

## MONEY AND MARKETS

In this essay, we consider a set of related questions concerning the role and nature of money, the working of markets, and the relationship between forms of social organization and money.\* Among other things, we speculate that efforts to purge the neo-classical theory of markets of the phenomenon of false trading have been misguided in the sense that they fail to grasp the dependence of a market system on the existence of some false trading.

### I. WANT COINCIDENCE AND NON-SYNCHRONOUS PAYMENTS

From Adam Smith, through Mill, to Patinkin, the foundation of our understanding of the uses and functions of money has been the perception that unless societies create an efficient instrument for storing and transmitting command over resources, exchange and all other economic activity may languish from a lack of a “coincidence of wants”, that is, a matching of the effective offers of those on opposite sides of markets. Given a barter exchange

\*I would like to thank T. K. Rymes and David Laidler for helpful comments on earlier versions of this paper.

## *Money and Markets*

economy, it is true by definition that in the absence of want coincidence, exchange will not take place. True, indirect exchanges, chains of transactions, might be employed to obtain a final good, so that every pair of transactors need not engage in a *final* exchange,<sup>1</sup> but nonetheless, in a barter exchange economy, each delivery of goods must be accompanied by a reciprocal delivery of acceptable goods. Normally, this means also the *immediate* reciprocal delivery of goods but, as Brunner and Metzger suggest, delivery tomorrow—a kind of barter credit—is a possibility.<sup>2</sup>

Whether barter credit is likely, however, is another question. In the literature, barter economy seems to be synonymous with “non-monetary market” economy.<sup>3</sup> In such an economy, barter credit is not likely to be widespread because very few individuals will be ready to make barter credit contracts with the anonymous individual in markets in the absence of a means to “objectively” compare values for purposes of enforcing contracts, that is, in the absence of a monetary unit and, of course, a system of contract law.<sup>4</sup> Therefore, while friends might make contracts, unless an economy is monetized to the extent that it employs a monetary unit, expressing exchange values in it, barter must be generally confined to immediate reciprocal transactions.

If this is correct, then a non-monetary market economy *must* be characterized by a prevalence of immediate exchanges of goods.

<sup>1</sup> The idea of using chained, as opposed to direct, transactions is not new. A contemporary version is given in: K. Brunner, A. H. Meltzer, “The Uses of Money: Money in the Theory of an Exchange Economy”, *American Economic Review*, December, 1971, p. 791. The idea is not without difficulties. Consider a simple, two-step exchange: good X (held by Trader X) for good Y (held by Trader Y), then Y for Z. X and Z cannot be traded directly because Trader Z does not want X and Trader Y does not want Z. In order for this sequences of trades to *begin*, it is necessary that Trader X knows that Trader Z wants Y *and* that Trader Y wants X. That is, Trader X must know the preferences of the other two. If this limited amount of information is lacking, indirect exchange is not possible and barter exchange must be confined to cases of one-to-one want coincidence.

It is possible to relax the condition that Trader X must know others’ preferences. We can imagine Trader X encountering a series of traders until he finds one willing to buy X for something Trader X does not want. At this point, he becomes a speculator holding a commodity which is not in his utility function.

<sup>2</sup> *Ibid.*, n. 4, p. 785.

<sup>3</sup> See, for example: J. Nieghans, “Money and Barter in General Equilibrium with Transactions Costs”, *American Economic Review*, December, 1971, p. 773; or Don Patinkin, *Money, Interest, and Prices*, New York, Harper and Row, 1965, pp. 3-12.

And, it follows, in such a system, that payments (expenditures and receipts) are by definition synchronous so that the non-synchronized system of payments frequently said to be a *cause* of the use of money cannot logically prevail in the absence of money. Indeed, as Brunner and Meltzer argue, it is the use of money that makes possible a system in which payments are non-synchronous, not the opposite.<sup>5</sup>

Having said this, it does not follow that randomness of payments cannot be invoked to explain the holding of money balances by individuals. On the level of society as a whole, non-synchronous payments *follow* from the *use* of money by society; for the individual in a monetized society, non-synchronous payments are a *datum* and the holding of money is a rational response thereto. Thus, we must carefully distinguish between the holding of money by individuals and the use of money by societies.

## II. BARTER AND WALRASIAN MARKETS

As suggested above, the prevailing model of a barter economy is that of a non-monetary market economy; it is with the properties of that model in mind that the question of the uses and functions of money has received its fullest examination. Let us more closely consider that context, starting with its most abstract variant, the Walrasian auction.

Patinkin has argued that, in their preoccupation with the content of equilibrium states in markets, neo-classical theorists failed to provide an explanation of the process by which equilibrium might

<sup>4</sup> In other words, intertemporal exchange is hazardous; one always runs the risk of buying "a pig in a poke" when the goods to be exchanged are not on the table. The greater the number of variables that cannot be specified exactly in contracts, the greater the hazards attached to intertemporal exchange. A monetary unit does not remove all these hazards but it does reduce the possibilities of disputes over whether the deliveries specified in a contract are carried out. Thus, instead of specifying the future delivery of a basket of apples, one could require the delivery of ten dollars worth of apples. Systems of weights and measures, weigh scales, grading, etc. further reduce such hazards. In this connection see: John C. McManus, "The Costs of Alternative Economic Organizations", *Canadian Journal of Economics*, August, 1975, pp. 334-50. On the role of contract law and the courts in the exchange process, see: Paul Davidson, "Money and the Real World", *Economic Journal*, March, 1972, pp. 101-15.

<sup>5</sup> K. Brunner, A. H. Meltzer, *op. cit.*, p. 800.

be attained. The striking exception to this statement is, of course, Walras, whose theory of *tatonnement* was a direct attack on the problem of *how* markets move to an equilibrium state.<sup>6</sup>

At the centre of the *tatonnement*, the ever-closer groping towards equilibrium, is the Walrasian auctioneer whose task consists of announcing commodity prices, comparing the buy and sell offers of the market participants, and revising price so as to bring total buy and sell offers into equality. While it is a successful heuristic device, the Walrasian auction bears no resemblance to real-life markets.<sup>7</sup> In order that it reach an equilibrium state, a severe departure from reality, recontracting, must be assumed.

By recontracting is meant simply that no goods need change hands until the auctioneer determines the price at which the market closes; any contracts to buy and sell made prior to the announcement of the closing price can be *costlessly* cancelled. The primary consequence of recontract, as is well known, is that no false trades take place.

### III. REAL MARKETS, WALRASIAN MARKETS, AND MONEY

False trades, of course, refer to transactions that take place at prices other than *the* market equilibrium price. Although attempts to “assume them away” abound,<sup>8</sup> we can fairly presume that in real markets, false trades actually occur. If they do, it is because participants in real markets do not know, through an auctioneer or similar device, whether a given price is final to them, that is, whether a better price exists. That they must judge for themselves.

<sup>6</sup> Patinkin, *op. cit.*, pp. 531-40, especially pp. 536-7.

<sup>7</sup> For an experimental investigation of the efficacy of Walrasian *tatonnement*, see: W. D. Cook, E. C. H. Veendorp, “Six Markets in Search of an Auctioneer”, *Canadian Journal of Economics*, May, 1975, pp. 238-57. The conclusion they draw from their experiments is: “the results offer little support for the Walrasian adjustment hypothesis” (p. 238). Cook and Veendorp, however, seem to have missed the spirit and point of Walras’ theory. His problem, in a nutshell, was whether real world markets operate in a fashion sufficiently similar to the auction that the logic of his systems of equations is preserved. It was only necessary to establish that prices are adjusted in the real world by the same rules as prevail in the auction.

<sup>8</sup> See, for example: J. R. Hicks, *Value and Capital*, 2nd ed., Oxford, The Clarendon Press, 1946, p. 129.

The basis for any such judgement is information which is not costless. Stigler, in his classic treatment of the problem, identified the opportunity cost of acquiring information, namely, the resources diverted to it that could be otherwise employed.<sup>9</sup> However, he did not consider the possibility that, regardless of its profitability, an individual may not possess, or be able to acquire, the resources to be allocated to searching for information and away from current consumption or production.

To actually conduct the search, individuals must have inventories of resources which can be exchanged for consumption goods, transport, newspapers, or anything else connected with the search.<sup>10</sup>

The dilemma facing a transactor is, simply, inventories of what? It is inconceivable that one could hold inventories of all the goods so needed—some of them, like tomorrow's newspapers, could not be gotten while the need for others could not be foreseen.

What is needed is an inventory of something that can be easily exchanged for a host of other things, a medium of payment in exchange or, put more commonly, money. Traditionally, this need has led many writers to hypothesize that particular media of payment emerged in the development of exchange for reasons of their widespread use or demand. The problem at hand, however, suggests that what is needed, in addition, is something whose rate of exchange with commodities in general offers the person who holds it some refuge against the price variability which prompts the search process in the first place. This means, in other words, an asset whose exchange rate with other commodities exhibits less variation than would any other feasible commodity's exchange rate with other commodities. It is this property that writers from Ricardo to Thornton to Keynes have identified as the distinguishing characteristic of media of payment in exchange.<sup>11 12</sup>

<sup>9</sup> G. Stigler, "The Economics of Information", *Journal of Political Economy*, June, 1961, pp. 213-25.

<sup>10</sup> The proposition that an individual might be prevented from engaging in the search by a lack of resources of course implies imperfect capital markets. Were this not so, it would be possible, through the banking system, for an individual to transform future income prospects into current resources.

<sup>11</sup> This is a central theme of chapter seventeen, "The Essential Properties of Interest and Money" in J. M. Keynes, *The General Theory of Employment, Interest and Money*, London, MacMillan, 1936. For a lengthy examination of this aspect of

## *Money and Markets*

Now, not knowing whether a given price is final in a real market is equivalent to not knowing if more or less advantageous trades exist in a barter world. In both situations, more information will yield opportunities to avoid or to exploit price differences, and if individuals hold money balances, they will be more able to seek out price information than if they did not hold such balances. As a consequence, following Stigler, price differences will be diminished so that prices will tend to cluster around what we would identify as a market equilibrium price.<sup>13</sup> Indeed, actual prices will approximate “auction” prices so that we may say that Walras’ auction, with recontract and an auctioneer to disseminate price data, is a useful approximation to a real market in which transactors achieve the effect of recontract by conducting price searches. To do so, they need to hold money balances; in a Walrasian market, they need not and do not.

The absence of money from a Walrasian economy, however,

Keynes’ work, see: T. M. Rymes, “Keynes and the Essential Properties of Interest and Money”, a paper presented to the meeting of the Canadian Economics Association, June, 1974, Toronto, Canada. More generally, as T. M. Rymes has suggested to me, holding money permits one to postpone decision-making when available information is inadequate. Professor Rymes contrasts this Keynesian view of “waiting”, that is, abstinence from spending until the time is ripe with the classical view of waiting. Our approach is more in tune with that of Rymes whose comments are deeply appreciated and, hopefully, not misconstrued.

<sup>12</sup> If this perception of money is accurate, it is nevertheless an *ex post facto* argument which must assume memory of past prices on the part of transactors, or else how could one thing become a “standard of value”. Moreover, for standard of value status to emerge and be maintained, certain money prices must have been established and proven stable. If so, the attainment of general equilibrium must be an iterative rather than simultaneous process. In this connection, I have argued that the general determinacy of prices in fact requires that certain key prices be set either by historical precedent or by central authorities. See: A. K. Kelly, “A Comment on the Price Level in Classical Monetary Theory”, *Canadian Journal of Economics*, May, 1974, pp. 321-25.

<sup>13</sup> The process is straightforward enough: if we accept that there are very few commodities whose prices are subject to “higgling and haggling” between buyers and sellers and, further, that prices are put on goods by sellers (they attach price stickers), then it is the actions of sellers, in response to the activities of buyers, which cause prices to change. Buyers who detect and avoid high prices, or flock to low prices, will generate unexpectedly low or high sales for sellers setting prices high or low respectively. The former will set lower sticker prices; the latter will set higher sticker prices. As in a Walrasian world, quantity discrepancies will produce appropriate price adjustments. Clustering of prices, rather than a single price in a market, can be explained by diminishing returns to price searching by buyers and to price revisions by sellers. No violation of the principle of marginal cost pricing is involved; rather, costs and revenues are merely redefined.

does not mean that it is properly called a barter economy, unless we are prepared to distort the meaning of the term. Both a Walrasian market and a monetized market contain certain devices to eliminate or at least reduce false trading. By contrast, true barter economies have no need of such devices.

#### IV. MONEY AND FORMS OF ECONOMIC ORGANIZATION

By employing the idea that barter is just market activity without money, we have missed the point that barter is one means of organizing economic activity and the market is quite another; that the institutional framework of barter is radically different from that of the market economy, one of the many differences being the holding of money balances by individuals in the latter.

Barter economies are few and far between, being confined to certain primitive societies of an earlier time. If anthropological evidence is any guide, in such economies the face-to-face exchange of goods constituting barter is surrounded by a complex of ritual and custom that determine *beforehand* what, how and with whom things are exchanged. Usually, processes of production and distribution are embedded in kinship patterns specifically and in social relations generally and, so long as these arrangements are stable, there is little role for the pecuniary behavior we associate with individuals in a market economy. In particular, there is absent from non-market economies in general the need for individuals to speculate about the future and to suffer if wrong; the primitive non-market society is one in which the future is merely a replication of the present culturally-given pattern of production (including the division of labour) and distribution, and risk is collective.<sup>14</sup>

In modern socialist economies, too, risk is collectively rather

<sup>14</sup> These views were given eloquent expression by Karl Polanyi. See: "Our Obsolete Market Mentality", in George Dalton, ed., *Primitive Archaic and Modern Economies*, Essays of Karl Polanyi, New York, Anchor Books, 1968. This last characteristic of primitive societies was described by Polanyi as follows: "In effect, the individual is not in danger of starving unless the community as a whole is in a like predicament. It is this absence of the menace of individual destitution that makes primitive society ... more humane than nineteenth-century society, and at the same time less economic". (p. 66).

## *Money and Markets*

than individually borne. And, again, there is an apparatus to determine patterns of production and distribution; the state does in such societies what is accomplished by tradition in barter societies and by individuals in market societies.

Either type of society requires money in one form or another but not necessarily the same form. As the type of economic organization differs so too will the form of money.

In the world of Walras, at most a unit of account is needed, and even that can be dispensed with if the commodity numeraire is allowed. Although clearly a fiction when compared to the European market economies of which Walras was knowledgeable, a “unit of account only” money form is conceivably appropriate to certain ancient command economies such as the slave society of Egypt.

In a modern socialist economy, both the unit of account and medium of exchange are needed, the former to deal with familiar accounting and pricing problems, the latter to cope with the *logistics* of commodity distribution. Whereas it is possible to distribute goods by direct delivery to households in accordance with a pre-determined allocation plan, it is more efficient for individuals to “pick up” goods at stores by presenting currency. Moreover, it achieves a gain in social welfare by permitting choice, reduces the incidence of black markets, and provides planners with direct evidence of preferences.

In such an economy, there is (in principle) no place for money as a store of value beyond the normal income payment period. In the first place, individuals need not make provision for old age or emergency in this form nor do firms need to accumulate reserves for future losses or investments. Secondly, to permit such a use for money would threaten any pre-determined pattern of distribution.

In particular, it would provide a means whereby some individuals with better information than others might accumulate goods for sale and profit, and thereby alter the income distribution.

It is only in a market economy characterized by an absence of social arrangements that render risk collective and in which allocative decisions are taken by anonymous individuals rather than being embedded in such social arrangements that a money fulfilling all three functions—unit of account, means of exchange,



store of value—is required. The emergence of money in its modern, familiar form is, at the same time, its emergence in a social-historical-specific form. Money, as we know it, is an economic institution inseparable from the arrangements and workings of a market economy; the latter cannot exist without the former. Moreover, neither is necessary or possible without the emergence of social arrangements which require that individuals do those things done in other times or states by whole communities.

## V. MONEY AND THE DISTRIBUTION OF INCOME

Money has been a part of organized social existence for nearly thirty centuries. As social forms have differed, so too has money. Despite these facts, monetary economists persist in trying to explain the uses of money solely in terms of the particular logic of one historically recent social form—the market economy. Moreover, they do so apparently in the belief that the changes in form that money has undergone within market-centred societies can be ignored. When we analyze the role of money in markets, just what money are we talking about? Can the modern bank deposit, the goldsmith's receipt, the silver dollar and the trade token all be subsumed by the term "money"? That they can assumes agreement on the meaning of the term at a level of generality that simply does not exist.

To circumvent this difficulty, monetary theorists have invented their own versions of money, one of which has a favoured place in the theory of markets, the ubiquitous token.

Token monies resemble modern paper currencies in some ways but are unlike them in that their supply is exogenous. Indeed, they come into existence by means as yet unknown to mankind, requiring neither resources for their production nor purchase or sale of other assets.<sup>15</sup> Their exogeneity permits us to assume away the effects of differing distributions of money balances, something we cannot do when the money supply is endogenous.

<sup>15</sup> In Patinkin's neo-classical reconstruction, for example, transactors simply have money balances "... carried over from the proceeding week" (Patinkin, *op. cit.*, p. 14).

## *Money and Markets*

When the money supply is endogenous, transactors can alter their holdings of money balances by buying and selling assets to the banking system. Unless we are prepared to assume that all transactors are equally able to increase their money balances by this means, then we must accept that a necessary consequence of an endogenous money supply will be an unequal distribution of money balances which, to the extent that holding money facilitates the information search process, amounts to an unequal distribution of price information, *ceteris paribus*.<sup>16</sup>

When transactors are unequal in their ability to acquire such information, some transactors will be able to gain from price differences while others are disadvantaged. Price differences will not be eliminated nor will false trades with their associated income and wealth redistributive effects.

In some markets, specialists in price information will emerge and price differences will tend to diminish. Moreover, this will not occur randomly across markets. Instead, it will be specific to commodities which are homogenous (standardized) or whose variations are easily detected. Examples are primary products like grain and many financial assets. Where commodities are prone to considerable quality variation, specialists in price information, and arbitraging, will be far less likely to develop, and price differences will exist and persist.<sup>17</sup> In the latter case, price information must be supplemented by quality data which will be even more costly to obtain and, hence, an even greater source of gains and losses arising from false trades.

Another aspect of false trading intimately related to the distribution of money holdings and, in a more general way, to the distribution of information, has been elaborated by Leijonhufvud in his reconstruction of the Keynesian theory of markets.<sup>18</sup>

In the theory, the co-ordination of interests and intentions

<sup>16</sup> Within the *ceteris paribus* condition, we include individual differences in such things as intelligence.

<sup>17</sup> These propositions—that the costs of procuring information about commodities are related to characteristics of the commodities; and that specialists in price information will emerge—are very similar to the first postulates employed by Brunner and Meltzer to explain the emergence of a medium of exchange. (See: Brunner and Meltzer, *op. cit.*, p. 786).

<sup>18</sup> Axel Leijonhufvud, *On Keynesian Economics and the Economics of Keynes*, London, Oxford, 1968.

claimed for the market system may break down. The breakdown, particularly in the labour market, is characterized by a preponderance of false trades, that is, exchanges at a non-equilibrium price giving an excess supply of labour not matched by excess demands elsewhere, contrary to Walras' Law.<sup>19</sup>

Leijonhufvud has described Keynesian market failures as illiquidity phenomena, states in which the market system does not transmit information about households' spending intentions because the household sector lacks the liquid assets needed to sustain consumption during periods of unemployment. Unlike some kinds of borrowers, the unemployed find it difficult to convert current assets or future income to cash. Were they able to do so, Leijonhufvud suggests that they would conduct careful searches of the job market in an effort to find employment on terms consistent with their best estimates of their "human capital" value. Unable to do so, they must either remain unemployed or else accept job offers that may or may not involve "taking a loss", as Leijonhufvud puts it. To the extent that re-employment does involve a loss, there is a redistribution of income in favour of those firms which, if there is a dispersion of wage rates for separate occupations, offer the poorer terms. And we can presume that, because many participants in labour markets are barred from effective price searches by a lack of liquid assets, there will be such a dispersion.

## VI. THE NECESSITY OF FALSE TRADES

In the foregoing, we have examined the role of money in markets, concluding that a system of markets cannot function without it. Lacking money, market exchange would be dominated by false trading. In a system whose ethic is individual rather than collective risk-bearing, this would be intolerable. Individuals would seek alternative arrangements to manage production and distribution that promised a more systematic and "just" determination of the distribution of income.

At the same time, however, what we call false trading is

<sup>19</sup> R. Clower, "The Keynesian Counter-Revolution: A Theoretical Appraisal", in F. Brechling, F. Hahn, eds., *The Theory of Interest Rates*, London, Macmillan, 1965.

necessary to the maintenance of the system. A corollary of the ethic of individual risk-bearing is that individuals may gain advantage at the expense of others, to an unstated but still approximately identifiable extent. Buying cheap and selling dear is, up to a point, simply the mark of a good businessman and is applauded; beyond that point, it becomes an anti-social practice condemned as rapacious, predatory, or unseemingly greedy. The driving force of a market economy has always been the quest for exceptional profit; the problem has always been to keep that drive within bounds so that those at whose expense such profit is gained do not abandon the market and seek alternative arrangements.<sup>20</sup>

The transition from feudalism to capitalism in western Europe involving the breakdown of traditional and customary obligations and responsibilities, the extension of the market, and the emergence of modern banking is consistent with this view.

If false trading is a necessary part of the working of a market economy and if, as we suggested earlier, full simultaneous general equilibrium in a fully monetized economy is not possible, then certain recent views of the role of economic policy may warrant re-examination. In particular, the rational expectations hypothesis advanced by Muth and Sargent and Wallace is suspect.<sup>21</sup>

Rational expectations theory requires that transactors' expectations "...must be the same as the predictions of the relevant economic theory, otherwise unexploited opportunities or gains from exchange would exist...".<sup>22</sup> This is so because the underlying "true" model of the economy does not permit such unexploited opportunities to persist in equilibrium. If, however, false trading is a persistent feature of a market economy, the indeterminateness that it imparts to the theory means that the outcomes of market

<sup>20</sup> In *The Triumph of Conservatism* (Chicago, Quadrangle, 1963), Gabriel Kolko argued that the growth of government regulation of the economy that characterized the Progressive era in the United States was really an effort by government on behalf of American business to preserve the *status quo* in the face of the threats of more intense competition, the growing radicalism of the labour movement and Populist political forces (p. 285-6).

<sup>21</sup> J. F. Muth, "Rational Expectations and the Theory of Price Movements", *Econometrica*, 1961, vol. 29, pp. 315-35. T. J. Sargent, and Neil Wallace, "Rational Expectations and the Theory of Economic Policy", *Journal of Monetary Economics*, 1976, vol. 2, pp. 169-83.

<sup>22</sup> T. K. Rymes, "Money, Efficiency and Knowledge", *Canadian Journal of Economics*, November, 1979, p. 579.

activity which individuals are presumed to know cannot, indeed, be known. Of course, there is no reason to expect the knowledge of the monetary authorities to be free from this defect but the nihilistic result, proposed by rational expectations theorists, that monetary and other public policy can have no impact, cannot be sustained.

A. K. Kelly  
*(University of Regina)*