Entrepreneurs' Net Worth:

Mises's Praxeological Concept of Capital

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Abstract

In *Human Action*, Ludwig von Mises employed two radically different notions of capital. The first was equivalent to what accountants call net worth. In calculating her profit and loss, the individual conceives of her income in terms of a change in net worth. If we shift the focus to an income stream, net worth (capital) can be said to refer to the capitalized value of that stream. Thus, the concept of capital as net worth implies capital accounting. This notion was truly subjectivist and fully consistent with the subjective theory of value and cost that was initiated by the early Austrian economists. The second notion was produced material resources.

Mises recognized that the basis for distinguishing produced material resources from other non-produced and non-material resources was not consistent with the Austrian theory of value and cost. With some caution, he nevertheless employed the second notion, especially in his discussion of the relationship between economic action and time.

This paper carefully analyzes the passages in *Human Action* in which the capital goods notion is used. It argues that Mises unwisely restricted what could have been a broader discussion that would account for all resources (i.e., roughly higher order goods, in Carl Menger's terminology). The significance of this lies in the fact that modern neo-Austrian economists have apparently neglected Mises's first notion and accepted his second notion of capital goods. Or they have ignored Mises altogether and proceeded to employed the capital goods notion in their work. By doing so, they risk neglecting the subjective theory of value and cost in their discussions of the relationship between time and economic action. The paper also shows that some of Mises's capital goods' discussions are trivial and out of place.

Entrepreneurs' Net Worth:

Mises's Praxeological Concept of Capital

In *Human Action*, Ludwig von Mises used two concepts of capital – a praxeological concept and a materialist concept. Praxeological concepts place subjects' perceptions, expectations, and plans about the phenomena above the study of the phenomena themselves. Mises's main goal of using the materialist concept seems to have been to deal subjectively with the contemporary capital controversies in the old language, thereby showing the superiority of the praxeological view.[1] The result, however, is that he left the mistaken impression that he endorsed the materialistic concept, which is just the opposite of what he apparently intended. In this paper, I demonstrate how his use of the second concept led him (1) to present arguments that were less general and (2) to make some statements about capital, in the praxeological sense, that were both trivial and misdirected. When combined with a recognition of what the author regards as the major goal of Mises's project, this demonstration helps to support the view of this paper that the best future policy for Austrian economists is to completely jettison the concept of material capital.

That Mises favored the praxeological concept of capital is confirmed by his most fundamental discussion of the subject:

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[1]The most important controversies to Mises were those involving F. A. Hayek, who defined capital as produced resources. [He may have defined capital in this way in order to deal with the British capital theory of the 1930s, although this is uncertain.] Mises seems to have regarded his own work as complementary to that of Hayek. He seemed to want to use his praxeological economics to provide a praxeological foundation for Hayek's capital theory or at least to provide commentary on Hayek's theory. Taking pride in the Austrian school, he also wanted to sort out praxeological and non-praxeological aspects of Eugen Bohm Bawerk's capital theory. There is no space here to follow up on these observations. It is perhaps sufficient to look at the few citations that Mises gives to various writers on the subject of material capital. See Mises 487, 488, 489, 492, 496, 515, 528, 848. One could also note Ludwig Lachmann's assertion that Mises's theory of capital is more or less identical to that of Hayek (Lachmann 1951: 103).

> The calculating mind of the actor draws a boundary line between the consumer's goods which he plans to employ for the immediate satisfaction of his wants and the goods of all orders – including those of the first order – which he plans to employ for providing by further acting, for the satisfaction of future wants. The differentiation of means and ends thus becomes a differentiation of acquisition and consumption, of business and household, of trading funds and of household goods. The whole complex of goods destined for acquisition is evaluated in money terms and this sum – the capital – is the starting point of economic calculation (Mises 1966: 260-1).[2]

Note that in this passage he defines all higher order goods as capital. This makes his concept of capital similar to that of Menger. Menger's examples of higher order goods included not only all of the classical types of resources but also such things as firms, monopolies, copyrights, customer good-will (*ibid.*: 54-5), and entrepreneurial activity (*ibid.*: 172).[3] Mises aimed to show that economists use the same procedure to derive the market prices of each of these distinguishable resources of production (Mises 1966: 165-74, 636).

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[2]An interesting fact about this section of Mises's book is that the 1966 edition contains an introductory section that was apparently added after his 1949 edition. In that section, Mises writes: "From the notion of capital goods one must clearly distinguish the concept of capital" (*ibid.*: 260). In a footnote, he acknowledges some possible interpretation problems with his own use of such terms as "capital accumulation," "supply of capital" and "capital shortage" to refer to capital goods. This is relevant because the main modern interpreters of Mises are associated with the Mises Institute, which recently published what they call a "scholars edition" of the book (Mises 1998). The edition they chose is the 1949 edition. Future "scholars" might be misled by this publishing decision, especially in light of four additional facts. First, while the introduction by Jeffrey Herbener, Hans Hermann Hoppe, and Joseph Salerno, discusses a number of changes between the two editions, it completely overlooks this change. Second, the authors boldly claim, on the basis of disputable evidence, that "[o]ther notable changes were made to later editions, some of which cannot be considered improvements" (*ibid.*: xx). Third, in justifying this bold statement, they refer to Rothbard or Rothbardian ideas. Fourth, one of the authors, Salerno, has recently made the additional claim that Rothbard made "pathbreaking" yet neglected contributions to Austrian macroeconomics (Salerno: 43-4). Among other things, he writes:

> 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 2001: 43) .

Unlike Mises, Rothbard employed a materialistic definition of capital. The statement to which he refers in his reference to the definition of capital states: "Capital is an intricate, delicate, interweaving *structure* of capital goods (Rothbard 1962: 836). Since Rothbard's book was published in 1962 while the revised edition of *Human Action* was published later and since Mises had read Rothbard's manuscript, one is tempted to suggest that he made the clarification because he realized that Rothbard had misunderstood him. Salerno seems to be aware of the difference between Mises and Rothbard. In a footnote, he writes off Mises's criticism of the concept of a period of production.

[3]For an excellent statement of Menger's capital theory along these lines see A. M. Endres 1997: 167-72.

In spite of Mises's general commitment to the praxeological view, his treatise *Human Action* contains extensive discussions of *capital goods*, which he defines as intermediate products and material resources (ibid.: 260). This seems to reflect a pragmatic approach to communicating ideas. He writes:

> The modern theory of value and prices is not based on the classification of the factors of production as land, capital, and labor. Its fundamental distinction is between goods of higher and of lower orders, between producers' goods and consumers' goods. When it distinguishes within the class of factors of production the original (nature-given) factors from the produced factors of production (the intermediary products) and furthermore within the class of original factors the nonhuman (external) factors from the human factors (labor), it does not break up the uniformity of its reasoning concerning the determination of the prices of the factors of production (*ibid*.: 636).

This paper fully agrees with the first two sentences, which represent the praxeological definition of capital. The third sentence, however, is about economists. Although it possible that the an economist could employ the materialist definition of capital without breaking up the uniformity of its reasoning, the position of this paper is that the uniformity is indeed likely to be broken up. It will be argued that the praxeological and material concepts are so different that for Mises to include both in his work was bound to have two negative consequences. First, it was bound to lead followers to try to combine Menger's insights with the material capital theory of Bohm Bawerk and others, as if the Bohm's theory had not been a great blunder.[4] Second, and as a consequence, it was bound to detract from Mises's praxeological economics. As interesting as the capital controversies were to the economics profession at the time, it has turned out to be far more important, in retrospect, to impart

[4]See the discussion by Endres (1987: 291) about Menger's opinion of Bohm Bawerk's theory. Also see Mises's criticism of Böhm Bawerk on the grounds of the theory's materiality (Mises 1974: 150-7). Virtually all of the other neo-Austrian economists have adopted a materialist concept of capital. Examples are provided below in footnote #33.

Mises's insights on the science of economics built on praxeological foundations. As shown in part one of the paper, it is only with these insights that one is prepared to deal effectively with the arguments for and against market intervention that emerged in mainstream economics since the development of applied welfare economics. The preoccupation of current neo-Austrian theorists with the material definition makes them ill-suited for dealing with interventionist arguments from an analytical, "value-free" position.[5]

To support the claims of this paper will require a lengthy discursive argument, including a detailed analysis of Mises's *Human Action*, which is the primary source for his writings on capital. As argued above, the messages that Mises aimed to send his readers about value-freedom and about a science built on a praxeological foundation, as he understood it, has not been received. Because of this, it will be necessary to reiterate this message and to document it. Part one of the paper describes the science of praxeological economics that Mises sought to provide. It also discusses its importance in light of twentieth century applied welfare economics. Part two describes Mises's notion of capital as entrepreneur's net worth and shows its relationship to capital accounting and monetary calculation. It shows that this was Mises's fundamental concept of capital and that it is fully consistent with the praxeological foundations he sought to provide for economics. Part three shows how Mises differentiated the idea of capital as *private* net worth from the idea of capital goods. It is critical, however, of Mises's failure to state that in economic analysis, "private" net worth translates in to *entrepreneurs'* net worth. Part four is a critical assessment of most of Mises's discussion on the

[5]The term "neo-Austrian" was employed by Israel Kirzner to describe a mix of economists who associate themselves with "the revival of interest in the ideas of Carl Menger and the earlier Austrian School, particularly as these ideas have been developed through the work of Mises and Hayek" (Kirzner 1987: 149).

relationship between capital goods and time. The main criticism is that Mises's examples of the relationship between capital goods and time apply to all higher order goods; yet Mises neglected to emphasize this fact. By doing so, he failed to promote the praxeological concept of capital of entrepreneurs' net worth. Part five presents a brief conclusion.

1. Praxeological Economics

To understand why discussions of the material concept are distracting, one must recognize, retrospectively, the significance of the new praxeological economics. To do this requires an understanding of three separable aspects of it. Two aspects constitute distinct contributions by Mises. First, Mises recognized a new significance of the fact that the subjective value theorists and earlier marginalists made utilitarianism the basis for their grand image of the market economy. Second, Mises followed Menger in recognizing the purely deductive nature of economics; but he proceeded further to demonstrate that economics could remain value free so long as it used its deductions only to evaluate arguments for or against market intervention made by others. This established economics as a science in the same sense that mathematics is a science. The third aspect is the concept of the praxeological entrepreneur. Although Mises helped to develop the notion of entrepreneurial competition in conjunction with the Austrian theory of value and cost, his contribution in this respect fell short.

These three aspects are essential parts of the foundations on which a praxeological economics is built. They are not the essence of praxeological economics or of *Human Action*, which cover numerous related topics. However, they are in the author's opinion, absolutely essential parts of Mises's legacy. There is insufficient space in the current paper to fully elaborate theses contributions. A brief summary with partial references will have to do. Perhaps this is justified by the space needed to adequately present Mises's two concepts of capital.

The Utilitarian Theory of Value and Cost

In using the label "utilitarian theory of value and cost," this paper has in mind the grand images of the market economy, either complete or partly incomplete of the so-called marginal utility revolution. These are the images built by Stanley Jevons, Leon Walras, and Menger. The author has previously used the term "Austrian Theory of Value and Cost" in deference to the fact that it was Menger who inspired the subsequent focus on entrepreneurship and entrepreneurial capitalization (Gunning 1997b, 1998a). The emphasis here, however, is on its utilitarian roots. What is most important about this theory in this respect is that the source of all value is the preferences of individuals acting in the role of the consumer.

The term "utilitarian" signifies that the images were intended to be compatible with the progressive ethic of the age – utilitarianism. Utilitarianism provided an ethical basis for the new ideology of liberalism, which challenged a host of government policies during the 18th and 19th century. Perhaps the best examples of utilitarian ideology came from Jeremy Bentham and John Stuart

Mill. The title of Adam Smith's masterpiece reveals an earlier and alternative ethical value – *national* wealth. Another popular ethical value was the wealth of the sovereign.

In the 19th century, utilitarianism was employed by both proponents and critics of capitalism. Critics focused on the people who were harmed by actions in the capitalist economy. Emphasizing this harm, they described policies or a system that they asserted could reduce or prevent it. But their arguments were incomplete. The interdependence of individuals under capitalism implies that every action or policy is bound to harm some people.[6] The problem is to determine whether the harm is offset by benefits. Many critics of capitalism, including the socialists, claimed that their ideal systems would benefit the masses. They implied or asserted that the capitalist system did not benefit the masses. To deal with these utilitarian critics, the proponents of capitalism needed a utilitarian-based image of the market economy. When Jevons, Walras, Menger and those who followed defined the value of a good and a resource in terms of consumer utility; they were creating an image of an economic system that would help future economists evaluate the market economy in terms of the utilitarian ethic of their age.[7]

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[6]Mises writes that "[i]t is therefore always easy [for critics] to expose every doctrine supporting an alteration of existing conditions as an 'ideological' disguise of the selfish interests of a special group of people" (Mises 1966: 82).

[7]The arguments made by Mises in *Human Action* about the critics of capitalism begin with an analysis of irrationalism (the idea that human beings are inherently not logical beings) and polylogism (the idea that different classes of people – such as the capitalist class and the worker class – possess different logics and that there is no single logic upon which to build economic principles or laws). There is no need in this paper to discuss Mises's critique of these (*ibid*.: 5-6; 75-91). Having disposed of these, he turned to utilitarianism and liberalism (*ibid*.: 149-55). His discussion of these ideas provide a reference for the interpretation of the utilitarian theory of value and cost employed here.

The creation of the consumer utility-based grand image of the economy enabled the utilitarian economists to demonstrate that capitalism benefitted the masses by showing that it benefitted human beings in their role as consumers. The most advanced version – the Austrian theory of value and cost – defined utility subjectively and then defined all other economic concepts from the standpoint of their assumed contribution to subjective consumer utility. For the bulk of the subjective value theorists and marginalists, the new images of a market economy constituted a reply to or refutation of socialist and interventionist claims about the harm suffered under a capitalist system.

Of course, an economics designed to employ utilitarian ethics – i.e., liberalism – cannot be value free and thus cannot satisfy the requirements of a science (Mises 1966: 154). New foundations of the Austrian theory of value and cost were needed in order to transform subjective value theory into the basis for a new economic science (*ibid*.: 7).

Value-Free Evaluation of Interventionist Arguments

The call to make economics a science was heard immediately after the utilitarian theory of value and cost was created. The loudest voices were the writers who aimed to model economics after Newtonian mechanics.[8] Mises, following Menger, offered a different answer. Menger conceived of an economic science based on logical "laws." Such laws are exercises in pure logic and are true under all circumstances. But two questions remain to be answered before one can judge whether the laws are part of economics. The first is whether they are *relevant* to market phenomena. How can laws

[8]Good examples are Walras (1954) and Vilfredo Pareto (1971).

be derived that will have the greatest relevance to market phenomena? Mises's answer was to make economics a branch of a general theory of action.[9] One first identifies the properties of action in general. Then she adds subsidiary assumptions to help develop images that she tries to make relevant to the phenomena of her interest.[10] Economics, of course, is interested in market phenomena.

But then we must ask a second question. How can one avoid the charge that her interest in market phenomena and, therefore, her subsidiary assumptions are based on her personal values? She can do this by avoiding the insertion of her own judgments of value and confining the practical use of the science to the evaluation of the analysis provided by others. Most important in light of the origins of the new theory of value and cost are the arguments for and against market intervention, including the argument for complete intervention – the centrally planned system. The prospect of value freedom through the evaluation of arguments is clear in a number of passages in *Human Action*.[11] In this way, Mises was able to defend his statement that "economics is a theoretical science and as such abstains from any judgment of value" (Mises 1966: 10).[12]

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[9]"Out of the political economy of the classical school [and by means of the Austrian theory of value and cost] emerges the general theory of human action, *praxeology*" (Mises 1966: 3).

[10]A general outline of this procedure is presented in Gunning 1991.

[11]See Mises 1966: 48, 178-187, 882-885. See also Mises's statement in his *Notes and Recollections* that he introduced a "new point of view" (Mises 1978: 114). An answer to the value question apparently occurred to Mises between 1933 and the publication of the original German edition of *Human Action*; since his essay "The Science of Human Action," which introduces his 1933 book, later translated as *Epistemological Problems of Economics* (Mises 1981), does not discuss this issue.

[12]Mises did not anticipate that university courses in "welfare economics" would eventually be offered at practically all the major graduate schools and that this subject would become mandatory learning as part of the microeconomics textbooks in most undergraduate schools. Indeed, he was apparently late in seeing the significance that his professional economist contemporaries were increasingly attracted to the applied welfare economics advocated in A. C. Pigou's 1912 book *Wealth and Welfare*. Mises's first edition of *Human Action* in 1949 contains a chapter on "The Welfare Principle" that was absent from his 1940 German version (Herbener, Hoppe, and

Unfortunately, Mises's main American students and self-avowed followers have not been so sensitive to this aspect of his work. Kirzner, while confirming Mises's value freedom (1976b: 81-2, 84; 2001, 168), has also promoted a welfare economics of his own (Kirzner 1992), thereby sending outsiders a mixed message. Murray Rothbard not only presented an alternative welfare economics (Rothbard 1956) but promoted the false view that Mises advocated laissez faire on the basis of a utilitarian ethic (Rothbard 1976).[13] The latter view has been repeated by Leland Yeager (1993, 2000).[14] Neo-Austrians who followed have presented a variety of welfare criteria for judging whether an economic system is good or bad.[15] The initial lesson (or plea) of Mises seems to have been largely lost in the shuffle.[16]

Having discovered a new point of view (Mises 1978: 114 – see footnote 11 of this paper), Mises would not have jeopardized his project by basing his economics on a utilitarian ethic. Moreover, he surely would not have approved neo-Austrian efforts to compromise the value freedom

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Salerno 1998: xvii). However, the only reference he gives that would be recognized by contemporary chroniclers of welfare economics in the profession is to Pigou's *The Economics of Welfare* (Mises 1966: 848). Moreover his critique of Pigou has nothing to do with evaluating interventionist arguments and value freedom. It is on Pigou's assumption about the maintenance of capital (*ibid*.: 848). Regarding welfare economics as we understand it today, he writes about "welfare propagandists" as if the professional economists who promoted welfare economics were not serious scholars (*ibid*.: 834). What is important is that, in his discussion of the welfare principle, he did not write about value freedom or how economics can remain value free by evaluating interventionist arguments.

[13]Almost incredibly, a number of contemporary neo-Austrians believe that Rothbard's welfare economics is based on Mises. See Osterfeld 1988: 78; Cordato 1992: 40-1, 50; Prychitko 1993: 572; and Herbener 1997: 81-82, 104.

[14]Yeager's 1993 article begins with the amazing sentence: "Ludwig von Mises was a utilitarian and has been criticized for being one."

[15]See Cowen (1991-1994), Cordato (1992), and Vihanto (1999).

[16]But see Gunning 2000, 2003, 2005a, and 2005b for critiques of various neo-Austrian welfare economists.

of economics. The ventures of modern neo-Austrians into welfare economics help to confirm the thesis of this paper that Mises's dual use of the term "capital" caused confusion, although the way it did so cannot be understood until one considers the third aspect of praxeological economics.

The Praxeological Concept of the Entrepreneur

The idea that the function of entrepreneurship is to satisfy the wants of individuals in the consumer role implies that entrepreneurship is an intermediation between consumer wants and the decision to cause goods and resources to be produced. The idea of entrepreneurship as an intermediation appears to come from an analogy between the production to the isolated actor and production in the market economy. The wants of the isolated actor as consumer are satisfied by the isolated actor as producer and resource supplier. The driving force is the isolated actor's distinctly human decision-making. The wants of individuals as consumers in the market economy are satisfied by individuals as producers and individuals as resource suppliers. This "process" is complex, consisting of numerous not-completely-specifiable interacting specialized and interrelated producers and resource suppliers. To employ the isolated actor analogy, economists need a way to represent the driving force of this process. The concept of *competing entrepreneurs* partly satisfies that need. Managers of production produce and resource suppliers supply resources. The decision making of the competing entrepreneurs is the driving force that causes the actions of these producers and resource suppliers to be directed toward consumer want satisfaction. The Austrian-utilitarian theory of value and cost was first of all a model of interrelated consumers, producers and resource suppliers. But it implicitly contains a theory of competing entrepreneurs.

The requirement of methodological individualism enjoins the Austrian economist to approach entrepreneurial competition in a specific way. She must leave room for each individual acting in the entrepreneur role to form his own, individualized appraisals of resources. Moreover, because each individual is a distinctly human actor, he must retain the capacity for imagination, creativity, and inventiveness. This is a requirement imposed on the economist due to her uncertainty about the actions of the subjects he studies.[17] Although Mises surely recognized these points, he did not realize the importance of developing a praxeological concept of the entrepreneur to complement his image of praxeological economics as a science. This may be because he did not realize the extent to which the entrepreneur concept had been disappearing from the work of professional economists. If he had realized this, one must presume that he would have seen the importance of integrating the notion of capital as entrepreneurs' net worth with the general entrepreneur orientation of his praxeological economics.[18] It is sufficient to say that although Mises understood entrepreneurship as the driving force and agency that satisfies consumer wants, he did not advance the concept of the praxeological entrepreneur beyond that of Herbert Davenport (1914).[19]

The point is that one of praxeological economics' major contributions ought to be the elucidation of entrepreneurial competition from an individualist perspective. Praxeological economics ought to show how the individuals acting in the role of entrepreneurs compete in identifying and

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[17]To say that uncertainty is a property of human action implies that the economist, too, is uncertain.

[18]One might surmise that he would have been happy to know that his student Kirzner had become interested in this subject. Unfortunately, Kirzner (1973) did not develop a praxeological concept either (Gunning 1997a).

[19]See Gunning 1998a for an analysis of Davenport's contribution to the Austrian theory of value and cost. See Gunning 1994, Ch. 4, for a critique of Mises's treatment of entrepreneurship in *Human Action*.

appraising the specialized resources (including potential human managers of production), how the entrepreneurs compete in making decisions to produce specific and widely different goods, and how they organize their bearing of uncertainty. Moreover, praxeological economics ought to find a place in this demonstration for the exercise of imagination, creativity, and inventiveness. But Mises and the other neo-Austrians have taken only a small step in the direction of achieving this goal. Had Mises taken a larger step, he would have surely recognized the close connection between entrepreneurial appraisals of resources and the concept of entrepreneurs' net worth.

From the standpoint of an individual acting entrepreneurially, her expected net worth equals the sum of the appraisals of the resources she plans to use in a production process minus the expected prices of those resources. Conceptually, one can add the expected net worth of all the individuals who act entrepreneurially. One can call this sum "aggregate entrepreneurs' net worth." If we add this to the appraised value of all of the durable goods that individuals do not expect to use in production or consume, the result is a total fund of capital.[20] There is no empirical significance to this fund since its size depends on entrepreneurial expectations. Its significance derives from the mental operation that the economist performs in conceiving it. To conceive it, the economist must solve the problem of defining and representing the driving force of entrepreneurial competition that corresponds to the driving force of the isolated actor to produce goods for his consumption. By this means, he connects Mises's idea of capital as entrepreneurs' net worth to the "market process."

[20]Davenport called this the loan fund and developed a "loan fund theory of capital" (Gunning 1998b).

Mises discussed entrepreneurial competition. However, the goal of his discussion was not to represent interacting appraisement of entrepreneurs and thus to add substance to the idea of capital as entrepreneurs' net worth. His main goal was to show how people gain in their roles as consumers and resource suppliers from entrepreneurial adaptations to change. These discussions neglected imagination, creativity, and inventiveness.

Significance of Praxeological Economics

Mises's praxeological economics is important because it provides economists with a value-free means of evaluating arguments for and against intervention in the market economy. It enables economics to satisfy an essential requirement of science that it be value free. Because practically all economists who make interventionist arguments today use the utilitarian ethic (cost-benefit analysis, or applied welfare economics), the praxeological economist can achieve value freedom by employing the grand image provided by the subjective value theorists. A necessary means of simplification is the concept of competing entrepreneurship as the driving force and agency that causes resources to be employed and goods to be produced. The proper use of this concept requires the economist to assume that each individual acting in the entrepreneur role makes independent appraisals and exercises imagination, creativity, and inventiveness. The concept of capital as entrepreneurs' net worth fits neatly into the system. It is perfectly consistent with the praxeological economics that Mises espoused and sought to leave as his legacy. The concept of capital as material goods, however, detracts from praxeological economics. Moreover, as is shown below, the examples that Mises used in which he employed this concept further detract from praxeological economics.

2. ENTREPRENEUR'S NET WORTH AND CAPITAL ACCOUNTING

Mises's most fundamental definition of capital is entrepreneur's net worth. Since a person's net worth cannot be calculated without using the capitalization formula, this definition assumes the use of *capital accounting* as an instrument of monetary calculation. This concept of capital seems to have escaped the notice of many, if not most, modern neo-Austrians. In light of this, it is wise to describe Mises's discussion of "capital" step by step.

Capital as an Entrepreneur's Net Worth

With the exception of a brief section on the procedure of economics, Mises devoted the first three parts of *Human Action* (about 25%) to an elucidation of praxeology. The rest of the book is about economics. He introduces the subject of capital late in part two as private net worth, where he discusses "Economic Calculation and the Market." He first points out that "[t]he distinctive mark of economic calculation is that it is neither based upon nor related to anything which could be characterized as measurement" (Mises 1966: 209). This is because

> the exchange ratios which we have to deal with are permanently fluctuating. There is nothing constant and invariable about them. They defy any attempt to measure them. They are historical events, expressive of what happened once at a definite instant and under definite circumstances...Numbers applied by acting man in economic calculation do not refer to quantities measured but to exchange ratios as they are expected – on the basis of understanding – to be realized on the markets of the future to which alone all acting is directed and which alone counts for acting man (*ibid*.: 210).

The point here is that individuals use money to compare prospective outcomes of alternative courses of action. An individual tries to obtain the greatest benefit through exchange. To compare different alternative courses of action, he attaches his own personal, subjective money tag to them. "How is the action likely to effect my revenues and costs?," he asks. To anticipate future conditions, individuals use "understanding," which in this context roughly means trying to put oneself into the shoes of other actors in an effort to predict their future behavior (*ibid*.: 51-58).

When Mises goes on to discuss the purpose of economic calculation, he introduces the term "capital."

> The task which acting man wants to achieve by economic calculation is to establish the outcome of acting by contrasting input and output...It is with regard to this problem that the fundamental notions of economic calculation – *capital* and income, profit and loss, spending and saving, cost and yield – are developed (*ibid*.: 210-1, italics added).

Capital here seems to refer to the perceived present value of the future expected income. His point, which might easily be overlooked, is that in performing their calculations, individuals in the market economy use capital accounting. Capital accounting enables an individual to compare revenues and costs that he expects at different times. Without it, one could not construct the capital-income formula. Implicit in this, of course, is the presence of some means of discounting, like time preference (a personal discount rate) or an interest rate.

Notice that if we want to make Mises's use of the term "capital" consistent, we must regard capital as acting man's determination of his net worth, or equity.[21] Capital accounting then becomes the means that an actor uses to calculate net worth on the basis of expected income and a discount

[21]Kirzner makes a similar point (Kirzner 1976a: 53).

rate. One is reminded of what earlier economists called "the process of capitalization" as a necessary part of each individual's decision making.[22] Note further that because this definition of capital refers to all potential sources of future income, it is broad enough to include such things as rights to command other actors to perform tasks, rights to use other peoples' land, accounts receivable, debts owed (on the negative side), and goodwill. As we shall see, "capital" in this definition bears no resemblance to the concept of capital goods, which Mises introduces later in this discussion and which is discussed below. On the contrary, it is very similar to an individual's appraised value of what Menger called higher order goods (Menger 1981: 55-58; 155).

Capitalism as the Preserve of Capital Accounting

Just before beginning his description of the "economics of the market society," Mises writes a brief section telling how the theory of action can be applied in a society containing a division of labor, private property, and money. In such a society, "[m]onetary calculation is the guiding star of action." It "is the method of calculating employed by people acting within the frame of society based on private control of the means of production." "It is a mode of computation designed for ascertaining private wealth [net worth] and income and private profits and losses of individuals acting on their own behalf within a free enterprise society." It "is the main vehicle of planning and acting in...free enterprise" (Mises 1966: 229-230).

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[22]See Frank Fetter (1904b) and Herbert Davenport (1914, chapter 14, 15). Both writers argue that a proper notion of capital is one that begins by understanding the capitalization process – the process through which the mind determines the present value of its expected future income. The views of these two writers on the role of capitalization in the economic process were not identical, however (Gunning, 1998b: 117).

> Monetary calculation reaches its full perfection in capital accounting...[by establishing] the money prices of the available means and confront[ing] this total with the changes brought about by action and by the operation of other factors (*ibid*.: 230).

Up to this point in the book, Mises had not defined the entrepreneur. Thus, he did not use the term "entrepreneurship" in these passages. However, since profit is the specific income of the entrepreneur (*ibid*.: 254), his use of the term "profits and losses" suggests that he was writing here about what he would later in the book call the entrepreneur function, or entrepreneurship. In other words, monetary calculation involving capitalization is the province of entrepreneurship. Entrepreneurship makes the calculations; it plans and acts on the basis of expected profit and loss.

Mises goes on to discuss the term "capitalism." He says that people have dubbed the system of free enterprise "capitalism" in order to deprecate or smear it. "However, this term can be considered very pertinent. It refers to the most characteristic feature of the system, its main eminence, viz., the role the notion of capital [read: capital accounting and the corresponding notion of an actor's net worth] plays in its conduct" (*ibid*.: 230).

Further Uses of the Praxeological Concept

So far, our discussion of the praxeological concept of capital has referred to the praxeological part of *Human Action*. He does not begin to discuss economics (catallactics) until later in the text. We shall see in parts three and four that in his chapters on economics, Mises writes a great deal about capital goods, which is different from this praxeological concept of capital. A goal of this paper is to demonstrate that much of his "capital goods" discussion is unneeded and potentially confusing.

Before turning to this discussion, it is worth pointing out that he does not abandon the fundamental praxeological definition.

A good example of Mises's praxeological approach to the capital concept is his criticism of Bohm Bawerk's theory of interest. Bohm's theory was based partly on the assumption that more roundabout methods of production are more physically productive. Mises criticized it on the grounds that the productivity of methods of production should be defined in terms of (1) whether actors perceive the methods and, given that they do, (2) actors' perceptions of the utility or income that they expect the methods to yield (*ibid*.: 488-9.[23] Another example is his definition of capital. He points out that economists "erred in classifying 'capital' as an independent resource along with the nature-given material resources and labor" (Mises 1966: 493). He seems to present his argument best in his discussion of land. He writes the following:

> The law controlling the determination of the prices of the factors of production is the same with all classes and specimens of these factors...The only reason why the old economists were puzzled by this fact was that they operated with a general term *land* that neglects differences in productivity.(*ibid*.: 636)[24]

In using the term "good of higher order," he is referring to Carl Menger, who wrote that for a thing to be a good, the user must know how the item can be used to satisfy what we would today call a want (Menger 1981: 52). For this reason, we can safely assume that Mises meant *value productivity*. Given this interpretation, the last sentence means that the old economists' concept of land neglects changes in consumer wants, other complementary resources, and knowledge. In other words, Mises is arguing that the old economists erred in their theory of value (i.e., the theory of price and cost)

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[23]For a more complete critique, see Mises, 1974.

[24]Also see *ibid*.: 640.

because they assigned importance to the resources "land" and "capital" that is different from the importance assigned by the actors themselves. More specifically they misplaced their emphasis by neglecting the part that "land" and "capital" played in individuals' calculations about how to best satisfy their wants.[25]

3. ENTREPRENEUR'S NET WORTH VS. CAPITAL GOODS

We turn now to Mises's more direct discussions of "capital" in the economics parts of *Human Action*, specifically to the beginning of his chapter called *The Market*. The first section of the chapter defines the market economy as a "social system of the division of labor under private ownership of the means of production" (*ibid*.: 257). We focus on the second section, entitled *Capital Goods and Capital*, which comprises approximately five pages.

Definition of Capital Goods

Mises begins by describing a fundamental characteristic of human beings: "There is an impulse inwrought in all living beings that directs them toward the assimilation of matter that preserves, renews, and strengthens their vital energy" (*ibid*.: 259). Enhancing one's vitality, Mises says, is

[25]Mises's view is consistent with the subjectivist view of price and cost, or what is often called the subjective theory of value. This view can be found in the writings of Menger (1981), J. B. Clark (1899), Phillip Wicksteed (1910), Frank H. Fetter (1904a), Herbert Davenport (1908, 1914), and Frank Knight (1921).

conscious and purposeful. He goes on to say that man's "ingenuity leads to the construction of tools." Then he discusses products that make it possible to lengthen the period of time between the beginning and end of a production process.

> The products accumulated for this purpose are either intermediary stages in the technological process, i.e., tools and half-finished products, or goods ready for consumption that make it possible for man to substitute, without suffering want during the waiting period, a more time-absorbing process for another absorbing a shorter time. *These goods are called capital goods* (*ibid*.: 260, italics added).

It appears here that he means for capital goods to *exclude* the so-called natural resources, or land. He also seems to want to exclude what we now call "human capital" – physical and intellectual skills. Finally, he apparently means to exclude legal rights. Thus the set of items that constitute capital goods is much narrower than the set of higher order goods that Menger called capital.[26] It is also narrower than Mises's set of resources to which individuals apply capital accounting in making appraisals.

Capital vs. Capital Goods

Mises proceeds to distinguish between capital goods and capital.

> From the notion of capital goods one must clearly distinguish the concept of capital. *The concept of capital is the fundamental concept of economic calculation, the foremost mental tool of the conduct of affairs in the market economy*. Its correlative is the concept of income...The whole complex of goods destined for acquisition is evaluated in money terms, and this sum – the capital – is the starting point of economic calculation...That amount which can be consumed within a definite period without lowering the capital is called income. If consumption exceeds the income available, the difference is called capital consumption. If the income available is greater than the amount consumed, the difference is called saving. Among the main tasks of economic calculation are those of establishing the magnitudes of income, saving, and capital consumption (*ibid*.: 260-1, italics added).

[26]See Menger: 54-55; 155; 172.

To *clearly* distinguish between capital and capital goods, it is essential to understand precisely what Mises means by "capital" in these statements. First, one should recognize that capital refers to the money values. It is "the whole complex" in "money terms." Thus it refers to the subjects' money evaluations of the items in the complex. Second, since he writes of the "whole complex of goods destined for acquisition," we must assume that the items he has in mind are not merely the material capital goods. We must assume that he has in mind all assets in terms of the future income that is expected to be derived from them. Mises writes as much:

> The calculating mind of the actor draws a boundary line between the consumer's goods which he plans to employ for the immediate satisfaction of his wants and the goods of all orders – including those of the first order – which he plans to employ for providing by further acting, for the satisfaction of future wants (*ibid*.: 260).

If a person uses up some of the natural fertility of his land, then this also is capital consumption, so long as he as attached a price to the land's fertility. The same is true for "human capital" and legal rights. This interpretation consistent with the meaning he gave "capital" in his earlier discussion of the subject. Moreover, if Mises had anything else in mind, we must presume that he would have, at some stage, criticized Menger's definition of capital.

Monetary Calculation and Capital Goods

Could Capital Goods Exist Before Monetary Calculation?

Mises applies his concept of capital as an accounting tool by discussing a common error. First he describes an unobjectionable metaphor. He notes that writers tend to look back in time and apply the accounting concept to earlier times when there was no market economy and, therefore, no

economic calculation. "[W]e may say metaphorically that (the savage ancestors of the human race) too used capital." This applies as well to the primitive husbandmen's "reluctance to kill a pregnant hind" and the "uneasiness felt by even the most ruthless warriors in cutting fruit trees..."(ibid.: 261). This is a metaphor because, in these early times, no money existed and therefore no capital accounting could occur.

The metaphor can be misused. In particular, it was misused by "[s]ome economists [who] concluded that 'capital' is a category of all human production...and that it does not depend upon the practice of monetary calculation." This is an error because the

> concept of capital cannot be separated from the context of monetary calculation and from the social structure of a market economy in which alone monetary calculation is possible. It is a concept which makes no sense outside the conditions of a market economy (ibid.: 262).

Real Capital

Another error is the concept of real capital. Mises points out that the concept of a sum of the various resources is an "empty concept" because it is "of no use to acting." It is "merely an enumeration of physical quantities of thousands and thousands of various goods." Mises's point is that without specifying (1) a system of markets and prices and (2) calculating minds to appraise the resources, there is no way to determine the relative importance of these various goods to economic actors. He goes on to criticize the idea of the "productivity of capital" as one that is based on the empty concept of real capital. Then he criticizes those who "explain interest as an income derived from the (empty concept of the) productivity of capital" (ibid.: 263).

Private and Social Capital

Mises finishes off this section by discussing the vacuousness of the concept of social capital:

> People began to mediate upon a concept of *social capital* as different from *private capital*. Starting from the imaginary construction of a socialist economy, they were intent upon defining a capital concept suitable to the economic activities of the general manager of such a system. However...in a socialist economy there are capital goods but no capital (*ibid*.: 264).

Mises writes here that although the socialist manager can designate some goods as capital goods (tools, half-finished products, durable consumer goods), there is no capital in the socialist system because the socialist society contains no prices or economic calculation.[27]

[27]Mises continues the discussion at *ibid*.: 521. In the author's view, the concept of social capital is dealt with much more clearly by Davenport (1908: 141-55).

Where is the Entrepreneur?

It is worth pausing to consider the broader implications of this statement. By emphasizing the privateness of capital, Mises appears to imply that the only concept of capital that is relevant in a market economy is private capital – the entrepreneur's net worth calculated, through capital accounting, by a particular individual acting in the role of the praxeological entrepreneur.[28] Nevertheless, he mentions the entrepreneur only once in this section. He says that "[t]he notion of capital...is a device of capitalists, entrepreneurs, and farmers eager to make profits and to avoid losses" (Mises 1966: 264). This economizing on the use of the term "entrepreneur" is puzzling in light of the fact that in the previous chapter, Mises had clearly recognized the central role that the entrepreneur function plays in the explanation of economic interaction. He could have included a reference to the function of the entrepreneur in all of his discussions of capital. But he did not. In the author's view this was a serious tactical error. All of his major points in this chapter that relate to economic interaction under the conditions of the market economy hinge on the reader's taking what Davenport called "the entrepreneur point of view" of capital (Gunning 1998b: 350-1).

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[28]See the discussion of the praxeological entrepreneur earlier in this paper. It is worth noting that Davenport defines private capital as follows:

> Private capital, that form of capital with which actual business is concerned, includes, as we have seen, all forms of durable private wealth – all such property of any individual as requires an appreciable period of time for the rendering of its services, – all possessions any of the incomes of which are so far remote in time that some of these suffer in present price estimation by the very fact of this remoteness, – all wealth the present worth of which involves the application of the principle of time discount, – all wealth remunerated according to the dollar-time unit. Private capital is merely those private possessions which are bases of private income. This capital is productive, truly, – acquisitive, gainful, – but not necessarily so in the social sense of contributing to the general welfare or of increasing the aggregate of incomes, but only of increasing the owner's income (Davenport 1914: 335).

4. CAPITAL GOODS AND TIME

Mises's chapter on "Action in the Passing of Time" contains a more extensive discussion of capital goods. He does not begin this treatment until he has completed two lengthy chapters on the market and prices and another long chapter on exchange involving money. The main purpose of the chapter seems to be to define the concept of capital goods in terms of an individual's time preference. In other words, he wants to develop a definition of capital goods that requires the user of this term to think of an individual's time preference. In doing this he decides to adopt the "convention" of limiting the capital goods concept to material goods that are produced during a plan to satisfy a want in the future. He does not define capital goods as material goods that have *already* been produced. He defines them as material goods that a person *plans* to produce.

I will argue that Mises's decision to define capital goods in this way is an error in two related senses. First, the main principles that can be derived from the a priori assumption of time preference are more general than is suggested by the use of his definition of capital goods. As a result, the ordinary reader is likely to miss the full significance of his effort to link appraisals to time preference. Second, by neglecting to emphasize the generality of the main principles, Mises diverts attention away from one of his most important contributions to economic theory – his praxeological concept of the entrepreneur. I will try to illustrate these points by critiquing most of the points he makes in this chapter.

Capital Goods and Production

In the first section of the chapter, Mises asserts that the accumulation of capital goods is necessary before people can begin to use longer periods of production than they are currently using.

> People eager to embark upon processes with a longer period of production must first accumulate, by means of saving, that quantity of consumers' goods which is needed to satisfy, during the waiting time, all those wants the satisfaction of which they consider more urgent than the increment in well-being expected from the more time-consuming process. Accumulation of capital begins with the formation of stocks of consumers' goods the consumption of which is postponed for later days (Mises 1966: 491).

Here he says that in order to make the production period longer than it otherwise would be, individuals must save a larger part of their stocks of durable consumers' goods than they otherwise would. This, he says, is part of the process of capital accumulation.

A stock of consumers' goods need not be integrated economically into the "orbit of production." A person may simply put aside some consumers' goods with the goal of consuming them at a later time. Mises writes that to be integrated economically into production, they must be employed as means of subsistence (*ibid*.). Once they are integrated into the orbit of production, the surpluses "are replaced first by the intermediary products of a process with a longer period of production and then later by the consumers' goods which are the final product of these processes" (*ibid*.). The

> intermediary products.., the produced factors of further production...change hands in the course of events; they pass from one plant to another until finally the consumers' goods reach those who use and enjoy them.(*ibid*.: 492)

Mises's main aim in this section is to illustrate the limits placed by time preference on what he calls capital accumulation. He achieves this by considering the case in which production processes with longer periods of production are technologically superior. He begins by pointing out that

individuals would accumulate stocks of durable consumers' goods even if processes requiring a longer period of time were not technologically superior, that is, even if the longer processes did not result in a greater physical output of desirable goods than shorter processes. The reason is that accumulation makes it "feasible to aim at goals which could not be thought of before on account of the length of the production period required" (*ibid.*: 490). Nevertheless, technological processes with a longer period *are* superior. However, if technological processes with a longer period are superior, why do actors not *always* prefer the longer processes? The answer is time preference. "What restricts the amount of saving and investment is time preference" (*ibid.*: 491). No one would want to "accumulate all of the capital" that is possible to accumulate, since everyone has a preference for not only distant future goods but also near future goods.

To see how Mises negotiates the terminology problem, consider the following statement about capital accounting and capital goods.

> All of these ventures and processes are intellectually controlled by capital accounting, the acme of economic calculation in monetary terms. Without the aid of monetary calculation men could not even learn whether – apart from the length of the period of production – a definite process promises a higher productivity than another...Capital accounting starts with the market prices of the capital goods available for production, the sum of which it calls capital...It is the indispensable compass of production in the market economy (*ibid.*).

By saying that "capital accounting starts with the market prices of capital goods available for production," he makes it appear as if capital accounting does not apply to the resources that are not capital goods – land, to intellectual and physical skills, and to legal rights. Surely, however, he does not mean this. He is simply using the convention described in the opening paragraph of this part.

Critique

We must begin by endorsing Mises's main point that time preference limits the willingness of people to embark on lengthier production projects than those that they choose. But now we must question the wisdom of distinguishing between durable consumers' goods, intermediary products and other resources (or higher order goods). Why insist that the shift to longer periods of production *must* start with the formation of stocks of consumers' goods and that it *must* pass through stages in which people use tools and produce resources of further production? Surely, the shift can occur without this.

If we begin with a stationary system, we can imagine several kinds of changes that could lead an individual to shift to longer production periods without his producing additional stocks of consumers' goods or intermediary products. First, there could be an increase in the physical productivity of the more lengthy processes that is completely independent of human choice. The best example might be agricultural production due to systematic and relatively permanent changes in weather conditions. Second, people might use their brain power to discover ways to increase the physical productivity of either or both the shorter and more lengthy production processes. Third, people might deliberately change their desires for the products of the longer versus the shorter production processes. (It might be argued that this, in fact, is a change in time preference. Whatever we call it, Mises did not consider it.) Fourth, people might improve their physical or intellectual skill in producing products. The only initial state in which Mises's implications are logically correct is one in which none of these four events can occur without first accumulating consumers' goods and then producing intermediate products. Such an initial state is characterized by such extreme scarcity that people are unwilling to wait at all yet sufficient goods are produced without waiting to insure their

survival. This initial state is conceivable but it is not relevant to the conditions of any society that we know or have known.

We are forced to conclude that nothing is gained by building an image of an individual or an economy in which the accumulation of consumers' goods and intermediary products is antecedent to the shift to production processes with longer periods of production.

Praxeology, as the basis of a procedure for describing historical events, demands that changes be described in terms of action – either in terms of the action that causes historical events, action that responds to changes due to non-action, or both. We describe changes in action under the conditions of the market economy by referring to entrepreneurial appraisals and decisions and to how individuals deal with the uncertainty entailed in their decisions. Mises's choice to focus on produced material resources inclines us to forget the entrepreneur point of view.

The important point is that, as quoted above, "[t]he modern theory of value and prices is not based on the classification of the factors of production as land, capital, and labor" (*ibid*.: 636). We can illustrate how time preference affects choices within the framework of the modern theory of value and prices without using the concept of the accumulation of capital goods. We need not step outside the theory and we are liable to forget entrepreneurship if we do.

Capital Goods as Time Stored Up

Notwithstanding his previous focus on capital goods (as opposed to all resources), he goes on in the next section to remind his readers of one of the most important insights of the subjective theory of value: that all resources are treated identically by the calculating mind. The businessman

might adopt a superficial rule of thumb in distinguishing "nature-given material factors, the human factor – labor, and capital goods – the intermediary factors produced in the past" (*ibid*.: 492). However, "it was a serious mistake for the economists to agree with the businessman's superficial view...The...factors of further production produced in the past...are not an independent factor" (*ibid*.: 493).

Having reminded readers of this, he goes on to the major subject of this section. He writes that the resources produced in the past "are the joint products of the cooperation of the two original factors – nature and labor – expended in the past" (*ibid*.).

He uses this observation to launch a critique of the view that capital goods are "labor and nature stored up." We can see why this view is wrong, he points out, by comparing the price faced by a purchaser of a particular capital good, e.g., a machine, with the sum of the prices of the resources needed to produce the machine. When a man chooses to buy the machine, he is not buying stored labor and nature; he is buying "time stored up." A person who buys the machine instead of the resources used to produce it, is "nearer the goal of production" (*ibid*.).

Note that the argument here is forward-looking. Someone who purchases a machine in accord with his plans to produce goods in the future, he says, expects his purchase to save time because otherwise he would need to take the time to produce the machine. He does not mean to say that the machine represents time from the past. He means only that it saves time in the future. Although this is what he means, his words are easily misunderstood.

Critique

The critique is that this line of reasoning applies to all kinds of resources, so long as the resource, or its substitute, is available in the market. First, the purchase of durable consumers' goods, as compared with producing them, may save time. Similarly, the purchase of more fertile land, compared with the purchase of less fertile land and the subsequent production of irrigation and fertilization services, may save time. Finally, the purchase of skilled labor, compared with unskilled labor combined with a training program, may save time. Thus, a more accurate statement is that the purchase of a resource, compared to producing it or to choosing an alternative where time must be sacrificed to produce a substitute, enables a person to be "nearer to the goal of production." This is a truism that has nothing specifically to do with capital goods. Nothing is gained by using the term "capital goods" here and there is a risk that much will be lost. The best way to show that an existing resource is time stored up is to refer to how entrepreneurship sets the price of the resource in question relative to how it sets the prices of the resources need to produce it or its substitutes.

Capital Goods and Choice: A Digression

Given that reasoning about capital goods applies to all higher order goods, why did Mises want to retain the concept of capital goods at all? One possible answer is that professional economists had become accustomed to using this language. One apparent goal of Mises's discussion of capital goods was to deal with some of the relevant economics literature. Among other things, he wanted

to "explode the objections against the time preference theory" raised by Frank Knight (*ibid.*: 492n).[29] In a 1934 paper Knight had argued that the concept of time preference and a period of production are mere details that have no fundamental importance for understanding the market interest rates. He wrote that because individuals capitalize all expected streams of consumption wealth into a present value, the important fact is the size of this value, not the particular times at which the various income streams are expected or desired to be realized. Among other things, he used this argument to disparage the Austrian theory of the trade cycle, as presented by F. A. Hayek (Knight, 1934: 286).[30]

To refute Knight, Mises had to show why time preference is important, regardless of the market value of the resources that the current generation of entrepreneurs had inherited from their predecessors. So he pointed out that "[w]e are the lucky heirs of our fathers and forefathers whose saving has accumulated the capital goods with the aid of which we are working today" (Mises 1966: 492). Because of this, we are better off. He went on to point out that, regardless of this, entrepreneurship must still adjust to time preference. Unfortunately, his discussion seems less clear on the issue than I am suggesting here.

As important as it may have seemed to deal with criticisms of Austrian time preference theory, Mises's reference to capital goods in this passage and in others must be regarded as unfortunate. To introduce the notion of capital goods in an argument that time preference must be accounted for in

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[29]Besides Knight, Mises cited writings on capital in professional journals by Hayek and Machlup. See "capital" in the index of *Human Action*.

[30]Knight's disaffection with time preference was not a reaction to the Austrian theory. In his first major work, Knight asserted that time preference, or discount, has only an indirect effect on the interest rate and only over a long period of time. It is negligible "in relation to the total demand for capital" (Knight, 1921: 330n).

the theory of value is unnecessary and misleading. Whether the current generation inherits numerous tools and durable consumers' goods, bountiful land, a store of encyclopedic knowledge, a system of legal rights, or nothing; individuals will appraise what they regard as the resources in accord with their expectations about the particular times at which the resources can help to produce future goods. If time preference changes so that consumers are more forward-looking (for example, if they begin to regard the wealth of future generations as relatively more important), they will send a signal to entrepreneurship that longer-term investments are more profitable relative to shorter-term investments than they previously were. They will want to save more and for a longer period. This will, other things equal, cause the rates of interest on long term loans to fall relative to short-term loans. It may not affect the size of the present capitalized market value of the resources but it will be a crucial element in entrepreneurial decisions.

This digression is essential if one hopes to comprehend Mises's writings on capital goods in light of the subjective theory of value. It is the argument of this paper that in every case where Mises uses the term "capital good," the reader should substitute: "an item, action, characteristic of action, legal right or expectation based on reputation that entrepreneurship plans to use in producing future money income."

Why, one might ask, would a writer so aware of the subjective value theory as Mises take such a huge risk of being misinterpreted?[31] We have already mentioned his apparent desire to deal

[31]Mises was indeed misinterpreted. Rothbard has championed a mistaken interpretation of Mises's time preference theory of interest and, in the process, criticized Frank Fetter for dropping the distinction between land and capital. Rothbard's error has been repeated by Peter Lewin in a recent book on capital. See Lewin, 1999, 103-106. Especially see note 6 on p. 103.

with the "capital controversies" in the professional literature. If this answer is correct, then it would be wise to state that problem with which Mises aimed to deal before completing our interpretation of Mises on capital goods.

The "Capital Goods" Problem

Mises conceived of the "problem of capital" in relation to a theory of plan revision. Once a decision has been made to produce definite capital goods, the owner may want to revise his plans in order to deal with change.[32] We now turn to this problem. As stated by Mises, the problem is best represented by using the term "data." He introduces this term with regard to what he calls the "convertibility of capital goods":

> The convertibility of capital goods is the opportunity offered to adjust their utilization to a change in the data of production...As the conversion of capital goods from the employment originally planned to other employments becomes necessary through the emergence of unforeseen changes in the data, it is impossible to speak of convertibility in general without reference to changes in the data which have already occurred or are expected. A radical change in the data could make capital goods previously considered to be easily convertible either not convertible at all or convertible only with difficulty (*ibid*.: 504).

Data refer to

> the bodily and psychological features of the acting men, their desires and value judgments, and the theories, doctrines, and ideologies they develop in order to adjust themselves purposively to the conditions of their environment and thus to attain the ends they are aiming at. These data...are perpetually fluctuating and varying; they change from instant to instant.(*ibid*.: 646)

These passages suggest that the problem with which Mises wanted to deal is that of synchronization among the plans of the numerous actors in the market economy and items that are regarded by them

[32]This was the starting point for two later Austrian writers on capital goods. See Ludwig Lachmann 1978 [1956]: 8 and Kirzner 1966: 47.

as resources available to complete those plans. Entrepreneurship makes a plan at time *s* to satisfy some want at a future time *t*. At time *s*, it begins to divert resources away from alternative uses. However, a change in expected demand or knowledge of how to satisfy demands occurs between time *s* and *t*. Entrepreneurship, regarding its initial plans as no longer yielding the highest profit, changes its plans. It may come to regard as non-resources (i.e., as items worthless in production) items or services that it previously regarded as resources. And it may come to regard as resources items and services that were previously not regarded as such.

It is essential to realize that this problem of the "convertibility of capital goods," as Mises calls it, is not confined to capital goods, as he defines them. Since the completion of plans depends not only on the presence of durable consumers' goods, tools, and intermediary products but also on the nonhuman original resources ("land"), legal rights, and even expectations based on reputation; the problem he has in mind is not exclusively a capital goods problem. It is a resource and entrepreneurship problem.

We now return to our critique of the Misesian text.

Trivial and Misdirected Arguments

When one recognizes Mises's aim of illustrating the relevance of time in economic decision-making, some of the arguments he makes in his pages on "capital goods" seem trivial. Others seem unrelated to capital goods at all. In this subsection, we consider such arguments.

Capital Goods Lengthen the Period of Production

An example of a trivial argument is the one that Mises uses to support the claim that the production of capital goods lengthens the period of production. He begins by pointing out that

> not every employment chosen for the utilization of capital goods...requires a process of production in which the period of production from today on to the maturing of the product is longer than with all processes already adopted previously. It may be that people, having satisfied their more urgent needs, now want goods which can be produced within a comparatively short period...The reason why these goods have not been produced previously was...that there was a more urgent employment open for the factors required (*ibid*.: 495).

This seems to say that whereas previous capital goods were used (or existing capital goods are used) in production processes with periods of production that take, say, an average of two years to complete, a person may decide to produce a new capital good to be used in a production process that only takes one year to complete. Mises does not tell us why this fact is important. One possibility is that he is making a oblique reference to the notion of an average period of production. A choice to produce a new "short-production-period" capital good could reduce the average period of time between when production with capital goods in general is started and the overall consumption benefits are felt. But why would Mises want to refer to the concept of the average period of production? He had already pointed out that this concept is as vacuous as the concept of real capital (see above).

Although he does not explain why he thinks it is important, he proceeds to produce an argument to defend the view that "every increase in the supply of capital goods available results in a lengthening of the period of production and of waiting time" (*ibid*.). He considers the choice to produce a capital good. At the time the individual chooses to produce it, she compares her having a consumers' good at the earliest time with her having a consumers' good at the end of the

production period in which the capital is involved. Because she chooses the latter, she increases her capital goods and causes the period of production to be lengthened farther than it would have been if she had chosen to use the resources to produce a good in the shortest period.

This argument is trivial. It says that if an individual chooses not to use her resources to produce some good in the shortest amount of time possible, but instead uses them to produce a good for a later time, the result will be that she possesses more resources in the future than otherwise. More importantly, to a reader who had not completely rejected the concept of the average period of production and the classical tripartite division of the resources, Mises might seem in these pages to have accepted these ideas. He would have done better to omit any further reference to capital goods and to avoid any connection between capital and the period of production.

Capital Goods Facilitate Economic Development

In describing Rumania around 1860, Mises points out that the Rumanians were short of capital goods. Rumania already had technological knowledge. Development depended on its having capital goods. Without capital goods, the Rumanians would have had to begin by saving in order to make workers available for the performance of more time-consuming processes of production. Because the West lent capital goods, Rumanians were able to save time. This "made it possible for them to multiply very soon the productivity of their labor" (*ibid*.: 497). He concludes:

> Shortage of capital goods means that one is further away from the attainment of a goal sought than if one had started to aim at it at an earlier date...Capital shortage is a dearth of time...To have capital goods at one's disposal is tantamount to being nearer to a goal aimed at (*ibid*.).

Mises is conscientious enough to recognize that the development of Rumania has no necessary relationship to capital goods. He shows this with the following qualifier: "To have capital goods means, other things being equal, a temporal gain." In a footnote he says that this "implies also equality in the quantity of nature-given factors available" (*ibid*.). By adding this qualifier, he reduces his statement to a triviality. It says that if the goods produced in the past accomplish the producer's aim of enabling the production of more goods in the future than would have otherwise been possible, then the possession of those goods will have enabled the possessor to produce more goods in the future. This is a truism, albeit a trivial one, it seems.

Moreover, the focus on capital goods and nature-given resources may lead us to neglect other appraisable resources. These other resources are highlighted by the rapid development of various countries during the post-World War Two era. Far more important to Germany and Japan than the presence of time-saving capital goods were the relatively free trade regimes, the "entrepreneurial spirit" of the people (i.e., that they knew or were highly disposed to learn how to make and conserve money through market interaction and to build trust and trustworthiness), the common law or other tradition of forming and honoring contracts, and the technological knowledge possessed or acquired by the producers. An astute investor would not have lent his money to someone intent on moving capital goods to Rumania if he expected the Rumanian government to confiscate the goods or if he thought that Rumanian workers and managers would not know how to use them to make money. Consider a community in which members are disposed to accept and keep promises of future goods, services, and money in trade. Compared with a similar community in which the level of trust and trustworthiness is substantially lower, the former will be able to grow quicker and to a greater extent

because existing wealth can be put to work as guaranty for loans. Such a disposition does not fall under the class of produced material resources implied by the term "capital goods." The point is that Mises's approach shifts the reader's focus away from where it should be. It should not be on produced material goods but on all items, actions and properties of actions that entrepreneurship may regard as resources.

Similarly trivial and misleading is the argument that Mises borrows from J. B. Clark (1899) to the effect that if two countries are equal in two respects except that one has a greater quantity of capital goods (i.e., goods that were produced in the past and that continue to be regarded as such), one will have higher wage rates and standards of living (Mises 1966: 498-9).

Fallacies of Central Planning

In a section entitled "The Influence of the Past Upon Action," Mises seems to misplace two fallacies of central planning. We discuss each in turn. The first is the infant industry argument. This is the claim that a beginning industry in a nation needs protection from international competitors in order to be successful in the long run. Those who make this claim support it with the argument that because the "older industries have acquired an advantage by their early start...[t]hey are now fostered by a merely historical, accidental and manifestly 'irrational' factor" (*ibid*.: 509). In the long run, the government-protected firms will prove their worth because the locations at which they are built are at least as profitable as those at which the industries are now located. However, unless the firms are protected, they would not be able to obtain the financing needed to pay the high cost of starting up at these locations. Thus, they need special protection until they have passed the startup stage. The

fallacy here is the idea that a central planner knows more about the profitability of where to start a new firm than individuals in the market economy.

Mises makes this point clearly. However, he states his argument by referring to material capital. He says that if consumer demand and knowledge of how to satisfy it dictate that the industry should exist in the country where it is being protected, firms would already have abandoned nonconvertible and nontransferable capital goods in other countries. But why refer to capital goods? The logic of the argument has nothing specifically to do with capital goods. Whether one location is more favorable in the long run does not depend specifically on capital goods. Non-produced resources, skilled work, an entrepreneurial spirit, etc. are just as important.

The important point is that if entrepreneurship is free to move itself and resources across international boundaries, it will choose the locations that it believes will yield the highest profit. And we expect choosers to be more correct than incorrect. That firms use capital goods is an extraneous element. Therefore the argument does not fit into this section on capital goods.

The second fallacy is that big business may misuse "the patent system to withhold from the public benefits it could derive from technological improvement" (*ibid.*: 510). In other words, as the fallacious argument goes, a company may apply for a patent on a new product or method of production in order to keep a competitor from producing that product or method and subsequently competing more effectively with the company's existing product or method of production. The company has no intention of adopting the new product or method of production. It is because of this that the company withholds benefits from the public. Mises argues that if a patent is worth employing, the company has an incentive to employ it and, therefore, would not withhold the benefits from the

public. However, as before, this argument has nothing distinctly to do with capital goods. A patent is not a capital good; it is a monopoly right. Mises's argument here is again about central planning and not capital goods. What Mises *should* focus on is the entrepreneurship's appraisal of the right vs. the central planner's appraisal.[33]

Back to Capital Goods

The previous arguments do not belong in a chapter that is mainly concerned with capital goods. But at least they are separated from the other arguments and occur toward the end of the chapter. Unfortunately, they are followed in the same section by an argument that has the same shortcomings as the earlier arguments on capital goods. Mises goes on to discuss individuals' choices of where to live. "Capital goods of limited convertibility have been invested in areas which, from the point of view of our present knowledge, offer less favorable opportunities" (*ibid.*: 513). This inconvertibility he points out, counteracts tendencies to locate new businesses in places that would be most economical, given current knowledge. This is true, of course; but the fundamental point at issue has nothing to do with capital goods. Valleys, rivers, and mountains cannot easily be moved and also affect entrepreneurs' decisions about where to invest in homes. The same is true of people who both possess entrepreneurial spirit and who choose not to move. From the point of view of our current knowledge, it might have been better for a system of secure property rights to have emerged

[33]Mises appears to recognize that his argument is really about central planning and not about capital since he goes on to describe several cases in which socialist planners and military leaders neglected to adopt a technological advance until after the time seemed ripe for its adoption (*ibid.*: 512-3). But the question remains of why he would have included this discussion in a part of his book where he focuses on capital goods.

in Brazil than in the U.S. Nevertheless, the secure property rights of the U.S. counteract tendencies to locate businesses in Brazil for other reasons.

Mises's focus on capital goods diverts our attention away from other non-material higher order goods. If such goods as goodwill, a reputation for keeping promises, law and order, the services of specialized middlemen and consultants are present in one location (culture) but not in another, new business will be attracted, other things equal. The error made by the central planner who would try to relocate enterprises into more technically efficient places is a failure to account realistically for profit and loss as the entrepreneur would see it.

Saving

Similarly misleading and trivial is the notion that "additional capital can be accumulated only by saving, i.e., a surplus of production over consumption." To support this notion, Mises shows that saving can occur not only by means of restricting consumption but also in three other ways:

> 1. Natural conditions have become more propitious. Harvests are more plentiful. People have access to more fertile soil...Cataclysms...have become less frequent...Epidemics have subsided.
> 2. People have succeeded in rendering some production processes more fruitful without investing more capital goods and without a further lengthening of the period of production.
> 3. Institutional disturbances of production activities have become less frequent. The losses caused by war, revolutions, strikes, sabotage, and other crimes have been reduced (*ibid*.: 515-6).

Saving could presumably also occur if there was an increase in trust and trustworthiness among actors, if the banking system became more "mature" and money less subject to extreme fluctuations in quantity, and for a myriad of other non-material reasons. Any event, chosen or not, that results in more higher order goods would raise the amount of saving, as defined here. However, such events

need not raise the amount of capital goods in Mises's sense. Again, the question is: why focus on capital goods? Equating saving with capital goods production is distracting.

Cash Holding and Capital Accumulation

Mises's focus on the physical nature of capital goods leads him to make an error, or at least an omission, in his first discussion of cash holding (hoarding). He begins by pointing out that "[i]f an individual employs a sum of money not for consumption but for the purchase of factors of production, saving is directly turned into capital accumulation" (*ibid*.: 522). The money that otherwise would have been used to demand consumers' goods is used to demand resources. He goes on to argue that capital accumulation can occur even if the individual holds his saving in the form of cash.

> If we assume that the supply of money in the market system does not change, this conduct on the part of the saver will not directly influence the accumulation of capital and its employment for an expansion of production. The effect of our saver's saving, i.e., the surplus of goods produced over goods consumed, does not disappear on account of his hoarding...If nobody employs the goods – the nonconsumption of which brought about the additional saving – they remain as an increment in the amount of capital goods available, whatever their prices may be. The two processes – increased cash holding of some people and increased capital accumulation – take place side by side (*ibid*.: 521-2).

While Mises is correct in saying that the physical goods do not disappear, he is wrong to disregard the change in their relative prices. Indeed, the non-consumption of particular goods (or more correctly the decreased demand for them) is likely to cause some resources to lose their "goods character." Their prices would fall to zero. The material items would still exist but, under current conditions, they would become irrelevant to economic analysis. In the paragraph that follows the above quotation, Mises recognizes that the fall in demand for the resources will cause their prices to

fall. Strangely, however, does not regard this element as possibly compromising the capital accumulation.

What one ought to realize is that when consumers buy and consume particular goods, they render those goods incapable of further satisfying wants and, at the same time, confirm the entrepreneurial expectations that led those goods to come into existence in the first place. By the same token, if consumers do not buy and consume particular goods, they disappoint entrepreneurial expectations. As a result, the entire structure of prices from which money itself derives its purchasing power may change.

Contrary to Mises's argument, increases in cash holding (hoarded money) that are not accompanied by plans for future spending send a signal that it is less profitable to use resources than it used to be. The logic of this criticism is clear when we imagine the consequence of every consumer decides to hoard all of his saved money without expressing or implying plans for a future purchase. All production would immediately become unprofitable. Production would cease. The prices of all higher order goods, as determined by a previous appraisals, would fall to zero. In effect, there would be *no* resources even though the material items that previously constituted resources still exist.

Of course, this scenario could never happen. In the kind of image of a market economy that is needed to describe the scenario, consumers who stop spending would also have to stop consuming; since consumers in the image hold no stocks of consumer goods. Recognition of this characteristic of the image leads one to ask inquire further about the cause of the additional cash holding. Is it a fear that loans will not be repaid? Is it the expectation of a fall in prices combined with transactions costs

of making overnight loans? Is it a change in some other expectation? Mises is not led to ask these questions. Thus, one conclude that this analysis is an error or an omission.

The fundamental question that Mises aims to answer in this subsection is whether "hoarded money is a barren part of the total amount of wealth" (*ibid.*: 522-3). If one does not wish to explore the reason why individuals have decided to hoard money, then it would seem that the best way to answer the question is by conceiving of a market participant who gets enjoyment from destroying a part of the money he earns (or from trying to confuse economists).

5. CONCLUSION

It seems ironic that Mises was a pivotal figure in both (1) the advancement of the subjectivist Austrian theory of value and cost, which had entrepreneurship at its core, and (2) the continuation of the material concept of capital in Austrian economics. A careful reading of *Human Action* demonstrates that Mises's most important concept of capital was not his "capital goods" concept but his definition of capital as entrepreneur's net worth. This idea implies the use of capital accounting as a tool of monetary calculation used by entrepreneurship in its appraisement of the resources. It is fully consistent with another crucial idea in the praxeological economics Mises aimed to promote – the idea that the function-performing entrepreneur, as mandatory of consumers, is essential in explaining economic interaction under market economy conditions.

Why did he jeopardize the prospect that readers would receive his message about praxeology and entrepreneurship by employing a materialist definition of capital, which diverts attention away from entrepreneurial appraisement? Earlier in this paper, I suggested that he wanted to deal with various arguments in the economics literature. Whatever the reason, he has been accompanied by and followed in his definition by a host of other neo-Austrian writers.[34] These writers have not been so careful to employ the praxeological concept of capital that Mises had in mind (1966: 515). They have neglected (1) the Mengerian insight that the appraisals of all higher order goods are made according to the same principles and (2) the Davenport-Knight-Mises insight that our focus in describing the economic interaction under the conditions of the market economy ought to be entrepreneurship. This already lengthy paper has no space to catalogue the host of errors and omissions that have resulted from this neglect. It will have to be sufficient to point out that, with the exception of Menger and Mises in the early part of *Human Action*, the neo-Austrian writings on capital goods have served to lead modern Austrians away from these important insights.

[34]Examples are Hayek 1941: 3; Lachmann 1978 [1956]: 8, 11; Kirzner 1966: 47; Rothbard 1962: 836; Lewin 1994 and 1999; and James Ahiakpor 1997: 273.

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Gunning's Address

J. Patrick Gunning
Visiting Professor
U.S. Coast Guard Academy
Management Department
15 Mohegan Avenue
New London, CT 06320

Please send feedback:
Email: gunning@nomadpress.com
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