

Government Deficits, Liquidity Preference,
and Schumpeterian Innovation¹

by

L. Randall Wray*

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*Research Associate, The Jerome Levy Economics Institute, and Associate Professor of Economics, The University of Denver.

Any analysis of the role innovation plays in economic development must acknowledge Joseph Schumpeter, as must any mention of the importance of the "creative destruction" occasioned by technological advance. Furthermore, recent work by "Circuitistes"² and Post Keynesians has also acknowledged the important contributions made by Schumpeter to monetary theory, and especially to any endogenous approach to money that emphasizes financial evolution. However, I will argue that the current stagnation facing the US, in particular, and developed capitalist economies, in general, cannot be understood without synthesizing Schumpeter's insights with those of Kalecki and Keynes. Most importantly, Schumpeter's work ignores the role played by government deficits in maintaining aggregate demand and entrepreneurial profits, and his theory of the monetary circuit can be improved through the introduction of liquidity preference theory.

We might begin with a Schumpeterian characterization of capitalist economic development as "creative destruction"; new technologies come along that "destroy" the productivity of old technologies (not always in a physical sense, but in a profits sense). Of

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² The Circuit Approach is a Keynesian approach that emphasizes circular flow analysis; it is closely related to the Post Keynesian approach, but typically concentrates on money as a flow of finance, rather than on money as a stock held to satisfy liquidity preference. Most of the practioners of the approach are in France and Italy; see Bellofiore (1992), Graziani (1990), and Wray (1991a).

course, new technologies will not be automatically adopted; if firms with market power have substantial excess capacity, they will not destroy the old technology, but wars and internal and external competition sometimes do encourage this creative destruction. However, as positions in long-lived capital must be financed, destruction of capital values also means that liabilities must be absorbed and losses incurred. The willingness and ability to absorb such losses depend on current and prospective income flows and balance sheet positions. These, in turn, are at least partially a function of past, current, and expected future aggregate demand. Finally, these are a function to some extent of government spending and expected growth of government spending. The current situation in the US (and in all other capitalist economies) is one of massive excess capacity, depressed aggregate demand, a huge "debt-overhang" and fragile financial positions, and governments that are engaging in austerity.³ Thus, in this situation, firms are not able to absorb the losses that would be necessary to engage in "creative destruction": scrapping plant and equipment and replacing it with new technologies. Under these circumstances, capitalist efforts are directed elsewhere--capitalists are never interested in production, per se, rather, they are interested in monetary profits. Schumpeter's innovators have thus turned their attention to financial markets where expected returns exceed those of the productive sphere. Keynes's liquidity preference theory increases our understanding of the determinants of the relative price system for assets--which, in turn, directs capitalist efforts.

³ For a discussion of the current world-wide stagnation, see Kregel (1993). The U.N. predicts that output of the developed "market-economy" countries will grow by only 0.8% in 1993; that of the European Economic Community will shrink by 0.5%; and that of Germany will fall by 1.7%. Source: United Nations Conference on Trade and Development, Trade and Development Report, 1993, p. 4. In the same report, it is argued that the international debt crisis is far from finished, with external debt of developing nations hindering development, with troubled loans reducing bank willingness to lend, and with large and rising government debts in most industrialized countries preventing application of traditional "Keynesian" policies to end the world-wide recession.

The "miracles" of Japan, Italy, and West Germany--which were partially a result of the "creative" destruction of WWII, but also the result of robust financial systems, liquid balance sheets, and US trade deficits--have come to an end. The only solution now is a massive, world-wide stimulation of aggregate demand in order to restore expectations, to allow losses to be absorbed, and to raise capacity utilization sufficiently that demand prices of physical capital will rise above supply prices, redirecting capitalist efforts to investment so that old plant and equipment will be replaced by a burst of new investment. This can be done only through a reversal of government austerity programs. This, in turn, requires a temporary massive increase of government deficits among those countries able to issue debt (the "hard currency" nations), and abandonment of Monetarist policies that favor financial assets over capital assets.

BRIEF OVERVIEW OF SCHUMPETER'S THEORY OF ECONOMIC DEVELOPMENT

Schumpeter begins with an economy operating in the neighborhood of a "general" equilibrium in which all industries, firms, and households are individually in a state of equilibrium in the Walrasian sense. (Schumpeter 1944) In this state, the economy can be analyzed as a circular flow, where purchases of the output of the flow are undertaken on the basis of sales of labor, products, or services to the flow, and where purchases without sale or sales without purchases are ruled out. In this case, the circular flow could continue unchanging like "the circulation of the blood". (Schumpeter 1949, p. 61) While money might be used in the circular flow economy, it would be used merely to facilitate exchange; it would function only as a veil. Within a circular flow, individuals can act promptly and rationally; behavior can be the result of cold calculation of probabilistic outcome. The capitalist is merely a manager, reacting to the "data" ground out by the circular flow economy.

Of course, no society would in practice remain static; there are three types of factors

that induce change. First, there are "outside factors", including changes of consumer tastes, and changes induced by nature, political factors, and so on; second, there is "growth", for example, of population, work force, or natural resources. Schumpeter argued that outside factors and growth merely change the data of the system, inducing an adaptive response by individuals, including capitalists. Such changes can be analyzed as continuous, infinitesimal shocks to the circular flow that lead to new points of equilibrium. In this case, the "static" analysis of Walrasian economics is sufficient.

However, Schumpeter's focus is on "that kind of change arising from within the system which so displaces its equilibrium point that the new one cannot be reached from the old one by infinitesimal steps" (Schumpeter 1949, p. 64), that is, spontaneous, discontinuous, and revolutionary changes to the circular flow that displace it so far from equilibrium that adaptation becomes impossible and routine must be abandoned. His analysis thus concerns those points where economic life itself changes its own data by fits and starts--changes in economic life that arise by its own initiative. This is what he calls economic development, which is contrasted with change that results merely from outside factors or growth--which he calls noneconomic development. (Schumpeter 1949)

Economic development is the result of innovation, characterized as the carrying out of new combinations of materials and forces or productive means. It includes introduction of a new type or quality of commodity, introduction of a new method of production, opening of a new market, conquest of a new source of supply of raw materials or intermediate goods, or carrying out of a new organization of industry (eg: creation or destruction of monopoly power). This innovation is the product of the entrepreneur, who swims against the stream, putting inventions into practice. Schumpeter emphasized that innovation must be distinguished from invention; in many cases, the entrepreneur merely borrows inventions that have not been applied precisely because they represent a break with routine. The innovation is to break

habits, to break down resistance of groups threatened by use of the invention, and to get the necessary cooperation of capitalists, managers, workers and consumers. This is the role of the entrepreneur, a role that cannot be a profession, nor can there be a class of entrepreneurs. Indeed, Schumpeter argued that individuals view entrepreneurship as a step on the road to becoming members of the capitalist class; further, any individual entrepreneur who is successful in this quest will likely settle down to running his/her business as a mere manager. (Schumpeter 1949) Entrepreneurship is a function performed only at the initial stage of the carrying out of new combinations.

Entrepreneurial innovation breaks the norm of the circular flow as it requires purchase without sale; it requires use of money as a "claim ticket" on productive resources without use of money as a "receipt voucher" for sale of commodities or services. (Bellofiore 1985, 1992) Just as the circular flow is broken by innovation, the neutrality of money is broken by entrepreneurial activity; indeed, economic development requires nonneutrality of money. As Schumpeter argues, a "nonexchange" economy⁴ may certainly experience change and growth, but this would come without violating the neutrality of money. For example, in a command or socialist economy, change would be directed by "authority"; resources would be redirected as required merely by command to generate growth. Money might be used--but it would be used solely as a medium of exchange, and it would not be necessary. However, in an "exchange" economy⁵, resources can be redirected to the innovating entrepreneur only through provision of new purchasing power, that is, provision of money as a claim ticket on social resources. The innovator cannot rely on purchasing power that arises from sales of output within the circular flow; rather, resources must be first directed to the new and revolutionary activity

⁴ Keynes's "real-wage or co-operative economy" description is superior--Keynes 1979, p. 67.

⁵ Again, Keynes's term, "entrepreneur economy" is better. (Keynes 1979, p. 67)

before this activity can generate sales and realize money as a receipt voucher.

Schumpeter believed that the strongest case could be made on the assumption that within a circular flow, all resources are fully utilized. This means that the innovator must draw already employed resources from the circular flow to the revolutionary activity. "The carrying out of new combinations means, therefore, simply the different employment of the economic system's existing supplies of productive means..." (Schumpeter 1949, p. 68) This would make it clear that economic development could not be a result of "saving and investing"; within Schumpeter's circular flow, at the extreme, saving would be zero as all resources would be employed producing consumption goods. Economic development would then occur not through volitional saving, but through creation of new purchasing power that would give innovators command over previously utilized resources. Schumpeter argued that "saving and investing" would merely lead to slow and continuous increase of productive capacity; it would merely lead to adaptive behavior within the circular flow. Economic development, however, is not a slow and continuous increase of productive capacity; the new combinations cannot be financed out of returns from previous production.

Instead, economic development requires creation of new purchasing power, which can only come from credit creation. Credit allows "detaching productive means (already employed somewhere) from the circular flow and allotting them to new combinations". (Schumpeter 1949, p. 71) Credit forces the economic system into new channels; "To provide this credit is clearly the function of that category of individuals which we call 'capitalists'". (Schumpeter 1949, p. 69) Further, "the capitalistic credit system has grown out of and thrived on the financing of new combinations in all countries". (Schumpeter 1949, p. 70) In a capitalist society, "credit is essentially the creation of purchasing power for the purpose of transferring it to the entrepreneur". (Schumpeter 1949, p. 107) Thus, innovation requires a credit system, and the credit system is a result of this necessity. The banker is the "capitalist par

excellence", the "ephor" of the capitalist system, as he/she produces "the commodity 'purchasing power'" that makes it possible to carry out the new combinations associated with innovation. (Schumpeter 1949, p. 74)

Since credit allows purchase without sale (of previously produced goods and services), it can be inflationary. The purchasing power placed in the hands of innovators allows them to outbid mere capitalists for resources in order to use them in the new combinations. The "old" firms will command fewer resources; their output may well fall. However, purchases of resources by the innovators maintain aggregate demand even as aggregate supply falls; inflation of current output prices results--a phenomenon Schumpeter calls temporary credit inflation. After some period (which can take several years), the new combinations can finally put output into the market. These may displace other (older) products and services, making them obsolete and generating a process of liquidation, readjustment, and absorption of "old" firms. At the same time, the sales receipts of new firms enable them to retire the credit initially advanced to allow the innovation to proceed. As a result, loans and deposits ("money supply") contract toward the initial position, and spending power and prices also fall back toward initial levels. (Schumpeter 1944 p. 9) Thus, the credit inflation is only temporary, and the innovation can even lead to a deflationary longer term trend or bias as it reduces costs of production. (Schumpeter 1949, p. 111)

This is what Schumpeter calls the "primary wave" as the economy first moves away from the circular flow in an expansion, but then contracts back toward the initial equilibrium of the circular flow even with no expectational errors. However, as firms are likely to react to rates of change, the initial expansion of purchasing power (and inflation of prices) can lead to a boom driven by "mass psychology", while the contraction can degenerate to recession as the economy overshoots the circular flow on the way down. These "secondary waves" increase the instability that is inherent in the capitalist economy. According to Schumpeter, only

innovation can generate the business cycle, and the cycle "seems to be the statistical and historical form in which what is usually referred to as 'economic progress' comes about." (Schumpeter 1944, p. 7) Innovation, itself, is endogenously generated by the apparent tranquility of the circular flow. That is, within a circular flow, the capitalist is sure of his ground and can adjust conduct in response to economic data. This confidence, however, raises entrepreneurial spirits, inducing experimentation and encouraging innovation. (Bellofiore 1992) Innovation, in turn, generates expansion and disrupts conventional patterns of behavior; it becomes too difficult to make predictions and entrepreneurial spirit is depressed. As Schumpeter argues, the innovation "changes social and economic situations for good" as it alters the data of the system and moves it away from equilibrium, and makes it impossible--even for the new entrepreneurs--to predict the outcome of actions. (Schumpeter 1951, p. 217; Bellofiore 1992) New innovations stop coming forward and the economy turns downward; it eventually returns to a circular flow of reproduction. Schumpeter argues that lack of inventions is never the barrier to innovation; rather, it is the lack of entrepreneurial spirit that would put the inventions to use in innovative ways that is the barrier to economic development. Once a circular flow has operated near equilibrium for a sufficient period, confidence will be restored sufficiently that innovation may reappear.

THE CIRCULAR FLOW, LIQUIDITY PREFERENCE, AND TWO PRICE SYSTEMS

According to Minsky (1992), Schumpeter's vision of capitalism as a dynamic system that endogenously generates instability and cyclical behavior was very similar to that of Keynes; however, Schumpeter's technique was essentially that of Walras and was inconsistent with

this vision.⁶ In contrast, Keynes's technique, particularly that of his General Theory was appropriate to the Keynesian-Schumpeterian vision of a monetary economy. I will argue that Keynes's insights can be added to Schumpeter's essentially nonmonetary circular flow to make his "technique" "half-way" consistent with his "vision". In the next section, we will introduce Kaleckian "technique" so that a positive role for government deficits can be introduced into the Schumpeterian vision.

Minsky (1993) notes that Schumpeter was able to integrate money into his theory of innovation, economic development, and business cycles; however, he was not able to link money to "normal" capitalist production, to position-taking in assets, and to formation of asset prices. Indeed, Schumpeter denied that money plays a role except in innovation. As such, his circular flow analysis was severely flawed, his analysis of banking was inadequate, and his theory ignored asset pricing.

On the other hand, Keynes developed a theoretical apparatus incorporating nonneutral money and liquidity preference as a determinant of the price system for assets. In Keynes's theory, money is used in an entrepreneurial, private property economy because uncertainty exists; given that future events cannot be "known", and given that production and sale always require time, all production for market involves fundamental, existential uncertainty. (Wray 1990, 1993a) Any time-dated contracts in such a society will be written in terms of a money of account; because virtually all contracts in any private property economy will be written in

⁶ In private correspondence, Alain Parguez expresses some ambivalence about this distinction between vision and technique. However, he believes that Schumpeter's training in Walrasian economics constrained his circular flow analysis to one of an attempted marriage of Walras's model with the Austrian approach. Heilbroner (1993) critically analyzes Schumpeter's admission that a "preanalytic vision" must shape scientific inquiry; Heilbroner argues that Schumpeter did not go far enough in recognizing the power of ideology to guide economic analysis. Schumpeter's own "vision" of capitalism included room for both buoyant optimism regarding its innovative entrepreneurs but also pessimism regarding the ability of capitalism to survive.

(and legally enforceable in) money terms only, money matters and can never be neutral. Furthermore, given uncertainty and nominal contracts, liquidity always has value--holding money-denominated liquid assets reduces uncertainty regarding one's ability to fulfill future commitments, as well as regarding whether one's income flows will be sufficient to meet expenditures.

The demand for assets is a function of expected returns; Keynes emphasized that the return to holding any asset is a function of $q-c+l$, where $q-c$ is the expected "quasi rent" (yield plus capital gains--or less capital losses) minus carrying costs and l is the subjectively evaluated return to liquidity. According to Keynes, in equilibrium, prices of assets will adjust such as to equalize expected returns; the expected return--primarily l --of the most liquid asset (usually, high powered money) will establish the standard that returns on all other assets must achieve. As liquidity preference rises, prices of illiquid assets must fall sufficiently to raise expected returns on these so as to equal the new, higher, subjectively evaluated return (l) to liquid assets. Thus, liquidity preference is a theory of value for assets; given expected $q-c$, the degree of liquidity preference uniquely determines the demand price of each asset. In the case of producible assets (eg: capital assets), the demand price must exceed the supply price in order to induce production.⁷

On the other hand, there must be another price system for current output, whose prices are determined not as a function of liquidity preference (and expected returns), but so as to recover costs and realize profits. As a first approximation, one could characterize the Keynesian theory of current output prices as a "wage plus markup" approach. At the

⁷ See Wray (1992) for a detailed analysis of liquidity preference as a theory of value. Note that while I have interpreted liquidity preference as uniquely determining asset demand prices given $q-c$, I recognize (as did Keynes) that the degree of liquidity preference also affects the expected q 's: the higher is liquidity preference, the more pessimistic one is regarding the yields to be generated by illiquid assets.

individual firm level, the markup will be a function of market power; at the level of the economy as a whole, the markup is a function of aggregate demand. This, in turn, is partially a function of the relation of supply prices of capital goods (determined by the price system for current output) and the demand prices of capital goods (determined by liquidity preference). When demand prices exceed supply prices, investment can occur which raises aggregate demand so that a larger aggregate markup on prices of consumer goods over wage costs can be supported. Competition among capitalists then determines the distribution of aggregate profits realized through individual markups.

Alternatively, given a price, an entrepreneur can increase the markup by lowering costs.⁸ Through innovation that lowers costs, an individual can force a greater share of aggregate profits to be allocated in his/her direction. Schumpeter did not appear to recognize that innovation (or cost-cutting) by itself does not generate profit; rather, profit is generated by aggregate markups (which, as will be discussed in more detail below, are strictly the result of spending in excess of the wage bill of the consumption sector); instead, innovation only reallocates profits toward innovators; indeed, innovation can reduce the aggregate of profits to be allocated if, as Schumpeter believed, it lowers costs--which are incomes. Thus, innovation directly affects only the distribution of profits among capitals. It is through this redistribution of profit to innovators that innovation leads to "creative destruction" of "old" capital by reducing its yield--when yield falls sufficiently (eg, below "variable costs"), the "old" capital is taken out of production.⁹

⁸ According to Schumpeter, "the competition of the man with a significantly lower cost curve is, in fact, the really effective competition that in the end revolutionizes the industry." (Schumpeter 1951, p. 223)

⁹ As Alain Parguez notes in private correspondence, the innovative firms will experience rising market prices as expected future profit flows are capitalized. These market prices must be denominated in money terms--the notion of a "real" value of a firm is meaningless.

(continued...)

Schumpeter's circular flow analysis is undermined by the absence of the recognition of the relation between investment and profit and by the absence of a distinction between the two price systems that exist in all capitalist economies. Contrary to what Schumpeter claims, investment, saving, profit, and interest are not absent from a capitalist circular flow--a circular flow that consists only of consumption goods and in which money is used to facilitate exchange can only be Keynes's "real-wage" or "barter" economy. In a capitalist economy, a circular flow must be monetary because the purpose of production in a private property economy in which uncertainty exists is to realize "more money than it started with". (Keynes 1979, p. 89) A circular flow cannot be described as one in which all production takes the form of consumption goods, for this would leave no room for profits. A capitalist circular flow must include production of both consumption goods and investment goods; the wage bill paid to produce the investment goods is a source of profits when it is spent on the output of the consumption sector. Investment output, in turn, is a function of a divergence of the supply price and demand price of capital assets, which as discussed above is a function of liquidity preference. Investment, in turn, generates both profits and saving; any capitalist circular flow thus includes profits, investment, and saving.

Schumpeter's analysis begins with a circular flow in equilibrium, in which the economy merely reproduces itself. This would require that investment is just sufficient to replace depreciating capital; net accumulation would be zero; income receipts exactly balance expenditures such that money is merely used to facilitate exchange. Again, this is not consistent with a money-using, capitalist economy. Given the time-absorbing nature of production, capitalist production begins with an advance of "money" and only later can realize

⁹(...continued)

Furthermore, as discussed later, as nominal market values rise, these allow greater leverage of current income flows.

"more money". The initial advance of "money" must come from somewhere; and given uncertainty, any advance of "money" is made only on the expectation of "more money" later. This is why all monetary contracts include interest; and interest requires that all monetary contracts are of the nature of "money now for more money later". Schumpeter correctly recognized that "capital" is not a means of production, but is a fund of purchasing power that can be created "ad hoc" as credit; he also correctly recognized that "money" is not "commodity money", but is characteristically credit.¹⁰ (Bellofiore 1985) However, he did not recognize that this is as true in the circular flow as it is out of the circular flow during innovation. Even within the circular flow, production begins with credit and must end with "payment" of interest.

It is now widely recognized that the circular flow cannot lead to sufficient capitalist receipts to "pay" interest even if saving out of wages is zero (enabling capitalists to recover all wage bill expenses). (Bellofiore 1985, Graziani 1990, Wray 1991a) As I have argued, the logic of circular flow analysis requires that interest be carried "on the books"; the circular flow will thus grow at the rate of interest--even if net investment were zero. In any case, a static circular flow is not consistent with the characteristic of a capitalist, money-using, society where the object of production is accumulation of money-denominated wealth. All monetary circuits must grow for two reasons: to allow nominal accumulation and to allow "fulfillment" of contractual obligations which are always of the nature of M now for M' later. And in any monetary circuit, credit is necessary and money is first and foremost a unit of account in which contracts are written, debts are denominated, and wealth is calculated. While Schumpeter is correct to argue that credit plays a critical role in placing purchasing power

¹⁰ In other words, the "advance of money" takes the form of the acceptance by the "lender" of the "borrower's" liability, and the issue by the "lender" of a liability used by the "borrower" as a medium of exchange to undertake production.

into the hands of innovators, credit is also essential in providing the purchasing power that is required in every decision to engage in production--even where that production is mundane and non-innovative.¹¹

The degree of liquidity preference will determine interest rates and demand prices for assets; as a result, it is primarily liquidity preference that determines how much greater M' must be than M before credit is created and purchasing power is provided to potential producers. Prices of existing assets adjust so that expected returns can meet this standard; demand prices of assets to be newly produced are similarly determined by liquidity preference and only those assets whose demand price exceeds supply price with a sufficient margin of safety¹² will come to the market. In this way, liquidity preference sets the standard return, it determines the necessary rate of increase of the nominal values of assets and liabilities, it is a primary determinant of the pace of accumulation of productive capital, and it helps determine where capitalist efforts will be directed. Lower liquidity preference sets a lower standard return; it also lowers the margins of safety thought necessary to guard against unfavorable outcomes. This means that more projects are expected to achieve returns sufficiently in excess of supply prices; in particular, new and innovative projects are viewed more favorably when downside possibilities are given little weight. In this way, liquidity preference plays a role in determining the pace of innovation.

According to Minsky, "Schumpeter's banker financed the creative part of creative destruction", but it is necessary to wed this view of banking with Keynes's theory of asset

¹¹ As I have argued, it is simplest to begin an analysis with the assumption that capitalist expenditures on production costs are financed through short-term credit; in reality, however, some portion of expenditures by individual capitalists will be financed internally by sales receipts. The "genesis" of these internal flows can only be explained by credit creation, however, since all incomes were initially generated by spending--which had to be financed. See Wray 1991b.

¹² The desired margin of safety, in turn, is a function of liquidity preference.

pricing. (Minsky 1990, p. 56) The innovative investment requires not only that, from the perspective of the innovator, the demand price exceeds supply price, it also requires that the banker's risk aversion is overcome. In order for an expansion to proceed, portfolio preferences must change so that the banker is willing to take position in the liabilities issued by entrepreneurs even as the banker must issue liabilities to finance this position. Up to some point, banks can do this while conforming to normal practice (regarding prudent leverage ratios and credit, interest rate, and liquidity risk). Expansion of balance sheets beyond this point, however, requires revision of banker rules of thumb, changes of conventions regarding prudent behavior, and even creation of new financial instruments--in short, financial innovations. Financial innovation is sometimes the "monetary" counterpart to Schumpeter's "new combinations" that will require finance so they may be carried out.¹³ These financial innovations require a change in the perception of what is possible--Minsky argues that every prolonged expansion will lead to innovations in finance; such innovations are endogenously induced by success. So long as investment continues to increase, profits increase and encourage greater leveraging of prospective income flows; this leads to a self-fulfilling prophecy as dependence on external finance increases the size of the circular flow such that incomes are even greater than expected so that margins of safety for the next round of spending can be reduced.¹⁴

Innovations, whether by bankers or by industrialists, can create market power and change the allocation of aggregate profits such as to reward innovation. Prospective monopoly

¹³ It must be emphasized, however, that an industrial innovation often can be financed through conventional banking procedure--thus, financial innovation is not normally a necessary prerequisite to industrial innovation.

¹⁴ I have argued that economic growth is made possible only by deficit spending that is not intermediated spending--that is, by deficits which are not constrained by prior saving. I defined this as "net deficits". See Wray 1991a.

profits are incorporated in demand prices of assets--the identically same capital asset is worth more to the firm with greater market power--and in the market price of the firm with market power. This firm can service a bigger debt load; those who recognize this are able to use prospective monopoly profit share to support liabilities that give them controlling ownership in the firm. This recognition was behind the most recent merger and buy-out wave in the US, which dwarfed any previous wave of concentration and must qualify as a wave of Schumpeterian innovation.

Part of the explanation for the burst of innovations that allowed greater leverage and lower margins of safety can be traced to the "perfection" of lender of last resort interventions by the Fed in the postwar period. Each time a financial innovation was tested by a crisis, the Fed intervened to validate it.¹⁵ In fact, the Fed is only the most visible guarantor of private financial instruments; in the US, the government (whether the Treasury or one of many governmental agencies) stands behind one-third of all privately issued liabilities. Whenever the government promises to substitute legal tender for a private liability, this must affect the price of the liability as it increases its liquidity.¹⁶ Clearly, individuals can reduce margins of safety if the government's safety net is extended to cover virtually all liabilities of those with market power; the preference for liquidity is reduced and prices of assets whose return consists primarily of $q-c$ are higher.

BIG GOVERNMENT AND INNOVATION

As Minsky (1990) emphasized, Schumpeter's analysis can also be strengthened by addition of

¹⁵ See Minsky (1986) and Wray (1993b) for discussions of Fed intervention during crisis.

¹⁶ In private correspondence, Alain Parguez defines a liquid asset as one for which there is certainty that the future will not depreciate the price of the asset. A government guarantee of a price floor for an asset thus gives it liquidity.

Kalecki's recognition that because government deficit spending enters the circular flow as a capitalist receipt without entailing a cost to capitalist, it must generate capitalist profits.¹⁷ As such, increasing the government's deficit must (all else equal) increase the aggregate of profits to be allocated among capitalists.¹⁸ Furthermore, if the government's deficit tends to move countercyclically, while investment moves procyclically, it will stabilize aggregate profits and help to tame the business cycle as capitalist income is maintained during downturns so that they are better able to meet payment commitments negotiated during expansions. This makes it less likely that a downturn of investment will degenerate into a debt deflation which would require lender of last resort activity to place a floor on private asset prices--thus, by maintaining aggregate demand, the government's deficit also helps to put into place an asset price floor. In the postwar period, central bank interventions, Fed and other government guarantees, and potentially large countercyclical government deficits have all contributed to higher price floors in the asset price system. Further, higher aggregate demand generated by government spending allows higher realized markups for current output, which also feeds into the asset price system by maintaining current and expected q 's generated by capital assets.

Innovation means concomitant creative destruction when it involves means of production. Schumpeter argued that the typical case involves innovation by a new firm that generates losses incurred by old firms; these disappear if they cannot work-off the liabilities associated with the assets that become depreciated because of innovations. Innovations by

¹⁷ According to Alain Parguez, Schumpeter's neglect of the government deficit as a source of profits is only one aspect of his more general failure to incorporate a theory of aggregate effective demand within his theory of realization of profits or surplus.

¹⁸ This follows from Kalecki's well-known profit equation, derived from the GNP identity. In the expanded form, aggregate profits are identically equal to consumption out of profit, plus investment, plus the government deficit, plus net exports, and minus saving out of wages. Jerome Levy (1943) derived a similar result several decades earlier.

new firms are, of course, still common and important; however, the typical case has long been an innovation by an "old" firm. This does not mean, as Schumpeter would emphasize, that the invention necessarily takes place within the old firm, but that the invention typically can only become an innovation in the hands of the old firm. This is for several reasons: the old firm already has market power, which is frequently a pre-condition to obtaining necessary finance; the old firm is better able to develop and market new products through its knowledge of, and control over, final consumers; and the old firm commands the respect that is necessary to break down the social resistance to innovation discussed by Schumpeter. Thus, contrary to what Schumpeter claimed about early twentieth century innovation, the typical case today is innovation by existing firms. These also bear the costs of "creative destruction".

Big government deficits help such firms to bear these costs: deficits in one sector create surpluses in another; surpluses can be "accumulated" by firms in sinking funds that allow accelerated depreciation of outmoded capital assets and writing-off of associated liabilities. At an individual firm level, the fear of innovation by competitors is a major impetus to innovation even if it will generate large losses on previously purchased capital assets; however, firms with substantial market power may face minimal threat. In this case, big government deficits may play an essential role in encouraging innovation that will destroy the value of capital already in place. Furthermore, as a major purchaser of the products of such firms, the government directly and indirectly encourages innovation. Similarly, through government provision of public investment goods, through government subsidies of private business, and through other methods of reducing business costs, government spending can encourage innovation by reducing supply prices relative to demand prices of capital assets. Finally, by maintaining aggregate demand even when the private sector retrenches, the government reduces the possibility of drastic reduction of cash flow--allowing firms to continue to absorb the write-off resulting from "creative destruction".

On the other hand, the high price floors, lower liquidity preference, and reduced margins of safety that result from the combination of big government deficits and lender of last resort activity lead to close articulation of income flows and payment commitments. This means that very little gross revenue is left to write-off assets that have been creatively destroyed unless the future proves better than expected. In the presence of substantial market power, highly leveraged balance sheets can reduce the incentive to engage in industrial innovation. This is particularly true when capital assets are expensive and long-lived; and even more so when the normal case is massive excess capacity--as is common when oligopolists plan excess capacity as part of their strategy to maintain market share in periods of above-normal demand. Given the heavy indebtedness of US firms today, it will take time for them to work-off leveraged positions before another wave of innovation in the productive (or nonfinancial) sphere can occur.

In Schumpeter's view, the proto-typical function of the banker is to provide finance for innovative, new, combinations of resources--that is, investment finance. As Minsky notes, this was perhaps true in the early years of this century (when Schumpeter was forming his theory of capitalist development); Minsky calls this stage "Finance Capitalism". (Minsky 1993) This was a period during which long-lived and expensive capital required large investments; investment bankers played an essential role in underwriting new stock and bond issues. The first great wave of mergers, trusts, cartels, and monopolies began during this period--encouraged by the investment bankers--to protect the cash flows that were required to service the substantial debt issued to take positions in the assets. Thus, Schumpeter's view of the investment banker as the "ephor" of the capitalist system was clearly shaped by this particular period.

However, previous to the Finance Capitalism stage, as Minsky argues, bankers primarily provided short term working capital and avoided equity investments (except as

individuals investing their own funds). Minsky denotes this the era of Commercial Capitalism; I have elsewhere (Wray 1990) argued that during this stage, bankers provided short term loans that generated the surpluses used by individual capitalists to internally finance positions in assets. Given the relatively inexpensive capital assets of the period, investment could be funded readily out of retained earnings. The late 19th century Schumpeterian waves of innovation (for example, in railroads) ended the period of Commercial Capitalism because the positions to be financed were too great to be handled in this manner.

Minsky argues that the Great Crash ended the period of Finance Capitalism; it became apparent that the barriers to entry erected by trusts were not sufficient to protect cash flows so that debt deflation could be avoided. The combination of government guarantees of asset prices (Fed as lender of last resort, guarantees by various government agencies--such as FHA-guaranteed mortgages--and so on) and potentially large government deficits eliminated the possibility of debt deflation, ushering in the age Minsky calls Managerial Capitalism. Further, the profit flows generated at the micro level by huge firms with market position and at the macro level by government deficits made it possible, again, to use retained earnings to finance investment. Banks returned to the more traditional activity of commercial banking.¹⁹ The megacorp, not the banker, became the ephor of capitalism. With various policies that promoted high US domestic demand, the megacorp could safely undertake expensive, long-lived projects; in these circumstances, the orientation of capitalists and their management was toward the "long run". With protection from competition, with government intervention to prevent failure, and with bureaucratization, however, the megacorp became complacent; the manager replaced Schumpeter's entrepreneur.

¹⁹ One should also recognize the role that the New Deal banking reforms played in redirecting bank efforts toward commercial banking.

MONEY MANAGER CAPITALISM AND THE CURRENT STAGNATION

Over the run of good times after WWII, margins of safety were reduced and the level of indebtedness rose. Owners or management that increased leverage ratios could increase the value of the firm; the new innovations were in the financial sphere, where the clever "Milken's" took full advantage of the recognition that a greater portion of future earnings could be transformed into debt today.²⁰ With the growth of pension funds and other "managed money", huge blocks of funds in search of short term returns were available for leveraging expected income flows. (Minsky 1993) In an environment of rising asset prices, capital gains--and expectations of capital gains--came to dominate expected returns ($q-c$); given the low value assigned to liquidity, highly liquid assets were not in demand. "Speculation" replaced Schumpeter's economic development because the expected returns from capital assets could not compete with the capital gains to be realized from leveraging firms to increase stock prices.

In this stage, Money Manager Capitalism, the investment bankers became highly leveraged dealers in securities--taking positions and making markets. (Minsky 1993) Banks continually lost their share of the commercial market as firms with market power turned to commercial paper and other instruments to raise short term working capital (again, this was made possible partially by the reduced value assigned to liquidity); when a mini-crisis occurred in the commercial paper market in the early 1970s, it became standard practice for such firms to negotiate credit lines with bankers to stand behind the paper. Banks also provided refinancing for the financial houses dealing in securities. However, commercial banks declined further in importance, becoming further removed from Schumpeter's "ephor"

²⁰ Thus, financial innovations have been diverted from their Schumpeterian "supporting" role, entirely freed from industrial pursuits.

of capitalism.²¹

The great experiment in Monetarism, begun in 1979 by Chairman Volcker (and continued by Chairman Greenspan) used tight money policy to slow the economy in an attempt to fight inflation. This was combined with Supply Side economics to cut taxes in an attempt to stimulate entrepreneurship, along with a military build-up to fight Communism. However, the net result of "Reaganomics" was an immediate sharp contraction of the economy, with investment in capital assets plummeting and with massive losses by banks and thrifts (due to rapidly rising interest rates on liabilities but only slowly rising rates earned on assets).²² On the other hand, the government deficit grew very rapidly due to the combination of tax cuts and increased spending (resulting from defense spending and from mandated increases of social spending--primarily for social security and health care).²³ At the same time, the US trade balance moved from surplus to deficit, at least in part due to appreciation of the dollar caused by high interest rates.²⁴ In summary, although fiscal policy

²¹ The commercial bank share of US financial assets held by all financial service firms fell from 51.2% in 1950 to only 26.6% by the third quarter of 1992. Over this same period, the share of assets held by private pension funds and government retirement funds rose from 4.1% to 23.9%. (Source: Board of Governors, US Federal Reserve System)

²² Nonresidential net private fixed investment fell from \$99 billion in 1981 to \$66 billion in 1982 and to only \$46 billion in 1983; although it recovered somewhat--to \$102 billion in 1985--it was only \$75 billion in 1987. Source: Wray (1989, p. 990), derived from the Economic Report of the President, January 1989. By 1982, 85% of thrifts were unprofitable and two-thirds were insolvent. By early 1992, the FSLIC and RTC had resolved approximately 1141 thrifts; between 1985-90, more than 1000 banks failed.

²³ The deficit grew rapidly from \$40 billion in 1979 to \$79 billion in 1981 and to \$208 billion in 1983; it then rose to \$221 billion in 1986 before declining somewhat in the later 1980s. However, by 1992, the deficit surpassed \$365 billion. Source: Economic Report of the President, February 1992.

²⁴ The multilateral trade-weighted value of the dollar (with March 1973=100) rose from 88 in 1979 to 143 in 1985; at the same time, the balance on goods, services and income fell from \$5.6 billion to a negative \$107 billion. Between 1946 to 1982, this balance had been
(continued...)

was on balance stimulative, monetary policy reduced interest-sensitive spending and contributed to the creation of a trade deficit. Matters were made worse by similar reactions of other countries to inflation in the later 1970s and through the 1980s. Tight domestic monetary policy in these countries lowered world-wide aggregate demand and made it impossible for the US to close its trade deficit.²⁵ Furthermore, countries that experienced trade deficits also adopted austerity, further lowering world-wide demand.

The supply side tactics did not work to stimulate investment; as Fazzari (1993) shows, net non-residential investment as a percent of GDP since the recession of the early 1980s has averaged less than half of its post-WWII averages--and is now near its lowest levels in post-Depression experience. Furthermore, neither did some relaxation of monetary policy, which allowed interest rates to fall in the mid 1980s, stimulate investment. Indeed, in the most detailed panel study of investment behavior of firms, Fazzari finds that even a drop of real interest rates of two percentage points has no impact on investment undertaken by moderate-

²⁴(...continued)

positive in all but two years; since 1982, this balance has remained large and negative. Source: Economic Report of the President, February 1991. As Kalecki's equation shows, a positive trade balance adds to gross profits, while a trade deficit reduces profits. By 1987, the US trade deficit was equal to 40% of gross profits--representing a massive leakage of gross capitalist income; in the same year, the trade deficit was 78% of the government's deficit. This means that just over three-fourths of the government's contribution to gross profits (the deficit) was lost in the form of a trade deficit. Source: Wray (1989, p. 990).

²⁵ Movement toward the European Monetary System and toward integration through the Maastricht Treaty imposes further deflationary pressures on the EEC countries. At the end of 1992, of the EEC countries, only Luxembourg enjoys a positive government budget balance; Italy and Greece have budget deficits equal to more than 10 percent of their GDP, the United Kingdom has a budget deficit equal to 6.6% of GDP, while even Germany has a deficit equal to 3.2% of its GDP. Only one of the EEC nations could have met the fiscal requirements of Maastricht in 1993; all of the major nations will require "considerable fiscal retrenchments" to meet the requirements--an optimistic projection concludes that the total of fiscal adjustments required amounts to about 2.5% of the combined GDP of the EEC. Source: United Nations Conference on Trade and Development, Trade and Development Report 1993, pp. 75-84.

to-high growth firms and only a minor impact on the investment behavior of other firms. Instead, he finds that sales growth, and especially internal cash flows are most important in determining investment.

After 1983, the economy began to recover--unlike previous recoveries, however, unemployment remained high and investment in capital assets failed to recover.²⁶ As I have shown, between 1981 and 1988, growth of nonresidential fixed investment accounted for only 6 percent of quarterly growth of GNP; indeed, I found that over this period, the Reagan government deficits were about 50 times more important in generating economic growth than was investment in capital assets. (Wray 1989) The Reagan recovery, therefore, was neither Supply Side, nor Monetarist; rather, it was a stereotypical (if somewhat perverse) "Keynesian" deficit-led recovery. These results are similar to those of Walker and Vatter (1989), who found that investment in capital assets has not been a significant source of growth of GNP during the entire post-war period. Instead, they found that government spending has always been the engine of post-war growth: when the rate of growth of government spending is high, the rate of growth of GNP will be high; when government spending is not growing, the economy stagnates.²⁷ Furthermore, they found that it is the rate of growth of government

²⁶ Data for investment have been presented above; the unemployment rate for civilian workers reached 9.7% in 1982; it was still 7% in 1986 after three years of recovery, and reached a trough of 5.3% in 1989 before rising again in the most recent recession. In contrast, the unemployment rate fell as low as 3.5% during the expansion of the 1960s. Source: Economic Report of the President, February 1991.

²⁷ Walker and Vatter (1989, p. 340) present the following data (all in annual percentage changes), showing that periods of high growth of government spending are associated with high growth of GNP and of investment:

Period	Gov't purchases	GNP	Gross I, Structure	Gross I, Equipment
High Growth*	8.40	4.70	4.68	4.97
Low Growth*	0.65	2.34	1.99	2.79

(continued...)

spending that determines nonresidential investment (particularly in the case of equipment). They attribute this finding to what might be called the "Domar Effect"²⁸: investment in capital assets increases potential aggregate supply (the "capacity effect") by a greater amount than it can increase aggregate demand (through the "multiplier effect"). While some government spending also increases aggregate supply, Walker and Vatter argue that it increases aggregate demand by more than it increases aggregate supply. Thus, government spending and investment spending are complements: government spending is required to raise aggregate demand sufficiently that the capacity generated by investment can be utilized.

The Domar Effect can be given a different interpretation, relying on Kalecki's insights: a government deficit adds directly to capitalist gross profits, allowing them to service debt, raising entrepreneurial spirits, and thereby encouraging capitalist spending. I found that the "cash flow effects" of government deficits were far more important in explaining gross profits during the Reagan recovery than was investment spending. This is interesting in light of Fazzari's argument that corporate cash flows are an important determinant of investment, and a greater influence on investment than typical "cost of capital" variables such as real interest

²⁷(...continued)

*The High Growth period is a weighted average of the periods 1948-53 and 1960-68, when the rate of growth of government purchases was high, while the Low Growth period is a weighted average of the periods 1953-60 and 1968-83 when the rate of growth of government purchases was low. Column 2 presents the rate of growth of government purchases of goods and services; Column 3 presents the rate of growth of gross national product; Column 4 shows the rate of growth of gross private investment in structures; and Column 5 presents the rate of growth of gross private investment in equipment.

²⁸ Unlike other growth models that are saving and supply driven, in which it is merely assumed that the capacity created by investment will always be fully utilized, Domar recognized the dual nature of investment: as a component of spending, investment contributes directly to aggregate demand (and indirectly to aggregate demand through the multiplier); but it also raises potential aggregate supply by adding to plant and equipment. He was thus concerned with the relation between these two: will investment raise aggregate demand sufficiently to keep all the new plant and equipment operating at full capacity?

rates and investment tax credits for most firms. Furthermore, Friedman (1988, p. 264) notes that corporate after-tax cash flows during the 1980s were higher than during any decade of the post-war period: they averaged 8.7% during the 1980s versus 7.5% in the 1950s and 8.2% in the 1960s and 1970s--a result of Reagan tax cuts and deficit spending. In spite of this, nonresidential investment did not play a primary role in generating the recovery, for reasons to be discussed below.

In addition to the role played by government deficits and consumption (and the smaller role played by residential and nonresidential investment) in generating the Reagan recovery, there was also a boom at various points during the 1980s in commercial real estate, the energy sector, the stock market, junk bonds, and leveraged buy-outs. These, in turn, were a function of changes in tax laws, deregulation of the financial sector, and innovations in financial practices. Each of these increased debt burdens relative to income and wealth. For example, the average household's ratio of total borrowings to yearly income rose from 78% to 94% during the 1980s (Alpert 1991). Corporate borrowing reached record levels during the 1980s, even though by the end of 1987, they "owned no more tangible assets or financial instruments than they did at year-end 1980". (Friedman 1988, p. 100) This was primarily due to debt-for-equity swaps, which ensured that by 1987, the market-value of nonfinancial corporate debt equaled 75% of the value of equity--close to the 78% reached during the depths of the recession in 1982. (Friedman 1988, p. 101) Even in the face of falling interest rates through 1987, increasing leverage ratios caused corporate debt service to rise rapidly: by 1986, 56% of gross corporate profits went to interest payments, versus an average of only 16% in the 1950s and 1960s. (Friedman 1988, p. 100) As a result, even during the long Reagan expansion, both the number of bankruptcies and the volume of debt declared in default rose continuously to record levels through 1987. (Friedman 1988, p. 101) Of course, similar arguments apply to the growth of federal government debt and to the effect of tight

money policy on the costs of servicing that debt: at the peak, 17% of federal government spending went to debt service, an amount that was approximately equal to the total federal deficit.²⁹

Although it is beyond the scope of this paper, for reasons that defy logical analysis, the Fed decided in the late 1980s that the expansion had proceeded for too long and began to tighten monetary policy in an attempt to achieve a "soft landing". Rising interest rates raised the portion of cash flows that had to be committed to debt service (by households, firms, and the federal government). The corporate "restructuring" undertaken in the euphoria of the mid-1980s could be successful only if cash flows did not decline and debt service did not rise; Greenspan's tight money policy that began in 1988 brought on a recession and resulted in both unfavorable events. In 1990, the assets of corporations filing for bankruptcy reached nearly \$83 billion, or 50 times more than they had a decade earlier; much of this was accounted for by a small number of huge corporations that had engaged in leveraged buy-outs during the 1980s--"by themselves, the ten biggest companies that failed in 1990 accounted for more than 80% of the year's bankrupt assets". (Sherman 1991, p. 123) Ironically, the bankrupt included Drexel Burnham Lambert, which had "enticed U.S. corporations into issuing \$200 billion of junk bonds". (Sherman 1991, p. 124)

As the US economy slowed in the late 1980s, leveraged firms were forced to retrench--first by cutting "unnecessary" expenses like research and development; next by "downsizing". This, of course, only made matters worse by lowering aggregate demand and capitalist cash flows. It also increased the dominance of the short view and casino over the long view and economic development as the management must operate so as to maintain the value of debt

²⁹ Unlike the case of firms, however, the federal government cannot go bankrupt, and its spending decisions are apparently much more independent of its income flows than are those of firms or households.

by keeping the managed money happy--no firm can allow a run out of its liabilities to develop.

The demand price of capital assets depends on past, present, and expected future capacity utilization rates; given recent and current excess capacity³⁰, demand prices are too low to induce much investment. Furthermore, as discussed, the highly leveraged positions of industrial and commercial firms--in some cases resulting from leveraged buy-outs--will require time before these firms can undertake new debt issues to finance investment. The current problem is not one of excessively high liquidity preference, but one of low expected q 's for capital assets.³¹ At the same time, illiquid financial assets can demand high prices even with low yields due to expectations of capital gains. Government austerity programs (Federal deficit reduction, state and local government hiring freezes, social spending cuts, and tight money policy) hinder aggregate demand. Monetarist policies that threaten to force up interest rates at the slightest hint of inflation favor "speculation" over "industry" by keeping aggregate demand depressed so that financial assets are preferable to capital assets. Inflation, of course, is not a threat to industry (the ability to administer prices is essential for producers of current output to ensure that costs are recovered and debt is serviced)--it is a threat only to rentiers. In summary, firms are faced with excessive debt service, with excess capacity, and with world-wide stagnant demand even as Greenspan worries about inflation. Although the government deficit remains high, which, with lender of last resort activity prevents an asset-

³⁰ The capacity utilization rate for industry averaged only 80.4% during the 1980s, and peaked at 84.2% in 1989. By December of 1990, it had fallen back to 80.4%. Source: Economic Report of the President, February 1991.

³¹ In private correspondence, Alain Parguez concurs: the problem is a collapse of the q 's, which he attributes to a short run planning horizon of management caused by an "absolute" fear of the long run. He also notes that the expected q 's are so low that even low interest rates will not solve the problem of inadequate effective demand--experience in the US during the first half of 1993 appears to confirm this belief.

price deflation, much of the stimulative effect of the government deficit leaks out of the economy in the form of a trade deficit. In this environment, Schumpeter's innovators must turn their attention away from long run profitability in the industrial sector and toward short run capital gains generated by financial asset price appreciation.

POLICY IMPLICATIONS

Innovations in construction of plant and equipment, and innovations in production have made it possible to set up new factories (primarily for the production of consumer goods) quickly virtually anywhere in the world; removal of trade restrictions has allowed manufacturers to locate plants wherever conditions are most favorable; and innovations in finance that allow a large firm to issue customized liabilities to suit market preferences (including the currency in which they are denominated) have made it financially possible to relocate virtually anywhere. "Internationalization" has increased competition for market share and increased reliance on export-led growth. This has tended to increase excess capacity for production of many consumer goods even as it generates depressed world-wide aggregate demand. Clearly, if firms locate in low-wage, low-cost countries, causing loss of jobs in high-wage, high-cost countries, world aggregate demand is depressed.³² Furthermore, if countries purposely limit domestic demand through austerity programs in an attempt to grow through exports, aggregate

³² If, as many expect, NAFTA leads to an exodus of manufacturing jobs to Mexico, aggregate demand in the U.S. will be lower even if the disemployed workers find service sector jobs. The debate about NAFTA is obviously symptomatic of a world-wide phenomenon that is being repeated through loss of Japanese jobs to other Asian countries with lower costs, and through loss of northern European jobs to lower cost southern European countries. As Greider argues, "the trade debate will return again and again to the economic dilemma that low-wage exploitation produces for the world: too many goods chasing too few consumers with not enough money to buy them. The first step to genuine reform is to kill NAFTA now." (Greider 1993, p. 92)

demand is again limited.³³ Export-led growth can only be successful if at least a portion of the globe runs commensurately large trade deficits; over the past decade, the US has played this role so that Germany, Japan, and some of the newly industrialized (mainly Asian) countries could experience economic "miracles". Given the depressed state of entrepreneurship in the US, the government's deficit has played the role of engine of growth for the world economy.

This era may be coming to an end, however. Trade deficits and loss of high-paying industrial jobs are acceptable only with an adequate social safety net; this net has never been adequate in the US and the current political climate will inevitably weaken it beyond the dismantling that Reagan-Bush were able to accomplish. Thus, the rest of the world cannot continue to rely on US trade deficits. Similarly, the US government deficit has become a major political issue in the US; attempts will be made to reduce it. In all likelihood, these attempts will fail--the government's deficit is not going to be reduced in the near future no matter how much spending is cut and tax rates are increased, as such attempts will merely lower aggregate demand, lower tax revenues, and perhaps even increase social spending. Paradoxically, a balanced budget in the US can be achieved only through policies that would stimulate aggregate demand--something the US appears to be incapable of undertaking unilaterally. A coordinated effort to stimulate aggregate demand must be undertaken by those

³³ In a very interesting paper, Kregel (1993) argues that the current worldwide stagnation results from a variety of problems, all of which can be traced to the failure of the international monetary system adopted at Bretton Woods to develop a symmetrical process of adjustment to imbalanced trade. Like Keynes and Davidson, Kregel argues that if only the trade deficit nation is forced to bear the cost of adjusting, this places depressionary pressures on the world economy. In addition, Kregel argues that fear of the inflation that might result from currency devaluation forces countries to adopt austerity as a means to reduce trade deficits. Movement toward Maastricht will only increase the asymmetric forces contributing to stagnation since countries with government budget deficits are forced to adopt austerity while there are no pressures on budget surplus countries to stimulate their economies.

countries able to issue liabilities in demand (the hard currency nations). In particular, Germany and Japan must stimulate their domestic economies and share the "burden" as engines of growth.³⁴

With such cooperation, the US government could safely increase its deficits to stimulate US demand and to provide a market for world output. In particular, the US should move toward larger trade deficits with developing countries (particularly those with large external, dollar-denominated, debt) even as Japan and Germany move toward trade deficits with the US. A greater portion of US government deficits should be "money-financed"; of course, all deficits are ultimately money financed, but most US government debt is now bank money financed.³⁵ This forces the government to pay interest on its debt that is bought (primarily) by banks (broadly defined), which then finance their positions by creating money. Federal government interest payments now account for approximately 15% of all government spending³⁶; this is wholly unnecessary as government short term debt is sufficiently liquid

³⁴ Alain Parguez thinks I may have overestimated the paralysis of the US and perhaps underestimated the ability of countries with "less hard" currencies (such as France) to run deficits and stimulate world demand. While I hope he is correct, at least with regard to the current political climate in the US, I am very pessimistic concerning the possibility that our leadership would take unilateral action to increase aggregate demand.

³⁵ In 1988, more than half of all publicly held federal government debt (that is, excluding debt held by the Federal Reserve Banks and US government agencies and trust), was held by financial institutions (including commercial banks, money market funds, insurance companies, savings and loan associations, credit unions, and corporate pension funds); of the remainder, state and local governments held almost 16%, other companies held less than 5%, individuals held less than 10%, and foreigners owned a little more than 18%. Source: Wray (1989, p. 992), derived from Economic Report of the President, January 1989.

³⁶ This problem is common to most industrialized countries; government deficits and interest payments as a percent of GDP for selected countries are as follows:

(continued...)

that it need not pay interest (non-interest paying liabilities can be issued by the Treasury or the Fed to pay for government spending). This would help to reduce the share of US income received in the form of interest--a share that has risen secularly over the past three decades--by rentiers who generally have a low propensity to consume (and a high propensity to speculate).³⁷

As discussed, liquidity preference directs profit-seeking behavior. Socialization of risk that results from government guarantees, lender of last resort activity, taxpayer bail-outs, and so on, reduces the value placed on liquidity and encourages speculative behavior.³⁸ Thus,

³⁶(...continued)

Country	U.S.	U.K.	Germany	Italy	France
Budget Balance	-4.7	-6.6	-3.2	-11.1	-2.8
Interest Payments	2.2	2.1	2.6	10.9	2.6
Primary Balance	-2.5	-4.5	-0.6	-0.2	-0.2

Row 2 presents the government's budget balance as a percent of GDP; all of the countries have a government deficit. Row 3 presents government interest payments as a percent of GDP. Row 4 presents the primary balance, which is the government's deficit (as a percent of GDP) net of interest payments. Both Italy and France have budgets that are nearly in balance if interest payments are ignored.

³⁷ As a percent of personal income, interest income increased from about 7% in 1965 to more than 10% by the end of the 1970s and to more than 14% by the end of the 1980s. Federal government net interest paid as a percent of personal income also rose secularly, from 1.5% in 1965 to nearly 4% in the 1980s. Source: Wray (1989, p. 986), derived from the Economic Report of the President, January 1989.

³⁸ Interestingly, in the US, government guarantees are almost always of the value of liabilities and rarely of asset values. This means that, for example, the government will not guarantee the value of a capital asset, but will guarantee the liability issued to purchase the capital. In turn, while the value of capital can fall precipitously, the value of the associated liabilities cannot--this enhances the demand for liabilities of firms even as the capital assets that are supposed to support those liabilities suffer depressed value. It is easy to see how this favors speculation over industry. One wonders whether industry might be favored by contingent guarantees of capital asset values rather than the values of paper liabilities.

such safety nets cannot be adopted without also ensuring that individuals can suffer losses; "healthy" skepticism must be maintained through institutional practices that place the individual's own funds at risk. Schumpeter's view of the banker as the "ephor" who creates and allocates purchasing power, and Minsky's view that it is the role of the loan officer to raise a skeptical eyebrow as he/she asks "Really?" when confronted with big-money-making schemes, must be incorporated within banking institutions.

Finally, we must recognize that the primary value of Schumpeterian innovations lies not in their ability to enhance productivity. The world is already far too productive given the depressed state of aggregate demand. (This is the normal case under capitalism.) Rather, waves of innovation directly and indirectly (through "spin-off" developments) raise aggregate demand sufficiently to move production temporarily closer to capacity--encouraging secondary waves of investment. This makes it clear that government deficits are the partner of innovations, required to absorb excess capacity that innovations would otherwise create. As Walker and Vatter (1989) demonstrate convincingly, government spending and investment are complements precisely because the additions to potential aggregate supply resulting from new investment exceed the aggregate demand created through an investment multiplier process. Thus, the new plant and equipment can be operated only if aggregate demand can be increased by spending that does not contribute to productive capacity; government deficits can fulfill this role, carrying aggregate demand along and enabling firms to meet payment commitments until the next Schumpeterian wave of innovation.³⁹

³⁹ This is not meant to imply that government spending does not raise productive capacity--both directly and indirectly by stimulating investment. For example, government spending on highways certainly adds directly to productive capacity. Government spending on research can lead directly to private investment spending to undertake government sponsored research, and indirectly through investment in "spin-off" technologies. What is important to the argument is that taken as a whole, government spending adds more to aggregate demand than it does to aggregate supply.

REFERENCES

- Mark Alpert, "Personal Bankruptcy's Cheap Chic", Fortune, June 3, 1991, p. 132.
- Riccardo Bellofiore, "Money and Development in Schumpeter", Review of Radical Political Economics, vol. 17(1&2), 1985, pp. 21-40.
- "Monetary Macroeconomics before the General Theory. The Circuit Theory of Money in Wicksell, Schumpeter and Keynes", manuscript, 1992.
- Evsey Domar, Essays in the Theory of Economic Growth, New York: Oxford University Press, 1957.
- Steven M. Fazzari, "Investment and U.S. Fiscal Policy in the 1990s", working paper, The Jerome Levy Economics Institute, 1993.
- Benjamin M. Friedman, Day of Reckoning: The Consequences of American Economic Policy Under Reagan and After, New York: Random House, 1988.
- A. Graziani, "The Theory of the Monetary Circuit", Economies et Societes, Monnaie et Production, no. 7, June 1990, p. 7.
- William Greider, "Congress: Kill NAFTA: The Free-trade Agreement is a Bad Deal", Rolling Stone, Issue 668, October 28, 1993, pp. 40, 41, 49, 92.
- Robert Heilbroner, "Was Schumpeter Right After All?", Journal of Economic Perspectives, vol. 7(3), Summer, 1993, pp. 87-96.
- Jan Kregel, "A Post Keynesian Explanation for the Causes of the Current Stagnation", mimeo, 1993.
- J.M. Keynes, The Collected Writings of John Maynard Keynes, Volume XXIX, (ed) Donald Moggridge, MacMillan, London, 1979.
- Jerome Levy, Economics is an Exact Science, New Economic Library, New York, 1943.
- Hyman P. Minsky, "Commentary", in Entrepreneurship, Technological Innovation, and Economic Growth: Studies in the Schumpeterian Tradition, (ed) Frederic M. Scherer

- and Marc Perlman, The University of Michigan Press, Ann Arbor 1992, p. 363.
- "Schumpeter and Finance"; Markets and Institutions in Economic Development: Essays in Honour of Paolo Sylos Labini, (ed) Salvatore Biasco, Alessandro Roncaglia, and Michele Salvati, St. Martin's Press, NY 1993, pp. 103-115.
- "Schumpeter: Finance and Evolution", Evolving Technology and Market Structure: Studies in Schumpeterian Economics, (ed) Arnold Heertje and Mark Perlman, Ann Arbor: The University of Michigan Press, 1990, pp 51-74.
- Stabilizing an Unstable Economy, Yale University Press, New Haven and London, 1986.
- Joseph A. Schumpeter: "The Analysis of Economic Change", in Readings in Business Cycle Theory, The AEA, The Blakiston Co., Philadelphia, 1944, p. 1-19. Reprinted from The Review of Economic Statistics, Vol 27, no. 4, May 1935, pp 2-10.
- "The Creative Response in Economic History", in (ed) Richard V. Clemence, Essays on Economic Topics of J.A. Schumpeter, Kenikat Press, Port Washington, NY, 1951.
- The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle, Harvard University Press, Cambridge Mass: 1949.
- Stratford P. Sherman, "Bankruptcy's Spreading Blight", Fortune, June 3, 1991, p. 123.
- John F. Walker and Harold G. Vatter, "Why has the United States Operated Below Potential since World War II?", Journal of Post Keynesian Economics, vol 11, no. 3, Spring, 1989, p. 327.
- L. Randall Wray, "Alternative Theories of the Rate of Interest", Cambridge Journal of Economics, vol. 16, 1992, pp. 69-89.
- "The Inconsistency of Monetarist Theory and Policy", Economies et Societes, Monnaie et Production, no. 8, 1991a, p. 259.
- "A Keynesian Presentation of the Relations Among Government Deficits, Investment, Saving, and Growth", Journal of Economic Issues, 23(4), December, 1989, p. 977.

-----Money and Credit in Capitalist Economies: The Endogenous Money Approach, Edward Elgar, Aldershot, 1990.

-----"Money, Interest Rates, and Monetarist Policy: Some More Unpleasant Monetarist Arithmetic?", Journal of Post Keynesian Economics, vol 15, no. 4, Summer, 1993b, p. 541.

-----"The Origins of Money and the Development of the Modern Financial System", Working Paper No. 86, The Jerome Levy Economics Institute, 1993a.

-----"Saving, Profits, and Speculation in Capitalist Economies", Journal of Economic Issues, vol. 25, no. 4, December, 1991b, p. 951.