The Austrian Theory of Money
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The Austrian theory of money virtually begins and ends with Ludwig von Mises's monumental *Theory of Money and Credit*, published in 1912.[1] Mises's fundamental accomplishment was to take the theory of marginal utility, built up by Austrian economists and other marginalists as the explanation for consumer demand and market price, and apply it to the demand for and the value, or the price, of money. No longer did the theory of money need to be separated from the general economic theory of individual action and utility, of supply, demand, and price; no longer did monetary theory have to suffer isolation in a context of "velocities of circulation," "price levels," and "equations of exchange."

In applying the analysis of supply and demand to money, Mises used the Wicksteedian concept: supply is the total stock of a commodity at any given time; and demand is the total market demand to gain and hold cash balances, built up out of the marginal-utility rankings of units of money on the value scales of individuals on the market. The Wicksteedian concept is particularly appropriate to money for several reasons: first, because the supply of money is either extremely durable in relation to current production, as under the gold standard, or is determined exogenously to the market by government authority; and, second and most important, because money, uniquely among commodities desired and demanded on the market, is acquired not to be consumed, but to be held for later exchange. Demand-to-hold thereby

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[1] Ludwig von Mises, *Theorie des Geldes und der Umlaufsmittel* (1912); see the third English edition, *The Theory of Money and Credit* (New Haven, Conn.: Yale University Press, 1953).

becomes the appropriate concept for analyzing the uniquely broad monetary function of being held as stock for later sale. Mises was also able to explain the demand for cash balances as the resultant of marginal utilities on value scales that are strictly ordinal for each individual. In the course of his analysis Mises built on the insight of his fellow Austrian Franz Cuhel to develop a marginal utility that was strictly ordinal, lexicographic, and purged of all traces of the error of assuming the measurability of utilities.

The relative utilities of money units as against other goods determine each person's demand for cash balances, that is, how much of his income or wealth he will keep in cash balances as against how much he will spend. Applying the law of diminishing (ordinal) marginal utility of money and bearing in mind that money's "use" is to be held for future exchange, Mises arrived implicitly at a falling demand curve for money in relation to the purchasing power of the currency unit. The purchasing power of the money unit, which Mises also termed the "objective exchange-value" of money, was then determined, as in the usual supply-and-demand analysis, by the intersection of the money stock and the demand for cash balance schedule. We can see this visually by putting the purchasing power of the money unit on the y-axis and the quantity of money on the x-axis of the conventional two-dimensional diagram corresponding to the price of any good and its quantity. Mises wrapped up the analysis by pointing out that the total supply of money at any given time is no more or less than the sum of the individual cash balances at that time. No money in a society remains unowned by someone and is therefore outside some individual's cash balances.

While, for purposes of convenience, Mises's analysis may be expressed in the usual supply-and-demand diagram with the purchasing power of the money unit serving as the price of money, relying solely on such a simplified diagram falsifies the theory. For, as Mises pointed out in a brilliant analysis whose lessons have still not been absorbed in the mainstream of economic theory, the purchasing power of the money unit is not simply the inverse of the so-called price level of goods and services. In describing the advantages of money as a general medium of exchange and how such a general medium arose on the market, Mises pointed out that the currency unit serves as unit of account and as a

common denominator of all other prices, but that the money commodity itself is still in a state of barter with all other goods and services. Thus, in the pre-money state of barter, there is no unitary "price of eggs"; a unit of eggs (say, one dozen) will have many different "prices": the "butter" price in terms of pounds of butter, the "hat" price in terms of hats, the "horse" price in terms of horses, and so on. Every good and service will have an almost infinite array of prices in terms of every other good and service. After one commodity, say gold, is chosen to be the medium for all exchanges, every other good except gold will enjoy a unitary price, so that we know that the price of eggs is one dollar a dozen; the price of a hat is ten dollars, and so on. But while every good and service except gold now has a single price in terms of money, money itself has a virtually infinite array of individual prices in terms of every other good and service. To put it another way, the price of any good is the same thing as its purchasing power in terms of other goods and services. Under barter, if the price of a dozen eggs is two pounds of butter, the purchasing power of a dozen eggs is, *interalia*, two pounds of butter. The purchasing power of a dozen eggs will also be one-tenth of a hat, and so on. Conversely, the purchasing power of butter is its price in terms of eggs; in this case the purchasing power of a pound of butter is a half-dozen eggs. After the arrival of money, the purchasing power of a dozen eggs is the same as its money price, in our example, one dollar. The purchasing power of a pound of butter will be fifty cents, of a hat ten dollars, and so forth.

What, then, is the purchasing power, or the price, of a dollar? It will be a vast array of all the goods and services that can be purchased for a dollar, that is, of all the goods and services in the economy. In our example, we would say that the purchasing power of a dollar equals one dozen eggs, or two pounds of butter, or one-tenth of a hat, and so on, for the entire economy. In short, the price, or purchasing power, of the money unit will be an array of the quantities of alternative goods and services that can be purchased for a dollar. Since the array is heterogeneous and specific, it cannot be summed up in some unitary price-level figure.

The fallacy of the price-level concept is further shown by Mises's analysis of precisely how prices rise (that is, the purchasing power of

money falls) in response to an increase in the quantity of money (assuming, of course, that the individual demand schedules for cash balances or, more generally, individual value scales remain constant). In contrast to the hermetic neoclassical separation of money and price levels from the relative prices of individual goods and services, Mises showed that an increased supply of money impinges differently upon different spheres of the market and thereby ineluctably changes relative prices.

Suppose, for example, that the supply of money increases by 20 percent. The result will not be, as neoclassical economics assumes, simply an across-the-board increase of 20 percent in all prices. Let us assume the most favorable case—what we might call the Angel Gabriel model—that the Angel Gabriel descends and overnight increases everyone's cash balance by precisely 20 percent. Now all prices will not simply rise by 20 percent; for each individual has a different value scale, a different ordinal ranking of utilities, including the relative marginal utilities of dollars and of all the other goods on his value scale. As each person's stock of dollars increases, his purchases of goods and services will change in accordance with their new position on his value scale in relation to dollars. The structure of demand will therefore change, as will relative prices and relative incomes in production. The composition of the array constituting the purchasing power of the dollar will change.

If relative demands and prices change in the Angel Gabriel model, they will change much more in the course of real-world increases in the supply of money. For, as Mises showed, in the real world an inflation of money is alluring to the inflators precisely because the injection of new money does not follow the Angel Gabriel model. Instead, the government or the banks create new money to be spent on specific goods and services. The demand for these goods thereby rises, raising these specific prices. Gradually, the new money ripples through the economy, raising demand and prices as it goes. Income and wealth are redistributed to those who receive the new money early in the process, at the expense of those who receive the new money late in the day and of those on fixed incomes who receive no new money at all. Two types of shifts in relative prices occur as the result of this increase in money: (1) the redistribution from late receivers to early receivers that

occurs during the inflation process and; (2) the permanent shifts in wealth and income that continue even after the effects of the increase in the money supply have worked themselves out. For the new equilibrium will reflect a changed pattern of wealth, income, and demand resulting from the changes during the intervening inflationary process. For example, the fixed income groups permanently lose in relative wealth and income.[2]

If the concept of a unitary price level is a fallacious one, still more fallacious is any attempt to measure changes in that level. To use our previous example, suppose that at one point in time the dollar can buy one dozen eggs, or one-tenth of a hat, or two pounds of butter. If, for the sake of simplicity, we restrict the available goods and services to just these three, we are describing the purchasing power of the dollar at that time. But suppose that at the next point in time, perhaps because of an increase in the supply of dollars, prices rise, so that butter costs one dollar a pound, a hat twelve dollars, and eggs three dollars a dozen. Prices rise but not uniformly, and all that we can now say quantitatively about the purchasing power of the dollar is that it is four eggs, or one-twelfth of a hat, or one pound of butter. It is impermissible to try to group the changes in the purchasing power of the dollar into a single average index number. Any such index conjures up some sort of totality of goods whose relative prices remain unchanged, so that a general averaging can arrive at a measure of changes in the purchasing power of money itself. But we have seen that relative prices cannot remain unchanged, much less the valuations that individuals place upon these goods and services.[3]

Just as the price of any good tends to be uniform, so the price, or purchasing power of money, as Mises demonstrated, will tend to be

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[2] On the changes in relative prices attendant on an increase in the money supply, see Mises, *Theory of Money and Credit*, pp. 139-45.

[3] For more on the fallacies of measurement and index numbers, see Mises, *Theory of Money and Credit*, pp. 187-94; idem, *Human Action: A Treatise on Economics* (New Haven, Conn: Yale University Press, 1949), pp. 221-24; Murray N. Rothbard, *Man, Economy, and State* (Princeton, N.J.: D. Van Nostrand, 1962), 2:737-40; Bassett Jones, *Horses and Applies: A Study of Index Numbers* (New York: John Day, 1934); and Oskar Morgenstern, *On the Accuracy of Economic Observations*, 2nd rev. ed. (Princeton University Press, 1963).

uniform throughout its trading area. The purchasing power of the dollar will tend to be uniform throughout the United States. Similarly, in the era of the gold standard, the purchasing power of a unit of gold tended to be uniform throughout those areas where gold was in use. Critics who point to persistent tendencies for differences in the price of money between one location and another fail to understand the Austrian concept of what a good or a service actually is. A good is not defined by its technological properties but by its homogeneity in relation to the demands and wishes of the consumers. It is easy to explain, for example, why the price of wheat in Kansas will not be the same as the price of wheat in New York. From the point of view of the consumer in New York, the wheat, while technologically identical in the two places, is in reality two different commodities: one being "wheat in Kansas" and the other "wheat in New York." Wheat in New York, being closer to his use, is a more valuable commodity than wheat in Kansas and will have a higher price on the market. Similarly, the fact that a technologically similar apartment will not have the same rental price in New York City as in rural Ohio does not mean that the price of the same apartment commodity differs persistently; for the apartment in New York enjoys a more valuable and more desirable location and hence will be more highly priced on the market. The "apartment in New York" is a different and more valuable good than the "apartment in rural Ohio," since the respective locations are part and parcel of the good itself. At all times, a homogeneous good must be defined in terms of its usefulness to the consumer rather than by its technological properties.

To extend the analysis, the fact that the cost of living may be persistently higher in New York than in rural Ohio does not negate the tendency for a uniform purchasing power of the dollar throughout the country. For the two locations constitute a different set of goods and services, New York providing a vastly wider range of goods and services to the consumer. The higher costs of living in New York are the reflection of the greater locational advantages, of the more abundant range of goods and services available.[4]

[4] See Mises, *Theory of Money and Credit*, pp. 170-78.

In his valuable history of the theory of international prices, C.Y. Wu emphasized the Mises contribution and pointed out that Mises's explanation was in the tradition of Ricardo and Nassau Senior, who "was the first economist to give a clear explanation of the meaning of the classical doctrine that the value of money was everywhere the same and to demonstrate that differences in the prices of goods of similar composition in different places were perfectly reconcilable with the assumption of an equality of the value of money."[5] Pointing out that Mises arrived at this concept independently of Senior, Wu then developed Mises's application to the alleged locational differences in the cost of living. As Wu stated, "To him [Mises] those who believe in national differences in the value of money have left out of account the positional factor in the nature of economic goods; otherwise they should have understood that the alleged differences are explicable by differences in the quality of the commodities offered and demanded." Wu concluded with a quote from Mises's *Theory of Money and Credit*: "The exchange-ratio between commodities and money is everywhere the same. But men and their wants are not everywhere the same, and neither are commodities."[6]

If the tendency of the purchasing power of money is to be everywhere the same, what happens if one or more moneys coexist in the world? By way of explanation, Mises developed the Ricardian analysis into what was to be called the purchasing-power-parity theory of exchange rates, namely, that the market exchange rate between two independent moneys will tend to equal the ratio of their purchasing powers. Mises showed that this analysis applies both to the exchange rate between gold and silver—whether or not the two circulate side by side within the same country—and to independent fiat currencies issued by two nations. Wu explained the difference between Mises's theory and the unfortunately better-known version of the purchasing-power-parity theory set forth a bit later by Gustav Cassel. The Cassel version ignores

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[5] Chi-Yuen Wu, *An Outline of International Price Theories* (London: George Routledge and Sons, 1939), p. 126.

[6] Ibid., p. 234; Mises, *Theory of Money and Credit*, p. 178. Mises's development of the theory was independent of Senior's because the latter was only published in 1928 in *Industrial Efficiency and Social Economy* (New York, 1928), pp. 55-56; see Wu, *Outline of International PriceTtheories*, p. 127n.

the Austrian emphasis on locational differences in accounting for differences in value of technologically similar goods, and this in turn complements the broader Austrian and classical position that the purchasing power of money is an array of specific goods. This contrasts with Cassel and the neoclassicists, who think of the purchasing power of money as the inverse of a unitary price level. Thus Wu stated:

> The purchasing power parity theory is that the rate of exchange would be in equilibrium when the "purchasing power of the moneys" is equal in all trading countries. If the term *purchasing power* refers to the power of purchasing commodities, which are not only similar in technological composition, but also in the *same* geographical situation, the theory becomes the classical doctrine of comparative value of moneys in different countries and is a sound doctrine. But unfortunately the term purchasing power in connection with the theory sometimes implies the reciprocal of the general price level in a country. While so interpreted the theory becomes that the equilibrium point of the foreign exchanges is to be found at the quotient between the price levels of the different countries. That is ...an erroneous version of the purchasing power parity theory.[7]

Unfortunately, Cassel, instead of correcting the error in his concept of purchasing power, soon abandoned the full-parity doctrine in favor of a different and highly attenuated contention that only changes in exchange rates reflect changes in respective purchasing power—perhaps because of his desire to use measurement and index numbers in applying the theory.[8]

When he set out to apply the theory of marginal utility to the price of money, Mises confronted the problem that was later to be called "the Austrian circle." In short, when someone ranks eggs or beef or shoes on his value scale, he values these goods for their direct use in consumption. Such valuations are, of course, independent of and prior to pricing on the market. But people demand money to hold in their cash

[7] Ibid., 250; Mises's formatuli
[8] See Wu, *Outline of International Price Theories*, pp. 251-60.

balances, not for eventual direct use in consumption, but precisely in order to exchange those balances for other goods that will be used directly. Thus, money is not useful in itself but because it has a prior exchange value, because it has been and therefore presumably will be exchangeable in terms of other goods. In short, money is demanded because it has a pre-existing purchasing power; its demand not only is not independent of its existing price on the market but is precisely due to its already having a price in terms of other goods and services. But if the demand for, and hence the utility of, money depends on its pre-existing price or purchasing power, how then can that price be explained by the demand? It seems that any Austrian attempt to apply marginal utility theory to money is inextricably caught in a circular trap. For that reason mainstream economics has not been able to apply marginal utility theory to the value of money and has therefore gone off in multi-causal (or *non*causal) Walrasian directions.

Mises, however, succeeded in solving this problem in 1912 in developing his so-called regression theorem. Briefly, Mises held that the demand for money, or cash balances, at the present time—say day X—rests on the fact that money on the previous day, day X -1, had a purchasing power. The purchasing power of money on day X is determined by the interaction on day X of the supply of money on that day and that day's demand for cash balances, which in turn is determined by the marginal utility of money for individuals on day X. But this marginal utility, and hence this demand, has an inevitable historical component: the fact that money has prior purchasing power on day X -1, and that therefore individuals know that this commodity has a monetary function and will be exchangeable on future days for other goods and services. But what then determined the purchasing power of money on day X -1? Again, that purchasing power was determined by the supply of, and demand for, money on day X -1, and that in turn depended on the fact that the money had purchasing power on day X -2. But are we not caught in an infinite regression, with no escape from the circular trap and no ultimate explanation? No. What we must do is to push the temporal regression to that point when the money commodity was not used as a medium of indirect exchange but was demanded purely for its own direct consumption use. Let us go back logically to the second day that a commodity, say gold, was used as a medium of exchange. On that day,

gold was demanded partly because it has a pre-existing purchasing power as a money, or rather as a medium of exchange, on the first day. But what of that first day? On that day, the demand for gold again depended on the fact that gold had a previous purchasing power, and so we push the analysis back to the last day of barter. The demand for gold on the last day of barter was purely a consumption use and had no historical component referring to any previous day; for under barter, every commodity was demanded purely for its current consumption use, and gold was no different. On the first day of its use as a medium of exchange, gold began to have two components in its demand, or utility: first, a consumption use as had existed in barter and, second, a monetary use, or use as a medium of exchange, which had a historical component in its utility. In short, the demand for money can be pushed back to the last day of barter, at which point the temporal element in the demand for the money commodity disappears, and the causal forces in the current demand and purchasing power of money are fully and completely explained.

Not only does the Mises regression theorem fully explain the current demand for money and integrate the theory of money with the theory of marginal utility, but it also shows that money must have originated in this fashion—on the market—with individuals on the market gradually beginning to use some previously valuable commodity as a medium of exchange. No money could have originated either by a social compact to consider some previously valueless thing as a "money" or by sudden governmental fiat. For in those cases, the money commodity could not have a previous purchasing power, which could be taken into account in the individual's demands for money. In this way, Mises demonstrated that Carl Menger's historical insight into the way in which money arose on the market was not simply a historical summary but a theoretical necessity. On the other hand, while money had to originate as a directly useful commodity, for example, gold, there is no reason, in the light of the regression theorem, why such direct uses must continue afterward for the commodity to be used as money. Once established as a money, gold or gold substitutes can lose or be deprived of their direct use function and still continue as money; for the historical

reference to a previous day's purchasing power will already have been established.[9]

In his comprehensive 1949 treatise, *Human Action*, Mises successfully refuted earlier criticisms of the regression theorem by Anderson and Ellis.[10] Subsequently criticisms were leveled at the theory by J.C. Gilbert and Don Patinkin. Gilbert asserted that the theory fails to explain how a new paper money can be introduced when the previous monetary system breaks down. Presumably he was referring to such examples as the German *Rentenmark* after the runaway inflation of 1923. But the point is that the new paper was not introduced *de novo*; gold and foreign currencies had existed previously, and the *Rentenmark* could and did undergo exchange in terms of these previously existing moneys; furthermore, it was introduced at a fixed relation to the previous, extremely depreciated mark.[11]

Patinkin criticized Mises for allegedly claiming that the marginal utility of money refers to the marginal utility of the goods for which money is exchanged rather than the marginal utility of holding money itself; he also charged Mises with inconsistently holding the latter view in the other parts of *The Theory of Money and Credit*. But Patinkin was mistaken; Mises's concept of the marginal utility of money always refers to the utility of holding money. Mises's point in the regression theorem is a different one, namely, that the marginal utility-to-hold is itself based on the prior fact that money can be exchanged for goods, that is, on the prior purchasing power of money in terms of goods. In short, money prices of goods, the purchasing power of money, has first to exist in order for

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[9] Miss's regression theorem may be found in *Theory of Money and Credit*, pp. 97-123. For an explanation and a diagrammatic representation of the regression theorem, see Rothbard, *Man, Economy, and State*, pp. 231-37. Menger's insight into the origin of money on the market maybe found in Carl Menger, *Principles of Economics* (Glencoe, Ill.: The Free Press, 1950), pp. 257-62. On the relationship between Menger's approach and the regression theorem, see Mises, *Human Action*, pp. 402-4.

[10] Mises, *Human Action*, pp. 405-7. The regression analysis was either adopted by or arrived at independently by William A Scott in *Money and Banking*, 6th ed., (New York: Henry Holt, 1926), pp. 54-55.

[11] J.C. Gilbert, "The Demand for Money: The Development of an Economic Concept," *Journal of Political Economy* 61 (April 1953: 149.

money to have a marginal utility to hold, hence the need for the regression theorem to break out of the circularity.[12]

Modern orthodox economics has abandoned the quest for causal explanation in behalf of a Walrasian world of "mutual determination" suitable for the current fashion of mathematical economics. Patinkin himself feebly accepted the circular trap by stating that in analyzing the market ("market experiment") he began with utility while in analyzing utility he began with prices ("individual experiment"). With characteristic arrogance, Samuelson and Stigler each attacked the Austrian concern with escaping circularity in order to analyze causal relations. Samuelson fell back on Walras, who developed the idea of "general equilibrium in which all magnitudes are simultaneously determined by efficacious interdependent relations," which he contrasted to the "fears of literary writers" (that is, economists who write in English) about circular reasoning.[13]
Stigler dismissed Böhm-Bawerk for his "failure to understand some of the most essential elements of modern economic theory, the concepts of mutual determination and equilibrium (developed by the use of the theory of simultaneous equations). Mutual determination .. . is spurned for the older concept of cause and effect." Stigler added the snide note that "Böhm-Bawerk was not trained in mathematics."[14] Thus, orthodox economists reflect the unfortunate influence of the mathematical method in economics. The idea of mutual functional determination—so adaptable in mathematical presentation—is appropriate in physics, which tries to explain the unmotivated motions of physical matter. But in praxeology, the study of human action, of which economics is the best elaborated part, the cause is known: individual purpose. In economics,

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[12] Don Patinkin, *Money, Interest, and Prices* (Evanston, Ill: Row, Peterson, 1956), pp. 71-72, 414.
[13] Paul A. Samuelson, *Foundations of Economic Analysis* (Cambridge, MA: Harvard University Press, 1947), pp. 117-18.
[14] George Stigler, *Production and Distribution Theories: The Formative Period* (New York: MacMillan, 1946), p. 181; also see the similar, if more polite, attack on Menger by Frank H. Knight, "Introduction," in Menger, *Principles*, p. 23. For a contrasting discussion by the mathematical economist son of Menger, Karl Menger, see "Austrian Marginalism and Mathematical Economics," in *Carl Menger and the Austrian School of Economics*, John R. Hicks and Wilhelm Weber, eds. (Oxford: Clarendon Press, 1973), pp. 54-60.

therefore, the proper method is to proceed from the causing action to its consequent effects.

In *Human Action*, Mises advanced the Austrian theory of money by delivering a shattering blow to the very concept of Walrasian general equilibrium. To arrive at that equilibrium, the basic data of the economy—values, technology, and resources—must all be frozen and understood by every participant in the market to be frozen indefinitely. Given such a magical freeze, the economy would sooner or later settle into an endless round of constant prices and productions, with each firm earning a uniform rate of interest (or, in some construction, a zero rate of interest). The idea of certainty and fixity in what Mises called "the evenly rotating economy" is absurd, but what Mises went on to show is that in such a world of fixity and certainty no one would hold cash balances. For since everyone would have perfect foresight and knowledge of his future sales and purchases, there would be no point in holding any cash balance at all. Thus, the man who knew he would be spending $5,000 on 1 January 1977 would lend out all his money to be returned at precisely that date. As Mises stated:

> Every individual knows precisely what amount of money he will need at any future date. He is therefore in a position to lend all the funds he receives in such a way that the loans fall due on the date he will need them... When the equilibrium of the evenly rotating economy is finally reached, there are no more cash holdings.[15]

But if no one holds cash and the demand for cash balances falls to zero, all prices rise to infinity, and the entire general equilibrium system of the market, which implies the continuing existence of monetary exchange, falls apart. As Mises concluded:

> In the imaginary construction of an evenly rotating economy, indirect exchange and the use of money are tacitly implied.... Where there is no uncertainty concerning the future, there is no need for any cash holding. As money must necessarily be kept by

[15] Mises, *Human Action*, p. 250.

> people in their cash holdings, there cannot be any money.. .. But the very notion of a market economy without money is self-contradictory.[16]

The very notion of a Walrasian general equilibrium is not simply totally unrealistic, it is conceptually impossible, since money and monetary exchange cannot be sustained in that kind of system. Another corollary contribution of Mises in this analysis was to demonstrate that, far from being only one of many "motives" for holding cash balances, uncertainty is crucial to the holding of any cash at all.

That such problems are now troubling mainstream economics is revealed by F.H. Hahn's demonstration that Patinkin's well-known model of general equilibrium can only establish the existence of a demand for money by appealing to such notions as an alleged uncertainty of the exact moments of future sales and purchases, and to "imperfections" in the credit market—neither of which, as Hahn pointed out, is consistent with the concept of general equilibrium.[17]

With respect to the supply of money, Mises returned to the basic Ricardian insight that an increase in the supply of money never confers any general benefit upon society. For money is fundamentally different from consumers' and producers' goods in at least one vital respect. Other things being equal, an increase in the supply of consumers' goods benefits society since one or more consumers will be better off. The same is true of an increase in the supply of producers' goods, which will be eventually transformed into an increased supply of consumers' goods; for production itself is the process of transforming natural resources into new forms and locations desired by consumers for direct use. But money is very different: money is not used directly in consumption or production but is exchanged for such directly usable goods. Yet, once any commodity or object is established as a money, it performs the maximum exchange work of which it is capable. An increase in the supply of money causes no increase whatever in the exchange service of

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[16] Ibid., pp. 249-50, 414.

[17] F.H. Hahn, "On Some Problems of Proving the Existence of an Equilibrium in a Monetary Economy," in *The Theory of Interest Rates*, F.H. Han and F.P.R., Breckling, eds. (PLondon: Macmillan, 1956), pp. 128-32.

money; all that happens is that the purchasing power of each unit of money is diluted by the increased supply of units. Hence there is never a social need for increasing the supply of money, either because of an increased supply of goods or because of an increase in population. People can acquire an increased proportion of cash balances with a fixed supply of money by spending less and thereby increasing the purchasing power of their cash balances, thus raising their real cash balances overall. As Mises wrote:

> The services money renders are conditioned by the height of its purchasing power. Nobody wants to have in his cash holding a definite number of pieces of money or a definite weight of money; he wants to keep a cash holding of a definite amount of purchasing power. As the operation of the market tends to determine the final state of money's purchasing power at a height at which the supply of and the demand for money coincide, there can never be an excess or a deficiency of money. Each individual and all individuals together always enjoy fully the advantages which they can derive from indirect exchange and the use of money, no matter whether the total quantity of money is great or small. Changes in money's purchasing power generate changes in the disposition of wealth among the various members of society. From the point of view of people eager to be enriched by such changes, the supply of money may be called insufficient or excessive, and the appetite for such gains may result in policies designed to bring about cash-induced alterations in purchasing power. However, the services which money renders can be neither improved nor impaired by changing the supply of money.... The quantity of money available in the whole economy is always sufficient to secure for everybody all that money does and can do.[18]

A world of constant money supply would be one similar to that of much of the eighteenth and nineteenth centuries, marked by the successful flowering of the Industrial Revolution with increased capital investment increasing the supply of goods and with falling prices for

[18] Mises, *Human Action*, p. 418.

those goods as well as falling costs of production.[19] As demonstrated by the notable Austrian theory of the business cycle, even an inflationary expansion of money and credit merely offsetting the secular fall in prices will create the distortions of production that bring about the business cycle.

In the face of overwhelming arguments against inflationary expansion of the money supply (including those not detailed here), what accounts for the persistence of the inflationary trend in the modern world? The answer lies in the way new money is injected into the economy, in the fact that it is most definitely not done according to the Angel Gabriel model. For example, a government does not multiply the money supply tenfold across the board by issuing a decree adding another zero to every monetary number in the economy. In any economy not on a one-hundred-percent commodity standard, the money supply is under the control of government, the central bank, and the controlled banking system. These institutions issue new money and inject it into the economy by spending it or lending it out to favored debtors. As we have seen, an increase in the supply of money benefits the early receivers, that is, the government, the banks, and their favored debtors or contractors, at the expense of the relatively fixed income groups that receive the new money late or not at all and suffer a loss in real income and wealth. In short, monetary inflation is a method by which the government, its controlled banking system, and favored political groups are able to partially expropriate the wealth of other groups in society. Those empowered to control the money supply issue new money to their own economic advantage and at the expense of the remainder of the population. Yield to government the monopoly over the issue and supply of money, and government will inflate that supply to its own advantage and to the detriment of the politically powerless. Once we adopt the distinctively Austrian approach of "methodological individualism," once we realize that government is not a superhuman institution dedicated to the common good and the general welfare, but a group of individuals devoted to furthering their economic interests, then the reason for the

[19] On the advantages of a secularly falling price "level," see C.A. Phillips, T.F. McManus, and R.W. Nelson, *Banking and the Business Cycle* (New York: Macmillan, 1937), pp. 186-88, 203-7.

inherent inflationism of government as money monopolist becomes crystal clear.

As the Austrian analysis of money shows, however, the process of generated inflation cannot last indefinitely, for the government cannot in the final analysis control the pace of monetary deterioration and the loss of purchasing power. The ultimate result of a policy of persistent inflation is runaway inflation and the total collapse of the currency. As Mises analyzed the course of runaway inflation (both before and after the first example of such a collapse in an industrialized country, in post-World War I Germany), such inflation generally proceeds as follows: At first the government's increase of the money supply and the subsequent rise in prices are regarded by the public as temporary. Since, as was true in Germany during World War I, the onset of inflation is often occasioned by the extraordinary expenses of a war, the public assumes that after the war conditions including prices will return to the pre-inflation norm. Hence the public's demand for cash balances rises as it awaits the anticipated lowering of prices. As a result, prices rise less than proportionately and often substantially less than the money supply, and the monetary authorities become bolder. As in the case of the assignats during the French Revolution, here is a magical panacea for the difficulties of government: pump more money into the economy, and prices will rise only a little! Encouraged by the seeming success, the authorities apply more of what has worked so well, and the monetary inflation proceeds apace. In time, however, the public's expectations and views of the economic present and future undergo a vitally important change. They begin to see that there will be no return to the pre-war norm, that the new norm is a continuing price inflation—that prices will continue to go up rather than down. Phase two of the inflationary process ensues, with a continuing fall in the demand for cash balances based on this analysis: "I'd better spend my money on X, Y, and Z now, because I know full well that next year prices will be higher." Prices begin to rise more than the increase in the supply of money. The critical turning point has arrived.

At this point, the economy is regarded as suffering from a money shortage as evidenced by the outstripping of monetary expansion by the rise in prices. What is now called a liquidity crunch occurs on a broad

scale, and a clamor arises for greater increases in the supply of money. As the Austrian school economist Bresciani-Turroni wrote in his definitive study of the German hyperinflation:

> The rise of prices caused an intense demand for the circulating medium to arise, because the existing quantity was not sufficient for the volume of transactions. At the same time the State's need of money increased rapidly... the eyes of all were turned to the Reichsbank. The pressure exercised on it became more and more insistent and the increase of issues, from the central bank, appeared as a remedy....
>
> The authorities therefore had not the courage to resist the pressure of those who demanded ever greater quantities of paper money, and to face boldly the crisis which ... would be, undeniably, the result of a stoppage of the issue of notes. They preferred to continue the convenient method of continually increasing the issues of notes, thus making the continuation of business possible, but at the same time prolonging the pathological state of the German economy. The Government increased salaries in proportion to the depreciation of the mark, and employers in their turn granted continual increases in wages, to avoid disputes, on the condition that they could raise the prices of their products…
>
> Thus was the vicious circle established; the exchange depreciated; internal prices rose; note-issues were increased; the increase of the quantity of paper money lowered once more the value of the mark in terms of gold; prices rose once more; and so on…
>
> For a long time the Reichsbank—having adopted the fatalistic idea that the increase in the note-issues was the inevitable consequence of the depreciation of the mark—considered as its principal task, not the regulation of the circulation, but the preparation for the German economy of the continually increasing quantities of paper money, which the rise in prices

> required. It devoted itself especially to the organization, on a large scale, of the production of paper marks.[20]

The sort of thinking that gripped the German monetary authorities at the height of the hyperinflation may be gauged from this statement by the president of the Reichsbank, Rudolf Havenstein:

> The wholly extraordinary depreciation of the mark has naturally created a rapidly increasing demand for additional currency, which the Reichsbank has not always been able fully to satisfy. A simplified production of notes of large denominations enabled us to bring ever greater amounts into circulation. But these enormous sums are barely adequate to cover the vastly increased demand for the means of payment, which has just recently attained an absolutely fantastic level....
>
> The running of the Reichsbank's note-printing organization, which has become absolutely enormous, is making the most extreme demands on our personnel.[21]

The United States seems to be entering phase two of inflation (1975), and it is noteworthy that economists such as Walter Heller have already raised the cry that the supply of money must be expanded in order to restore the real cash balances of the public, in effect to alleviate the shortage of real balances. As in Germany in the early 1920s, the argument is being employed that the quantity of money cannot be the culprit for inflation since prices are rising at a greater rate than the supply of money.[22]

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[20] Costantino Bresciani-Turroni, *The Economics of Inflation* (London: George Allen & Unwin, 1937), pp. 80-82; also see Frank D. Graham, *Exchange, Prices, and Production in Hyper-inflation: Germany 1920-23* (New York: Russell and Russell, 1930), pp. 104-7. For an analysis of hyperinflation see Mises, *Theory of Money and Credit*, pp. 227-30; and idem, *Human Action*, pp. 423-25.

[21] Rudolf Havenstein, Address to the Executive Committee of the Reichsbank, 25 August 1923, translated in *The German Inflation of 1923*, Fritz K. Ringer, ed., (New York: Oxford University Press, 1969), p. 96.

[22] See Denis S. Karnofsky, "Real Money Balances: A Misleading Indicator of Monetary Actions," *Federal Reserve Bank of St. Louis Review* 56 (February 1974): 2-10.

Phase three of the inflation is the ultimate runaway stage: the collapse of the currency. The public takes panicky flight from the money into real values, into any commodity whatever. The public's psychology is not simply to buy now rather than later but to buy anything immediately. The public's demand for cash balances hurtles toward zero.

The reason for the enthusiasm of Mises and other Austrian economists for the gold standard, the purer and less diluted the better, should now be crystal clear. It is not that this "barbaric relic" has any fetishistic attraction. The reason is that a money under the control of the government and its banking system is subject to inexorable pressures toward continuing monetary inflation. In contrast, the supply of gold cannot be manufactured *ad libitum* by the monetary authorities; it must be extracted from the ground, by the same costly process as governs the supply of any other commodities on the market. Essentially the choice is: gold or government. The choice of gold rather than other market commodities is the historical experience of centuries that gold (as well as silver) is uniquely suitable as a monetary commodity—for reasons once set forth in the first chapter of every money-and-banking textbook.

The criticism might be made that gold, too, can increase in quantity, and that this rise in supply, however limited, would also confer no benefit upon society. Apart from the gold versus government choice, however, there is another important consideration: an increase in the supply of gold improved its availability for nonmonetary uses, an advantage scarcely conferred by the fiat currencies of government or the deposits of the banking system. In contrast to the Misesian "monetary overinvestment" theory of business cycles, on which considerable work has been done by F.A. Hayek and other Austrian economists, almost nothing has been done on the theory of money proper except by Mises himself. There are three cloudy and interrelated areas that need further elaboration. One is the route by which money can be released from government control. Of primary importance would be the return to a pure gold standard. To do so would involve, first, raising the "price of gold" (actually, lowering the definition of the weight of the dollar) drastically above the current pseudo-price of $42.22 an ounce and, second, a deflationary transformation of current bank deposits into nonmonetary savings certificates or certificates of deposit. What the precise price or

the precise mix should be is a matter for research. Initially, the Mises proposal for a return to gold at a market price and the proposal of such Austrian monetary theorists as Jacques Rueff and Michael Heilperin for a return at a deliberately doubled price of $70 an ounce seemed far apart. But the current (1975) market price of approximately $160 an ounce brings the routes of a deliberately higher price and the market price much closer together.[23]

A second area for research is the matter of free banking as against one-hundred-percent reserve requirements for bank deposits in relation to gold. Mises's *Theory of Money and Credit* was one of the first works to develop systematically the way in which the banks create money through an expansion of credit. It was followed by Austrian economist C.A. Phillips's famous distinction between the expansionary powers of individual banks and those of the banking system as a whole. However, one of Mises's arguments has remained neglected: that under a regime of free banking, that is, where banks are unregulated but held strictly to account for honoring their obligations to redeem notes or deposits in standard money, the operations of the market check monetary expansion by the banks. The threat of bank runs, combined with the impossibility of one bank's expanding more than a competitor, keeps credit expansion at a minimum. Perhaps Mises underestimated the possibility of a successful bank cartel for the promotion of credit expansion; it seems clear, however, that there is less chance for bank-credit expansion in the absence of a central bank to supply reserves and to be a lender of last resort.[24]

Finally, there is the related question, which Mises did not develop fully, of the proper definition of the crucial concept of the money supply. In current mainstream economics, there are at least four competing definitions, ranging from M1 to M4. Of one point an Austrian is certain: the definition must rest on the inner essence of the concept itself and not on the currently fashionable but question-begging methodology of

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[23] Mises's proposal is in *Theory of Money and Credit*, pp. 448-57; also see Michael A. Heilperin, *Aspects of the Pathology of Money* (Geneva: Michael Joseph, 1968); and Jacques Rueff, *The Monetary Sin of the West* (New York: Macmillan, 1972).
[24] See Miss, Human Action, pp. 431-45.

statistical correlation with national income. Leland Yeager was trenchantly critical of such an approach:

> One familiar approach to the definition of money scorns any supposedly *a priori* line between money and near-moneys. Instead, it seeks the definition that works best with statistics. One strand of that approach .. . seeks the narrowly or broadly defined quantity that correlates most closely with income in equations fitted to historical data.. .. But it would be awkward if the definition of money accordingly had to change from time to time and country to country. Furthermore, even if money defined to include certain near-moneys does correlate somewhat more closely with income than money narrowly defined, that fact does not necessarily impose the broad definition. Perhaps the amount of these near-moneys depends on the level of money-income and in turn on the amount of medium of exchange.. .. More generally, it is not obvious why the magnitude with which some other magnitude correlates most closely deserves overriding attention.. .. The number of bathers at a beach may correlate more closely with the number of cars parked there than with either the temperature or the price of admission, yet the former correlation may be less interesting or useful than either of the latter. The correlation with national income might be closer for either consumption or investment than for the quantity of money.[25]

Money is the medium of exchange, the asset for which all other goods and services are traded on the market. If a thing functions as such a medium, as final payment for other things on the market, then it serves as part of the money supply. In his *Theory of Money and Credit*, Mises distinguished between standard money (money in the narrow sense) and money substitutes, such as bank notes and demand deposits, which function as an additional money supply. It should be noted, for example, that in Irving Fisher's non-Austrian classic, *The Purchasing Power of Money*, written at about the same time (1913), M consisted of standard money only, while M1 consisted of money substitutes in the form of

[25] Leland B. Yeager, "Essential Properties of the Medium of Exchange," *Kyklos* (1968), reprinted in *Monetary Theory*, R.W. Clower, ed. (London: Penguin Books, 1969), p. 38.

bank demand deposits redeemable in standard at par. Today no economist would think of excluding demand deposits from the definition of money. But if we ponder the problem, we see that if a bank begins to fail, its deposits are no longer equivalent to money; they no longer serve as money on the market. They are only money until a bank's imminent collapse.

Furthermore, in the same way that M1 (currency plus demand deposits) is broader than the narrowest definition, we can establish even broader definitions by including savings deposits of commercial banks, and cash surrender values of life insurance companies, which are all redeemable on demand at par in standard money, and therefore all serve as money substitutes and as part of the money supply until the public begins to doubt that they are redeemable. Partisans of M1 argue that commercial banks are uniquely powerful in creating deposits and, further, that their deposits circulate more actively than the deposits of other banks. Let us suppose, however, that in a gold-standard country, a man has some gold coins in his bureau and others locked in a bank vault. His stock of gold coins at home will circulate actively and the ones in his vault sluggishly, but surely both are part of his stock of cash. And, if it also be objected that the deposits of savings banks and similar institutions pyramid on top of commercial bank deposits, it should also be noted that the latter in turn pyramid on top of reserves and standard money.

Another example will serve to answer the common objection that a savings bank deposit is not money because it cannot be used directly as a medium of exchange but must be redeemed in that medium. (This is apart from the fact that savings banks are increasingly being empowered to issue checks and open up checking accounts.) Suppose that, through some cultural quirk, everyone in the country decided not to use five-dollar bills in actual exchange. They would only use ten-dollar and one-dollar bills, and keep their longer-term cash balances in five-dollar bills. As a result, five-dollar bills would tend to circulate far more slowly than the other bills. If a man wanted to spend some of his cash balance, he could not spend a five-dollar bill directly; instead, he would go to a bank and exchange it for five one-dollar bills for use in trade. In this hypothetical situation, the status of the five-dollar bill would be the same

as that of the savings deposit today. But while the holder of the five-dollar bill would have to go to a bank and exchange it for dollar bills before spending it, surely no one would say that his five-dollar bills were not part of his cash balance or of the money supply.

A broad definition of the money supply, however, excludes assets not redeemable on demand at par in standard money, that is, any form of genuine time liability, such as savings certificates, certificates of deposit whether negotiable or nonnegotiable, and government bonds. Savings bonds, redeemable at par, are money substitutes and hence are part of the total supply of money. Finally, just as commercial bank reserves are properly excluded from the outstanding supply of money, so those demand deposits that in turn function as reserves for the deposits of these other financial institutions would have to be excluded as well. It would be double counting to include both the base and the multiple of any of the inverted money pyramids in the economy.