Working Paper No. 261

Theories of Value and the Monetary Theory of Production

by
L. Randall Wray
The Jerome Levy Economics Institute

A quick definition of the "monetary theory of production" (MTP) is in order. One might simply speak of a theory of a capitalist society. However, MTP is more specific and is associated with a particular tradition–that is, one whose subject of analysis is self-consciously a monetary economy. Keynes identified a monetary economy as one in which expectations of the future influence decisions taken today; or, one in which money is a subtle device for linking the present and future; or one in which production begins with money on the expectation of ending with more money later: in his lectures in the early 1930s, at the time that he was just beginning work on the General Theory (GT), Keynes referred to Marx's famous M-C-M'. Finally, a monetary economy can also be described as one in which Say's Law need not hold because of the existence of a non-produced sink-hole of purchasing power, where non-produced means that labor is not required in its production. The MTP represents the tradition that I think can be traced from Marx, through Veblen and Keynes, and to expositions of Keynes's work such as those of Dudley Dillard, Paul Davidson, and Hyman Minsky. Many authors have found it useful to synthesize the works of Marx and Keynes, but I believe Dillard was among the few who fully recognized the importance of the labor theory of value (LTV) for Keynes's own approach to the MTP[1]. In contrast, Townshend (1937) was quick to point out that Keynes had adopted a liquidity preference theory of value (LPTV); Boulding (1944) provided useful extensions, while other expositions (Kregel 1988, Rotheim 1981, Wray 1991, 1992b) relied on similar interpretations.[2]

I shall begin with a brief discussion of the function of a theory of value. The best known is the neoclassical utility theory (UTV); it is consistent with the neoclassical approach to the study of what Keynes called the barter or real wage economy but it is not appropriate for the study of a monetary, or entrepreneur, economy. Rather, the monetary economy requires a LTV and a LPTV as the bases of analysis. In overlooked passages, this is precisely what Keynes argued, if we can properly interpret his discussion concerning choice of standards or units as related to the choice of theories of value. This approach is suited to the study of real world capitalist economies that can be characterized as operating at less than full capacity as the normal situation. In contrast, the neoclassical value theory is consistent with the study of the economy dominated by scarcity, in which Say's Law holds and flexible relative prices ensure full employment of all resources.

Value Theory

As Dillard argued, "theories of value in economics have generally been attempts to probe beneath the surface phenomena of the market to discover essential properties and relations". (Dillard 1984, p. 430) Hunt (1983) argues that value theory derives from a "pre-analytic vision" concerning human or social behavior. There is also a strong sense that a theory of value should explain price formation–although there may be some disagreement regarding whether the prices to be explained are market prices, supply prices, or long period prices–and even that values must map directly to prices[3]. In the case of the LTV, this has led to the apparently intractable "transformation problem" that Desai (1990) argues cannot be a resolvable technical problem, as it has been "solved" many times while resolving nothing. It is somewhat surprising, however, that apparently only in Marxian debates is "value theory" so narrowly focused on mapping value to price. This is particularly ironic as the LTV is used by Marx to explain the source of profits and accumulation, exploitation and the dual nature of labor, and, indeed, the rise, transformation, and fall of class society; further, he specifically denied that individual prices would reflect embodied labor values. I intend to minimize discussion of the transformation problem. However, there can be no doubt that the LTV, in Marx's own eyes, was fundamental to the whole

analysis of bourgeois society. It was not meant to be merely a theory of prices; rather, the LTV provides insight into the process of price formation.

Outside Marxian transformation problem analysis, "value theory" has often been broadly defined. Keynes identified "classical" (neoclassical) value theory with the entire supply-demand edifice of the marginalist approach to prices and distribution. He contrasted this with the separate "theory of money and prices" of "classical" (neoclassical) quantity of money approaches. Rotheim (1981) labeled Keynes's own approach a "monetary theory of value", while Keynes had called it a theory of output and employment as a whole–although in the preface he had also referred to "our fundamental theory of value".

All general perspectives reflect an underlying standard or theory of value. (Henry 1990) Alternative views of capitalism are based on alternative theories of value. The feudal value theory, just price, reflected the view that prices should be set so as to reproduce feudal society; for obvious reasons, the rise of the merchant class, with a different social perspective, gave rise to an alternative value theory–the UTV which could assert that prices reflect values that are determined by the usefulness of commodities. Production could be ignored (again, reflecting the point of view of the merchant class), as the focus of analysis was on the relation of an individual consumer with the commodities desired. The merchant supplies desired commodities but due to competitive forces has no influence over price, which is determined by the impersonal forces of individual preferences and fixed supplies.

However, with the evolution of capitalism, the focus turned to production and in particular capital accumulation (viewed as the key to expansion of production). A value theory that would be consistent with an alternative view, that of a commodity-producing economy. The social relations of production are analytically important for a number of reasons, including the impact of distribution of social output between those who consume and those who accumulate, where decisions to produce and to employ are individually undertaken within a social context that both influences, and is influenced by, such decisions. Further, there is little doubt that the choice of the theory of value was influenced by the intellectual climate of the time, which emphasized scientific objectivity. The subjective UTV was dropped in favor of the objective LTV–in principle, labor values could be measured. Two observers adopting the same measurement unit would reach similar conclusions. Let's examine first the UTV, and then move to the LTV.

In neoclassical analysis, utility theory is fundamental not only to analysis of price, but also to the behavioral axioms that define motivations of economic agents, who maximize utility or expected utility, and avoid activity–such as work–that generates disutility. In this sense, Dillard's claim that a theory of value should "probe beneath the surface phenomena of the market" applies even to neoclassical theory, in which prices are said to be "market determined". Commodities are desired because they will generate utils on consumption, while agents choose between leisure (which generates utility) and work (which generates disutility, but also provides income that can be used to purchase commodities that generate utility). Finally, agents are atomistic–they receive neither utils nor disutils from the situation of other atomistic agents. Given scarce resources and budget constraints (or endowments), as well as certain assumptions about market form, a system of relative prices will be generated such that the ratio of prices for any two commodities will be equal to the ratio of the (expected) marginal utilities of the two commodities in consumption for each agent.

Still, there is no suggestion that the (relative) price of any particular commodity gives any indication of the quantity of utils it will provide in consumption–what is important is the marginal utility expected to be received by each individual, a quantity which is subjectively determined. Indeed, prices are thought to be reflections of relative scarcity rather than of utils, which follows directly from the Robbins definition of economics as the study of the allocation of scarce resources among unlimited wants. That is, equilibrium prices are formed to eliminate positive or negative excess demand as they ration, allocate, and distribute resources, commodities, and incomes, while quantities are given at the full employment level.

Dissenters from this tradition have frequently searched for alternatives to the UTV that would first, use values that are at least in principle observable and measurable–objective; and second, that would be consistent with price determination of commodities "pre-market", or, independently of market demand. Those forces that concern neoclassical economists might play a role in determination of short period market price as it deviates from production-price. However, the economist has to probe deeper, below market forces, to discover the

determinants of longer period prices. Further, for Marx, in particular, it was necessary to have a theory of production of value and not merely a theory of circulation of value based on market forces[4].

Meek (1956) also lists two logical requirements of a theory of value: first it cannot be merely relative, as there must be a common quality capable of being expressed in quantitative terms; second, that common quality must be distinguishable from the commodity (in other words, there must be a measurable quantity that is not itself a value).[5] Thus, according to Meek, utility cannot provide a theory of value because it is not directly measurable and because it is not an independent determining factor.

The Classical and Marxian Labor Theories of Value

Classical economists wanted to show that "prices of production" could be explained without reference to "supply and demand". (Cohen 1989) If these long run, or production, prices could be traced to the "difficulty" of production, then "political economy" would have a scientific theory of price formation–or a theory of valuation–that did not rely on utility, preferences, or transitory market forces. Further, at least some thought it important to find a measure of value that would be invariant to certain changes, such as a change of distribution between classes. (Kregel 1973)

One could identify this "scientific" theory of value with a cost-principle theory and contrast this with the utility demand-based theory. The cost-principle theory is concerned with production, it can concern social relations in production, and it can differentiate between class incomes. (Dobb 1945) If prices can exceed costs, then the cost-principle theory is also capable of explaining the creation and disposal of a surplus. Given the concern of classical economists with analysis of capital accumulation, such matters were deemed important. Leaving aside the problems the demand-based theory has in explaining factor incomes and distribution[6], there can be no serious analysis of the creation of surplus in such an approach. As prices are merely determined by the relation between individual preferences and given endowments, there is no concept of surplus; at one time, it was even thought that the marginal productivity theory "proved" there could be no surplus since factor incomes would exhaust the product (a conclusion shown to be generally false even without the Cambridge Controversy).

Early attempts to find a measure of value that could fulfill these requirements were not wholly successful. Use of labor as the common denominator in a model with multiple inputs and outputs appeared to offer an obvious measure of difficulty of production, however, the search for an invariant measure of value that could be used to analyze both the production and circulation spheres essentially proved to be a deadend for Classical economists, but played a role in creating the Marxian "transformation problem" and the Sraffian search for the "standard commodity". Techniques were eventually developed to map labor values into prices, or to form a measure comprised of a combination of all commodities that enter as inputs into the production processes of all other commodities of the system. Again, these topics will not concern us here.[7]

Marx took a different route. He emphasized the dual nature of labor: first as the basic element of production, and second as a commodity with exchange value. Labor hours can serve as an invariant measure of value; changes of technique would change the number of hours required to produce a particular commodity, but the number of hours required could always serve to measure the "difficulty" of production. This is distinguished from labor as a commodity with a price determined "by the specific production and social relations ruling at a given point in the process of the development of capitalism". (Kregel 1973, p. 115) Labor time, reduced to its socially necessary amount could serve as a unique measure of the value of all commodities, including the commodity labor power that is exchanged at the going wage. Finally, once a certain level of technique has been achieved by society, labor power is able to produce value beyond what is necessary to reproduce itself; that is, surplus value can be created. The rate of surplus value is determined by the ratio of unpaid to paid labor time.

While it is beyond the scope of this paper, the use of labor time as the measure of value by Marx does not exhaust the full importance of the LTV for Marx's thought. Engels (1966) emphasized that the LTV has a basis not only in logic but also in history. As a logical statement, the LTV is "but the economic expression for the fact of the social productive power of labour as the basis of economic existence", but Marx goes much further: "the value of commodities is the specific and historical form in which the productive power of labour, in the last analysis dominating all economic processes, asserts itself as a determining factor". (Engels 1966, p. 894)

Most importantly for our purposes, however, he insisted that with the rise of merchant capital, prices cannot reflect labor values because prices are formed to equalize profit rates on invested capital. In a pre-capitalist society (or, Keynes's neutral economy), exchange would take the form of C-M-C' and prices could reflect labor values. However, according to Engels, capitalist production is not consistent with exchange at labor values because profit rates must be equalized on invested capital. This system must be represented as M-C-M', where commodities are produced only to the extent that money values are expected to expand. While labor values are not observed in a capitalist system, and while the functioning of the system is not such as to reflect these labor values in prices, the conversion of labor values into prices still "proceeds according to objective laws, without the consciousness or intent of the participants." (Engels 1966, p. 907)

The argument is well-known: the production process involves the application of fixed capital and raw materials ("dead labor") and "live" labor; only live labor can produce a surplus by working unpaid hours in excess of the hours of labor required to reproduce the value of the commodity labor power. Capitalists, however, are concerned only with the money prices and money profits realized in circulation and not with the amount of value or surplus value produced. While it is identically true that in the aggregate, the mass of money profit is equal to the mass of surplus value as measured in terms of money, this result would not generally hold at the individual level.[8] This is because of the necessity of equal cost-prices for different techniques that use the same amount of capital. In other words, one technique might use more live labor relative to dead labor than another–the firm with more live labor will also produce more surplus value, which must be redistributed in the sphere of circulation from the techniques with lower organic composition of capital to those with higher organic composition. As Keynes pointed out to Robinson, only in the case in which the rate of profit is zero could prices directly reflect labor values. (Robinson 1967, p. x)

"Transformation" in this interpretation of Marx is not one of labor values into prices, but is a process of transferring surplus to equalize profits rates, a process accomplished by the formation of production prices. Clearly, there are a number of factors that could prevent equalization of profit rates, including the existence of monopoly power (I'll deal with another factor below). As Shaikh (1981) argues, prices are more complexly determined than values; they must reflect conditions in the sphere of circulation in addition to those of the productive sphere. The field of circulation must not only redistribute value to equalize the rate of profit, but also must equate supplies and demands, deal with shortages and surpluses, and reflect market power, barriers to entry, and other institutional factors. To some extent, one can reduce the complexity by first theorizing about "production prices" before looking at "market prices" (which necessarily include some "arbitrary" components). It is not expected that labor embodied would by itself provide any indication of market price or even cost price; the LTV does not provide a theory of price, rather, it provides insights into a process of price formation.

What does the LTV accomplish for Marx? First, it provides an objective measure of value–socially necessary labor time–which can be used theoretically, and, in principle, empirically[9] to measure output, accumulation, and exploitation. Second, this measure is consistent with an aggregate analysis, avoiding heterogeneity problems of adding across different types of output. Third, with it Marx can explain the source of profit, accumulation, and exploitation, and it is important for his discussion of competition (through which surplus labor is redistributed). Fourth, it provides the basis for his dual nature of labor, and for his view of capital as a produced good and embodied dead labor. Fifth, Marx can explain the creation of value and surplus value (thus, profit) in production rather than circulation.[10]

While the theory of value is based on a real, labor time, standard, it is interesting that Marx's analysis is consistently monetary; Marx explicitly denies that labor values would be the basis of decisions, and argues that economic processes would, for example, equalize money profits–and so on. It is also interesting that Marx does not rely on scarcity; the wage is socially determined and even with redundant labor, wages would not tend toward zero–although unemployment is one important factor that keeps pressure on wages, there is no hint that falling wages would eliminate that unemployment. As Marx argued, the economic process (of capitalist society) must be analyzed in terms of the social relations between men and men in the production of commodities–rather than as the relation of man with scarce resources. (Meek 1956) There is no exchange of products, only exchange of labor–with value appearing as the expression of a production relation between men.

Money is an institutionalized symbol of the abstract labor that produces value; it is the medium that acts as the external measure of exchange value. Exchange cannot take place on the basis of abstract labor directly; the money prices that reflect production costs must redistribute surplus labor in exchange to equalize profit rates.

The Treatise and the Choice of Units

In the Treatise on Money (TOM), Keynes was concerned with the development of a new monetary standard to replace the gold standard. Indeed, as Kregel (1993) notes, the first draft of the TOM carried the title "The Standard of Value", which was subsequently changed to "The Monetary Standard". The discussion did not specifically concern the choice of a theory of value, but is still interesting as a clue to Keynes's transition of thought away from a somewhat more traditional approach to his MTP.[11] When Keynes proposed a new standard he had more in mind than simply the choice of an international money unit to replace gold–it is clear from his discussion that he was also concerned with the choice of a standard that would be consistent with his understanding of the functioning of the economy; that is, the standard chosen for policy purposes is the same as that to be used in his theoretical analysis.

In the TOM, Keynes adopted two standards–the labor power standard (or, the purchasing power of money in terms of the labor it can buy, or "labor commanded by money") and the commodity power standard (or, the purchasing power of money in terms of the commodities it can buy). (Keynes 1976; Kregel 1993) Keynes provided two justifications for these choices: first, they are "objective" in the sense that each is the basis for decision-making for a group of economic agents–the labor power standard is the basis of decisions of entrepreneurs, while the commodity power standard is the basis of decisions of consumers; second, these standards are consistent with a two-fold division of "the total quantity of money" into "the parts which have been earned by the production of consumption-goods and of investment-goods" and "the parts which are expended on consumption-goods and on savings respectively". (Keynes 1976a, p. 134) These divisions can be recognized as the modern distinction between aggregate income and aggregate spending, which Keynes posed as an alternative to the quantity theory of money. The TOM should be seen as a not entirely successful attempt to move toward the development of a monetary theory of production, or, at least, to replace the quantity theory with an approach based on money prices. This would require a new theory of value, and his choice of the two standards should be seen as moving toward the two standards finally adopted in the GT.

Most importantly, both of the standards used in the TOM are in money terms as Keynes threw out the neoclassical system based on scarcity and relative prices. Some of the discussion in the TOM is based on Keynes's earlier examination of ancient monies, which no doubt influenced his views.[12] Further, his fundamental equations should be seen as an attempt to explain prices without relying on a supply-demand market approach. The GT continues in this vein, explaining prices as a result of macro phenomena and costs–more on this below.

It is important to note that Keynes was "already" dissatisfied with the TOM before it was published; the GT was begun almost immediately, with early drafts explicitly acknowledging his goal as one of providing a monetary theory of production. The analysis of the GT differs in two major respects from that of the TOM: first, in explicit treatment of expectations, and second, in explicit treatment of the determination of the quantity of employment and output as a whole. While it is probably an overstatement to claim that the TOM took the quantity of output as given–as many have claimed[13]–Keynes's comments make it clear that he did not believe the TOM provided an adequate treatment of the determination of output as a whole.[14] I think this partially explains the difference of "standards" adopted in the two works.

Given Keynes's purposes, the UTV would not suffice; Keynes required a value theory that would explain the process of price formation when output is variable. Distribution would be explained not as a result of marginal productivity, but as an outcome of social relations of production. Neither prices nor distribution could be the result of a technical relation. Rather, Keynes adopted a cost-based theory that would be consistent with monetary production in which the object of production is to end with more money than it started with–that is, generation of a monetary surplus.

Keynes and the Labor Theory of Value

Like Marx (and the Classicals), Keynes wanted to find a rational basis for the determination of prices in production–this is quite different from most modern approaches, whether orthodox or nonorthodox. In Neoclassical theory, relative prices are determined in exchange by techniques and tastes; nominal prices are nonessential; and competition ensures that relative prices are determined such that marginal utilities in consumption are equalized and that normal profits are realized in production. In Institutionalist theory, prices are arbitrarily determined by power relations, hysteresis, and accident. It is common in Post Keynesian approaches to take prices as determined by cost plus a markup.[15] It is also rare for Post Keynesians to discuss value or even units of measurement. It is merely assumed that one can properly begin with prices from the sphere of circulation and deal exclusively with nominal values.[16] However, this was not Keynes's approach in the GT.

Keynes proposed "to make use of only two fundamental units of quantity, namely, quantities of money-value and quantities of employment". (1964, p. 41) Further, "We shall call the unit in which the quantity of employment is measured the labour-unit; and the money-wage of a labour-unit we shall call the wage-unit."[17] (1964, p. 41) The labor-unit can be reduced to a homogenous unit by "taking an hour's employment of ordinary labour as our unit and weighting an hour's employment of special labour in proportion to its remuneration; i.e. an hour of special labour remunerated at double ordinary rates will count as two units." (1964, p. 41) Further, the labor-unit provides an unambiguous measure of output: "the amount of employment associated with a given capital equipment will be a satisfactory index of the amount of resultant output" (1964, p. 41); "we shall measure changes in current output by reference to the number of hours of labour paid for (whether to satisfy consumers or to produce fresh capital equipment) on the existing capital equipment, hours of skilled labour being weighted in proportion to their remuneration". (1964, p. 44) Keynes argued that any other units of measurement lead to "unnecessary perplexity" due to heterogeneity of inputs and outputs.

Keynes's aggregate supply curves (whether for a firm or for an industry) are given as a function of "the proceeds (net of user cost) the expectation of which will induce a level of employment N_r." (1964, p. 44) His "ordinary supply curve" is then stated as a price which is determined by several functions of the quantity of labor (N_r), including the user cost corresponding to that level of employment and the "technical" relation between that level of employment and the resulting level of output. Even Keynes's multiplier theory is stated in terms of the amount of employment that will result from a given increase of employment in the investment sector.

Obviously, Keynes's reasons for use of the labor unit were not identical to Marx's reasons. Keynes had a much narrower purpose–to find a consistent unit of measurement to "predict how entrepreneurs possessing a given equipment will respond to a shift in the aggregate demand function". (1964 p. 44) Certainly, he was not trying to provide a general theory of history, but rather to provide a "theory of shifting equilibrium". In order to do so, it was necessary to find a unit of measurement that–given the "standard of life", technology, and relative rates of remuneration of different types of labor–could be used to "aggregate the N_r's in a way which we cannot aggregate the O_r's" (where O_r stands for physical output). (1964, p. 45)

However, the problem of heterogeneity was not the only reason for choosing a labor unit. For one thing, as Kregel (1993) argues, Keynes wanted to use an objective standard–that is, one that would actually be the subject of decision-making by those responsible for making the decisions. The entrepreneur is responsible for the hiring decision, and is concerned with the number of hours of labor hired–adjusted for type–for that will determine whether production plans can be met. Keynes also recognized the dual nature of wages–as a cost of production, but also as a source of household income, thus, as a source of revenue. But why not then use wages rather than labor hours as the unit of measurement? Because this would not give a satisfactory index of the amount of resultant output (as nominal wages might change between periods it would not be possible to compare output across time by using wages rather than hours–which was similar to Marx's belief that one could not use the commodity labor power as the unit of value, but rather must use socially necessary labor time).

In passage that must be bothersome for at least some Post Keynesians, Keynes argued:

> I sympathise, therefore, with the pre-classical doctrine that everything is produced by labour, aided by...technique, by natural resources..., and by the results of past labour.... It is preferable to regard labour, including, of course, the personal services of the entrepreneur and his assistants, as the sole factor of production.... This partly explains why we have been able to take the unit of labour as the sole physical unit which we require in our economic system, apart from units of money and of time. (Keynes 1964, pp. 213-4)

While Joan Robinson (generally[18]) rejected the importance of the LTV, she noted in her "letter to a Marxist" that in response to "the idea that constant capital is an embodiment of labour power expended in the past..I say (though I do not use such pompous terminology): ‘Naturally–what else do you think it could be?"' (Robinson CW 4 p. 265) She goes on to answer the question, what unit of value could be adopted in Keynes's system?: "A man hour of labour time. It is the most handy and sensible measure of value, so naturally you take it. You do not have to prove anything, you just do it." (Robinson CW 4 p. 268)

She also argued many times that Sraffa had solved the "transformation problem", showing how labor values could be transformed to prices.[19] However, she argued that one must first transform prices to values, then transform back again from values to prices; thus, one did not need values for the analysis. In her view, it would be sufficient to use the wage-unit rather than the labor unit–she argued that this should be called the labor theory of value. Still, she recognized that the wage-unit could lead to problems in calculating distribution of output between capital and labor: "[W]hen the share of labour in money national income is constant, and the total money value of national income is constant, yet the benefit to labour varies with relative prices–real wages are higher when the things that the workers are interested in consuming are relatively cheap." (CW 2, p. 52)

Given this "index number problem" it is curious that Robinson preferred the wage unit over Keynes's proposal to use the labor (hour) unit. In a large number of publications, she traced an evolution of thought from Ricardo to Keynes–one that should recognize the importance of the LTV. According to Robinson, Ricardo posed the "big question", concerning the division of aggregate output among capitalists, landlords, and workers, wondering how distribution affected accumulation. The LTV was adopted to study income distribution–and to show that landlords were parasites. Ricardo "got lost" because he realized that each different rate of profit would lead to a different pattern of prices (thus, of distribution) unless the organic composition of capital were uniform. (Robinson CW 4 p. 59) Marx's purpose was similar, but his innovation was the distinction between labor and labor power. After Marx, "Marshall turned the meaning of Value into a little question: Why does an egg cost more than a cup of tea?" (CW 4, p. 267) The problem, however, is that neither Marshall nor the neoclassical school was able to provide a theory of profits; since profits must be known to value capital, neither could they provide a theory of capital. The result was merely a theory of relative prices given fixed output. Sraffa showed, however, that supply and demand have nothing to do with price and that once the rate of exploitation is given, relative prices are not interesting. (Robinson CW 3, p. 175; 1967 p. x)

> Keynes changed the question back again. He started thinking in Ricardo's terms: output as a whole and why worry about a cup of tea? When you are thinking about output as a whole, relative prices come out in the wash–including the relative price of money and labour. (Robinson CW 4 p. 267-8)

She concludes: "Well there you are–we are back on Ricardo's large questions and we are using Marx's unit of value."[20] (Robinson CW 4 p. 268)

Between the TOM and the GT Keynes thus switched from the labor power standard (purchasing power of money in terms of the labor it can buy) to the labor unit. This is consistent with the different purposes of the books. In the GT, he wanted to compare output at two different times, resulting from a change of expectations. Clearly, he could not use the labor power standard as the unit of measurement, for nominal wages might have changed. In contrast to the normal "bastard Keynesian" approach, Keynes did not take the wage as fixed–this would not have been consistent with his purposes (as critics pointed out, no neoclassical economist would disagree that involuntary unemployment results from inflexible wages). Thus, use of the labor unit allowed him to avoid the assumption of fixed nominal wages. While output can change in the TOM, analysis of such

changes was not the primary purpose of the book; if there is no need to compare two output levels, there is no need of using the labor unit. As the TOM was more concerned with determination of aggregate prices through the fundamental equations, the appropriate unit of analysis is the labor power standard, as a change of this will change both costs and revenues.

The atomistic, individualistic utility theory of value would not have been consistent with Keynes's goals, either; he specifically rejected the individual market, supply-demand approach to determination of quantity and price (actually in both books). Prices of commodities–at least, of consumption goods (full discussion of the case of investment goods will have to wait)–are not indices of scarcity, determined by marginal utilities and scarcities. Rather, they are determined partially by labor costs (also by user costs, as discussed in a moment); prices are thus production prices. Wages then generate the incomes that become revenues. Further, the total revenues available to sellers of consumer goods can be decomposed into a cost component and a gross profit component. The latter depends on wages, costs, or production prices in the investment sector. This naturally leads to a theory of distribution and an analysis of how changes of distribution can affect output.

It is useful to compare Keynes's criticism of "Classical" analysis over the absence of the notion of "user cost" with Marx's criticism of Classical economists for ignoring constant capital.[21] In an often overlooked Appendix to Chapter 6 of the GT, Keynes argued "User cost has, I think, an importance for the classical theory of value which has been overlooked".[22] (1964 p. 66) He goes on to criticize this "classical" theory in which "it has been a usual practice to equate the short-period supply price to the marginal factor cost alone" (ibid p. 67), leading to an erroneous conception of "supply price" for a firm or industry. He argued that even if one were to include "marginal cost of purchases from other firms" ("constant capital"), this still "deprives our analysis of all reality" because "we still have to allow for the marginal disinvestment in the firm's own equipment involved in producing the marginal output". (ibid p. 67) Further, "even if all production is carried on by a completely integrated firm, it is still illegitimate to suppose that the marginal user cost is zero". (ibid p. 67)

Now, of course this seems to be a small addendum and no one would find the argument that depreciation of fixed capital should be included in supply prices controversial. However, it is remarkable on the one hand that Keynes's version of "reproduction" is frequently ignored. Further, in Keynes's hands, the user cost concept not only "enables us...to give a clearer definition than that usually adopted of the short-period supply price of a unit of a firm's saleable output" (ibid p. 67), but also "user cost constitutes one of the links between the present and the future." (ibid p. 69) This is because "it is the expected sacrifice of future benefit involved in present use which determines the amount of the user cost, and it is the marginal amount of this sacrifice which, together with the marginal factor cost and the expectation of the marginal proceeds, determines his scale of production". (ibid p. 70) Or, "to-day's user cost is equal to the maximum of the discounted values of the potential yields of all the to-morrow's." (Ibid p. 70)

The user cost of utilizing capital today is the foregone expected revenue from saving the capital for future use (this includes costs of "moth-balling" the capital); the user cost of hiring labor (variable capital) today is the foregone interest on money that could be obtained from lending money capital (or, more generally, an expected risk-adjusted return from holding financial assets); the user cost of selling a commodity rather than storing it for future sale is the foregone future revenue (discounted) that would have been obtained for sale at the future date (user cost is positive if the price is expected to rise). Expectations of future prices must be included in today's price.

> It must be remembered that future prices, in so far as they are anticipated, are already reflected in current prices, after allowing for the various considerations of carrying costs and of opportunities of production in the meantime which relate the spot and forward prices of a given commodity.... For the entrepreneur is guided, not by the amount of product he will gain, but by the alternative opportunities for using money having regard to the spot and forward price structure taken as a whole. (Keynes 1979, pp. 82-83)

Keynes's "reproduction" scheme involves expectations at the beginning of the analysis and is equivalent to neither a depreciation concept nor a Marxian concept of social reproduction. In Keynes's analysis, even if the equipment is to be replaced by identical equipment, its user cost depends critically on expectations of the course of prices as well as the rate of discount used to obtain the present value of future revenues. In this way,

expectations of the future enter directly into current supply prices–supply prices cannot be determined merely by marginal factor costs nor by embodied labor. This "deviation" of labor values from supply prices has nothing to do with differences of organic composition of capital. However, as in the case of differences of organic composition of capital, deviations of supply prices from labor-unit values are systematic and can be treated by a rational political economy–albeit, one that includes a role for the impact of expectations of the future on decisions taken today. Accordingly, expectations cause supply prices to systematically deviate from labor values–for example, if prices are expected to be higher in the future, then the estimated sacrifice of using means of production to supply commodities today is higher, raising today's supply price above nominally measured labor values. If prices are expected to be considerably lower, then today's marginal user cost could approach zero, as supply prices must fall sufficiently that speculators purchasing in spot markets earn a normal return by holding inventory.

The Liquidity Preference Theory of Value

Recall that Keynes argued that user cost "constitutes one of the links between the present and the future"; also recall the famous distinction made by Keynes between a "real" or "cooperative" or "barter" economy and a monetary production or "entrepreneur" economy: a monetary economy "is essentially one in which changing views about the future are capable of influencing the quantity of employment and not merely its direction".[23] (ibid p. vii)

Keynes went on to chastise "classical" economists for their dichotomy between the "Theory of Value" (meaning, price determination at the micro level) and the "Theory of Money and Prices" (dealing with aggregate quantities of money, income-velocity, and aggregate price levels); he argues that the proper division is between the "Theory of Individual Industry or Firm" on the one hand and the "Theory of Output and Employment as a whole" on the other–or between "the theory of stationary equilibrium and the theory of shifting equilibrium", in which shifting equilibrium refers to "the theory of a system in which changing views about the future are capable of influencing the present situation. For the importance of money essentially flows from its being a link between the present and the future." (Ibid, pp 292-3, emphasis in original) If we admit the possibility that "our previous expectations are liable to disappointment" and allow that "expectations concerning the future affect what we do to-day", then

> the peculiar properties of money as a link between the present and the future must enter into our calculations. But, although the theory of shifting equilibrium must necessarily be pursued in terms of a monetary economy, it remains a theory of value and distribution and not a separate ‘theory of money'. Money in its significant attributes is, above all, a subtle device for linking the present to the future; and we cannot even begin to discuss the effect of changing expectations on current activities except in monetary terms. (ibid pp. 294)

Others have stressed that the evolution to commodity production requires a universal equivalent.[24] Under a capitalist form of production, it is not possible for commodities to exchange on the basis of labor values; exchange rates must be calculated in terms of another standard to allow equalization of profit rates. Money is, as Robinson said, used to compare in abstract terms the concrete products of concrete labor: money "is a social convention, comparable to an alphabet... Money is a creation of society, and the most essential element in the purchasing power of money is its purchasing power over one's neighbours' time" (the wage unit). (Robinson CW 2, p. 18) Expression of exchange value must be in abstract terms where concrete and heterogenous production is the result of division of labor and specialization, and where production decisions are individually made. As exchange value must be calculated in abstract terms, choice of one commodity for use as numeraire (as neoclassical economists imagine) is not consistent with commodity production because a) one could always choose to produce the numeraire rather than produce for market (violating the "rules of the game", so to speak, which require that one produce commodities for market); b) an increase of demand for the numeraire would always generate demand for labor and direct resources toward its production (generating a "Say's Law" economy that is never observed); c) changes of technical conditions of production of the numeraire would affect the numeraire-denominated values of all other commodities (leading to pressures to find another numeraire whose "relative price" were more stable); and d) such a system would require the pre-existence of commodity production (so that one among several could be chosen as numeraire)–which begs the question of the initial decision to produce "for market" (for what were producers producing before the numeraire was

invented?).[25]

As discussed, Keynes had argued that there are only two possible measuring units–labor time and money. Once the topic shifts to the effect of changing expectations on current activity, the unit of measurement must be money. As Keynes implied, one cannot first construct "a theory of value and distribution" without money and then add a separate "theory of money" to obtain nominal values; a theory of a monetary economy must allow from the start for the influence of expectations on "value and distribution". While Keynes did conduct his analysis of expected returns in terms of "own rates of interest" (eg: the wheat rate of interest), these are converted to money rates. This is not a coincidence or arbitrary; there are reasons why the money own rate of interest sets the standard that must be achieved by all own rates (calculated in money terms), having to do with what Keynes called the special properties of money. In the interest of brevity, I will refer readers to Chapter 17 of the GT, where Keynes argued that while one could in theory either arbitrarily choose the own rate of any commodity as a standard, or could use the own rate of a composite commodity as a standard, there would remain "the same obstacles in the way of this as there are to setting up a unique standard of value". (1964 p. 225) Choosing money as the standard of value not only avoids these problems (just as the choice of the labor unit avoids problems), but also singles out for analysis the particular own rate of interest that is more "intimately bound" with the "volume of output and employment". (ibid p. 225) Further, the interest rate theory presented in Chapter 17 is really an extension of the user cost concept to money, whose user cost is the premium required to convince holders to become illiquid. (Kregel 1994)

Readers will remember that Keynes analyzed the various commodity rates of interest in terms of three components: q is the expected yield; c is the carrying cost; and l is the liquidity of the commodity. The composition of return will vary: highly liquid assets will have a return comprised mainly of (notional) return to liquidity, while physical capital will have a return comprised mainly of the yield it is expected to generate in the sphere of production. Carrying cost would be insignificant for liquid assets, while it would be significant for stores of grain or for physical capital that depreciates over time. Finally, once we measure returns in terms of money, we must include a–the expected appreciation (depreciation) of the money value of the commodity over time. In equilibrium, expected returns (q —c + l + a) must be equal. Thus, the own-rate approach leads directly to the determination of demand prices for assets–where an asset can be physical capital, other commodities, or money-denominated financial assets, in other words, anything which can be carried through time. "Thus in equilibrium the demand-prices of houses and wheat in terms of money will be such that there is nothing to choose in the way of advantage between the alternative". (1965 p. 228)

Producible assets will be supplied up to the point where the supply price equals the demand price: "those assets of which the normal supply-price is less than the demand-price will be newly produced; and these will be those assets of which the marginal efficiency would be greater (on the basis of their normal supply-price) than the rate of interest". (ibid p. 228) Keynes argued that for a number of reasons (but not due to diminishing physical returns!), as the quantity of most types of assets is increased, own rates fall, lowering demand prices. When demand prices fall below supply prices, no more will be produced. Due to its special characteristics, this is not true of money, whose return does not fall as its quantity increases–at least, its return would fall much more slowly than would that of any other asset. Similarly, if liquidity preference rises, this will raise the subjective return to liquid assets relative to illiquid assets–raising the demand price of liquid assets and lowering that of illiquid assets, relatively. Again, beyond some point, a rise of liquidity preference will halt production of assets whose return is primarily a function of q–in particular, physical capital.

It has elsewhere been argued (Wray 1991, 1992b) that liquidity preference can be interpreted as a theory of value for assets, following the example set by Townshend (1937) and later by Boulding (1944). If two assets have the same stream of expected q — c + a returns, divergence of their demand prices will be uniquely determined by differences of liquidity. Given expected q — c + l + a, the degree of liquidity preference will determine demand prices for all assets. This, in turn, will go into the determination of the levels of employment and output through impact on the levels of production of producible assets. Changing views about the future affect the demand prices of assets through impact on the q's and on liquidity preference. I choose to call this a liquidity preference theory of value rather than a q preference theory of value because of the special role played by money due to the existence of a return to liquidity that is greatest in excess of carrying cost. As Keynes says, "unemployment develops, that is to say, because people want the moon; –men cannot be employed when the object of desire (i.e. money) is something which cannot be produced and the demand for which cannot be

readily choked off". (1964 p. 235) This interpretation does seem to be what Keynes had in mind. In particular, in correspondence with Townshend, Keynes expressed his general approval of Townshend's interpretation of liquidity preference theory as a theory of value.[26]

Minsky has presented Keynes's approach in terms of the "two price systems"–one price system concerns current output while the other concerns assets. Current output prices are determined by cost plus markup; at the individual firm level, the markup represents gross capital income and is at least partially a function of market power; the aggregate markup of prices of current output depends on the level of aggregate demand. On the other hand, the prices of assets are determined by q — c + l as discussed above. The two price systems meet most importantly in the investment goods sector: supply prices of investment output are determined in the price system for current output while demand prices are determined in the asset price system. When demand prices fall below supply prices, investment output falls, lowering employment and aggregate demand; this, in turn, lowers the aggregate markup that can be realized by current output and can make it impossible to achieve desired markups at the level of individual firms. Thus, Minsky's pricing theory, like Keynes's and Marx's, takes an aggregate approach.

Marx's LTV helps us to understand the formation of supply prices of commodities as required to equalize profit rates and redistribute surplus value. Similarly, Keynes's LPTV helps us to understand how asset demand prices are set to equalize q — c + l + a. As a first approximation, we can say that the LTV applies to the price system of current output, while the LPTV applies to the asset price system. But this is too simple. Minsky's two price approach can be modified to take account of Keynes's discussion regarding user cost–expectations of the future enter directly into determination of supply prices of current output for any goods that can be carried through time. It is clear that even if the organic composition of capital were uniform across all industries, supply prices of current output would deviate from labor values due to differences of user costs. In other words, because expectations must play a role in determining supply prices, labor values cannot be directly mapped into supply prices even of current output.

Further, because investment goods have a dual nature–first as embodied dead labor that can serve as means of further production and second as an asset that can generate q — c + l + a –prices of investment goods cannot be expected to reflect embodied labor values. Supply prices of investment goods (and indeed of any goods that last more than a period) are determined by "factor costs" (as labor is the only "factor", labor hours–dead and live–multiplied by the wage unit) but also by user costs. Demand prices for such goods are determined to equalize

q — c + l + a–as the LPTV shows. Because expectations enter into formation of both demand prices and supply prices, prices of investment output cannot be mapped to labor values.

An Aside on Expectations and the "Long Run"

Some followers of Keynes have interpreted his theory of effective demand as a "long run" theory; these (as well as some others) reject his theory of liquidity preference as being "short run" (at best) and inconsistent with his theory of effective demand. The preceding analysis should make clear that the theory of effective demand cannot be separated from the theory of liquidity preference; as Kregel (1988) has argued, the theory of effective demand is the "flip side" of the liquidity preference theory.[27] Liquidity preference has to do with valuation of assets, which then determines (given supply prices) production of investment goods as well as the level of output as a whole through the spending multiplier.

Others are uncomfortable with the important role attributed to subjective expectations in the Keynesian system. Dobb nicely summarizes the fears of those who wish to banish subjective expectations from the purview of economics: "Subjective economics, resting as it does on an attempt to interpret economic events in terms of the psychological behaviour of individuals, finds itself faced with a chaos of indeterminacy, where almost anything is possible. Having crowned expectations, it finds itself ruled by them; and where expectation is king, his every mood is law." (Dobb 1945 p. 219) One advantage of the "long run" method, according to this view, is that expectations can somehow be ignored. Only "fundamentals" or "real variables" will matter; a higher degree of determinism is thought to be achieved. This, too, is mistaken.

The distinguishing characteristics of a monetary production economy are: private ownership of the means of production, wage labor, and individual decision-making regarding production ("anarchy of production"). As Dobb (1945) argued, there is a "particular type of uncertainty that is characteristic of a society of individual (as distinct from social) production. It is the atomistic diffusion of economic decisions under a system of individual production for a market that gives to expectations their rein." (Dobb 1945 p. 220) He emphasized that this uncertainty faced by the individual is quite separate from the situation faced by

> the economist or the scientist, standing outside the system, as it were, and observing it as a whole, [who] can estimate the future. Even if such a scientific observer could foretell the outcome, given the relevant data, it does not follow that the entrepreneur could do so; since it is the essential nature of the latter in an individualist economy that he is in a situation where he is of necessity ignorant as to the current actions of his rivals. (Dobb 1945 p. 221)

Further, it is precisely because individual entrepreneurs are uncertain that we as outside observers are able to predict their actions (to the extent that we can do so)!

> If the entrepreneur could foresee the actions of his rivals, he would not act in the manner in which the theory of competition assumes him to act, and the laws of Political Economy in their traditional form would cease to hold true. Yet it is the existence of this essential blindness which gives scope to the influence of expectations, with the departures from equilibrium which this influence engenders and the element of indeterminateness which it introduces. Only by virtue of the uncertainty of each as to the actions of all do the traditional laws of the market rule; only by the appearance of freedom does economic necessity and automatism prevail; only by reason of the essential ignorance of each entrepreneur does the economist's power of forecasting the total situation emerge. (Dobb 1945, pp. 221-222)

There is also the belief that expectations must have only a temporary effect, because expectations that do not conform to the objective situation will be automatically revised by the changes which actions based on these expectations provoke. (Dobb 1945, p. 205) However, as Dobb argues, such belief is misguided. Only expectations that turn out to be wrong would be revised; incorrect expectations would temporarily move the economy to a different path, but as experience proves them to be wrong, the economy would move back to the original path. Expectations that prove to be correct (even if only because they are self-fulfilling) would generate a new path and there would be no forces to move the economy back to the original path.

In a proper theory of the "long run", then, expectations do matter. These expectations need not be objectively formed–it is only essential that they are correct ex post. Any self- fulfilling expectations are (by definition) correct and will exert permanent influences on the economy. It is interesting that Keynes explicitly recognized this as he said he could have assumed throughout the analysis that expectations are always fulfilled without changing any of his conclusions. Liquidity preference and expectations matter even in the long run; Keynes's liquidity preference-effective demand framework remains valid. There may still be reasons to suppose that Keynes's theory is more properly applied to the short run (most importantly, because he generally sets aside the impact of investment on capacity), but this is not due to the prominent role accorded to expectations.

Finally, because uncertainty and expectations are important (even in the "long run"), money can never be neutral. As many have stressed (including Hicks) this makes it impossible to abstract from important institutions when one does "high theory". Money contracts, wage labor (and class relations in general), private ownership of the means of production, and atomistic diffusion of economic decision-making cannot be ignored. Liquidity preference, or the motive to remain liquid, is a result of the nature of an economy based on atomistic decision making that cannot be ignored.

Theories of Value in a Monetary Theory of Production

Even sympathetic readers might be tempted to argue that most of the discussion above could be made without reference to a theory of value. Others might accept the importance of the LTV to Marx's analysis, but argue that Keynes's analysis does not require either a LTV or a LPTV. The question might arise: does Keynes's use of the labor-unit and the money unit of account merely represent an attempt to find useful "measuring rods" to

aggregate-up? Or is the choice of units of fundamental importance? Could Keynes's choices be characterized, as Dillard argued, as an attempt "to probe beneath the surface phenomena of the market to discover essential properties and relations"? I believe so; indeed, I have argued that Keynes's use of the labor-unit and liquidity preference serve purposes similar to Marx's use of the labor-unit–to locate the process of price determination outside exchange and to go beyond simple "supply and demand" explanations. In fact, both Marx and Keynes recognized the fundamental importance of aggregate employment and distribution of employment between "departments" (in Marx's version) or between consumption-saving or consumption-investment (in Keynes's version) in determination of prices, emphasizing aggregate schemes of reproduction (Marx) or effective demand (Keynes). The primary difference between the two approaches involves the way in which expectations enter into price formation–once we allow for a direct influence of expectations of the future on decisions made today, a single, labor theory of value is not sufficient. Further, if capitalist economies can be characterized as "two price systems", then Marx's analysis is inadequate.

Both the choice of the labor unit and the role accorded to liquidity preference reflect underlying social forces of the monetary production economy. One of the primary purposes of Marx's analysis was to locate the source of profits in the social relations of production, that is, in the rate of exploitation (the ratio of unpaid to paid labor power); the Keynesian version locates the source of aggregate profits (or gross capital income) in the ratio of the wage bill of investment sector workers to the wage bill of consumption sector workers–again, this reflects the social nature of profits which exist only because wages of workers in the consumption sector are too low to purchase all their output and because there are other workers producing "nonavailable" output. This is really no different from Marx's analysis, in which created surplus value cannot be realized unless there is production in department 1 (the means of production department). In Marxian analysis, this aggregate of surplus value is then redistributed among capitals to equalize profits; in Keynesian analysis, the redistribution is such as to ensure equalization of q — c + l + a on all assets, including financial assets. Things are much more complicated in Keynesian analysis for two reasons: first, these returns are expected and at least partially subjective; second, wages of investment sector workers are not the only source of gross capital income (for example, rising asset prices generate capital gains that need not be linked to the productive sphere). Thus, in the Keynesian approach there is no reason to expect that forces would exist to equalize measured profit rates.

In Marx's analysis, only live labor can produce surplus value; dead labor only contributes value as it is used-up, however, this value is only realized if the deteriorating dead labor is replaced. It is easy to give this a Keynesian interpretation: depreciation of physical capital cannot add to aggregate demand, indeed, if sinking funds are accumulated, as Keynes argued, this will depress aggregate demand unless they are matched by replacement investment spending. This is one of the components of user costs that individual firms want to recover in supply prices–firms must weigh the cost of depreciating the capital as measured by the discounted loss of future revenue. Whether depreciated capital will be replaced will depend on expectations regarding the future.[28]

The Marxian attribution of surplus creation to live labor alone can also be given a Keynesian interpretation. This is because constant capital used in production that is not replaced does not set any live labor in motion (to produce replacement means of production); in other words, it does not generate a wage bill (in the period it depreciates) in the means of production department ("investment" sector). Only replaced dead labor can lead to the realization of value by creating wages and spending on consumption goods. It is because dead labor is bought and owned that it cannot contribute value to production except when it wears out, a value that is not realized unless the depreciated dead labor is replaced. When dead labor is purchased, the full value is realized immediately at the aggregate level, but not at the individual firm level. It can be realized at the individual level only gradually over the future as other purchases of dead labor occur.[29] On the other hand, live labor cannot be owned; the capitalist can only purchase the commodity labor power by making periodic wage payments; use of live labor always contributes value to production that can be realized because payment of wages is necessary in every period to set it in motion. Since wages will (according to the classical assumption) be spent on consumption goods, they always lead to realization of value in circulation–a characteristic that is not necessarily true for dead labor.[30]

It is frequently argued that the LTV is "metaphysical" (an argument also adopted by Robinson 1967, p. xi), or that one could just as well argue that capital produces all value, or that petrol does, and so on.[31] This involves a fundamental misunderstanding of a monetary production economy. In an economy that is able to produce, and

in which most production occurs on the basis of hiring labor at a money wage, wages are simultaneously the major cost of production and the source of the revenues that validate production. Labor simultaneously produces the physical output–but, more importantly, it sets in motion the monetary flows that are the purpose of production. Because the majority of worker income will be used to purchase the necessities of life, the wage bill returns as capitalist receipts, while the link between capitalist income and spending is different because the goal of capitalist activity is money and not necessities. In Kalecki's terminology, workers spend what they get and capitalists get what they spend; Marx's equivalent expression is "the part of the variable capital that A advances at any one time to his workers constantly flows back to him from the circulation sphere". (Marx Vol 2, p. 406).

There are other reasons why adoption of some other "factor" of production as the source of value would be mistaken. First, of course, there is the problem of adoption of a measure of value that is not itself a value. The separation of labor (not a value) from labor power (a commodity with value) provides the external measure of value. The problem with trying to use capital as the source of value is that it is itself a value, a value that depends on other values (for example, prospective profits); further, the heterogeneity problems with capital are surely much greater than those encountered in the case of labor. (Dobb 1945) Second, the focus on labor is consistent with the observation that it is obvious that man as a tool using animal manufactures instruments to increase control over nature. Third, the focus on labor and relations of production is consistent with the view of capitalist production as the product of relations of men with men. Value is not an attribute of things, but is a social relation between men. (Dobb 1945, p. 59) It should be noted, however, that no claim is made that other "factors of production" are not "productive" in a technical sense; even Marx argued that capital produces wealth. Nor is there any claim that embodied labor is the only thing commodities have in common. It is merely claimed that labor fulfills the requirements of a theory of value while other "factors" do not, and that the LTV is consistent with Keynes's analysis.

Similarly, the choice of the money-unit (wage unit) in Keynes's system is due to the prominent role given to liquidity preference and expectations. This in turn reflects a fundamental characteristic of a capitalist society in which the individual faces a type of uncertainty that is unique to an economy based on atomistic diffusion of decision making and individual responsibility for one's own welfare. This cannot be dismissed by handwaves about the "long run" or "fundamentals". In this sense, liquidity preference reflects social relations of production in a manner similar to but distinct from the way labor values reflect social relations in production.

Notes

1. See also Fan-Hung 1939.
2. However, I should note that over time I have become less convinced that Townshend–and Rotheim–used the term "value theory" in the manner in which I am using the term.
3. Hunt 1983, following Dobb's example, provides a more useful view: all theories of price are circular because the price of each commodity is formed on the basis of many other prices. Thus, a "value-constant" is required to solve price equations. The theory of value provides this anchor.
4. Dissenters have also criticized the inability of the neoclassical approach to deal with money and nominal values in anything but an ad hoc manner. As mentioned, utility theory and scarcity can only generate relative prices; money is not required in a well-specified neoclassical general equilibrium economy, which can function on the basis of barter. Keynes called this a barter or real wage economy. Alternatively, money can be added in a nonessential manner such that no behavior is altered, with money merely facilitating exchange–what Keynes called the neutral economy, which operates "as if" transactions were actually the result of barter. (Introduction of money into this scheme can generate a difference between the market price and the long run equilibrium price due to short run disequilibrium.)
5. Dobb 1945 provides similar requirements: the theory of value should be capable of expression into actual dimensions which can be factually apprehended and known, and there must be some uniform quantity–that is not itself a value–in terms of which exchange value can be expressed.
6. That is, I will ignore the well-known problems identified in the Cambridge Controversy.

7. See Desai 1990 and Vianello 1990 for discussions.
8. Indeed, prices would not be proportional to labor values, but would be systematic functions of them. See Desai 1990.
9. See Shaikh 1994.
10. This does not mean as some Marxists argue that no profits can be created in circulation.
11. I don't think one should overemphasize Keynes's own claims that he actually made such a transition as I don't think he ever held the neoclassical propositions, rather, the transition is probably more one of clarification and exposition of his thinking.
12. These discussions emphasized money as a unit of account, which is necessarily a standard. See Wray 1993c.
13. See Rotheim 1981; Joan Robinson argued that in the TOM, Keynes "had no very clear perception of the fact that the subject with which he was dealing was the Analysis of Output". (Rotheim 1981, p. 574)
14. Rotheim argues that it is clear from the materials that would be collected and published as Volume 29 of the Collected Works, "Keynes intended to construct a new microfoundation for macroeconomics, what we might call a monetary theory of value." (Rotheim 1981, p. 574) I would rather argue that Keynes's construction was a monetary theory of production, with the term value reserved for the underlying base(s) on which it is constructed. However, Rotheim's use of the term value is more consistent with the way Keynes used it, and, presumably, with the way the term was used at the time. (This is reflected in Robinson's claim that "to the academic economist, the "theory of value" means the theory of relative price". Robinson CW I, p. 138)

15. Fred Lee rejects this approach and seems to come closest to Institutionalists who argue that prices are arbitrarily determined and thus cannot be the subject of scientific investigation.
16. Here I am ignoring Neo-Ricardian approaches.
17. This differs from Marx's method, which was to weight special labor by the extra value required to produce it, but this is not an important difference.
18. Hunt 1983 examines Robinson's "ambivalence" regarding the LTV, arguing that she really was an "ally".
19. See Robinson CW 3, p. 175; CW 4 p. 48; 1967 p. x.
20. Robinson's hostility to the LTV seems to be based partially on the supposition that the LTV is a theory of relative prices. It is also partially due to the occasional Marxist claim that the value of money is determined by labor embodied in gold. "The 'Keynesian Revolution', which divides the General Theory as much from Marx as from Ricardo, was the adoption of the money-value of labour (the wage rate) in place of the labour-value of money as the unit of account. The labour-value of money is a purely mythical conception, for money has no cost of production." (CW 2 p. 18) I think Robinson was too quick to throw out relative prices; Keynes provides a theory of both aggregate output and of prices. However, for reasons of which Robinson was well aware, labor values alone cannot generate prices. Further, Robinson was right to be suspicious of the labor-embodied theory of money–this could not be made consistent with Keynes's theory.
21. According to Marx, the Classical economists had been remiss for ignoring the necessity of including constant capital in the profit calculation made by capitalists–while Smith had believed that total labor value produced was only equal to the variable capital and surplus labor, Marx emphasized that the constant portion must also be reproduced in the aggregate–this emphasizes the social nature of reproduction, or the necessity of restoration of the part of social capital that is merely transferred to social output.
22. Of course, Keynes's use of the term "classical theory" is somewhat ambiguous–but he generally means the neoclassical approach that he traces to Ricardo.
23. According to Rotheim 1991, Keynes borrowed this distinction made by H.L. McCraken in a book on Marx.
24. See Rotheim 1991, for example.
25. While I cannot go into the topic here, elsewhere I show (following Keynes's example) that money actually pre-existed commodity production; while it is true that the first money units were physical (units of weight of wheat and barley grain), by the time commodity production began, the money units had become idealized wheat or barley units that were transformed into purely abstract "pound" money units with nothing but the name (lira, shekel, pound) to hint at the origins. See Wray 1993c.
26. Elsewhere, and on a wide variety of matters, Keynes congratulates Townshend for his astute observations and keen understanding of the GT.
27. I have argued that there are "three sides", with the endogenous theory of money serving as the third. (Wray 1992b)
28. Fan-Hung (1939) realized very early that the Keynesian theory of effective demand and his user cost

concept were nearly identical to Marx's schemes of reproduction; indeed, he showed that Keynes's general theory could be mapped almost one-to-one to Marx's reproduction schemes. Such correspondence should not be surprising when one considers they studied the same monetary production economy.
29. In Minsky's terminology, investment is made today only on the expectation that investment will occur in the future in order to generate the gross capital income that will be required to validate the decisions made today.
30. Saving out of wages complicates the analysis only marginally.
31. Hunt 1983 dismisses the "metaphysical" critique by arguing that all theories of value are "metaphysical" in the sense that they cannot be proved or disproved; they are "true" by definition. The LTV is definitional, but not arbitrarily chosen because it identifies a real process that underlies the essential nature of social interdependence of capitalism.

References

Boulding, Kenneth. 1944. "A Liquidity Preference Theory of Market Prices." Economica 11: 42 (May).

Cohen, Avi. 1989. "Prices, Capital, and the One-commodity Model in Neoclassical and Classical Theories." History of Political Economy 21: 2 (Summer): 231—252.

Desai, Meghnad. 1990. "Value and Price." In Eatwell, John, Murray Milgate, and Peter Newman, eds., Marxian Economics: The New Palgrave. London, New York: MacMillan, 365—372.

Dillard, Dudley. 1960. The Economics of John Maynard Keynes: The Theory of a Monetary Economy. Englewood Cliffs, N.J.: Prentice-Hall, Inc. (Ninth Printing).

——. 1980. "A Monetary Theory of Production: Keynes and the Institutionalists." Journal of Economic Issues 24, June, 255–273.

——. 1984. "Keynes and Marx: A Centennial Appraisal." Journal of Post Keynesian Economics 6, Spring, 421—432.

Dobb, Maurice. 1945. Political Economy and Capitalism. New York: International Publishers.

Engels, Frederick. 1966. "Supplement to Capital, Volume Three: Law of Value and Rate of Profit." In Marx, Karl. 1966. Capital, Vol 3. Moscow: Progress Publishers.

Fan-Hung. 1939. "Keynes and Marx on the Theory of Capital Accumulation, Money, and Interest," Review of Economics Studies VII, 28.

Henry, John. 1990. The Making of Neoclassical Economics. Boston: Unwin Hyman.

Hunt, E.K. 1983. "Joan Robinson and the Labour Theory of Value." Cambridge Journal of Economics 7: 3/4, 331—342.

Keynes, John Maynard. 1964. The General Theory of Employment, Interest, and Money. New York: Harcourt, Brace, Jovanovich.

——. 1976a and 1976b. A Treatise on Money, Vols I and II, New York: Harcourt, Brace and Company (AMS Reprint).

——. 1979. Collected Works, Vol. XXIX. Moggridge, Donald, ed. London: Macmillan.

Kregel, Jan. 1973. The Reconstruction of Political Economy. New York: Wiley and Sons.

——. 1993. "Some Notes on ‘Standards' in Keynes' Treatise & General Theory." Manuscript.

——. 1994. "The Theory of Value, Expectations and Chapter 17 of the General Theory of Employment, Interest, and Money." Manuscript.

Marx, Karl. 1976, 1978, 1981. Capital, Vols I-III. New York: Penguin Books USA.

Meek, Ronald. 1956. Studies in the Labour Theory of Value. New York: International Publishers.

Robinson, Joan. 1969, 1964, 1965, 1973. Collected Economic Papers, Volumes one—four. Oxford: Basil Blackwell.

——. 1967. An Essay on Marxian Economics. New York: MacMillan, St. Martin's Press.

Rotheim, Roy J. 1981. "Keynes' Monetary Theory of Value (1933)," Journal of Post Keynesian Economics 3: 4 (Summer).

——. 1991. "Marx, Keynes, and the Theory of a Monetary Economy." In Caravale, G.A., ed. Marx and Modern Economic Analysis. Aldershot, Hants, England; Brookfield, Vt., USA: Edward Elgar.

Shaikh, Anwar. 1981. "The Poverty of Algebra." In Steedman, Ian, ed. The Value Controversy. London: Verso Editions.

——. 1994. Untitled manuscript presented at Conference on Marx's Third Volume of Capital: 1894-1994, Bergamo.

Townshend, H. 1937. "Liquidity-premium and the Theory of Value." The Economic Journal 47, 185.

Vianello, Fernando. 1990. "Labour Theory of Value." In Eatwell, John, Murray Milgate, and Peter Newman, eds., Marxian Economics: The New Palgrave. London, New York: MacMillan, pp. 233—246.

Wray, L. Randall. 1991. "Endogenous Money and a Liquidity Preference Theory of Asset Prices." Review of Radical Political Economy 1/2, Spring/Summer, pp. 118-125.

——. 1992a. "Alternative Approaches to Money and Interest Rates." Journal of Economic Issues 4, December, 1145-1178.

——. 1992b. "Alternative Theories of the Rate of Interest." Cambridge Journal of Economics 16, 69-89.