party has the same personal value of a good as every other party—a value that is also equaled by the market price at which exchange is available.

Every seller in the market has an incentive to try to keep out other sellers. In the absence of arbitrary obstacles or legal restrictions, the prospect of profits will entice new sellers into the market. Existing sellers have incentives to reach agreements to avoid cutting price. But these agreements are more difficult to enforce, the more the prospective gain from the collusion, because the enticement to violate the agreements also increases with the size of the gain from the collusion. The government will be appealed to as a means of keeping out new competitors—that is, restricting the open market in order to maintain a larger buying-selling price spread, under the guise of protecting the consumer from unscrupulous sellers, who would undermine the quality of the product. The legally protected "profits" often are taken by the government.

The importance of what a person does with his goods is not relevant for determining either the direction of trade or the final combination of goods held by that person.

Exchange rates do not measure a value of the total amount of some good; they measure only the value of an increment.

Trade is not a result of a "surplus" of some good to one party while another has an "insufficiency" of that good.

Economics does not imply that trade is a good thing, in any sense other than that people, if given the opportunity, will engage in trade. The right to trade may put some people in a regretted position—when they discover that the new combination was not as desirable as they anticipated.
Appendix: The Edgeworth Exchange Box

The Edgeworth Exchange Box is such a powerful method for explaining the principles of trade in its various forms that this Appendix will give students a deeper grasp of economic theory than is ordinarily obtained in an elementary course. Furthermore, some instructors use this method of explanation, and their students will find this Appendix a convenient review of the classroom blackboard exposition.

The Edgeworth Box was named for Francis Ysidro Edgeworth, who first suggested it in his Mathematical Physics (1881). The box consists of a combination of two utility or preference maps (explained in the Appendix to the preceding chapter, on pages 29–32) for two people called Cuban and Hungarian, between whom there will be trade (without a middleman).

To construct an Edgeworth Box, the utility or preference map of the Cuban and the map of the Hungarian are superimposed as in Figure 3–1, after rotating one of them 180 degrees so that it appears upside down and with the conventional left-hand scale on the right side running from top to bottom. Here the Hungarian’s map has been rotated so that his zero point, \( O_h \), is in the upper-right corner. The length of each side of the box represents the total amount of \( X \) and \( Y \) available to these two people. The total amount of \( X \) is measured on the horizontal axis and is allocated with \( O_cX_c \) to the Cuban as his initial amount of \( X \); \( O_hX_h \) (shown at the top of the box) is the remainder and is the amount of \( X \) initially held by the Hungarian. Note that the distance \( O_cX_c \) plus the distance \( O_hX_h \) exactly equals the width of the box, denoting the entire existing amount of \( X \).
Similarly the initial division of \( Y \) shows that the Cuban has the amount \( 0_cY_c \), measured vertically up from the lower-left origin, \( 0_c \), for the Cuban; and the Hungarian has \( 0_hY_h \) of \( Y \), measured down from the upper-right origin, \( 0_h \), for the Hungarian. The distance \( 0_cY_c \) plus \( 0_hY_h \) equals the vertical height of the box, and denotes the total amount of \( Y \).

Point \( Q \) in the box denotes these initial allocations of \( X \) and \( Y \) to the Cuban and Hungarian, with the horizontal distance of the point measuring the amounts of \( X \) available to the Cuban (on the left) and to the Hungarian (measured from the right). The vertical height to the point \( Q \) indicates the amount available initially to the Cuban, and the vertical distance down from the top side indicates the amount of \( Y \) initially available to the Hungarian.

The curved solid lines are the utility isoquants, or indifference curves, of the Cuban. The dashed curved lines are the utility isoquants or indifference curves for the Hungarian; these may at first sight appear to be curved in the wrong direction, but remember that his map is turned upside down so that its origin is in the upper right, at \( 0_h \).

Point \( Q \) is on the utility isoquant, \( C_2 \), for the Cuban. Line \( C_1 \) is another of his indifference curves, but with lower utility, while \( C_3 \) is a higher one of his indifference curves. Similarly point \( Q \), measured with reference to the origin, \( 0_h \), is on an indifference curve, \( H_2 \), for the Hungarian. Turning the book around again, you will see that the curves \( H_1 \) and \( H_3 \) are lower and higher indifference curves, respectively.

The slope of the indifference curve, \( C_2 \), as explained in the Appendix to the preceding chapter, shows the Cuban’s personal value of the commodities, or marginal rate of substitution between \( X \) and \( Y \) in consumption at point \( Q \). If he could trade some \( X \) for some \( Y \), at a rate of exchange indicated by the slope of the dotted straight “trading” line emanating from point \( Q \), he could move to higher utility on \( C_3 \), at point \( S \). If at the same time the Hungarian were to get what the Cuban gave up—i.e., if the Hungarian and the Cuban were trading with each other—then the Hungarian would also be revising his combination of goods from \( Q \) along the dotted line to \( S \). He, too, would be moved to higher utility, say \( H_3 \). So long as they trade with each other along some dotted line that moves each to higher indifference curves, trade can be mutually agreeable. *And any dotted trading line that starts from a point like \( Q \) and runs inward into a football-shaped shaded area, bounded by the two indifference curves through point \( Q \), will move both the Cuban’s and the Hungarian’s resultant mixture of goods to preferred combinations, i.e., to higher utility lines for each person.*

In general, so long as the dotted straight trading line (whose slope measures the price for \( X \), and \( Y \), at which the Cuban and Hungarian might trade) cuts the utility curves of both the Cuban and the Hungarian at point \( Q \), it will pay each to move on that trading line in the direction that moves both to higher utility curves. The dotted trade line at point \( Q \) has a slope between that of (1) the Cuban’s indifference
curve slope through point Q and (2) the Hungarian’s indifference curve through the point Q (with reference to the upper-right corner, since his map is upside down); this means that the proposed buying (and selling) prices of X (in terms of Y units) differ from the personal values placed on X relative to Y. Such a trading price will enable both parties to reach combinations with higher utilities.

Through every point on the diagram there is an indifference curve for C, and there is also one for H. Wherever one man’s curve cuts the other man’s curve, some trade would improve each person’s utility. Only for a special series of points do the utility curves of one person not intersect those of the other person. These special points form the “contract curve,” indicated by the thick line, labeled RST. This “contract curve” line indicates all the combinations of goods X and Y for each person at which the indifference curve for the Cuban for that combination is tangent to the indifference curve for the Hungarian. To say the indifference curves are tangent is to say that at that point they have the same slopes. Inspection of the diagram will soon convince you that any initial allocation of X and Y between the Cuban and Hungarian (except those indicated by the line RST) can be improved by trade along a trading line toward RST. In our diagrammed example, the straight trading line from Q to S extends into the football-shaped enclosure bounded by the initial situation’s two indifference curves. This is a line along which they could move by trading with each other, until they came to point S. If they moved along their trading line past S, they would each be moving to lower indifference curves (i.e., to less preferred positions). Once they have reached the RST line, they have exhausted the possibilities of mutual gain from trade with each other, no matter from where they started. The line RST is called the contract curve, because it is to some point on this curve that their contracts for trade will take them.

The point on the contract curve to which the two parties move by exchange depends on the starting point. At any initial position, two indifference curves (one for each person) pass through that starting point. If the two indifference curves intersect, they enclose a football-shaped space. Point W might have been a starting point had the initial allocation of X and Y been different, and then trade would have taken them toward the interior of the enclosed area and to a point on the segment of the contract curve between the isoutility lines, H1C1. To which point on this segment of the contract curve they will move depends upon the sequence of trial and error prices negotiated in the trading process. But as they converge to some point on that segment of the contract curve, the trading price between X and Y (shown by the slope of the trading line at that point) will match the personal values of each person (shown by the slope of the two indifference curves where they are tangent on the contract curve). This tangency of the two indifference curves and the trading price line means in economic terms that the price between X and Y equals the personal values placed on X relative to Y by both the two trading parties.
Once they have reached the contract curve, no further mutually acceptable revision of consumption patterns is possible. Going past the contract curve would “harm” both parties. Moving along the contract curve means that one party gives up some goods to the other. That would not be an act of exchange; it would be a transfer of wealth between the two parties.

If we accept the premise that each party should be the judge of his own interests, then any combination of goods $X$ and $Y$ between the two parties represented by a point off the contract curve is inefficient in the sense that things could be improved for everyone, in this case by trading and moving to a point on the contract curve at which no jointly beneficial revision is feasible. Hence any point on the contract curve is efficient in the sense that it is impossible to make a change that would improve the position of both parties. Efficient allocations of goods are those from which there is no possibility of improving the situation of someone without reducing the utility of someone else.

Questions

The left half of the table below shows three combinations of vegetables and meat among which Linus would have revealed indifference if he had been offered a choice; that is, all three are equally desirable to him. The right half shows three combinations among which Charlie would have revealed indifference.

<table>
<thead>
<tr>
<th>Options</th>
<th>Vegetables</th>
<th>Meat</th>
<th>Options</th>
<th>Vegetables</th>
<th>Meat</th>
</tr>
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<td>14</td>
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<td>16</td>
</tr>
<tr>
<td>B</td>
<td>13</td>
<td>13</td>
<td>B</td>
<td>45</td>
<td>15</td>
</tr>
<tr>
<td>C</td>
<td>17</td>
<td>12</td>
<td>C</td>
<td>52</td>
<td>14</td>
</tr>
</tbody>
</table>

a. If Linus has combination $B$, between what limits is his consumption-substitution ratio between vegetables and meat?
b. If Charlie has combination $B$, approximately what is his personal value for vegetables?
c. In what sense is it impossible to say who likes vegetables more, Linus or Charlie? In what sense is it possible?
d. If Linus and Charlie each have their combinations designated $B$, does any possible trade exist whereby each could reach a preferred combination? If so, give an example.
e. State the necessary consumption-substitution exchange-rate conditions if exchange between two people is to move them to preferred positions, even though part of their goods might be lost in the process.
2 Suppose that Charlie and Linus have the following initial indifference consumption-substitution ratios:

Charlie: 7 meat = 1 fruit
Linus: 3 meat = 1 fruit

a. Compared to Linus, is Charlie more fond of fruit or meat?
b. If the government makes it illegal to trade fruit for meat, always assuming that the law is obeyed, who gains and who loses? Why?
c. Now, the government relents and allows trade, but makes it illegal for anyone to trade at any exchange ratio other than one meat for one fruit. Explain the likely consequences of this new ruling.
d. Next, suppose the government relents still more, but—in order to protect the "little people" who consume fruit—a price ceiling is put on fruit. The maximum price of one unit of fruit is set at four meats. Who is likely to gain, and who is likely to lose by this price control? Explain.
e. Finally, imagine that the government takes off all restrictions on the trade of meat and fruit. Introduce a middleman who conducts the trade between Charlie and Linus. What is the maximum cut the middleman can take in the form of meat? Or of fruit?

3 "The postulates of economics imply that to permit trade is better than to prohibit trade." Do they? Explain.

4 Your college allots some parking space for your car while a friend is allotted a desk in the library stacks. Suppose that you and he would each be better off if you were to trade your parking space for his desk space.

a. This kind of trading is almost invariably prohibited by the college authorities. Why?
b. If you were the college president, why would you prohibit it?
c. Would you consider solving the whole problem by simply selling parking space to one and all at the market-clearing price, like a downtown parking garage? Why?

5 "Trade between the Mediterranean and the Baltic developed when each area produced a surplus of some good."

a. What do you think this quotation, from a widely used history text, means?
b. Can you propose an alternative explanation?

6 A parent gives each of his two children some milk and meat. The two children then exchange with each other, one drinking most of the milk and the other eating most of the meat. If the parent does not permit them to make that exchange which of the postulates (if any) is he denying? Or does the explanation rest on some new postulate not made explicit in the text?

7 Can you explain how what is often called "impulse" buying is consistent with the postulates of choice? Can you explain why habitual buy-
ing is also consistent with the postulates of choice? Can you suggest some behavior that would not be consistent with the postulates?

"Economic theory is built on an idealization of man: that he has tremendous computational power, a detailed knowledge of his desires and needs, a thorough understanding of his environment and its causal relationships, a resistance to acting on impulse or by habit. It is difficult to bridge the gap between that model of economic man and the groping uncertain man of the real world." Does this statement correctly characterize the state of economic theory? Explain.

In 1966 Governor Brown of California asserted that the reduction of Mexican labor in California did no harm, because the total value of the crop harvested was larger than before. Evaluate the relevance of that criterion.

"Competition is never 'buyer against seller' but always seller against other sellers and buyers against other buyers."

a. Is this true for you when you buy food? Automobiles? Shoes? Sell your labor?
b. Can you cite a case in which it is not true?

According to economic principles of competition, which tactic would be more likely to get you a lower price on a new car: going to just one dealer and acting like a tough and aggressive bargainer; or going to several dealers and mildly asking for their selling price while letting it be known that you really intended to buy a car? Explain why. Can you cite any evidence?

It is estimated that 25 percent of the price a housewife pays for a head of lettuce goes to the farmer, while the remaining portion is for middle-men and distribution costs.

a. Would you, as a farmer, necessarily prefer to have your percentage raised? Explain why not.
b. Would you, as a consumer, prefer to see his percentage raised? Explain.

"Middlemen and the do-it-yourself principle are incompatible." Explain.

Some discount stores advertise that they can sell for less because they buy directly from the manufacturer and sell to the consumer, thus eliminating many middlemen. What is the flaw in this reasoning?

Which of the following are compatible with open (or free) markets:

a. A lawyer must get permission of present lawyers before he can engage in that trade.
b. Medical doctors must pass a state examination before being allowed to sell medical services.
c. Banks must first obtain a license from the state before being allowed to operate—and not everyone can get a license merely for the asking.
d. Selling is prohibited on Sunday.
e. Pure food and drug laws restrict the sale of “impure” foods and drugs.
f. Consumption, manufacture, or sale of alcoholic beverages is prohibited.
g. Dealers and agents must be certified by the U.S. Securities and Exchange Commission before they can act as middlemen in buying and selling stocks and bonds; that is, before they can be security dealers.

Suppose you succeed in leading an army of liberation to rid Cuba of Castro Communists. Upon taking office as new dictator, you abolish all existing monopoly rights.

a. Would you then grant new monopoly rights?
b. If you did, how could you benefit the government (you)?
c. If you didn’t think of doing that, who would suggest it to you?

You are campaigning for mayor or councilman in your home town, in which the taxi service (or, for that matter, garbage service, milk delivery, electric power, water, gas, etc.) is provided by anyone who wants to operate a taxi business or drive his own cab. In other words, the taxi service is provided by an open market. You campaign for more government control of taxi drivers in order to ensure better quality of service.

a. If elected, would you initiate a system of giving just one company the right to perform the service? Why?
b. If so, how would you decide which company?
c. Do you think that company would be one of your campaign financiers?
d. In California the right to sell liquor is restricted by the state government to a number far below that which would prevail otherwise. Would you be surprised to learn that the liquor dealers are a strong political “lobby” and source of “power” in state politics? Why?
e. What generalization does this suggest about a source of political power?

“It is well to remind ourselves from time to time of the benefits we derive from a free-market system. The system rests on freedom of consumer choice, the profit motive, and vigorous competition for the buyer’s dollar. By relying on these spontaneous economic forces, we secure these benefits: (a) Our system tends automatically to produce the kinds of goods that consumers want in the relative quantities in which people want them. (b) The system tends automatically to minimize waste. If one producer is making a product inefficiently, another will see an opportunity for profit by making the product at a lower cost. (c) The system encourages innovation and technological change . . . . I regard the preservation and strengthening of the free market as a cardinal objective of this or any Administration’s policies.” (President J. F. Kennedy, September 1962, speaking to business magazine and newspaper publishers.)
Is it not surprising and confusing that while espousing the virtues of an open competitive economic system, businessmen and politicians restrict markets—for example, by controlling allowable imports of sugar so as to maintain sugar prices in the United States at about twice the open-market level—in order to maintain larger wealth for incumbent businessmen and their employees? A confusion between freedom of competition and freedom from competition is suggested. What explains this espousal of the virtues of a system of private property and open markets with simultaneous attempts to suppress it?