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Chapter 8

The Entrepreneur Role and the Entrepreneurless Economy

One who aims to describe economic interaction in the market economy faces two important problems. We can call the first one the problem of *complexity*. It is that, because of specialization and our inability to "see into others' minds," we have only a limited capacity to comprehend the specialized actions of others. Because of this problem, we must limit ourselves to describing the patterns of interaction that we regard as most important.(Hayek 1967)

We can call the second problem the *problem of invention*. Individuals in the market economy, including the intermediaries and undertakers, are human beings like ourselves with inventive minds. As economists, our knowledge reflects our specialized interest in studying economic interaction. Their knowledge reflects their interest in earning income in their particular market specialization so that they can better satisfy their wants. As scientists, we regard ourselves as capable of inventing new ways of understanding the subjects we study. Similarly, the intermediaries and undertakers of the market economy are capable of identifying and inventing new resources, new goods, and new methods of production and distribution. Indeed, their incentive to invent is likely to be greater than ours because their good inventions translate directly into income.

The problem of invention is that *we have practically no capacity to predict the inventions that will be made by specialists*. Due to this problem, although we can understand the inventions of the past to a large degree; we will never be able to predict those of the future. The best we can do is to use our common sense to reason that under certain conditions, specialist invention is more likely to occur than under other conditions. We shall see that the characteristics of the market are conducive to inventive activity.

Because inventiveness is a characteristic of market interaction, any description of the market economy would be incomplete if it did not include it. To make sure that we do not neglect it, we need a means of incorporating the prospect for it in every description. The procedure we shall follow consists of including in every description of economic interaction a contrast between an economy comprised only of robots and one that contains inventive individuals who "act entrepreneurially."[1] A major step in this procedure is to use the image of a "pure entrepreneur." Another important step is to create the image of a "pure entrepreneur economy," in which we assume that the pure entrepreneurs provide the conscious, creative, inventive direction for all of the behavior in the economy.

We can comprehend inventive activity in the abstract by contrasting the pure entrepreneur economy with the *entrepreneurless economy*. The latter is an image of individuals behaving as consumers, resource suppliers, and producers without conscious, inventive, direction. We design this economy so that it helps us represent some of the patterns of interaction that are present in the market economy albeit in a simple, non-human context.

The purpose of this chapter is to define the entrepreneur role and to describe in a general fashion the entrepreneurless economy. Part 1 of the chapter describes the role and defines the pure entrepreneur. Part 2 presents a broad outline of the entrepreneurless economy. The entrepreneurless economy is described further in Chapters Nine to Eleven.

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[1]This procedure, which is based on the author's interpretation of Mises (1966), is presented in Gunning 1991 and Gunning 1994.

1. THE ENTREPRENEUR ROLE

In order to earn money through the production and sale of goods, a person in the market economy must make judgments about the goods and services that others will demand and about her abilities to cause goods and services to be produced. We summarize these judgments by saying that she must *appraise resources.* Appraising resources, by itself, is not sufficient to earn money. A person must act in accord with her appraisals by *undertaking* to produce and sell some good or service. And, because she is prone to make errors, a subject must bear the consequences of an erroneous judgment. She must *bear uncertainty* that some alternative choice would have turned out better for her.

We have a special name for such a combination of characteristics -- entrepreneurship, a term that we defined briefly in Chapter Three. We assume that in the market economy, every actor is an entrepreneur. No one can avoid making judgments about others' wants and how to satisfy them. No one can avoid acting on those judgments. And no one avoid the uncertainty connected with her judgments.

Every actor acts in the entrepreneur role.[2] But some actors gain control over more resources than others. For example, individuals who become employees transfer their rights to the proceeds of their work to their employers. As a result, the actions of the employers become more important in market interaction than the actions of the employees and independent contractors who work alone. Consumer-savers also act in the role of the entrepreneur. However, like the employees, they control few of the resources, compared with employers. In order to focus exclusively on those who control the vast majority of the resources, we create the personage of the *pure entrepreneur.* To accomplish this, we deflate the roles of resource supplier and consumer-saver. We assume that they only perform routine behavior that we could imagine being performed by *robot maximizers.* At the same time, we inflate the role of the employer and independent contractors to include all of the non-routine activities in the market economy. We make this role responsible for all of the inventive appraisement, undertaking, and uncertainty-bearing. We turn the employer of resources and undertaker into the pure entrepreneur. The purpose of this section is to describe how we isolate the entrepreneur role and the pure entrepreneur.

Non Entrepreneur Roles in the Market Economy

Real people always act in roles. For example, when you attend a class, you act in the role of a student. When you scold your child, you act in the role of a parent.

We assign roles to people because we want to isolate particular aspects of their total action for further study and understanding. To further understand students, for example, we create images of attentiveness in classrooms, sitting for exams, eating in dining halls, socializing in dormitories and at activities centers, and so on. We use these separate images to construct a composite image of the role of a student. We call the separate images of attentiveness, note-taking, and so on the "characteristics of the student role." An image that contains such characteristics -- that is, an image that contains the particular *composite* of images that we call the "student role" -- helps us understand and explain why the people we encounter at schools typically act in ways that are in some respects different from those we encounter elsewhere.

In our everyday life, we do not expect to encounter people in schools who always act only in the student role, as we have defined it. Even at school, the "students" act in other roles. We know that the role cannot describe a whole person. No one is *only* a student. Nevertheless, if we want to understand the particular people who we encounter in schools, we begin by building an image of the student role. It is the only method we seem to have of understanding and describing the particular actions that occur in the school situation.

In our effort to understand and to describe economic interaction, we follow a similar procedure. The main difference is that we extend the procedure so that we can collapse all of what we identify as distinctly

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[2]In everyday life, there are many children and other dependents who rely for their sustenance on the choices of others. Our discussion of the market economy is not concerned with these people since their behavior is not part of economic interaction. We say, in effect, that they are not actors.

human action under market economy conditions into a single role -- that of the pure entrepreneur. To do this, we must begin with a deeper study of the non entrepreneur roles than we have considered so far.

The Consumer-Saver Role and Time Preference

In the market economy, the only direct means of satisfying wants is to consume consumers' goods. To represent the assumption of want satisfaction as a goal, we say that all subjects behave in the role of the consumer. Acting in the consumer role, an individual aims to acquire and consume consumers' goods in such a way that his satisfaction, as he views it, is greatest. Another way to say this is that *he aims to maximize utility*. Utility is just another word for satisfaction.

As pointed out in Chapter Three, individuals have time preference. The individual aims to satisfy both his more immediate wants and his less immediate wants. Every decision to satisfy a more (less) immediate want must come at the expense of a decision to satisfy a less (more) immediate want. Accordingly, every decision to consume is also a decision to save. The behavior of not spending to satisfy wants that are most immediate is called saving.[3]

The tradeoff between consuming and saving is a consequence of time preference. We remind ourselves of time preference by defining the role of the *consumer-saver*, although this term is often shortened to "consumer." When we use the term "consumer," we are thinking about a utility-maximizer that also saves.

We can summarize by saying that when an individual acts in the consumer-saver role, he uses the income he receives while behaving in the role of the resource supplier and entrepreneur (see below) to buy consumers' goods and to save. In saving, he lends and aims to earn the highest interest.

Consumer Borrowing and Lending

The individual in the market economy has an advantage over the isolated actor. If the isolated actor wants to consume goods, he must produce them first. If an actor in the market economy wants to consume goods, he may be able to borrow the money to buy them. If others are willing to lend him money, he can spend more in a given period of time than he earns with his resources. The market economy also gives consumers-savers opportunities to earn market interest by lending. In order to include this prospect in our image of the consumer-saver role, we assume that the consumer-saver role may borrow or lend.

When we consider all consumer-savers together, we recognize that they cannot be net borrowers. There is no other source of saving in the market economy except the consumer-savers. Consumer-savers are *net lenders* when they lend some of their money to producers or entrepreneurs. Although particular consumer-savers may lend to other consumer-savers, when we say that the consumer-saver role lends, we are referring to this net lending The net lending always goes to the producing entrepreneurs. We assume that the consumer-saver role, as a lender, aims to earn the highest interest rate she can. She can be said to maximize interest receipts.

The Resource Supplier Role

All resources in the pure market economy are owned by someone. They are private property. When an individual exchanges her resource for pay, we say that she behaves in the role of the *resource supplier*. In this role, she aims to *maximize her income*. She always selects the employment for her resource that yields the most pay. The pay is received from someone acting in the role of the entrepreneur.

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[3]It may not be easy to determine which wants are most immediate. In fact, we do not even know all of our wants. The assumption that economists make is not they can classify all of peoples' wants according to whether they are more or less immediate. It is that when people choose to satisfy one want instead of another, they also take account of the time at which they expect the two wants to be satisfied. We use the term "save" to refer to the assumption that people do not choose to satisfy only their most immediate wants. When people save, they devote some of their money or energy toward the satisfaction of wants that are more distant than the most immediate that could be satisfied with their money or energy.

Many resources in the pure market economy are themselves produced. The decision to produce a resource, like the decision to produce all goods and services, is made by the individual in the role of the entrepreneur. To produce a good or resource, he also employs resources supplied by resource suppliers to do it.

The Entrepreneur

When we build the image of a pure entrepreneur economy, we assume that the role of the consumer-saver does all the consuming and saving and the role of the resource-supplier supplies all resources. The role of the entrepreneur has only three tasks, or functions: (1) appraising the resources, (2) producing consumers' goods and the resources necessary to produce the consumers' goods and distributing them, and (3) bearing uncertainty.

Three Functions

We call the first function *appraisement,* or the act of making an appraisal. *An appraisal is an estimate of the money value of a resource that is used in the production and exchange of some product.* In making an appraisal an individual first identifies an item as a potential resource. The entrepreneur estimates (1) the selling price of the good that she expects the resource to help her produce and (2) the costs of employing the other, complementary resources that are needed. The appraisal equals (1) - (2). Because resources must be used before their products can be sold, appraising requires the entrepreneur to use capital accounting as described in Chapter One.

The purest example of the appraising function is the intermediary who arbitrages by buying a resource from one person and selling it to another. The intermediary has no plans to produce; she bases her appraisals on the prices she expects producing entrepreneurs or other appraisers to pay her.

The second function is *undertaking. Undertaking means making a decision to employ the resources to produce and sell a product.*[4] To undertake means to direct employees to carry out actions that the entrepreneur expects to result in the production and sale of a product. The entrepreneur expects his sales revenue to be greater than her costs. He pays those costs, or incurs obligations to pay them, in advance of receiving revenue.

The third function is *uncertainty-bearing*. The entrepreneur can never be certain that his undertaking will yield more revenue than his costs. He cannot fully know consumers' wants, the means of producing goods, or the knowledge of others, including other entrepreneurs. But even if he could know these things, the wants, abilities, and knowledge are continuously changing. As a result, the possibility always exists that costs will exceed revenues. If this happens, he must make up the difference by drawing down his reserve of wealth.

We call the interval of time between when the entrepreneur begins to put her production-sales plan into effect and when consumer-savers actually buy a good the *period of production*. During the period of production, changes in wants, abilities and knowledge could make some of the entrepreneur's knowledge obsolete.

It is important to distinguish the uncertainty-bearing function of the entrepreneur act from uncertainty-bearing as we observe it in everyday life. In everyday life, it is not unusual to observe small time inventors or idea people presenting their ideas for a new business to a financier. The financier then sets them up in business, pays them a salary, and gives them a share of the profit. Thus the financier agrees to bear much, and perhaps all, of the uncertainty, connected directly with the business. In this case, the entrepreneur act is shared by two people. They divide the total entrepreneur functions among them. Both the idea person and the financier discover an opportunity of which they were previously unaware but only the financier bears the uncertainty connected with a loss in the business.

In everyday life, laws sometimes reduce or remove the burden of uncertainty. Consider an individual who borrows money to complete a production-sales project. Suppose that it turns out to be unprofitable and he

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[4]This is the original meaning of the term. Today, we are more likely to hear the term used to refer to a funeral director.

cannot repay the loan. He declares that he is bankrupt. Under some bankruptcy laws, such a declaration absolves him from the obligation to repay his creditors. Assuming that this absolution from debt is predictable, such a person does not bear all of the uncertainty. The uncertainty bearing is divided among individuals. The creditors must perform part of the uncertainty-bearing function.

When we say that uncertainty bearing is a function of entrepreneurship we mean that every decision to produce entails uncertainty, which must be borne. We imply nothing about who bears it. In a complete private property system, one of two situations would exist. First, a single individual, the employer of the resource, may be completely responsible for any harm caused by the resource's use. Second, the responsibility may be shared according to a clearly-specified formula, perhaps written in a contract, that was worked out by the employer with other uncertainty bearers.

Producing Entrepreneurs as Final Controllers of Resources

Although everyone in a market economy acts in the entrepreneur role, some individuals end up controlling a larger money value of resources in the production of goods than others. This is partly because some people have inherited more valuable resources or the money to buy them than others. However, the inheritors of resource may not be the final controllers. *The final controllers are those who control and direct the resources that are used to produce either consumers' goods or other resources.* If inheritors of resources do not wish to bear the uncertainty associated with employing them, they can sell or rent them to producers. In this event, the producers become the final controllers.

In the market economy the exchange of resources and the making of loans are exchanges between two individuals acting in the role of the entrepreneur. Both appraise the resources they have and the resources they could acquire with their wealth. Both undertake to supply something of value to the other. And both bear the uncertainty that they will have erred in their decision. However, the people who ultimately acquire the resources and who put them to work in producing goods are the final controllers of those resources. These people are the main deciders of which products the resources are used to produce and which methods of production are employed.

Entrepreneur Action as a Bet

When an individual makes a decision to hire resources or to use her own resources to produce a product, she is thinking about the possible revenue she may earn and about her costs. She anticipates that the revenue will be greater than the costs. However, she realizes that her expectation may be wrong. Because of this, her action amounts to making a bet. She is betting that her beliefs about her own knowledge of others' wants, abilities and knowledge are correct. *When we form an image of an entrepreneur action in its most abstract sense, we conceive of an entrepreneur betting that her knowledge about the wants, abilities, and knowledge of others is correct.*

The betting that entrepreneurs must do would be like betting at a casino except for two things. First we assume that the bettors are more likely to be right than wrong. If they are wrong, we assume that they are likely to either correct their mistakes or be replaced by someone who will make fewer errors. To succeed at the casino, only luck is required; to succeed in business, knowledge is needed. Second, we assume that the actions of entrepreneurs benefit others. In carrying out the production and sales that results from their acquiring and using resources, they benefit not only themselves but also the buyers of the products and resource-suppliers with whom they exchange.

Profit and Loss

If an individual acting in the entrepreneur role believes that he has won his bet, he is said to have earned a *profit*. If he believes that he has lost, he is said to have incurred a *loss*. Profit and loss are revenue minus costs, according to entrepreneur calculations.

Economists make an important distinction between *anticipated* profit and *realized* profit. Anticipated profit exists in the mind of an entrepreneur *before* she acts. It motivates her to employ resources to produce and sell a good. Realized profit (or loss) refers to the entrepreneur's belief about her action *after* she takes it. If she believes that she earned what she anticipated and for the same reasons that she choose the undertaking, she is said to have realized a profit. If she believes that her revenue was less than her costs

or if the reasons for her gain are different from those that formed the basis for her undertaking, she is said to have realized a loss.

Profit and loss are uniquely perceived by each individual in a market economy. Suppose that you are an entrepreneur and that you have produced and sold some good. An outsider cannot be certain whether you earned a profit or a loss. Even if your money revenues are greater than your money costs, it is possible that you would believe (1) that you could have earned more money by using the resources in some alternative undertaking that is unknown to the observer or (2) that you were lucky. In other words, you may believe that your opportunity costs were greater than your money costs or that part of your money revenue was due to good luck.

Uncertainty and Risk

In economics, uncertainty refers to lack of knowledge of people's future actions in the market economy. We say that someone is uncertain about someone else's wants for goods, about her abilities to perform a particular job, and about her knowledge. This uncertainty is due partly to the fact that one person cannot completely know another person's wants, abilities and knowledge. But it is also due to the other person's independent will. The other person can always act contrary to the first's expectations in an effort to trick or fool the first.

Risk refers to the lack of technical knowledge or, more accurately, to the lack of scientific knowledge. It is often convenient to divide risk into two types. We call the first *class probability*. An example is the role of a die or the flip of a coin. For risk to be this type, science must be is practically certain of the probability that a particular event in the class will occur. But it cannot predict which event will occur in the next instance where the class probability is relevant to a choice. For example, although science knows that the probability of heads on a coin flip is ½, it does not know whether the next coin flip will be heads or tails. Many events in nature, including the weather, are like this in some measure. The second type is *case probability*. For this class, science cannot predict for certain whether an event will occur because there is incomplete knowledge of the scientific causes of the event. A particular scientist may attach a probability. However, other scientists may attach different probabilities.

In the market economy, individuals must bear both uncertainty and risk. Risk that is of the class probability type can be insured against if the amounts of money involved are small enough. The reason is that the knowledge of the probabilities is available to everyone. Risk of the case probability class is not usually insurable, since the most advanced knowledge is, by assumption, not widely known.[5]

Active and Passive Roles

We might say that the market economy contains two classes of characteristics of individuals. The first consists of the "active" entrepreneur characteristic, which bets on the correctness of its economic knowledge by appraising resources, deciding whether to sell them or to hire additional resources to produce a good or service for sale, and bearing the uncertainty of its decision. The second consists of the "passive" characteristics which experience the effects of the entrepreneurial decisions and of previous non-entrepreneur passive behavior. This second characteristic receives income and ultimately spends it to buy consumers' goods. The first characteristic is represented by the entrepreneur role; the second is represented by the consumer-saver and resource-supplier roles.

The Pure Entrepreneur

The pure entrepreneur is the embodiment of all the "active" characteristics of the human being. In everyday life, there are no pure entrepreneurs. We use this image in order to conceptually separate the active characteristics of human behavior from the passive ones. We assign the "passive" characteristics to the pure consumer and the pure resource supplier roles.

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[5]Not all examples of scientific knowledge fall neatly into these classes. However, the distinction between uncertainty and risk is fundamental. Economics is mainly concerned with uncertainty.

Since the active characteristics correspond to the aspects of human action that control all resources, when we focus on pure entrepreneurship, we are at the same time focusing on the "driving force" of the market economy.

The Pure Entrepreneur and the Entrepreneur Role

The pure entrepreneur embodies all of the appraisement, undertaking, and uncertainty bearing associated with producing a single good. He possesses two characteristics that distinguish him from the more general entrepreneur role in the market economy. First, we assume that the pure entrepreneur is responsible for producing a single consumers' good from start to finish. This means that he discovers, mines, and processes all of the raw materials that he uses. He uses these raw materials to produce all of the parts and material capital. In addition, he trains all of the employees. That is, he produces all of the human capital used in his production. In Chapters Five and Seven, we used the term "vertical integration" to refer to a firm that not only produces a consumers' good but also produces some of its factors of production. Using this terminology, we can say that *the production process of the pure entrepreneur is completely vertically integrated.*

Second, we assume that *the pure entrepreneur completely guarantees all of the loans that he receives* to finance his production. This means that he must possess wealth. The pure entrepreneur *does not finance his business.* All financing comes from the consumer-saver in the form of loans. The pure entrepreneur holds his wealth in reserve, in case unexpected business conditions render his revenue insufficient to repay his loans. If his production is unprofitable, the lenders who completely financed his business must be compensated. We call the wealth possessed by the pure entrepreneur for this purpose *guaranty*.

Guaranty is an important phenomena of the market economy. It refers to the wealth that is not used to finance business but which guarantees that the money lent to business will be repaid. In the modern U.S. at present, guaranty consists mostly of (1) corporate property and (2) a set of commitments by business owners, employees, consumers, and even taxpayers to bear the losses in the event of a general failure of business, banking and other credit institutions -- i.e., in the event of a general depression.

By guaranteeing all loans to the firm, the pure entrepreneur bears all of the uncertainty of his business. When we extend this idea to all of the pure entrepreneurs in the pure entrepreneur economy, we can say all of the uncertainty in the economy is borne by this set of hypothetical individuals. Everyone else is insured, as it were, against losing their savings. Since all employees are paid in advance, they need not rely on an employer for future pay. And since we assume that there are no taxpayers and banks, there is no prospect of credit institution failure and bailouts at taxpayer expense. Because we assume that the pure entrepreneur has sufficient wealth to guarantee loans, savers, consumers, and resource suppliers bear absolutely no uncertainty.

These assumptions help us describe *competition* in a much simpler way than would otherwise be possible. Each pure entrepreneur faces a choice of (1) whether to compete with other pure entrepreneurs in the numerous industries that represent the various goods that consumers buy or (2) whether to avoid direct competition by producing a new good. If he chooses the latter, he competes indirectly with the producers of substitute goods and he faces the prospect of new competition from another pure entrepreneur who decides to copy the production activity.

Inventiveness and Distinctly Human Action

The concept of the entrepreneur implies a unique inventiveness that cannot be fully described. One way to understand inventiveness is to contrast the role of an entrepreneur with a machine. If we were to make the fullest use of modern technology, we could create a robot (a) to sense various characteristics of consumer and resource supplier behavior and (b) to make appraisals on the basis of those characteristics according to a computer program. But the program it used would be one that *we* created. We could even create a different kind of robot that could produce other robots to sense characteristics of objects and to make appraisals. However, the program for both this robot and the robots produced by it would again be one that *we* created. No matter how much we tried, we could never create an exact duplicate of our creative and inventive selves.

The role of the pure entrepreneur represents the part of appraising, undertaking, and uncertainty-bearing that no one can model or duplicate. We use the term "entrepreneurship" to refer to the appraisement, undertaking and uncertainty-bearing that we know takes place in pursuit of profit but which we cannot duplicate or model.

We can program a machine to use money to make selections among saving and the various items that we specify as consumers' goods. In other words, we can program a machine to maximize utility. Similarly, we can also program a machine to select the highest paying employer for resources and to select the highest interest-yielding loan. But we cannot program a machine to act entrepreneurially.

Our inability to model, or construct a program for, entrepreneurship derives directly from our procedure of conceptually separating the active from the passive characteristics of human behavior. This inability distinguishes entrepreneurship from the roles of the consumer-saver and the resource-supplier.

We learn something by contrasting the pure entrepreneur with a robot. We can also learn something by contrasting him with an animal. Like humans, various species of animals consume, save, supply resources to others or the group, and produce. Human beings in the market economy do more, however. They deliberately try to discover the wants of other human beings. They deliberately identify and invent new resources. They deliberately choose to either supply a resource or to undertake a production project. They recognize that if they make an error, they will have to sacrifice the money or resources that they used to finance the project. And, when they interact with others, they correctly assume that other humans are like themselves in these respects. We say that this thought, creativity, inventiveness, decision making, and uncertainty bearing associated with entrepreneurship is distinctly human.

Even the animals most closely associated with human beings, so far as we know, are unable to perform such complex thought and decision making. Moreover, if a species was ever discovered that had this characteristic, we would surely have grounds for either calling it human or for placing it in a distinct class that separates it from the other plants and animals.

Profit as the Exclusive Income of the Pure Entrepreneur

The pure entrepreneur represents all of distinctly human action. We associate the income of "profit" entirely with this role. The resource suppliers – that is, the suppliers of raw materials, machines, and work – receive another type of income that we call *economic rent*. Wages refer to a particular kind of economic rent received by the suppliers of work. By separating these incomes, we can say that entrepreneurship's incentive to earn profit is the driving force of all distinctly human action in the entrepreneur economy. We shall have more to say about these incomes later in the text.

2. THE ENTREPRENEURLESS ECONOMY

The entrepreneurless economy is an imaginary economy in which there is production and consumption of goods; saving; simulated exchanges of (a) goods for money and (b) resources for incomes; and simulated loans from consumer-savers to producers in exchange for interest. The entrepreneurless economy lacks entrepreneurship and accordingly lacks a driving force. In this part we describe more fully the assumptions about the roles that make up this economy.

Roles in the Entrepreneurless Economy

The entrepreneurless economy contains imaginary robot resource suppliers, robot producers, and robot consumer-savers. The robot producers borrow money from the robot consumer-savers, they use the money to buy resources from the robot resource suppliers, they use the resources to produce goods, and they sell their goods to consumer-savers for money. Then they use the money (their sales revenue) to repay their loans with interest. They earn no profit. Their sales revenue is exactly equal to the money needed to repay the loans (their costs). There is no appraisement, choice, or uncertainty. As a result, all loans are certain to be repaid along with the designated interest.

Robot resource suppliers are pure income maximizers. They select the employment offered by the highest bidding producer. They do not spend income. They instantaneously and without choice turn all the income they receive over to robot consumer-savers.

Robot consumer-savers use income in two ways: (1) to buy consumers' goods or (2) to save. They are pure utility maximizers. For the same good, they always buy the one with the lower price. For two different goods at the same price, they always buy the good that gives more utility. Among the loan rate offers, they always make loans at the highest rate possible.

Unlike the market economy, the entrepreneurless economy contains no uniquely human appraisement of resources, undertaking, or uncertainty-bearing because there is no inventiveness or willful choice.

Households, Firms, Industries, and the Structure of Production

So far, we have used the terms "consumer," "resource supplier," and "producer" to refer to the robot roles of the entrepreneurless economy. Rather than refer to robots, many professional economists use different terminology. They lump together the robot consumers and robot resource suppliers, calling the combination a "household." To refer to the producer, they use the depersonalized term "firm." This terminology can be misleading. In using it, one must constantly be on his guard to avoid confusing the households and firms in everyday life with the robots of the entrepreneurless economy. Although it might be best to avoid using the terminology altogether, the fact is that it has become the language of professional economics. So we employ it here and in later chapters.

Everyday Households

In everyday life, we use the word "household" to refer to a group of individuals who plan their consumption and income-earning activities together. The household may consist of only a single person. Ordinarily, however, it consists of a family that lives under a single roof. But location and familial relationships are not the essence of the everyday meaning of the household. What is important is that the separate members act together as a unit, or team, in at least some of their everyday decision-making.

The everyday household owns a variety of resources. It owns the labor of its members; their human capital; various machines, tools and equipment; natural resources; and other financial assets. . It often owns shares of net worth in corporations and other businesses. It earns income by permitting others to use these resources for pay. But it also produces goods directly with its resources and it even produces resources. It makes and prepares food; it launders its clothes; it does home repairs; it landscapes; it builds workrooms, garages, and sheds; and so on.

In their everyday activities, households do an enormous amount of planning and coordinating. They often plan ahead for many years. Examples are investments in education and training and the purchase of durable goods like tools and refrigerators. They coordinate resources in producing all of the various services for the home and in buying services from others; and they coordinate their education and resource buying with other actions. Everyday households often act in the role of intermediaries in bidding for goods, searching out sellers, haggling over price, searching for employment, bidding for employment, and buying from and for other households. Finally, they participate in the decision-making of corporations and other businesses as a result of their ownership of shares of stock.

Everyday households speculate. When they buy or produce durable consumers' goods and resources, they take account of the future price of such goods. In the backs of their minds is the possibility that (a) they can sell the goods or resources if the price rises high enough and (b) if they do not buy or produce these things now, the cost of doing so in the future may be higher.

Everyday households may face substantial uncertainty and risk. Their own wants may change in unexpected ways after they have already purchased or produced durable goods and resources or after they have invested in their skills or in business. They may make mistakes in their choices. And accidents and disasters may befall them. As a precaution, they may save and buy insurance. Even saving can be risky, however. They may avoid risk by saving with an insured or reputable financial institution. As a rule, however, they can gain a greater return by making investment deposits with a non-insured institution or by purchasing shares of stock. To expect to succeed in the latter type of saving, they must learn about the

reputations and abilities of the individuals who manage their savings. If their knowledge turns out to be incorrect, or if they make a mistake in their decisions; they will be disappointed.

Everyday households may make mistakes in their judgments about the nature of products. This is especially true for two types of products: (1) those that are most cheaply supplied in opaque packages and (2) durable goods, the satisfaction from which will not be fully enjoyed until a future time. The prospect for mistakes leads households to seek information from friends, the media, and from the businesses themselves. To minimize their mistakes, many households buy inexpensive and durable goods only from firms that have reputations for not lying and/or for compensating them if they claim to have been deceived about the satisfaction they will obtain from a product.

Households in the Entrepreneurless Economy

The household in the entrepreneurless economy is hardly more than a routine program in a rather simple computer. It is defined as follows: *A household in the entrepreneurless economy is an economic unit that (a) supplies resources to firms and (b) receives income with which it (c) buys perishable consumption goods and (d) saves at the highest possible rate of interest (e) according to given preferences for goods (f) in order to attain the highest level of satisfaction that it can.* It is basically a robot. One element in this definition requires further elaboration. We assume that the household only consumes perishable goods. Households possess no durable consumers' goods in the entrepreneurless economy. We can envision this by imagining firms that own all of the durable goods. Instead of selling them, the firms rent them out to consumers who pay instantaneously at the time when they consume.

We assume that the household has a preference structure from which its demands for various goods can be derived. We also assume that it possesses resources although, as a household, it cannot judge whether its possessions are, in fact, resources. The household's income depends upon the prices that are paid by firms for resources and the interest on its savings. If the prices and interest are high, the income is high. If they are low, the income is low. We assume that in the entrepreneurless economy, different households save different amounts and own different resources. As a result they may receive different incomes.

Everyday Firms

The businesses of everyday life are quite varied. Students of business administration usually distinguish between three types of firms: the sole proprietorship, the partnership, and the corporation. A *sole proprietorship* is an owner-operated firm. The proprietor, or owner, is the employer. She hires employees and, by herself, acquires the legal right to any residual profit. She also has a legal obligation to pay any residual loss. She is totally responsible, under the law, for the debts incurred in the business.[6] The second type of firm is the *partnership*. In a partnership, there may be many partners. Or there may be only two. The partners share in the profit and loss according to a formula that they jointly devise. Each is fully liable, under the law, for the debts incurred by the other partner in the business. If one partner cannot afford to pay his share of a loss, the other partner(s) must pay it. A corporation is a firm that is "owned" by *stockholders*. The largest corporations have many stockholders. However, some small corporations only have a single stockholder. The stockholder(s) elects a board of directors, which is responsible for hiring a chief executive officer (CEO). The CEO directs the firm by hiring employees and giving them directions. The board of directors can fire the CEO. And the stockholders can change the composition of the board by majority vote at a stockholders meeting. The number of votes possessed by each stockholder is directly proportional to his share of the total amount of stock. Shares of stock can be bought and sold. This makes it possible for an individual or a group to "takeover" the corporation by purchasing enough shares to change the composition of the board of directors and, ultimately, the CEO.

In the United States today, most of the firms, about 70 percent, are sole proprietorships. Less than 20 percent are corporations. Nevertheless, because corporations are large relative to proprietorships, between 85 and 90 per cent of the sales of goods are made by corporations.

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[6]A liberal bankruptcy law may excuse her from some of this liability, as we saw in Chapter Five.

Firms in everyday life ordinarily produce a number of different, related products to which they attach their particular brand name. Products may be related in consumption, as in the case of a firm that produces complementary products and packages them together or sells them in the same way for the convenience of buyers. Products may also be related in production in the sense that the same firm produces different varieties or grades of a given product. Some firms produce products that appear to be totally unrelated. Such firms are called *conglomerates*. Many firms are vertically integrated to some degree. But hardly any are completely vertically integrated.

Many firms in everyday life are continuously engaged in research in order to identify new goods and resources, new markets for the goods or resources they already produce, and new methods of producing the goods.

Firms in the Entrepreneurless Economy

All firms in the entrepreneurless economy are sole proprietorships.[7] The proprietor is assumed to own all of the resources in the firm. *A firm in the entrepreneurless economy is an economic unit that (a) buys resources from resource suppliers, (b) uses the resources to produce consumers' goods, and (c) sells the goods to households.* Textbook writers in microeconomics often write that firms aim to maximize profit. However, since there is no entrepreneurship in the entrepreneurless economy, there can be no profit. We shall discuss this idea further in Chapter Ten. In the simplest image of a entrepreneurless economy, we assume that all firms are perfectly vertically integrated. This means that all firms produce all consumers' goods from start to finish, after which the firms sell them to households. No firms produce physical or human capital in order to sell it to other firms.[8]

Industries

We define an industry as a group of firms that produce the same product. In everyday life, the firms in an industry may produce products that are similar but different in some respects. In the entrepreneurless economy, however, we assume that they produce exactly the same product. The product produced by the firms in an industry may be a resource or a consumers' good. In the entrepreneurless economy, we assume that firms produce all consumers' goods from start to finish. Thus, industries consist of firms that produce resources but do not sell them. The firms use those resources to produce a single type of consumers' good, which they sell.

Assumptions About the Alternatives

Homogeneous Units of Heterogeneous Types

In the market economies of everyday life, people buy and sell a variety of different types of goods and resources: potatoes, pants, houses, spoons, hammers, cars, maid-service, theater tickets, and so on. Each of these types can be broken down into subtypes. For example, there are short and long pants, women's and men's pants, loose-fitting and snug pants, winter and summer pants, striped and single-colored pants, and so on. Entrepreneurship aims to supply the quantities and types of these items that will bring the most profit. Moreover, it actively searches for and even promotes new styles, variations, and fabrics which it believes may entice customers away from competitors. It may cause new types or variations of goods to appear and old ones to disappear from store shelves.

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[7]Why assume that the firm has only one owner? In a 1934 paper, Professor Nicholas Kaldor justified the assumption by focusing on the way in which enterprise must coordinate resources. He said that "it is the essence of co-ordination that every single decision should be made on a comparison with all the other decisions already made or likely to be made; it must therefore pass through a single brain."

[8]One reason for assuming perfect vertical integration is to make it easier to contrast the entrepreneurless economy with the pure entrepreneur economy. Recall that we assumed that pure entrepreneurs also produced all goods from start to finish.

In the entrepreneurless economy we assume that all consumers' goods are *homogeneous*. (Homogenized milk is homogeneous because one cup from a bottle is, for practical purposes, the same as another cup.) Thus, we assume that all potatoes, pants, houses, etc. are exactly alike.

We can represent quantities of consumers' goods and resources in the entrepreneurless economy with mathematical symbols. Specifically, we can represent all the possible consumers' goods by letters with subscripts. For any number of different types of consumers' goods, say n, we can represent the goods by x_1, x_2,...x_n. The amount of any particular consumers' good, say the amount of the good x_1, can be denoted by a number. For example, if there are 100 units of x_1, x_1 would be assigned a number of 100. There would be 100 units of x_1.

We can make similar simplifying assumptions for resources. We can classify resources into a fixed set of different types. If we denote a resource by the letter y, we can say that there are m different types of resources which are represented by y_1, y_2,...y_m. The amounts of each type of resource can be signified by numerical values for the ys.

Adopting these conventions, we can represent a change by referring to a change in the quantities of consumers' goods or of resources.

Productivity Differences Among Resources of the Same Type

We shall find it useful to assume that resources within a given type have *different physical productivities. One resource is more productive than another of the same type if, when it is used with a given amount of other complementary resources, the result is more output or sales revenue.* Consider a resource of the type y_3. The class has, say, 9 members. That is, there are 9 units of the resource in that class. For example, there may be nine berry-pickers. Suppose that each of the 9 units has a productivity which is different from the others in the class. Let us denote the relative productivity of a resource -- that is, the productivity of one resource relative to the others -- by a second subscript. Thus, y_{34} is a resource of class 3 which is more productive than resources y_{35}, y_{36}...y_{39} but less productive than y_{31}, y_{32}, and y_{33}.

Resources of a given type that have different productivities are not homogeneous in a strict sense. However, if we assume that they differ in only one dimension, we can represent one reason why some resources in the same class receive higher incomes than others.

Capital and Non-Capital Resources

It is often useful to assume that there are two general categories of resources: capital and non-capital. Capital is a class consisting of resources that are produced by means of other resources. Non-capital consists of resources whose quantities cannot be changed. To distinguish non-capital from capital resources, we could assign subscripts 1 to k to non-capital resources and k to m to capital resources. By this method, y_1, y_2...y_k would be labeled non-capital; while resources y_{k+1}, y_{k+2}...y_m would be labeled capital. k is an arbitrary number between 1 and m. For example, suppose that k = 100. Then there would be 100 different types of non-capital resources, the last of which is labeled y_{100}. The rest of the resources would be capital. y_{101}, for example, would be the first of the capital resources.

Markets and Prices

In a market economy, markets must be *created* by individuals who want to benefit from exchange. Independent intermediaries and undertakers use their different respective capacities to invent and to copy; and the result is vast networks of exchange. We assume that the entrepreneurless economy already has markets and prices and that no new ones are created. This means that each different type of good and resource can be described by two characteristics: quantity and price. Thus, for each good, x_i, and resource, y_j, there is a price, which we denote by the symbol p_{xi} or p_{yj}, that corresponds to it. This means that a particular entrepreneurless economy can be described in terms of the particular set of prices for each of the goods and resources.

Note that we assume that all of the units of the same good sell at exactly the same price. In a real market economy, prices of the same good vary from place to place. But in the entrepreneurless economy there is no variation.

The assumption of a fixed set of homogenous goods and uniform prices for all units of the same good enables us to describe coordination and change in the simplest possible way. As we shall see in Chapter Eleven, we assume that before a change occurs, there is a fixed set of different consumers' goods, each containing a fixed number of homogeneous units and each selling at a particular price. We describe the effects of change by referring to the change in the number of units in each class and their prices. If we assumed that there are many different variations of the same good and that the different units of the good could sell at different prices, our descriptions of change would be unmanageable.

Time

Time in the usual sense is absent from the entrepreneurless economy. We can imagine that the same resources and goods are produced "again and again." We can thus refer to the entrepreneurless economy as if it consists of a series of separate identical "periods." However, we cannot connect this idea of time to the idea of time that we associate with distinctly human action. Time in action refers (1) to decision-making time or (2) to the time between when a decision is made and the results are expected to be felt. Since there is no distinctly human decision-making in the entrepreneurless economy, the economy contains no time in the action sense.

In earlier discussion, we distinguished between capital and non-capital resources. The main reason for making this distinction was to enable us to introduce a framework in which we can *simulate* a period of production. By (1) assuming that there is capital in the entrepreneurless economy and (2) by associating the production of capital with an additional amount of time required to produce a good from start to finish; we can describe the effects of change *as if* the adjustment to a new situation requires (capital-producing) time to pass. We can distinguish between the "short run" and the "long run." This procedure, which is largely due to 19th century British economist Alfred Marshall, will be presented in Chapter Ten.

Competition

Competition in the entrepreneurless economy differs in three fundamental ways from that in the market economy. First, there is no inventiveness. This means that competition in the entrepreneurless economy does not take the form of introducing new goods, resources, or methods of production. Second, there is no distinctly human copying. A producer does not observe the actions of another producer and then decide to copy the other's action. We assume that he merely copies the behavior if he can gain from this. The copying occurs simultaneously. For example, we use the entrepreneurless economy to present the effects of a technological change by assuming that the change is introduced by one firm and then immediately copied by all of the other firms in the industry. Third, there is no rivalry. Price competition is simulated by a model. In this model, the market prices of consumers' goods together are determined simultaneously by the aggregate market demands and aggregate market supplies in the various industries. In addition, the model assumes that it is unprofitable for firms to charge a price that is either higher than or lower than the industry price. In short, the simulated price competition of the entrepreneurless economy has instantaneous consequences and does not entail price setting by individual producers. All producers that produce the same good must charge the same, simultaneously-determined price because it is the only price that is consistent with the model. In Chapter Fifteen, we shall contrast this notion of competition with one that is more realistic for the market economy.

Questions for Chapter 8

1. Define appraisal, intermediary, undertaking, period of production, guaranty, sole proprietorship, partnership, corporation, conglomerate.

2. Describe the role of the consumer-saver in the market economy.

3. Describe the role of the resource-supplier in the market economy.

4. Describe the role of the entrepreneur in the market economy.

5. Name and tell the meaning of the three functions of the entrepreneur role.

6. Explain how bankruptcy laws affect the division of uncertainty bearing.

7. Betting at a casino is gambling. How does the decision made by an entrepreneur to undertake the production of a good differ from casino gambling.

8. The textbook asserts that producing entrepreneurs are the *final* controllers of resources. Are they not also the *initial* controllers of resources? Explain.

9. Even though a person makes a money profit (i.e., his money revenue is greater than his money costs), he may actually have made a loss. Explain how this is possible.

10. Tell the difference between risk and uncertainty.

11. Tell the difference between class probability and case probability in scientific knowledge. You will probably want to use examples.

12. How does the *pure entrepreneur* differ from the entrepreneur role?

13. Can we model, or construct a program, for the role of the pure entrepreneur? Explain

14. Define the household in the entrepreneurless economy.

15. Define the firm in the entrepreneurless economy.

16. Define the industry in the entrepreneurless economy.

17. The model of the economy we shall use assumes a given set of goods, the units of which are homogeneous. It also assumes that each unit within the set sells at exactly the same price per unit. Why do we make such unrealistic assumptions?

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