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Introduction:

The theme of this paper is that neo-classical price theory, with its restricted vision of the functions of the price mechanism, misspecifies the relations that determine prices in a capital-using capitalist economy that has a sophisticated, complex financial system. In particular given the cash flow requirements of the inherited system of debts, the absolute price level is a determinant of both aggregate activity and resource allocations. Furthermore, relative prices reflect policy choices which determine the importances of investment and government in the economy. Thus neo-classical economic theory - both in its microeconomic and macroeconomic garbs - has limited relevance for the economy in which we live.

Much of the analytical research in economics over the period since World War II has reflected the view that the logical foundations of micro-economics are in some sense solid, whereas those of macroeconomics are weak. Thus it has been held that scientific progress requires that macroeconomics be reconstructed to conform to some presumably valid micro-economic foundations. That research strategy has led to the development of an economic theory that treats monetary and financial relations in a superficial way. As a result economists are unable to fully understand what is happening in our economy and are unable to offer useful and meaningful advice on the policy questions that must be faced. In this paper we inquire into the macroeconomic foundations

into micro-economics and conclude that the details of microeconomic outcomes depend upon prior macroeconomic policy decisions.

The positive aspect of this paper begins with a consideration of the functions of the system of prices that rule, once the economy is defined as a capitalist economy with a sophisticated financial system. It continues with an examination of how the various cash flows that the price system needs to generate in order to sustain debt structures and provide for investment affects relative prices.

It turns out that both absolute and relative prices depend upon policy choices. In particular, the general ruling mark up on average wage costs depends upon the extent to which resources are committed to investment and the importance of state expenditures, including government transfer payments, in the economy. As the relative size of investment and the scope of government are results of policy decisions, relative prices and changes in the absolute prices reflect fundamental decisions about how we choose to run the economy. Instead of relative prices and outputs being determined by production functions and presumably genetic preference systems, the macroeconomic view of prices makes realized profits (Keynes' Quasi-Rents) and thus relative prices a function of the weight of investment in the economy. In turn the weight of investment in the economy reflects policy choices. We do have to choose where we want to be on the spectrum of possible capitalist economies - where the spectrum runs from a high profit-high investment

relatively unstable economy to a low profit-low investment relatively stable economy.

In the course of the argument it becomes necessary to examine the notion of capital intensity. In a capitalist economy, capital intensity is best measured by the mark up on out of pocket (broadly labor) costs that is required to validate the price paid for a capital asset. If we consider that much of the economy consists of multi-product/multi-market production units which utilize capital intensive modes of production, and if we recognize that capitalist financial practices require that the system of prices that rule must almost always validate debts, it follows that the particular product/market prices that rule are largely the result of political and administrative decisions (decisions by corporate bureaucracies are considered to be political and administrative) rather than reflections of technical productivity and genetic preferences. That is there are substantial "degrees of freedom" in the formation of product prices. Claims that the market mechanism yields results that are in some abstract sense efficient are difficult to substantiate.

Given that such degrees of freedom in price formation exist, it is evident that simplistic policy goals such as "full employment" or appeals "to let the market determine" what happens grossly misspecify the economic problem. Economic policy calls the tune for what happens and economic policy always has explicit and implicit for whom and what kind implications;

even neglect, whether benign or maliganant, implies that such choices have been made.

Neo-classical Dogma

The story that is told as a neo-classical theorist begins his argument is of a set of traders at a Village Fair each of whom starts with a bundle of goods - the origin of these initial endowments is unexplained - and then voluntary exchange, of one good for another, is allowed to take place. In the parables that are told these exchanges take place under circumstances which are foreign to observed trading arrangements as recontracting is allowed or a convention of a special type of auctioneer is adopted. Either recontracting or the auctioneer uncovers the set of exchange ratios at which demand equals supply in all markets. Once these relations are found, trading, which simultaneously clears all markets, takes place. In this way regret and income transfers that arise from actual trading in markets where prices are free to vary from transaction to transaction are ruled "out of order" by the neo-classical approach. The formal set up of price theory assures that all of the action takes place at market clearing, i.e. equilibrium prices: In the neo-classical theory the world not only is now in equilibrium but apparently has always been in equilibrium. The fact that we act out our lives in transit and that false trading and regret - broadly conceived - are inherent in real world market processes are excluded, by definition, from the neo-classical view of market processes.

The primitive Village Fair perspective is never wholly abandoned in neo-classical theory, even as the argument is developed to include production and distribution. The parables that are told remain that of simple production and trade: capital assets, finance, contracts, money, and time - all of the elements that make uncertainty so vital to an understanding of the capitalist process - are handled - if at all - in a thoroughly artificial manner.

The fundamental neo-classical article of faith is nowhere better stated than by Milton Friedman when he asserts that

> "...despite the important role of enterprise and of money in our actual economy, and despite the numerous and complex problems they raise, the central characteristics of the market technique of achieving coordination is fully displayed in the simple exchange economy that contains neither enterprises nor money." (Milton Friedman: Capitalism and Freedom, University of Chicago Press, 1962, p. 14, my emphasis).

Any use of neo-classical theory as a guide to economic policy, or as an aid to interpreting experience, must be based upon a belief in the validity of the above statement. Inasmuch as the proposition is patently false for the economy in which we live, the acceptance of policy prescriptions and explanations of events that are based upon neo-classical theory reflects a dogmatic belief, against which logic and evidence are of no avail. Wherever neo-classical perceptions are valid, the validity of the perception is independent of the presumed theoretical basis.

Evidence for the patent falseness of the neo-classical dogma lies in the inexorable tendency of a capital using capitalist economy to

generate business cycles that include both threats and realization of financial instability. In the models based upon trading at a Village Fair, the economy is characterized by equilibrating tendencies and realized equilibrium, whereas in an economy with capital intensive production processes and capitalist financial institutions disequilibrating factors are always "operative". Neo-classical models are not so much logically wrong as irrelevant; they are the result of asking the wrong questions.

In order to capture the essential characteristics of prices in an economy with capital intensive production techniques and capitalist finance we have to shift from a Village Fair to a Wall Street perspective. This alternative analysis of prices begins with the accumulation process and with the specification that the economy is capitalist so that capital-assets have to be priced; it does not start with goods in hand and trading at a Village Fair.[1]

In a defense of General Equilibrium Theory ("The Winter of our Discontent," Economica, August 1973, pp. 322-323) F.H. Hahn emphasizes that Arrow and Debreu, by asking precise "what the world would have to look

[1] The critique by Von Mises et al that a socialist economy cannot be efficient centered around the fact that a socialist economy did not have markets in which the prices of capital assets are determined. Our identification of the flaw in the capitalist market processes centers around the implications of the mechanism by which capital-assets are priced. See Oscar Lange, On the Economic Theory of Socialism, University of Minnesota Press 1938 for the Von Mises critique and Hyman Minsky John Maynard Keynes, Columbia University Press, 1975 for the flaw in the capitalist pricing of capital assets.

like if the claim (that a myriad of self-seeking agents left to themselves will lead to a coherent and efficient disposition of economic resources) is to be true, ...," is important because Arrow and Debreu "provide the most potent avenue of falisification of the claims" (pp. 324). That is, to Hahn modern neo-classical General Equilibrium Theory is a success for it has established that the conditions necessary for the equilibrating tendencies and achieved equilibrium of the theory to be relevant to the world are so stringent that in fact the theorems of General Equilibrium Theory are not relevant for the solution of real world problems. But to be able to assert that a particular theory is not relevant or applicable to real world problems does not tell us what is relevant, or what can be done. That is to Hahn, neo-classical theory consists of "negative results", telling us what is not true but not really shedding light on what might be true.

Inasmuch as policy actions have to be and will be taken, the irrelevance of neo-classical theory means either that policy will be guided by those theorists who, not understanding that neo-classical theory is irrelevant, parade as scientific economists and assert that "theory has proven" that decentralized markets lead to coherence and efficiency, or that policy will be left to the vagaries of transitory fashion and the prejudices and intuitions of politicians. Not until economic theory begins to generate meaningful theorems about disequilibrating phenomena and the fundamental ways in which policy (and thus

power) affect economic activity will economic theory once again become relevant. The approach to an understanding of how financial interrelations and cash flows affect price formation that is taken in this paper directs attention both to the degrees of freedom and the constraints upon the pricing process in a capitalist economy.

Functions of Price

Economic theory focuses on two big problems: one identified with micro-economics and price theory, the other with macroeconomics and monetary theory. The problem that standard price theory confronts is to expalin why - or how - a decentralized market mechanism can generate a coherent result. The problem that aggregate economics focuses on has two aspects: Why one economy is richer than another and why the richness of one economy varies over time. The explanation of the comparative richness among economies, and of the trend of richness in an economy, that has gained credence among economists imputes the differences, whether among economies or within an economy, to differences in the stock of capital assets available for use in production. That is comparative richness, as well as the trend of richness, are the results of accumulation. The rate at which capital assets were and are being accumulated, i.e. investment, is in this standard view the key to an understanding of both comparative wealth and current growth.

In order for accumulation to take place there must be a surplus, i.e. an excess of current output over current consumption. Therefore

each economy that accumulates needs to have social techniques which constrains consumption to be smaller than output and in addition aims at assuring that the surplus is utilized to increase well being, as this is understood by the society. Because of the importance of financial relations in financing investment and asset holding in a capitalist institutional framework, the analysis of the process of accumulation and the way the surplus is generated quite naturally leads to a Wall Street perspective for economic theory. Rather than start theorizing about price formation with a tale of trading in a Village Fair, the story of price formation in a capitalist economy needs to start with financing decisions in the Board Room of a Wall Street Banking institution.

In a capitalist economy, investment decisions and ownership of the stock of capital-assets are private. In such an economic structure the financing of investment and of ownership of the stock of capital-assets leads to various contractual commitments to make money payments over time i.e. to contractual cash flows. There is a "paper world" of interrelated cash flows that stands side by side with the "real world" of production, consumption, and investment. In neo-classical theory this "paper world" is either a silent or an ignored partner to production functions and preference systems over commodities and services in determining how the economy functions. In our complex sophisticated capitalist economy the "paper world" is an equal, if not a dominant, partner in determining how the economy functions. Finance cannot be made an un-

important attribute of a capitalist economy by some cute definitions which impose determinateness upon essentially speculative arrangements. In a capitalist economy investment and the ownership of the stock of capital assets are associated with promises to make future money payments. Production and much of trading in assets is carried out to acquire the money for such promised payments. Furthermore, the terms upon which money today can be obtained for promises to pay money in the future i.e. financial market conditions determines investment and the prices of items in the stock of capital assets, i.e. "real market" conditions.

The essential way in which money enters into the pricing process in a capitalist economy is through the financing of investment and of holdings of capital-assets. The amount of investment and the price of capital assets depends upon the terms on which money can be obtained today in exchange for promises to make future payments. In addition, money enters into the determination of prices as units operate to obtain money so that the commitments to make payments on financial contracts will be fulfilled. As money is created, destroyed and recreated in the financing process, money, in a capitalist economy, is transformed into a type of bond which reflects the, albeit indirect, financing of activity. The creation, destruction, and re-creation of money in the banking process finances expenditures or helps determine some asset prices.

This role of money in the capitalist financial structure was well

stated by Keynes:

> "There is a multitude of real assets in the world which constitutes our capital wealth - buildings, stocks of commodities, goods in the course of manufacture and of transport, and so forth. The nominal owners of these assets, however, have not infrequently borrowed money (J.M. Keynes emphasis) in order to become possessed of them. To a corresponding extent the actual owners of wealth have claims, not on real assets, but on money. A considerable part of this 'financing' takes place through the banking system, which interposes its guarantee between its depositors who lend it money, and its borrowing customers to whom it loans money wherewith to finance the purchase of real assets. The interposition of this veil of money between the real asset and the wealth owner is a specially marked characteristic of the modern world" (J.M. Keynes Essays in Persuasion, Volume IX of the Collected Writings of John Maynard Keynes, MacMillan, St. Martin's Press, for the Royal Economic Society, London and Basingstoke, 1972, p. 151).

The essay in which this citation appears is "The Consequences to the Banks of the Collapse of Money Values" which Keynes wrote in late 1931 well before "The General Theory." This money veil of Keynes implies that prices of real assets and the relevant profits of enterprises have to be sustained if the financial commitments both to bankers and of bankers are to be fulfilled. In a money economy prices have not only static allocational and distributional effects but also dynamic cyclical and growth effects. Both the absolute price level and relative prices affect system performance. The absolute price level cannot be considered as something that is tacked on after relative prices and allocations are determined.

A fundamental characteristic of a capitalist economy and one that differentiates it from a socialist economy is that the items in

the stock of capital assets have explicit market values both individually and directly, and as collected in firms and indirectly through stock and bond markets. These values of capital assets and financial instruments determine private wealth. Furthermore in a capitalist economy private wealth results in private incomes from wealth ownership. In addition in a capitalist economy the market values that are placed upon items in the stock of capital-assets are determinants, along with the supply price of investment output and the ruling conditions upon which money today can be obtained in exchange for money tomorrow, of the pace of investment. Financing conditions also affect the prices of items in the stock of capital assets and thus the wealth of the owners of capital assets. In a capitalist economy, the view of money as a social artifact which makes trading possible without a double coincidence of wants fundamentally misses the point as to how money affects economic activity, how prices are determined, and the functions of price.

Thus a special attribute of a capitalist economy is that there are two systems of prices - one for current output and the other for capital assets, and in an economy with a stock exchange, capital assets are continuously being priced. Current supply prices of current output of both consumption and investment goods are determined by current money wage rates and the cyclical state of the economy. Current prices of items in the stock of capital assets and of financial instruments are keyed by the current subjectively determined implicit yields of the asset

money (this implicit yield is due to the power of money to insure the holder against uncertainty, i.e. what Keynes called liquidity preference) and current expectations with regard to the future quasi-rents i.e. gross profits after taxes, that capital assets will yield. As the proximate determinants of these two price levels are quite different, these two price levels can, and historically quite regularly did, get out of alignment.

When the price level of capital assets is high relative to the price level of current output an investment boom results, when the price level of capital assets is low relative to the price level of current output a recession - or a depression - takes place. The serious business cycles of experience can be interpreted as a result of the relative positions of the two price levels as they dance around the fixed price of a unit of money. Within a capitalist framework, the problem of aggregate economic policy is to rig the game the economy is playing so that the two price levels are such that an appropriate amount of investment takes place.

Neo-classical and Financial Views of the Functions of Price

In the neo-classical view, the functions of the system of prices that rule are (1) to state the terms upon which alternatives are available and (2) to determine the claims upon output of different units. (O. Lange, op. cit.) As a result momentarily fixed supplies of output are rationed and currently allocatable resources are distributed

to various production processes by the pricing mechanism. The (1) "a priori" allocation of endowments to individual consuming and producing units, (2) preference systems among commodities and for the supply of personal services, (3) production possibilities inherent in techniques, and (4) an assumption that trading can take place are all that is needed to show that a decentralized market economy can carry out the limited recognized set of functions in a coherent fashion.

Within capitalist/Wall Street framework, that looks at the paper world that exists side by side with and dominates, insofar as the stability (business cycle) and growth properties of the economy are concerned, the real production process, the set of prices that rule must not only accomplish the allocation and rationing functions but must also be such that (1) a surplus is generated, in that current output exceeds current consumption, (2) some of current income shows up as income imputed to capital assets, (i.e. profits) and is distributed to the owners of these capital assets. Furthermore these distributed and undistributed capital incomes are high enough and seemingly sufficiently assured so that the market prices of capital-assets are greater, by some margin, than the current production costs of capital-assets with similar production characteristics. That is prices have to be such as to induce both investment and the financing of investment in money and financial markets, (3) income from capital-asset ownership must be such that the obligations on the debts entered upon to finance

ownership of these capital-assets can be fulfilled i.e. the system of prices must be such that almost always, and as a usual matter, contractual commitments can be met out of funds that accrue to debtors from their ownership of the underlying capital or financial assets: The prices that rule must validate debts.

These three additional functions of the price system are not independent. They are related to the specific attributes of a capitalist economy in which debts are entered into to finance the acquisition of long-lifed capital assets, and in which a substantial - if not a predominant - part of the revenues that accrue from the production of output with the use of these capital assets accrue to the owners of these capital-assets. The generation of a surplus in a capitalist framework is associated with the freeing of resources for capital-asset production, the generation of capitalist income, and the validation of business debts. Capital income must be large enough to assure that commitments on past debt are validated and that the price of items in the stock of capital assets are high enough so that currently investment in fact takes place. However, investment in turn is a determinant of gross profits, and gross profits are a major component of the surplus. The system of prices that rules and the allocations that reign are largely based upon current investment and financing decisions.

Macroeconomic Price Relations

A basic relation behind the generation of the surplus is embodied in the cliché: "workers cannot buy back what they produce" i.e. market prices of consumption goods have to be greater than the labor income per unit of output that is earned in the production of these goods. This is so because consumption goods have to be rationed not only among the workers who earn their living producing consumer goods but also to those who earn their living producing investment goods or by working for the state. Furthermore those households whose disposable income is the result of receiving transfer payments or collecting dividends and interest also buy consumption goods in the market. Thus the gross mark up on the labor costs of consumption goods is related to the ratios of disposable income received from other than the production of consumer goods to the labor income received from the production of consumer goods and the propensities to consume out of these different income types.

The approach to aggregate demand by way of the workers buying back what they produce differentiates incomes by source. This approach allows us to distinguish between those "inputs" whose incomes determine product prices (labor) and those "inputs" whose incomes are determined by product prices (capital services) - and thus by system performance characteristics. As a result this approach reveals how different ways of working the economy affects both relative prices and the course of absolute prices that the

standard treatment, which take consumption demand as being determined by a homogenous "glob" of income, is incapable of analysing.[1]

If we write P_cQ_c as the price and quantity of consumers goods sold (P_cQ_c is of course the consumption of standard consumption function formulations), if C_w is the consumption coefficient for wages, C_τ the consumption coefficient for Transfer payments (τ) and C_π is the consumption coefficient for gross profits (Π), and if W_cN_c is the wage rate and number of employees in consumption goods production, W_IN_I is the wage rate and number of workers in investment goods production, and W_sN_s is the wage rate and number of workers for the state, then we have

$$1)\quad P_cQ_c = C_w\left[W_cN_c + W_IN_I + W_sN_s\right] + C_\tau T + C_\pi \Pi$$

$$2)\quad P_c = \frac{W_cN_c}{Q_c}\left[CW\left(1 + \frac{W_IN_I}{W_cN_c} + \frac{W_sN_s}{W_cN_c}\right) + C_\tau \frac{T}{W_cN_c} + C_\pi \frac{\Pi}{W_cN_c}\right]$$

writing Q_c/N_c as the $A_c(N)$, the average productivity of labor in the production of consumers goods, we get

$$3)\quad P_c = \frac{W_c}{A_c(N)}\left[C_w\left(1 + \frac{W_IN_I}{WcN_c} + \frac{W_sN_s}{W_cN_c}\right) + C_\tau \frac{T}{W_cN_c} + C_\pi \frac{\Pi}{W_cN_c}\right]$$

The price level of consumers goods, relative to efficiency wages in the production of consumer goods (the money wage rate relative to the average productivity of labor) depends upon the way in which the economy is run. The higher the ratio of labor income from producing

[1] The approach to price level formation and the dependence of relative and absolute prices that follows is of course derived from work by Kalecki, J. Robinson, Kaldor, Weintraub, Davidson, and Kregel. References to the literature and history of this approach can be found in J. Kregel The Reconstruction of Political Economy: an Introduction to Post Keynesian Economics MacMillan Press, Ltd. London & Basingstoke, and P. Davidson Money and the Real World, J. Wiley & Sons New York & Toronto, 1972

investment goods and state employment to labor income from consumption goods production, the greater the ratio of transfer payments to the labor income in consumption goods production, and the higher profits are relative to labor income from consumption goods production the higher the price level for any given money wage.

The share of non-labor income, i.e. the surplus, broadly conceived, depends upon the relative extent of investment production, government demand, and transfer payment schemes. Conceptually, government demand and transfer payment schemes are an allocation of the surplus. Policy, by influencing investment and determining government spending and taxing, determines the size of the surplus and its division between purposes of the state and private investment. Consistency among the various claims is affected by income and price level changes and the absolute price level of current consumption output is some mark up on the money wage rates, where the mark up reflects the efficiency of labor in producing consumer goods and the various claims upon consumption goods output that are derived from incomes other than those obtained from the production of consumer goods.

Defining $P_cQ_c - W_cN_c$ as the gross mark up on labor costs in consumer goods production - which becomes gross profits if we make an assumption that only labor costs enter into integrated out-of-pocket costs. This leads us to:

$$4)\ P_cQ_c - W_cN_c = \Pi_c = C_v(W_cN_c + W_IN_I + W_gN_g) + C_\tau T + C_\pi \Pi) - W_cN_c$$

$$5)\quad P_cQ_c - W_cN_c = W_cN_c\left[C_w\left(1 + \frac{W_IN_I}{W_cN_c} + \frac{W_SN_S}{W_cN_c}\right) + C_\tau\frac{T}{W_cN_c} + C_\pi\frac{\Pi}{W_cN_c} - 1\right]$$

$$6)\quad P_c - W_c\frac{N_c}{Q_c} = W_c\frac{N_c}{Q_c}\left[(C_w - 1) + C_w\left(\frac{W_IN_I}{W_cN_c} + \frac{W_SN_S}{W_cN_c}\right) + C_\tau\frac{T}{W_cN_c} + C_\pi\frac{\Pi}{W_cN_c}\right]$$

$$7)\quad P_c - \frac{W_c}{A_c(N)} = \frac{W_c}{A_c(N)}\left[(C_w - 1) + C_w\left(\frac{W_IN_I}{W_cN_c} + \frac{W_SN_S}{W_cN_c}\right) + C_\tau\frac{T}{W_cN_c} + C_\pi\frac{\Pi}{W_cN_c}\right]$$

$$8)\quad \frac{P_c}{\left(\frac{W_c}{A_c(N)}\right)} - 1 = (C_w - 1) + C_w\left(\frac{W_IN_I}{W_cN_c} + \frac{W_SN_S}{W_cN_c}\right) + C_\tau\frac{T}{W_cN_c} + C_\pi\frac{\Pi}{W_cN_c}$$

If $\left(\frac{P_c}{\left(\frac{W_c}{A_c(N)}\right)} - 1\right)$ is to be greater than zero in equation 8) - i.e. if profits are to be positive - then with $0 < C_w < 1$ we have that

$$9)\quad C_w\left(\frac{W_IN_I}{W_cN_c} + \frac{W_SN_S}{W_cN_c}\right) + C_\tau\frac{T}{W_cN_c} + C_\pi\frac{\Pi}{W_cN_c} + (C_w - 1) > 0$$

Thus for positive profits, non consumption employment, transfer payments, and profits have to be large enough to compensate for the saving propensities of workers. Furthermore in a capitalist economy the profit margins must be great enough to induce private investment and assure bankers of the "profitability" of the enterprise. From equations 8) and 9) it is evident that a large enough W_IN_I/W_cN_c, can assure positive profits. Thus if W_SN_S/W_cN_c, T, and C_π are all zero and $C_w = .8$, then if $W_IN_I/W_cN_c \leq .25$ then $P_c/W/A_c(N) - 1 \leq 0$. However the effect of a weak 'investment' propensity upon profits can be offset by $W_SN_S/W_cN_c > 0$ and $T > 0$; inasmuch as W_SN_S and T as presently constituted cannot be turned on and off as investment decreases and increases, the ability of government action to sustain - nay to assure - profits at a level high enough to induce investment (perhaps with a lag) means that when investment

increases so will the price level.

The ratio $W_I N_{I/W_c N_c}$ is a measure of the "Animal Spirits" of entrepreneurs and financiers of which Keynes and J. Robinson make so much. In the absence of state employment and transfer payments, the dance of the economy reflects the state of the animal spirits of the participants in the investment game. However once state employment and transfer payments can offset deficiencies in animal spirits.

If $C_w = 1$, workers in all productions consume all their income and if wages in investment goods production and state employment are the same as in consumption goods production then

$$10) \quad \left[P_c - \frac{W_c}{A_c(N)}\right] = \frac{W_c}{A_c(N)}\left[\frac{N_I}{N_c} + \frac{N_s}{N_c}\right] + C_\tau \frac{T}{W_c N_c} + C_\pi \frac{\Pi}{W_c N_c}$$

The dollar mark up on the average cost of production of consumers goods is related to the ratios of employment - and therefore output - in investment goods production and by the state to employment in consumption goods production. Thus any increase in investment goods employment and state employment as well as any increase in transfer payments and in consumption out of profits relative to the wage bill in consumption goods production leads to a rise in prices relative to efficiency wages.

If we introduce a loop between W_c, money wages in consumption goods production, and P_c the prices of consumption goods, so that a rise in P_c relative to W_c is followed by a rise in W_c, then the roots of an

inflationary process are found in the income flow repercussions from running a high investment, high state employment, and high transfer payments economy. We now have a deeper explanation of our current inflation than the neo-classical view in either its monetarist or its fiscalist versions. Inflation is not the result of too much fiscal stimulus or too much money, but rather of attempts to increase the ratio of investment, output, state employment, and transfer payments to consumption goods output: Especially if such increases exceed the increase in labor productivity in consumption goods production, so that a decline in the real wages of workers would occur, and labor is in a position to try to offset such declines in real income by raising money wages. A way of running the economy that implies a lowering of the real income of employed workers will trigger an inflationary spiral if labor is at all organized. Observed changes in monetary and fiscal variables are effects and not causes of the way in which the economy is functioning.

In a capitalist framework the value of investment goods production, $(P_I Q_I)$ depends upon (1) the capitalized value of the expected quasi-rents from the utilization of the investment goods in a production process being greater than the current price of the investment good by a wide enough margin so that it is worth while for a prospective investor to accept the financial commitments embodied in various debts and equity instruments, and (2) bankers being willing to go along with

the required financing. This means that the gross profits, that are expected to be realized in production, are expected to exceed the explicit cash payment commitments on debt by a sufficient margin so that the implicit cash payment commitments on equity instruments will be met. Realized gross profits from operations need to validate the paper world, but - and this is most vital - the gross profit margins out of which the cash payments will be met are, in the absence of state intervention, equal to future expenditures on capital assets. That is, if we assume that all of workers income is spent on consumption and there is no state we have

11) $P_cQ_c - W_cN_c = \Pi_c$

12) $P_IQ_I - W_IN_I = \Pi_I$

13) $P_cQ_c = W_cN_c + W_IN_I$ so that

14) $\Pi_c = W_IN_I$ and

15) $P_IQ_I = \Pi_I + \Pi_c$

Thus in a simple world, future profits - the quasi-rents of Keynes - that will validate debt and enter into the determination of asset prices depend upon future investment. In our more complicated world the validation of current investment depends upon both future investment and the course of state employment and transfer payments[2].

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[2] Equations 11-15 embody the well-known proposition imputed to Kalecki that "Workers spend what they get and capitalists get what they spend." In terms of our argument equation 13 embodies the idea that current functioning determines current consumption and equation 15 yields into the idea that expected profits and thus expected future investment determine current investment.

Future investment on the other hand depends upon anticipations of future earnings and the future normal or proper functioning of those markets in which investment is externally financed. A truth about the functioning of the pricing process in a capitalist economy that is "revealed" by the way in which profits respond to investment is that the "budget constraints" that rule for consumption and investment expenditures are determined in quite different manners. The budget constraints for consumption expenditures are to a large extent determined by the ongoing wage bills - which are determined by how the system is now performing. The budget constraints for investment expenditures are largely determined by financial market operations, which in turn are determined by a combination of how the economy is expected to perform and the Central Bank and the Treasury policies which affect current financial market conditions.

The ability to finance by borrowing from banks or by the sale of bonds and equities is combined with anticipated internal funds to determine the budget constraint for investment. In turn the investment that is financed determines realized profits and in an economy where workers save - savings out of wages. After the event, mainly ~~as~~ the result of variations in income and its distribution, savings equal investment, but the ultimate "owners" of the wealth are largely owners of financial instruments. The specific claims of such ultimate owners are combined by means of financial intermediaries to claims upon the

earnings of a portfolio.

A high investment economy yields a price system that generates large enough markups over wage costs so that profits and workers' savings can finance actual investment that takes place. A high investment economy, by yielding high profits, sustains - and even raises - the market price of capital assets and generates sufficient gross profits to validate debt. Inasmuch as felt uncertainty in the form of the implicit yield on money and other secure assets is a factor in determining the ratio of the value of capital-assets to expected future capital-asset income, a period of high realized investment not only will tend to increase the size of expected future capital incomes but will also increase the subjective surety of such capital-asset income. Thus a period of successful functioning of a high investment capitalist economy will lead to a rise in capital-asset prices relative to both current wages and current profits. The capital gains that result from such a rise in capital-asset prices will induce both additional debt-financing of current investment and of positions in capital-assets. A successful high-investment capitalist economy is unstable upwards. That is, if sustained, a high investment/high profits economy will lead to rising asset prices and an increase in the surety of private debt and, thus, by validating past private debt-financing decisions, induce both increased investment and an increase in the ratio of debt financing to both investment and the current values of assets.

However there are limits to how rapidly the composition of output can shift towards the production of investment goods, but there are no limits, except those imposed by bankers ever changing views as to what is prudent, about the composition of debt and extent of debt financing. Thus the ability of the economy to generate real cash flows that validate ever expanding real debt is limited. However for a time accelerating inflation can offset this tendency. Over a period in which, on the whole, the economy is functioning well the instability of the capitalist financing process leads to the economy being poised on a "knife edge"; one direction being accelerating inflation and the other direction being a debt deflation. Historically debt deflations have triggered deep depressions.

Capital Intensity, Multiple Markets, and Multiple Products

We have argued that in a capitalist economy, prices must be such that sufficiently large quasi-rents are generated so that the debt structure (both direct debt of units owning capital-assets and the indirect debt of financial intermediaries) is validated and capital-asset prices are high enough to induce the production and financing of additions to the stock of capital assets. To this fundamental condition for the normal functioning of a capitalist economy let us add the following "empirical" characteristics of the production processes: Firms use capital intensive production processes and produce a number of products which they sell in a number of different markets.

For our purposes, the indicator of the relative capital intensity of a production process is quite simple. The capital intensity of a newly adopted or currently contemplated production process is indicated by the ratio of profits, after taxes and other identifiable claims, to the wage bill in production that will be required to validate the financial commitments that will be entered upon if this production process is adopted. That is, it must be anticipated that what Keynes called quasi-rents will be large enough to meet the financial commitments in debts and maintain, if not increase, equity values. The greater the ratio of such required quasi-rents to labor costs, i.e. the greater the mark up on average wage costs that is required to validate investment, the greater the capital intensity of production. However, in a world with uncertainty, the current validation of past financial commitments and past equity values is evidence as to whether a rational man can expect current commitments to be validated. Thus the capital intensity of the existing modes of production can be measured by the ratio of quasi-rents, after taxes and other claims, to wages that is required to validate past decisions to put the current capital stock in place. Furthermore if the economy is running well the current quasi-rents will on the whole be validating such past commitments.

The existence of capital intense production processes means that a substantial fraction of a representative firm's total revenues has to be allocated to servicing debt and to sustaining the price of capital

assets. If such an economy is running well, the average out of pocket costs per unit of output for outputs produced by capital intensive processes will be a relatively small ratio to the required price of a unit of output. This in turn means that sharp price competition, in the face of excess capacity, and inelastic product demand, can quite easily lead to zero or disasterously small quasi-rents.

When the gap between the price required to validate debt and sustain asset prices and the out-of-pocket costs of production is large, then there are large potential penalties, in terms of a failure to validate debt and falling asset prices, that price competition can extract from firms and from their bankers. Risk adverse investors in and financiers of such production processes require the assurance of oligopolistic or "monopolistic competition" arrangements before they will hazard their resources on the specific capital assets required for such production. Before bankers will accept the debts of firms that use capital intense production processes they require assurances that strong price competition will not occur. Oligopoly and monopolistic competition are natural market structures in these circumstances. When external finance and capital-intensity simultaneously exist (and capital-intensity, by requiring large blocks of investment and finance, virtually guarantees the existence of external finance) bankers require some guarantee that price competition due to minor and transitory excess capacity will not quickly and readily erode the required quasi-rents. It is no accident

that J.P. Morgan and Company induced "orderly behavior" among American railways in the 19th century. From the point of view of the paper world, price competition among producers who utilize capital intensive techniques is 'anathema'.

From the point of view of debt validation and asset price determination the only purpose of production is to collect the quasi-rents given by the difference between total revenues and out of pocket costs. That is production is for profit and not for use. If the capital-assets embodied in the production processes of a firm yield multiple products which are sold in multiple markets the organization, and its bankers, are not really concerned with which market and which product generates the required quasi-rents. Their primary concern is that the sum of the quasi-rents from the various markets be large enough to validate debts and sustain asset values. The maximum of the quasi-rents that can be obtained by a firm is given by the full exploitation of the negatively sloped demand curves that confront it in each market it serves. The minimum required quasi-rents is given by the debt structure and the cash flows required to sustain capital-asset values. If the maximum is greater than the minimum, then the firm can enjoy the luxury of not fully exploiting the profit potential in its market position. Political considerations determine the extent to which a firm will in fact maximize quasi-rents in each of the several markets it serves.

Once we accept that production techniques are such that a substantial

part of the gross revenues need to be allocated to validating debt and sustaining capital-asset values and that firms which use such production techniques typically produce multiple products and sell in multiple markets then an indeterminancy is introduced into the pricing of products. The firm really cares little about the proportions in which the required quasi-rents are collected from the various markets, and a range of mark ups on out of pocket costs for the various outputs in the various markets in which they are sold will combine to yield acceptable total quasi-rents. In these circumstances possibilities of cross subsidization in the pricing process exist. Firms as they vary the mark up on out of pocket costs among markets and products engage in a political decision process. Conventions such as markup pricing, and regulations, such as aiming for a target rate of return on some value of capital-assets, can and do guide price formation. The very fact that issues can be raised about how prices should be set, such as the current interest in time dependent/season dependent utility rates is evidence that arbitrary elements determine particular prices in a capital intensive world.

In a regime where price includes a substantial mark up on wage costs, the possibility arises that the fee paid for one commodity is paying for quite another commodity or service. Our system of "free television" is paid for by an allocation to the television networks and to "artists" - of part of the gross quasi-rents of the various advertisers. The ability to so allocate quasi-rents to finance such "extraneous"

outputs is further evidence of arbitrary nature of pricing in our economy. The way television is paid for indicates that in our economy the mark up on marginal- or wage -costs in product prices is a form of taxation. In our economy fees paid for one set of commodities (laundry soaps and underarm deoderants) are used to supply another set of services (entertainment). The mark up on marginal - or labor - costs in product prices not only validates debt and capital assets and pays for Madison Avenue but it also finances an array of transfer payments (Social Security, Medicare). Madison Avenue, corporate bureaucracies, and government expenditures are particular allocations of a gross surplus; the required profit rate and business taxes are determinants of the target mark up on labor costs.

Presumably advertising creates and positions a negatively sloped demand curve for the product. Perhaps the security of this negatively sloped demand curve allows investment in the required production facilities to be financed at more advantageous terms than would be true without the advertising. However a world in which such considerations enter into price determination is far removed from the neo-classical theory. Once the net quasi-rents required to validate debt and sustain asset prices are given, the gross quasi-rents, inclusive of the amount that is allocated to advertising and to purposes of the state must be greater than the amount required by debt and asset valuation. Thus free television and the benefits we all receive from the CIA and the FBI must show up in product prices in the form of a mark up on labor costs.

The realized surplus must be large enough to sustain capital asset values as well as such expenditures.

Income and property taxes on business enterprises are also an allocation of the gross mark up on out of pocket costs. To the extent that the quasi-rents necessary to validate debt and to sustain asset values are given, the gross mark ups on out of pocket costs needed to yield the required quasi-rents will vary with income and property taxes. In a world of reproducable assets and negatively sloped demand curves that are not fully exploited, a rise in corporate income or property taxes will not necessarily result in a decline in net quasi-rents applicable to debt validation and asset price sustainance. Instead prices will adjust to absorb some of the unexploited margin in the demand curve.

Note that if policy is aimed at sustaining private investment policy measures will have to offset any decline in asset values that threatens to slow down investment. This may take the form of (1) inflating the overall price level in order to generate sufficient quasi-rents to validate debts and sustain asset prices, or (2) having the government run deficits, (3) intruding specific tax breaks and subsidies into the "budget" and (4) inventing new financial instruments.

The mark up on wage costs that is required to sustain the values of the capital-assets used in production is related to the capital intensity of the production process. Thus for a capital intensive process the ratio of expected price to labor costs will be greater than

for a less capital intensive process. The various industries and firms in existence at any time differ in the mark up on labor costs that is required to validate the prices they paid for the capital assets they use in production. Those with the more capital intensive processes require a larger mark up. If the aggregate investment ratio - or government employment or transfer payments for that matter - rises then aggregate profits increase. The distribution of these higher profits among the various productions depends upon the realized ratios of prices to labor costs as well as the distribution of the changed demand among products.

However if the relative prices of the capital-assets used in the various productions are to remain unchanged, the relative profits which are capitalized cannot change. It is necessary for profits in the various outputs to rise in the same proportion for this to happen. But this implies that the greater the capital intensity of output, the greater the rise in product prices that is needed to sustain relative asset values, unless the output of goods produced by capital-intensive techniques increases disproportionately as aggregate profits increase. In order to sustain an increased ratio of investment (and government and transfer payments) in the economy, the prices of products produced by capital-intensive techniques need to rise relative to the prices of products which use less capital-intensive techniques. But the pattern of demand curves that rule may make such required product prices unobtainable. (This is what may

very well have happened to the 747). Furthermore the principle of substitution in demand will operate to shift demand towards the outputs whose required price has increased less rapidly: i.e. those outputs that are produced by less capital-intensive production techniques. Thus in order to sustain a high investment economy various interventions designed to increase the cash flow or profits that are available to service debt and sustain asset values in capital-intensive lines of production have to be intruded into the pricing system. Subsidies and taxes have to be biased in favor of capital-intensive production techniques. Accelerated depreciation and investment tax credits are intruded into the fiscal system in order to induce capital intensive modes of production in the face of market developments that are unfavorable to such investments.

If we think of the gross surplus being sustained by investment and state expenditures, and taxes as a way of dividing the gross surplus between profits and government revenue, then a deficit by the state implies a greater mass of profits available for the business sector. A large state which, because of the nature of the tax and spending system, runs a contracyclical deficit, both sustains the size of the gross surplus and assures that the business profits available to validate debt and determine asset prices do not fall at the same ratio as business investment. In fact by increasing transfer payments and government spending while reducing taxes government policy can assure that the mark up on labor costs not only does not fall but even increases during

a recession. Price behavior, during the 1974/75 recession, which may be an anamoly to one wearing neo-classical blinders is quite consistent with the implications for prices of increased transfer payments, tax rebates, and tax reductions.

Incidently even as large government deficits imply that profits are sustained and even increased, chronic government surpluses cut the profit share in the value of output and thus lead to a decline in the price of capital assets. The recent Brookings study by Duesenberry, Bosworth, and Carson which focuses on an alleged capital shortage prescribes a chronic government surplus as a remedy. (B. Bosworth, J.S. Duesenberry and A.S. Carson: Capital Needs in the Seventies, Brookings Institution, Washington, D.C., 1975, pp. xi - 85). If the argument here is correct, a chronic government surplus will depress asset values and corporate cash flows. The investment goals enunciated by Duesenberry, Bosworth and Carson are inconsistent with the profit implications of the fiscal policy they favor.

Conclusion

Once the conditions that the ruling system of prices needs to satisfy are expanded to include the generation of cash flows from operations that (1) validate the inherited debt and equity structure (2) induce desires to increase the stock of capital-assets and (3) draw forth financing for such expenditures, the simple equilibrium and equilibrating story of neo-classical price theory loses its relevance. Furthermore the greater the cash flows needed to validate inherited debt,

the greater the capital-intensity of production, and the greater the aggregate mark up on labor costs in the production of consumer goods that is required to ration consumer goods among diverse claimants the smaller the relevance of neo-classical price theory and the less valid the claim that market capitalism is "efficient." In a world of large scale capital-asset intense production, a major function of the pricing mechanism is to generate sufficiently large gross profits to keep the "investing" machine operating. Whereas the normal rationale for investment is the presumed increase in output that will be forthcoming, in a modern capitalist society the rationale for investment is increasingly that unless investment or its equivalent, in government debt financed expenditures, are sustained, profits will not be high enough to validate the inherited debt structure and to sustain capital-asset prices.

Once it is recognized that the pricing system has to generate a "mass" of gross profits in order to validate debt and sustain asset prices and once capital intensive multiple market production is taken to be the norm, then a regime of "private" negatively sloped demand curves confronting the various capital intensive production processes are necessary in order to attenuate the risk that market competition will force prices down to the 'marginal' costs. Forcing prices down to the 'labor costs' of production is disasterous for normal functioning of the financial markets of a capitalist economy. That is strong, unregulated price competition in the markets of products

produced by capital-intensive processes is incompatible with the "uncertainty" attenuation required by financiers and bankers before they will hazard substantial funds in the financing of such processes. Given that such capital intensive production processes are confronted with negatively sloped demand curves in the various markets that are served, the prices of the output of the firm in the various markets need be such that the mass of profits reach some target. However a firm in such a situation is quite indifferent as to how its gross profits are generated in the markets it services; thus there are policy and political elements in the various prices.

There is of course a "monopolistic maximum" which, given the constraint imposed by the various demand curves, sets a ceiling to profits, if firms in fact maximize profits. A difficulty for normal functioning of a capital using capitalist economy arises when profit maximizing behavior does not, in general, generate sufficient cash for the servicing of debt and the sustaining of asset values. In these circumstances accelerating inflation becomes a policy instrument to validate debt.

Short of profit maximizing behavior, price determination for the outputs of capital-intensive multiple product production processes is a political matter, whether the politics are within the firm, between the firm and various regulatory agencies, or between the firm and the various public bodies that intrude taxes into the pricing process.

Thus prices are political in two senses. One is the overall

decision whether to run an economy with high or a low investment, transfer payment, and state employment. The second is in the details of the pricing regimes, where private and public taxes and subsidies generate relative prices.

It is clear that in the world in which we live economists cannot appeal to an impersonal set of "genetic" preference systems and production possibility relations as determining output, prices, and incomes. It is not enough to think in terms of a full employment policy under the assumption that the details of the full employment are technologically determined. Economists have to face up to the idea that there are inherent and inescapable how, what, and for whom questions that policy has to confront. Instead of escaping responsibility by an appeal to a technological or genetic determinism, we have freedom to choose the how, what, and for whom dimensions of economic life.