

Cyclical Over-Investment and Crisis in a Labor-Scarce Economy

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This paper incorporates a post-Marxian view of investment in an over-investment (OI) theory of cyclical economic crises. The Marxian crisis theory based on the tendency for the profit rate to fall (due to over-mechanization) is replaced with a theory of over-accumulation of fixed capital, while the high employment profit squeeze is restated in terms of this OI. Historical conditions determine OI's results: when labor-power is potentially scarce (pre-capitalist or agricultural labor reserves are largely gone), OI means rising costs, falling profit rates, and crisis. Also, the resulting slump can cause either a recovery or lasting stagnation. Though crises are key to the Marxian view of capitalism, Marxian crisis theory is itself in crisis. While admirable political-economic analyses of capitalism's current problems exist, there has been less success in understanding that system's inherent crisis tendencies. Not one but three major theories exist: over-mechanization causing the tendency for profit rates to fall (TPRF), the high-employment profit squeeze (HEPS), and under-consumption [cf. Wright, 1978; Shaikh, 1978A]. Not only do these contradict each other, but each suffers from logical flaws.

To rebuild crisis theory, we must go beyond "what Marx (really) said." Existing theories' insights must be revealed and synthesized. This paper aims to do just that, focusing on the admittedly narrow issue of the trade cycle.

Part I surveys accumulation and crisis theories, criticizing the cyclical TPRF and HEPS views. In these over-accumulation theories, capitalism expands "too much." Under-consumption theories, wherein the system does not expand "enough," are assessed elsewhere [Devine, 1983].

Part II develops an over-investment (OI) theory. Capitalism's social context drives firms to over-invest in fixed capital, producing imbalances that imply a downturn. Unlike many theories which focus on crises ensuing under market conditions characterized by surpluses of labor-power, this paper explores the case of potential labor constraints, under which OI occurs relative to supply and, contrary to most cycle theories, the crisis outcome is not completely determined. After a downturn, slow growth can spawn recovery, but drastic excess capacity and debt could block revival. The latter case is probed elsewhere [Devine, 1983].

Part III probes the role of the state, implying that macropolicy will not abolish cycles under capitalism. Part IV cites empirical data for the theory in the US after 1949. Part V summarizes the paper.

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I. DISEQUILIBRATING GROWTH UNDER CAPITALISM

While neoclassical "market economies" move "naturally" to full employment, for Marxians lengthy high employment is accidental, beyond the normal workings of capitalism. To the latter, capitalism is a dynamic and disequilibrating system. Marx saw "proportionate production" (steady-state growth) as often "suspended by the creation of surplus value and the increase in productive forces" [1973: 414]. To Mandel, "the overall development of capitalism" consists of "periods of equilibrium and periods of disequilibrium . . . Each equilibrium inevitably leads to a disequilibrium, and after a certain period . . . a new provisional equilibrium" [1975: 26].

"Disequilibration" needs a notion of provisional equilibrium conditions. Marxians posit necessary conditions for *production* of surplus-value, embodied in a surplus-product, and for *realization* of money profits (R, property income) through sale of the product. Successful production and realization allow "adequate" profit rates (from the capitalist viewpoint).

Breaking these conditions leads to crisis. First, a production crisis results if the average product of labor-power does not exceed real wages enough. Second, a realization crisis occurs if demand-size equilibrium conditions are unmet, and insufficient surplus-value is realized. Over-accumulation theories see capitalist upswings as creating production imbalances, hurting profit rates, and causing disequilibration. Accumulation slows, causing a realization crisis and a downturn.

Although Marx measured the profit rate in values to reveal the societal nature of capitalism, this rate hardly determines investment directly. Investment behavior is instead affected by a profit rate in price terms, and on fixed capital (K):

$$(1) \quad r = R/K = (R/Z)(Z/K) = fh$$

where Z = full-capacity output; $f = R/Z$, the share of profits in Z , reflecting Marx's rate of surplus-value; and $h = Z/K$, the capacity-capital ratio, inversely linked to Marx's organic composition of capital. (R , K , and Z are in nominal terms.) Capacity utilization (cu), profit margins (m), and the terms of trade (tt , the ratio of final output to raw material prices) determine f , so that:

$$(2) \quad r = f(cu, m, tt)h$$

Below full capacity, f rises with cu as overhead costs become less serious. Above capacity, bottlenecks make f fall as cu rises. But f and r always rise with m and tt . (Weisskopf, 1979; and Devine, 1980).

The main dispute among over-accumulation theorists concerns the upswing. The TPRF and HEPS views emphasize different variables in (2). In the TPRF literature, over-mechanization hurts h and r [cf. Marx, 1967C, chs. 13–15]. But the Okishio Theorem weakens this view: with fixed real wages, profit-seeking technical change *raises* m and r [Roemer, 1978; Van Parijs, 1980].

If fixed capital plays a role, the TPRF seems more plausible if we assume that competition drives firms to be short-sighted, so that they heed profit margins rather than profit rates [Shaikh, 1978B]. Fixed capital is clearly crucial to crisis theory. Without fixed capital, imbalances cannot last: circulating capital is used up quickly and cannot hurt profit rates for long. Marx's "turnover cycle" based on the long life of fixed capital can occur [1967B, ch. 9]. In sum, capitalist accumulation of fixed capital—i.e., investment—is central. The TPRF should be recast as OI.

The HEPS view starts with Marx's theory that accumulation can cause a wage squeeze on profits [1967: ch. 25] plus observations of falling m at the end of cyclical upturns [Boddy and Crotty, 1974]. This theory applies only when growth can pull real wages up faster than productivity, in a "labor scarce" economy, where no large reserve of rural workers exists. The Okishio literature shows that technical change can hurt profit rates if wages rise with productivity (m is constant) [Roemer, 1978, Laibman, 1982].

However, HEPS theories generally lack forces that push the system to collide with labor constraints. The Okishio Theorem, a major basis for the HEPS, uses comparative statics, not disequilibrium dynamics. This suggests that we can learn from the TPRF theory.

II. OVER-INVESTMENT RELATIVE TO SUPPLY

To clarify cyclical overinvestment it is necessary to examine three aspects of accumulation: the drive to grow, the limits to expansion, and the effects of over-shooting. These correspond to three phases of the cycle: prosperity, peak, and downswing.

The forces pushing firms to grow have been probed elsewhere [Devine, 1983: 5–7]. With prosperity, i.e., when high capacity use and profit rates encourage investment, class antagonism in the labor process and the competitive battle induce investment.¹ High investment and (given multiplier effects) high consumption stimulate fuller use of capacity, raising profit rates (all else constant). This encourages yet more investment.

Competition among banks goads them to push loans. Though regulation shackled US banks' tendency to over-extend credit after the 1930s, the trend has been toward deregulation, while the banks have created unregulated forms of credit (e.g. the Eurocurrency market). Credit crunches favored the re-creation of a potentially over-expanding, unruly, banking system [Wojnilower, 1980]. Expansion itself raises banks' base for lending and spurs optimism. So credit expansion offsets the upward pull on interest rates caused by "real" expansion.

The Peak: Barriers to Investment

The barrier faced in the cyclical peak depends on the historical era. Two situations exist [cf. Dobb, 1963: 23], defined by buoyant growth's effect on real wages relative to productivity: (1) labor-power is so abundant that real wages lag; and (2) labor-power is potentially scarce so that real wages rise with or faster than productivity. These imply two types of crisis. Case (1) spawns OI relative to consumption [Devine, 1983], while labor scarcity implies OI relative to supply. Both mean an investment cutback, a realization crisis, and a downturn. After that, either depression or recovery occurs. Diagram I summarizes these cases.

This paper concerns production crises under case (2). Labor-power's scarcity arises from its uniqueness among commodities: it is not an outcome of profit criteria or accumulation needs. This scarcity, however, has force in a single country only when barriers to migration exist, labor-power reserves have been largely used up (unlike many less-developed countries), and capital is unable to move quickly to foreign labor-power supplies, as in the US for the 30 or so years after World War II.

The mass migration of women into paid work during this period might have eased the scarcity. But this was not a response to labor shortages and higher wages as much as to capitalism's steady elimination of home production; while women were a labor reserve, their entry into the labor force was only gradual as wages rose [Power, 1983]. Falling male labor-force participation partly offset the rising role of women.

Though labor abundance ruled between the World Wars [Devine, 1983] and labor scarcity

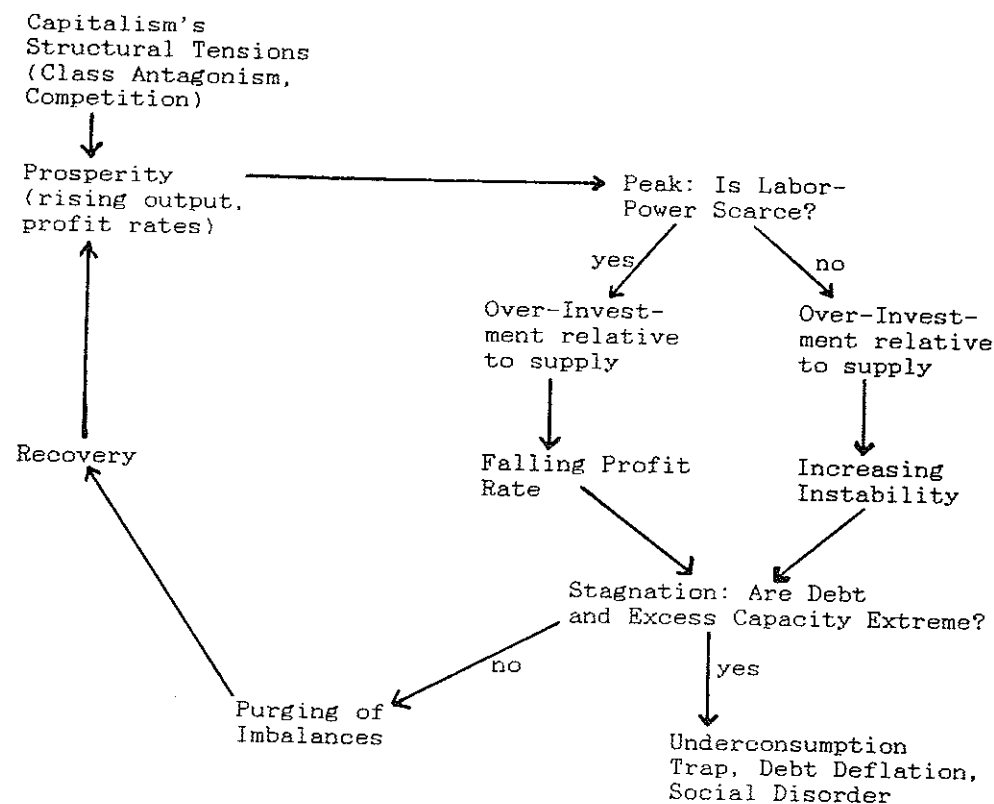


Diagram I: Crisis Possibilities under Capitalism

in the 1950s and 1960s, these are not mechanical "stages." Labor scarcity now seems to be ending, as international capital mobility rises [Bluestone and Harrison, 1982].

Inelastic raw material supplies can also block accumulation. Increased demand shifts profits away from the leading growth sectors toward those producing materials.

In investment decisions, firms take expected wages and material prices as given. They cannot see the aggregate effects of investment on these variables or on profit rates—and thus can make aggregate mistakes, embodied in fixed capital. These effects are seen in the aggregate profit rate formula (equ. 2). If we initially assume a fixed average final product price (P), OI reduces m , tt , and h .² The profit rate drops when these falls swamp the rising cu . This is more likely when capacity is passed and rising cu hurts r .

Profit margins fall as money wages rise relative to productivity in the middle of the expansion [Boddy and Crotty, 1975; Pulling, 1978]. Kahn's [1980] post-World War II data shows that real wages rose relative to the trend when employment rose. Gordon [1979] found that productivity growth slowed at the end of all but one boom: capitalists use marginal workers and machines; high employment hurts work effort. The latter is suggested by the rise in strikes with employment [Ashenfelter and Johnson, 1969]. Similarly, the terms of trade fall as demand pulls raw-material prices up relative to output prices.

Further, aggregate "capital intensity" rises in the boom so that h falls (for reasons distinct from the TPRF theory). To see this, assume fixed means of production (MP) to be

homogeneous and examine the capacity-capital ratio:

$$(3) \quad h = Z/K = (z/MP)(P/P1) = h^* p^*$$

where z is capacity real output, h^* is the real capacity-capital ratio (z/MP), $P1$ is the price of MP , and $p^* = P/P1$.

Over-investment can depress h^* or p^* . The h^* falls due to the rush to invest: MP rises sharply, raising the denominator of h^* while new plant and equipment do not increase capacity output (z) at first. This effect is not enduring, since productivity growth eventually catches up (raising z). But other, more lasting, factors hurt h^* : wasteful investment³ on advertising or speculation never raises productivity or z . The boom's chaos can also cause horizontal maladjustments [Haberler, 1963: 29–30] where investments do not fit the structure of demand and thus cannot be used at full effectiveness.⁴

The fall in h^* is offset if the machine-producing sector has a higher z/MP ratio than other sectors and if demand shifts to that sector, raising its role in the aggregate. But with labor scarcity the demand shift is weak since an investment boom raises wages and thus consumption. If demand does shift in this way, $P/P1$ falls, depressing h , especially if machines are raw-material intensive.

For more data on the changes of m , tt , and h see section IV. At this point, the fixed- P assumption must be dropped. Raising prices cannot solve the profit squeeze if high demand endures. Price hikes may be immediately lucrative (perhaps encouraging more investment), but high demand re-creates conditions squeezing profit rates—and the push to raise prices. Instead of solving the dilemma, inflation results. If, instead of constant P , a constant inflation rate had been assumed, the profit squeeze boosts the inflation rate [Devine, 1986].

In sum, profit rates fall at high utilization. Conditions allowing adequate realization may contradict those for profit production [cf. Marx, 1967C: 244]. The basis of this problem is the contradiction between individual capitalist appropriation and socialized production. Because their belief that individual investment produces profits clashes with the societal conditions for profit production, they over-invest.

A microeconomic case of OI is oligopolistic advertising. GM's advertising cancels that of Ford's without boosting the size of the market much or creating surplus-value. Yet they spend millions of dollars on ads each year. Also see Cherry [1980: 330–1] on OI in world steel-producing capacity.

The Downswing: Recovery or Depression?

Sagging profit rates eventually depress investment, as both expected profit rates and the investable-funds flow fall. A liquidity crunch occurs with short-term borrowing to cover contractual obligations and inventories. Even without tight money policies, upward pressure on short-term interest rates results, amplifying the recession [cf. Bernanke, 1981]. After the early 1960s, each of the cycle peaks coincided with a "financial crisis" [Wolfson, 1986].

The resulting stagnation is the obverse of the peak: realization conditions are poor while those of production are good. Thus forces for both continued stagnation and recovery exist. On the former, Abel [1981] shows that excess capacity blocks investment: in non-steady-state growth, i.e., in the real world, investment falls with utilization rates. Further, the problem is rooted in capitalism's social context. The anarchy of production means that capitalists cannot see that investment can have multiplier effects that raise utilization and profit rates. To

individual firms, investment promises only new unused capacity. Since most are in a similar situation, they delay investment, sapping the competitive push to invest. Similarly, low employment disciplines labor, replacing labor-controlling investment. Finally, debt amassed in the boom delays investment. Low investment prolongs low utilization both directly and through the multiplier effects on consumption and the depression of real wages.

On the other hand, profit production conditions are better. Slow growth hurts wages and raw material prices. Low profits make firms loath to cut prices as costs fall, so *m* and *tt* rise. Demand shifts away from the machine industry, raising *p**. Even without a slump, productivity eventually catches up with the growth of *MP*, raising *h**. Lengthy slow growth "rationalizes" production, solving the more durable problems of wasteful investment and horizontal maladjustment. Disinvestment raises productivity growth by purging old or inefficient capital from the system. Finally, debts are paid off or repudiated.

If falling costs and the improving debt situation dominate the weak demand conditions, then the profit rate and investment rise. Utilization rates then rise, again spurring profits and investment. Capitalist competition and class antagonisms can then drive the system into another prosperity, peak, and crisis.

Though a cycle can result, it is not regular. Optimistic expectations, credit expansion, or fiscal policy can extend the prosperity and *OI*. But since a boom creates profit-squeezing imbalances and inflation, a longer or deeper slump is needed to re-create conditions for accumulation.

The positive effect on profits of lower costs can be blunted if excess capacity and debt are severe. If so, no recovery results and the Hayekian conclusion of the previous paragraph falls apart. Wage-cutting to boost profits is both encouraged by the blockage of investment and allowed by high unemployment. An under-consumption trap, as in the Depression, may result, perhaps intensified by debt-deflation [Devine, 1983].

While a new Depression may occur, it did not do so in the period covered by this paper. The size and stability of the state budget, the automatic stabilizers, and some activist policy meant that we saw cycles and inflation instead. So turn now to the role of the state.

The Role of Government Policy

The competitive battle, a key basis for *OI*, helps us clarify the role of state policies. Start with the assertion that policy creates slumps to restore profits and promote "long-term profit maximization" [Boddy and Crotty, 1975: 10]. This seems plausible at first, since the US working class is so weak politically. But if so why does the state allow profit squeezes and crises at all?

Competition must be brought in. The clashing goals of capitalists inhibits policies from maximizing long-run profits. Beyond the defense of property, long-term capitalist goals are unclear *ex ante*. Conflicts among capitalist aims often occur, as over fighting the Viet Nam war (which maintained high demand) versus profit protection.

More generally, fearing bankruptcy, many firms value high utilization and cash flow, no matter the later impact. Their push for high-demand policies allows anti-profit imbalances to grow. Thus not only profit-restoring slumps but profit-hurting booms may arise from "pro-capitalist" policies. Labor and perhaps the middle classes, who often favor job abundance, may also back profit-harming policy. In sum, macropolicies might not negate, and may reinforce, *OI* tendencies.

Empirical Evidence

This section undertakes to test the theory by examining the effects of the cycle on profit rates. Profit-rate swings, it is true, stem from not only private investment, but also state policy or net exports. Yet the labor-scarcity assumption can be tested⁵ using recent data (Epstein and Parenteau, 1981). The predictions concerning the main variables' changes can be tested in the three cycle phases.⁶

Table I shows the average percent change for six cycles of the effects of each of the variables determining *r*, divided by the percent change of *r* during the same phases. The following, based on equation (2), is used:

$$(4) \quad \% \Delta r = H(cu) + H(m) + H(g) + \% \Delta h$$

where *H*(*x*) is the effect of *x* on *r*; *g* refers to relative price changes.⁷ Dividing (4) by $\% \Delta r$, rows (A) to (D) add to unity. Also break *H*(*g*) and $\% \Delta h$ into components:

$$(5) \quad H(g) = H(tt) + H(p')$$

$$(6) \quad \% \Delta h = \% \Delta h^* + \% \Delta p^*$$

The *g* reflects changes in *tt* and the ratio of capital goods prices to wage goods prices (*p'*). *H*(*tt*)/ $\% \Delta r$ (from 5) appears in row (C.1).⁸ The ratios of $\% \Delta h^*$ and $\% \Delta p^*$ to $\% \Delta r$ (from 6) are in (D.1) and (D.2), adding to (D).

Except for *cu* above capacity, a negative sign indicates that a variable is moving wrongly to

TABLE I
Explaining Profit Rate Changes, 1949–1980

| Average annual percentage change in <i>r</i> | Trend – 1.38 | Average of Six Cycles | | |
|--|-----------------|-----------------------|-----------------|----------------------|
| | | Prosperity 27.85 | Peak – 10.07 | Downswing – 22.62 |
| % "explained" by | | | | |
| (A) <i>cu</i> | 0.13 | 0.90 | – 0.13 | 1.50 |
| (B) <i>m</i> | – 1.13 | 0.28 | 0.54 | – 0.46 |
| | – 0.75# | 0.33 | 0.61 | – 0.22 |
| (C) <i>g</i> | 1.78 | – 0.11 | 0.28 | 0.15 |
| | 1.41 | – 0.16 | 0.21 | – 0.09 |
| (C.1) <i>tt</i> | 2.14 | – 0.23 | 0.48 | – 0.04 |
| | 2.01 | – 0.21 | 0.52 | – 0.08 |
| (D) <i>h</i> | 0.21 | – 0.07 | 0.31 | – 0.17 |
| (D.1) <i>h</i> * | – 0.38 | 0.00 | 0.13 | – 0.18 |
| (D.2) <i>p</i> * | 0.59 | – 0.08 | 0.18 | 0.00 |

#Numbers above were calculated using the consumer price index while those below used the implicit deflator for consumption.

The authors' names for the variables are as follows: *cu* = realization conditions; *m* = offensive labor strength; *g* = defensive labor strength; *tt* = terms of trade; *h* = composition of capital; *h** = technical composition of capital; *p** = value elements of capital. Prosperity = A, Peak = B, Downswing = C.

The six cycles defined by the following: output troughs (defining the beginning of prosperity): 1949/4, 1954/2, 1958/2, 1960/4, 1970/4, 1975/1, 1980/2; profit highpoints (defining the start of the peak): 1950/4, 1955/2, 1959/2, 1966/1, 1972/4, 1976/1; output highpoints (defining the start of the downswing): 1953/2, 1957/1, 1960/1, 1969/2, 1973/3, 1979/1.

Source: Epstein and Parenteau [1981: tables 6, 7, 10, 11]. Components may not add to unity due to rounding.

directly explain r 's change. But we must be careful. A low positive value of, say, $\% \Delta h / \% \Delta r$ means either that h has a small role in determining r or that tiny changes in h cause big changes in r . The former is more likely since other determinants of r exist. Second, even if $\% \Delta h / \% \Delta r$ is 0, the role of h cannot be dismissed, since fixed h keeps firms from raising r to offset other variables' falls. Lastly, even if the ratio is negative, a changing h affects r later in the cycle.

Now examine the data. In a prosperity, with r and output rising, the positive effect of rising cu on r should exceed the effects of the supply factors (g , m , h). In the data, rising cu does dominate, though m plays a role. All other supply factors except h^* are moving wrongly, starting to hurt r , a harbinger of things to come.

At the peak, cu should still rise, as growth over-shoots, but the cost variables should swamp its effects on r . Here this seems accurate: r falls because of m , h , and g , in that order. The p^* is slightly more important than h^* .⁹ However, cu moves a bit wrongly to explain profit rate changes.

Looking at peaks separately, m and p^* help explain falling r in all cases. The g and tt help explain falling profit rates in all but 1957/1.¹⁰ The h^* fits the theory except for 1960/1. Unfortunately for the theory, cu moves in the same direction as r in the 1957/1, 1960/1, and 1969/3 cycles [Epstein and Parenteau, 1981: Tables 8 and 12]. It could be that capacity had been exceeded, especially in the late 1960s.¹¹ Alternatively, factors outside of the theory, such as government demand restriction (to end pressure on profits or inflation) or lags in consumption growth [cf. Hahnel and Sherman, 1982] might have hurt cu .

In the downswing (with r and output falling), cu should dive and supply factors rise. Exactly this occurred. All costs variables but p^* and one version of g rise and cannot explain the falling r . These rises finally restore profits, so that growth can begin again.

In sum, the theory largely fits the data, which concurs with the findings of others (Hahnel and Sherman [1982], Armstrong, Glyn, and Harrison [1984], and those cited in section II). The main enigma is the fall in cu in the peak; nonetheless, the data clash with crude Keynesianism that ignores cost factors determining profit rates. It suggests the importance of labor-power and raw-material scarcity.

CONCLUSION

This study has gone beyond previous studies of OI [Cherry, 1980: 326–31; Armstrong, Glyn, and Harrison, 1984: ch. 11] by pointing to the structural factors that encourage expansion to show their results in the historically-specific context of labor scarcity. A major part of the theory, the predicted profit rate swings, fit post-World War II US data. The theory is not always valid; unlike in Gordon, Weisskopf, and Bowles [1983], the case in which wages depress profit rates is not the only case possible.

The theory's relevance to the future is reduced by the internationalization of capital, which implies that labor scarcity has ended. Increasingly, multinationals can pick and choose among areas to cut wage costs. The hypermobility of capital [Bluestone and Harrison, 1982: 115–8] makes it dubious that real wages will rise relative to productivity in booms, as does "Reaganomics." OI relative to supply is becoming unlikely, except perhaps on a world scale. Other cases (a new Depression, OI relative to consumption, or some unknown) seem more likely [cf. Devine, 1983].

NOTES

1. Cherry [1980: 326–331] sees OI in a prisoners' dilemma framework. My view emphasizes the contrast between the collective and individual interests of many capitalists.

2. In the very short run, domestic and foreign competition (given imperfectly floating exchange rates), government jawboning and controls, and direct costs of varying prices delay price hikes.
3. "Wasteful" investment is on neither productive labor-power (creating surplus-value) nor indirectly productive machines or labor-power (raising the efficacy of productive labor).
4. For Kaldor [1939], h^* rises in the boom. But he assumed labor abundance and credit shortages. Applying his logic to labor-scarcity [Dobb, 1963: 287–9] implies falling h^* in prosperity. Competitive credit creation bolsters this result.
5. Because the above theory adds the notion of tension-induced investment to the usual theories of investment and does not reject the multiplier, empirically testing it versus alternatives such as the accelerator-multiplier model and investment models emphasizing cash flow or profitability is probably impossible.
6. Similar results appear in Weisskopf [1979], which they replicate. My stages correspond to their phases A, B, and C; the names for parts of the formula for r have also been changed.
7. See Weisskopf's equations (43)–(46) [1979: 363].
8. $H(g)$ is the average annual rate of change of tt times Epstein and Parenteau's xi variable. Values were calculated from their tables 10 and 11.
9. The role of h^* might be understated because the quarterly data on the stock of capital goods are interpolations of annual numbers, and are thus smoothed.
10. The tt also falls for 1960/1 when the consumption deflator is used.
11. The Fed's utilization rate [Council of Economic Advisors, 1983: 263] reached 91.1% in 1966, above Weisskopf's [1979: 376] definition of "full capacity" (90%).

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