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THE COHERENCE OF A CAPITALIST ECONOMY: THE MARSHALLIAN FOUNDATION OF THE KEYNESIAN CRITIQUE OF NEO-CLASSICAL THEORY

by

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In the introduction to their imposing summation of general equilibrium theory[1] Kenneth Arrow and Frank Hahn state the outer limits of what can be claimed for general equilibrium theory and incidentally define the problem that led Keynes to formulate the theory of effective demand. Arrow and Hahn rightly recognize, the main stream of economists from Adam Smith to the present " . . . have sought to show that a decentralized economy motivated by self-interest and guided by price signals would be compatible with a coherent disposition of economic resources" (p. VI, VII) and that this coherent disposition . . . "would be regarded in a well defined sense, as superior to a large class of possible alternative dispositions" (p. VII). Thus there are two sides to standard economic theory, one positive which holds that under appropriate conditions a decentralized market economy will yield a coherent result and another normative, which asserts that under appropriate conditions this coherent result will be a "best". Only the positive scientific question will be examined here.

Smith's insight of genius was the association of processes that yield a coherent result in an economy with the trading that takes place in a village's market square. To this day formal economic theory "begins" by investigating the characteristics of some abstract trading process and continues by showing that the "coherence" property demonstrated for trading carries through as the model is modified to allow for formalized concepts called production, labor, capital assets, monopoly, and money. However, as Arrow and Hahn note in their Chapter XIV, the proposition that a decentralized market yields a coherent result has not been

shown to be true for an economy with money that is created by banking processes, expensive capital assets that are long lifed and capitalist financial practices. This is not surprising, as a Keynesian analysis of the interactions among money creation, asset pricing and investment as the economy functions in a coherent way, indicates that the behavior of profit seeking firms, banks and households that own wealth would tend to disrupt coherence. Thus there is a second question that formal economic theory must address: Given a well defined system in which decentralized markets yield a coherent result, are there forces, either within the well defined system or in related markets which have been ignored, that will disrupt the coherent result. This second question is the Keynesian question. Only the ineptly labeled post-Keynesian economists even address this question.(2)

The Keynesian question therefore is: How is one coherent result transformed into another coherent result or into an incoherent state? For this problem, an analytical perspective derived from Marshallian partial equilibrium, which emphasizes time dependent linkages among markets, is more powerful and more useful than the Walrasian analytical perspective which focuses on the existence of a simultaneous equilibrium in a multi-market system and uses highly artificial recontracting assumptions in the argument as to how the equilibrium is attained. Keynes's remark to the effect that it is "in the transition that we actually have our being"(3) (G.T. p.343) makes sense within a Marshallian framework, it is meaningless within a Walrasian framework.

A proposition in Arrow and Hahn's formulation of the essential results of standard economic theory is that standard economic theory holds " . . . the price signals would operate in a way to establish this degree of coherence" (p. VII). This

proposition immediately leads a skeptical mind to queries about the robustness of the result." Does the price system always operate so as to achieve and sustain a "coherent disposition of economic resources?", "Under what circumstances can incoherence develop?" and "If incoherence exists will the price signals always be such as to diminish the degree of incoherence?" are three questions that a skeptical mind will advance in the light of Arrow and Hahn's assertion. In particular, why cannot the price system work so as to make a bad /i.e. incoherent or chaotic/ situation worse? Keynes's theory of effective demand, which can be seen as an adaptation of the Marshallian analytical technique to new problems, shows that the endogenous workings of the price system in an economy with characteristics of a modern capitalist state does not always operate to achieve and sustain a coherent state, that the financial structure and interrelations determine whether the price system's signals are coherence augmenting, and that in well defined situations which have observable correlatives the price system will not work so as to diminish the degree of incoherence.

Arrow and Hahn are far too sophisticated and subtle to make big claims for the relevance of general equilibrium theory to the problems of the world as it is. In their introduction and again in Chapter XIV, The Keynesian Model, Arrow and Hahn acknowledge that the formal result that a decentralized economy yields "coherence" may not be robust. Their defense of standard theory is that "It is not sufficient to assert that . . . these claims (for a competitive market mechanism) fail in the actual world. <u>It must be shown just how the features of the world regarded as essential in any description of it make it impossible to substantiate the claims</u>" /my emphasis, p. VII/.

In this rather awkward sentence Arrow and Hahn ask that the institutional and behavioral characteristics of the economy that make the proposition that a decentralized market yields a coherent result a conditionally rather than a universally valid proposition be identified. They challenge those who hold that standard economic theory is of limited relevance to an understanding of the behavior of a capitalist economy to identify the market relations and processes which are not taken into account in standard theory but which are "essential in any description" of a capitalist economy and to show how these features of the economy either makes the achievement of a coherent disposition a conditional rather than universal result or makes the price signals ineffective or even perverse in transforming an initially incoherent situation into a coherent situation.

Arrow and Hahn are asking for the specification of the institutions that make a theory of effective demand necessary and which permit effective demand failures to occur. This is so because any reasonable definition of a "coherent disposition of economic resources" must hold that the existence and persistence of large scale unemployment is "incoherent". Furthermore any meaningful definition of "coherent" cannot consider accelerating inflations or cumulative debt deflations as coherent. If the "price signals" are always such as to yield a coherent result then the normal functioning of a market economy (1) cannot transform reasonable full employment into large scale unemployment (i.e. the normal functioning of the price system cannot be disequilibrating) and (2) cannot allow for the "normal" reactions of prices to an excess supply of labor (unemployment) to be ineffective in setting market adjustments into play that will tend to eliminate the excess supply.

If it can be shown that normal market processes tend to yield either (1) or (2) above then the results of standard theory are not really relevent to those aspects of the economy to which these processes apply.

Arrow and Hahn's first chapter is an Historical Introduction. It is of interest to note that Marshall is not included in the main thrust of the survey of the history of the discipline. Even though partial equilibrium is mentioned it is treated without referring to Marshall. Thus it is not surprising that when Arrow and Hahn treat "The Keynesian Model" in their Chapter XIV they place the argument in a Walrasian rather than a Marshallian framework. The Marshallian analysis of how a short run "equilibrium" may generate a long run "disequilibrium" that triggers investment or disinvestment is not related by Arrow and Hahn to Keynes arguments in which short run (profit) expectations lead to the current employment of labor even as longer run (profit) expectations generate investment demand. If Keynes's Marshallian heritage is recognized then it is clear that Keynes was largely concerned with the signals that prices, wage bills, and profits "send" back and forth through time rather than with signals as of a "moment" in which a full Walrasian equilibrium is achieved. If Keynes were placed in a "general interdependence through time" framework then it would be readily recognized that Keynes was addressing the very question of how coherence is sometimes sustained and sometimes disrupted by market processes.

Marshall distinguished among market, short runs, long run and secular equilibrium, in particular in Marshall's short runs the extent to which capital assets are used in production is a variable, in the long run the amount of capital assets

available for use in production is a variable.[4] From the perspective of the "challenge" of Arrow and Hahn two points stand out about the Marshallian construct:

(1) A particular equilibrium in one of the Marshallian periods may lead to a disequilibria in some other "period". A market period equilibrium may lead to a price that implies a short period disequilibrium and a short run equilibrium may imply a long run disequilibrium.

(2) Whatever the disequilibria implied by an equilibrium may be (whether for markets of the same or different runs) Marshall argued that the signals through time given by prices, outputs, and wealth trigger responses that tend to eliminate the disequilibrium.

Thus the disequilibria of Marshall, if interpreted as the "incoherence" of Arrow-Hahn, are benign in the sense that the prices that rule lead to coherence augmenting reactions.

It is almost obvious that to an inquiring and virile cohort, that had been brought up on Marshall, the behavior of the economy during 1929-1933 would lead to questions about the aptness of the market signals generated by the current behavior of the economy for the elimination of the incoherence so evident at that time in both financial markets and the markets which determine output and employment. In particular the virtual collapse of asset prices and investment in the United States during 1930 would focus their attention on how current views of the future combine with current performance of the economy to generate investment demand.

Thus Keynes's division of expectations into shorter run and longer run expectations with the shorter run expectations

affecting the extent to which current production facilities are utilized, therefore determining the volume of employment that will be offered, and the longer run expectations affecting investment decisions is a natural extension of the Marshallian short run and long run. However whereas in Marshall's analysis the reaction in the investment determining longer run market was always such as to eliminate deviations from equilibrium Keynes argued that the impact upon longer run expectations of current developments in product labor and financial markets can be ineffective in correcting an incoherence or can make the incoherence worse.

A critical difference between Keynes and the economists of the tradition that stretches from Smith through Marshall and onto the current generation of price theoretic economists as represented by Arrow and Hahn is that the analysis of the economy begins from quite different questions and perspectives. Smith, classical and neo-classical economists, and today's price theorists direct their analysis to questions of how particular prices and allocations are determined, the underlying paradigm is that of a "village market". Keynes, writing in the aftermath of a great financial debacle of capitalism is concerned about the overall behavior of the economy and the perspective is of an entrepreneur who must "negotiate" with "bankers". With this altered perspective, the initial concerns of economic theory are with the decisions to acquire and finance positons or holdings of capital-assets. The difference between Keynesian and standard economics is there at the beginning. Although Keynes "borrows" time dependent relations from Marshall, he applies such constructs to a quite different formulation of the "basic" problem that economics must attack.

However it is not enough to assert that Keynes viewed the "economic problem" from a different perspective than Arrow and Hahn and that Keynesian ideas of equilibrium owe more to Marshall than to Walras. To meet the Arrow and Hahn challenge it is necessary to:

(1) state the features that are essential to the description of the economy that are not well handled in standard theory and

(2) indicate how these features lead to market failures in the form of shortfalls (or excesses) of aggregate demand that are not efficiently eliminated by the signals "given off" by the economy.

A good part of the considerable literature on the interpretation and true meaning of Keynes that has appeared in recent years interpret "Keynesian Economics" as a "disequilibrium state" within the framework provided by static Walrasian general equilibrium theory; Arrow and Hahn treat Keynes as a "temporary equilibrium".(5) In this analysis, assumptions about market behavior, in the form of sticky prices, are introduced so that "short side" sales or "rationing" takes place. The constrained "short side" or "rationing" outcome yields unemployment as a "coherent" state. The wage, price, or interest rate rigidities constrain the working of the economy so that a "pseudo" incoherence in the form of unemployment results; however, if the constraints were to be removed then the market signals would lead to the full coherence of full employment.

This disequilibrium approach misses the central problem that Keynes identified, which is that in a capitalist economy the variables and markets which affect investment demand are different from the variables and markets that determine the extent

to which employment is offered to produce current output. Current output in the "no government" case consists of consumption and investment. The variables and markets that are relevant to consumption demand are not the same as those that affect investment. Keynes structured reality in terms of:

(1) The sources of the financing of demand. Thus consumption demand is mainly financed by current and near term wage income and investment demand is financed by a combination of profits and the issuance of debt.

(2) The sources of the cash flows that validate debt. Thus the fulfillment of household debt contracts depends upon the flow of wages whereas the fulfillment of business debt contracts depends upon either the sale of assets or the flow of profits in the future, and

(3) Two sets of nominal prices;(a) those which become the source of cash to cover mainly wage income i.e. current output prices and (b) those which reflect current evaluation of future profits. The proximate determinants of the prices of current output are money wages and the proximate determinants of the prices of capital assets are current expectations of future profits and current views about the assuredness of the market value of different assets

Keynes's analysis was not solely given to explaining the market failures that lead to persistent large scale unemployment. True, the massive and continuing unemployment of the 1930's was a "critical experiment" thrown up by history which forced a reconsideration of the validity of the inherited economic theory. The incoherence exhibited by the World's

financial order over 1929-1933 was a "critical experiment" on a par with the mass unemployment that forced a reconsideration of inherited economic theory. Keynes special theory holds that in a particular conjunction, following the incoherence of a financial crisis and a debt deflation process, endogenous market signals were both inefficient and quite likely perverse in eliminating unemployment and stabilizing the prices of capital assets and financial instruments. In these circumstances apt policy would be to have fiscal policy signals over-ride market signals.

The concept of "effective" or aggregate demand and the market processes that determine each transitory equilibrium of effective demand and supply are central to Keynesian theory. They are also central to understanding of the dynamic processes that determine the behavior of a capitalist economy. Significant incoherence occurs because market processes do not assure that effective demand always will be sufficient to yield profit flows large enough to assure that "bankers" and "business men" will be able to fulfill their commitments on debts and the market reaction to such shortfalls of cash flows tends to markedly depress asset values. In addition when effective demand is sufficient to achieve and sustain full employment, the easy fulfillment of obligations on debt instruments yields market signals that lead to a rise in capital asset prices, an increase in debts, a rise in investment and a rise in profits, employment and income. Market processes transform a coherent full employment into the incoherence of an investment and financial boom.

Effective demand leads to consumption and investment expenditures. [Government and the rest of the world are ignored].

Businesses offer employment and thus produce output on the basis of the profits expected from using labor and existing capital assets to produce and distribute consumption and investment output. These expected profits depend upon what Keynes identified as "short run expectations". In determining the price at which they will offer shoes to American and German distributors, Italian producers need to estimate their labor and material costs over a relatively short horizon. American and German distributors need to estimate the state of the market for shoes in their country over a somewhat longer horizon. The distributors estimates will reflect expectations of income, employment and price level developments. Similar considerations over short time horizons which reflect investment projects under way, business authorizations to spend on investment and financing arrangements being made affect the employment and output decisions of the producers of goods used in investment. Employment offered in the construction industry, where projects are undertaken on the basis of "orders in hand", also relate to short run profit expectations. Thus it is short run expectations that lead to current employment in the production of consumer and investment goods.

In addition to deciding how to use existing capacity, business has to decide whether and how to expand capacity. Whereas the utilization of existing capacity is determined by price, cost, and therefore profit expectations over a relatively short run (six months, one or two years) the decision to expand capacity is determined by profit expectations over a much longer time horizon (ten, twenty and even forty years). This long time horizon means that uncertainty, in the sense that there is a need to act on the basis of conjectures about future economic

and political situations which in no way can be encompassed by probability calculations, enters in an essential way into the determination of that part of today's effective demand that is derived from investment behavior.

Investment demand is financed in a different manner than consumption demand. It is true that in a world with consumer credit, banks and financial relations affect consumption demand, but the amount of consumer demand that is financed by debt mainly depends on expected employment while the demand for investment depends upon the terms on which short and long term external finance is available and the expected profits from using capital assets in production. Thus the demand for investment output is affected by the long run profit expectations of both business men and the financial community. Finance and financial markets enter in an essential way in generating the effective demand for investment output.

The distinction between the external financing of household demand and of investment demand and capital asset ownership by business centers around the time horizon of the credits and the expected source of the funds that will fulfill the debt obligations. Aside from the financing of housing, consumer debt is typically short run. While the banking system does provide business with short term financing, traditionally for activity based upon short run expectations, the financing of investment and of capital asset ownership involves longer term equity and debt instruments. Cash required to fulfill consumer debt and housing finance obligations normally is received as wages and other household incomes. Cash required to validate the instruments used to finance capital asset ownership are generated by profits and the way in which longer run profit expectations are transformed into the prices at which assets can be sold or pledged. The role of debt financing and the considerations

"bankers" and financial officers take into account are different for households and businesses.

Investment demand determines whether the short-run profit expectations of business men who made decisions to offer employment in order to utilize the existing production capacity are or are not validated. If investment demand is at an appropriate level, then the various outputs produced with existing productive capacity will generate profits as expected. If this occurs then business will continue to offer the same employment to produce the same output, provided that the intervals between the first and subsequent production decisions are so small that the ongoing investments do not significantly affect production possibilities and that the liabilities issued to finance investment do not significantly affect cash payment commitments.

Inasmuch as aggregate profits are generated by the way demand affects the utilization of existing capacity, the validation of short run profit expectations by realized profit depends upon investment activity. Financed investment demand forces aggregate effective demand, by means of the multiplier, to the level at which savings equals investment. If investment is stabilized then the aggregate flow of profits is determined. Eventually, by a process of market adjustments, employment will settle at the level that is determined by correctly anticipating the volume of profits that follows from the hypothetically stabilized investment. To each state of long run expectations there corresponds a level of investment and, if short run expectations adjust to the profits implicit in that investment level, there will be a level of employment to which the economy will settle. This level of employment, which is consistent with the state of long term expectations, is a "virtual" equilibrium of the system. It is an implicit rather than an achieved equilibrium. The effects of investment and financing upon productive

capacity and payment commitments that were placed in the "ceteris paribus" bag will be taking place. These cumulated effects change the implicit equilibrium of the system. Furthermore if the short run equilibrium implicit in the state of long run expectations is attained and then sustained, a "stable" or a "tranquil" behavior of the economy will result. Such a stable or tranquil state of the economy, if sustained for a while, will feed back and affect long term expectations about the size and security of profits. This will affect views of the uncertainties involved in holding capital assets and financial instruments, which will affect asset values and permissible liability structures.

For the economy to sustain an "equilibrium of employment" in which short run profit expectations are consistent with financed investment, the profit flows must be sufficient to validate debts, i.e. business must be able to fulfill the cash payment commitments embodied in their liability structure. But such fulfillment of debt commitments affects the willingness to debt finance by bankers and their customers. The value of the insurance implicit in holding money decreases as the economy functions so that current profits are more than adequate to fulfill debts. A stable, tranquil or coherent mode of performance of the economy implies the comfortable fulfillment of commitments on debts. This means that there are opportunities for business men and bankers to profit by increasing debts.

If the particular price and employment configuration which reflects existing short run expectations differs from full employment, the question is whether labor, product, and financial market reactions will affect either short or long run expectations in such a way that a movement towards full employment takes place. Short run expectations reflect existing consumption and investment demand. Consumption demand is dependent upon current and expected employment and wealth. Consumption demand

is largely dependent upon employment and expected employment. Investment demand depends upon long run expectations. The question is whether the market adjustments induced by less than full employment will always affect long run expectations so that the demand for investment increases. Once the question is put this way the answer is an evasive "that depends". Falling money wages, interest rates, and mark ups in the production of investment goods may improve the longer run profit expectations so that investment demand increases <u>or</u> they may be accompanied by such a fall in the current market price of capital assets and current profit flows that the longer run profit expectations deteriorate.

In the years of the great contraction 1929-33, it seems clear that responses in labor, product and financial markets to unemployment, excess supply, and difficulty in meeting financial commitments made things worse, not better. Falling wages and product prices, by increasing the burden of cash payment commitments due to existing debts relative to profit flows which depend upon current prices, outputs, and wages, lowered the long run profit expectations of business men and bankers, thus making the profit flows/financial commitments relation less, not more favorable to ordering investment output.

Thus there is a problem of effective demand failures in a capitalist economy that is not due to wages, price or interest rate rigidities. It has been shown that such a problem is likely to arise in an investing capitalist economy that has sophisticated financial institutions. In such an economy employmen is offered on the basis of short run profit expectations whereas investment demand, which depends upon long run profit expectations, determines the profits that in fact are realized. Only if market reactions to unemployment change long run expectations so that investment increases and if market reactions to excess aggregate demand change long run expectations so that invest-

ment decreases can the system be considered as self-equilibrating with its "equilibrium" in the neighborhood of full employment.

Once the way investment demand is generated by a combination of the valuation of the stock of assets, the financing available from internal funds and financial markets, and the supply price of investment output is specified, then it can be shown how a collapse of asset values, which occurs because of position making problems of units which used short run liabilities to finance positions in capital assets can lead to a collapse of investment. Such a collapse will decrease the profit flows generated by capital assets used in producing output which in turn makes the fulfillment of some additional business financial commitments more difficult. Financial structures and financial interrelations are the phenomena in a capitalist economy that make the development of those long term expectations that lead to a collapse of investment an endogenous phenomena in the particular circumstances that in fact arise in the aftermath of a sustained expansion. "Incoherence" but not necessarily chaos is a normal process result of an economy with private debts that are used to finance positions in capital assets and whose validation depends upon the flow of business profits.

In part this paper is a response to a challenge by Arrow and Hahn to the skeptics. One standard way of meeting a challenge is with a challenge. In Chapter XIV Arrow and Hahn introduce money into a model by stating "Let the subscript 'm' stand for money that we now regard as the non-interest paying debt of some agency outside our formal system" /Arrow and Hahn, p. 349/. I suggest that the formal theorists introduce money into their analyses as follows: