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Post-Keynesian theories of

business cycles[1]

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Abstract:

This note outlines and discusses some of the strands in the post-Keynesian literature on business cycles. Most post-Keynesians have focused on endogenously generated cycles, but the mechanism varies: some focus on the goods market, others on financial markets, the labor market, or political intervention. The merits of formal modeling of the cycles have also come in for debate.

The time-path of aggregate output and its main components exhibits significant fluctuations around trend values, as do other important variables, including employment, productivity, prices, wages, interest rates and stock prices. These fluctuations are recurrent but not regular. The pattern of co-movements between the different variables, the amplitudes of the fluctuations and the length of the cycle vary over time. In fact, the delineation of cycle from trend raises many problems, and cycles of different length may coexist in the data; short-run fluctuations may take place with reference to a long-run cycle, rather than around a constant exponential trend. The term 'business cycles', however, usually refers to relatively short cycles, and the main focus in this entry will be on fluctuations in output and employment for a closed economy.

Endogenous versus exogenous cycles

Business cycle theories can be categorized in different ways. One common distinction

concerns the 'exogeneity' or 'endogeneity' of the cycles. In some theories the

fluctuations are caused by external shocks and the cycle, in this sense, is 'exogenous'.

The shocks may be completely random and non-cyclical. They constitute the 'impulse',

and the cyclical pattern is produced by 'propagation mechanisms' that spread out the

effects of the impulse. A positive shock, for instance, may induce firms to increase their

investment and, by raising the capital stock, this decision will affect future conditions.

Michal Kalecki (along with Ragnar Frisch and Eugene Slutsky) was a pioneer of the

external-shock approach. Most post-Keynesians, however, have followed a different line.

According to this alternative approach, external shocks may indeed hit the economy and

affect movements in economic activity, but fluctuations would occur even in the absence

of shocks. The fluctuations in this sense are created endogenously.

It is sometimes claimed that a reliance on external shocks leaves the cycle unexplained and that endogenous theories are therefore intrinsically superior from a methodological perspective. The claim is not convincing. Unforeseen shocks do hit the economy; some of these shocks must be considered exogenous, and it is easy to set up plausible propagation mechanisms that convert random shocks into irregular cyclical fluctuations.

It should be noted also that the distinction between exogenous and endogenous cycles carries no implications for economic policy. Most neoclassical economists may take an external-shock approach, but policy intervention is both feasible and desirable in some models of exogenous cycles, including some mainstream specifications. External shocks that require policy intervention, moreover, also appear in post-Keynesian analysis as in the case of the desirability of compensating for autonomous shifts in 'animal spirits'. Conversely, endogenous cycles can be generated in models in which markets clear and outcomes are Pareto optimal, as well as in post-Keynesian models characterized by important market failures. Thus, the feasibility and desirability of policy intervention depend on the precise structure of the theory and its cyclical mechanisms.

In general, post-Keynesian theories stress the instability of markets and the need for both regulatory constraints and policy intervention. This emphasis on the inherent problems and limitations of free markets, rather than the exogenous/endogenous distinction, represents the substantive difference vis-à-vis most mainstream theories of the business cycle.

Mechanisms

Endogenous business cycles can be generated in many ways, and at least four distinct sets of mechanisms have been used in the post-Keynesian literature. The mechanisms are not mutually exclusive, and some contributions combine several mechanisms.

The determination of investment is central to theories that focus on the *goods market*. As a main component of autonomous expenditure, high investment leads to high levels of aggregate demand and output. A high level of output, in turn, will be reflected in high rates of profitability and capital utilization, and this will tend to induce high levels of investment and output in the next period. If investment decisions are relatively insensitive to changes in utilization and profitability, the resulting time path for output will converge to a long-run equilibrium. A high sensitivity, on the other hand, makes this long-run equilibrium (locally asymptotically) unstable: following a slight displacement from the equilibrium position, the economy does not return to the equilibrium but moves further away.

Local instability of this kind can be turned into perpetual fluctuations, rather than cumulative and unbounded divergence, if there are appropriate 'non-linearities' in the investment function and/or in other equations of the model. The existence of 'ceilings' and 'floors' represents a simple example of such 'non-linearities' (gross investment cannot be negative, for instance, and output cannot exceed a full employment ceiling) but other, less crude non-linearities may also keep the movements bounded and convert local instability into endogenous cyclical movements. Kaldor (1940) is a classic reference for

non-linear models in this multiplier-accelerator tradition, but variations on this theme also characterize early contributions by Roy Harrod, Michal Kalecki, Paul Samuelson, John Hicks, Joan Robinson and Richard Goodwin.

Investment needs to be financed, and *financial markets* are given a critical role in some aggregate-demand based theories of the business cycle. The 'financial instability hypothesis' developed by Hyman Minsky represents a prominent example (e.g. Minsky (1982)). Suppose that, having recovered from past turbulence, the economy now appears to be approaching a smooth equilibrium path. Along this path expectations are largely being met and, using Minsky's terminology, there is 'financial tranquility': borrowers are able to meet their financial commitments. This very state of tranquility will induce changes in the risk assessments of both lenders and borrowers while, at the same time, financial regulators and policy makers may loosen the regulatory standards. Risk premiums fall; lenders start giving loans they would previously have rejected, and borrowers increasingly finance their projects in speculative and risky ways. These behavioral changes relax the financial constraints on the rate of investment and a boom ensues. Gradually, the 'fragility' of the financial system increases until a financial crisis causes a rapid rise in interest rates and a contraction of credit and investment. A return to cautious financial practices now follows and the process repeats itself, although the precise financial instruments and institutions may be new and different. Minsky's theories, not surprisingly, have received a lot of attention after the financial crisis of 2007, and a number of formalizations have been developed; a recent example is Ryoo (2010) whose model produces short cycles around a Minskian long wave.

The role of *labor markets and income distribution* has been emphasized by a Marx-inspired literature, with Goodwin's (1967) model of a growth cycle as the most influential example. The model describes the dynamic interaction between the distribution of income and the accumulation of capital. When there is low unemployment – when the reserve army of labor is small, in Marx's terminology – workers are in a strong position and the real wage will be increasing. As real wages increase, however, profit rates suffer and the rate of accumulation declines. With a constant capital-output ratio, the growth rates of output and employment fall, too. Unemployment soon starts to increase, the balance of power starts shifting against workers, and, when the balance has shifted sufficiently, the share of wages stops increasing. Since the *level* of profitability is low, the rate of accumulation will also be low and the rate of unemployment keeps rising at this point. The capitalists now get the upper hand, the wage share starts falling, and profitability and accumulation gradually increase. This increase in accumulation gradually raises the rate of employment, workers once again gain wage increases, and the cycle is complete.

This model formalizes Marx's 'general law of accumulation' and, in Goodwin's original version, the model has no Keynesian features. It presumes that the capital stock is fully utilized at all times; output is determined by the supply side without reference to aggregate demand, and investment adjusts passively to the level of saving. Hybrid models have tried to overcome this weakness by including both Keynesian and Marxian features in the same model (e.g. Skott (1989)).

Political intervention may itself be a source of fluctuations. This is a position stressed by many free market advocates, but the post-Keynesian argument for a *political business cycle* is different. The classic reference is a short paper by Kalecki (1943). In a technical sense, Kalecki argued, governments may have the ability to control aggregate demand at (near-) full employment, but the maintenance of full employment generates cumulative changes in worker militancy. Increased militancy and inflationary pressures quickly bring together a powerful block of business leaders and rentiers and (supported by economists who "declare that the situation is manifestly unsound") the government allows unemployment to rise. The result, Kalecki argues, is a political business cycle. Although applied by Kalecki to short cycles, the argument is arguably better suited to deal with longer-term fluctuations, and it has been used by a number of writers in relation to the rise in unemployment in the 1970s and 1980s.

Formal modeling

Mathematical models have played an important role in the analysis of business cycles in both post-Keynesian and mainstream theory. Not all post-Keynesians are comfortable with the use of these formal techniques. Business cycles, however, involve complex, dynamic interactions and in a purely verbal analysis it is virtually impossible to keep track of these interactions and their implications. Without formalization it may be difficult to decide, for instance, whether a given argument implies that there will be persistent fluctuations, explosive divergence or convergence to a smooth path.

Most formal models of endogenous fluctuations are deterministic. This might seem a serious drawback. The empirical evidence shows irregular cycles and, from a theoretical perspective, it should be easy for both private agents and policy makers to forecast (and to take action to prevent) a cycle that was regular and deterministic.

This objection is not as powerful as it might seem. The endogenous view of cycles, firstly, does not preclude external shocks, and the introduction of shocks (ranging from natural disasters to policy shocks and changes in animal spirits) may remove the regularity without affecting the underlying cyclical mechanism. Deterministic, non-linear dynamic models, secondly, can produce 'chaotic' outcomes that are hard to distinguish from those of a stochastic model. Prediction in these models is virtually impossible, since even the smallest change in initial conditions has dramatic effects on the subsequent movements (e.g. Day (1994)). The incentives, thirdly, for individuals to try to uncover and take into account aggregate regularities may be small. Most decision makers face specific problems and uncertainties whose effects on the outcome of their decisions dominate the effects of movements in aggregate activity. With limited informational and cognitive resources, these boundedly rational decision makers may choose to ignore the possible influence of aggregate regularities altogether.

Post-Keynesians, finally, have always emphasized the historical contingency of economic models. Structural and institutional changes, such as the rise in the size of the public sector, the deregulation of the financial markets, or increased international trade and capital mobility influence the path of the economy and may necessitate a re-specification

of the models. The real-wage Phillips curve (a key element in the Goodwin model) may shift, for instance, as a result of changes in labor market legislation, and the historical contingency also lies behind the Minsky argument for financial instability. It was changing institutional forms and new financial instruments that led most observers to perceive "a far more flexible, efficient, and hence resilient financial system than the one that existed just a quarter-century ago" (Greenspan 2005, http://www.federalreserve.gov/boarddocs/speeches/2005/20051012/default.htm). More generally, until the severe recession that followed the financial crisis in 2007, mainstream macroeconomists talked of a 'great moderation'. Fluctuations appeared to become milder, and the mainstream explanation focused on changes in monetary policy, deregulation and financial innovations.

Beliefs in the disappearance of business cycles may have been disproved by events since 2007, but the historical contingency and the complexity of business cycles have other implications. Small models, like the ones described above, highlight particular mechanisms. But no single mechanism and no single source of shocks fully explain the diverse patterns of fluctuations that have been observed, and the relative importance of the different mechanisms may vary across both time and place. Thus the different models should be seen as useful tools rather than as complete explanations of the business cycle.

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