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The Price-Form as a Fractional Reflection of the Aggregate Value of Commodities

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The Price-Form as a Fractional Reflection of the Aggregate Value of Commodities

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Abstract: A Marxian theory of fiat money is proposed in which the value of inconvertible paper money is explained as having its origin in the simple circulation of commodities. Beginning with an analysis of commodity money, the theory is developed through an investigation of the causal relationship between the quantity of circulating money and price, the supply and demand for money, and the ultimate separation of money from itself as commodity. A new form of value with its associated price-form is then introduced to complete the theory of fiat money. The appendix offers a formalization of the theory.

Keywords: commodity money, fiat money, circulation, value, price

Classification Code: B510 - Current Heterodox Approaches: Socialist; Marxian; Sraffian

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Introduction*

Forms of social organization continuously change throughout the course of their development. Sometimes gradually, sometimes abruptly, and sometimes imperceptibly, social forms are transformed in ways that lead to their replacement with new forms that emerge from the contradictions of the old order and create entirely new contradictions. This unceasing process of social change is much too frequently ignored in social theory, even though the moments of this continuous process are precisely the proper object of social analysis. This neglect of social processes of change is inextricably connected to the normative dimensions of social and economic theory. The static aspects of theory thus help reinforce the existing relations of production and distribution in society.

As a theory committed to the overthrow of the capitalist mode of production and its replacement with a more humane form of social organization, Marxian theory contains an analytical bias towards processes of social change. Marxian theory should change, therefore, both because new theoretical discoveries are made but, more importantly, because changes in the theory reflect continuous changes in its subject matter. When considering the nature of money within the capitalist mode of production, for example, it must be remembered that the laws of monetary circulation Marx develops in volume 1 of Capital are subject to change. That is, the economic laws governing the circulation of money and commodities are not set in stone but may change with the development of capitalist society.

Since the nineteenth century a fundamental change has occurred in the economic laws governing monetary circulation within the advanced capitalist societies. In many

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cases, this gradual, yet fundamental, change has involved the complete separation of money from a physical object serving as the universal equivalent for the expression of homogeneous human labor. In other words, money has ceased to be a commodity.

Historically, many commodities have served as money (e.g., copper, silver, gold). In his theoretical studies of money, Marx demonstrates how a single commodity is distinguished from all others as each commodity seeks its unique value expression. Thus in Marx’s theoretical work, gold is taken to be this money commodity—a suitable choice given the dominance of gold at both the national and international levels during the late nineteenth and early twentieth centuries. The transition to a world in which intrinsically worthless scraps of paper are continuously thrown into circulation without interruption, however, has led many to challenge the current applicability of Marx’s commodity theory of money (e.g., Lavoie, 1990: 426; Saad-Filho, 2002: 97; Foley, 1986: 27). The consequence has been multiple efforts to develop a new Marxist theory of money that takes into account the latest developments of capitalist society. For example, Rudolf Hilferding’s *Finance Capital* is a classic attempt to update the Marxist theory of money (Nelson, 1999: viii). More recently, Don Lavoie has advocated shifting the emphasis to demand side factors that he believes are better able to explain short run movements in the value of money (1990: 427-429). Other scholars argue that “Marx formulated his theory of money based upon the realities which confronted him and that he overlooked the nature of gold currency as *transitory*” as a result (Jacobi, 1990: 209; emphasis in original). Few Marxists continue to defend the current application of Marx’s commodity theory of money in the face of growing historical evidence to the contrary (see Mandel, 1968: 256-257 for an exception). It is because the evolution of money has encouraged
doubts about the validity of the Marxian theory of value that it is a subject of concern for Marxists.

- **The Relationship between the Quantity of Money in Circulation and the Level of Prices**

  The theoretical transformation of the commodity theory of money into a theory of fiat money must proceed carefully. Just as Marx’s commodity theory of money was appropriate for an earlier phase of capitalist development, the Marxian theory of fiat money does not refute that theory but rather complements it. The construction of the Marxian theory of fiat money must begin, then, with the moments of simple commodity circulation and the commodity theory of money.

  In the traditional Marxian analysis of money, the money commodity mediates the exchange of commodities and thus each circuit within the sphere of simple commodity circulation is the joining of the two antithetical phases of sale (C-M) and purchase (M-C). Assuming the exchange of equivalents, the quantity of money mediating the exchange is that which contains an amount of socially necessary abstract labor time that is equivalent to that which is embodied in the two commodities cast into circulation. The price-form is the form through which each commodity’s value is expressed in terms of the money commodity (i.e., gold). When the simple circulation of commodities is considered as the interlocking of a countless number of circuits, it is natural to consider the relationship of the total quantity of gold in circulation to the sum of commodity prices to be realized. It is exactly this critical issue that must ultimately lead to the theoretical development of a fiat money system.
In the development of Marx’s theory of money, Marx expended considerable effort refuting the strong claim of classical political economists that the general level of prices depends on the quantity of money in circulation. Efforts to refute this deterministic argument can be found throughout Marx’s writings. In fact, Marx appears to completely reverse the causal sequence by claiming that the quantity of money depends upon the sum of prices to be realized (assuming a constant velocity of money). For example, in *A Contribution to the Critique of Political Economy*, Marx writes:

> Prices are thus high or low not because more or less money is in circulation, but there is more or less money in circulation because prices are high or low. (1970: 105)

This causal argument appears repeatedly throughout Marx’s discussion, especially in his critique of Hume, who strongly advocated the position that the quantity of money determines the level of prices. He accuses Hume of holding fast to this false appearance (1970: 160) and refers to the empirical history of prices (1970: 160, 163) to support his opposite conclusions about the relationship between the quantity of money and prices. He then credits Sir James Steuart with being the first political economist to question the causal relationship asserted by Hume (1970: 165).

The claim that the quantity of money does not determine the general level of prices can be found in the *Grundrisse* as well. Marx criticizes James Mill, for example, for overlooking the fact that the cost of production of the precious metals “and not their quantity determines the value of the precious metals, as well as the prices of commodities measured in metallic value” (1973: 192). Later, Marx more explicitly refutes the classical political economists (1973: 195) in language that is very similar to that used in his *Contribution*. He even goes so far as to say that it is “ridiculous” to claim that “prices
must fall because the amount of gold is diminished in a country” (1973: 195). In his polemic against the Proudhonist, Alfred Darimon, Marx attacks Ricardo’s theory of money when he writes:

Ricardo’s theory of money is as completely refuted as its false [assumption] that the . . . quantity of means of circulation determines prices, whereas on the contrary prices determine the quantity of means of circulation. (1973: 126)

The mature expression of Marx’s commodity theory of money is no exception to the general pattern being investigated as can be observed in volume 1 of *Capital* where Marx asserts yet again that the quantity of money is determined by the sum of prices to be realized. Many recent Marxist scholars have supported this interpretation of Marx’s theory of money. Duncan Foley, for example, in his preface to Suzanne de Brunhoff’s *Marx on Money*, supports de Brunhoff’s conclusion that “[I]t is the quantity of circulating money in Marx’s view that adjusts to satisfy the quantity equation, a sharp reversal” of the claim that the quantity of money determines prices (1973: vi). The underlying reasons for Marx’s harsh critique must now be investigated.

It is necessary to ask what role this causal relationship plays in Marx’s theory of money. That is, Marx’s insistence that it is the sum of the prices to be realized that determines the quantity of circulating money must possess theoretical significance. If we ignore complications arising from the velocity of money and conceptualize the vast network of interlocking commodity circuits comprising simple commodity circulation, then the answer appears immediately. Because Marx assumes that commodity prices equal commodity values at the high level of abstraction associated with simple commodity circulation, then the quantity of money in circulation must adjust to ensure this result. Furthermore, because embodied abstract labor determines the exchange ratio
of commodities and because a specific quantity of gold requires a specific amount of abstract labor for its production, the quantity of money in circulation must conform to this assumption. Hence, the Marxian theory of value requires the validity of this causal relationship that Marx asserts repeatedly. Hence, it is theoretically necessary for Marx to establish this claim within the context of his theory.

Another reason for Marx’s causal monetary claim is that it is perfectly consistent with the method he employs in Capital and the one he describes in the “Introduction” to the Grundrisse. In a much-contemplated passage, Marx describes what he believes is the correct method of political economy (1973: 100). He criticizes those who choose to begin with a “chaotic conception of the whole” and uses the population as a starting point to illustrate his argument. Instead, Marx argues that the political economist should proceed from the chaotic conception to the “simplest determinations” and then return to the whole which has now been transformed into a “rich totality of many determinations and relations” (1973: 100). Similarly, one must proceed from the quantity of circulating money to the simplest determinations—in this case, the simple moments of simple commodity circulation. At this level, Marx’s analysis of commodities and money led to his assertion that abstract labor time determines commodity values and prices. One may then proceed to what was initially a chaotic conception of the whole process of simple commodity circulation to discover the quantity of circulating money once again—now explained as the consequence of commodity prices.¹

One final matter must be considered before proceeding, which is important yet easily overlooked. If commodity prices change for some reason (e.g., a change in labor
productivity), an explanation must be offered to explain how the quantity of circulating money adjusts so that the law of value is maintained at a high level of abstraction (i.e., prices = values). Assume an increase in commodity prices generally due to a fall in the value of gold. The money commodity, gold, must increase its circulation so that the increased prices may be realized in the process of exchange. The process is perfectly explained in volume 1 of *Capital* (1976: 214). The process is gradual and begins with “a change in the prices of those commodities which are directly exchanged with the precious metals at their source.” The process continues:

> [O]ne commodity infects another through their common value-relation, so that their prices, expressed in gold or silver, gradually settle down into the proportions determined by their comparative values, until finally the values of all commodities are estimated in terms of the new value of the monetary metal. This process of equalization is accompanied by a continued increase in the quantity of the precious metals, owing to the influx needed to replace the commodities directly exchanged with them. In proportion therefore as the adjusted prices of the commodities become universal, in proportion as their values come to be estimated according to the new value of the metal (which has fallen and may, up to a certain point, continue to fall), in that same proportion does the increased mass of metal which is necessary for the realization of the new prices become available. (1976: 214)

Hence, the dependence of the quantity of circulating money on the general level of prices is maintained through this process. Marx then proceeds to ridicule individuals in the seventeenth and eighteenth centuries who argued that prices were rising as a result of an increase in the quantity of metal in circulation. Lavoie carefully explains that at this stage of Marx’s analysis, only a subtle distinction separates Marx’s theory of money from the quantity theory of money. That is, an increased quantity of circulating money permits the realization of higher prices, but it is the lower value of money that provides the initial

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1 This is precisely Steuart’s achievement: “He does not mechanically place commodities on one side and money on the other, but really deduces its various functions from different moments in commodity exchange” (Marx, 1970: 165).
impetus (Lavoie, 1990: 417). In summary, Marx argues passionately that the quantity of money in circulation depends upon commodity prices generally. This “economic law” (Marx, 1970: 105) is necessary to maintain the consistency of the Marxian theory of value; it is based on sound historical evidence; and the process responsible is clearly defined.

- The Role of Supply and Demand and the Counter-Tendency

  Even at the high level of abstraction associated with volume 1 of *Capital*, it must be remembered that the law of value only refers to fluctuations of commodity prices around an average level. Capitalist society must be understood in terms of these incessant average fluctuations. Supply and demand thus do not explain commodity prices but rather divergences from the values with which they are associated. Thus if the supply of a commodity exceeds its demand, its price will fall below its value. Supply and demand fluctuations are, hence, one factor that may create an incongruity between the price of a commodity and its value. Marx is clear that the possibility of such a divergence is inherent within the price-form itself (1976: 196). The consequences of this understanding of supply and demand for the commodity theory of money may now be considered.

  Given that money is itself a commodity according to the commodity theory of money that Marx developed, it is necessary that it too should be subject to the laws of supply and demand. It is a curious fact then that de Brunhoff observes no role for supply and demand at the level of the simple circulation of commodities. According to her, the price/value distinction cannot be made at the level of simple commodity circulation because it “is simultaneously posed and resolved by the definition of the money form”
(1973: 28). Although she is correct that commodity prices equal commodity values at this stage of the analysis, this equality is not true by the definition of the money form. The money form only involves the expression of a commodity’s *value* in the form of money but reveals nothing about the *price* of that commodity—hence, Marx’s assumption that prices equal values.

The reason for the confusion is clear from the argument above. Marx diminishes the role of supply and demand in his analysis so as to focus on the effect of commodity prices on the quantity of money that circulates. This emphasis allows Marx to place abstract labor at the center of his analysis because it was a necessary assumption for the development of his value theory. Therefore, de Brunhoff’s dismissal of the role of supply and demand in her discussion of Marx’s commodity theory of money is an error that requires correction. Visser also incorrectly accuses Marx of having a strictly monocausal theory of the relationship between prices and the quantity of money in circulation. According to Visser, Marx is left “without a transmission mechanism of monetary impulses” (1990: 223). The role of the supply and demand for the money commodity, however, creates a theoretical opening for the potential (albeit limited) dependence of prices on the quantity of circulating metal.

Given the apparently controversial nature of the claim that the laws of supply and demand influence the value of the money commodity, it is necessary to support this claim with sufficient evidence. Then it will be possible to demonstrate that the supply and demand for the money commodity allow the supply of the circulating medium to affect the general level of prices temporarily. Supply and demand, therefore, are factors that oppose the law that prices determine the quantity of money in circulation.
Marx’s references to the role of the supply and demand for money are less abundant than his arguments that prices determine the quantity of money in circulation. This bias is to be expected given the important role of the latter argument as a precondition for a sound Marxian theory of value. At the same time, references to the role of the supply and demand for money are not excluded from his discussion. For example, one of Marx’s clearest statements on this issue is found in the Grundrisse:

>Mone\textsuperscript{y} is not only a general commodity, but also a particular, and . . . as a particular, it comes under the laws of supply and demand. (1973: 200)

We must consider the implications of the fact that the laws of supply and demand influence money. As a particular commodity, money too has a value that can be expressed in the shape of a use value having an entirely different nature when compared with its own. In fact, if we reverse the money form of value elaborated in volume 1 of Capital, it becomes clear that the value of money (now in the relative form of value) can be expressed in as many ways as there are commodities distinct from it in the world. Assuming that prices equal values, it follows that “[\textit{m}]oney would then have as many prices as there are commodities” (Marx, 19783: 207). The money commodity viewed from this standpoint permits us to grasp the role of the laws of supply and demand.

The classical political economists whom Marx spends considerable time refuting as explained above may still insist that sudden increases in the quantity of money in circulation may occur (e.g., gold discoveries). Surely one must consider the effects of such changes. As explained above, the money commodity possesses as many prices as there exist commodities separate from it. Hence, if the quantity of circulating money rises suddenly, then its supply will exceed its demand, and the money commodity’s many prices will fall according to the laws of supply and demand. Because gold now
exchanges for a smaller quantity of each commodity, each commodity now exchanges for a larger quantity of gold. In other words, prices have risen generally. Marx has offered historical evidence and has argued forcefully that these effects have not been powerful influences with respect to the history of prices. The reason these effects have not influenced prices can be explained in terms of a counter-tendency that functions to undermine the effects created by the laws of supply and demand. Marx discusses this counter-tendency as it relates to the supply of the precious metals:

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\text{Silver and gold are consumed more in proportion as wealth in general increases. When, therefore, their supply suddenly increases, even if their costs of production or their value does not proportionately decrease, they find a rapidly expanding market which retards their depreciation. (1973: 169)}
\]

It follows that an increase in the quantity of money in circulation will encourage the depreciation of money according to the laws of supply and demand but that the process is interrupted because the rapid growth of markets halts the depreciation of money. The impact of gold discoveries on the growth of markets generally is stated again as follows:

\[
\text{The hunt for gold in all countries leads to its discovery; to the formation of new states; initially to the spread of commodities, which produce new needs, and draw distant continents into the metabolism of circulation, i.e. exchange. (Marx, 1973: 225)}
\]

Therefore, the classical political economists were correct in the sense that they understood the tendency for changes in the quantity of money in circulation to affect prices. What they failed to understand is that the expansion of markets and wealth in general tends to offset such effects and, furthermore, that the quantity of money in circulation should be understood as arising from the moments of simple commodity circulation.

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2 This interruption violates the ceteris paribus assumption. Hence, Marx’s theoretical development of the money form is inseparable from his historical analysis of the money commodity.
The Gradual Separation of Money from Itself as Commodity

The uncertain character of money first begins to reveal itself historically when the money-names of the metal weights become gradually separated from their original weight-names. The historical reasons for this gradual separation include the introduction of foreign money into less developed societies, the forceful exclusion of the less precious metals and their replacement with the more precious metals, and centuries of continuous debasement of the currency by kings and princes (Marx, 1976: 193-194). Although this separation occurs, money persists entirely in the form of a commodity whose value governs the rate at which it will exchange for other commodities. Later, the process of circulation leads to a situation in which the nominal content of money becomes separated from its real content so that coins begin to function as symbols of value that are greater than themselves. Thus a modification in the laws of monetary circulation begins to emerge.

In conformity with Marx’s discussion, de Brunhoff explains that the introduction of coin involves no modifications to the laws of monetary circulation. She explains the role of coins as follows:

. . . this demonetization of the currency does not detract from the dependence of the instrument of circulation on the true value of the gold. The quantity which actually circulates remains distinct from the total quantity of gold, and the course of its circulation continues to be determined by the value relationships between money as general equivalent and the prices of commodities. The modification of the coins affects only the special form of the medium of circulation. (1973: 32)

Hence, coins simply add yet another layer of appearance that further obscures abstract labor as the source of value. The process of replacing the money commodity with a

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3 Their function as coins is, therefore, in practice entirely independent of their weight. That is, it is independent of all value (Marx, 1976: 223).
symbol of itself occurs very gradually. Once its replacement is complete, coins become
“the conscious sign of exchange value” (Marx, 1973: 144). This gradual social
transformation sets the stage for more radical transformations in the social means of
circulation.

According to Rudolf Hilferding, the state supplies important conditions of
existence during the transition to coined money. In particular, by guaranteeing the
weight, and hence the value, of coined metal, the state establishes a system in which
coins must simply be counted rather than weighed (Hilferding, 1981: 36). Thus, coins
have the opportunity to function solely as symbols of value as their intrinsic value is
eroded gradually. The action of the state gives rise to a deceptive appearance. First, it
appears as if coins directly represent the values of the commodities for which they
exchange when, in fact, they do so only indirectly (Marx, 1970: 115). It also appears as
though the state has a direct role in determining the value of coined metal when actually
its value is determined on the basis of the cost of production of the gold it represents.

It is possible that the state introduces worthless paper money to serve as the
symbol of value thus helping to remove the appearance that coin is the direct
representative of value. When this occurs, the total supply of paper money will reflect
the total value of the gold it represents (assuming full convertibility of the currency).
Hence, each aliquot part of the total paper money supply will reflect an equivalent aliquot
portion of the total value of the money commodity. In A Contribution, Marx explains
succinctly the fact that the earlier laws of monetary circulation have not been modified
with the introduction of paper money:
Whereas, therefore, the quantity of gold in circulation depends on the prices of commodities, the value of the paper in circulation, on the other hand, depends solely on its own quantity. (1970: 119)

With paper money as the symbol of value, increases in the supply of paper, *ceteris paribus*, will cause paper money prices to rise as the larger supply of paper adjusts to the existing quantity of gold serving as the money commodity. Moreover, if paper money is issued “in amounts exceeding the quantity of gold which they pretend to replace, . . . they depreciate” (Marx, 1973: 136). Again, one must not fall victim to the illusion that the state establishes the value of this paper money by political will (Hilferding, 1981: 50).

The introduction of paper money into a system based on commodity money represents the most extreme extension of the monetary laws developed earlier without their modification. The money commodity continues to serve as the universal expression of value and paper money simply serves as its representative. The value symbols, however, begin to develop their own ideas about value expression. They thus lay the foundation for a social transformation in the organization of circulation.

- **The Complete Separation of Money from Itself as Commodity**

  In 1910, Hilferding proposed a major change in the Marxian theory of money. The proposed change was intended to take account of the fact that money had been freed from the commodity form under the conditions of advanced capitalism. According to the traditional Marxist theory of money, money must take the form of a commodity because only then can it function as a value equivalent for commodities. In Hilferding’s view, however, “a consciously regulated social relationship can take the place of a relationship which is expressed through an object” (1981: 38). The burden is thus on Hilferding to produce a theory that explains how the value of one commodity can be expressed in
terms of an intrinsically valueless symbol like paper. Notice that one may not retreat to the solution that paper money, whether convertible or inconvertible, continues to represent a specific quantity of gold. It is an historic event in the field of political economy that paper money may now circulate without the slightest hint that its value is derived from a commodity.

Hilferding’s solution to the problem of fiat money is carefully distinguished from the treatment of paper as a representative of gold. When discussing value tokens in contrast to gold certificates, Hilferding explains that value tokens,

. . . do not acquire their value from a single commodity, as is the case in a system of mixed currency where paper is simply a gold certificate which acquires its value from gold, but instead the total quantity of paper money has the same value as the sum of commodities in circulation, given a constant velocity of circulation of money. Its value simply reflects the whole social process of circulation. At any given moment, all the commodities intended for exchange function as a single sum of value, as an entity to which the social process of exchange counterposes the entire sum of paper money as an equivalent entity. (1981: 56)

This passage nicely captures Hilferding’s solution to the problem of fiat money. When money entirely ceases to be a commodity, “the value of paper money . . . is completely independent of the value of gold and reflects directly the value of commodities” (Hilferding, 1981: 39). Finally, with a very appropriate analogy reminiscent of Marx’s own style, Hilferding explains that:

Just as the moon, long since extinguished, is able to shine only because it receives light from the blazing sun, so paper has a value only because commodities are impregnated with value by social labour. It is therefore a reflection of labour value which converts paper into money just as it is reflected sunlight which enables the moon to shine. (1981: 40)

Hilferding claims that his analysis of money contradicts the traditional theory of money (1981: 41) rather than complementing the commodity theory of money. For this reason,
he demonstrates a lack of appreciation for the Marxian commitment to social and theoretical transformation—an act inconsistent with the pioneering character of his work.

Instead of commodity values finding expression in a money commodity, they are expressed in a mass of worthless paper money. This transformation is possible because paper money reflects the total value of all commodities at once. For Hilferding then, the value of money is determined by a concept he calls the *socially necessary value in circulation* \( (1981: 47) \). In his definition of this concept, Hilferding reveals that he has confused the quantity of paper money necessary to determine commodity values and that minimum quantity which is needed for circulation. At times, he refers to “socially necessary value in circulation” and then to “necessary money” as though they are equivalent expressions \( (1981: 64) \). Their distinction is important so that one may further develop a theory of fiat money consistent with Marxist principles.

- **The Value of Paper Money as Originating from the Metamorphosis of Commodities**

Hilferding’s solution to the problem of fiat money represents an important theoretical discovery for Marxian economics yet it is expressed in an incomplete and confused form. To begin with, Hilferding incorrectly combines the theoretical development of fiat money (e.g., a pure paper standard) with his analysis of credit money. Although both forms of money come into being only after capitalism has reached a relatively advanced historical stage, fiat money may be understood at the level of simple commodity circulation whereas the analysis of credit money must be postponed until capital as a general category is fully developed. One of de Brunhoff’s criticisms of Hilferding, for example, is that he concentrates on contemporary forms of money within
the capitalist mode of production and, hence, ignores the most basic functions of money developed within the general theory of money (e.g., hoarding) (1973: 20). Marx also repeatedly criticizes economists who engage in “the intentional muddling together of the requirements of credit with those of monetary circulation” (Marx, 1973: 116, 123; 1976: 224). Hilferding’s analysis then contains signs of impatience and thus should have proceeded more carefully.

Another criticism of Hilferding’s development of fiat money has more to do with his emphasis than his logic. Hilferding never explains how the value of an individual commodity is determined. Furthermore, the analysis begins and ends at the broadest level of analysis (e.g., the entire paper money supply) and never investigates the simple moments of commodity circulation in an effort to grasp the true nature of paper money. This omission is precisely one reason Marx ridiculed the classical political economists:

. . . the absurd hypothesis . . . that commodities enter into the process of circulation without a price, and money enters without a value, and that, once they have entered circulation, an aliquot part of the medley of commodities is exchanged for an aliquot part of the heap of precious metals. (1976: 220)

Without analyzing the simple circuit, C-M-C, in our investigation of fiat money, we become subject to this same criticism and the same errors committed by classical political economists.

If we analyze the first phase of the simple circuit (i.e., the sale), it is clear that the quantity of fiat money for which the seller exchanges his/her commodity cannot be determined via the simple equation of embodied abstract labor time. Although the commodity sold requires a specific quantity of human labor for its production, the labor time required for the production of fiat money is negligible or zero. Hence, the exchange of equivalents appears to be an impossible task and the laws of political economy appear
to crumble with the first introduction of fiat money. If we pursue the investigation further, we observe that expanding the discussion to include the entire circuit brings us no closer to an answer. That is, the circuit begins and ends with commodities requiring distinct private labors for their production, but the transformation of this private labor into social labor remains a mystery. The quantity of fiat money that mediates the exchange appears indeterminate. Although the two commodities must certainly replace one another in a specific proportion determined by the ratio of socially necessary abstract labor time required for the production of each, the quantity of fiat money may be just as easily $1 as $1000. Each commodity faces an empty cell when it confronts fiat money in the sphere of exchange. A commodity thus frantically searches the sphere of exchange for an equivalent expression of its value, which it finds deep within the paper money form in the form of a social reflection of the gigantic mass of values thrown into circulation.

Because each commodity must search the entire sphere of exchange for an expression of its value, the price-form becomes infinitely more complex than previously. According to the commodity theory of money, a commodity found its equivalent value expression in a specific quantity of gold containing the same amount of abstract labor time for production. The quantity of money in circulation could be examined afterwards and only insofar as its magnitude was necessary to maintain this law of value. In the case of fiat money, the quantity of money in circulation must be confronted from the outset—an immediate consequence of the analysis of the simple moments of circulation. Once the state has gradually introduced a mass of paper money into circulation, the old social organization of circulation is replaced with an entirely new one. As a “negative moment”
The representation above is an extension of Marx’s various forms of value presented in volume 1 of *Capital*. The symbols, \( a_1, b_1, \ldots, z_1 \), represent the total quantities of each commodity sold during a given period of time (the subscripts serve as a reminder that the quantities are total quantities). The right side of the diagram represents the total *effective* quantity of fiat money in circulation during a given time period. That is, some dollars are represented more than once to take account of the ability of the velocity of money to substitute for its quantity. This effective fiat money supply has then been divided into aliquot portions so that the total quantity of each commodity purchased finds its value expression in a specific quantity of fiat money.

We are not closer, however, to understanding how this metamorphosis of commodities into money takes place. As each commodity seeks an expression for its value in an empty cell, it peers back at the mass of value also confronting fiat money in the form of commodities. The total labor time applied in their production is then generally recognized as social labor through the fiat money form. That is, the effective
Fiat money supply becomes a mirror image of this mass of homogeneous human labor and a portion of the effective quantity of fiat money will exchange for a portion of this mass of commodity values. This portion of the fiat paper money supply will stand in the same proportion to the total mass of fiat money as the value of the commodities for which it exchanges stands in proportion to the total value of the commodities in circulation. In other words, the fiat money price-form is a transformation of the original price-form and has now become a fractional reflection of the aggregate value of commodities in circulation:

**The Fiat Money Price-Form**

- The price of commodity \( j \) = \( \frac{L_{ji}}{j_i} \cdot (MV) \)  

For any commodity then, its value may be obtained by simply spreading the total quantity of abstract labor devoted to that commodity in production \( (L_{ji}) \) over the total number of units of the commodity produced \( (j_i) \). This expression is thus the individual value of the commodity (i.e., the quantity of socially necessary abstract labor embodied in the commodity). Dividing this quantity by \( \sum_{i=1}^{n} L_{i1} \) (the total sum of socially necessary abstract labor embodied in all circulating commodities during a given time period) gives us the individual commodity value as a fraction of the total labor time performed in society. This fraction may then be taken as a fraction of the total effective fiat paper money supply \( (MV = \text{the quantity of money times the velocity of money}) \) to obtain that

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4 “A unit of money . . . can be thought of as a claim to a certain amount of the abstract social labor expended in the economy” (Foley, 1982: 37).
commodity’s value and, assuming the exchange of equivalents, its price (in terms of dollars per unit or more formally, exchange value per use-value).

Whereas the commodity theory of money suggests that prices determine the quantity of money in circulation, the theory of fiat money suggests that the quantity of circulating fiat money (given a particular money velocity) determines the prices of commodities. Notice, however, that the exchange ratio of any two commodities continues to be determined by the quantity of socially necessary labor time required for the production of each. Each commodity’s price in terms of fiat money, however, is now determined by the quantity of fiat money in circulation. The primary causal relationship in the discussion of money has thus been reversed. In an article published in Neue Zeit in 1912, Hilferding explained this reversal as follows:

Given that the mass of gold has its own value, it is the value of circulation which determines the quantity of pieces of gold found in circulation. With a forced currency or paper money it is the quantity which is given, so its value is determined by the quantity of commodity value in circulation; with gold money it is the value itself of gold that is given, so the quantity is determined by the value in circulation. (Nelson, 1999: 190)

Whereas previously the state’s power to influence the value of money was an illusion, now it is a reality insofar as it controls the quantity of paper money issued. Now that the total quantity of money in circulation, the mass of value produced, and the velocity of money collectively determine the value of money, a pure paper currency will be subject to constant disturbances and fluctuations (Hilferding, 1981: 56-57). This observation led Hilferding incorrectly to conclude that money would cease to serve as a measure of value (1981: 57). Marx demonstrated convincingly, however, that “[g]old is the measure of value because its value is variable” (1970: 71). Hence, the variability of the value of fiat
money does not undermine the primary function of money as a measure of the value of commodities.

It is necessary to ask whether any modifications follow for the laws of political economy as Marx discovered them. For example, an increase in the length of the working day in a particular branch of production will lead to a percentage increase in the quantity of use-values produced. Equivalent percentage increases will also occur in the quantity of constant capital productively consumed as well as in the number of hours of abstract labor performed during the natural day. Hence, the individual value of these articles will remain the same in terms of fiat money so long as the state increases the quantity of fiat money in circulation to account for the increase in the total quantity of human labor performed across society as a whole. Hence, the state establishes itself as an important entity within contemporary capitalist society. So long as it adjusts the quantity of money in circulation in accordance with the growth of the exploitation of the working class, the basic laws of political economy require no modification.5

• Implications of the Circulation of Fiat Money for the Transformation of Values into Prices of Production

The divergence of price from value is also of primary importance in Marx’s analysis—the most popular reason being the transformation of values into prices of production. It may appear as though prices and values may never diverge within a fiat money system. If additional fiat money is injected into the sphere of circulation, it would seem that prices would generally rise so that each commodity’s price would properly reflect the fraction of socially necessary abstract labor time required for its production.

5 The analyses of productivity and intensity changes are similar and require no changes in the laws of political economy given the function of the state as regulator of the fiat money supply.
The immediate effect, however, is for the prices to rise for those commodities where the increased spending occurs initially. Hence, prices rise in those branches of production above their values, which continue to be determined as previously. Over time, the additional fiat money is circulated throughout the system and a general rise of prices follows. This process resembles the manner in which “the discovery of gold only gradually leads to a higher price level and more gold in circulation” in an economy based on commodity money. “Money works its way sequentially through the economy in one exchange after another” (Lavoie, 1990: 422). Through this mechanism, the divergence of price from value in the establishment of a uniform average rate of profit remains a dominant tendency in competitive capitalist economies. It is as though a stone were thrown into a pond creating an initial ripple that, once spread evenly, disappears from sight. Similarly, with a given quantity of fiat money, as spending is reallocated from one branch of production to another, prices may again diverge from their established values until the social adjustment of commodity values establishes new values consistent with their prices. When differential profit rates exist across branches of production, capital flows out of those industries with relatively low profit rates to branches with relatively high profit rates. As prices are forced above value in industries with low profit rates and below value in branches with high profit rates, capital again asserts itself as the dominant force in capitalist society. It alone is capable of systematically creating divergences of price from value in a system in which the state strives to establish the value of money. Thus the state joins capital to form the twin forces of capitalist dominance.

In his effort to reconcile the widespread use of inconvertible paper money with Marxian value theory, Saad-Filho concludes that the transformation of values into prices
of production *necessitates* the prior theorization of fiat money. It is evident from the development of the fiat money form of value above that its theoretical development is prior to, and consistent with, the establishment of the general rate of profit. His failure to proceed in the proper manner, however, has led Saad-Filho to make two confusing and incorrect claims about a competitive capitalist economy in which the average rate of profit prevails: 1) “*[No single commodity can fulfill the function of measure of value]*” (2002: 98; emphasis in original); and 2) “the measure of value is no longer the money commodity but the *general profit rate*” (2002: 99; emphasis in original). The first point is historically inaccurate because it presumes the complete development of fiat money prior to the equalization of profits rates. The second claim threatens to undermine the character of money as a unity of distinct functions (e.g., measure of value, medium of exchange) by arbitrarily assigning a social meaning to the general rate of profit that it does not possess for the worker or the capitalist. Other scholars have also discovered that an important relationship exists between Marx’s theory of money and the transformation of values into prices of production and the special problems that a commodity theory of money raises in that context (e.g., Visser, 1990: 222; Foley, 1982). Although the “transformation problem” has not been solved to the satisfaction of many Marxian economists, it was only necessary to demonstrate above that the fiat money form of value poses no additional problems for the study of competitive capitalism.

- **Conclusion**

The analysis of fiat money Hilferding developed in his *Finance Capital* was a theoretical breakthrough in the Marxist tradition. Its contribution is hidden, however, behind an impatient theorization of credit money and a mechanical discussion of the
minimum monetary requirements for circulation. As soon as the analysis shifts to the simple moments of commodity circulation, the problem of fiat money and its solution begin to emerge. With the full development of fiat money historically and its theoretical analysis, the truly social nature of money rises to the surface. Commodities within a fiat money system do not derive their social values from the equation of the labor they contain with the labor of a commodity serving as money. Instead, commodities derive their value in money from the equation of their values with the values of all other circulating commodities simultaneously. Therefore, when individuals carry money in their pockets, they truly carry social relations with them. One must not commit the error\(^6\) of believing that a change in the form of money can change the social relations of production, but the change of monetary form does mark an historic change in the organization of circulation. Instead of undermining the materialist conception of history then, the theorization of fiat money has strengthened it and demonstrated the ability of Marxian theory to master the scope of social transformation.

**APPENDIX**

In “The Value of Money, the Value of Labor Power, and the Marxian Transformation Problem,” Duncan Foley set out to provide clear definitions for many commonly misunderstood notions from Marxian value theory. If Foley encounters difficulties in his analysis, it is because he assumes that it is appropriate to analyze definitions while ignoring determinations (1982: 38). Foley’s difficulties are most transparent when he discusses the value of money:

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\(^6\) For example, see Marx’s critique of the socialists’ concept of “labor money” or the “time-chit” (1973: 145).
It is not my aim in this paper to discuss the general determinants of the value of money in the case where money is not closely linked to a commodity standard, but to show the theoretical role the concept of the value of money plays in interpreting the labor theory of value. (1982: 39)

It is not at all clear how one may claim to grasp the theoretical role of a concept while lacking knowledge of its determinants. Nevertheless, it appears as though Foley has a sense of the theory of fiat money developed here. The connection is formalized and elaborated more clearly in this appendix.

In his 1982 article, Foley defines the value of money as “the ratio of aggregate direct labor to aggregate value added” (1982: 41). To formally represent the value of money according to Foley, consider a three sector economy of the Bortkiewiczian sort producing luxury commodities for capitalists (sector 1), means of consumption for workers (sector 2), and means of production (sector 3). Let $h_1>0$, $h_2>0$, and $h_3>0$ represent the quantities of living labor performed in each sector during a given time period (e.g., a year). Let $H$ denote the aggregate quantity of living labor performed (in hours) during the course of the year. Hence, $H = h_1 + h_2 + h_3$ and $H>0$. Similarly, let $C$ denote the aggregate quantity of constant capital in dollar terms ($C = c_1 + c_2 + c_3$), let $V$ denote the aggregate quantity of variable capital ($V = v_1 + v_2 + v_3$), and let $S$ denote the aggregate surplus value ($S = s_1 + s_2 + s_3$) produced during the course of the year assuming all quantities are positive.

Without providing any explanation for the determination of this value magnitude, the definition Foley asserts may now be expressed as:

- **THE VALUE OF MONEY** = \[
\frac{\text{AggregateLivingLabor}}{\text{AggregateValueAdded}} = \frac{H}{V + S}
\] (2)
Foley explains that the dimensions of this magnitude are “hours of labor per dollar” (1982: 39). It is not clear why Foley omits the constant capital and the dead labor in his definition of the value of money. Certainly, these magnitudes enter into the general circulation of commodities as components of price and labor value, respectively. Part of the reason may be that Foley wishes to avoid “double counting” in his definition of the value of money (1982: 39), but it is not evident that he is justified in making this theoretical move.

An alternative definition of the value of money that is consistent with the theory of fiat money developed in this paper is as follows:

\[
\text{THE VALUE OF MONEY} = \frac{\text{AggregateLaborInCirculation}}{\text{Aggregate Price}} = \frac{H + \frac{h_3 C}{C - c_3}}{C + V + S} \quad (3)
\]

The denominator (i.e., \(C + V + S\)) represents the aggregate price of the commodities in circulation and is relatively straightforward. The numerator represents the total labor in circulation in the form of commodities and thus includes both living and dead labor. The numerator permits the “double counting” excluded from Foley’s definition. To understand how it is calculated, consider the dead labor in circulation in the form of commodities that have been produced in industry \(n\):

\[
\text{DEAD LABOR IN CIRCULATION IN INDUSTRY } N = \frac{c_n}{C} h_3 + \frac{c_n}{C} \frac{c_3}{C} h_3 + \frac{c_n}{C} \frac{c_3^2}{C^2} h_3 + \ldots = \frac{c_n}{C} h_3(1 + \frac{c_3}{C} + \frac{c_3^2}{C^2} + \ldots) = \frac{c_n}{C} h_3\left(\frac{1}{1 - \frac{c_3}{C}}\right) = \frac{c_n h_3}{C - c_3} \quad (4)
\]

\[
\text{AGGREGATE DEAD LABOR IN CIRCULATION} = \frac{c_1 h_3}{C - c_3} + \frac{c_2 h_3}{C - c_3} + \frac{c_3 h_3}{C - c_3} = \frac{h_3(c_1 + c_2 + c_3)}{C - c_3} = \frac{h_3 C}{C - c_3} \quad (5)
\]
A convergent geometric series is used to calculate the dead labor in circulation in the form of commodities produced in each industry. Once these quantities are calculated, they are simply added to determine the total dead labor in circulation. Adding the living labor in circulation \((H)\) is the last step necessary to obtain the numerator in the definition of the value of money provided in equation (3).

Whereas Foley’s definition of the value of money is arbitrarily set and without proper justification, the definition provided here has been carefully developed prior to its formal statement. Before concluding, it is necessary to determine what relationship exists between Foley’s definition of the value of money and the definition provided here.

Notice that the aggregate quantity of constant capital in circulation may be converted from its natural monetary form (i.e., \(C\)) into the quantity of dead labor time it represents at a rate of \(\frac{h_3}{C - c_3}\). If this factor is the rate at which constant capital in its monetary form is converted into embodied labor time in circulation then all money must be converted at the same rate. The following equation must then hold:

\[
H = (V + S) \frac{h_3}{C - c_3}
\]  \hspace{1cm} (6)

The equality of Foley’s definition of the value of money with the definition developed here follows necessarily from substituting equation (6) into equation (3). Therefore, the definitions are consistent:

\[
\frac{H}{V + S} = \frac{H + \frac{h_3C}{C - c_3}}{C + V + S}
\]  \hspace{1cm} (7)
To understand the relationship between the definition of the value of money developed here and the fiat money price-form, it is necessary to recall the elements of that form in the case of n commodities:

- The price of commodity \( j \) = \( \frac{L_{j1}}{\sum_{i=1}^{n} L_{i1}} (MV) \)  \( \tag{8} \)

When the quantity of circulating money is combined with the velocity of its circulation, an aggregate value is circulated throughout the year (MV). This quantity is also the aggregate price used in equation (3) in this appendix. They represent the two sides of the traditional quantity equation (MV=aggregate price). Recall that \( \sum_{i=1}^{n} L_{i1} \) represents the aggregate labor in circulation across all sectors. The following equations may now clarify the relationship between the fiat money price-form and the value of money as defined in this appendix:

- **Aggregate Price** = \( C + V + S = MV \)  \( \tag{9} \)

- **Aggregate Labor In Circulation** = \( H \frac{h_3 C}{C - c_3} = \sum_{i=1}^{n} L_{i1} \)  \( \tag{10} \)

\[ \sum_{i=1}^{n} L_{i1} \frac{1}{MV} \]

Hence, the term \( \frac{1}{MV} \) refers to the value of money as defined in equation (3).

Rearranging the fiat money price-form and using \( p_j \) to refer to the price of commodity \( j \), we obtain:

- \( \frac{L_{j1}}{L_{i1}} = p_j \frac{\sum_{i=1}^{n} L_{i1}}{MV} \)  \( \tag{11} \)
Expressed in words, the labor value of commodity j equals the price of commodity j multiplied by the value of money. Hence, we confirm Foley’s assertion that “the price of every commodity multiplied by the value of money equals the labor value of the commodity” (1982: 39).

This formal presentation of the monetary theory developed in this paper is only meant to clarify the definitions used with more precision. Foley’s article is an important contribution to the development of a theory that unifies the Marxian theory of money and credit with the theory of competitive pricing. His article correctly hints at the determination of the value of money at the “global” level (1982: 37, 41) yet he does not pursue its theoretical development to the ultimate conclusion. His partial definition (i.e., the exclusion of dead labor as an important element of circulation) leads to an incorrect definition of the value of labor power and thus to problems in explaining the formation of an average rate of profit. Although it is necessary to develop precise definitions of theoretical concepts, it is equally necessary to lay the theoretical groundwork in advance.
REFERENCES


