Market Processes and Thwarting Systems

by

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Abstract:

An expository paper that points out that there are two long standing views on business cycles and economic dynamics in general, one emphasizing endogenous stability plus exogenous disturbances and the second endogenous instability plus institutional containing or thwarting mechanisms. The argument supports the endogenous instability perspective and leads to an anti Laissez Faire Theorem and a Limitation Upon Performance Theorem.

1. Introduction

In this paper we argue that the current state of economic theory as well as the performance of capitalist economies in recent years support the view that the path through time of a capitalist economy is best described as the result of the interaction between the system's endogenous dynamics, which if unconstrained would lead to complex paths that include periods of apparent growth, business cycles and economic instability, and the impact of institutions and interventions which, if apt, constrain the outcomes of capitalist market processes to viable or acceptable outcomes. We call these institutions and interventions "thwarting systems".

We deviate from the conventions of orthodox economic theory by assuming that in capitalist economies the core decision makers are profit seeking businessmen and bankers.[1] Even though their key actions are forward looking, these agents are constrained by legacies of the past in the form of capital assets and financial commitments. Furthermore they do this within an institutional structure which they know is changing even as they act. Every day the actions of business men and bankers determine "tomorrow's" capital

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1. The conventional view is that "Any economic model is going to have as its center a collection of hypothetical consumers whose decisions, together with the technology and market structure, determine the operating characteristics of the system . .." (Lucas, 1987 p.20)

asset and financial structure. In capitalist economies yesterday and tomorrow are present today.

The agents' expectations of how the economy will perform is one way tomorrow is present today. Each day contracts are entered upon on the basis of tenuously held beliefs and imprecise information: our bankers and businessmen act and decide under conditions of uncertainty in the sense of Keynes.: Because businessmen and their bankers have liabilities the relevant uncertainty is mainly about future profits (cash flows). The emphasis on businessmen and bankers and on financial commitments and decisions based upon expectations that respond to events (are endogenously determined) and that are often tenuously held makes our argument **Keynesian.**[3] It is a Keynesian precept that the performance of the economy affects the model of the economy that agents use in forming **expectations.**[4]

Intertemporal linkages, financing, and the endogenous determination of the model agents use in guiding the formation of expectations mean that the appropriate mathematical formulation of the economies we are

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2. See **Keynes'(1937)** pp. 213-214.

3. It is a problem in the intellectual history of economics to explain how Keynes's treatment of expectations formation under conditions of uncertainty, which is central to an understanding of the General Theory, disappeared from the orthodox Keynesianism of the postwar period. (General Theory, Ch. XII and XVII, and **H.P.Minsky,1975)**

4. In the rational expectations school's view the model of the economy that guides agents behavior is invariant with respect to unfolding economic experience.

investigating will be complex time dependent systems. The mathematics of such systems leads to the proposition that capitalist economies should from time to time exhibit economic instability.[5] But instability rarely becomes explosive. We need to understand why.

We use the ceiling-and-floor version of the accelerator-multiplier interactions that were developed in the 1950's as a simple prototype model which endogenously can generate unsatisfactory states but which can be constrained by interventions to generate satisfactory states. We postulate that institutions and interventions thwart the instability breeding dynamics that are natural to market economies by interrupting the endogenous process and "starting" the economy again with non market determined values as "initial conditions".[6] It follows that the observed behavior of the economy is not the result of market mechanisms in isolation but is due to a combination of market behavior and the ability of institutions, conventions and policy

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5 We define dynamic instability in a rather informal way. Essentially, we mean the irregular pattern and the persistence in time of the most common macroeconomic diseases, such as unemployment and inflation. This instability can give rise to runaway situations such as deep depressions or hyperinflation phenomena.

6. Central bank interventions, both as they affect money market conditions and as a lender of last resort, which have been in place over the centuries, are one form that interventions and constraints take. The lender of last resort function of central banks developed out of the experience with intermittent endogenously determined instability.

interventions to contain and dominate the endogenous economic reactions that breed instability if left alone.[7]

In section 2 we contrast the endogenous stability plus shocks view of business cycles with the view based on endogenous instability with thwarting or containing mechanisms. In section 3 we consider how these two views of the dynamics of the capitalist economy imply different policy perspectives. In section 4 we take up examples of thwarting forces within the endogenous instability view. Section 5 states and interprets two theorems - an anti laissez faire theorem and a limitation upon performance theorem - that are implicit in the argument. The last section is the conclusion.

2. Two Views on Dynamics

There have long been "two views" of business cycle dynamics: one is that the endogenous process of the economy generates an equilibrium which may be static but now is usually taken to be a "growth equilibrium", and the other is that endogenous processes lead to business cycles and instability.[8]

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7. This view harks back to H. P. Minsky's 1957 article.

8. In his memorial of Wesley Mitchell, Schumpeter distinguishes between those economists who hold that "... the economic process is essentially non oscillatory and that the explanation of cyclical as well as other fluctuations must be sought in particular circumstances (monetary or other) which disturb that even flow." with the "...'theory' that the economic process itself is essentially wave like -

The first view leaves business cycles to be explained. In the work of Slutsky (1937) and Frisch (1933)- as well as Friedman (1968) and Lucas(1972) -the economy is a mechanism that transforms exogenous shocks, which are either random or unanticipated policy interventions, into business cycles. The important difference between Slutsky and Frisch on the one hand and Friedman and Lucas on the other is that the former explore the consequence of treating the economy as an agent that averages shocks, whereas the latter accept the economy as an averaging agent but ground their shocks in the difficulty of maximizing agents to interpret changes in the environment. In Friedman and Lucas the environmental changes are initiated by money supply changes.'

The second tradition views business cycles- and economic instability - as the natural and inherent consequence of self interest motivated behavior in complex economies with sophisticated financial institutions. The names in this tradition are Marx, Mitchell, Schumpeter, Kalecki and Keynes.

A "Keynesian" endogenous explanation of business cycles received a mathematical statement in the formalization of

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that cycles are the form of capitalist evolution- ..." (J. A. Schumpeter (1951) , page 252) Schumpeter held that Mitchell, Keynes and he himself held the view that "..cycles are inherent in the capitalist process."

9. Lucas concludes his 1976 paper by noting that " This paper has been an attempt to resolve the paradox posed by Gurley (1961) in his mild but accurate parody of Friedmanian monetary theory: money is a veil, but when the veil flutters, real output sputters." (Reprinted in Lucas (1981) page 84.)

the interaction of the accelerator and multiplier as a second-order linear difference equation.(Samuelson 1939). As it could generate only four types of time paths (oscillatory and damped, oscillatory and explosive, nonoscillatory and damped and nonoscillatory and explosive) none of which would do for business cycle analysis, this simple form was unsatisfactory except as an expository device.

Starting with a Samuelson type multiplier-accelerator interaction and assuming that the parameter values lead to explosive (monotonic or cyclical) paths, Hicks (1950) added ceilings and floors that had the effect of constraining the economy to acceptable paths. This model was extended by Minsky (1957,1959) who motivated the ceilings and floors by referring to the behavior of monetary and financing relations and interpreted the ceilings and floors as the imposition of new initial conditions.[10] This allowed the endogenous dynamics to be such that unsatisfactory performance would be generated by the unconstrained economy even as the constrained behavior is acceptable. As policy can be interpreted as the imposition of new initial conditions in Minsky's formulation, policy can play a positive role.

Interest in these models of endogenous cycles waned after the 1950's: strong business cycles did not appear and the rather steady growth made it plausible to assume that

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10. For an interpretation of new initial conditions as changes in regime, see Ferri and Greenberg (1989).

the (moderate) fluctuations of experience can best be interpreted as transformations of stochastically or systematically determined deviations from a growth path: i.e. that the Frisch-Slutsky approach was valid. 11 In the work of Lucas (1972, 1981, and 1987) and others, business cycle analyses that claimed to be consistent with the equilibrium-seeking and sustaining character of microeconomic theory were advanced.

In more recent years the breakdown of the Bretton Woods system, serious recessions, and chilling episodes in financial markets have cast doubt on the endogenous stability of capitalist economies. At the same time knowledge that simple deterministic nonlinear relations can generate time series that are chaotic together with the results of computer simulations which explored the properties of mathematically intractable dynamic models (Richard Day 1982, 1986) have shown economists that fully endogenous economic processes can generate complex patterns.[12] These nonlinear models are not vulnerable to the

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11. Richard Goodwin maintained an interest in endogenous cycles throughout this period. See, for instance, Goodwin (1967).

12 Chaotic behavior is defined as ". ..a time path that will pass most tests for randomness". (Baumol and Benhabib, 1989 p. 77) It can be generated by simple deterministic models. "In essence, chaos theory shows that a simple relationship that is deterministic but nonlinear, such as a first order nonlinear equation, can yield an extremely complex time path. Intertemporal behavior can acquire an appearance of disturbance by random shocks and can undergo violent, abrupt qualitative changes, either with the passage of time or with small changes in the values of the parameters. (page 79)

criticism that endogenous business cycle models generate time series that are too regular. At the same time, these series are not necessarily explosive. [13]

3. Economic Theory and Laissez-faire

Adam Smith's invisible hand conjecture that each agent "...intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention" (Smith (1776) bk IV, ch. 2) is the foundation upon which exogenous shock models of business cycles rest. The Smithian conjecture has been transformed into the theorem that "A competitive equilibrium is a Pareto optimum." The "invisible hand" proposition leads to laissez-faire as a policy position.[14]

The formal demonstration that a competitive equilibrium is a Pareto optimum theorem was achieved in the 1950's by Arrow and Debreu (1954) and McKenzie (1959). This achievement fulfilled only one part- the proof of the

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13 It is worth stressing that modern analysis of nonlinear models allows for the presence of instability which does not necessarily degenerate into runaway situations. However, in such models small changes in parameters can be responsible for large changes in the dynamics. Thus, various innovations that might change parameters might have the effect of setting up entirely new dynamics such that people lose the ability to interpret the future and this affects their behavior. In this context, thwarting mechanisms try to control the outcomes and keep them more stable.

14. The assumption underlying this view is that laissez-faire does not unleash predators motivated by greed who acquire and exploit market power, but that market conditions force powerless agents to serve a "social good".

existence of a competitive equilibrium- of the research program of general equilibrium theory. The full research program included the demonstration of the uniqueness and stability of competitive equilibrium. It is now known that the second and third part cannot be achieved: the competitive equilibrium is not unique and it is not stable. Even at the most abstract levels it is not possible to claim that if left to its own device, a competitive economy would achieve and sustain an equilibrium. [15]

The formal model for which the existence theorem has been demonstrated abstracts from innovations in technology, institutions and policy interventions. There is no money as liabilities of banks. The financing of investment in resources that are expected to produce profits is not considered. Arrow and Hahn (1971) cite Yeats, "The center does hold", when they briefly examine extensions of the General Equilibrium model to Keynesian concerns.

Once the domain of what economists must explain is broadened to include such economic activities as resource creation, finance, innovation, market power and the creation and modification of institutions, then the Adam Smith proposition that each agent promotes "...an end which was no part of his intention..." need include among the ends promoted not only the effective working of markets, economic

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15 The argument that claim of the power of the 'Walrasian system of general equilibrium equations' made by many economists goes beyond the proven properties of the Walrasian system is to be found in Ingrao-Israel (1987), Arrow-Hahn (1971) and Duffie- Sonnenschein (1989).

progress and growth but also instability. Agents each intending "...only his own gain..." contribute to market relations that make a breakdown of the economy, such as occurred over the years 1929-33, endogenous phenomena.

Technical change, innovations, capital assets, institutional behavior, and ever evolving financing relations are aspects of the economy that were ignored when the theorem that competitive equilibrium exists and is an optimum was derived. When these ignored elements are taken into account the theory needs to link yesterday, today and tomorrow. The models become complex, the problems even more difficult to deal with, and the policy conclusions less straightforward.

4. Thwarting Systems.

Once it is recognized that the endogenous interactions of the economy are important elements in determining its dynamical pattern, there is a need to explain why frequent bouts of instability are not observed. The answer put forth here is that the economy has evolved usages and institutions, including agencies of government, whose economic impact is to thwart the instability generating tendencies of the economy. This is so especially when the conjectural nature of the model of the economy that agents use as they form the expectations that guide their behavior is taken into account: the belief that "they wont let it

happen" with regard to serious depressions is by itself stability enhancing.[16]

The piece-wise linear model of business cycles based upon ceilings and floors can be construed as a metaphor for the interplay between market valuations and outcomes, on the one hand, and the impact of the thwarting forces, on the other. The ceiling and floor models as extended by Minsky (1957, 1959) allow for policy determined variables - such as the money supply or the governments budget deficit - to set new initial conditions or to contain the time series that can be generated.

The thwarting forces change in time.[17] They differ among economic systems. The thwarting systems are analogous to homeostatic mechanisms which may prevent a system from exploding. However, they are not mechanical. Policy agents and law makers need to interpret what is happening and need to understand how their actions can affect the behavior of endogenous agents and thus the economy. Peter Albin remarked that "Agents in the model have a model of the model". Among the agents who need to have a model of the model are policy "agents". If the economy is endogenously unstable, then policy based upon the assumption that the economy is endogenously stable is likely to be inept.

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16 We shall see below how this kind of attitutude can become destabilizing in other situations.

17 Boyer and Mistral along with other French economists write about "regulation". See R. Boyer - J. Mistral (1984).

A transitory semblance of stability can be achieved by policy interventions and institutionally constrained behavior. However, units learn how policies and institutions affect the outcomes that result from their actions and try to adjust their behavior in the light of what they think they know.

The study of complex systems is incomplete without the examination of specific thwarting systems. The theory tells us what we have to look for: we have to look for customs, institutions, or policy interventions that make observed values of variables different from what the values would have been if each economic agent pursued "only his own gain".

Three examples from the US economy will be examined to illustrate how institutional structures and systems of interventions affect the behavior of the economy: the Piore-Sabel conjecture with respect to labor markets, the uses of market power, and lender of last resort interventions by central bank mechanisms. These, of course, do not exhaust the list of thwarting mechanisms.

a) Labor Market Institutions

Piore and Sabel (1985) argue that the United States post World War II wage policy consensus was a significant factor in creating the era of apparent tranquil progress that ruled for the first two decades after World War II. The wage

policy consensus was that hourly wages should increase each year by a factor that reflected productivity gains plus realized inflation – i.e. the purchasing power of wages was to increase by about 3% each year. This consensus made for tranquil progress because it held "underconsumption" in check, which **Piore** and Sabel hold to be one of the causes of serious depressions. Buoyant worker demand resulted from this wage policy consensus. **Piore** and Sabel also suggested that this trade union settlement forced the banking system to be properly accommodating: the wage consensus dominated the monetary mechanism.

Underlying the productivity plus inflation rule for nominal wage changes was the view that competitive market forces could not be depended upon to transform falling unit labor costs into lower prices. If product markets were competitive and money wages were constant then productivity increases would be translated into falling money prices. The argument for the post war settlement has to draw on a proposition that market prices do not adjust to decreasing unit labor costs or that if such adjustments took place there would be adverse consequences.

In practice the wage consensus led to a rule that would transform a shortfall of productivity increases into rising product prices. If, for any reason, wage increases exceed the rate given by productivity and inflation, then supply conditions would make for further inflation. The consensus rule assumed that if inflation takes place the banking

system would be accommodative. This meant that "next" year the realized inflation plus productivity wage increase would increase.

However, after a burst of wage increases in excess of the productivity plus inflation rule in 1968-69 the wage setting process became an engine of inflation. Escalator clauses together with a banking system that accommodates the demand for financing, either because of a consensus view of what the banking system should do or because the authorities feared unemployment more than inflation, tend to amplify the dangers of inflationary instability. Thus, the rule of monetary accomodation which was stabilizing in one set of circumstances, became destabilizing in another.

b) Market Power and Financial Structures

In our modern world successful production, administration, communication, distribution and transportation processes often use very expensive and long-lived capital assets.[18]

Expensive, long-lived capital assets require financing. In some capitalist economies - such as Italy - many of the industries that require expensive, long-lived capital assets are publicly owned and externally financed by means of debts

18. Often does not mean always. What has been called the "Emilian Way" can coexist with and prosper alongside operations that require expensive capital because of technology or the scale of operations. For a discussion of this model, see Brusco (1982).

of government agencies. In the United States almost all such industries are private, and in many cases there are alternative suppliers of the services or goods.

When J.P. Morgan was riding high it was discovered that for such capital intensive industries as the railways, intense competition, which forces price to marginal cost, will not yield enough cash to validate bonds or the cost of building the asset. This intense competition would result either from **"overinvestment"** in a regime of decentralized markets for financing or from recessions that cut the demand for the industry's output.

The banker's interest in business is that the cash flows be large enough to validate the debts that were assumed to pay for the capital assets when they were acquired. Such debt validation and validation of prices paid for assets is possible for production with constant or diminishing marginal costs if and only if price exceeds marginal costs. Intense competition, in periods of excess supply, must not be allowed to push price to marginal cost. Bankers who take seriously their responsibilities to the holders of instruments they put out or sell will not finance industries that require expensive capital assets unless there is some believable guarantee that price will not fall to marginal cost.

Such a guarantee can take two forms: one is to guarantee that aggregate demand will be adequate, and the second is for the owners of the capital to possess market power,

either because of the non-competitive nature of the market (monopoly, oligopoly) or because government regulates the industry to prevent strong competition from emerging. Since individual units, even Wall Street bankers, cannot guarantee that aggregate demand will be adequate, bankers will favor clients that possess market power.

Both monopoly and the regulation of industry that constrains competition satisfy the need of bankers for devices that limit the exposure of clients to downside profit risks. The question is whether the financing efficiency thus gained - which facilitates capital intensive investment - offsets or fails to offset the allocational inefficiency of non-competitive industries and regulated monopolies. In Schumpeter's vision of accumulation and innovation, technical dynamism requires that bankers and businessmen cooperate in forcing the economy out of the path that leads to simple reproduction. In the view that ignores the processes by which accumulation is financed, regulation and oligopoly lead only to allocational inefficiency.

The market power - whether through oligopoly or regulation - solution to the problem of protecting lenders against downside exposure loses some of its force when fiscal and monetary intervention succeeds in maintaining aggregate demand and aggregate profits. With demand maintained and prices stabilized through the exercise of market power by way of regulation or oligopolistic interactions, profits are higher than anticipated even

though unused market power can exist. As a result of the unused market power, rising costs will not decrease profits but will be translated into rising prices. If the problem is formalized in terms of wage rounds and price rounds, a situation in which the use of previously unused market power becomes a basis for subsequent wage increases is brought into being.

Prior to the import boom the American automobile and steel industries were examples of shared monopolies in which unused market power was translated into worker wages and benefits. This led to a cost structure which became untenable once trade undermined the product market monopoly. The problem of how to meet competition that erodes market power may require a reconsideration of the standard argument for free trade . The institutional structure that emerged when the issue was the financing of capital intensive productions in a world where finance required protection through market structures against aggregate demand failures can be counterproductive in a world where such demand failures do not occur and the monopoly power that supported favorable wages is eroded.

c) Lender of Last Resort Intervention

Both monetarism and the orthodox Keynesianism that ignores the historical period in which The General Theory was written are alike in that they emphasize the Central Bank as the creator of money rather than the Central Bank as

the lender of last resort. In the 1990's, with the recent experience of bank and thrift institution failures that have led to a Government refinancing, it is not necessary to go into any abstract discussion of a lender-of-last resort intervention: we need only point to what happened in Mexico, Argentina, Continental Illinois, Maryland, Ohio, the Savings and Loan industry, etc.

The internal dynamics and interactions with business that needs to finance control over capital assets and with households that prefer to hold indirect or protected assets of our financial system lead to situations in which a collapse of asset values and financing of activity, and therefore of income and employment, seems likely. Over the years the Central Banks have developed interventions which do not permit realized values to represent the unconstrained dynamics of the system. [19]

If there is any part of the economic process and any period in economic experience where overt intervention is accepted to prevent or dominate what market processes would generate, it is when lender of last resort interventions occur. Even though Central Banks and lender of last resort interventions are common to capitalist economies, the institutions and the form of the interventions vary. In

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19 Irving Fisher's (1933) description of a debt deflation process leads to the perception that central banks intervene to short circuit the process and therefor to abort extreme consequences.

particular the existence of government "holding companies" mean that intervention in a country such as Italy is often at the firm level, whereas in the United States the intervention is almost always at the financial institution level. (Chrysler and the Railroads of the Northeast are the major exceptions.) Whereas interventions at the firm level may not have any monetary policy implications, interventions at the financial institution or financial market level affect the reserve base of banks and the interest rate structure. At times the Federal Reserve's reactions to what it interpreted as an incipient financial crisis led to both a refinancing of threatened organizations and a significant easing in monetary policy.

5. Two Theorems

Two theorems which differ from accepted views emerge from the proposition that the internal dynamics of a capitalist economy will in time lead to unacceptable system states. The first is an anti-laissez faire theorem and the second is a "limitations upon the attainable" theorem.

The Anti-Laissez theorem is that "In a world where the internal dynamics imply instability, a semblance of stability can be achieved or sustained by introducing conventions, constraints and interventions into the environment. The conventions imply that variables take on

values other than those which market forces would have generated: the constraints, and interventions impose new initial conditions or affect parameters so that individual and market behavior change".

The second, or limitation upon performance, theorem follows from the first. If the pursuit of individual gains or well being in the market leads the system to rush off into inflation, deflation, or rapid oscillations, which throw off signals that exceed computational capabilities, then the economy will from time to time be moving rapidly away from any reasonably defined notion of **"allocation"** or **"stabilization"** efficiency. If there is an observation lag and less than perfect adjustment by interventions the system can never be in an optimal allocation alignment. The theorem that this implies is **"The** "practical best" for an economy falls short of the abstract **best."**

There is a corollary to the limitation upon performance theorem. Each agent maximizes within the system of interventions and institutions that constrain the performance of the economy to tolerable outcomes. To agents for whom the constraints are binding, the attainable maxima are deemed to be inferior to the unconstrained maximum.

Effective constraints imply that both the expectations of gain and the objective possibilities of gain are smaller than the agent believes they would be if the constraints were removed. In the laissez-faire world each agent's

maximizing behavior is consistent with the system's achieving and sustaining its **"best".** In the complex world in which we live each agent seeking only its own gain under unconstrained conditions, i.e. maximizing with market constraints as the only conditions, contributes to instability. Intermittent instability, not order, results from each agent behaving in the **Smithian** manner in an unconstrained environment. Individualistic decision making leads to instability in an unconstrained world, whereas individualistic decision making leads to a tolerable outcome if appropriate institutions and interventions are included.

As agents learn the effects of constraints, institutions, and interventions, they will modify their behavior, and this will in turn change the systemic effect of the interventions. A system of intervention put in place in one environment can be effective for a while, but as agents acquire knowledge of how this system affects their outcomes they will adapt their behavior, and this will change the effectiveness of the interventions. The system of intervention cannot be put in place once and for all. Policy makers must be aware that there are always incentives to evade and avoid the interventions, and they must adjust their interventions accordingly.

These two theorems imply that any success in sustaining stable growth depends upon the institutional structure. Furthermore, because the institutional structure and the

sources of instability change, due in part to the effects of units seeking only their own gain, the success of any policy structure will be transitory. "Revolutions" such as Roosevelt's in the 1930's or the "Age of Keynes" from 1946 to 1967 will lead to successful performance of the economy even as the seeds of future failures are ripening as structural relations, conventions, and institutions change. There is no automatic pilot for an economy.

Because in each epoch the practical best falls short of a theoretical best, there always seems room for improvement. However, improvement takes on a variety of meanings in an economy which both allocates given resources and uses resources to create resources, in which technologies embodied in capital assets are given even as agents strive to change technology, and in which institutions and tastes are themselves economic variables. Economists are given to talking about efficiency, and in the models of the invisible hand tradition, efficiency means allocative efficiency. But in a dynamic view of the economy a variety of efficiencies can be defined. Improvement in one "efficiency" can lead to a deterioration in another . All too often the "room for improvement" will be along "one" of the efficiency dimensions, but success may mean that one or more of the others are compromised.

6. Some Conclusions.

The endogenous instability view of the economy, in which institutional structures and interventions stabilize the unstable[20] that we have developed, literally stands Lucas on his head. Apt intervention and institutional structures are necessary for market economies to be successful.

This view is consistent with history: laissez-faire capitalist economies were failures almost everywhere in the 1930's, whereas the post World War 2 capitalist economies that have been successful are big government interventionist economies.

The emphasis in discussing policy must be upon "apt". The proposition that apt policy and institutions thwart the endogenous development of instability does not mean either that any policy regime will do the job or that there is a unique effective policy regime. We can hazard the view that a policy and institutional regime is more likely to be apt if it reflects an understanding of what there is about the economy that leads to unstable dynamics. We recognize, of course, that there is no serious reason to believe that those who developed the institutions and interventions that make up the welfare state, which has enjoyed (transitory?) successful in the post war period, had any deep understanding of the potentially perverse dynamics of capitalist economies. The political leadership and the

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20. Minsky (1986) makes the same points without reference to the mathematical properties of nonlinear systems and within a specific model of profit generation in which profits are determined by the structure of demand.

public in the 1930's were skeptical of the claims that were advanced for laissez-faire. Trial and error led to the structure of interventions and institutions that survived.21

The statement that complex systems will from time to time generate unstable movements through time is a mathematical proposition. But mathematics is not economics. Economists need to identify the economics that lead to unstable dynamics. One aspect of the economy that may do this is the way successful performance transforms market power from a factor that facilitates investment to a factor that supports inflation. The expectations induced by stability and regular growth of profits changes the economic role of market power.

The economics of the neo-classical synthesis accepted that market economies were flawed in that there are no adequate market processes to guarantee the achievement and maintenance of a close approximation to full employment. 22 The political economy problem in the world after Thatcher and Reagan is to recognize once again that the market way of doing things is flawed not only in its ability to maintain adequate aggregate demand but also as a device for assuring

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21. The above is a myopic United States based view. In Sweden, which had a particularity sophisticated cadre of economists in the 1930's and a knowledgeable political leadership in their Social Democratic Party, may have knowingly introduced the welfare state.

22 For a discussion of these models, see Ferri and Minsky (1989).

productive investment and a tolerable distribution of income.

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