The US Business Cycle since 1950: A Post Keynesian Explanation

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1. Introduction

That the economy goes through periods of expansion and recession is obvious. Whether or not this represents endogenously-generated cycles or simply stochastic variation around a trend is, however, a matter of debate. Among mainstream economists, the latter is the predominant position. This is true even of those inclined to believe that government intervention is necessary. Christine Romer, Chair of President Barack Obama’s Council of Economic Advisors, writes for example:

Just as there is no regularity in the timing of business cycles, there is no reason why cycles have to occur at all. The prevailing view among economists is that there is a level of economic activity, often referred to as full employment, at which the economy could stay forever (Romer, 2008).

Some mainstream theories not only agree on this basic point, but model all unemployment as voluntary and see downturns as a function of either policy errors or responses to exogenous shocks.

These views stand in stark contrast to that of Post Keynesians. For them, business cycles are a manifestation of the systemic instability inherent to the capitalist system. Endogenous fluctuations in investment spending lie at the heart of the shift from expansion to recession and while various shocks and government policies can, of course, have an impact, they are unnecessary to create the patterns we see.

The goal of this paper is illustrate this point by tracing the US business cycle since 1950. With a combination of quantitative and qualitative evidence, it will be demonstrated that, from the Korean War cycle to our current financial crisis, the central factor has been the rise and fall
in investment. The complete story cannot be told without reference to fiscal and monetary policy, oil shocks, strikes, and so on—but most of it can.

The paper will be organized as follows. In the next section, the Post Keynesian view of the business cycle is explained. Next, there is a brief review of the relevant statistics, organized by cycle since 1950, and then a more detailed, qualitative discussion of each cycle. Conclusions follow.

2. Post Keynesian Business Cycle Theory

The theories upon which Post Keynesianism is built, that is, those of John Maynard Keynes, are usually thought to be limited to explaining depressions or slumps. This is simply not true. In fact, the first twenty-one chapters of the General Theory combine to create a dynamic model of the business cycle. As Keynes writes in the opening of chapter 22, “Notes on the Trade Cycle:”

> Since we claim to have shown in the preceding chapters what determines the volume of employment at any time, it follows, if we are right, that our theory must be capable of explaining the phenomena of the Trade Cycle (Keynes, 1964, p.313).

And there is no doubt that he disagrees fundamentally with Romer’s position:

> By a cyclical movement we mean that as the system progresses in, e.g., the upward direction, the forces propelling it upwards at first gather force and have a cumulative effect on one another but gradually lose their strength until at a certain point they tend to be replaced by forces operating in the opposite direction; which
in turn gather force for a time and accentuate one another, until they too, having reached their maximum development, wane and give place to their opposite. We do not, however, merely mean by a cyclical movement that upward and downward tendencies, once started, do not persist for ever in the same direction but are ultimately reversed. We mean also that there is some recognisable degree of regularity in the time sequence and duration of the upward and downward movements (Keynes, 1964, pp.313-4).

This stands in stark contrast to “...there is no regularity in the timing of business cycles” and “there is no reason why cycles have to occur at all” (Romer, 2008).

They key to the Post Keynesian/Keynes view is the role of demand, particularly investment. Assuming employment to be a function of the overall level of economic activity, two things make it difficult to keep spending high enough to employ all those willing to work. First, consumption is typically unable to sustain expansions due to the fact that we will witness “a greater proportion of income being saved as real income increases” (Keynes, 1964, p.97). If this is true, then investment must increase at an increasing rate for the economy to reach full employment. The second problem, however, is that the investment process is characterized by a number of negative-feedback loops that make it progressively more difficult to sustain, let alone increase, its level over the course of an expansion. Economic booms are thus doomed by systematic declines in consumption and investment. Understanding how and why these occur will offer signposts for which to search in the post-WWII US economy.

That consumption behaves as it does is because Keynes assumes at a macro level what Alfred Marshall does at the micro level:
Essentially, Keynes’s psychological law of consumption is a blown-up, macroeconomic version of Marshall’s microeconomic “law of satiable wants” for a single good. Thus to alter Marshall’s language slightly, Keynes in effect postulated that the “additional benefit which a person derives from a given increase of his [entire] stock of a [variety of want-satisfying] thing[s], diminishes with every increase in the stock he has (Jensen, 1983, p.83; bracketed references in the original).

Keynes argued that this was “absolutely fundamental to the theory of effective demand” (Keynes, 1937, p.220). It is what puts investment in the driver’s seat for causing both expansions and recessions. But, investment is an erratic driver. At times, it surges ahead, pulling economic activity and employment with it. These periods are, however, fleeting, and followed by sudden and predictable collapses. That this occurs is a function of five factors: uncertainty, animal spirits, interest rates, the cost of capital, and the effect of the size of the stock of capital on the marginal efficiency of capital. These will be explained in turn.

The readers of this journal are very familiar with the definition and importance of uncertainty in Keynes’ model. In an oft-quoted passage from a *Quarterly Journal of Economics* article, he writes:

> By ‘uncertain’ knowledge, let me explain, I do not mean merely to distinguish what is known for certain from what is only probable. The game of roulette is not subject, in this sense, to uncertainty; nor is the prospect of a Victory bond being drawn. Or, again, the expectation of life is only slightly uncertain. Even the weather is only moderately uncertain. The sense in which I am using the term is
that in which the prospect of an European war is uncertain, or the price of copper and the rate of interest twenty years hence, or the obsolescence of a new invention, or the position of private wealth-owners in the social system in 1970. About these matters *there is no scientific basis on which to form any calculable probability whatever*. We simply do not know (emphasis added; Keynes, 1937, pp.213-4).

The existence of fundamental uncertainty has consequences at several levels of the analysis. Limiting our attention to investment, however, it is first obvious that because capital lasts for many years, it is necessarily very forward-looking and therefore a decision fraught with Keynes-style uncertainty. As such, one may wonder why anyone would accept the financial risks associated with building a new factory, restaurant, or housing development. Indeed, a coldly rational and calculating person would not. But, Keynes also believed that human beings exhibit a spontaneous optimism, or an urge to action rather than inaction, that he called “animal spirits:”

..it is our innate urge to activity which makes the wheels go round, our rational selves choosing between the alternatives as best we are able, calculating where we can, but often falling back for our motive on whim or sentiment or chance (Keynes, 1964, p.163).

Hence, the general state of affairs is that entrepreneurs’ uncertainty must be offset by their animal spirits if investment is to take place.

This is similar to what one often hears as the layperson’s conception of the business cycle: when firms are optimistic, they hire workers and the economy expands; when they
become pessimistic, they lay off workers and the economy contracts. This is most certainly part of the process, but it does not describe a cycle. To see how the latter occurs, a further breakdown of the investment process is necessary.

Physical investment is primarily a function of two variables: the rate of interest (r) and the marginal efficiency of capital (mec). As the former rises, it tends to lower investment because it raises the cost of financing projects. With respect to the latter, Keynes defines it as, “that rate of discount which would make the present value of the series of annuities given by the returns expected from the capital-asset during its life just equal to its supply price” (Keynes, 1964, p.135). At the risk of oversimplification, it is the rate of profit (discounted) that the firm expects to earn on the best available project. If mec > r, then the firm will undertake the project in question; if mec < r, then it will not.

The crux of the problem is that over the course of economic expansion, there is a tendency for both r to rise and (particularly) mec to fall—each having the effect of lowering investment. Consider the forces driving the former. Even in an endogenous-money world, as firms and consumers borrow to spend over the course of the upswing, the cost of doing so will eventually rise. While it is true that financial institutions can devise new means of creating credit, these must be more expensive or they would have already employed them. Furthermore, one can expect banks to loan first to those who are the most credit-worthy, and only later to those representing greater risks. And, as agents take on higher debt burdens, they all become more likely to default, leading the financial sector to, ceteris paribus, raise the rates at which they are willing to lend.

Up to a point, this upward pressure on the rate of interest is offset by countercyclical
fluctuations in liquidity preference. The latter is agents’ desire to hold cash in an uncertain world. As Keynes writes:

...our desire to hold Money as a store of wealth is a barometer of the degree of our distrust of our own calculations and conventions concerning the future....The possession of actual money lulls our disquietude; and the premium which we require to make us part with money is the measure of the degree of our disquietude (Keynes, 1937, p.216).

Thus, when agents are confident—and they can be expected to become increasingly so over the course of the expansion—they are willing to purchase those assets that are for banks the low-cost means of creating credit (i.e., long-term saving instruments). But, later in the cycle, liquidity preference can actually create additional problems as falling confidence leads to hoarding that places renewed pressure on the rate of interest. Because of this, interest rates may actually rise past the point at which spending has started to decline and into and through the collapse:

...the dismay and uncertainty as to the future which accompanies a collapse in the marginal efficiency of capital naturally precipitates a sharp increase in liquidity-preference — and hence a rise in the rate of interest (Keynes, 1964, p.316).

Thus, precisely when we might hope for a fall in interest rates to stave off a collapse in investment, we witness an increase (or, at least pressures that keep it from declining).

Interest rates actually play a key role in mainstream theories of the business cycle, but as exogenous policy shocks. Rudiger Dornbusch wrote, for example, that “None of the U.S. expansions of the last 40 years died in bed of old age; every one was murdered by the Federal
“Reserve” (quoted in Temin, 1998, p.37). It is their contention that in almost each and every case, recessions have been brought on by tight monetary policy such that rising interest rates have choked off what could otherwise have been an endless expansion.

This is most decidedly not the Post Keynesian position. Not only is their coincidentally similar view of the pattern of interest rates over the business cycle a function of endogenous forces and not external policy, but it is for them an altogether secondary issue. As Keynes argued in the *General Theory* (in a world where the mainstream view as not unlike today’s), interest rates are not the cause of recessions:

Now, we have been accustomed in explaining the “crisis” to lay stress on the rising tendency of the rate of interest under the influence of the increased demand for money both for trade and speculative purposes. At times this factor may certainly play an aggravating and, occasionally perhaps, an initiating part. But I suggest that a more typical, and often the predominant, explanation of the crisis is, not primarily a rise in the rate of interest, but a sudden collapse in the marginal efficiency of capital (Keynes, 1964, p.315).

They may not precipitate crises, but nor to they act to alleviate them.

As suggested in the above quote, the central role is played by the mec. With respect to the latter, Keynes writes that it “depends, not only on the existing abundance or scarcity of capital-goods and the current cost of production of capital-goods, but also on current expectations as to the future yield of capital-goods” (Keynes, 1964, p.315). A rise in the stock of capital has a depressing effect on the mec because a) firms will undertake the most profitable projects first (leaving less profitable ones for later) and b) adding a new factory is less likely to
be profitable when many such factories already exist. Note immediately how this would clearly lead to a fall in the mec over an expansion. With respect to the second factor, Keynes assumed that as capital goods were produced, so the cost of doing so would rise. This, too, would have a depressive effect over the boom.

The last factor, “expectations as to the future yield of capital-goods,” is related to the psychological factors associated with uncertainty and animal spirits. Human beings are complex creatures, with a rational and emotional side. Both are necessary if investment is to take place, the former to process the information that we do have and the latter to compensate for the fact that we inevitably do not have enough. But, these can lead to instability, too, as it takes comparatively little to shake the faith of forecasts based, necessarily, on spontaneous optimism. Furthermore, the emergence of a particular institution—the stock market—has allowed the negative aspects of this interaction to play an increased role and it has caused an inappropriate time horizon to be superimposed on the physical investment decision. Keynes writes that:

...the daily revaluations of the Stock Exchange, though they are primarily made to facilitate transfers of old investments between one individual and another, inevitably exert a decisive influence on the rate of current investment. For there is no sense in building up a new enterprise at a cost greater than that at which a similar existing enterprise can be purchased...(Keynes, 1964, p.151).

In this way he believes that stock market valuations of financial investments affect and reflect the opinions of those involved in physical investment.

But, those who undertake the latter should necessarily adopt a long-term time horizon. From start to finish, the lifetime of physical capital covers many years or even decades. The
opportunities to change directions once the investment has begun are few, far between, and expensive. Physical investment is therefore done best when it is preceded by careful and meticulous planning by individuals who are committed to the project even when circumstances change. By contrast, in financial markets an investor can sell an asset within moments of acquiring it. There is no need for in-depth, or even much beyond cursory, research into the issuer’s plans, personnel, history, competition, et cetera, because if the price falls unexpectedly, it is easy enough to sell the asset at a slight loss and move on to greener pastures. This inevitably gives those involved in financial investment a very short time horizon and it allows a large “proportion of the equity in the community’s aggregate capital investment [to be] owned by persons who do not manage and have no special knowledge of the circumstances, either actual or prospective, of the business in question” (Keynes, 1964, p.153). The object of the game becomes forecasting the psychology of the market rather than evaluating the profitability of the asset issuer. Stock markets may therefore be subject to “waves of optimistic and pessimistic sentiment” (Keynes, 1964, p.154).

If, as Keynes suggests, those undertaking physical investment are affected by the atmosphere this creates, then the fluctuations in mec are likely to be exaggerated, assigning too much weight to recent events and causing overreaction in both the positive and negative directions—particularly the latter. Once disappointment arrives for the investor, it does so with a shock. Recession results and only time can heal the wound.

Figure One summarizes the Post Keynesian business cycle theory described here. The

1Note that this does not mean that the expansion is characterized by “overinvestment.” See Keynes’ discussion of this issue (Keynes, 1964, p.320-1).
top half shows how expansion leads to recession. Because of the nature of the consumption function, investment plays the key role. As it rises over the expansion, so the price (Pk) and the total volume of physical capital (stock of K) increase. Both of these depress expectations of future profit and thereby lower mec. Meanwhile, rates of interest are driven up first by the demand for finance and then, just as the latter is dwindling, by the move to liquidity created during the onset of the recession. Obviously the last factor cannot cause the downturn (since it follows it), but it exacerbates it (indeed, in general the effect of the rise in interest is secondary). It is the collapse of the mec that is critical, particularly once speculative profit expectations magnify its decline. The weight of these forces inevitably drive investment down and cause the recession.

The bottom half is the top in reverse. As investment stagnates, its price falls and depreciation drives down the stock relative to demand. Meanwhile, the rate of interest moderates as financing demand declines and calm is restored (the latter reflected in the decline in liquidity preference). Speculative profit expectations recover and, in combination with the other factors, convince investors that happy days are here again.
Figure 1: Core of Post Keynesian Business Cycle Theory.
A final complicating factor is the manner in which agents accumulate debt. Because production takes time, the entrepreneur must borrow before inputs can be purchased and well before final output is sold. Consumers are not as constrained in this respect, but many expensive durable items could not be purchased for many years were it not for credit being extended by financial institutions—which they are happy to do, of course. Governments, too, undertake large-scale, debt-financed spending. All of this together creates layers of interlocking debt such that if one set of agents fails to meet its payments, this may put into motion a wave of default that leads to financial crisis. The likelihood of such an eventuality is greater when a) agents take on more debt relative to their ability to pay and b) the economy contracts. According to Figure 1, we can expect the latter right after every expansion. With respect to the former, Hyman Minksy argued that over the course of the upturn, agents’ confidence regarding their ability to repay will increase (Minsky, 1982). This means that they are likely to lower margins of safety and be carrying increasing levels of debt. Thus, debt-to-income levels will rise over the course of expansion, putting the economy into a more fragile position just before the recession.

3. The US Post-1950 Business Cycle

Post Keynesians insist that models must be capable of explaining the real world in a way that reflects actual causal processes. They, therefore, expect their theories to be consistent with empirical observations. To that end, the remainder of this paper examines the US economy since 1950 from the perspective of the Post Keynesian business cycle theory developed above.² It

²1950 was selected because it was the first date from which all of the data were available.
begins with an overview of statistics that would reveal the behavior of the key variables moving the economy from expansion to recession and back again. As usual, data availability made some compromises necessary, but in general a very strong case for the Post Keynesian view emerges. Following that, there is a cycle-by-cycle discussion of the conditions that existed, again with an eye toward seeing if events support the Post Keynesian explanation.

Statistical Overview

Tables 1 and 2 summarize the key data. Observations are quarterly and the business cycle dates are taken from the National Bureau of Economic Research web site (www.nber.org). Each cycle, from peak to trough, is broken into three parts: early to mid expansion (all but the last four quarters), last year of expansion (last four quarters), and recession. The data are arranged in this manner on the assumption that, if Keynes and the Post Keynesians are correct, the endogenous changes that lead to recession will become evident in late expansion. Note that because the 1980:4 to 1981:2 expansion lasted for less than one year, it does not have an “early to mid expansion” stage. In total, there are ten cycles (including the one for which there is no early to mid period). An average of the numbers shown (not weighted for the number of quarters in each period) is shown at the bottom of Table 2. In each case, data for recessions are included largely for reference. The critical transition is late expansion versus early to mid.3

The first six columns on each table (after Stage of Cycle and Quarters) are those selected as central to the Post Keynesian/Keynes theory (all data are from the Federal Reserve Bank of

3Note that, on the basis of the very strong real GDP growth in 2009:4, Table 2 assumes the last quarter of the current recession to be 2009:3. The NBER had yet to assign a date, however, as of this writing (summer 2010).
St. Louis unless otherwise noted). The first two, C/GDP and %Δ Inv, relate to the relative roles of consumption and investment over the business cycle and the next four are the determinants of investment. The third-to-last examines the complicating factor of debt-to-income rations, and the last two are included for reference. An analysis of each variable follows. Note that all rates of change are in annual terms unless otherwise noted.
Table 1: US Business Cycles 1950:1 through 1975:1.

<table>
<thead>
<tr>
<th>Stage of Cycle</th>
<th>Quarters</th>
<th>C/GDP</th>
<th>%ΔInv</th>
<th>%ΔPk</th>
<th>Real Int</th>
<th>%Δπ</th>
<th>Bus Opt</th>
<th>debt</th>
<th>Unem</th>
<th>%ΔGDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early to Mid Exp</td>
<td>1950:1 - 1952:1</td>
<td>0.632</td>
<td>25.57</td>
<td>6.43</td>
<td>-3.77</td>
<td>13.5</td>
<td>58.07</td>
<td>NA</td>
<td>4.11</td>
<td>8.74</td>
</tr>
<tr>
<td>Last Year of Exp</td>
<td>1952:2 - 1953:1</td>
<td>0.614</td>
<td>8.47</td>
<td>0.53</td>
<td>1.05</td>
<td>3.5</td>
<td>51.53</td>
<td>NA</td>
<td>2.93</td>
<td>6.18</td>
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<td>Recession</td>
<td>1953:2 - 1954:2</td>
<td>0.621</td>
<td>-8.07</td>
<td>2.17</td>
<td>0.61</td>
<td>1.5</td>
<td>44.07</td>
<td>NA</td>
<td>4.01</td>
<td>-1.38</td>
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<tr>
<td>Early to Mid Exp</td>
<td>1954:3 - 1956:2</td>
<td>0.625</td>
<td>14.64</td>
<td>4.76</td>
<td>1.47</td>
<td>9.8</td>
<td>60.64</td>
<td>0.670</td>
<td>4.62</td>
<td>5.09</td>
</tr>
<tr>
<td>Last Year of Exp</td>
<td>1956:3 - 1957:2</td>
<td>0.620</td>
<td>-4.02</td>
<td>6.53</td>
<td>-0.65</td>
<td>0.2</td>
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<td>-13.82</td>
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<td>1.68</td>
<td>2.09</td>
<td>31.3</td>
<td>61.74</td>
<td>0.763</td>
<td>6.51</td>
<td>9.26</td>
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<tr>
<td>Last Year of Exp</td>
<td>1959:2 - 1960:1</td>
<td>0.626</td>
<td>19.58</td>
<td>1.14</td>
<td>2.27</td>
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<td>57.04</td>
<td>0.792</td>
<td>5.28</td>
<td>5.18</td>
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<td>0.634</td>
<td>-16.87</td>
<td>0.11</td>
<td>0.99</td>
<td>-9.4</td>
<td>45.02</td>
<td>0.844</td>
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<td>Early to Mid Exp</td>
<td>1961:2 - 1968:3</td>
<td>0.617</td>
<td>9.13</td>
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<td>1.62</td>
<td>6.7</td>
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<td>0.924</td>
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<td>Last Year of Exp</td>
<td>1968:4 - 1969:3</td>
<td>0.614</td>
<td>9.93</td>
<td>3.23</td>
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<td>0.979</td>
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<td>0.85</td>
<td>-11.2</td>
<td>47.63</td>
<td>1.026</td>
<td>4.70</td>
<td>-0.47</td>
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<td>56.70</td>
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<td>Last Year of Exp</td>
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<td>0.7</td>
<td>66.68</td>
<td>1.067</td>
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<td>1973:4 - 1975:1</td>
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<td>17.96</td>
<td>-3.83</td>
<td>-0.75</td>
<td>50.71</td>
<td>1.123</td>
<td>5.93</td>
<td>-1.47</td>
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Table 2: US Business Cycles 1975:2 through 2009:3, plus averages.

<table>
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<tr>
<th>Stage of Cycle</th>
<th>Quarters</th>
<th>C/GDP</th>
<th>%ΔInv</th>
<th>%ΔPk</th>
<th>Real Int</th>
<th>%Δπ</th>
<th>Bus Opt</th>
<th>debt</th>
<th>Unem</th>
<th>%ΔGDP</th>
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<td>1975:2 - 1978:4</td>
<td>0.629</td>
<td>15.76</td>
<td>7.15</td>
<td>-1.10</td>
<td>12.5</td>
<td>55.86</td>
<td>1.096</td>
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<td>Last Year of Exp</td>
<td>1979:1 - 1979:4</td>
<td>0.621</td>
<td>-3.95</td>
<td>8.77</td>
<td>-2.58</td>
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<tr>
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<td>0.630</td>
<td>-20.51</td>
<td>11.91</td>
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<td>40.86</td>
<td>1.198</td>
<td>7.10</td>
<td>-2.47</td>
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<td>Early to Mid Exp</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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<td>Last Year of Exp</td>
<td>1980:4 - 1981:2</td>
<td>0.625</td>
<td>25.22</td>
<td>10.67</td>
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<td>52.23</td>
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<td>5.40</td>
<td>5.52</td>
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<td>39.62</td>
<td>1.230</td>
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<tr>
<td>Last Year of Exp</td>
<td>1989:3 - 1990:2</td>
<td>0.657</td>
<td>-1.14</td>
<td>3.35</td>
<td>3.16</td>
<td>5.3</td>
<td>47.74</td>
<td>1.669</td>
<td>5.31</td>
<td>2.48</td>
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<tr>
<td>Recession</td>
<td>1990:3 - 1991:1</td>
<td>0.665</td>
<td>-15.80</td>
<td>3.91</td>
<td>1.14</td>
<td>5.3</td>
<td>42.42</td>
<td>1.696</td>
<td>6.14</td>
<td>-1.80</td>
</tr>
<tr>
<td>Early to Mid Exp</td>
<td>1991:2 - 1999:4</td>
<td>0.671</td>
<td>9.57</td>
<td>1.06</td>
<td>1.93</td>
<td>4.6</td>
<td>52.51</td>
<td>1.772</td>
<td>5.76</td>
<td>3.81</td>
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<tr>
<td>Recession</td>
<td>2001:1 - 2001:4</td>
<td>0.695</td>
<td>-12.53</td>
<td>0.08</td>
<td>1.50</td>
<td>8.6</td>
<td>43.41</td>
<td>2.240</td>
<td>4.74</td>
<td>0.42</td>
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<tr>
<td>Early to Mid Exp</td>
<td>2002:1 - 2006:3</td>
<td>0.698</td>
<td>5.71</td>
<td>1.13</td>
<td>-0.65</td>
<td>9.6</td>
<td>53.99</td>
<td>2.470</td>
<td>5.45</td>
<td>2.80</td>
</tr>
<tr>
<td>Last Year of Exp</td>
<td>2006:4 - 2007:3</td>
<td>0.697</td>
<td>-2.01</td>
<td>1.97</td>
<td>2.35</td>
<td>-6.8</td>
<td>51.41</td>
<td>2.739</td>
<td>4.52</td>
<td>2.74</td>
</tr>
<tr>
<td>Recession</td>
<td>2007:4 - 2009:3</td>
<td>0.704</td>
<td>-15.55</td>
<td>2.43</td>
<td>-0.73</td>
<td>4.2</td>
<td>45.27</td>
<td>2.906</td>
<td>6.89</td>
<td>-1.27</td>
</tr>
<tr>
<td>Early to Mid Exp</td>
<td>average</td>
<td>0.641</td>
<td>15.93</td>
<td>3.22</td>
<td>0.68</td>
<td>12.5</td>
<td>56.79</td>
<td>1.272</td>
<td>5.71</td>
<td>5.63</td>
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<tr>
<td>Last Year of Exp</td>
<td>average</td>
<td>0.638</td>
<td>6.57</td>
<td>4.08</td>
<td>1.12</td>
<td>-0.003</td>
<td>53.62</td>
<td>1.380</td>
<td>4.78</td>
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<tr>
<td>Recession</td>
<td>average</td>
<td>0.646</td>
<td>-13.52</td>
<td>5.24</td>
<td>0.29</td>
<td>-4.4</td>
<td>44.09</td>
<td>1.447</td>
<td>6.03</td>
<td>-1.23</td>
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C/GDP: This variable is the ratio of total consumption to GDP (original data in billions of seasonally adjusted dollars). Given Keynes’ theory, this number is expected to decline in late expansion as consumers spend a declining percentage of their income. It is then up to investment to maintain the expansion (which, of course, it cannot). An examination of the tables reveals that of the nine cycles where early to mid can be compared to late expansion, C/GDP declines seven times (78%). In addition, the averages shown on Table 2 are also consistent with the Post Keynesian view.

%Δ Inv: The data for C/GDP support the argument that, during late expansion, the job of maintaining the boom falls to investment. However, according to Figure 1, entrepreneurs become progressively less enthusiastic about building new capital as the expansion continues. To test this, %Δ Inv was calculated, or the percentage change in real investment spending since last quarter (original data were Gross Private Domestic Investment in billions of seasonally adjusted 2005 dollars). If the Post Keynesian theory is correct, %Δ Inv should decline during late expansion. It does so during every cycle except the Vietnam War one (1961:2 to 1969:3), when there was a slight rise. Investment moves as expected 89% of the time.

% ΔPk: While this is encouraging, were the reasons for the fall in investment consistent with the Post Keynesian view? The first variable studied to determine this was the price of capital equipment, shown as Pk on Figure one. Here, it was proxied by the Producer Price Index for capital equipment. % ΔPk, measured as the seasonally adjusted rate of change from last period, should rise in late expansion as bottlenecks emerge. It does so during six of nine cycles (67%) and on average.
Real Int: Keynes also suggested, as shown in Figure 1, that interest rates may begin to rise late expansion. Indeed, this occurred just over half of the time (where Real Int is the secondary market rate for 3-month treasury bill minus consumer price inflation).

Nominal interest rates fit the pattern precisely, incidentally, with a rise in late expansion during every cycle. Which rate to use and how to deflate it (given that it should really be expected as opposed to actual inflation) was problematic, but selecting different measures seemed to make little difference other than to change the signs of the level (which is secondary since the real question is the change in the interest rate over the cycle). One way or the other, there seems to be at least some upward pressure on the cost of financing in late expansion.

One could also argue, however, that the above also matches mainstream explanations that blame restrictive monetary policy for recession. As Keynes saw interest rates as secondary even in his own schema, it is therefore important to see whether or not there is additional evidence for the Post Keynesian view of the determinants of investment exists. It was already shown that there is some indication that the price of capital rises over the expansion, though the evidence was not overwhelming. Data on the stock of capital might be helpful, but a) they are not available, b) even if they were, measuring capital is problematic, and c) the key issue is not really so much the volume of existing productive capital as the effect of that volume on the profitability of future projects. Over the course of the expansion, the latter is expected to decline, lowering $\Delta \pi$—a much more significant event, according to Keynes, than a rise in interest rates. Again, however, data on future expected profits do not exist. But, current profits do, and these will certainly impact
forecasts. For this reason, $\Delta \pi$, the quarter-to-quarter rate of change of after-tax corporate profits (deflated by the GDP deflator), was calculated. Even given the fact that this is not exactly the number we want since it represents overall profits and not just those associated with new investment projects, the rate of increase does, indeed, decline in each and every late expansion and was actually negative four times. The averages at the bottom of Table 2 also match expectations. This is a significant result for the Post-Keynesian view.

Bus Opt: Despite the above success in terms of generating a more direct measure of a variable closely related to mec, it would be helpful to have something that represented what entrepreneurs were thinking. For that reason, the Institute for Supply Management’s Purchasing Manager’s Index, a popular measure of business sentiment, was also referenced. These, too, behave just as expected, with a decline in late expansion in eight out of nine cycles (89%). Though not profit forecasts per se, these data suggest that spirit in which managers make their predictions was definitely less optimistic in late recession (if not always pessimistic—less than 50 indicates that managers believe that conditions are deteriorating). Combined with the fact that realized profits were declining and it is easy to imagine a Keynes-like decline in investment, perhaps even a collapse when the disappointment is great.

debt: Minsky argued that debt-to-income ratios would rise over expansions, putting the economy in an increasingly precarious position before the inevitable downturn. The variable “debt” is total private sector debt (household plus financial and non-financial business, all from the Board of Governors of the Federal Reserve Flow of Funds data) divided by
GDP. Data were not available for the first cycle, but thereafter it was, indeed, true that in each case, debt ratios rose over the course of expansion. However, the fact that there was a strong trend over the entire time period for debt to rise makes this less convincing. For that reason, a second calculation was made: the rate of increase of the debt-to-income ratio over the course of the expansion and from late expansion to recession. As predicted by Minsky, the former tended to exceed the latter both on a cycle-by-cycle basis (six of eight times, for 75%) and when examining the averages (the rate of increase over the average expansion was 8.49%, while the rate of change from late expansion to recession was 4.86%; note that these data are not shown on Tables 1 and 2 because they are not organized in the same manner). This supports the hypothesis that economies become more financially unstable during upturns.

Unem: For reference, quarterly unemployment rates are included. Not surprisingly, these tend to fall through late expansion, only to shoot back up in recession.

% ΔGDP: Again shown for reference, the rate of quarterly growth (measured at annual rates) of real GDP are highest early expansion and lowest in recession. Note how closely these match the numbers for investment.

The data on Tables 1 and 2 offer considerable support for a Post Keynesian explanation of the US business cycle since 1950. This is most encouraging, but, as Keynes warns:

The object of our analysis is, not to provide a machine, or method of blind manipulation, which will furnish an infallible answer, but to provide ourselves with an organised and orderly method of thinking out particular problems; and, after we have reached a provisional conclusion by isolating the complicating
factors one by one, we then have to go back on ourselves and allow, as well as we can, for the probable interactions of the factors amongst themselves. This is the nature of economic thinking (Keynes, 1964, p.297).

Human behavior is far more complex than that of planets, atoms, or chemicals. Understanding what they do requires stories as well as statistics, lest we “lose sight of the complexities and interdependencies of the real world in a maze of pretentious and unhelpful symbols” (Keynes, 1964, p.298). Those stories follow, organized by economic cycle.

Korean War Cycle
Expansion 1950:1 to 1953:1 (13 quarters); Recession 1953:2 to 1954:2 (5 quarters)

As suggested earlier, the predominant mainstream explanation of the business cycle is that the Federal Reserve causes recessions via restrictive monetary policy. Because they are more likely to do this during economic upturns (due to their fear of demand-pull inflation), this is what creates the stop-go pattern we see. Fiscal policy is also mentioned as a potential factor, though less frequently, as are other shocks. The Post Keynesian approach does not deny the possibility of these having an impact on the level of economic activity, but sees them as supplemental to the systematically-generated endogenous cycle created by fluctuations in investment described in Figure 1. In addition, they see the impact of interest rate movements, whether a function of central bank policy or of Keynes’ liquidity preference, as secondary in

4I have given each cycle a name based on some significant event that took place over that period, though not always one that had a decisive influence on the character of those fluctuations. The main point was to make the reader’s job easier in terms of placing dates into a historical context. The “Korean War Cycle,” for example, is surely more evocative than the “cycle of 1950:1-1954:2!”
driving capital formation. Changes in the mec are the real key.

At first glance, the Korean War cycle appears to fit the mainstream characterization very well. Not only is it true that the start and end dates of the war (June 25, 1950 to July 27, 1953) almost precisely coincide with those of the expansion, suggesting a strong role for fiscal policy, but in March 1951, the Federal Reserve was given permission to raise interest rates relative to those they were asked to maintain during World War II (to aid in financing the latter; Frumkin, 2010, pp.82-3). However, though defense spending definitely played a role in extending the expansion, monetary policy was a minor factor and it was ultimately fluctuation in investment that characterized this cycle.

The opening months of the upturn were witness to a massive jump in capital formation. Over 1950, the average quarterly increase of real investment spending of was 76%, by far, the largest of any four-quarter period from 1950 to 2010. Contemporary publications recognized this, as well:

The fundamental characteristic of the current uptrend in the business cycle continues to be the sharp expansion in investment, paced by residential construction but now reinforced by a renewed advance in business plant and equipment expenditures (Survey of Current Business, June 1950, p.1).

And:

The upturn this spring and summer reflected the general strengthening of business demand and was accounted for largely by increased building of new manufacturing plants and retail stores. Increased investment in new plant has taken place in both durable and nondurable goods industries, including especially

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Over this same period (i.e., the first year of the expansion), consumption as a percentage of GDP was also rapidly declining (though there had been a brief jump right after the war started, due to consumers’ worries about rationing; Frumkin, 2010, p.90). Throughout the year, the Purchasing Managers’ Index, the proxy for business expectations in this study, was extremely high and realized, after-tax profits rose by 10% per quarter (real terms). All of this is consistent with a Keynes-style economic expansion (the cost of capital, too, was rising, as per his prediction).

But, ceteris paribus, the faster investment takes place, the more quickly the market will be saturated and mec will fall. And, indeed, the Purchasing Managers’ Index dropped dramatically in 1951 and real investment spending fell by an average of 21% per quarter—even with the need to retool for the war. As was observed at the time, “By late 1951, only defense and defense-supporting industries were continuing to show increases in investment rates” (*Survey of Current Business*, December 1951, p.15). In fact, despite a strong rebound in the second half of 1952, the average quarterly increase in real investment was negative for all of 1951-2. That there was not already a recession underway was no doubt due to military spending for the Korean Conflict. Over 1951, real federal government spending was increasing at an average of 23% per quarter, a rate that declined but was still positive up through the end of the expansion. Over the recession, however, both government spending and investment shrank (-2.3% and -8% per quarter), while unemployment jumped from 2.57% to 5.8%.

Thus, despite claims to the contrary (see for example Frumkin, 2010, pp.107-9), this was not a recession brought on my monetary policy. There was, indeed, a shift in approach such that
the Federal Reserve was now free to raise interest rates to “combat” inflation, but it is hard to ascribe the downturn to this. In the early expansion, the 3-month Treasury bill rate averaged 1.38% (-3.77% in real terms), moving to 1.83% in late expansion (1.05% real), and 1.48% (0.61% real) over the recession. Is it really plausible to imagine that investment and consumer durable spending responded to these movements? Taking in particular the significant change in capital formation between 1950 and 1951 (an average quarterly increase in real investment of 76% versus -21%), nominal interest rates rose only very slightly from 1.2% to 1.52%, while real ones actually fell (-3.24% to -5.25%). Over those same two years, however, the Purchasing Managers’ Index dropped from 67.7 to 52.5 (and 44.9 from 1951:2 to 1952:2). In fact, this recession was witness to the largest single four-quarter collapse in the index of the entire time period. Recall from earlier that it also saw the largest four-quarter increase in investment. This could be coincidence, or it could be that Keynes is right–investment spending can quickly saturate the market for physical capital. We should not expect the real world, where everything else is never held constant, to precisely match the predictions of theory, but it nevertheless seems clear that the Korean War expansion was driven first by investment spending and then, once that was saturated, by government expenditures. Monetary policy never played a significant role, but once the defense-spending supports were pulled out from underneath the weakened private sector, the macroeconomy slipped into recession. This lasted until 1954:3.

Eisenhower I Cycle
Expansion 1954:3 to 1957:2 (12 quarters); Recession 1957:3 to 1958:2 (4 quarters)

This appears to have been a classic Keynes-style cycle. Government spending was relatively neutral throughout the expansion (increasing an average of 2.6% per quarter in real
terms) and interest rates remained very low (the CPI deflated 3-month Treasury bill went from 1.47% in early to mid expansion to -0.65% over the last year). Hence, private sector was left to be the primary driver of economic activity. Investment increased at a brisk pace over the first two years of the upturn, powering the expansion (see Table 1). At this same time, profits had increased nicely and business optimism remained high. Indebtedness was rising, however, with debt/GDP increasing from 0.65 in 1954:3 to 0.71 in 1956:2 to 0.73 by the end of the expansion. This drew comment from contemporary observers:

> While an expanded flow of income has provided a firm basis for the high rate of spending by business and consumers, credit has been liberally used to establish the purchasing records set in 1956 (Survey of Current Business, January 1957, p.2).

In addition, pressure was clearly increasing on the cost of capital, where the rate of price increase had accelerated every quarter from 1954:3 through 1955:4 (not actually reaching its peak until 1956:4).

> According to mainstream theory, without some external shock or the influence of monetary or fiscal policy, this expansion should have continued indefinitely. It did not. Table 1 shows that the transition from early to mid expansion to late expansion for this cycle matched precisely with Post Keynesian predictions: consumption was falling as a percentage of GDP, the rate of increase of realized profits was slipping, business expectations had become pessimistic, the cost of capital was increasing, agents were becoming more indebted—and, not surprisingly, investment was declining. The collapse of the latter accelerated through the recession and was the subject of frequent discussion in the Survey of Current Business; for example:
Business spending for plant and equipment, having accounted for a near-record fraction of the national output in 1956 and 1957, has fallen almost $4 billion at annual rates since last summer. Its decline followed a period during which profit margins narrowed, business liquidity was reduced, and the upswing in real output leveled off in the face of rising production capacity (Survey of Current Business, May 1958, p.5).

Again, we have strong statistical and anecdotal support for Keynes’ view of the business cycle.

_Eisenhower II Cycle_
*Expansion 1958:3 to 1960:1 (7 quarters); Recession 1960:2 to 1961:1 (4 quarters)*

The next cycle, too, saw very little in terms of policy or other shocks and was instead driven solely by fluctuations in investment. Real government spending barely changed over the entire expansion, although interest rates did move more significantly than they had in the previous two cycles. The nominal 3-month Treasury bill started the expansion at 1.68% and rose to 4.23% in the second-to-last quarter, before dropping to 3.87% just before the recession (real rates moved similarly). However, with one exception (1959:3), investment continued its strong growth despite the rising cost of financing. It was not until 1960:2, when interest rates (real and nominal) were actually falling, that investment moved into a significant decline. This coincided with a significant decline in the Purchasing Managers’ Index and a rapid deceleration in realized profits (see Table 1).

A noteworthy exceptional element of the expansion was the fact that consumption as a percentage of GDP did not fall. This appears to have been a function of spending on credit:

Consumers expanded their purchases in 1959 in line with higher incomes,
supplementing such incomes with a large amount of installment and mortgage credit. These borrowed funds were used in part to finance the one-seventh increase in purchases of consumer durables from the cyclically depressed volume of 1958 (Survey of Current Business, February 1960, p.3).

Of course, once durables are purchased, a) they need not be replaced for some time and b) they often (as suggested above) add debt, making future consumption less likely.

Over the recession, real investment spending shrank by a an average of 17% per quarter. As reported in the third quarter of the downturn:

Business investment has tended to ease off recently and modest reductions in plant and equipment expenditures are scheduled through the first quarter of 1961...

....

The reductions that have taken place stem mainly from the declines in sales and profits in many industries since the spring; sales, moreover, have not come up to earlier expectations (Survey of Current Business, December 1960, p.4).

Note that there is no mention here or in the quote regarding consumer spending of a negative effect from higher interest rates. Again, this is more consistent with Keynes’ view than that of the mainstream.

Vietnam War Cycle
Expansion 1961:2 to 1969:3 (34 quarters); Recession 1969:4 to 1970:4 (5 quarters)

Like the Korean War Cycle, this one was strongly affected by fiscal spending. The major difference was the duration of the conflict, which led to this expansion being longer than all
three of the previous ones combined (34 quarters versus 32). While it is obviously difficult to say what would have happened without the war, there are several points during the upturn where the data suggest that a recession might have occurred had it not been for the defense expenditures.

Actually, the first potential downturn occurred before US involvement had grown to significant proportions. During the first year of the expansion (1961:2 to 1962:1), real investment spending increased by an average of 26% per quarter, the mean Purchasing Managers’ Index was 60, and realized after-tax profits had risen by almost 24% per quarter. This could lay the foundation for recession by saturating the market for physical capital. However, despite the fact that over the next three quarters (1962:2 to 1962:4) real investment fell by an average of 3%, the average Purchasing Managers’ Index fell to 52, and the mean rate of change of profits fell to 5.7%, this turned out to be only a relative drop (albeit one that left real GDP growth in 1962:4 at an anemic 0.98%). Apparently, government spending and consumption, though not terribly large, were sufficient to keep the economy growing:

With business investment tending to level off, it appears that the principal current expansionary force of demand stems from consumers and government (Survey of Current Business, December 1962, p.1).

But there was a sharp rebound in early 1963, and over the next three and one-quarter years, real investment grew at an average of almost 14% (annual terms) per quarter, the mean Purchasing Managers’ Index was just short of 60, and realized profits in constant dollars increased at 8.9% per quarter. This was also a period of very strong GDP growth, with a quarterly average of 6.6%. There were ups and downs, of course, but nothing significant until
first quarter of 1966, when investment fell for four of five quarters. The Purchasing Managers’ Index had also declined to an average of 53, consumption had fallen as a percentage of GDP, a significant jump in the cost of capital, and the average rate of increase of constant-dollar realized profits was -5.5%. Interest rates were also at post-World War Two highs (in nominal terms, at least—though they were still relatively moderate). It seems that there would most certainly have been a recession had it not been for government spending, which had now accelerated given greater US involvement in Vietnam and Lyndon Johnson’s Great Society program:

On an overall basis, economic activity still appears to be heavily influenced by the attempt of business firms to adjust their relatively high inventories. During the first 3 months of the year, accumulation was sharply curtailed by manufacturers while liquidation occurred at retail. However, strongly rising demands from government as well as some improvement in demand for autos and housing has been important counterweights (Survey of Current Business, May 1967, p.1).

Once this had passed (1967:3), investment accelerated again through the end of the expansion, though at a rate well below that of before the shadow recession (quarterly average of 8.3% versus 13.7%). The Purchasing Managers’ Index also moved back up, but realized profits fell over most quarters and over every one for the last five of the expansion. During that same period, government spending (in constant dollars) did increase, but only by 0.9% per quarter. Consumption as a percentage of GDP also declined and interest rates moved up markedly. Over the course of the recession (1969:4 to 1970:4), real investment fell by an average of 9% per quarter as realized profits and the Purchasing Managers’ Index continued to decline, while
interest rates and the cost of capital rose. Durable goods spending also fell (and had been since a year before the recession). The economy actually seemed to recover nicely in 1970:3, with a jump in real investment of 7% and GDP growth of 3.6%; but, a major automotive workers strike took place in 1970:4 that purportedly had a big impact on the recovery. Investment fell by 21% in the fourth quarter and GDP growth dropped to -4.2%.

Two last notes before leaving this cycle. First, Table 1 indicates something that is unusual from the Post Keynesian point of view: investment actually increases faster in the last year before the recession than it did in early to mid expansion. If one believes, however, that there was, indeed, a shadow recession from 1966:2 to 1967:2, then the math works. Omitting those five quarters, when real investment fell by an average of 7%, leaves the early to mid expansion average at 12.4% and that in the last year at 9.93%.

Second, Post Keynesians often argue that in an endogenous money world, financial institutions are able to find means of meeting loan demand even when the central bank is not accommodating. Norman Frumkin makes mention of this in the context of the Vietnam War Cycle:

The spiraling inflation was a major concern of the Federal Reserve in 1968 and 1969, which led it to restrain bank credit and raise interest rates in its conduct of monetary policy. Some of this restraint was offset by banks shifting their asset portfolios from investments to loans, by banks borrowing in Eurodollar markets, and by businesses raising greater amounts of outside funds by issuing more commercial paper and by increasing their borrowing in capital markets (Frumkin, 2010, p.164).
This adds further weight to the argument that interest rates are of secondary importance in determining investment and consumer durable spending.

Oil Shock I Cycle
Expansion 1971:1 to 1973:3 (11 quarters); Recession 1973:4 to 1975:1 (6 quarters)

The new cycle started off with a massive jump in investment (63% in annual terms). A great deal of this appeared to be a function of the end of the automobile strike and the need to rebuild inventories (Survey of Current Business, March 1971, p.1). GDP that quarter rose by over 11%. Investment continued strong throughout the early to mid expansion and, albeit at lower rates, into the late expansion. In fact, it is not altogether obvious that a recession was imminent. While it is true that the rate of increase of realized profits was declining, capital costs and nominal interest rates were inching up (real ones were stable to falling slightly), consumption as a percentage of GDP was declining, and durable goods sales had fallen over the past six months, the Purchasing Managers’ Index, on the other hand, was very strong. It is possible that the economy might have been able to continue its upturn for at least another quarter or two. As it happened, however, a shock did occur: the OPEC oil embargo.

With the economy already on the end of an expansionary period (if not quite yet in recession), it was easy to shift it into full reverse. In fact, at six quarters, this was the longest post-war recession yet. Costs, of course, skyrocketed, unemployment moved from just below 5% to over 8%, and the Purchasing Managers’ Index fell to the lowest point it has ever reached (including up to the time of this writing, summer 2010). Contemporary reports add dismal detail:

In the past 2 months, evidence continued to appear confirming the economy’s
slowdown. Residential construction weakened sharply, and the whole new set of uncertainties caused quite unexpectedly by the Arab oil embargo intensified the weakening of demand for autos (Survey of Current Business, December 1973, p.1).

A year later, things had not improved:

Partial but conclusive evidence indicates that the slide in real GNP accelerated in the fourth quarter. The month-long coal strike was not a major factor; the decline was mainly the result of a broadly based and pronounced weakening of demand (Survey of Current Business, December 1974, p.1).

It was a gloomy period created by a combination of a Post Keynesian saturation of investment and a serious supply shock.

Oil Shock II Cycle
Expansion 1975:2 to 1979:4 (19 quarters); Recession 1980:1 to 1980:3 (3 quarters)

The economy was still in very poor shape as 1975 opened, with real GDP growth of almost -5%, a fall in investment of over 50% (since 1974:4), an increasing but still very low Purchasing Managers’ Index, and unemployment above 8%. Things could well have lingered there longer had it not been for the Tax Reduction Act of 1975. The “Provisions of the act resulted in $40.5 billion decline in receipts and a $7.2 billion increase in expenditures” (Survey of Current Business, August 1975, p.1). The biggest jump in spending occurred during 1975:2:

Approximately 75% of the second-quarter increase in expenditures was due to the impact of the Tax Reduction Act, “automatic stabilizers,” and new antirecession programs, which were mainly reflected in transfer payments and grants-in-aid to
State and local governments (Survey of Current Business, August 1975, p.2).

This was, not coincidentally, the point at which GDP growth finally accelerated, moving from -4.78 in 1975:1 to consecutive quarters of 3.1%, 6.9%, 5.3%, and 9.4%. Again, the Post Keynesian argument regarding business cycles is not that policy and other shocks cannot have an effect, but that their impact is supplemental to the endogenous forces that already determine the shift from expansion to recession and back again.

Starting in 1975:3, investment responded strongly to the conditions created by economic recovery and grew every quarter but one right up to the last year of the expansion (driven in part by the need to retool to meet new government regulations; Denison 1979, pp.58-9). The Purchasing Managers’ Index also returned to much more optimistic levels, and realized profits, too, except for a three-quarter period in 1976, grew steadily. At the same time, however, interest rates were moving up (in real and nominal terms) and consumption as a percentage of GDP was falling, thus placing increasing pressure on investment to be the driver. By 1979, its ability to do so was being strained. Throughout that year, the Purchasing Managers’ Index declined, the rate of increase in the cost of capital accelerated, realized profits shrank, and, naturally, investment declined. Events in the Middle East had also contributed to a new and steep ratcheting up of oil prices, contributing to inflation and negatively impacting on consumer and business sentiment. Another key and, in fact, related event was the dramatic adjustment in Federal Reserve policy that came about on October 6 of that year. In general, there was a Monetarist-style shift to the controlling of monetary aggregates rather than interest rates. While the data support the Post Keynesian contention that investment demand was already becoming saturated before this point, the policy shock that followed cannot be discounted. In real terms, interest rates rose by almost
60% in a single quarter (22% in nominal terms; 1979:3 to 1979:4). By 1981:2, the quarterly average of the deflated 3-month Treasury bill was almost eight percentage points higher than where it stood when the experiment began. This was a function, of course, of the central bank’s conviction that the inflation the country was experiencing was demand pull, that this was a serious problem, and that the logical solution was to reduce demand by inducing recession. They were successful to the point of helping to induce what remains the second-worst quarterly downturn since World War Two (the worst being 1958:1). An examination of Tables 1 and 2 will show that the collapse in investment over the 1980:1 to 1980:3 recession was the steepest of any recession since 1950.

**Volcker Cycle**
*Expansion 1980:4 to 1981:2 (3 quarters); Recession 1981:3 to 1982:4 (6 quarters)*

In many respects, the period 1980:1 to 1982:4 is one long recession interrupted by a handful of quarters of strong growth. In 1980:4 and 1981:1, real GDP grew by 7.6% and 8.6%. However, even averaging these expansion years into the total, the average rate of real quarterly GDP growth from the start of the Oil Shock II recession to the end of the Volcker recession is still a dismal 0.02%. Another reason to consider this as one long downturn is the fact that an important factor in each was the Federal Reserve’s new policy stance. As a consequence, real and nominal interest rates remained high throughout the period.

Still, there was, indeed, a strong increase in GDP over 1980:4 and 1981:1, which corresponded to a jump in real investment, government expenditures, the Purchasing Managers’ Index, and realized profits. Note that, in support of the Post Keynesian suspicion that interest rates are of secondary importance, all this occurred when real interest reached its post-World
War Two highs. The reasons for the downturn in mid 1981 are several. First, part of the earlier jump had been a function of new-car cash rebates, which had ended (Survey of Current Business, March 1981, p.2). Second, “Unfavorable financial conditions were a major factor in the decline in residential investment in the second quarter” (Survey of Current Business, June 1981, p.3). This was largely a result of losses by savings and loan associations. In general, …several strong causal factors–some countering each other, some reinforcing–have been at work. The impact of persistently high interest rates–whether the result of monetary policy or a reflection of inflation–can be seen in several GNP components: residential investment, motor vehicles (though strongly affected by other factors as well), consumer spending on such items as furniture and household equipment, and State and local government construction. Price changes, including auto rebates, help explain some components of consumer spending. Also, the appreciation of the dollar against foreign currencies had a strong impact on net exports. There is no evidence, however, that the new Federal fiscal policy has affected GNP in a major way (Survey of Current Business, October 1981, p.1).

By most measures, this remains the worst recession of the post-World War Two era.

Desert Storm Cycle
Expansion 1983:1 to 1990:2 (30 quarters); Recession 1990:3 to 1991:1 (3 quarters)

A number of political, technological, and economic factors combined in the early 1980s–none of which was related to the Federal Reserve’s recession and the four million people it put out of work–to create an oil glut and a dramatic drop in energy prices. Not surprisingly,
this rapidly ended the inflation that had started with the first OPEC oil embargo.\(^5\) By the end of the Volcker recession, inflation was under control–albeit not for the reasons claimed by the central bank.

Thus, not only was the mec already likely to rebound after such a long and deep slump (which saw real investment experience an average quarterly decline of 3.8% from the beginning of the Oil Shock II recession in 1980:1 to the end of the Volcker recession in 1982:4), but the fact that consumer price inflation was at its lowest rate since the early 1960s certainly buoyed optimism. In fact, the Purchasing Managers’ Index experienced its biggest improvement since the 1950s. Investment rose, realized profits jumped, consumer durables purchases increased, and unemployment finally started easing down from its post-Depression highs. Even with the drag created by the fact that imports were high due to the strong dollar, real GDP growth averaged 7.2% over the first seven quarters of the upturn.

Immediately thereafter, however, there was a period during which investment declined six of eight quarters. The average Purchasing Managers’ Index likewise dropped from an average of 59 to 50 and realized profits declined by an average of 5.5% (interestingly, real and nominal interest rates were falling). In the absence of automatic stabilizers and the large increase in Federal budget deficit under President Ronald Reagan (which, in real terms, averaged almost triple of those of President Jimmy Carter), this might have been a recession. As is was,  

\(^5\)From 1973 to 1981, US inflation averaged 9%, while the price of energy (as measured by the energy consumer price index) increased by 15.6% per year. When energy prices fell by an average of 1.2% from 1982 to 1988, overall inflation suddenly dropped to 3.8% over that period. This, combined with the fact that the economy was hardly in a robust growth phase in the late 1970s and early 1980s, strongly suggests that it was the oil glut that solved inflation, not the reduction in demand caused by the worst recession since the Great Depression.
however, durable goods remained relatively strong, as did GDP growth, although the trade
deficit continued to be a drain.

Up to the last year of the expansion, real investment recovered, albeit not at the rate
witnessed before the shadow recession (5.31% per quarter as opposed to 30%--a similar pattern
was exhibited by the Purchasing Managers’ Index and realized profits). Though the Purchasing
Managers’ Index had already been inching down and, presumably, physical capital stocks were
driving down the mec, the Iraqi invasion of Kuwait in August 1990, added uncertainty. The
economy slipped into recession as investment fell for four consecutive quarters. The weakness
in the economy was reported to be widespread:

In summary, personal consumption expenditures, fixed investment, and
government purchases declined in the first quarter.

• In personal consumption expenditures, motor vehicles accounted for the
drop.
• In fixed investment, almost every major component declined.
• In government purchases, both Federal purchases and State and local
  purchases declined (Survey of Current Business, April 1991, p.2).

Net exports was one of the few bright spots; of course, this tends to rise in recession since
domestic agents have less income to spend on imports.

September 11 Cycle

The expansion that ended in the last year of the twentieth century was the longest in
history at 120 months. Investment was steady if not spectacular throughout the period, as was
the Purchasing Managers’ Index. The only time throughout the period that declines in investment were grouped together took place in 1995:2 and 1995:3 (11 of 39 quarters showed negative growth of real capital formation).\textsuperscript{6} There was a distinct dip in the Purchasing Managers’ Index, though this continued for another two quarters while investment recovered.

Contemporary commentary suggested that consumption behavior was very unusual in this period in that even with a rise in unemployment and a fall in personal income, spending rose (\textit{Survey of Current Business}, August 1995, p.3). This implied debt, and a glance at Table 2 shows the strong rise in the private debt to income ratio from the early to mid expansion to late expansion. In percentage terms, this is the largest of any period-to-period change since 1950, and rising private sector debt, especially as the public sector moved to surplus, is a hallmark of this expansion (Papadimitriou and Wray, 1998). That stock prices were skyrocketing also no doubt affected households’ willingness to spend from current income.

In general, however, it was a typical Keynes-style upswing with investment in the driver’s seat. The latter was focused particularly on computer equipment. Similar to the long expansion of the 1920s being driven by the gearing up of automobile and related industries, so there was a unique technological innovation behind this one (Tevlin and Whelan, 2003). Note, too, that the existence of very little price inflation meant that the central bank did not find it necessary to raise interest rates (even if this is a secondary factor).\textsuperscript{7} But, eventually

\textsuperscript{6}The fact that 120 months of expansion does not translate to 40 quarters is a function of the means by which the monthly and quarterly cycles are marked by the National Bureau of Economic Research. See this page for their dating: http://www.nber.org/cycles.html.

\textsuperscript{7}Why there was so little pressure on prices in an environment where mainstream economics would argue that it should be rampant is the subject of another paper. In general, however, it serves as another indictment of the Volcker recession.
entrepreneurs reach the point at which they are satisfied with capacity, and agents’ animal spirits had already bid up their expectations to unrealistic levels thus setting the stage for disappointment.

Indeed, the Purchasing Managers’ Index, the S&P 500, and real investment spending all fell starting around 2000:3. The recession followed shortly thereafter (officially dated as 2001:1 to 2001:4, although real GDP growth was an anemic 0.33% in 2000:3), and the economy was already in decline before the terrorist attacks. The long-term effects of the latter are difficult to quantify, but the *Survey of Current Business* listed the following as the short-term impact on the national income and product accounts (abbreviated as NIPA below):

- The reduction in real GDP growth for the third quarter reflected notable declines in consumer spending and other components for September.
- The property losses are captured by a sharp increase in the consumption of fixed capital and a corresponding decline in net domestic product–GDP less the consumption of fixed capital. These property losses had no immediate, direct effect on real GDP, which is a measure of the production of goods and services.
- The payments by insurance companies to cover the property losses are expected to reduce corporate profits...
- The decline in inflation, as measured by the gross domestic purchases index, reflected a sharp reduction in the net premiums paid for insurance. In the NIPA’s, insurance expenditures are defined as premiums net of benefits payable, and the large benefit payments resulting from the September 11th attacks were treated as a
reduction in the net price of insurance (Survey of Current Business, November 2001, p.2).

There was clearly a shock in the 2001 recession, but it occurred after the downturn was under way. Consistent with Keynes’ view, the expansion continued until the mec fell and investment declined.

Subprime Crisis Cycle
Expansion 2002:1 to 2007:3 (23 quarters); Recession 2007:4 to 2009:3? (8 quarters)

The expansion that started in 2002 was not very strong, with the lowest average real GDP and investment growth of any expansion since 1950. In fact, the recession could have started in 2006:2 rather than 2007:4, when there was the first of four consecutive declines in real investment spending and GDP grew at 1.45% (to be followed by 0.11% in 2006:3). Though in general this whole period was consistent with a Post Keynesian explanation of the business cycle, several longer-term issues came into play and should be explained first.

The financialization of the US economy, or a shift in orientation toward managing financial wealth as opposed to production of commodities, had been taking place since the 1980s. Encouraged by both the economics discipline and neoliberal governments, it was based on the former’s premise that markets were rational and efficient and led to the latter’s deregulation of the financial industry and increasingly hands-off approach to economic policy. It both contributed to and was in turn encouraged by the massive run up of the stock market in the 1990s and it led to an excessively short-term orientation for financial and nonfinancial business and an increased role for animal spirits. Firms, households, and governments became convinced that real returns well in excess of historical rates of real GDP growth could be consistently
realized in financial markets (Wray, 1998).

A second emerging factor was the shift towards greater income inequality that had been taking place since the late 1960s and accelerated in the 1980s (Weinberg, 1996). One study argues that the period 1994 to 2000, was witness to an especially rapid deterioration (Galbraith and Hale, 2004). This not only has a tendency to lower the marginal propensity to consume and thus the overall level of economic activity, but it was exacerbated by financialization (Palley, 2007)–and, in combination with it, created the third problem.

Last, while household income distribution was becoming more skewed, financial institutions were encouraging those with declining income shares to borrow more and more in order to maintain spending. Headlines focused on how this played out in the subprime mortgage market, though it was certainly system-wide as Table 2 shows the unprecedented level that debt/GDP had reached. Financial investment in search of quick and substantial capital gain must take on risk, and so risk was created by loaning to those who were less likely to be able to repay.

Hence, by the time investment was wavering in 2006:2, the macroeconomy had already been weakened by 1) a shift in income towards those who spend least, 2) the superimposition of short-term, animal spirits-dominated expectations from finance to the economy at large, and 3) the existence of unsustainable debt-income ratios. None of these is inconsistent with the Post Keynesian view, of course, but were more long-term than cyclical issues. That real GDP growth managed to stay positive for another six quarters was a function of consumer spending. When it accelerated, economic growth remained robust despite investment; when it did not, the economy experienced low but positive growth.

It was during 2007:4, however, that investment fell (again), the Purchasing Managers’
Index dipped below 50, realized profits were negative, and consumption slowed. As the extent of the situation in the financial industry became clear, the balance between uncertainty and animal spirits was upset, with the Purchasing Managers’ Index falling to its lowest level since the oil crises. The two-year collapse in investment starting in 2007:3 was the largest in the post-World War Two era. All of this, of course, fits quite well into the Post Keynesian scheme. At the time of this writing (summer 2010), incidentally, both the Purchasing Managers’ Index and investment appear to have rebounded, but unemployment has stagnated over 9%. It appears that the longer-term issues affecting the economy may be too deeply seated at the moment for fiscal policy and private capital formation to do the job by themselves.

4. Conclusions

The above offers a wealth of statistical and anecdotal evidence in support of the Post Keynesian view of the business cycle. This is not to say that shocks and policy have no effect, but theirs is supplementary. There is simply no way to explain the US economy since 1950 without reference to endogenous fluctuations in investment particularly as related to systematic changes in the mec.

This is terribly important for policy because 1) it argues that the economy does not tend to full employment, 2) it suggests a predictable (at least in general terms) pattern to economic behavior, and 3) it defines the variables upon which policy makers must focus. The first means that there is a critical role for the government to play. We cannot relax in the comfort of knowledge that, unless we make a mistake, the economy will remain at full employment forever. Rather, we should remain on guard, because, so long as the economy is structured in this
manner, downturns are inevitable. Furthermore, the second item tells us when to expect this: after a sustained increase in physical investment spending. And this leads to the third item by suggesting the focus of our vigilance.

One may object that, based on section 3 of this paper, attempts to discern the possible direction of investment, especially in real time, would be extremely difficult. It is one thing to say that the recession will come when the stock of capital is saturated, but quite another to put a fairly specific date on that. The point is well taken. Fortunately, however, it is unnecessary to develop forecasting and monitoring methods that would predict just when the rate of physical capital formation would decline. By all means, we should keep a close eye on investment, but the key variable is really unemployment, which can rise even over expansion. There is absolutely no reason why, in a society with our technology and resources, that everyone who wants a job should not have one. However, this is the fatal flaw of our system and it is here that the government should step in. The socialization of investment should have as its target not some rate of GDP growth, but the reduction of unemployment to humane levels. Focusing on investment, as done above, should actually lead us to focusing on what should be the true object of our analysis: people.

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8See, for example, Wray’s discussion of employer-of-last-resort policies (1999).
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