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Economic Theory as a System of Theorems

Outline

In his 1966 treatise *Human Action* (HA) Mises defined the science of economics in terms of the ultimate goal of evaluating intervention arguments. The proponent of an intervention assumes a sphere of capitalism and she proposes an intervention that she predicts will have particular consequences. A proponent of an intervention proposes some change in the actions of government agents that she expects to affect market interaction. She may argue that the intervention will raise the amounts of material consumer goods over what they otherwise would have been. Or she may argue that the intervention will not sufficiently reduce these amounts to offset other identifiable benefits. In accord with the goal of evaluating intervention arguments, the economist aims to build theorems about the effects of government agents using their monopoly over coercion and compulsion to influence some action or set of actions under the conditions of capitalism.

I use the term "pure capitalism" to refer to Mises's image of the pure market economy (HA: 237-8). The economist who builds an image of market interaction under pure capitalism does not aim to match the conditions he assumes with the conditions that exist in a real capitalist economy. In real capitalist economies, some actions have external effects on others for which payments are not made and rewards not received. Examples are pollution and congestion. Private property rights are incomplete.[1] Also completely free enterprise is hardly ever present in real capitalist economies. Completely free enterprise implies that no one uses coercion to block another person from competing as a factor supplier or as a supplier of a consumer good. In real capitalist economies, business tactics

[1]Mises discusses the relationship between private property rights and external effects in HA (HA: 654-7).

may consist of using coercion against rivals and vandalism as profit-maximizing tactics. Moreover, legislation often restricts entry into particular occupations and businesses. Fraud and deception, too, are common characteristics of real capitalist economies. Finally, people may use different items as money in exchange and to calculate revenues and costs. In short, real market interaction occurs under conditions of impure capitalism.

The proponent of market intervention proposes to change a law that alters a condition of capitalism – private property rights, free enterprise, etc. She may assume in her proposal that the conditions of pure capitalism prevail or that some form of impure capitalism prevails. If the proponent's intervention pertains to the conditions of some form of impure capitalism, the economist must build an image that matches the conditions she assumes.

Before the economist can build an image of impure capitalism, he must build a reference image of pure capitalism. Otherwise, there will be ambiguity in her use of the defining terms. The image of pure capitalism enables her to build a vocabulary in which private property rights, free enterprise and the use of money in exchange can be defined precisely in terms of consumer utility. The discussion in this essay pertains to pure capitalism only.

1. ECONOMICS AS A SYSTEM OF THEOREMS

An economic theorem is a deduction about how the actions of a number of actors each contributes to a specific composite outcome or set of outcomes. It is a statement about the individual actions of a number of actors under the conditions of capitalism. It describes a sequence of actions leading to a final outcome and the effects of those actions on the individuals.

Economic theorem: a statement that tells the sequence of actions undertaken by a number of individual actors under the conditions of capitalism and a final outcome of those actions following the introduction of a factor provoking change.

Mises tells how to build an economic theorem in his chapter on scope and method. He writes that there

> is no means of *studying the complex phenomena of [market interaction]* other than first to abstract from [interaction] altogether, then to introduce an isolated factor provoking [action], and ultimately to analyze its effects under the assumption that other things remain equal (HA: 248, italics added).

To "analyze its effects" means to abstract from all other changes in order to focus on a particular sequence of events that tend to lead to some *endpoint*. To do this requires the use of *ceteris paribus* assumptions.

It is obvious that an economic theorem is necessary to evaluate intervention arguments. An intervention argument is a proposal that if some factor provoking change is introduced, the resulting outcome is preferred to the situation that would exist in the absence of the change. It is not so obvious, however, that the only method available for producing an image of pure capitalism also requires theorem-building. Mises writes as much when he refers to the complex phenomena of market interaction. Complexity requires the economist to conceive interaction by referring to functions and roles. He cannot describe the actions of every specialist and employee who participates in the division of labor. So he creates the images of the roles of the entrepreneur, consumer

sovereignty, and factor supplier to perform the actions required to enable the production and consumption of the consumer goods that yield utility to consumers. For the phrase "actions undertaken by a number of individual actors," he substitutes "actions caused by the entrepreneur role's action in relation to the consumer-saver and factor supplier roles." His economic theorems consist of statements about the the sequence of actions caused by the entrepreneur role under the conditions of capitalism that alter the behavior of factor suppliers and consumer-savers following the introduction of a factor provoking change. The sequence ends with a final outcome that changes the utility of the consumer-savers and the incomes received by the factor suppliers. The economist builds the image of capitalism by introducing a series of factors provoking change and describing subsequent sequences of action.

2. BUILDING THE IMAGE OF PURE CAPITALISM

The economist builds the image of pure capitalism in accord with the traditional scope of economics. That is to say he builds a set of theorems that depict a series of actions the outcome of which is prices, quantities and related "market phenomena." I have called this set of theorems the "consumer utility theory of market phenomena." It was invented by the individualist economists. A major purpose of this theory is to depict scarcity. To do this, the economist begins with the *theorem of the elimination of price differences*.

Theorem of the Elimination of Price Differences

The theorem of the elimination of price differences states that entrepreneur profit-seeking action causes "a tendency toward an equalization of prices for the same goods in all subdivisions of the market, due allowance being made for the cost of transportation and the time absorbed by it" (HA: 329). Of cours, different units of a class of consumer goods or a class of factors of production may have different characteristics. In this case, price differences are due to the different consumer wants for the different types of consumer goods or factors in the same class.

Theorem of the elimination of price differences: entrepreneur profit-seeking action causes a tendency toward an equalization of prices for the same consumer goods and factors of production in all subdivisions of the market, due allowance being made for the cost of transportation and the time absorbed by it.

Mises writes about how this theorem is presented in the following way:

> We think on the one hand of a state of affairs which leads to acts of exchange; the situation is such that the uneasiness of various individuals can be removed to some extent because various people value the same goods in a different way. On the other hand we think of a situation in which no further acts of exchange can happen because no actor expects any further improvement of his satisfaction by further acts of exchange. We proceed in the same way in comprehending the formation of the prices of factors of production. The [determination of prices and other market phenomena] is actuated and kept in motion by the exertion of the promoting entrepreneurs, eager to profit from differences in the market prices of the factors of production and the expected prices of the products. [The entrepreneur action] would stop if a situation were ever to emerge in which the sum of the prices of the complementary factors of production – but for interest – equaled the prices of the products and *nobody believed that further price changes were to be expected*. Thus we have described the process adequately and completely by pointing out, positively, what actuates it and, negatively, what would suspend its motion (HA: 334, italics added).

The Market Phenomena

The classical economists employed the theorem of the elimination of price differences in an effort to build a grand system of market interaction in which price differences were eliminated for all commodities and for three factors of production – land, labor and capital. The individualist economists refined this system by linking the factors of production with consumer goods by introducing the incentive of consumer utility that motivates all action and supply chains connecting the prices of consumer goods, or goods of the first order, to the prices of each factor at each link in the supply chain for a factor.

for the factors but then refined inAfter introducing the factor provoking change, the economist attributes all of the subsequent changes in market phenomena to the entrepreneur role. But what are these market phenomena? In other words what are the material consumer goods and factors of production in the theorem of the elimination of price differences? In answering this question, Mises made two important contributions. The first was to identify the basic distinction between the human and non-human factors of production that was manifest in the writings of the individualist economists. The second was to identify a special price associated with the choice between consuming material consumer goods in the near future and saving.

The Factors of Production in Individualist Economics

The classical economists classified resources, or factors of production, into three types: land, labor and capital. The individualist economists changed this. The new typification divides resources into two broad classes: human and material.[2] The difference between the two classes of factors in the new classification system is that a human resource must be owned by the person in whom it is embodied, while a material resource can be owned by anyone. More accurately, the final decision regarding how a human resource will be employed must rest with the human being in whom the resource is embodied.

The owner of a human resource can transfer control over her work only within limits. She does this by making an employment agreement. She cannot sell the government-established legal right to control her work but she can rent out that right, within limits. She can do this by accepting an employment offer. The owner of a material resource can also transfer control within limits. But unlike the owner of a human resource, he can transfer complete control under the law by selling the resource to another person.[3]

That a human resource must ultimately be controlled by the person in whom it is embodied is not derived from a view of which rights are natural or inalienable. It is an implication of the free

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[2]Mises writes that the "modern theory of value and prices...distinguishes within the class of factors of production...the nonhuman (external) factors from the human factors (labor)" (HA: 636). Regrettably, he does not explain why and he provides no references.

[3]In real capitalist economies, individuals may not be able to gain complete control. For example, the government may have established usufruct rights.

enterprise condition of capitalism. To control another person's labor is a characteristic of slavery. Slavery is incompatible with the free enterprise characteristic of legal rights. The performer of work must have the final veto over whether his work will be performed.

Scarcity Through Time

The term "scarcity" is a way of expressing the fact that for individuals to best satisfy their wants, they must choose between alternative means. In market interaction the consumer role expresses wants, while the entrepreneur role identifies the means of satisfying them and then directs that the factors of production be employed to produce the material consumer goods required to best satisfy the consumer wants. I use the phrase "scarcity through time" to remind the reader that the satisfaction of consumer wants of for material consumer goods in the near future must come at the expense of the satisfaction of consumer wants for material consumer goods in the more distant future. The term further implies that in deciding which items are factors of production and how to best employ the factors, the entrepreneur role takes account of this characteristic of consumer wants. An individual acting in that role may choose to employ factors to produce goods for the more distant future. In addition, she may produce research and development that she regards as potentially profitable in helping to produce material consumer goods for the distant future.

Originary interest: a hypothetical ratio of material consumer goods in the nearer future to those in the more distant future that represents an actor's preference for consuming goods at various times.

In my presentation of this concept, I use the new phrase "time preference ratio." The time preference ratio refers to a hypothetical *ratio* that is the outcome of a person's weighing of expected utility from material consumer goods in the nearer future against the expected utility from such goods in the more distant future.[4] That a person makes such a comparison is an implication of the time characteristic of action.[5]

Time preference ratio: a hypothetical *ratio* that is the outcome of a person's weighing of expected utility from material consumer goods in the nearer future against the expected utility from such goods in the more distant future.

Consider an isolated actor – a person in a Crusoe situation. Crusoe, as a normal human actor, is not indifferent to when he consumes a particular durable material consumer good. He cares whether

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[4]Mises was the first and perhaps only economist to properly incorporate scarcity through time into the individualist economists' system. Unfortunately, he used words that made it almost impossible to learn his contribution from his treatise. The term he used was "originary interest."Mises provides a number of definitions of this concept. These include "the discount of future goods as against present goods" (HA: 124) and "the ratio of the value assigned to want-satisfaction in the immediate future and the value assigned to want-satisfaction in remote periods of the future" (HA: 126). My definition corresponds most closely to his statement that the action that manifests it consists of "a weighing of satisfaction in nearer periods of the future against satisfaction in remoter periods of the future" (HA: 129). He says that originary interest in this sense is "a category of human action." By this, he means that it is what I have called a necessary characteristic of action. I discuss his use of this phrase in the appendix.

[5]One might attribute the discovery of this ratio to earlier writers like Frank Fetter, Irving Fisher or Herbert Davenport. Mises was certainly the first to show that it can be traced to the prerequisites and necessary characteristics of action.

he consumes it in the nearer future or in the more distant future. The same is true about the particular production project to which he assigns his factors of production. He is not indifferent about whether the material consumer goods that he expects them to help him produce will become available in the nearer or more distant future.

The choices made by an actor in isolation depends partly on her time preference ratio. One could imagine two different isolated actors who have similar wants for the different consumer goods and similar capacities to produce them. They might produce and consume the same proportions of the different goods. But if their time preference ratios differ, one would consume more in the nearer future than the other.

Among the choices the isolated actor would have to make is whether to employ his durable factors of production and to what extent for the production of near future goods. Also, if he has a store of durable consumer goods, he would have to decide whether to consume them or to keep them for the future. Storage costs – the loss in utility expected from storage – is a factor that he would incorporate into his deliberations.

In depicting capitalism, the economist assigns to the entrepreneur role the task of deciding which production projects to carry out, which factors of production to use, when to use them, and whether to allow durable consumer goods to be consumed. The economist assumes that interacting individuals acting in the entrepreneur role must decide whether to set existing material consumer goods aside for future consumption and they must decide whether to devote what they regard as the factors to the production of consumer goods for the nearer or more distant future. Their decisions take account of the separate time preference ratios of the consumers.[6]

When the entrepreneurs determine the prices of consumer goods and the factors of production, they attach premiums based partly on the signals they receive about time preference ratios. Such signals can be divided into two broad classes. The first consists of the signals they receive in the

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[6]Mises describes the mental process of building this theorem as follows.

> We think on the one hand of a state of affairs which leads to acts of exchange; the situation is such that the uneasiness of various individuals can be removed to some extent because various people value the same goods in a different way. On the other hand we think of a situation in which no further acts of exchange can happen because no actor expects any further improvement of his satisfaction by further acts of exchange. We proceed in the same way in comprehending the formation of the prices of factors of production. The operation of this market is actuated and kept in motion by the exertion of the promoting entrepreneurs, eager to profit from differences in the market prices of the factors of production and the expected prices of the products. The operation of this market would stop if a situation were ever to emerge in which the sum of the prices of the complementary factors of production – but for interest – equaled the prices of the products and *nobody believed that further price changes were to be expected*. Thus we have described the process adequately and completely by pointing out, positively, what actuates it and, negatively, what would suspend its motion (HA: 334, italics added).

In this passage Mises writes only of the prices of the consumer goods and factors of production. It is important to realize that the particular items in these classes may change during the hypothetical period of the operation of the market. Prior to the economist's activation of the "operation of the market," the particular goods and factors may be different from those that are deduced to exist at the imaginary time at which the operation theoretically stops. It follows that in writing the passage, Mises was not assuming a fixed amount of items and actions that would be regarded by actors as consumer goods and factors throughout. For example, some types of labor may be produced, while other types of labor may be replaced by machines. Similarly, new material factors may be discovered while existing factors may be completely used up.

markets for consumer goods.[7] Higher time preference ratios, other things equal, cause consumer-savers to express higher demands for consumer goods in the nearer future and lower demands for consumer goods in the more distant future than lower time preference ratios. The difference in demands implies a difference in entrepreneurs' allocation of factors. The second class of signals are received in loan markets where the entrepreneurs pay market interest on loans from savers. The market interest required by consumer-savers reflects the time preference ratios of the savers.

The proponent of an argument proposes

> The system of such theorems constitutes economic theory, or economics (HA: 646).

To evaluate her argument, the economist needs an economic *theorem*. An economic theorem is a description of the effects on market interaction of some change.

Since the ultimate goal of the economic scientist is to evaluate intervention arguments, one can define economics as a *system of theorems* (HA: 646). In a fashion, Mises defined economics in this way. However, in his critical chapter 14 on scope and method, he did not directly say that the ultimate goal of the economist is to evaluate intervention arguments. Moreover, he hardly used the term "theorem." After first defining the scope of economics as the study of markets and prices, he introduced what he called "the method of imaginary constructions" in a section with this title (HA: 236). He chose to organize the rest of the chapter according to the names of the most fundamental imaginary constructions he used in the treatise.[8] To find his definition of economics and the reason for it, a reader must carefully follow his words.

The method of imaginary constructions is the method of producing economic theorems. Producing economic theorems, in turn, is the method of presenting the effects of some change, including a market intervention. Thus it is not wrong to say that the method of imaginary constructions is the method of economics. However, to leave out theorem production is potentially misleading. One must assume that practically all those who call themselves Austrian economists today have read Mises's treatise. Yet, it seems that none has articulated the method of imaginary constructions. And none to my knowledge has adopted Mises's ultimate goal.

An economist who makes building economic theorems his focus is in a position to establish a *hierarchy* of imaginary construction types. The result is a more advanced description of the method of economics than Mises himself presents. Mises did not distinguish a hierarchy. Being the inventor of praxeological-based economics, he was content to identify the constructs that he knew economists had used in the past and to explain why they are needed.

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[7]The suppliers of factors of production receive signals from the buyers of the factors they produce.

[8]He probably did this because he wanted readers to learn how knowledge of the praxeological foundations of economics helps one understand the imaginary constructions that economists must use in their theorem building. But the absence of a clear explanation of how this helps achieve the ultimate goal is a major obstacle to a reader.

This is the first attempt to interpret Mises's theorem-building process, aside from that promoted by Rothbard. To support my interpretation, I quote Mises's words extensively. Most of the quotes are taken from his chapter 14.

This essay begins in Part One by defining an economic theorem and showing how the economist builds one. Part Two briefly divides the types of imaginary constructions into two types.

The Prerequisites and Necessary Characteristics of Action and Economic Theorems

An economic theorem is a combination of (1) the prerequisites and necessary characteristics of action and (2) a set of assumptions about the conditions under which the actions occur (HA: 64-6). Such assumptions can be called subsidiary assumptions. An economic theorem can be conceived as a "chain of reasoning" that links the prerequisites and necessary characteristics of action to a specific set of subsidiary assumptions (HA: 68).

A theorem is an expression of logic. If it is properly built, the outcome can be traced back to the prerequisites and necessary characteristics of action. Mises writes that the builder of an economic theorem:

> can never be absolutely certain that his inquiries were not misled and that what he considers as certain truth is not error. All that man can do is to submit all his theories again and again to the most critical reexamination. This means for the economist to *trace back all theorems to* their unquestionable and certain ultimate basis, *the category of human action*, and to *test* by the most careful scrutiny *all assumptions and inferences* leading from this basis to the theorem under examination (HA: 68, italics added).

To trace each theorem back is a means of checking the logic of a theorem. In this passage, to "test" all assumptions and inferences means to mentally match the assumptions and chains of reasoning to the situations that the economist aims to depict in his theorems.

The Ultimate Goal of Building Economic Theorems

When a Misesian economist writes of the method of economics, he must be referring to the method of achieving the ultimate goal of evaluating intervention arguments.

The goal and method are inseparable. The goal cannot be achieved without the method. And to refer to the method of economics without also referring to the ultimate goal invites confusion.

Theorems to Evaluate Intervention Arguments

Once the economist builds the image of pure capitalism, he is ready to move on to the next step. He can make additional assumptions in an effort to match those proposed by the proponent of an intervention argument. His ultimate goal is to employ his special knowledge to determine whether the proposal can achieve the aim that the proponent specifies. The question asked by the evaluator is how the interference, or intervention, affects the profit-seeking actions of the entrepreneur role.

If the proponent of the intervention assumed pure capitalism, the evaluator builds the required theorem by assuming that the interference is the factor provoking change. Then he compares the entrepreneur actions in the absence of the interference with those that would be taken in its presence. Typically, a proponent is interested in the stream of benefits over time that would be foregone by adopting the intervention. He compares the final outcome toward which the market phenomena would have tended with the final outcome toward which the market phenomena tend due to the intervention. The evaluator employs the same procedure if the proponent assumes some variation of pure capitalism.

The Subsidiary Assumptions

The subsidiary assumptions used in building economic theorems are chosen in order to represent the traditional interests of economists – i.e., to guide the economist in building theorems that fit into the traditional scope of economics. They can be divided into three classes. The first is a single assumption that utility is gained entirely from the consumption of material consumer goods. By making this assumption, the economist shows his concern with material consumer goods and not with satisfaction from other things and actions such, such as personal relationships or performing the function of supplying labor. The economist's concern with material consumer goods enables him to carve out, so to speak, a particular branch of the science of human action for which he possesses special knowledge. If the proponent of an intervention argument wants regards such non-material goods satisfaction as important, the economist can add subsidiary assumptions when he proceeds to evaluate her argument.

Classes of subsidiary assumptions:
1. The assumption that individuals gain utility only from material consumer goods.
2. Assumptions about the conditions of pure capitalism that the economist makes in producing theorems for pure capitalism.
3. Assumptions that reflect the particular conditions assumed by the proponent of an intervention argument.

The second class consists of the conditions of pure capitalism that the economist assumes prevail. The third class is a catchall. It includes all of the *ceteris paribus* assumptions required to produce an economic theorem with the exception of the factor provoking change that is being investigated.

3. TYPES OF IMAGINARY CONSTRUCTIONS USED IN ECONOMICS

In order to build economic theorems, the economist must employ imaginary constructions. There are three types of imaginary constructions. I call the elements in the first type "subject matter constructs." Subject matter constructs are required to separate the narrower, traditional subject matter of economics – the phenomena of markets and prices – from the broader phenom-

Types of imaginary constructions:
1. Subject matter constructs: imaginary constructions that help the economist distinguish the traditional scope of economics.
2. Constructs required to build the image of pure capitalism.
3. Auxiliary constructs: imaginary constructions that are required to evaluate particular intervention arguments.

ena of action that comprise the other conceivable branches of praxeology. An example is the image of "autistic exchange."

I call the second type "constructs required to build the image of pure capitalism." To build this image requires a set of economic theorems. To build each theorem, the economist must employ the imaginary constructions of an initial and final state of rest and the image of integrated functions. In the latter construct, the entrepreneur function represents several aspects of distinctly human action including the active planning and decision making about the means of production. This and other imaginary constructions used by Mises are described in my essay on "The Methodology of Economics." The third type are auxiliary constructs: imaginary constructions that are required to evaluate particular intervention arguments. Many intervention arguments refer to specific conditions such as impure capitalism, a pure capitalist economy in which intervention is taking place, or some other variation. Such constructs are required to represent the assumptions made by the proponent of the intervention argument.

APPENDIX

POTENTIAL CONFUSION REGARDING ORIGINARY INTEREST

The term "originary interest" is a major source of confusion for modern readers in Mises's treatise. One reason for the confusion is that he uses it to refer to three different ideas: (1) the time preference ratio that is a necessary characteristic of action, (2) the final rate of interest in the final-state-of-rest method of building time-related change theorems and (3) an income in the functional economy. All three ideas are necessary in order to correctly understand his explanation of a trade cycle. However, the term "originary interest" is not necessary.

Indeed, the three different meanings makes its use counterproductive. The time preference ratio is a property of action. The rate of interest in the evenly rotating system is one of many prices that the economist assumes in order to build economic theorems. It is unlike the price of bread in that (1) it cannot be related to the prices of other particular goods like butter and potatoes and (2) it is not related to the prices of the factors of production employed to produce bread. Nevertheless, the concept of a *final rate of interest* is necessary to produce theorems that take account of consumer-saver's time preference ratios. It is part of the economist's theorem-building toolkit, as it were. To avoid ambiguity, I call the money received that corresponds to the interest received in the evenly rotating system "pure interest."

Pure interest as an reward to savers – as an income – is also an important part of the theorem-building process. Failure to understand who receives it and why can lead to grave errors. For example, Mises writes that in the image of integrated functions, the entrepreneur receives profit or loss, the suppliers of the material factors of production (capital goods and land) receives pure interest, and the worker role receives wages (HA: 254). What he means is that the economist should regard pure interest as a reward for saving. The owners of these factors decide not to sell them and use the money to buy material consumer goods. In making this decision, they opt to consume material consumer goods in the more distant future rather than in the nearer future. They manifest their time preference ratios.

In ordinary speech, people use the term "rent" to refer to money received by the owners of land and capital goods. The use of this term is misleading and not consistent with the consumer utility theory of market phenomena. If market interaction is viewed from the perspective of the expected consumer utility, the payments received by individuals who could sell their material factors are rewards for their postponement of consumption. Similarly misleading is the term "hire price." It is true that from the standpoint of the employer of the factors, rent per week is a "hire price," just as a wage per week is a hire price. But this standpoint is not that of the economist following the discovery of the consumer utility theory of market phenomena.

In market interaction, the money received by the supplier of a material factor as well as by a worker may be partly a reward for the supplier's speculation. In the evenly rotating system, there can be no speculation. Accordingly, Mises says that the evenly rotating economy contains only two incomes: originary interest and wages, both of which are earned by passive automatons who repeatedly behave routinely. In real market interaction, pure interest and profit are always mixed together. The economist can conceive of pure interest only by building the image of an evenly rotating system which cannot contain profit because it contains no entrepreneur function. Thus he writes that "it was only the elaboration of the imaginary construction of the evenly rotating economy

that made it possible to distinguish precisely between [pure] interest and entrepreneurial profit and loss." The "activities of the entrepreneurs tend toward the establishment of a uniform rate of originary interest in the whole market economy...[It tends toward the] final state of the rate of originary interest" (HA: 536). Similarly, he writes that originary interest can "in the changing economy never appear in a pure unalloyed form" (HA: 534). "In the changing economy interest stipulated in loan contracts is always a gross magnitude out of which the pure...interest must be computed by a particular process of computation and analytical repartition" (HA 536).

Interest in everyday speech refers to payments received in return for lending money. One conceives of a market for loanable funds. In such markets, the functions of saving and entrepreneurial speculation are necessarily mixed. This is because there can be no certainty regarding repayment of loans to entrepreneurs. Capitalist financiers can offer to insure loans by savers of money. This arrangements may enable a lender to shift most of the uncertainty-bearing from her to the financier. But it cannot remove the uncertainty associated with the entrepreneurial venture. In the absence of insurance, if a venture turns out to be profitable and the loan is repaid with interest, the lender receives both pure interest and entrepreneurial profit.

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