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The Emergence of Money in Commodity Exchange, or Money as Monopolist of the Ability to Buy

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ABSTRACT *Money's emergence in commodity exchange remains an unresolved issue within economic theory. Current general equilibrium models offer an explanation that rests on the economic advantages of a universally accepted means of exchange that is partly established through social custom. These models neither fully explain money's unique ability to buy, nor theorise the customary practices required for money's emergence. They are dominated by Menger's earlier analysis of money's emergence, which pays more attention to the social foundations of money but is still hampered by Austrian individualism. An alternative explanation is given here, drawing on Marx's theory of value but involving a thorough reworking of it. An analytical process is established through which money finally emerges as monopolist of the ability to buy. Particular social custom, whose determinants are consistent with the social underpinnings of commodity exchange, plays a vital role in money's emergence.*

1. Introduction: The Problem of Money for General Equilibrium Theory

In the pure world of general equilibrium, replete with symmetric information, a full complement of contingent markets and absence of transactions costs, there is no room for money (Hahn, 1982; see also Hahn, 1965). All trading takes place in one period and trade is effectively barter. But capitalism is a profoundly monetary economy. The characteristic feature of a monetary economy that is most difficult to account for in general equilibrium was put as follows by Clower (1967, p. 5, emphasis in original): '*Money buys goods and goods buy money; but goods do not buy goods.* . . . A commodity is regarded as money for our purposes if and only if it can be traded directly for all other commodities in the economy.' This is a conjecture in the sense that it acknowledges but does not prove the irreducible asymmetry that exists between money and commodities in all monetary economies, namely that money is the only commodity that can buy all others.

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Given Clower's conjecture, money can be introduced into general equilibrium models in several ways, mostly related to its function as means of exchange.[1] 'Cash-in-hand' models (Clower, 1967) suggest that the sum total of gross purchases is equal to the sum of money held at the beginning of the trading period. Other models that rely on transactions costs and sequential trading, as suggested by Hahn (1971, 1973), stress that money acts as an efficient means of transferring purchasing power from one period to the next by being a store of value. In yet another class of models (Niehans, 1969, 1978) money acts as means of exchange reducing the costs of multilateral direct trading among commodity owners.[2]

Mathematically complex and elegant as these models can be, they are inherently limited as theoretical abstractions relevant to a capitalist economy. If it were assumed that a generally acceptable means of exchange (money) was already in existence, it would not be much of an achievement to show that exchange that used money was less costly and more efficient than exchange that did not. The real question is, how does a commodity become a generally acceptable means of exchange through processes endogenous to market trading? It is evident that the answer is related to Clower's conjecture: if a good had unique buying power, that would be *prima facie* grounds to employ it as means of exchange. But then the question would simply appear in an even more profound form: what are the processes endogenous to market trading that lead to a commodity acquiring the unique property of being able to buy all others?

A willingness to confront the issue of endogenous emergence of money has characterised general equilibrium theorising of money in recent years. Work has focused on money's function as means of exchange (the main contributions being Jones, 1976; Iwai, 1988; Oh, 1989; Kiyotaki & Wright, 1989, 1991). The models share a number of key features. It is typically assumed that commodities are inherently differentiated either because of the costs of transacting in them, or because of their marketability. Commodity owners meet at random and engage in bilateral trade on a *quid pro quo* basis. They choose trading strategies by taking into account the cost of transacting as well as the marketability of commodities that might be acquired in each transaction.

On this basis, it can be shown in search-theoretic terms that the holder of commodity A might acquire commodity B despite not wanting it *per se*, if the marketability of B was generally believed to be high enough. The underlying reason is that, given belief in the marketability of B, the owner of A would be likely to

[1]Ostroy & Starr (1990) give an excellent, if now dated, survey.

[2]Overlapping generations models should also be mentioned, which incorporate money along lines proposed by Samuelson (1958). They focus exclusively on money as store of value, rather than means of exchange (Wallace, 1980), therefore Clower's conjecture seems unrelated to them. However, quite apart from these models' disregard of money as means of exchange, they also leave unexplained money's ability to act as store of value (means of hoarding). Yet, the function of store of value cannot be separated from what money is, i.e. from its monopoly of the ability to buy. The need to confront Clower's conjecture directly is not obviated by simply ignoring means of exchange. A fuller discussion of the connections between money's functions can be found in Lapavitsas (2000).

accept B in exchange because it would then be easier for the owner of A eventually to acquire commodities genuinely wanted for consumption. Commodity B would be carried by agents as a means of acquiring other commodities thus becoming a means of exchange, or money. This is claimed to be a demonstration of the spontaneous emergence of money. It is admitted, however, that the argument does not prove Clower's conjecture: 'It is hard to imagine why two agents who meet and happen to have a double coincidence in real commodities ... should not be allowed to trade without using fiat currency' (Kiyotaki & Wright, 1989, p. 945, n.14). In short, it has not been shown why 'goods do not buy goods.' Even worse, however, the models exhibit little conceptual novelty, save for the technical formalities of modelling. As is shown below, they are conceptually dominated by Menger's (1871, 1892) original analysis of money's emergence, particularly with regard to social custom.

This article offers an alternative analysis of money's emergence that rests on a strong interpretation and reworking of Marx's theory of commodity value. Money is shown to emerge out of the process of commodity exchange, and to be the monopolist of the ability to buy. Unlike recent general equilibrium models, money is not derived as general means of exchange but as the commodity that can buy all others. This derivation makes no use of the heavily disputed Marxist concept of the substance of value as socially necessary abstract labour. Rather, it focuses on the form of value, in particular on the economic relations that arise between commodity owners in the course of exchange. Fundamental to it is the notion that commodity owners are differentiated into relative and equivalent in any transaction, in ways fully specified below. Finally, social custom is shown to play a pivotal role in money's emergence, but its content is explicitly associated with the social underpinnings of commodity exchange.

Section 2 summarises Menger's analysis of money's emergence contrasting it to contemporary general equilibrium theory. Particular attention is paid to Menger's fundamental concept of saleableness or marketability, and its connection with knowledge and social custom. Section 3 summarises the 'riddle of money' from a Marxist standpoint and lays out theoretical foundations for a solution. Sections 4, 5 and 6, respectively, discuss the economic content of the accidental, expanded and general stages of commodity exchange. The difficult logical problem of passing from the expanded to the general stage is discussed at length, and it is shown that Marx's resolution needs further work. Section 7, consequently, turns to social custom and shows that it is necessary for transition to the general stage. However, in line with the tenor of Marxist political economy, social custom is here explicitly associated with the social underpinnings of trading. Section 8 then turns to the money stage of commodity exchange and shows the importance of social custom for the complete monopolization of buying power by money. Section 9 concludes.

2. Menger's Analysis of the Origin of Money

For Menger (1892, p. 239) the emergence of the money commodity ought to be explained in terms of spontaneous action by individual market

participants.[3] Thus, he proposes the concept of saleableness of commodities (1892, p. 243; original emphasis):

> *The theory of money necessarily presupposes a theory of saleableness of goods.* If we grasp this, we shall be able to understand how the almost unlimited saleableness of money is only a special case, —presenting only a difference of degree – of a generic phenomenon of economic life—namely, the difference in saleableness of commodities in general.

Saleableness is defined by Menger in accordance with the absolute subjectivism of the Austrian school (O'Driscoll, 1986). For Menger (1871, p. 248, original emphasis), 'A commodity is an economic good *intended* for sale. But it is not intended for sale *unconditionally*.' The ease or 'facility' with which the holder can obtain the required 'economic' price for the commodity defines its saleableness or marketability. Market factors determine saleableness, including the volume and intensity of the demand for the commodity, the geographical spread of the market and the duration of demand (Menger, 1871, pp. 241–247; 1892, pp. 243–245). Consequently, commodities have variable saleableness or marketability. Commodity owners benefit when they accept more marketable commodities, even though they might have no desire to consume them, because these make it easier eventually to obtain the desired objects of consumption (Menger, 1892, pp. 247–248; 1871, p. 259).

For individual commodity owners to behave in this way, they must possess knowledge about the marketability of commodities. Along lines that have now become familiar within the Austrian school, Menger (1871, p. 261; see also 1892, p. 249) claims that 'This knowledge will never be attained by all members of a people at the same time. On the contrary, only a small number of economizing individuals will at first recognize the advantage accruing to them from the acceptance of other, more saleable, commodities'. To forestall circularity, Menger also states that 'This advantage is *independent of a general acknowledgement of any one commodity as money*.' (1871, p. 261). Rather, the advantage is initially apparent only to a few market agents, who have acquired the vital insight that more marketable are preferable to less marketable commodities. Once a small number of agents have come to possess this radical insight, others will also partake of it as all agents habitually engage in exchange. The process is self-reinforcing: the more likely it is that others would accept the commodity, the more strongly it would be demanded in exchange, and the more its saleableness would increase (White, 1984, p. 703). Generalisation of this knowledge across the market through custom and habitual practice among agents leads to eventual emergence of money (Menger, 1892, pp. 248–249).

Contemporary general equilibrium models advance much the same argument, except that marketability is posited simply as a generally held belief

[3]In contrast to 'chartalist' views that treat money as a social convention created by law and authority. It should be noted that Marx's analysis also stresses the spontaneous aspect of money's emergence, i.e. money as outcome of exchange relations rather than of state action. However, Marx's approach allows for systematic theoretical connections to be drawn between money and the state (Lapavitsas, 2003, ch. 6).

that others would want to acquire a particular commodity. This belief is strongest for money hence commodity owners will strive to acquire it. Put differently, it is assumed that there exists a general expectation that money will act as money, which validates itself as soon as money acts as money. For Kiyotaki & Wright (1989, p. 928), existence of this belief is an unexplained social custom:

> [A] critical factor in determining if an object can serve as a medium of exchange is whether or not agents believe that it will. In other words, the use of money necessarily involves strategic elements and certain aspects of 'social custom'.[4]

But without a precise definition of marketability, or of the process through which it is established and acquired, social custom means absolutely nothing. Thus, Menger's argument contains everything that contemporary models have to offer, and still more. But that does not mean that Menger's own argument is fully satisfactory. By focusing exclusively on the function of means of exchange, Menger does not explain money's unique ability to buy, and offers no grounds on which to substantiate Clower's conjecture. Moreover, his discussion of social custom and knowledge, vital as it is, involves no social processes outside the market and no analysis of the social underpinnings of markets. Ultimately, social custom results from a shaft of light from above, from a revelation about marketability that has struck some gifted individuals in the market. These problems do not exist for analysis that rests on Marx's work.

3. Anonymous Exchange and the 'Riddle of Money'

Marx (1867, p. 139) was the first major economist to realise the theoretical problem posed by the existence of money; he was also the first to tackle it directly:

> We have to perform a task never even attempted by bourgeois economics. That is, we have to show the origin of the money-form, we have to trace the development of the expression of value contained in the value-relation of commodities from its simplest, almost imperceptible outline to the dazzling money-form. When this has been done, the mystery of money will disappear.

Marx's analysis of the money-form is part of his discussion of the exchange value of commodities. Exchange value is, on the one hand, a quantitative proportion between two commodities, a relative price. But, on the other, it is also a set of economic relations between two commodity owners. When exchange becomes general and involves large numbers of commodity owners, their economic relations unfold and give rise to money. In the rest of this article a solution is found for the 'riddle of money', i.e. the emergence of the 'dazzling money-form', within the unfolding relations of commodity owners. Money is shown to emerge as monopolist of buying ability, rather than as simple means of exchange. However, demonstrating this point requires a thorough reworking of Marx's own

[4]In Iwai (1988) the same argument appears as the generally held belief that money will lower search costs. Validation of the belief occurs when money is actually used as means of exchange. This argument is sometimes given the appellation of 'bootstrap' theory.

analysis of exchange value, not least of social custom and its connection with the social underpinnings of commodity exchange.

Following Marx (1939), commodities are theoretically differentiated from products in general (see Fine & Lapavitsas, 2000). The products of human labour are not immediately commodities but become so only under appropriate social relations of production, distribution and exchange. There have been human societies for which the bulk of products never became commodities. Equally, it is an easily observed historical fact that commodity trading has occurred under a great variety of social relations. In consequence, our initial assumption is simply that the social relations underpinning commodity exchange are such that commodity owners can be alien and separate from each other when they come to trade. Commodity exchange rests on social relations that enable trade to be 'anonymous'. Commodity owners are primarily motivated by private gain and approach each other without ties of kinship, religion or hierarchical authority. Money as monopolist of buying ability is subsequently shown to result from economic relations among mutually alien exchange participants. These same relations transform money into the social nexus that binds exchange participants together.

However, it is also shown below that money's emergence is impossible without certain social customs and common perceptions held by exchange participants. This poses considerable conceptual and analytical difficulties because it implies relations among commodity owners that involve collegiality, familiarity, trust and moral obligation. But the social custom and perceptions that are necessary for money's emergence must also be compatible with the exceptional degree of estrangement characteristic of commodity owners. Few historically observed societies exhibit this peculiar combination of social elements. Capitalist social relations, i.e. private profit-making through employment of wage labour, could allow for the extraordinary combination of essential foreignness and social custom among commodity owners. But the historical emergence of money long predates the establishment of a capitalist economy. Consequently, it is suggested below that money emerges historically where separate communities and societies come into contact with each other. At those points of economic interaction it is possible for traders to be mutually foreign and independent but still develop customary links with each other.

The basic analytical framework is as follows. Each commodity owner is assumed to possess a definite quantity of one commodity. They meet in pairs, and their interactions are random but only in the sense that any two among them could in principle meet. Commodity owners purposely seek others in order to engage in exchange, but it is assumed for simplicity that there are no search costs. Commodity owners are also assumed to be unrelated and probably unknown to each other, lacking social or other ties (of rank, kinship, religion, custom, or through the production process). The social background against which they interact is compatible with their essential foreign-ness from each other, as well as with being motivated by economic gain. Their interactions have an overwhelming economic (more strictly, commercial) content, which is fundamental for the emergence of money.

The relevant part of Marx's work for our purposes is Section 3 of Chapter 1 of *Capital*, headed '*The value-form, or exchange-value*'. The resolution of the 'riddle of money' proceeds in four interrelated stages, the four 'forms of value' analysed below. For completeness it should also be mentioned that in *Capital* and elsewhere (for instance, Marx, 1859, pp. 42–46; 1939, pp. 142–145) Marx develops a further and rather different argument, namely that money emerges as the resolution for the contradictions between the use value and the value (abstract labour) of a commodity. As value, the commodity is general, that is, homogeneous, divisible, simple; as use value, it is particular, that is, heterogeneous, indivisible, complex. The evident contradictions between these two aspects of the commodity lead to the continuous breakdown of barter, until money emerges representing value (the general aspect) for all commodities. The contradictions are then 'pacified' because commodities are use values as themselves and values as something other, i.e. as money.

This is an elegant example of Marx's dialectic, but the underlying economic argument is reminiscent of Smith (1776, Vol. I, ch. V) and Mill (1848, ch. VIII). Both identified the problems created for direct exchange by commodity heterogeneity, imperfect divisibility, lack of durability, etc, and both claimed that they are solved by money. Neoclassical theorists, starting with Jevons (1875), were similarly aware of the problem posed by the 'double coincidence of wants'; but they also realised that the incompatibility of wants could do no more than reveal the necessity of money for regular, systematic and smooth exchange. Incompatibility of wants offers no insight into the process of spontaneous emergence of money in commodity exchange. This is a trap that Menger (1892) avoided, whatever the shortcomings of his solution. Marx's analysis of money as resolution of the contradictions between use value and value (abstract labour) certainly demonstrates that money is necessary in broad and regular commodity exchange. But this analysis does not establish a process through which money emerges spontaneously. For, if money did exist, the contradictions between use value and value would indeed be pacified, but the point is to show that the contradictions logically induce the emergence of money. No such analytical process can be found in Marx's work on money.

In contrast, Marx's analysis of the form of value in the first chapter of *Capital* offers the outline of an analytical process of money's emergence. In the rest of this article Marx's discussion of relative and equivalent in the simple form of value is reinterpreted in terms of (private and social) relations among commodity owners. It is then shown that money's emergence is an analytical process, a 'becoming' that unfolds from the first stage of the form of value through the subsequent three stages. The general method of proof—following Marx—is to demonstrate that each stage contains economic processes that lead to the next, until the last stage, when money emerges. Marx (1867, p. 139) claimed that the most difficult aspect of the demonstration is to prove that the reasons for money's emergence are already implicit in the first stage. However, it is shown below that major difficulties also exist in proving the logical passage between stages. Social custom plays a vital role in this connection, something that is not immediately evident in Marx's work.

4. Stage One: 'The Simple, Isolated, or Accidental form of Value'

The accidental interaction between two commodity owners is captured by Marx (1867, p. 139) by the simple equality:

x of commodity A = y of commodity B

It is trivial that this is formally a symmetrical relationship. Nevertheless, Marx is also at pains to identify a lack of symmetry between A and B:

> Here two different kinds of commodities (in our example the linen and the coat) evidently play two different parts. The linen [A] expresses its value in the coat; the coat [B] serves as the material in which that value is expressed. The first commodity plays an active role, the second a passive one. (Marx, 1867, p. 139.)

Commodity A is called the active or the relative, and commodity B the passive or the equivalent. The relation of equality could evidently be reversed, but Marx claims that this does not imply formal symmetry between the two parts of the exchange relation:

> In this case I must reverse the equation in order to express the value of the coat relatively; and if I do that, the linen becomes the equivalent instead of the coat. The same commodity cannot, therefore, simultaneously appear in both forms in the same expression of value. These forms rather exclude each other as polar opposites. (Marx 1867, p. 140)

Thus, for Marx, the equality 'x of A = y of B' appears to capture a different relationship from the equality 'y of B = x of A'. But the content of this putative difference is neither immediately clear nor intuitive. Moreover, given the undoubted formal equivalence between the two expressions, the assertion of difference is a constant source of tension in Marx's own analysis.

The interpretation suggested here is that the difference between the two expressions refers to the way in which exchange relations are invited between the (mutually foreign) owners of A and B. Specifically, in 'x of A = y of B', the owner of A (the relative) approaches the owner of B (the equivalent) and makes a request for exchange by offering A for B; in 'y of B = x of A' the reverse holds true. Thus, in 'x of A = y of B', the owner of A takes the initiative and actively invites exchange, while the owner of B responds passively. In 'y of B = x of A', on the other hand, economic relations between A and B are different, because B takes the initiative in the exchange relationship.

Another way of putting this point is that, for exchange relations to occur between participants who lack social or other ties, an opening gambit is necessary. This takes the form of the owner of a commodity addressing another with a request for exchange by offering own commodity for that of the other. Thus, in 'x of A = y of B', the left hand side actively requests exchange with the right hand side by offering x of A. By the same token, B responds by acceding to, or rejecting, the request. We could also call the opening gambit made by the relative an offer to sell, while the response of the equivalent would be a decision to buy (or not). Thus, sale corresponds to the action of the relative or active, while purchase to that of the equivalent or passive commodity owner (Itoh, 1976). Naturally, both sale and purchase are properly defined only when money is already in existence,

thus the terms should be used with caution at the accidental stage. However, it is shown below that money stands for monopolisation of the ability to buy which is already present in embryo at the simple stage. Consequently, the difference between 'x of A = y of B' and 'y of B = x of A' emerges sharply when it is heuristically considered that in the former A is sold and B buys, while in the latter B is sold and A buys.

A simple formal way of representing the inherent asymmetry of simple exchange is by employing an arrow and abandoning Marx's use of equalities. The accidental interaction between two commodity owners is thus given by:[5]

$$\text{x of A} \longrightarrow \text{y of B}$$

Accordingly, the economic content of (embryonic) sale differs from that of (embryonic) purchase. To sell is actively to request exchange at a time and place of one's choosing, i.e. to reveal one's intention to exchange in a specific way. To purchase, on the other hand, is passively to consent to an offer of a sale, i.e. to accept the initiative of the seller. At this stage of the demonstration of money's emergence, commodity owners enter the process of exchange with the undifferentiated intention of engaging in trade, thus they might assume either the active or the passive role without prejudice. In the presence of money, however, all commodity owners bring their goods to the process of exchange with the active intention of selling. Money-holders, on the other hand, enter the process of exchange with the aim of passively accepting offers of sale.

An important question to answer in this connection is: why could it not be assumed that the opening gambit is made by the equivalent? Why assume that the initiative originates with the seller rather than the buyer? In answering, it should be noted that Marx specified the equivalent as the passive party, and subsequently defined money as the universal equivalent. It follows that, for Marx, money is universally passive, while other commodities are active. This is an acute insight into developed monetary exchange: commodity sellers typically invite purchase by offering commodities for sale in shops, warehouses, catalogues and so on; buyers, on the other hand, accede to, or refuse, such offers. Commodity markets are the social terrain on which commodity owners actively invite buyers to part with their money. A major advantage of the assumption that 'to be active' is 'to invite exchange relations between commodity owners', and broadly corresponds with sale, is that it allows for theoretical demonstration of this vital aspect of monetary exchange. It is true that buyers occasionally also declare their intention to acquire particular commodities, for instance, through newspapers and specialist magazines. But this amounts to searching for exchange partners, which has nothing to do with the active-passive polarity, as is briefly shown below.

To be active is not to search for counter-parties, and to be passive is not to wait until a request has been received. All commodity owners in principle search for suitable partners, but they do not thereby automatically assume the position of the active party in trading. Commodity owners still have to establish a

[5]Sekine (1999) has also used an arrow in this connection. I must thank Stergios Skaperdas for independently arguing in favour of using an arrow, thus persuading me to use Sekine's formulation.

mutual relationship when they meet after searching, since they are (by assumption) unrelated and probably unknown to each other. For any pair of commodity owners, one must actively take the initiative and invite exchange. Thus, the terms 'active' and 'passive' refer purely to the economic relationship between commodity owners after they have met; that is, after searching is already complete. In developed monetary exchange searching for partners is typically (but not exclusively) undertaken by the holders of money. However, this occurs because money holders take it for granted that commodity owners have already offered their commodities for sale against money, thereby inviting exchange. In developed monetary exchange the opening gambit is constantly made in shops and warehouses: sellers are immediately active, allowing money holders to search for partners to whose offers they would accede. In accidental exchange, sale and purchase are present in embryonic form in each transaction. The active aspect of sale is captured by the assumption that the relative (rather than the equivalent) makes the opening gambit, while making it possible to show that money's emergence corresponds to establishing sale proper.

Haggling poses no particular analytical problems for this approach. Any opening gambit between mutually foreign commodity owners must take the form, explicitly or implicitly, of offering own commodity for that of another owner, since commodity owners have no means of communicating other than through their commodities. Thus, the exact formulation of the opening gambit is not important—it could even be silent, as is shown in Section 7. Moreover, the active–passive relationship is not established by the precise quantities offered, but by the initial request, which invites exchange. Assuming that the initial request was made by A, the content of the relationship between A and B would not change if B suggested different quantitative terms. This is broadly analogous to money holders suggesting different prices to commodity owners, while still remaining buyers. The content of relative-equivalent refers to the private and social aspects of exchange value and of the ability to pay, discussed immediately below. These aspects do not result from the precise quantitative ratio that is eventually agreed by commodity owners.

The economics of the 'active–passive' relationship is pivotal to the eventual emergence of money. The meeting of A and B is by assumption an accidental or isolated occurrence between unrelated individuals. Before entering exchange, neither knew whether it was at all possible directly to engage in exchange. They also did not know what quantity of other commodities could be obtained in exchange. The exchange value of their commodities was a matter of personal expectation and nothing more. When A and B engage in trade as the active and passive parties respectively, exchange value becomes more concrete, but in different ways for each. On the one hand, the owner of A declares unilaterally that A's per unit exchange value is equal to y/x of B. On the other, the owner of B is informed that B could be directly exchanged with A. If the transaction actually took place, both pieces of information would be established as valid.

The most important result here is that, when an 'accidental or simple' exchange actually occurs, the equivalent becomes directly exchangeable with the relative. This is a property acquired by B that, at first sight, appears similar to Menger's marketability or saleableness, namely the ease of selling

commodities. But the commodity that is sold is A, while B buys. The direct exchangeability of B is, rather, an embryonic ability to buy, which is neither an inherent nor a permanent feature of the commodity. It derives purely from the request for exchange made by A's owner and exists only in relation to A. In this light, the emergence of money is a process through which one commodity acquires direct exchangeability with all others. One commodity becomes the equivalent of all others because all others are automatically offered for sale against this single commodity. Money's emergence comprises four stages, starting with the accidental. The method of proof, as already mentioned, is to identify economic processes present in each stage that lead to the next.

The relevant economic process is clear for the accidental stage. Both the exchange value of A (i.e. y/x of B) and the direct exchangeability acquired by B are valid only for the relationship 'x of A = y of B'. Therefore, they are both fleeting and partial properties, and have to be established afresh in any other transaction. But the way this might happen is neither certain nor predictable in accidental exchange. First, the owner of A might not enter the process of exchange again (either at all or within a reasonable length of time) thus making it invalid to represent A's exchange value as y/x of B. Second, if A's owner does re-enter the process of exchange, accidental exchange might take place with another commodity, say, C. This would result in A's exchange value being represented in terms of C, as well as establishing direct exchangeability for C relative to A—leaving B out of the reckoning. Third, in the next transaction, A's owner might be the passive party.

Nevertheless, the random aspect of the accidental stage also provides a way out. In principle, A's owner could make an offer of sale to any and all other commodity owners. Provided that there could be repeated entry in the process of exchange, this possibility becomes real and affects the position of A as a relative. Namely, the full representation of A as a relative requires an exhaustive list of equivalent commodities. This introduces the second stage in the emergence of money.

5. Stage Two: 'The Total or Expanded Form of Value'

The expanded stage comprises requests for exchange made by A toward all the other commodity owners:

$$\begin{aligned} &\text{x of A} \longrightarrow \text{y of B} \\ &\text{x of A} \longrightarrow \text{u of C} \\ &\text{x of A} \longrightarrow \text{w of D} \\ &\qquad \ldots \end{aligned}$$

The asymmetry between relative and equivalent has been put on a different footing, since there is only A on the left-hand side and all others are on the right-hand side. This has implications for the relative. A's per unit exchange value is represented simultaneously and across the realm of exchange as a boundless

(or very large) set of quantitative ratios: {y/x, u/x, w/x, . . .}.[6] A's exchange value has become a less partial and fleeting property, since it is represented by a set that contains quantities of all other commodities and not just one. Given that it refers to all other commodities, the exchange value of A has acquired some generality, and hence an objective character that applies across the realm of exchange. There are also implications for the equivalent. The ability to buy is spread across the sphere of exchange, and is acquired by all commodities other than A. Thus, the ability to buy is both less partial and less fleeting compared to its presence at the accidental stage.

Another way of putting the point, though not in Marx's terms, is that at the expanded stage both exchange value and ability to buy have become social norms. Exchange value is now an aspect of A that is recognised by exchange participants and incorporated into their trading practices. Exchange practice, furthermore, makes the property of direct exchangeability (ability to buy) valid for all commodities, except for the relative A. Nevertheless, both of these norms are purely exchange-based and lack deeper social origins.[7] Even worse, their foundations are slender because both originate in market-wide requests for exchange originating from a single commodity. Money's emergence amounts to a process through which both exchange value and the ability to buy acquire sounder social foundations, though still purely at the level of exchange.

Specifying the economic processes that lead to passage from the expanded to the general stage is far from easy. There are logical and analytical difficulties with Marx's own discussion of the issue, considered below. For Marx (1867, p. 156) the relative side is defective because it is an endless series of representations, a 'motley mosaic of disparate and unconnected expressions of value' that are different for each commodity. In our terms, it is a boundless (or very large) set of quantitative ratios. The economic forces at work are clear to some extent. On the relative side, the owner of A now offers x for y of B, next x for u of C, then x for w of D, and so on. Thus, for exchange participants, the terms on which A is offered for sale are irregular and extremely heterogeneous, hence they lack complete generality. The norm of A's exchange value does not have a general character despite having exchange-wide breadth.

Analogously, for Marx (1867, pp. 156–157), the defect of the equivalent side is that it comprises an endless series of particular 'equivalents', each of which excludes the others. The economic processes implied are again clear to some

[6]This formal presentation of the expanded stage is different from Marx (1867, p. 154) who writes: 'z commodity A = u commodity B or = v commodity C or = w commodity D or = x commodity E or = etc.' The presentation in this article makes it easier to grasp the economic content of the expanded stage, especially the indeterminate character of the relative.

[7]For commodity value to become a social norm with foundations deeper than the market, conditions of production also have to be appropriate. Specifically, capitalist conditions must prevail, such that money profits are systematically generated in production and accrue in commodity markets, while workers obtain money income in the labour market. Commodity value then becomes a deeply based social norm, summed up as 'abstract labour' (Fine & Lapavitsas, 2000). Under such conditions, money has its own value as abstract labour, which does not impinge upon its monopolistic ability to buy, but creates complications regarding the prices at which commodities are bought (see Lapavitsas, 2000).

extent. All elements of the set of other commodities receive direct exchangeability from A's requests for exchange. But their direct exchangeability is limited and encompasses only A, since it derives from A alone. Thus, both B and C, for instance, could immediately buy A; but to exchange with each other they would have to go through the whole rigmarole of offer and acceptance/rejection, without any presumption at the outset as to which would be active and which passive. Thus, for the process of exchange as a whole, the norm of the ability to buy is thinly spread and has no generality at all.

The economics of the passage to the general stage, however, is far from clear. Marx (1867, p. 157) offers the following formal argument on this issue:

> In fact, when a person exchanges his linen for many other commodities, and thus expresses its value in a series of other commodities, it necessarily follows that the other owners of commodities exchange them for the linen, and therefore express the values of their various commodities in one and the same third commodity, the linen. If, then, we reverse the series 20 yards of linen = 1 coat, or = 10 lb. of tea, etc., i.e. if we give expression to the converse relation already implied in the series, we get [the general form of value].

Thus, Marx makes the transition to the general stage appear as the simple matter of rewriting a series of equalities in reverse order. It is shown below that this is formally unsatisfactory. Moreover, this procedure has nothing to say about the social processes that lead to emergence of the general stage. When these are considered, it becomes clear that passage to the general stage cannot be a matter of pure economic forces alone. Social custom and explicit consideration of the broad underpinnings of the process of exchange must come into play.

6. Stage Three: 'The General Form of Value'

The general stage can be summed up as the following series of requests of exchange:

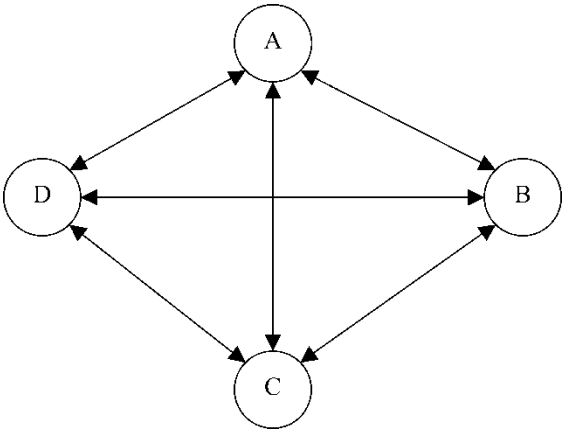
$$\begin{aligned} \text{y of B} &\longrightarrow \text{x of A} \\ \text{u of C} &\longrightarrow \text{x of A} \\ \text{w of D} &\longrightarrow \text{x of A} \\ &\ldots \end{aligned}$$

This involves a profound transformation of both relative and equivalent. On the relative side, the per unit exchange value of commodities can be represented as different quantities of A. This is a simple representation of exchange value that is held in common by all commodities other than A. Exchange value has become a norm that applies to all commodities (bar A) and with a common reference point. Exchange participants can expect commodities to be offered for sale on terms that are regular and homogeneous, since they are couched in quantities of A. On the equivalent side, A now possesses direct exchangeability with all other commodities, it can buy all others, it is the universal equivalent (Marx, 1867, p. 159). The ability of A to buy derives from the requests for exchange made by all

other commodity owners, therefore it is not limited with respect to any other. This is a universal ability, turning A into money.

Consequently, it is imperative to demonstrate the logical necessity and the economic content of transition to the general form. Marx's suggestion to rewrite the expanded form in reverse order is not adequate, as can be seen in the following two ways. First, any set of n commodities can produce $n(n-1)/2$ pair-wise exchange relations. If relative and equivalent were systematically distinguished from each other (i.e., if 'x of A = y of B' was considered different from 'y of B = x of A') the total would rise to $n(n-1)$. Marx simply isolates $(n-1)$ of those on the grounds that they all have the same commodity on the right-hand side. He then declares the single commodity to be the universal equivalent. But then it follows immediately that there are n universal equivalents, since each one of {B, C, D, ...} could also be isolated on the right hand side. Marx (1867, p. 162) appears to forestall this objection by stating that 'The universal equivalent form is a form of value in general. It can therefore be assumed by any commodity.' Yet, this is not logically sufficient. Simple reversal of the expanded form does not show that *any* commodity could be the universal equivalent, but that *all* commodities are the universal equivalent. But if all are the universal equivalent, none is.

Second, the general form is supposed to contain a pronounced asymmetry between commodities, since only A possesses direct exchangeability with the others.[8] Consider the following simple diagrammatic representation of all possible bilateral exchanges within a set of four commodities, A, B, C, D:



An arrow pointing toward a commodity indicates a request for exchange and turns it into an equivalent. If B, C and D were arbitrarily separated as a group of relatives, A would appear to stand out as the universal equivalent. But for the group as a whole, the skein of bilateral relations exhibits no inherent difference between A and the others. All commodity owners address requests to all others,

[8]The asymmetrical relationship between money and commodities, and its connection to the asymmetrical relationship between commodity owners in the accidental form of value, is a hallmark of the Japanese Marxist Uno tradition (Itoh, 1976; Sekine, 1999; see also Sekine, 1997). This approach of the Uno school has broadly informed the analysis in this paper.

and all receive requests from all others: no commodity stands out and there is no universal asymmetry. None of the permutations {[B, C, D], A}, {[A, C, D], B}, {[A, B, D], C} and {[A, B, C], D} stands out. There is no universal and absolute asymmetry but rather a symmetrical distribution of four instances of partial asymmetry. This does not single out any commodity at all.

The problem of passage to the general form cannot be settled by simple reversal of the equalities of the expanded form. Formally, for any set of commodities, such a step would result in all becoming universal equivalents. This indicates a deeper analytical problem. If exchange relations involve only sale and purchase, and if all commodities are equally capable of both, then all numerically equal sets of commodities are indistinguishable from each other. Plain buying and selling cannot make a particular set stand out thus isolating a universal equivalent.

Menger was clearly aware of the problem of establishing a relationship of universal asymmetry among commodities. Consequently, he argued at the outset that commodities are differentiated among themselves in terms of marketability. Even so, he still had to assume that a select few commodity owners had a flash of insight about marketability that eventually led to money, given social customs associated with trading. Contemporary general equilibrium follows a similar path, without specifying the content of social custom. In reworking Marx's analysis we differentiated between active and passive commodities in all bilateral transactions. But this is still not enough for the emergence of a single passive commodity for the entire set. It is shown below that, for universal asymmetry among commodities to emerge, the role of social custom is vital. This means customary exchange practices (other than buying and selling) that take root among essentially foreign commodity owners.

7. Social Custom and the Universal Equivalent

Despite the problems with his formal argument of transition to the general stage, Marx's analysis of money's emergence offers an important insight on the importance of social custom. Consider the following claim made in chapter 2 of the first volume of *Capital* (1867, pp. 182–183):

> The universal equivalent form comes and goes with the momentary social contacts that call it into existence. It is transiently attached to this or that commodity in alternation. But with the development of exchange it fixes itself firmly and exclusively onto particular kinds of commodity, i.e. it crystallizes out into the money-form. The particular kind of commodity to which it sticks is at first a matter of accident. Nevertheless there are two circumstances which are by and large decisive. The money-form comes to be attached either to the most important articles of exchange from outside, which are in fact the primitive and spontaneous form of manifestation of the exchange-value of local products, or to the object of utility which forms the chief element of indigenous alienable wealth, for example cattle.

This suggests that some commodities are more likely than others to become universal equivalents, namely commodities that foreigners bring to a community, or those that a community can most easily trade with others. This view accords

with another claim made by Marx, found in several places (1867, p. 182; 1939, p. 223; 1894, pp. 447–448) that trade historically arose at the point where separate communities came into contact with each other, rather than within communities. The historical agents of trade were the 'pure trading peoples of antiquity' (Phoenicians and Carthaginians) who connected societies that did not rely on commodity exchange to ensure their reproduction.

Leaving aside the historical (and anthropological) accuracy of this claim (see Itoh & Lapavitsas, 1999, chs 2, 10), it is evident that for Marx the social underpinnings of the process of exchange, even the physical and geographical configuration of the latter, are paramount factors in money's emergence. In this article it was assumed that commodity owners are guided by economic benefits and remain unaffected by kinship, rank, religion and authority. Capitalist trade certainly fits these requirements, but the existence of money long predates the emergence of the capitalist mode of production. In historical terms, the conditions of impersonal exchange also broadly apply to trade between separate communities, where the social ties between traders are at their weakest. In such trade, essential 'foreign-ness' could prevail among exchange participants, who could relate to each other purely as commodity owners. In contrast, economic interaction within non-capitalist communities cannot be extricated from the thick web of non-economic relations of power, prestige and kinship pervading social life. Within non-capitalist communities, exchange is unlikely to be impersonal or anonymous.

Marx's comment about the 'pure trading peoples of antiquity' reveals much about the role of the social underpinnings of exchange for money's emergence. Consider what Herodotus (1954, p. 307) had to say on Carthaginian trading with natives of 'Libya' (i.e. Africa beyond the Pillars of Hercules):

> On reaching this country, they unload their goods, arrange them tidily along the beach, and then, returning to their boats, raise a smoke. Seeing the smoke, the natives come down to the beach, place on the ground a certain quantity of gold in exchange for the goods, and go off again to a distance. The Carthaginians then come ashore and take a look at the gold; and if they think that it represents a fair price for their wares, they collect it and go away; if, on the other hand, it seems too little, they go back aboard and wait, and the natives come and add to the gold until they are satisfied. There is perfect honesty on both sides; the Carthaginians never touch the gold until it equals in value what they have offered for sale, and the natives never touch the goods until the gold has been taken away.

All essential components of trading between alien peoples are recorded by Herodotus: the ever-present threat of violence (dealt with by avoiding face-to-face meetings), the request for exchange made through the (silent) opening gambit of offering commodities, the representation of the exchange value of the relative as a quantity of another, the direct exchangeability of the equivalent (gold) and the exchange-related custom of honesty (probably induced by repeated trading visits). Grierson (1903) has described similar forms of primitive exchange, focusing on hostility and fear of the stranger, but also on the difficulty of communicating between alien peoples that lack a common language. He called this early

form of barter 'silent trade', a term that has become standard in anthropological work.

In this light, social custom is vital in creating the universal asymmetry among commodities necessary for money to emerge. Customary links among communities are likely to result in traditional chains of transactions, which involve some commodities more heavily than others. The traditional character of much pre-capitalist trade is well attested historically (Braudel, 1982). Traditional transaction chains typically reflect the material and social environment within which trade takes place. In areas where cattle herding is favoured by geography and climate, cattle are more likely to be available for trade with outsiders; where captives are abundant from habits of raiding and war, slaves will be readily sought in exchange by other communities; if salt can be easily mined, salt will be widely available for trade. The customary and traditional aspects of transaction chains result from repetition of trade over a long period of time. Timing, location, transport, ritual, and so on, are stamped by habitual practice.

Transition to the general stage is likely to occur within chains of customary transactions repeated along established patterns. Such chains already separate a small number of commodities from the rest. They are also likely to contain one or more commodities that habitually attract several requests for exchange. For this to happen, there is neither a need for commodities to have special properties (marketability), nor for exchange participants to have any sudden insights about commodities. Pure chance, a sufficient length of time and frequent repetition of transactions are enough. Should a commodity find itself in the position of attracting several requests of exchange, through a combination of chance and custom, the asymmetry among commodities would then be exacerbated through the following self-reinforcing process.

A commonly requested commodity acquires direct exchangeability with those that have been offered for it. Its property of being able to buy the commodities offered constitutes a new use value for it. Marx (1867, p. 184) calls it a 'formal use-value', that is, a use value which derives purely from the commodity's functioning in exchange and is unrelated to its physical make-up. Consequently, the commodity is likely to attract further requests for exchange generated by its ability to buy alone. This establishes an economic mechanism that contributes to emergence of the general stage. Since its new use value derives purely from other commodities being offered for it, the more this happens, the stronger is its ability to buy, and the more it attracts further requests for exchange. A path is laid for transition to the general stage.

Thus, two factors are necessary for the expanded to give way to the general stage. The first is social custom found within traditional transaction chains, which increases the probability that some commodities attract several requests for exchange at once. The second is self-reinforcement of the ability to buy on economic grounds, as exchange participants take advantage of the 'formal' use value of the isolated commodities. When the issue is posed in these terms, the problem of transition to the money stage also becomes clearer. At any point in time, there are likely to be several separate traditional chains of transactions. There could also be more than one universal equivalent within each chain. The implication is that commodity exchange gives rise to several 'monies', spontaneously and continually.

By construction, these monies are in a competitive relationship with each other. They draw their ability to buy from requests addressed to them by a given set of commodities, hence each is unable to buy several of the commodities that belong to the set of another.[9] The result is compartmentalisation and lack of unity of the exchange process. From the perspective of the relatives, moreover, the presence of several monies implies that exchange value lacks a single representation across the sphere of exchange—it is still not a general exchange norm. Passage to the money stage resolves these issues, but to demonstrate how this occurs it is necessary to seek further recourse to social custom.

8. Stage Four: 'The Money Form'

The money stage can be summed up as the following series of requests of exchange:

$$1 \text{ of } A \longrightarrow u/v \text{ of } C$$
$$1 \text{ of } B \longrightarrow u/y \text{ of } C$$
$$1 \text{ of } D \longrightarrow u/w \text{ of } C$$
$$\ldots$$

The difference with the general stage is that one commodity, C, stands on the right-hand side permanently. Thus, the exchange value of commodities on the relative side is permanently represented by quantities of C alone. Hence exchange value is a stable social norm that applies across the sphere of exchange but still only based on exchange relations. On the equivalent side, the ability to buy is stably monopolised by a single commodity. By construction, all other commodities are permanently offered for sale, and do not receive requests of exchange from each other.

The money stage inherently contains the most important component of Clower's conjecture: commodity owners enter the process of exchange with the express purpose of offering their commodities for sale against money; that is, they bring their commodities to market with a definite per unit money price. However, unlike Clower, the money commodity is never offered for sale but always receives requests from other commodities. Commodities do not 'buy' money; only money buys, i.e. it monopolises direct exchangeability. In sharp contrast to general equilibrium analysis, moreover, money is not established as a general means of exchange, but as the commodity that can buy all others. If it functions as means of exchange, it is because it has monopolised the power to buy.

This also deals with the major conundrum posed by Clower's conjecture, i.e. why should commodities not buy commodities directly, if their owners have a

[9]There is similarity here with Polanyi *et al.*'s (1957) 'particular' and general money, but it is more apparent than real. For Polanyi, 'particular' money has a limited purchasing range because it belongs to a non-capitalist society, whereas the money of capitalism is general and has limitless ability to buy. However, the universal equivalent analysed here could very well exist in non-capitalist societies. The partial monies that arise as a result of custom are only intermediate steps in the monopolisation of buying ability and nothing else.

'double coincidence of wants' and happen to meet? This is a conceptual problem arising purely because neoclassical economics focuses on money as means of exchange. In the formulation above, owners bring commodities to market already priced in terms of money; i.e. with the intention of selling them for money. There is no reversion to barter even when commodities are actually exchanged without the mediation of money. Money has already accounted for the exchange value of the commodities involved, allowing commodity owners to arrive at a relationship of equivalence. Indeed, with money present, it is not even necessary to exchange equivalents immediately. Since money accounts for value generally and stably, it is possible to exchange commodities by creating credit and debit obligations, a process that has nothing to do with barter. In short, the defining aspect of money's emergence is not that commodity owners universally employ it as means of exchange. Rather, it is that commodity owners universally seek money in exchange, i.e. they bring their goods to market already with a money price.

Social custom and the physical characteristics of commodities are vital for passage to the money form. Several partial monies emerge at the general stage that compete against each other and draw their relative strength purely from the requests of exchange that each receives. The requests also depend on the physical properties of these monies, and the extent to which their properties can adequately correspond with the formal use value of buying other commodities. To use an oft-repeated example, ice cream could certainly be the universal equivalent, but its ability to buy would last physically far less than that of salt. Historically, the physical properties of the precious metals (homogeneity, durability, divisibility and so on) have proven instrumental in allowing them to monopolise direct exchangeability.

The social customs attached to the other uses of the precious metals (as commodities rather than as money) are also likely to influence their use as money (Marx, 1867, p. 162). Commodity owners are habituated to precious metals as representatives of the value of commodities, since communities have customarily used gold and silver as jewellery, religious implements and expensive decoration. Once a single commodity starts to be used widely as money, the social custom and habits associated with its use would eventually allow it to beat other monies in competition, until its use became a social norm in itself.

9. Conclusion

Mainstream economic theory has not dealt successfully with the 'riddle of money' in commodity exchange. Contemporary general equilibrium analysis does not go beyond Menger's concept of marketability, while being decidedly inferior to Menger in analysing the role of social custom in money's emergence. But Menger's analysis of marketability is hampered by methodological subjectivism, which prevents him from establishing the social aspects both of money and of the customs that underpin it.

The solution for the 'riddle of money' suggested above—based on a reworking and strong interpretation of Marx's analysis of exchange value—is free of these problems. Money was shown to emerge through analysis of the form of

value, relying on the interplay between the relative (or active) and the equivalent (or passive) sides of exchange value. The relative is the side that initiates the relationship between two mutually alien commodity owners by making a request for exchange. Correspondingly, the equivalent is the side that might (or might not) accept the request. The request for exchange gives to the equivalent the ability directly to exchange with the commodity whose owner has made the offer. Money's emergence is the process through which the ability to exchange directly (buy) becomes concentrated in one commodity among the many. The universal equivalent possesses the highest degree of direct exchangeability with all others, and at the exclusion of all others. Money is, thus, the only commodity that can buy all others.

This solution highlights the social character of money's emergence. Money results from the collective action of other commodity owners and from social custom associated with commodity exchange. Both Menger and contemporary general equilibrium models recognise the importance of social custom in establishing and generalising the use of money throughout the market. But the constituent elements of such social custom remain beyond the analytical compass of neoclassicism. In contrast, the solution offered here stresses the importance of the social background against which commodity exchange takes place. For money to emerge there must be autonomy and estrangement among exchange participants, but also traditional practices associated with the process of exchange. Money is generated spontaneously whenever unrelated and mutually unknown commodity owners interact with each other, but only because of their unplanned collective action framed by social custom. The social relations created in this context require that one commodity should be able to buy all others. Money provides a concrete social nexus among mutually alien commodity owners by monopolising the ability to buy.

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