

**Mises vs. Rothbard on Time Preference and Interest:
The Future Prospect of neo-Austrian Growth Theory**

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Abstract

This essay compares Ludwig von Mises's theory of time preference and interest with a comparable theory of Rothbard, who claimed to be following Mises. It shows that Mises held a praxeological theory, based on the assumption that individuals value goods according to the criterion of sooner or later. Murray Rothbard, on the other hand, held a theory that time preference is positive – that people prefer goods in the present to goods of like kind and quantity in the future. Rothbard's implicit claim that his theory is based on Mises is incorrect.

Rothbard's applied his positive time preference to economic growth and his application was copied and modified by Joseph Salerno. The Rothbard-Salerno theory of growth attributes most if not all economic growth to a low or falling time preference. It is argued that this is a sharp departure from Mises, who proposed a more open-ended theory in which entrepreneurship plays an essential role in innovation. Some suggestions are made about further development of a growth theory along Misesian lines in order to give neo-Austrian growth theory a brighter future.

Mises vs. Rothbard on Time Preference and Interest: The Future Prospect of neo-Austrian Growth Theory

In the 1980s Murray Rothbard succeeded in institutionalizing his affiliation with Ludwig von Mises by founding the Mises Institute in the U.S. He proclaimed Ludwig von Mises an heroic defender of the free market and proceeded to found a society of economists who he hoped would learn Mises's ideas, improve on them when appropriate, and spread them to others. Today, he is regarded as one of two American students of Mises who helped to revive Austrian economics in the U.S., the other being Israel Kirzner. To some neo-Austrian economists, he is a creative genius in the mold of Carl Menger, and Mises.¹

Rothbard's 1962 book *Man, Economy and State* is regarded in the highest esteem by many neo-Austrians. Mises's *Human Action* (1966), the first version of which was written considerably earlier in German (1940), is likewise held in the highest esteem. Moreover, it is the source of the plurality of references in Rothbard's book.² Many ideas in the Rothbard's book are directly from Mises and many of Mises's arguments are repeated. Because Rothbard's native language is English and also because his book has a more "textbookish" style, it seems likely that more neo-Austrians today have learned economics from Rothbard than from Mises. Such readers most likely believe that Rothbard's theory of interest is the same, or approximately the same, as that of Mises. Rothbard wrote nothing to dissuade readers from adopting this belief and he is widely regarded as Mises's

¹See, for example, Joseph Salerno 2002: 111.

²Rothbard's name index contains an entire page of references to Mises.

champion. To the author's knowledge, there has been no comparison of the two writers in the growing neo-Austrian literature.

The main goal of this essay is to provide such a comparison and to show that in one critical respect, Rothbard did not represent Mises's ideas. On the contrary, he made a serious error, at least insofar as one conceives of Austrian economics as the extension of subjectivism, or an application of praxeology. Specifically, Rothbard failed to discern the radical difference between his own view of time preference and that of Mises. It follows that students who have followed Rothbard on this subject have been on a different trail than the one blazed by Mises.

Rothbard asserted that individual time preferences are positive and went on to deduce that because of this, interest in the market economy is also positive (Rothbard 2004, 375-6). Mises, on the other hand, assumed only that when individuals make choices, they take account of the time at which they expect the satisfaction to be realized. They evaluate alternatives in terms of sooner or later. Except under extreme circumstances that are not relevant to the problems of everyday life, they choose in such a way that they gain some of their satisfaction in the nearer future and some in the more distant future. Mises did not deduce a positive rate of market interest. He took the positive market rate for granted. In other words, he saw a positive rate of interest as an historical fact. He wrote only that individuals' valuations of present goods in terms of future goods (originary interest, see below) would be manifest in the market rate on loans (Mises 1966: 538). He wrote that under the restrictive conditions in which future economic behavior is a repeat of the past (Mises's evenly rotating economy), the market rate will have adjusted to consumer valuations of near future goods

in terms of distant future goods (*ibid.*: 532).³ He did not deduce a positive rate of interest in the market economy.

One explanation for Rothbard's error lies with his use of what Mises called a customary mode of expressing time preference. Mises's main aim was to show that individuals are not indifferent regarding the time at which they consume goods. After demonstrating this, he discussed a customary mode of expressing this "time-preference theory" (*ibid.*: 489). It is customary, he said, to argue that satisfaction in the present is preferred to satisfaction in the future. If this was not true, Mises pointed out, an individual would never take satisfaction in the present. He went on to equate this customary mode with the idea that present goods are preferred to future goods of like kind and quality. Although Rothbard did not say so, his references indicate that he made this customary mode of expression the basis for his assumption that individuals exhibit positive time preference.

Rothbard began his exposition by writing about the "preference for present *satisfaction*." Then he switched from this phrase to "preference for *consumption goods* in the present" and, ultimately, to "preference for *money* in the present." By this means, he conflated satisfaction with goods and, ultimately, with money. He went on to reach the conclusion that, regardless of technological conditions, a person would have to be rewarded with money interest in order to give up money and that because all people are alike in this respect, there would be interest in the market economy. It will be shown that this is an unwarranted conflation. In making it, Rothbard (apparently unwittingly) divorced his theory from that of Mises.

³Mises referred to the valuation of near future goods in terms of distant future goods as "originary interest" (*ibid.*: 524).

Does it matter whether one subscribes to the Misesian or the Rothbardian theory? This essay argues that it does indeed. The Misesian theory only *asserts* that the market economy contains interest and takes an agnostic stance on what causes the rate of interest to be high or low or what might, in the absence of an unexpected change in the quantity of money, cause it to rise or fall. It thus leaves open the possibility that the *market rate of interest* might be “led,” so to speak, by entrepreneurial estimates of the profitability of current investment in new methods of production and in research. Allowing for this possibility is an extension or example of consumer sovereignty which I have argued is the key to understanding Mises’s economics. It allows for a seamless integration of an entrepreneur-driven theory of market interest with other entrepreneur-driven economic phenomena. Instead of the rate of interest in a market economy being a rate that adjusts to some imaginary “pure rate of interest,” it is led by entrepreneurial anticipations of the consequences of investment. Such an integrated theory of interest includes not only consumer *ends* but also entrepreneurial *knowledge of the means*. The Rothbardian theory closes the door on entrepreneurship as an “engine of growth” and thereby directs one’s attention away from entrepreneurship and human capital.

The purpose of this essay is to compare Mises and Rothbard on time preference and market interest and, secondarily, to tell why it matters whether one subscribes to the Misesian or Rothbardian theory. Part one describes Mises’s view of time preference and interest. Part two uses Mises’s view as a reference in order to show how Rothbard modified it. Part three critiques a recent proposal for a neo-Austrian growth theory and proposes an agenda for a Misesian-based theory that emphasizes technological advance and human capital production. The paper ends with a brief conclusion in Part four.

1. MISES ON TIME PREFERENCE AND INTEREST

The Fundamental Misesian Concept of Time Preference

Mises presents his primary concept of time preference in his chapter on “Action in the Passing of Time.” The chapter begins with a simple statement that makes up the entire first paragraph: “Acting man distinguishes the time before satisfaction of a want is attained and the time for which the satisfaction continues” (Mises: 1966: 479). The point of the section is that

[t]he very act of gratifying a desire implies that gratification at the present instant is preferred to that at a later instant. He who consumes a nonperishable good instead of postponing consumption for an indefinite later moment thereby reveals a higher valuation of present satisfaction as compared with later satisfaction. If he were not to prefer satisfaction in a nearer period of the future to that in a remoter period, he would never consume and so satisfy wants. He would always accumulate, he would never consume and enjoy. He would not consume today, but he would not consume tomorrow either, as the morrow would confront him with the same alternative (*ibid.*: 484).

His comments here refer to subjective satisfaction only. When the actor consumes, he compares the satisfaction of his consumption with that which he expects in the future. Because he consumes, we can deduce that as an actor, he must prefer that satisfaction over the satisfaction that he could have had if he had not consumed.⁴

While the actor prefers present satisfaction over future satisfaction, he also prefers, as Mises sees it, future satisfaction over present satisfaction. Mises also writes that “[t]he postponement of

⁴Mises makes it clear that he is discussing subjective satisfaction at various stages in his discussion. But the following statement about the miser is perhaps most revealing. He writes:

The case of the miser does not contradict the universal validity of time preference. The miser too, in spending some of his means for a scanty livelihood, prefers some amount of satisfaction in the nearer future to that in the remoter future (*ibid.*: 490).

an act of consumption means that the individual prefers the satisfaction which later consumption will provide to the satisfaction which immediate consumption could provide” (*ibid.*: 482).

It is crucial to understand the satisfactions that Mises is comparing in these remarks. He is making two kinds of comparisons. In the quotation from page 484, he is comparing (a) the alternative of consuming with (b) the alternative of not consuming at all. In the quotation from page 482, he is comparing (a) the alternative of consuming all that is possible as soon as possible and, therefore, to not plan at all for future consumption with (b) the alternative of delaying some consumption with the idea of having more than otherwise to consume in the future. In such comparisons, specific material goods play very little role. He is comparing subjective evaluations. The choice that Mises is describing is *not* between two goods.

It would be a misrepresentation to say that Mises derives the praxeological category of time preference by comparing the alternative of consuming some good or set of goods in the present with that of consuming the same set in the future. One can build imaginary constructions of economies in which consuming in the present consists entirely of the same goods that could be consumed in the future. Examples are Mises’s evenly rotating economy (ERE) and, suitably restricted, his stationary economy (*ibid.*: 246-51). But these images are unhelpful as a means of elucidating the basic idea of time preference as Mises conceives it. A comparison of the satisfaction derived from goods of like physical kind and quality is not the same as a comparison of satisfactions in general.

Contra Time Indifference

In the process of making this point, Mises makes a number of statements that sound like he is writing about what Rothbard calls positive time preference. It is worth quoting these:

As acting man prefers those processes which, other things being equal, produce the products in the shortest time, only such processes are left for further action which consume more time (*ibid.*: 481).

Other things being equal, satisfaction in a nearer period of the future is preferred to satisfaction in a more distant period; disutility is seen in waiting (*ibid.*: 483).

Satisfaction of a want in the nearer future is, other things being equal, preferred to that in the farther distant future. Present goods are more valuable than future goods (*ibid.*).

The meaning of these statements must be determined from the context, which the reader can easily verify. In each case, Mises is arguing against the proposition that “an actor in making his choices attaches to a service to be available in a later period of the future *the same value* he attaches to a service available at an earlier period” (*ibid.*: 483). In short, he is making the point that *human actors are not indifferent concerning when they will consume goods*. If they were indifferent, they could not possess time preference, which Mises regards as a fundamental property of action.

This concept of indifference differs from that used in modern consumer preference theory. In that theory, indifference is between infinitesimal increments of units of a uniform good or set of goods. In Mises’s theory, indifference is between totals. He is referring to the choice between consuming all goods at the earliest possible time as compared with delaying consumption of all goods until the latest possible time.

The Customary Mode of Expression

A potential source of confusion is Mises’s discussion of a customary mode of expression. In that discussion, he appears to suggest that a good in the present is preferred over a good of like kind and quality in the future. He does not. “It is customary,” Mises writes, “to express the essence of the time-preference theory by saying that there prevails a preference for present over future

goods.” In other words, instead of referring to subjective satisfactions, presenters of the time-preference theory have written of material goods. Because of this, objections to the theory have been raised. The reason is that “in some cases present uses are worth less than future uses” (*ibid.*: 489).

Of special importance in comparing Mises with Rothbard is the “exception” of perishable goods, specifically, of ice in winter vs. ice in summer. Given a high cost of refrigeration and of freezing, a person in a temperate climate ordinarily prefers a block of ice next summer to a block of ice this winter. Mises points out, however, that ice in winter and ice in summer are, in effect, different goods because the conditions under which they are consumed are different. “It is impossible to increase the quantity of ice available in summer simply by restricting the consumption of ice in winter” (*ibid.*: 489-90). Thus even if preferences do not change, the higher price of ice in summer fails to demonstrate the absence of Misesian time preference.

Present and Future Goods Never of Like Kind and Quality

Although this example (and another one that he provides in the same context) demonstrates the hazards of using the customary mode of expression, Mises does not direct his attention to the critical features of this “exception.” The most important point is that the principle he is describing applies to all commodities, not only ice. For each commodity, people in a real market economy who compare the consumption of a present unit with the expected consumption of a future unit that has the same physical properties know that “the conditions” are different. It follows that this mode of expression can never properly be used in an argument that defends the existence of time preference, in the Misesian sense, in a real market economy where, by definition, conditions are always changing.

What Mises cites here as an exception contains a general rule that he does not cite. To state this rule differently, a future good of a particular kind that one might compare with a present good of the same kind is never of like kind and quality in the eyes of a consumer in a real market economy because the various expected means of satisfying distant future wants are never of the same kind and quality as the means of satisfying near future wants.

Suppose that the means of satisfying preferences stay the same, time after time. Then, assuming that preferences for goods also remain the same, the mode of expression might seem reasonable. In fact, however, it is misleading. In the case of ice, there could be no seasons. Ice would always be used for exactly the same purpose. The goods that complement ice and that might substitute for it would always be exactly the same with exactly the same prices. And the consumer would always regard ice in winter as identical in satisfaction to ice in summer, which is to say that he would always have exactly the same preferences for it in relation to other goods. It would be no more accurate to say that he prefers ice this winter than to say that he prefers ice next summer. In fact, he prefers each over the other, by assumption, *at the time we assume that he consumes them*. Both Mises and Rothbard made the error of failing to recognize the true misleading nature of this “mode of expression.” However, only Rothbard made this mode of expression the basis for a theory of market interest, as we shall see.

Time Preference in the Evenly Rotating Economy

One can write of a valuation of present goods in terms of future goods in the evenly rotating economy, since the consuming automatons who populate the economy consume in the present and in the future. However, one cannot logically say that there is a “positive” evaluation of present goods

in terms of future goods – that there is a discount of future goods against present goods of like kind and quality. Consumers do not discount future goods as against present goods in the ERE. Interest exists in the ERE. However, it is purely a return to producers for producing material capital. Suppose that all capital goods were completely exhausted during the production period, never to be replaced. If natural conditions and technology remained the same, the result would be a retrogressing economy (*ibid.*: 251). There must be a return to the production of capital for the ERE to be sustained.

The customary mode of expression is misleading as a way of expressing time preference in a *market economy*. Nevertheless time preference can be illustrated by using the constructs of the ERE and the stationary economy, since both constructs represent the idea that consumers consume in the present and in the future. Moreover, in any sensible depiction of a real market economy, time preference must be present. Therefore, one can write about the “discount of future goods as against present goods” (originary interest, *ibid.*: 524) “under the conditions of the market economy” “provided the assumptions involved in the imaginary construction of the evenly rotating economy are present” (*ibid.*: 532). But this statement has nothing to do with a positive rate of time preference, as this term is used by Rothbard.

It is easy to attach greater importance to this statement about “discount of future goods” than it deserves. It only means that the actors of the market economy exhibit time preference in the sense that they prefer some goods in the present and some goods in the future. A consumer who gratifies a desire by consuming “a non-perishable good instead of postponing consumption for an indefinite later moment” (*ibid.*: 484) exhibits this time preference. And a capitalist who does not *always* invest a sum of 100 dollars available today, although these 100 dollars would increase to 104 dollars within a year’s time” (*ibid.*, 486, emphasis added) also exhibits this time preference. But neither of these

illustrations, or proofs, of time preference can be used to deduce market interest under the conditions of the market economy. Thus, the assumption (or deduction) that interest exists in the ERE does not help us determine whether human beings exhibit the characteristic of time preference.

Market Interest

Mises does not deduce market interest from time preference. He merely assumes implicitly that because his subject is market interaction (through time), a market interest rate must exist. Market interest manifests entrepreneurial knowledge about consumers' valuation of goods in the distant future in relation to goods in the near future. The producing entrepreneurs acquire this knowledge, on the one hand, by paying attention to the savings made available by consumer-savers (what Mises calls "plain saving" – *ibid.*: 530). On the other hand, the producing entrepreneurs pay attention to the responsiveness to changes in the market interest rate and, therefore, the willingness of consumer-savers to forego current consumption in anticipation of an interest return on their saving (what Mises calls "capitalist saving" – *ibid.*).⁵

Because consumers in the market economy express their desires for future goods through their saving, the rate of interest contains a component that exhibits the consumers' valuation of expected distant future goods in relation to near future goods. Mises's way of expressing this is to say that the gross market rate of interest contains an "originary interest" component in addition to an entrepreneurial component and a price premium component (*ibid.*: 538-45). The idea that there is a tendency for the final rates of interest to reflect this originary interest component gives one a

⁵Mises points out the role of plain saving in a modern market economy is negligible (*ibid.*: 774-5).

mental tool for describing the effects of an unexpected change in the quantity of money under specific conditions. Thus, one can build the Austrian theory of the trade cycle. This seems to have been the main goal that Mises aimed to achieve with his concepts of time preference and originary interest.

There is a good reason why Mises does not try to deduce market interest from time preference, although Mises does not state it. It is that people in a market economy are never in a position to compare goods of like kind and quality. Technology, material environments, and preferences are continually changing. That market interest exists can be deduced from the assumptions that individuals differ in their time preferences and that they differ in their knowledge of how to employ purchasing power to earn profit. That market interest must contain an originary interest component that reflects time preference can be deduced from the fact that the money made available for loans must, in the absence of an increase in the quantity of money, come from saving, which is necessarily based partly on considerations of sooner or later.

Interest in the Evenly Rotating Economy

The idea of deducing interest in the market economy must have appeared trivial to Mises. After all, if money is used for calculation, all prices are calculated in terms of money. So long as there are future goods, there must be market interest *as Mises defined it*. Otherwise, entrepreneurs could obtain no money to carry out their production projects.

A way to understand Mises's theory of interest is to decipher the meaning of the following apparently puzzling statement:

The prices of consumers' goods are by the interplay of the forces operating on the market apportioned to the various complementary factors cooperating in their production. As the consumers' goods are present goods, while the factors of production are means for the production of future goods, and as present goods are valued higher than future goods *of the same kind and quantity*, the sum thus apportioned, even in the imaginary construction of the evenly rotating economy, falls behind the present price of the consumers' goods concerned. This difference is the originary interest. It is not specifically connected with any of the three classes of factors of production which the classical economists distinguished. Entrepreneurial profit and loss are produced by changes in the data and the resulting price changes which occur in the passing of the period of production (*ibid.*: 525, italics added).

One reason that this statement is puzzling is that it is concerned with future goods of the same kind and quantity. I have shown that Mises regarded a similar phrase as part of the customary mode of expressing his theory of time preference, based on the concept of sooner and later.⁶ What Mises does here is to express the concept of originary interest using what he calls the customary mode. But this does not mean that a positive market rate of interest can be derived from the difference between the price of a consumer good today and the price of a consumer good of like kind and quality in the future.

The meaning of Mises's statement is that, in a market economy, an entrepreneur can earn profit by producing goods for the future. The profit is the estimated difference between the price of the good in the future and the costs of the factors in the present. If we could somehow take out profit and get the same result – that is, if there was an evenly rotating economy – originary interest would go to the owners of capital. But if there was an evenly rotating economy, goods in the future would be worth precisely what they are worth in the present.

If the reader is getting weary of hearing about imaginary constructions, I think he is justified. My purpose here is not to elevate these constructions but to try to trace the source of Rothbard's error. Rothbard seems to have used passages from Mises to justify his assumption that the market

⁶The phrase he uses there is “of like kind and quality.”

rate of interest must be positive because the rate of time preference is positive. My point is only that Mises did not say this. It is not necessary to write so much about the evenly rotating economy in order to make this point. I do so only in order to avoid the criticism that Rothbard's interpretation is based on Mises's words.

2. ROTHBARD ON TIME PREFERENCE AND INTEREST

Customary Mode of Expression is Rothbard's Starting Point

Unlike Mises, who began his analysis by referring broadly to the fact that actors take account of time in evaluating satisfactions, Rothbard begins his elucidation of time preference with what seems to be a variation of what Mises called the customary mode of expressing the time-preference theory. His discussion begins with the following statements:

A fundamental and constant truth about human action is that man prefers his end to be achieved in the shortest possible time. Given the specific satisfaction, the sooner it arrives, the better. This results from the fact that time is always scarce, and a means to be economized. The sooner any end is attained, the better. Thus, with any given end to be attained, the shorter the period of action, i.e., production, the more preferable for the actor. This is the universal fact of time preference. At any point of time, and for any action, the actor most prefers to have his end attained in the immediate present. Next best for him is the immediate future, and the further in the future the attainment of the end appears to be, the less preferable it is. The less waiting time, the more preferable it is for him (Rothbard 2004: 15, emphasis in original).

As pointed out above, Mises's main aim was to show that the actor is not indifferent. There is no hint in Rothbard's statement about indifference. Instead, Rothbard writes of preferring "specific satisfactions" and the attainment of "any given end" as soon as possible. Rothbard seems to be assuming that "a given end" or "specific satisfaction" has the same meaning as a "good of like kind

and quality.”⁷ Thus, it appears that Rothbard is writing about goods of like kind and quality and, therefore, following the customary mode of expression. But the way he introduces time preference suggests otherwise.

At this stage of his presentation, Rothbard is careful to note the difference between comparing satisfactions and comparing goods. In a footnote he writes:

Time preference may be called the preference for present satisfaction over future satisfaction or present good over future good, provided it is remembered that it is the same satisfaction (or “good”) that is being compared over the periods of time (*ibid.*).

He even illustrates this with the ice-in-winter example:

Since ice-in-the-summer provides different (and greater) satisfactions than ice-in-the-winter, they are not the same, but different goods. In this case, it is *different* satisfactions that are being compared, despite the fact that the *physical* property of the thing may be the same (*ibid.*, 16, emphasis in original).

Thus, Rothbard appears to follow Mises. However, unlike Mises who begins with the sooner or later aspect of time preference, Rothbard does not mention it. Nor does he tell the reader that he is using what Mises called the customary mode of expression. Consistent with this, he does not discuss the case of the miser which, in Mises, immediately follows the ice-in-winter example and which neatly exemplifies the main point of Mises – to demonstrate the impossibility of indifference as to when all satisfaction is received.

⁷That he is concerned with goods seems evident in the paragraphs that follow the one quoted, although he is not discussing time preference in those paragraphs. In any case, as shown below, his main use of the concept is in relation to goods.

Other Things Being Equal

Another thing that should be mentioned about Rothbard's starting point concerns the difference between his and Mises's discussion about actors preferring processes that enable them to produce products in the shortest period of time. Mises had written that "acting man prefers those processes which, other things being equal, produce the products in the shortest time..." (Mises 1960: 481, as quoted above). Rothbard writes with emphasis that acting "*man prefers his end to be achieved in the shortest possible time*" (Rothbard 2004: 15, as quoted above). The difference between the two statements is that Mises adds the qualifier "other things being equal." The qualifier applies not to satisfaction, which is subjective, but to "products," which are presumably material. It suggests that Mises is concerned with question of how the theory of time preference can be applied to a real market economy of products; since it is evident that at two different times in a real market economy, other things cannot be equal and the products at different times cannot yield exactly the same satisfaction even if they are materially the same. By not adding this qualifier, Rothbard seems to set the stage for an analysis of market interest that differs radically from that of Mises.

In a later discussion, Rothbard is still in tune with Mises, however. In writing about the an individual's choice to invest labor in the production of capital goods, he writes that

the decisions that he makes in embarking on capital formation will be a result of weighing on his value scale the utility of the expected increased productivity as against the disutility of his time preference for present as compared to future satisfactions (*ibid.*: 51).

Note that the individual is weighing the increased productivity on his *utility scale*.⁸

⁸See also Rothbard's discussion of a credit transaction at *ibid.*: 167.

From the Customary Mode of Expression to Positive Interest

Rothbard mentions time preference a number of times subsequently. Each time, he appears to refer to comparing satisfactions at different times. However, in a discussion of production cost, he transforms his discussion. Instead of writing about a person's wanting to achieve an end and having his satisfaction provided sooner, he writes about wanting to consume a good. "Present consumption of a good will be given up," he writes, "only in anticipation of a greater future consumption, the degree of the premium being dependent on time preferences" (*ibid.*: 344-5). By referring to consumption, and not to satisfaction, Rothbard appears to be conflating time preference in terms of subjective satisfactions with time preference in terms of the consumption of a good of a particular kind and quality. We must wait until further discussion to determine whether he is indeed doing this.

Appearances are not deceiving since, in his next extended discussion of time preference, he conflates the consumption of a good with the quantity of the good itself. He does this in a section entitled "The Determination of the Pure Rate of Interest." He had previously defined the pure rate of interest as the rate of interest in the ERE (*ibid.*: 351). But in this section, he writes about its determination.

The section is immediately suspect. The reason is that the rate of interest in the ERE is not *determined*. It is either assumed or deduced by virtue of the assumption that owners of capital must receive a return in order to cause whatever capital is used up during a round to be replaced so that it will be available at the beginning of the subsequent round. Rothbard appears to be writing about something other than the "pure rate of interest," as he had earlier defined it. Either that, or he has in mind a different kind of ERE than Mises. Interest in Mises's construction is a mere characteristic.

It is like the drum that is beaten by a windup toy monkey. So long as the monkey is operating at full power it, it beats the drum at a constant rate. There can be no serious question about why one drum beat follows another after a fixed interval. Suppose that we ask: what determines the interval between drum beats? The obvious answer is: the way in which the toy was designed. Interest in the ERE is similar. It gives us no insight whatsoever about the market interest rate under market economy conditions. Yet Rothbard looks for more.

What does he find? First, he introduces money into the system. Mises had written the following about money in the ERE:

[T]he "money" of this system is not a medium of exchange; it is not money at all; it is merely a numeraire, an ethereal and undetermined unit of accounting of that vague and indefinable character which the fancy of some economists and the errors of many laymen mistakenly have attributed to money (Mises 1966: 249).

For Rothbard, however, “money is the dominant present good in the market. Furthermore, since money is the medium for all exchanges, it is also the medium for exchanges on the time market”

(Rothbard 2004: 375). He goes on:

What are the future goods that exchange for money? *Future goods are goods that are now expected to become present goods at some future date.* They therefore have a present value. Because of the universal fact of time preference, a particular good is worth more at present than is the present prospect of its becoming available as a present good at some time in the future. In other words, a good at present is worth more now than its present value as a future good. Because money is the general medium of exchange, for the time market as well as for other markets, money is the present good, and the future goods *are present expectations of the future acquisition of money.* It follows from the law of time preference that *present money is worth more than present expectations of the same amount of future money.* In other words, future money (as we may call present expectations of money in the future) will always exchange at a discount compared to present money.

This discount on future goods as compared with present goods (or, conversely, the premium commanded by present goods over future goods) is the rate of interest. Thus, if, on the time market, 100 ounces of gold exchange for the prospect of obtaining 105 ounces of gold one year from now, then the rate of interest is approximately 5 percent per annum. This is the time-discount rate of future to present money (*ibid.*: 375-6, emphasis in original).

Thus he “derives” the idea that present money is worth more than the expectation of future money from the assumption of time preference by means of a few well-chosen sentences. This is a great feat and would be a great advance in Austrian economics if it could be legitimately done. Unfortunately it cannot. What Rothbard has done is to incomprehensibly conflate the conditions of the ERE with those of a “money economy.” He has derived positive time preference for a market economy, as expressed in money, from a construction in which time preference, expressed in terms of present and future goods of like kind and quality, is merely assumed.

In short, Rothbard begins with a comparison of satisfactions at different times which, to be applied to a real situation, would require assumptions about the nature of goods that could never be correct in reality. And he ends with a comparison of present money with future money, the former being preferred to the latter. He does not tell us how to get from the beginning point to the ending point. His procedure is to simply substitute words that have real meaning to everyday observers of the market economy for the words of praxeology, which are defined in such a way that they have subjective meaning only.

Rothbard persuaded himself that his understanding of Misesian time preference was the correct one. In a 1991 paper, he writes that Mises demonstrated that a positive rate [of time preference] is deducible from the fact of human action, since by the very nature of a goal or an end, people wish to achieve that goal as soon as possible” (1991: 421). At the start of his article he defines time preference as:

the insight that people prefer “present goods” (goods available for use at present) to “future goods” (present expectations of goods becoming available at some date in the future), and that the social rate of time preference schedules, will determine and be equal to the pure rate of interest in a society (*ibid.*: 415).

Mises presented the idea of subjective, or praxeological, time preference, which is a relatively simple idea that no one could reasonably dispute. He did not deduce a positive rate of interest in a market economy from this idea. In contrast, Rothbard claims that Mises succeeded in deducing a positive market interest rate in society.

3. WHY IT MATTERS

Does it matter whether one uses the time preference theory described by Mises or the one described by Rothbard? We can understand that it does by examining the neo-Austrian theory of economic growth. The potential for such a theory has recently been proposed in a paper that begins with the astounding claim that:

Rothbard's treatise contained new and improved elaborations of the Austrian theories of money, capital, and business cycles. In particular Rothbard integrated the structure-of-production analysis developed by Wicksell and Hayek with the Fetter-Mises pure time-preference theory of interest, thus at last reuniting after many years two divergent strands of Böhm-Bawerk's capital and interest theory (Salerno 1991: 43).

The Rothbard-Salerno Theory of Economic Growth

Salerno's theory of economic growth begins with a Crusoe example. In the example, fisherman Crusoe experiences a fall in time preference that leads him to produce a fishing net in order to increase his future catch of food. As Crusoe's situation changes from an initial stationary state to a second stationary state, the new state is characterized by a greater output of fish during a

given period than previously.⁹ Salerno gives the example in order to illustrate that a fall in time preference leads to (or at least could lead to) an increase in “real income” (*ibid.*: 45). After giving the example, he writes that Crusoe has experienced an increase in his “standard of living.”

The example assumes an increase in the physical productivity of work. In the new stationary state, Crusoe catches more fish per hour by using a net than he catches without the net; and the combined hours needed to produce and maintain the net and to catch the fish by using the net yields more fish than if the same number of hours were used to catch fish in the initial stationary state before the fall in time preference.

It is important to note that Salerno’s model implicitly assumes that *before* the change in time preference, a means of producing fish was available that could have enabled Crusoe to raise the fish productivity of his labor. Salerno must assume that Crusoe could have used his labor to produce a net and then to maintain it. But Crusoe chose not to do so because he judged the cost, in terms of the utility of fish consumption foregone in the near future, to be too high. The fall in time preference changes his calculation.

The Crusoe example is a prelude to Salerno’s model of economic growth in an economy. The model again begins with a stationary state – i.e., a stationary economy. A fall in time preference occurs and is followed by an entrepreneurial adjustment period, after which more capital goods are produced than before. The additional capital goods make it possible to produce larger quantities of

⁹Salerno uses the term “stationary economy” to describe Crusoe’s stationary state. Mises used the same phrase to describe an imaginary construction that he employed to help comprehend promoters’ profit and loss in a *market economy*. Salerno thus conflates Mises’s construct with his own. No significant harm is done by this. However, I believe it is important to distinguish between praxeology, the theory of action in general, and economics, the theory of action under particular conditions. The images used to elucidate the actions of a solitary actor, correspondingly, should be distinguished from the images used to elucidate economic actions.

consumer goods with the same work. Salerno equates the additional potential consumer goods with economic growth and an increase in the “standard of living.”

The increase in physical productivity of work is due to the adoption of more productive projects which are assumed to be available, as in the Crusoe example. The possibility of increasing the productivity of labor is always present in a material sense. However, it is made economically feasible by the change in time preference.

Salerno is not interested in technological advance that occurs independently of a fall in time preference. In discussing the possibility of technological advance, he writes that

it certainly is conceivable and even likely that modern capitalist economies will be characterized by ongoing net investment and a growing capital stock that coincides with an uninterrupted rise in living standards. But this will require a fall in time preferences...(*ibid.*: 56, as quoted above).

Nor does he admit any other cause of an increase in saving. He attributes new saving and investment *entirely* to a fall in time preference.¹⁰

Rothbard reaches more or less the same conclusion, albeit in a somewhat different way. He starts with a *progressing economy*. He writes:

It is clear that a feature of the progressing economy must necessarily be a fall in the pure rate of interest. We have seen that in order for more capital to be invested, there must be a fall in the pure rate of interest, reflecting general declines in time preferences. If the pure rate remains the same, this is an indication that there will be no new investment or disinvestment, that time preferences are generally stable, and that the economy is stationary. A fall in the pure rate of interest is a corollary of a drop in time preferences and a rise in gross investment (Rothbard 2004: 549).

¹⁰It is not certain that Salerno means to completely disregard technological advance or other possible sources of an increase in saving. It is true that in the body of the paper, he focuses entirely on saving due to time preference and seems to brush aside explanations of growth based on assumptions about technological advance. However, he broadens his view in his conclusion, apparently after consulting with John Cochran (*ibid.*: 60). By doing this, however, he seemingly compromises the rationale for presenting his theory. Exactly what one should make of this is uncertain.

Note that, as Rothbard defines it, the “progressivity” of the progressing economy is caused by a fall in the pure rate of interest, which “reflects” a decline in time preferences. The new investment that is associated with (or causes) the progressing economy *requires* a fall in time preference. Because Rothbard says that a fall in the “pure rate of interest” is a corollary to a fall in time preference, we must assume Rothbard and Salerno’s have in mind a similar, if not identical, source of change.

Rothbard’s treatment of technological advance is similar to that of Salerno. He excludes technological advance as a source of economic growth:

Lower time preferences will increase capital investment and thereby lengthen the structure of production. Such lengthening of the production structure, increasing the supply of capital goods, is the only way for man to advance from his bare hands and empty acres of land to more and more civilized standards of living (*ibid.*: 626).

Similarly, he begins his reference to technological advance by writing that “[t]echnological inventions have received a far more important place than they deserve in economic theory” (*ibid.*: 542). He goes on to say the following.

Technology does, of course, set a limit on production; no production process could be used at all without the technological knowledge of how to put it into operation. But while knowledge is a limit, capital is a narrower limit. It is logically obvious that while capital cannot engage in production beyond the limits of existing available knowledge, knowledge can and does exist without the capital necessary to put it to use. Technology and its improvement, therefore, play no direct role in the investment and production process; technology, while important, must always work through an investment of capital (*ibid.*).

He does not write here that the initial “dose of net investment” must have resulted from the change in time preference. But it is clear that this is what he has in mind. Thus, neither writer regards technological advance as an *independent* source of additional saving, investment, and growth.

Aside from the fact that Rothbard uses the progressing economy as a reference, whereas Salerno uses the stationary economy in a kind of comparative static analysis, the two theories are the same up to a point. Salerno “extends” Rothbard’s theory by presenting a theory of continuing

economic growth based on an assumed “causal” relationship between real income and time preference.

The Future Prospect for neo-Austrian Growth Theory

The essence of the praxeological economics that Mises introduced in his treatise lies with the notion of consumer sovereignty and the role of the entrepreneur in catering to the desires of consumers (Gunning 2008). Mises did not try to piggy a theory of economic growth on his notion of consumer sovereignty. Nevertheless, he left the door open to such a theory by pointing out two things. First, he wrote that increases in the standard of living depend on both increased saving¹¹ and on eager promoting entrepreneurs. These promoting entrepreneurs are “the driving force of the market, the element tending toward unceasing innovation and improvement” (*ibid.*: 255). Second, increases in the standard of living can be achieved without a corresponding lengthening of production periods by means of technological advance. A more substantial theory of economic growth can be developed by showing how entrepreneurial actions in the interests of consumers can cause economic growth.

I begin by noting that consumer-savers exhibit demands of two types. The first is a demand for higher quality goods and for goods of the same quality at lower prices. Anticipating the demand for goods of higher or different quality and/or at lower prices, profit-maximizing entrepreneurs have incentives to identify and implement new technology. If such technology already exists, they have incentives to buy the legal rights to use the technology, expanding its use into a new field. If the

¹¹Mises writes that economic growth may occur through (1) a restriction of consumption, (2) more favorable natural conditions, (3) actions that improve technology, and (4) less frequent institutional disturbances (Mises 1966: 515-6).

technology does not exist, the entrepreneurs have incentives to identify people who can improve the product or who can discover lower cost production methods and to employ them – i.e., to improve technology.

The second consumer demand is a demand for higher market interest payments on relatively secure savings. Because consumer-savers want high interest returns, entrepreneurs have incentives to search for and discover new products, product improvements, and cost-reducing possibilities that will yield higher profit. The high profit will enable them simultaneously to earn profit and to pay higher interest returns on relatively secure savings.¹²

Thus, a theory of economic growth can be built on the foundations of consumer sovereignty. Such a theory is fully consistent with the Misesian approach to economics.

4. CONCLUSION

Once we understand that the pure market economy contains all of the ingredients necessary to achieve secular growth, our next task is to examine proposed market interventions. Can growth be promoted by public investment of various kinds? Can it be promoted by patents and copyrights? Can it be promoted by an expansion of free trade. And can it be promoted by reducing or eliminating restrictions on market interaction, including taxes. These are the kinds of questions that modern

¹²In addition to what I have already mentioned, there is a section in *Human Action* on the external economies of intellectual creation, where Mises recognizes that technology often has properties that differ from other resources (*ibid.*: 661-3).

growth theory aims to answer. Neo-Austrian economics has a ready foundation in the writings of Mises. If neo-Austrians attribute economic growth solely or mostly to a fall in time preference, there is little chance that this will occur.

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