The Persistent Fall in Profitability Underlying the Current Crisis: New Temporalist Evidence

Andrew Kliman (akliman@pace.edu)

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> [The law of the tendential fall in the rate of profit] is in every respect the most important law of modern political economy, and the most essential for understanding the most difficult relations. It is the most important law from the historical standpoint. –Marx, 1857-58

> [T]he most important law of political economy … is that the *rate of profit has a tendency to fall with the progress of capitalist production.* –Marx, 1861-63, emphasis in original

> And given the great importance that this law has for capitalist production, one might well say that it forms the mystery around whose solution the whole of political economy since Adam Smith revolves. –Marx, 1894.[1]

[1] Marx (1973, p. 748; 1991b, p. 104; 1991a, p. 314).

Contents

I. Introduction

This paper, which focuses on the analysis of movements in the rate of profit in the U.S. corporate sector, is part of a larger study. The overall purpose of the study is to ground an explanation of why the current economic crisis erupted in a long-term analysis of the underlying conditions that led to the crisis.

In an earlier paper (Kliman 2009) that also constitutes part of this study, I argued that the rate of profit has a persistent tendency to fall but that this tendency is reversed by the destruction of capital (physically and in value terms) that takes place during economic crises and slumps. The destruction of capital restores profitability and lays the foundation for a new boom. However, in contrast to what occurred in the Great Depression and World War II, capital was not sufficiently destroyed during the global economic slumps of the mid-1970s and early 1980s, largely because of demand-management policies meant to prevent a repeat of the Depression. Thus the rate of profit has remained at a level too low to sustain a new boom.

The result has been relative stagnation, as measured, for instance, by profitability that has not rebounded and by falling rates of growth of per capita GDP. Governments have repeatedly attempted to "manage" the relative stagnation by pursuing policies that encourage excessive expansion of debt. They have thus artificially boosted profitability and economic growth, but in an unsustainable manner that has repeatedly led to burst bubbles and debt crisis. The present crisis is the most serious and acute of these.

In this paper, my main aim is to substantiate the claim that the rate of profit in the U.S. corporate sector has declined since the mid-1950s and that the decline has persisted until the present. By substantiating this claim, I will help support my claim that the long-term build-up of debt that led to the current crisis is in turn the result of a longstanding profitability problem and my claim that capital was not destroyed during the slumps of the 1970s and early 1980s to a degree sufficient to reverse the decline in the rate of profit.

This paper is therefore, in part, also a response to the common view that, owing to free-market or "neoliberal" policies and declining real wages, there has been a strong, indeed almost complete, recovery in profitability since the early 1980s. The argument put forward by some Marxist economists that the current economic crisis is a purely financial crisis, largely unrelated to and separable from movements in profitability, is rooted in this view and in the evidence they adduce in order to support it. I argue that this evidence has two crucial flaws. First, some researchers cherry-pick trough and peak profit-rates years in order to find a rebound in profitability that a more consistent approach to data analysis does not reveal. Second, the evidence is evidence of movements in current-cost (replacement-cost) "rates of profit," which are actually not rates of profit in any meaningful sense.

In this paper, I measure trends in the rate of profit by comparing one trough to another—in order to ascertain whether a *sustainable* recovery in profitability took place. I also measure the rate of profit as the ratio of profit to the original, historical cost of capital assets, the actual sums of money spent in the past to acquire capital assets (net of depreciation). I employ two different measures of profit and two different measures of advanced capital in order to measure the rate of profit in four different ways. I find that the rate of profit either increased very slightly (by 1.1 percentage point) between the trough of 1982 and the last trough before the current crisis, that of 2001, or it failed to rise, or it continued to fall.

The paper also tests a hypothesis I advanced a decade ago (Kliman 1999, 2003) as to why the rate of profit tends to fall. In the long run, the rate of profit tends to converge upon the incremental rate of profit––the *extra* profit resulting from an *extra* dollar of investment. I hypothesized that the incremental rate was low and roughly trendless, and therefore that the rate of profit tends to fall simply because its level at the start of a boom is unsustainable, because it is far in excess of the incremental rate. The empirical results presented in part IX of this paper support these hypotheses. In particular, the notion that the observed rate of profit to converge upon a lower incremental rate is strikingly confirmed, and I show that this is tendency was by far the dominant cause of the decline in the observed rate of profit. In contrast, changes in the relationship between wages and profit, and changes in the degree to which the rate of profit is propped up by increases in the nominal values of commodities in relationship to their real values (as determined by labor-time), played only minor roles.

The next part of this paper discusses the sources of the data I employ, the computations I performed, and several methodological issues. The section on methodology discusses why different measures of the rate of profit are needed in order to address different questions, why I do not worry about constructing "the Marxian" rate of profit, and why the corporate sector, rather than say the business sector as a whole, is my unit of analysis. In part III, I examine the basic trends in the rate of profit. Since I find that much or even the entire decline in the rate of profit occurred by the early 1980s, a quarter-century before the current crisis erupted, I also explain in part III why a long lag between falling profitability and economic crisis does not mean that the former failed to set the stage for the latter.

Parts IV and V discuss why some Marxist economists nonetheless dismiss the idea that Marx's law of the tendential fall in the rate of profit helps to account for the economic crisis. In these parts, I discuss the cherry-picking problem and various issues pertaining to the current-cost "rate of profit." Use of current-cost rates is sometimes defended on the ground that they adjust for the inflation that affects historical-cost rates. I explain why current-cost rates actually do not adjust for inflation in the general price level, and I present estimates of rates of profit that do adjust for this and for increases in the monetary expression of labor-time (MELT), i.e., the rise in nominal prices relative to commodities actual values. I find that there is extremely little difference between the trend in the unadjusted historical-cost rates of profit and the trends in the adjusted rates, in the period since 1982.

In part VI, I examine the relationship between the rate of profit and the rate of inflation. Some researchers have pointed to an apparent paradox: the rate of profit is supposedly rising while the rate of accumulation (the ratio of new investment to advanced capital has been falling). If this were in fact occurring, it would support the claim that the current economic crisis is essentially a financial crisis without roots in a profitability problem. I show, however, that the paradox is a simply a by-product of the mismeasurement of profitability that occurs when the current-cost rate is used. The rate of accumulation has tracked the actual (historical-cost) rate of profit quite closely.

Part VII examines the effect of changes in income distribution, specifically changes in the relationship between profit and employee compensation, on the rate of profit. I find that, except for a one-time fall in the rate of profit in the late 1960s that is attributable to a sharp fall in the profit share of income, there has been almost no sustained change in the relationship between profit and employee compensation in the corporate sector. Changes in this relationship have therefore had almost no sustained effect on the rate of profit. Thus, except for a brief period in the late 1960s, the entire fall in the rate of profit over the post-World War II period can be attributed to a rise in the value composition of capital. Or putting the matter in a slightly different way, as I also do in Part VII, the entire fall can be attributed to a fall in the maximum rate of profit, the rate that would exist if workers received no wages, rather than to a fall in the profit share.

Part VIII reports on my test, discussed above, of the hypothesis that the rate of profit tends to fall toward a lower incremental rate of profit and my estimates that suggest that this tendency was the dominant cause of the fall in the rate of profit during the postwar period. In Part IX, I look at the effect of what Marx called "moral depreciation" (depreciation due to obsolescence) on the rate of profit. There has been a sharp rise in the rate of depreciation of fixed assets since 1982, which seems to be mostly if not entirely the result of increased investment in computers, software, and the like. I argue that the depreciation they undergo is almost entirely moral depreciation, and that this causes measured rates of profit to have diverged significantly from the ratio of surplus-value to advanced capital. Adjusting for the increase in moral depreciation that seems to have taken place since 1982, I find that the adjusted rates of profit, and thus the ratio of surplus-value to advanced capital, have fallen in relationship to the rates computed on the basis of U.S. government data. This further weakens the empirical basis for the claim that profitability has substantially rebounded since the early 1980s. Conclusions follow in part X.

II. Data and Methodology

A. Data

This paper focuses on profit-rate movements in the corporate sector of the U.S. economy between 1929 and 2007, especially the post-World War II period. All of my data have been obtained from publicly available sources, and the main data are contained in an Excel spreadsheet file that I will make available very shortly. Table 1 provides the sources of the main data series, along with the symbols used here to refer to them and discussion of the computations I performed in order to generate some additional data series. Almost all of the data come from the fixed asset tables and National Income and Product Accounts (NIPA) tables published by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce.[2] I will discuss a few additional variables later in the paper, as they are introduced.

Except in a few places where I have indicated otherwise, the data are for the corporate sector of the U.S. economy. I will discuss below the reasons why I restricted the analysis to the corporate sector. Here, I wish simply to note that the corporate sector as defined here includes both financial and non-financial corporations. Thus, my profit figures include profits of financial corporations. In addition, the profits before tax and profits after tax figures are for all U.S. corporations, not only domestic corporations, and they therefore include net profits received from the "rest of the world." (The other measure of profit employed here, which I call property income, is based upon gross value added data, which are for domestic corporations only. In order not to unduly complicate the analysis by producing novel measures, I decided not to create an alternative property-income measure that includes profits received from abroad.)

I completed almost all of my data analysis before the second half of 2009, when the BEA began to publish comprehensively revised data, and before it published data for 2008. Since the revisions affect the entire set of data from 1929 to the present, not only the most recent years, I would have had to start over if I had chosen to use the revised and updated data. I decided not to do so because the revisions have a quite modest effect through 2001 (see Tables 3 and 6,

[2] Fixed asset and NIPA tables are available at http://bea.gov/national/FA2004/ and http://bea.gov/national/nipaweb/index.asp, respectively.

Table 1. Sources and Definitions

Variable Name	Table Type	Table No. & Line	Description
CCFA	BEA fixed asset	6.1, line 2	current-cost net stock of corporations' fixed assets at *end* of year; billions of dollars
COMP	BEA NIPA	1.14, line 4	compensation of employees of domestic corporations; billions of dollars
DCC	BEA fixed asset	6.4, line 2	current-cost depreciation of corporations' fixed assets; billions of dollars
DHC	BEA fixed asset	6.6, line 2	historical-cost depreciation of corporations' fixed assets; billions of dollars
E	BLS		employment, thousands of persons in the adult civilian noninstitutional population (a)
E/P	S&P		reciprocal of "S&P 500 Historical As Reported P/E Ratio" (b)
GIR	BEA NIPA	1.1.7, line 1	GDP inflation rate (annual percentage change in GDP price index)
HCFA	BEA fixed asset	6.3, line 2	historical-cost net stock of corporations' fixed assets at *start* of year; billions of dollars (c)
Ig	BEA fixed asset	6.7, line 2	investment in corporations' fixed assets; billions of dollars (d)
INV	BEA NIPA (& fixed asset)		inventories of corporations, valued at current cost; billions of dollars (e)
MELT			monetary expression of labor-time; thousands of dollars per worker-year. (f)
NomG	BEA NIPA	1.1.5, line 1	nominal (current-dollar) gross domestic product; billions of dollars
NVAc	BEA NIPA	1.14. line 3	net value added of corporations, valued at current cost; billions of dollars
NVAh	BEA NIPA & fixed asset		net value added of corporations, valued at historical cost; billions of dollars (g)
PAT	BEA NIPA	6.19, A thru D, line 1	corporate profits after tax; billions of dollars (h)

PBT	BEA NIPA	6.17, A thru D, line 1	corporate profits after tax; billions of dollars (h)
PIC	BEA NIPA		property income of domestic corporations in current dollars, with depreciation valued at current cost; billions of dollars (i)
PIH	BEA NIPA		property income of domestic corporations in current dollars, with depreciation valued at historical cost; billions of dollars (i)

Notes

a. “BLS” stands for the Bureau of Labor Statistics of the U.S. Department of Labor. Data for early years are at http://www.census.gov/statab/ hist/HS-29.pdf; data for later years are at www.bls.gov. The figures used here are annual averages of monthly figures. Figures are for persons 14 and over, through 1946, and for persons 16 and over, from 1947 to 2007.

b. “S&P” stands for Standard and Poor’s. Data are at http://www2.standardandpoors.com/portal/site/sp/en/us/page.topic/ indices_500/2,3,2,2,0,0,0,0,0,1,5,0,0,0,0,0.html. The raw data are quarterly. The figures used here are the annual averages of the raw data.

c. The BEA reports end-of-year figures. Thus their 2006 figure is my 2007 figure, and similarly for other years.

d. Ig is gross investment, used in both current-cost and historical cost computations. Net investment valued at historical-cost investment is the change in HCFA.

e. Corporate inventories are not reported by the BEA. I estimated them by assuming that the ratio of inventories to fixed assets is the same for corporate and non-corporate businesses. The estimated inventories are (i) "Private inventories" of businesses at current cost (NIPA tables 5.7.5A and B, line 1) times (ii) corporations' share of businesses' "Current-Cost Net Stock of Private Fixed Assets." Each year's figure for (i) is the simple average of the quarterly figures reported by the BEA. The data used to compute (ii) are in BEA fixed asset Table 6.1, line 2 (corporate), line 5 (noncorporate), line 8 (nonprofit institutions) and line 9 (households);, (ii) is line 2 divided by the fixed assets of all businesses (line 2 plus line 5 minus lines 8 and 9). The BEA does not report inventories for 1946 and earlier years.

f. I approximated the MELT by dividing nominal GDP (NomG) by Employment (E). I then multiplied the ratio by 1000, in order to measure the MELT estimates in thousands of dollars per worker-year.

g. NVAh is not directly reported by the BEA. It is the difference between “Gross Value Added of Domestic Corporate Business in Current Dollars” (NIPA Table 1.14, line 1) and “Historical-Cost Depreciation of Private Fixed Assets” of corporations (Fixed Asset Table 6.6, line 2).

h. Raw corporate profits data are in millions of dollars. I have converted them into billions.

i. I am using the term “property income” to refer to net value added (NVAc or NVAh) minus compensation of employees (COMP). The term is mine; it should not be confused with "property-type income," a term once used by the BEA to refer to a similar but not identical concept that it now calls “net operating surplus.”

below),[3] and my conclusions depend very little upon data of later years. In particular, I am concerned with whether there was a *long-term* and *sustainable* recovery of profitability following the slumps of the 1970s and early 1980s, so my conclusions about trends in the rate of profit are based almost exclusively on trough-to-trough comparisons. Because the last trough in rates of profit prior to the current crisis occurred in 2001, the revisions to and updating of the data have no effects on my conclusions about this matter.

B. Measuring the Rates of Profit

In this paper, fixed assets are generally measured in terms of historical costs, and, for purposes of comparison, in terms of current costs. In order to adjust for inflation, I have also computed a "deflated" measure of fixed assets and a measure that adjusts for changes in the MELT. The current-cost measure is the value of fixed assets at the *end* of the year; the other three are measures of the value of fixed assets at the *start* of the year.

All four measures utilize the BEA's figures for corporations' net investment in fixed assets in historical-cost terms. The "net investment" during a year is that year's gross (i.e., total) investment minus the depreciation that took place during that year. The historical-cost net investment figures are nominal, i.e. measured in terms of "current dollars." The BEA does not report these figures directly; by definition, a year's net investment is the difference between the historical cost of fixed assets at the end of this year and the end of the preceding year. In this section of the paper, net investment during year τ is denoted as I_τ.

The value of fixed assets in historical-cost terms, C^H, is simply the sum of the annual net investments through the end of the preceding year:

$$C_t^H = I_0 + I_1 + ... + I_{t-1} = \sum_{\tau=0}^{t-1} I_\tau$$

To adjust for inflation, I divided each year's net investment figure by the GDP price index, *G*, of that year. (In Table 1, above, the symbol the GIR is used instead of *G*.) The sum of these ratios is the *deflated* or constant-price measure of advanced capital, C^D:

$$C_t^D = \frac{I_0}{G_0} + \frac{I_1}{G_1} + ... + \frac{I_{t-1}}{G_{t-1}} = \sum_{\tau=0}^{t-1} \left(\frac{I_\tau}{G_\tau} \right)$$

The above adjustment for inflation, which is the most common, implies that inflation occurs if there is an increase in the money price of a given set of physical items. However, Marx employed a different concept of inflation, according to which inflation occurs if there is an increase in the money price of a set of items that has a given cost in terms of labor-time.[4]

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[3] The main effects of the revisions are to lower profits-before tax and profit-rate measures based upon it during the 2002–2007 period, and to lower what I am calling property income and profit-rate measures based upon it in 2006 and 2007.

[4] In some cases, the relevant "cost" might be the *value* of this set of items, determined by the socially average amount of labor needed to produce them. Here, and in most cases, however, the relevant cost is the sum of value that the owners can *receive* for the items, i.e., the labor-time equivalent of their money price. Marx utilizes the concept of inflation noted here in many places. Here are a few: "the same monetary expression of value—owing to the vicissitudes in the value of money itself—denotes different values [at different times]. The difficulty here lies in reducing the money prices to values" (Marx 1989, p. 340). "E.g., if a yard of linen has a value of 2s. and a price of 1s., the … price is not … the adequate monetary expression … of its value. Nevertheless, it remains the *monetary expression* of its value — the *value expression* of the yard of linen — in so far as the labour contained in it is represented as general social labour, as *money*" (Marx 1994, p. 114, emphases in original). "If the price of gold is now halved or doubled, in the first case the same capital that was previously worth £100 is now worth £200 …. In the second case, the capital falls to a value of £50 …. In both cases, however, … [t]here would be no real change in the capital value in any case such as this, but simply a change in the monetary expression of the same value" (Marx 1991a, pp. 236–37).

To adjust for inflation in this sense, I divided each year's net investment figure by the monetary expression of labor-time (MELT), *M*, of that year. The sum of these ratios is the *labor* or constant-MELT measure of advanced capital, C^L:

$$C_t^L = \frac{I_0}{M_0} + \frac{I_1}{M_1} + \ldots + \frac{I_{t-1}}{M_{t-1}} = \sum_{\tau=0}^{t-1}\left(\frac{I_\tau}{M_\tau}\right)$$

Finally, fixed assets in current-cost terms, C^C, can be thought of as the current price of what the BEA calls the "real cost" of the net capital stock. To compute the latter, one would take each year's net investment and divide it by that year's price index *for fixed assets*, *F* (rather than dividing by a general price index such as the GDP price index). Thus, the real cost of the net stock of fixed assets at the *end* of year *t* equals $\frac{I_0}{F_0} + \frac{I_1}{F_1} + \ldots + \frac{I_{t-1}}{F_{t-1}} + \frac{I_t}{F_t} = \sum_{\tau=0}^{t}\left(\frac{I_\tau}{F_\tau}\right)$, and so

$$C_t^C = F_t\left(\frac{I_0}{F_0} + \frac{I_1}{F_1} + \ldots + \frac{I_{t-1}}{F_{t-1}} + \frac{I_t}{F_t}\right) = F_t \sum_{\tau=0}^{t}\left(\frac{I_\tau}{F_\tau}\right).^5$$

To compute the rates of profit associated with each of these measures of the value of fixed assets, I also had to compute measures of profit, π, associated with each. The historical-cost and current-cost rates of profit use BEA-based monetary profit figures (profits before tax, profits after tax, and what I am calling "property income").[6] The *deflated* and *labor* measures of profit, however, adjust the monetary figures in order to take into account changes in the general price level and the MELT. *Deflated* profit of any year is the year's profit divided by that year's GDP price index, while the *labor* measure of profit is the year's profit divided by that year's MELT.

Any rate of profit is the ratio of profit to advanced capital. Thus, if we use the value of fixed capital as our measure of advanced capital, the above computations give rise to four groups of rates of profit. An *historical-cost rate of profit* of year *t* is

$$r_t^H = \frac{\pi_t}{C_t^H} = \frac{\pi_t}{\sum_{\tau=0}^{t-1} I_\tau};$$

a *deflated rate of profit* is

$$r_t^D = \frac{\pi_t / G_t}{C_t^D} = \frac{\pi_t}{G_t \sum_{\tau=0}^{t-1}\left(\frac{I_\tau}{G_\tau}\right)};$$

a *labor rate of profit* is

$$r_t^L = \frac{\pi_t / M_t}{C_t^L} = \frac{\pi_t}{M_t \sum_{\tau=0}^{t-1}\left(\frac{I_\tau}{M_\tau}\right)};$$

and a *current-cost "rate of profit"* is

[5] I did not actually compute C^C in this manner, or compute C^H using the expression given above, since they are directly reported in BEA tables.

[6] Any year's property income in historical-cost terms is that year's gross value added of corporation, minus that year's historical-cost depreciation of corporations' fixed assets, minus that year's compensation of employees by corporations. Property income in current-cost terms is the same, except that current-cost depreciation, not historical-cost depreciation, is subtracted from gross value added.

$$r_t^C = \frac{\pi_t / F_t}{C_t^C} = \frac{\pi_t}{F_t \sum_{\tau=0}^{t} \left(\frac{I_\tau}{F_\tau} \right)}.$$

The right-hand-side expressions reveal the fact that the final three measures of the rate of profit are analogous in some sense. Each can be expressed as the ratio of money to one or another measure of the current cost of an inflation-adjusted sum of net investments. (The historical-cost rate of profit is also analogous if we think of it as having a price index P that always equals 1, since $\sum_{\tau=0}^{t-1} I_\tau$ can then be rewritten as $P_t \sum_{\tau=0}^{t-1} \left(\frac{I_\tau}{P_\tau} \right)$.)

On occasion, this paper also examines rates of profit in which the cost of inventories of the year is included as part of advanced capital. Irrespective of the way in which cost of fixed assets is measured, the *current* cost of inventories of the *current* year, not the preceding year, has been used.

C. No Single Rate of Profit

I have made no attempt to construct a measure of "the correct" rate of profit. I believe that there are many different legitimate ways of measuring rates of profit,[7] and that none serves as an all-purpose measure. The most relevant rate of profit always depends upon the particular question being addressed.

Here are some examples of what I mean. If we are concerned with companies' investment behavior, we should look at measures of profitability that they know and care about, not "underlying" ones, and we should ideally look at anticipated rates of profit rather than actually realized rates. However, if we are concerned to assess historical trends in profitability, we should refer to actually realized rates of profit. If we wish to inquire, as I do below, about the relationship between rates of profit and stock-market rates of return, a rate of profit based on a "narrow" definition of profit such as profits after tax may be appropriate. On the other hand, if we wish to inquire into the effect of class-based changes in income distribution on the rate of profit (as I shall also do), a rate of profit based on broad definition of profit such as my property income measure is called for. If we wish to *explain* fluctuations in observed rates of profit, then theory-based measures of the rate of profit, such as a rate of profit that adjusts for changes in the monetary expression of labor-time (MELT), and/or a rate that adjusts for changes in the price level, may play a significant role in the analysis. And if we wish to explain phenomena such as economic crisis, theory-based measures of the rate of profit may well be more appropriate than more directly observable measures.

Because there is no all-purpose measure of "the" rate of profit, it is not legitimate to reject a particular measure on the ground that it fails to fulfill an all-purpose role. For instance, the ratio of nominal profits to advanced capital (in terms of historical cost) measures the actually realized nominal rate of return on capital investment. It is not an all-purpose index of "the health of the economy" or of how well capitalists are currently doing. Yet it is not *meant* to be the either of these things, and it is therefore not legitimate to reject it because it fails to serve these functions.

One reason why the nominal rate of profit is not an all-purpose index of how well capitalists are currently doing is that inflation raises the average nominal rate of profit even though it erodes the real wealth of investors and hurts those businesses whose nominal costs happen to increase more rapidly than their sales revenues. This does not mean that the nominal rate of profit is somehow an "incorrect" measure of profitability: it correctly measures what it is intended to measure. What it means is that rates of profit generally, and the nominal rate in particular, are not the only things that matter. An analysis of "the health of the economy" or of how well capitalists are doing needs to look at a variety of factors and

[7] However, as I shall discuss below, current-cost (replacement-cost) "rates of profit" are *not* legitimate measures of the rate of profit, since they are not actually rates of profit in the normal sense of the term.

perhaps employ other measures of profitability—such as rates of profit adjusted for changes in the MELT and/or the price level—in *addition* to the nominal rate, in order to address questions other than ones about movements in the actually realized nominal rate of return on capital investment.

D. "The Marxian" Rate of Profit?

I have also made no attempt to construct "the Marxian" rate of profit. One reason why I have not is that there is no such animal. Marx employed several different rates of profit in his economic writings. With regard to units of measurement, his theoretical discussions generally refer to a rate of profit measured in terms of labor-time (and, equivalently, what can be called the "constant-MELT" rate of profit or rate of profit adjusted for changes in the MELT). But when analyzing empirical data, he discussed not only this rate of profit but also the nominal rate (Marx 1989, pp. 93–94). With regard to the magnitude of the rate of profit, he sometimes used the actual surplus-value created in the numerator, while at other times he used the profit actually received (which is equal in the aggregate, according to his theory, but not at the firm or industry level). And in addition to a rate of profit in which the numerator includes all parts of surplus-value (industrial profit, interest, rental income, etc.), he also referred to a rate with only industrial profit in the numerator (Marx, vol. 3, chap. 15).

Another reason why I have not attempted to construct "the Marxian" rate of profit is that the data that would be needed to estimate it with any precision are not available. Marx's law of the tendential fall in the rate of profit pertains to the total social capital, which in our day is the capital of the world economy as a whole, not that of any one nation or region. Moreover, there is a serious discrepancy between surplus-value as defined by Marx and profit as defined by the BEA, because depreciation due to obsolescence (which he called "moral depreciation") does not reduce surplus-value but does reduce profits as defined by the BEA. And because capital advanced figures are net of depreciation, they too are seriously affected by this problem. However, reliable profitability data for the world economy as a whole do not exist, nor do data that would allow one to reliably correct for the moral depreciation problem.[8]

In addition, the rates of profit to which Marx's theory refers differ from the rates that some researchers have christened "the Marxian" rate. This is because "the Marxian" rates include only fixed assets (fixed capital) or sometimes fixed assets and inventories in their measures of advanced capital, while Marx included items such wage payments, stocks of money, and purchases of land and financial instruments and excluded some inventories.[9]

Another reason why I have not tried to construct "the Marxian" rate of profit is that the task of theory is to account for *observed* phenomena. Thus the purpose of a study of profitability should be to account for movements what businesses and investors mean when they talk about the rate of profit or rate of return, rather than to account for movements in a theoretical construct. The latter is of interest only insofar as it plays a role in accounting for the former.

It may well be (and I believe it to be the case) that some theoretical profitability constructs do help significantly to account for real-world phenomena. However—and this is my final reason for eschewing efforts to construct "the Marxian" rate of profit—such constructs are not *determinants* of real-world phenomena; they play a role in analysis but not a causal role in the real world. It is thus strictly speaking wrong to say that a rise or fall in the Marxian (or value, etc.) rate of profit caused a rise or fall in the observed rate of profit. I think this hypostatization is the source of the persistent, misguided search for the

[8] Although estimates of the absolute *amount* of moral depreciation would be very unreliable and difficult to produce, later in this paper I shall present my profitability estimates that adjust for the apparent *increase* in moral depreciation that has taken place since the early 1980s.

[9] In national accounts, the term *inventories* refers to stocks of raw materials, semi-finished goods— (including "work-in-progress," i.e., partially completed goods and services—and finished goods that have not been sold. (See the *OECD Glossary of Statistical Terms* (http://stats.oecd.org/glossary/detail.asp?ID=1444); the BEA seems not to provide a definition of its own.) But unsold stocks of finished goods are clearly not part of what Marx meant by *advanced* capital. In terms of the circuit of capital M–C … P … C ′–M ′, expenditures on unsold finished goods were not part of the capital advanced (M–C) before production (P); they are instead a component of C ′.

holy-grail rate of profit, "the Marxian" rate that is the supposedly the underlying cause of observed phenomena.

The actual causes are processes resulting from human actions, such as technical innovation. Not only movements in the observed rate of profit, but also movements in theoretical profitability constructs and their subcomponents (the rate of surplus value, the value composition of capital) are *effects* of these processes. Thus what theorists should do, and what I attempt to do in this paper, is to account for observed phenomena in terms of the processes affecting them.

As long as hypostatizations are not thought to be really entities, it does no harm to say that a theoretical construct rather than a process "caused" a phenomenon—for instance that "a rise in the technical composition of capital," rather than the process of technical innovation, "caused" the rate of profit to fall. But there is no *need* to do so, and thus there is no *need* to construct "the Marxian" rate of profit or to argue over which rate is "the Marxian" one. The analysis can be conducted in terms of the processes actually doing the causing. An explanation in which the causal processes are those of Marx's theory is a Marxian explanation; the absence of an appeal to "the Marxian" rate of profit does not change this. A propos of this, I note that Marx never estimated a Marxian rate of profit and that he was able to explain movements in profitability and economic crises quite well without one.

E. Why Focus on the Corporate Sector?

I have restricted my study to corporations, rather than the entire U.S. economy, for two reasons. One is that corporate businesses are the dominant part of the private sector. The other is that I believe that inclusion of data for partnerships and sole proprietors can lead to seriously misleading conclusions if we are concerned, as I am here, to analyze U.S. capitalist production.

During the last 40 years of the period under study, the corporate share of the national income of domestic businesses has been roughly constant, 76.6% on average.[10] The corporate share of the business sector's fixed assets (valued at current cost) has been similar, 75.4% on average; since 1999, it has consistently exceeded 77%.[11] By these measures, then, somewhat more than three-fourths of the private business sector is corporate.

Although the above percentages are quite large, they nonetheless significantly underestimate corporations' role in U.S. *capitalist* production. It is this with which we must be concerned when we talk about profits and rates of profit. Between 1970 and 2005, corporations received between 83% and 90% of the total receipts (revenues) of businesses.[12] The absolute numbers are even more revealing. In 2000, for instance, the average "net income" of businesses that filed federal tax returns was $12,008 for nonfarm proprietorships, $130,709 for partnerships, and $183,944 for corporations. Now, from what economists call a functional perspective, in contrast to a legal perspective, the majority of the "net income" of non-corporate businesses is not profit (or interest or rental income); it consists of payments made to the owners as compensation for their work.

If we assume that all corporate net income consisted of profit and other nonlabor income, and that the ratio of nonlabor income to total receipts was the same for corporations and noncorporate businesses, then the average nonlabor income of businesses that filed federal tax returns was $2701 for nonfarm proprietorships, $53,302 for partnerships, and $183,944 for corporations. And if we assume that the average number of partners per partnership was the same in 2000 as it was in 2005, the average nonlabor income per partner came to $9088. It thus seems that the majority of partnerships, and certainly the

[10] This figure is based on the BEA's NIPA Table 1.13, "National Income by Sector, Legal Form of Organization, and Type of Income," line 2 (domestic business) and line 3 (corporate business).

[11] These figures are based on the BEA's fixed asset Table 6.1, "Current-Cost Net Stock of Private Fixed Assets by Industry Group and Legal Form of Organization," line 2 (corporate), line 5 (noncorporate), line 8 (nonprofit institutions), and line 9 (households). What I am calling the business sector's fixed assets is line 2 plus line 5 minus line 8 minus line 9.

[12] All computations in this paragraph and the next are based on data reported in Tables 722 and 727 of *The 2009 Statistical Abstract*.

overwhelming majority of sole proprietorships, do not generate enough nonlabor income to allow their owners to live without working. They work (in these businesses or elsewhere) out of necessity, not by choice.[13]

Although the proprietorships and partnerships that do not really function capitalistically are typically very small, they are also numerous, and together they have an effect on the aggregate figures. The size of this effect is very difficult to estimate. As a rough guess that may be a bit conservative, I would say that the corporate share of the receipts and nonlabor income (and probably also the output and fixed assets) of those private-sector businesses that do function capitalistically has been about 90% over the last 40 years.

This is one factor that suggests that it is reasonable to restrict this paper's analysis to the corporate sector. A second is that figures for noncorporate businesses that operate on a capitalist basis would have to be estimated, and the estimates would depend heavily on several questionable assumptions. In particular, I would have to make the very dubious assumption that trends in the capitalistic and non-capitalistic components of the noncorporate sector have been similar. I much prefer that data be presented "straight up" whenever this is possible, without being subjected to elaborate manipulations and guesswork, so that readers can easily replicate the results. A third factor is that it is likely that those noncorporate businesses that are operated capitalistically have experienced trends (in profitability, investment, employee compensation, etc.) that are similar to those in the corporate sector. If that is so, then the trends reported here for the latter are applicable also to the former.

III. Trends in (Historical-Cost) Rates of Profit

A. Data

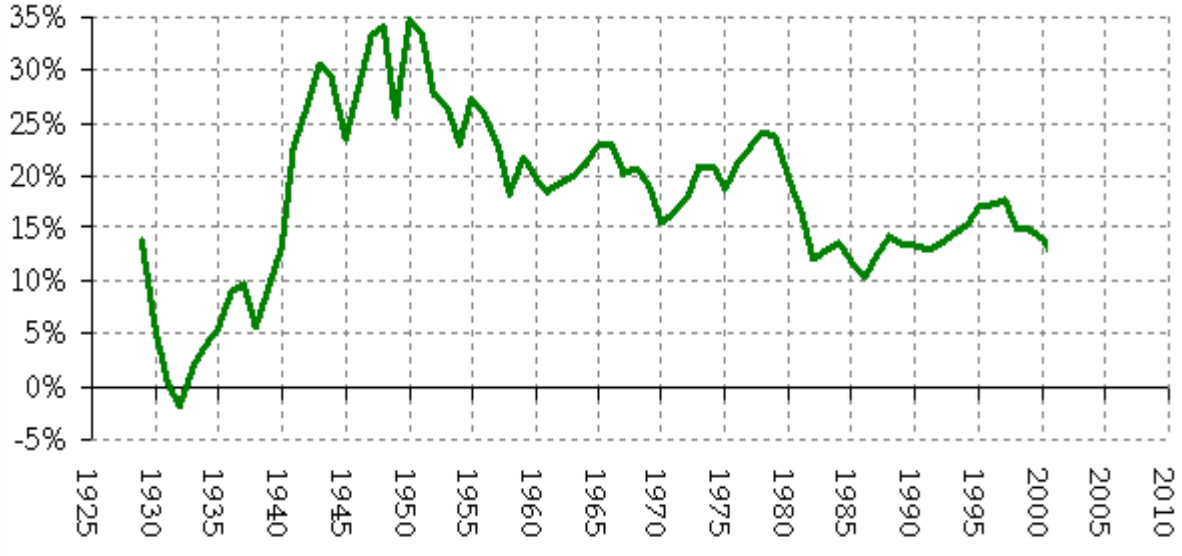
Figure 1 depicts the movements in one measure of the rate of profit, the ratio of profits before tax to the historical cost of fixed assets, since 1929. This ratio plummeted drastically in the early years of the Great Depression, recovered somewhat throughout the rest of the 1930s, and then shot up markedly during World War II. However, this was not a wartime phenomenon nor one driven by government stimulus alone. The rate of profit remained quite high through the mid-1950s, long after foreign purchases of military equipment and government borrowing to fight the war had ended. Between 1941 and 1956, the rate of profit averaged 28.2%, and it was *trendless* throughout this period. Then the average rate fell to 20.3% during the 1958–1980 period, during which the rate of profit was again trendless.

The rate of profit then fell again, between 1981 and 1984, to an average of 14.2% between 1981 and 2004. During this period, it trended upward to a modest degree. Yet if we compare the first and last troughs of this period, 1982 and 2001, in order to ascertain whether a *sustained* recovery of profitability took place, we see that it did not. The rate in 2001, 11.9%, was a tad below the rate in 1982, 12.1%.

Finally, there was a sharp rise in profitability in the middle years of this decade. As we now know, however, it was driven by an asset bubble and was not a *sustained* recovery.

[13] The case of partnerships in the "real estate and rental and leasing" industry is instructive. According to Table 727 of *The 2009 Statistical Abstract*, almost half of all partnerships (46.9%) were in this industry in 2005. Their average net income (minus loss)—*before* making any adjustment in order to estimate nonlabor income—was $55,643 per partnership or $11,161 per partner.

Figure 1
Profits Before Tax as % of Historical Cost of Fixed Assets, U.S. Corporations

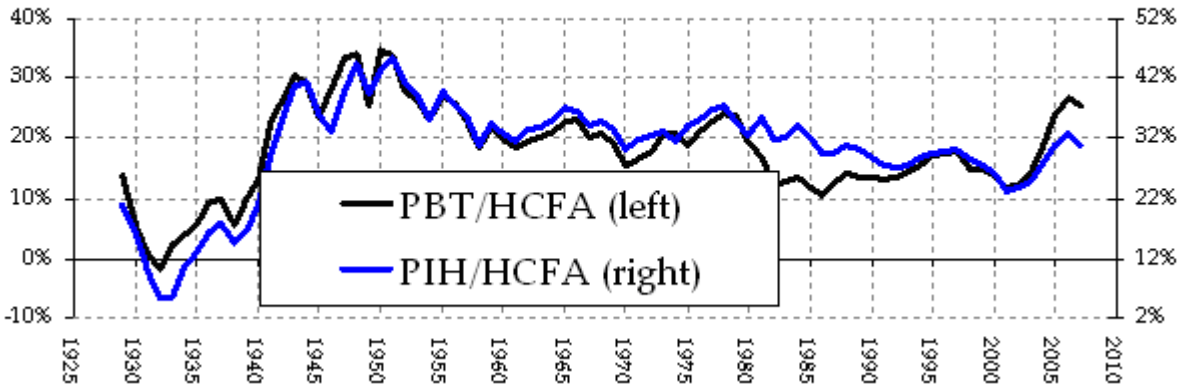


Revised and updated BEA data indicate that the rate of profit fell from a peak of 25.0% in 2006 to 17.9% in 2008. The data thus indicate that, after a sharp rise during the first decade-and-a-half following the Depression, the rate of profit experienced two prolonged declines and then leveled off. Notwithstanding the cyclical upturns in profitability during the 1990s and 2000s, there was no sustained recovery of profitability in the U.S. corporate sector.

It may be wondered whether this conclusion depends upon the particular variables that were used to measure profits and advanced capital. The answer is no; the result is robust.

Figure 2 compares the rate of profit discussed above with one in which a much broader measure of "profit," property income (with depreciation valued at historical cost), appears in the numerator. Property income is the term I am using here all nonlabor income, gross value added minus depreciation minus compensation of employees. Movements in this second measure of the rate of profit are a bit less volatile on both the upside and the downside, but, overall, the two series are rather similar.

Figure 2
Before-Tax Profits and Property Income, as % of Historical Cost of Fixed Assets, U.S. Corporations

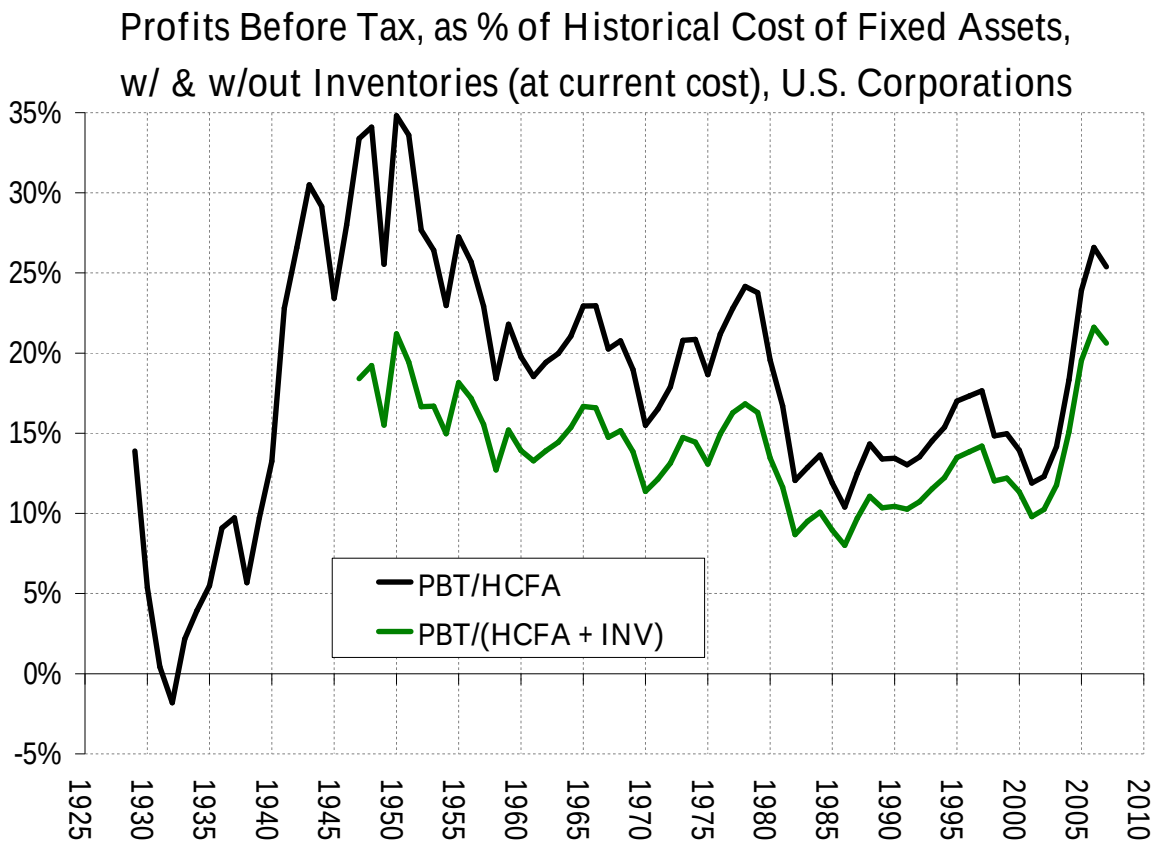


The main difference relevant to the present analysis is that the rate of profit in which property income appears in the numerator did not fall sharply from the late 1970s to the early 1980s and then level off; it experienced a more gradual decline that continued through 2001. Hence, it not only failed to recover since the early 1980s; it continued to fall or, more precisely, resumed a fall that was temporarily offset by accelerating inflation during the 1960s and 1970s (as we shall see below). In the 1982 trough, this rate of profit stood at 31.8%. In the 2001 trough, its level was 23.3%, which is a substantial 26.7% (not percentage points) less.

Some researchers prefer to use fixed assets plus inventories rather than fixed assets alone, as their measure of advanced capital. The ratio of property income (or some closely related measure) to the sum of fixed assets and inventories is sometimes regarded as "the Marxian" rate of profit, i.e., a close proxy for what Marx meant by the ratio of surplus-value to advanced capital.[14]

Figure 3 uses profits before tax in the numerator of the rate of profit, and the two measures of advanced capital in the denominators. The series in which inventories are included

Figure 3



in the denominator begins with 1947 because that is the first year for which the BEA publishes inventory data.

Here again, there is little difference between the movements in the two rates of profit. The rate of profit in which inventories are included in the denominator fell somewhat less in percentage terms during the postwar period. It also experienced a slight increase—1.1 percentage points (12.9%)—between the

[14] See footnote 10, above, for a discussion of the term *inventories* and of why some inventories are not actually advanced capital.

trough of 1982 and the trough of 2001, during which time the rate of profit in which inventories are excluded from the denominator fell by 0.2 percentage points (1.4%).

With two numerators and two denominators, we have four rates of profit altogether. Their movements between key trough years are reported in Table 2. Three of the four measures, including "the Marxian" rate, PIH/(HCFA + INV), did not rebound after 1982, but actually continued to fall, to varying degrees, between 1982 and 2001. The rise in the remaining measure, PBT/(HCFA + INV), was very modest indeed, less than one-fifth of the rise that would have been needed (6.1 percentage points) to raise it from its level in 1982 (8.7%) to its average level in the 1960s (14.8%). Thus the conclusion that the rate of profit of U.S. corporations failed to

Table 2. Rates of Profit, U.S. Corporations, Selected Trough Years

	PBT/HCFA	PBT/(HCFA + INV)	PIH/HCFA	PIH/(HCFA + INV)
Percentage-point change				
1949-2001	– 13.7	– 5.7	– 16.0	– 4.6
1949-1961	– 7.0	– 2.2	– 7.8	– 1.3
1961-1982	– 6.5	– 4.6	0.3	0.3
1982-2001	– 0.2	1.1	– 8.5	– 3.7
Percentage change				
1949-2001	– 53.4%	– 36.8%	– 40.7%	– 19.5%
1949-1961	–27.4%	–14.3%	–19.9%	–5.4%
1961-1982	–34.9%	–34.7%	1.0%	1.4%
1982-2001	– 1.4%	12.9%	– 26.7%	– 16.1%

experience a sustained recovery after the early 1980s does not depend on the selection of any particular numerator or denominator.

B. Intermediate Links between Falling Profitability and Economic Crisis

The data presented above show that (historical-cost) rates of profit either failed to recover between the troughs of 1982 and 2001 or continued to decline. Yet they also show that there was a sharp rise in profitability in the middle of the current decade, until the economic crisis erupted. Even the revised BEA data presented in Table 3 indicate that profitability rose sharply (though by a bit less than the unrevised data). Given this last fact, and given that rates of profit with before-tax profits in the numerator flattened out rather than continuing to fall in the 1980s and 1990s, it may be thought that the fall in the rate of profit cannot help to account for the current crisis; the lag is just too long. However, I do not think this is the case.

Table 3. Effect of BEA Revisions on Rates of Profit

	1982	1982 revised	2001	2001 revised	2007	2007 revised	2008
PBT/HCFA	12.1%	12.0%	11.9%	11.8%	25.4%	23.0%	17.9%
PBT/(HCFA + INV)	8.7%	8.8%	9.8%	9.9%	20.6%	19.2%	14.8%
PIH/HCFA	31.8%	31.2%	23.3%	22.8%	30.7%	29.0%	27.1%
PIH/(HCFA + INV)	22.9%	23.1%	19.2%	19.1%	24.9%	24.2%	22.6%

Note: 1982 and 2001 were trough profit-rate years

It is certainly true that a fall in the rate of profit was not the *proximate* cause of the crisis. If we seek to move beyond journalistic accounts that merely correlate current events, however, we must look for longer-term developments that set the stage for crisis and thus served as indirect causes. This paper argues that the fall in the rate of profit was a key *indirect* cause.

To be legitimate, an explanation in terms of indirect causes must give an account of the intermediate links (intermediate causes) by means of which the indirect causes led to the phenomenon in question. In this section, I focus on two such intermediate links.

1. The Level of the Average Rate of Profit

The first is that a decline in the rate of profit can set the stage for economic crisis not by continuing to fall up to the moment of crisis, but by producing an average rate of profit that is too low (albeit constant or even rising a bit). As Farjoun and Machover (1983: pp. 163–66) pointed out a quarter-century ago, relatively few businesses will be in serious trouble when the average rate of profit is relatively high. Even businesses whose rates of profit are well below average will be able to survive. However, if a fall in the rate of profit has led to an average rate of profit that is relatively low, businesses whose rates of profit are below average to a similar degree may well be in serious trouble, because their profitability is less than the minimum needed in order to survive. This is just as much the case when the average rate of profit has stabilized as when it continues to decline.

If, moreover, rates of profit are distributed such that relatively few businesses' rates are far below average, and a greater percentage are only somewhat below average, then the percentage of unviable businesses increases at an increasing rate as the average rate of declines. As Table 4 illustrates, if rates of profit are normally distributed (as in a bell curve), if the average rate of profit has fallen from a level that is 2.5 standard deviations above the minimum level needed for survival to a level that is 2 standard deviations above it, an additional 1.7% of all businesses become unviable. But if the average rate has fallen from a level that is 1.5 standard deviations above the minimum level needed for survival, to a level that is 1 standard deviation

Table 4. Non-Linear Effect of Falling Profitability on Viability of Below-Average-Profitability Businesses*

Average Rate of Profit (standard deviations greater than minimum viable rate)	2.5	2.0	1.5	1.0	0.5	0.0
Unviable Businesses (%)	0.6	2.3	6.7	15.9	30.9	50.0

* The figures in the table assume that rates of profit are normally distributed.

above it, an additional 9.2% of all businesses have become unviable—five and a half times as many as before. Short-term (cyclical) declines in profitability of similar amplitude will therefore have much more widespread consequences when the average rate of profit is low than when it is high, and a fall in the average rate of profit will thus have destabilizing effects that persist even if it stopped falling a long time ago.

2. The Credit System

Another key intermediate link between falling profitability and economic crisis is finance. It is important to note that finance ("the credit system") plays a crucial role in Marx's law of the tendential fall in the rate of profit, especially in Chapter 15 of *Capital*, vol. 3, which sketches out the relationship between the falling tendency of the rate of profit and economic crisis.

In other words, Marx's crisis theory is not one in which a fall in the rate of profit causes a fall in the rate of accumulation (net investment as a percentage of advanced capital) which then causes a economic

crisis, in the manner of one billiard ball hitting a second one and the second one hitting a third. He does argue that "the rate of … accumulation falls together with the rate of profit" (Marx 1991a, p. 349), but he does *not* hold that the fall in the rate of accumulation is a direct cause of an economic crisis. This is largely because he distinguished between *crisis* (a rupture in the reproduction process of capital) and *stagnation* (slumps, recessions, depressions). The business cycle consists of "periods of moderate activity, prosperity, over-production, crisis and stagnation" or "periods of average activity, production at high pressure, crisis, and stagnation" (Marx 1990, p. 580, p. 785). A fall in the rate of accumulation can directly cause a fall in the rate of growth of output, but the fall in the rate of accumulation must be mediated by other factors in order to result in a crisis.

Marx (1991a, pp 349–50) does regard a decline in the rate of profit, and the decline in the rate of accumulation to which it leads, as indirect causes of a crisis:

> … in view of the fact that the rate at which the total capital is valorized, i.e. the rate of profit, is the spur to capitalist production (in the same way as the valorization of capital is its sole purpose), a fall in this rate slows down the formation of new independent capitals and thus appears as a threat to the development of the capitalist production process; it promotes overproduction, speculation and crises ….[15]

Because the fall in the rates of profit and accumulation lead to crises only indirectly, they do not do so immediately. They lead first to shorter or longer periods of heighted speculation. "If the rate of profit falls, … we have swindling and general promotion of swindling, through desperate attempts in the way of new methods of production, new capital investments and new adventures, to secure some kind of extra profit, which will be independent of the general average [profit determined by the average rate of profit] and superior to it" (Marx 1991a, p. 367).[16]

It is only when debts finally cannot be repaid that a crisis erupts, which then leads to stagnation:

> The chain of payment obligations at specific dates is broken in a hundred places, and this is still further intensified by an accompanying breakdown of the credit system, which had developed alongside capital. All this therefore leads to violent and acute crises, sudden forcible devaluations, an actual stagnation and disruption in the reproduction process, and hence to an actual decline in reproduction. [Marx 1991a, p. 363]

This account has a very modern ring. Capitalism has changed far less than many people, its critics as well as its supporters, wanted to think.

Several facts about the current crisis may seem initially to suggest that it did not result from the fall in the rate of profit. The crisis erupted well after most or all of the fall had occurred (depending upon whether before-tax profits or property income serves as the measure of profits). Its main immediate cause was the bursting of an asset-price bubble. And it was immediately preceded by speculative frenzy and a huge rise in asset prices that led to a sharp (but temporary) increase in the rate of profit.[17] As we have seen, however, Marx's theory holds precisely that crises are only an indirect and delayed result of the falling rate of profit. The fall leads first to increased speculation and the build-up of debt that cannot be

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[15] Marx regards "the formation of new independent capitals" as a main form in which the growth of the capital, i.e. accumulation, appears. For instance, he noted that devaluation of the existing capital "accelerat[es] the accumulation of capital value by the formation of new capital" (Marx 1991a, p. 358).

[16] It should also be noted that the slowdown in the rate of accumulation tends to increase the share of profits that flows into financial markets, and that this greater inflow and the increased inducement to engage in speculation tend to lower interest rates and thereby add to the speculative fever. See Potts (2009).

[17] It seems that the rise in asset prices led to the temporary rise in the rate of profit largely because consumers regarded the increases in the values of their homes and stock shares as extra income, which they tended to spend and against which they borrowed.

repaid, and these are the immediate causes of crises. Thus, the timing of the current crisis and the sequence of events leading to it do not contradict the theory, but are fully consonant with it and lend support to it. Nothing anomalous has occurred that requires us to look elsewhere for explanations.

IV. Marxist Economists' Dismissal of the Relevance of Marx's Law of the Tendential Fall in the Rate of Profit

A. Dismissal

Some prominent Marxist economists have recently asserted that the rate of profit in the U.S. has almost completely recovered from the fall it underwent through 1982. Therefore, they contend, Marx's law of the tendential fall in the rate of profit (LTFRP) is of little value, if any, when trying to explain the roots of the current economic crisis. Instead, they attribute the crisis to financial-sector phenomena—, which they portray as largely unrelated to and separable from movements in profitability. Last July, Fred Moseley (2008) wrote,

> Three decades of stagnant real wages and increasing exploitation have substantially restored the rate of profit [in the U.S.], at the expense of workers. This important fact should be acknowledged. … The main problem in the current crisis is the financial sector. … The best theorist of the capitalist financial system is Hyman Minsky, not Karl Marx. The current crisis is more of a Minsky crisis than a Marx crisis.

Earlier this year, and despite the fact that the crisis has worsened considerably since last July, Moseley (2009, pp. 300-01) also argued that the substantial restoration of the rate of profit verges on "almost complete recovery":

> the rate of profit is now approaching the previous peaks achieved in the 1960s … The last several years especially, since the recession of 2001, has seen a very strong recovery of profits …. I conclude that there has been a very substantial and probably almost complete recovery of the rate of profit in the U.S.

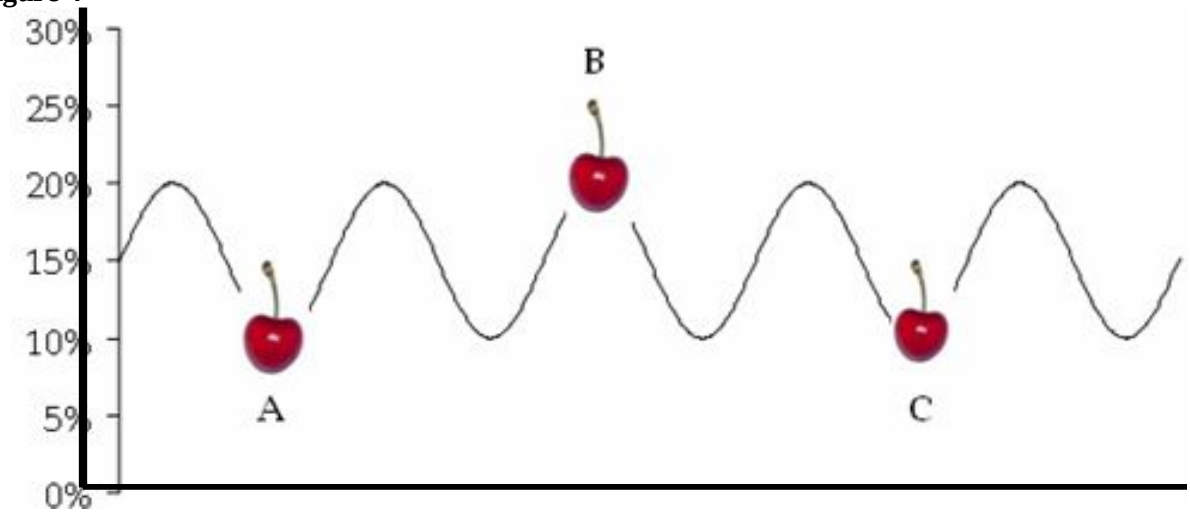
Estimates by Gérard Duménil and Dominique Lévy (2005) indicate that the rate of profit of the overall business sector in the U.S. has not recovered so substantially. Yet with regard to the corporate sector, their view echoes Moseley's; as of 1997, the rate of profit of the "Corporate sector … recovered to its level of the late 1950s. … Considering the evolution of the profit rate since World War II, the recovery of the profit rate appears nearly complete within the entire Corporate sector" (Duménil and Lévy 2005, p. 9, p. 11, emphases omitted). In light of this view, a report on comments made by Duménil at the November 2008 *Historical Materialism* conference come as no surprise: "Duménil … mock[ed] the idea that 'the profit rate had to be behind the crisis.' . . . [H]e thought the crisis was of financial origin and that the profit rate had been relatively steady and had little to do with it." The same report states that Costas Lapavitsas, another well-known Marxist economist, was "also dismissive of the profit-rate line" (Beggs 2009). Harman (2009, p. 386 n73) also reports that Duménil "denied the relevance of profitability" as a cause of the economic crisis in his presentation at that conference and in conversation at a May 2008 conference on financialization.

B. Cherry-Picking Troughs and Peaks

Before arguing that the crisis *does* have a lot to do with Marx's LTFRP, and that there has been no sustained recovery of corporate profitability in the U.S., I want explain why Moseley and Duménil have put forward the contrary view. They do so, in part, because they fail to distinguish between cyclical

variations in profitability and longer-term (secular) trends in profitability. It is obvious that, in order to ascertain the trend, one needs to set aside or control for cyclical effects. Otherwise, one might take a completely *trendless* data series (such as the sine wave depicted see Figure 4) and conclude that it exhibits a rising trend simply by cherry-picking a trough point (A) and comparing it to later peak point (B). Or one might say with equal validity (i.e., none) that

Figure 4



the series exhibits a falling trend, simply by cherry-picking a peak point (B) and comparing it to later trough point (C).

Yet this is exactly what Moseley and Duménil-Lévy do. When he asserts that the rate of profit has almost completely recovered from its prior fall, Moseley is comparing his rate of profit during *trough* or near-trough years (from the mid-1970s through the early 1980s) with the rate during a *peak* period (2004-2007 or 2005-2007). He does so even though it is clear to him that an unsustainable asset-price bubble was underway during the latter period (Moseley 2009, esp. section 5). Had he compared the troughs in his data, Moseley would have reported a rise in the rate of profit from 10% in 1980 to 14% in 2001, rather than the rise of twice that amount (to 17%-19%) that induced him to refer to an "almost complete recovery" of the rate of profit. And he would have reported *no recovery* in trough rates of profit from 1987 through 2001, the most recent trough year.

Similarly, Duménil and Lévy (2005) chose to analyze movements in profitability only through 1997. They made this choice, for reasons they do not explain, even though their paper actually presents data through 2000, and even though a few more years of data, including data for the trough year of 2001, were available when they published their paper. But 1997 was a peak profit-rate year. Thus when they state that the corporate sector's rate of profit fell sharply through 1982 and then underwent a "recovery [… that] appears nearly complete," Duménil and Lévy are comparing a *trough* to a *peak.*

Why do Moseley and Duménil- Lévy choose to cherry-pick their data in this manner? I do not know. I can only speculate that they "see" the increases in profitability, but not the subsequent declines, as significant, and that this stems from a "pre-analytical vision" of *Capital Resurgent* (Duménil and Lévy 2004), in which a neoliberal, free-market counter-revolution gave rise to a new, sustainable boom on the backs of the working class. This vision has helped many on the Left find an "objective basis" for both the hopelessness and feelings of impotence they have experienced and for the resignation to the status quo, or mildly reformist alternatives to it, that they have taken to advocating. The data themselves do not tell such a clear-cut story.

C. Current-Cost Valuation

Another reason why Moseley and Duménil-Lévy find that the rate of profit has strongly recovered is that they value advanced capital at its current cost (also known as replacement cost) rather than at its historical cost. In other words, the denominators of their rates of profit measure the amount of money that would be needed at the end of the current year to replace *all* of the capital assets, rather than the actual sums of money that were expended in order to acquire these assets originally. This issue is of such importance that the whole of the next part of this paper is devoted to it.

D. Logical and Methodological Bases of the Dismissal

I have focused above on empirical arguments, but it must be stressed that two main reasons why the LTFRP is dismissed as irrelevant to an explanation of the current economic crisis are not empirical, but logical and methodological. First, mainstream Marxist and Sraffian economists have long dismissed the law, and have even regarded reference to it as a sign of dogmatism and obscurantism, on the ground that it is *logically impossible*. While Marx argued that labor-saving technical change produces a tendency for the rate of profit to fall, Okishio's (1961) theorem supposedly proved that profit-maximizing capitalists would never adopt any labor-saving technical changes that have this effect. Any technical changes that raise their own rates of profit, given current prices and wages, will result in a higher (or constant) economy-wide rate of profit, when all is said and done.

Okishio's theorem has since been disproved by proponents of what is now known as the temporal single-system interpretation of Marx's value theory (see Kliman 2007, esp. Chap. 7). However, the myth that Okishio showed that the rate of profit cannot possibly fall for the reasons Marx stated remains prevalent among Marxist and Sraffian economists. The myth affects the debate over the causes of the current crisis, by making it less than respectable to even consider Marx's law as a potential determinant of the crisis.

There is also a methodological reason why both the LTFRP and the historical-cost rate of profit are dismissed. In an effort to be scientific, or at least good economists, mainstream Marxist and Sraffian economists have long embraced equilibrium modeling and what Steedman (1977, p. 217) called the "physical quantities approach" to valuation and profitability. This approach compels one to measure the rate of profit in current-cost terms. [18] So the historical-cost rate of profit is dismissed simply because one would violate the methodological norms of equilibrium economics and physicalism if one were to use it to assess movements in profitability. And since the reclamation of the LTFRP against the Okishio theorem requires repudiation of current-cost valuation, the LTFRP must also be dismissed, despite the fact that the theorem has been disproved, in order to protect these methodological norms. I cannot think of another plausible way of explaining why, although Duménil and Lévy (2005) study a great variety of measures of the rate of profit, capital investments are valued at their current cost in every single one of these measures.

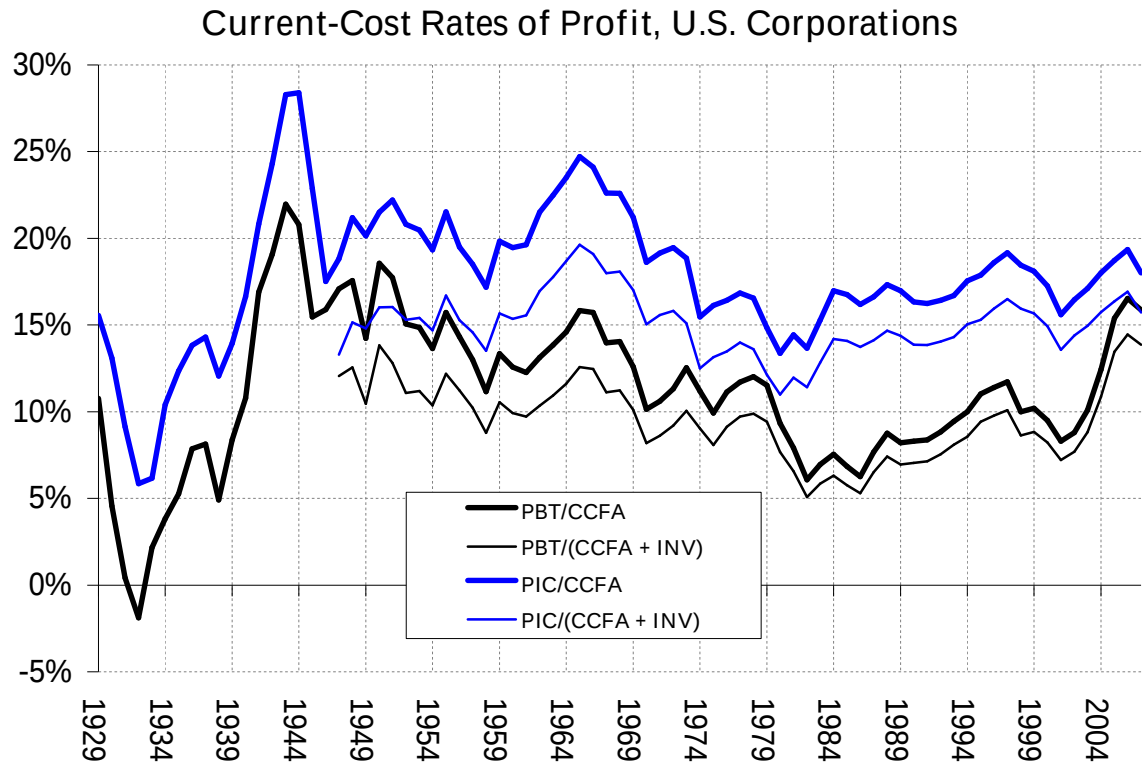
[18] Static-equilibrium prices are constant prices. Therefore, in a static equilibrium, the prices at which capital goods were acquired are the prices at which they can now be replaced. And when prices are constant, the only remaining determinants of the rate of profit are physical quantities. Thus, the replacement-cost or current-cost "rate of profit" is an essentially physical rate.

V. Current-Cost "Rates of Profit" vs. Historical-Cost Rates of Profit

A. Divergent Trends

Figure 5 shows the movements in the current-cost analogs of the four rates of profit we considered above.

Figure 5



In order to see similarities and differences between the trend of historical- and current-cost rates between selected trough profit-rate years, one can compare Table 5 with Table 2, above.

Table 5. Current-Cost "Rates of Profit," U.S. Corporations, Selected Trough Years

	PBT/CCFA	PBT/(CCFA + INV)	PIC/CCFA	PIC/(CCFA + INV)
Percentage-point change				
1949-2001	–5.9	–3.2	–4.5	–1.2
1949-1961	–2.0	–0.7	–0.5	0.8
1961-1982	–6.2	–4.6	–6.0	–4.1
1982-2001	2.2	2.1	1.9	2.2
Percentage change				
1949-2001	–41.7%	–31.0%	–22.6%	–8.3%
1949-1961	–13.9%	–7.1%	–2.6%	5.1%
1961-1982	–50.4%	–47.7%	–30.4%	–26.6%
1982-2001	36.6%	42.2%	14.2%	18.8%

Table 6, which is analogous to Table 3, above, shows the effect of the BEA's recent comprehensive revisions on current-cost rates.

Table 6. Effect of BEA Revisions on Current-Cost "Rates of Profit"

	1982	1982 revised	2001	2001 revised	2007	2007 revised	2008
PBT/CCFA	6.1%	6.0%	8.3%	8.3%	15.9%	14.3%	11.0%
PBT/(CCFA + INV)	5.1%	5.1%	7.3%	7.2%	13.9%	12.7%	9.8%
PIC/CCFA	13.7%	13.3%	15.3%	15.6%	18.0%	17.0%	15.6%
PIC/(CCFA + INV)	11.4%	11.3%	13.5%	13.6%	15.7%	15.1%	13.8%

Figure 6

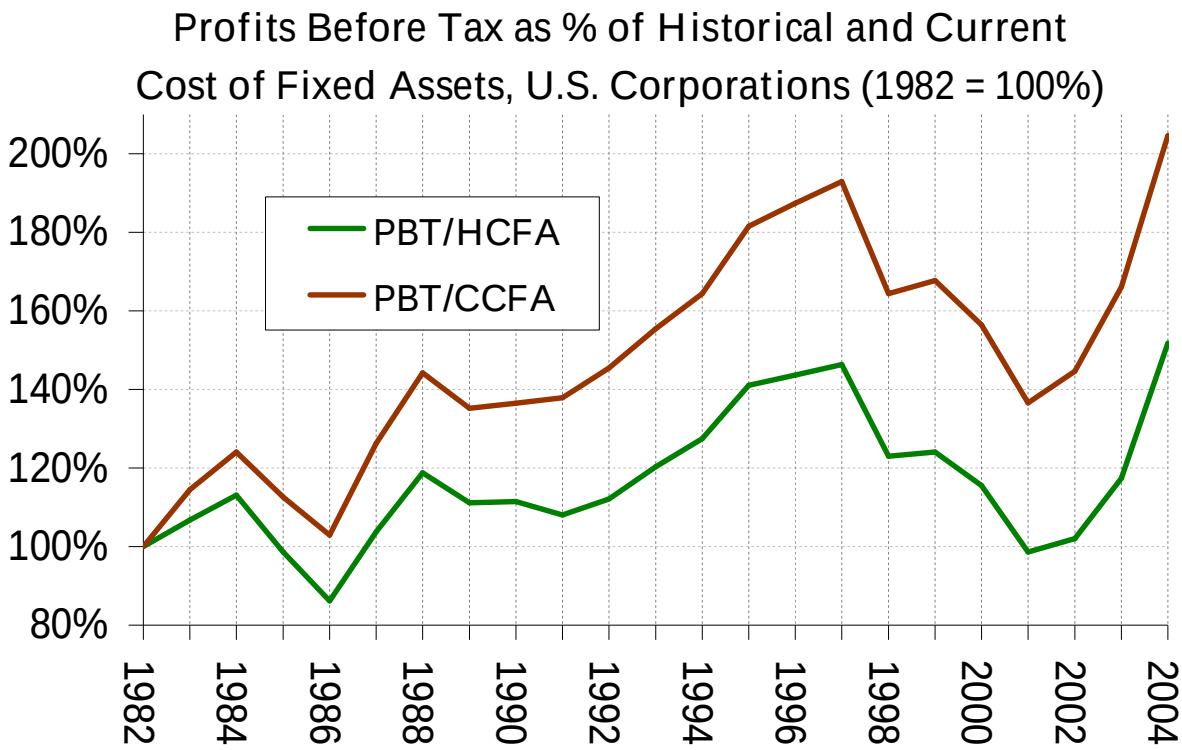
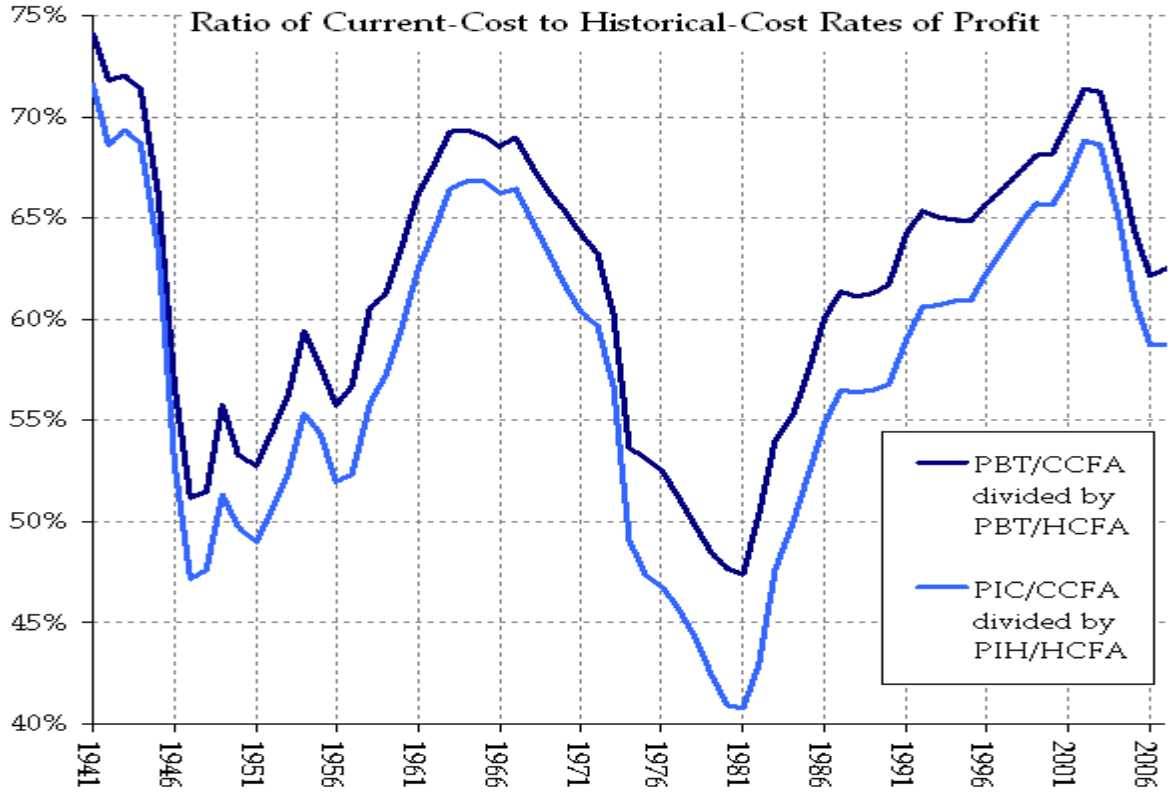


Figure 6 focuses on the period since 1982. The current-cost and historical-cost rates diverged markedly during this period. The ratio of profits before tax to the current cost of fixed assets rose by 93.0% from the trough year of 1982 to the peak year of 1997. The analogous historical-cost rate also rose sharply during that period, but by only half as much in percentage terms, 46.3%. Both rates then fell to a similar degree between 1997 and 2001. This left the current-cost rate 36.6% *higher* at the 2001 trough than at the 1982 trough, while the historical-cost rate was 1.4% *lower* in 2001 than in 1982. Thus the current-cost rate has indeed recovered, even when we compare trough to trough but, as I emphasized above, there has been no sustained recovery of the historical-cost rate. Figure 7 shows the relationship between current-cost and historical-cost rates of profit since the end of the Great Depression. When the rate of profit is computed on the basis of before-tax profits and the cost of fixed assets, the ratio of the current- cost rate to the historical-cost rate fell by 31% (not percentage points) from 1941 to 1947, then rose by 35% from 1947 to 1964, then fell by 32% from 1964 to 1981, and then rose again, by 51% from 1981 to 2002. When property income replaces before-tax profits in the numerator, the relationship is even more volatile; the percentage changes in the ratio of the current-cost rate to the historical-cost rate during the same four sub-periods are –34%, 42%, –39%, and 69%. The fall in the ratio that took place from the mid-1960s through the early 1980s was the result of the accelerating inflation of that sub-period, and the subsequent rise in the ratio is the result of the deceleration of inflation (disinflation) that took place thereafter. In other words, because replacement-cost valuation retroactively revalues capital assets, instead of valuing them at the prices at which they were acquired, it inflates the denominator of the rate of profit in periods of rising inflation, artificially lowering the rate of profit, and it deflates the denominator in periods of disinflation, which raises the rate of profit artificially.[19]

[19] It follows from the definitions of the rates given in part II, section B of this paper that if (a) the current-cost "rate of profit" is computed using the capital advanced at the *start* of the year in the denominator, (b) the profit measures

Figure 7



Thus we see that the relationship between the current-cost and historical-cost rates of profit has been quite unstable over the last 60 years. Owing to this instability, judgments as to whether profitability has or has not recovered depend largely upon which of the two rates is discussed. Moreover, claims that the current crisis is rooted in distinct and separable financial-market disturbances, rather than in a persistent slump in profitability, can be valid only if the current-cost rate of profit is a valid measure of profitability. *It is therefore clear that replacement-cost versus historical-cost measurement is a matter of considerable empirical significance.*[20] *A choice must be made.*

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in the numerators of the current-cost and historical-cost rates are the same, and (c) the cost of fixed assets is the sole component of the denominators, then the following statement holds true: *The ratio of the current-cost "rate of profit" to the historical-cost rate of profit rises (falls) when the percentage rate of growth in the fixed-asset price index, F, is less than (greater than) the difference between the initial historical-cost and current-cost ratios of net investment to advanced capital, i.e.,* $\frac{I}{C^H} - \frac{I}{C^C}$. Thus, all else being equal, the current-cost "rate of profit" will fall in relationship to the historical-cost rate of profit when fixed-asset inflation accelerates and rise in relationship to the historical-cost rate of profit when fixed-asset inflation decelerates.

[20] I point this out because some critics of the temporal single-system interpretation of Marx's value theory (TSSI) have dismissed its critique of replacement-cost measurement of the rate of profit by arguing—incorrectly, as we see—that the issue has little empirical relevance.

B. Why the Current-Cost "Rate of Profit" Isn't One

It is therefore worth assessing the argument in favor of replacement-cost valuation of capital investments. Mainstream Marxist and Sraffian economists have now used the replacement-cost, or current-cost, rate of profit to assess movements in profitability for nearly a half-century, at least since Okishio (1961). Is it really the case (I have been asked) that they have all been guilty of an outright error?

My answer is an unqualified "yes." The current-cost rate of profit is simply not a rate of profit in the normal sense of the term.[21]

First of all, the current-cost "rate of profit" is not what businesses and investors seek to maximize. They base their investment decisions on measures of profitability such as the internal rate of return and net present value. Whereas the current-cost "rate of profit" values current investment expenditures and future receipts simultaneously, using a single set of prices, these measures use current prices to value current investment expenditures, but use expected future prices to compute future receipts.

Secondly, the current-cost "rate of profit" fails to accurately measure businesses' and investors' *actual* rates of return, their profits as a percentage of the original amount invested. The discrepancy can be very large. Imagine, for instance, an investment that would generate a constant revenue stream over a very long time, if the price of the product produced by means of the investment remained constant. If, however, the price rises or falls by a constant percentage per period, it is easy to show that the actual rate of return r^A and the current-cost "rate of profit" r^{CC} are related as follows:

$$r^A = (1 + \dot{p})r^{CC} + \dot{p}$$

where $\dot{p}$ is the per-period percentage change in the product's price (in decimal form).[22] Thus if $r^{RC} = 10\%$ (i.e., 0.10) but the price of the product falls by 2% per period (i.e., $\dot{p} = -0.02$), then r^A is 7.8%.

Thirdly, contrary to what proponents of simultaneous valuation (e.g., Laibman 1999, p. 223) often claim, the current-cost "rate of profit" fails to accurately measure businesses' and investors' expected future rates of return. Imagine that a firm invests in new equipment that costs $100,000 at today's prices, and that the resulting increase in its output, if valued simultaneously—i.e., also on the basis of today's prices—is $10,000 per annum. The current- cost "rate of profit" on this investment is 10%. Yet if the price of its product is expected to decline by 2% per annum, as in the example above, only the most naïve firm would overlook this information and expect a 10%, rather than a 7.8%, rate of return on its investment.

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[21] The BEA publishes data for capital stocks in terms of current costs, but its concept of "capital stock" was not developed in connection with the measurement of profitability. The measures of net investment it is based upon are intended to be "rough indicators of whether the corresponding capital stocks have been maintained intact" (Herman et. al. 2003, p. M–2).

[22] Denote the amount invested as *I*, and the per-period revenue stream if the product's price remained constant as *R*. Then, applying the standard internal rate of return formula, we have $I = R\sum_{i=1}^{n}\left(\frac{1}{1+r^{CC}}\right)^i$ and $I = R\sum_{i=1}^{n}\left(\frac{1+\dot{p}}{1+r^A}\right)^i$. If the number of periods *n* is large, then $R\sum_{i=1}^{n}\left(\frac{1}{1+r^{CC}}\right)^i \gg R\left(\frac{1}{r^{CC}}\right)$ and $R\sum_{i=1}^{n}\left(\frac{1+\dot{p}}{1+r^A}\right)^i \approx R\left(\frac{[1+\dot{p}]}{[1+r^A]-[1+\dot{p}]}\right)$. Since the two right-hand sides both equal *I*, they can be set equal to each other, and the relation given in the text is then easily derived.

Finally, the current-cost "rate of profit" bears no clear relationship to the rate of capital accumulation (or "economic growth"). Yet this relationship is perhaps the main reason why the rate of profit is of economic importance. It is well known, for instance, that the rate of profit is the maximum rate of accumulation. However, if prices are falling, the current-cost "rate of profit" can exceed the maximum rate of accumulation by a considerable amount.

Imagine an economy without fixed capital, in which seed corn and labor are the only inputs, corn is the only output, and workers are paid in corn. At the start of the year, the capitalist farmers obtain one-year loans totaling $40 million from their bankers. Since the price of corn is $5/bushel, they use the $40 million they have borrowed to purchase 8 million bushels of corn, which they then plant as seed and use to hire farmworkers. At year's end, 10 million bushels of corn are harvested.

Now imagine that the price of corn has fallen in the meantime to $4/bushel. Sales revenue is $4 × 10 million = $40 million, and the *current cost* of the 8 million bushels of corn invested at the start of the year is $4 × 8 million = $32 million. Profit computed on the basis of replacement costs is therefore $40 million – $32 million = $8 million, and so the replacement-cost "rate of profit" is $\frac{\$8 \text{ million}}{\$32 \text{ million}} = 25\%$. In terms of value (or price), however, there is no profit–even if we ignore the interest that the capitalist farmers must pay the bankers. The $40 million in sales revenue received at year's end is no greater than the $40 million invested at the start. The actual value (or price) rate of profit is therefore 0%.

Which of these two rates of profit, 25% or 0%, more accurately depicts the maximum rate of capital accumulation—i.e., the farmers' ability to expand their operations next year? Proponents of current-cost valuation contend that the maximum rate of accumulation is indeed 25%. The farmers invested initially 8 million bushels of corn, but end the year with 10 million bushels, which is a 25% increase. Thus they can supposedly expand their operations by up to 25%, by investing 10 million bushels of corn at the start of next year instead of the 8 million bushels that they invested at the start of the current year.

The farmers themselves, however, are a wee bit disappointed. Their one-year loans must now be repaid, and they have to use their entire sales revenue of $40 million to repay the $40 million that they borrowed at the start of the year. The farmers' net worth has not increased at all and, after repaying their loans, they have nothing left over with which to expand their operations. *Even in physical terms*, they are unable to accumulate. Moreover, they have not yet paid, and cannot pay, the interest they owe the bankers. If the same situation occurs year after year–with corn output exceeding corn input by 25% each year, but the price of corn falling by 20%–the farmers are soon drowning in debt.[23]

C. Rates of Profit and Equity-Market Rates of Return

It is also worth noting that historical-cost rates of profit have outperformed current-cost rates of profit as predictors of stock-market rates of return. Table 7 reports results of regressions that measure the ability of different rates of profit to predict the earnings-to-price ratio of Standard and Poor's 500 (S&P 500) corporations during the 1947–2004 period.[24]

[23] The farmers can continue to produce, of course, and even produce an increasing amount of corn each year—*if* they can persuade their bankers to extend them new loans. This is not very likely. Simple spreadsheet computations show that, as long as the farmers must pay a positive rate of interest, the ratio of their debt to their sales revenue will grow exponentially, and the absolute level of their debt will also grow exponentially in the long term, even if the physical volume of corn they produce doesn't increase over time. It is also important to note that nothing is really different if the farmers are able to finance their own operations. Their books may not show that they owe interest to themselves, but if they continually extend zero-interest loans to themselves, they continually forego the interest that they could acquire by investing their money capital externally.

[24] I excluded the years 2005–2007 because they were very anomalous. Inclusion of these years lowered the R^2 by anywhere from 10% to 72%. The percentage fall in the R^2 was in all cases about twice as great when a current-cost rate of profit served as the independent variable as when the analogous historical-cost rate served as the independent variable.

Using the coefficient of determination, R^2, as the measure of the independent variable's predictive power, we see that historical-cost rates of profit outperform current-cost rates as predictors of the earnings-to-price ratio to a huge extent. For instance, in the regressions in which profits after tax are used and the rate of profit is lagged, the historical-cost rate of profit accounts for 47.9% of the variation in the earnings-to-price ratio while the current-cost rate of profit accounts for 14.5% of the variation, which is only three-tenths as much. These results are an additional indication that historical-cost rates of profit are more closely related to what actual capitalist firms and investors care about and talk about when they discuss profitability.

Table 7. Predictive Power of Rates of Profit over Equity-Market Rates of Return

	Non-Lagged Regression Results			Lagged Regression Results		
independent variable	constant	slope	R^2	constant	slope	R^2
PAT/HCFA	0.009	0.543	0.354	0.000	0.616	0.479
	(0.757)	(5.545)		(0.000)	(7.172)	
PAT/CCFA	0.042	0.439	0.059	0.025	0.679	0.145
	(2.474)	(1.874)		(1.559)	(3.078)	
PBT/HCFA	0.015	0.302	0.343	0.011	0.320	0.400
	(1.366)	(5.405)		(1.058)	(6.110)	
PBT/CCFA	0.041	0.281	0.078	0.033	0.346	0.123
	(2.676)	(2.177)		(2.247)	(2.801)	

Note: In all regressions, the dependent variable is the earnings-to-price ratio (the reciprocal of the S&P 500 E/P ratio), and the data are for 1947–2004, so N = 58. In the lagged regressions, the independent variable is the rate of profit of the prior year. Figures in parentheses are *t*-statistics.

The regression results also indicate that rates of profit in which profits after tax are in the numerator generally outperform, by a small amount, rates of profit in which profits before tax are in the numerator. The reason for this is apparently that the BEA's profits-after-tax figures are more similar to Standard and Poor's operating earnings figures: "NIPA [National Income and Product Accounts] profits after tax … are the NIPA profits measure that are [sic] most similar to the S&P earnings measures. Although there are still differences in depreciation rates between the two measures, at least the charges for depreciation across the two sets of measures are based on the historic cost of assets" (Mead et al. 2004, p. 12).

In addition, lagged independent variables, i.e., rates of profit of the prior year, uniformly outperform non-lagged ones to a somewhat greater extent. One reason this may be the case is that rates of profit have a delayed effect on stock prices. Another is that the S&P earnings figures are "trailing 12-month earnings," in other words, earnings throughout the prior 12 months. This implies that a one-year lag on the independent variable actually represents only a 6-month lag between BEA profits and S&P earnings. Thus, BEA profit figures of any year include 6 months' worth of profits received *after* the end of the period for which Standard & Poor's has reported earnings and which therefore cannot affect the S&P earnings-to-price ratio (unless the latter responds to anticipated rates of profit rather than actually realized rates of profit).

D. Adjusting for Inflation

My critique of the current-cost "rate of profit" may perhaps be construed as a sign that I am unaware of the difference between nominal and real profitability, or that I believe nominal profitability measures to be superior to real ones. The critique should not be construed in that manner. As I noted in part II, section C, of this paper, my view is that it is appropriate to study the movements in the nominal rate of profit in

order to answer some questions, while it is appropriate to adjust for inflation and study the movements in inflation-adjusted rates of profit in order to answer other questions.

Hence, the problem with current-cost rates of profit is not that they adjust for inflation, but that they do so in an improper manner. Or, more precisely, the problem with them is that what they adjust for is actually not inflation—a general, economy-wide increase in the price level or the MELT—but increases in the prices of each type of fixed asset. It might make sense to adjust for inflation in this manner if there were no technical changes, nor any changes in the relative prices of different fixed assets, that induce businesses—individually, and as a whole—to change the composition of the fixed assets they employ. In such a case, the composition of fixed assets would remain constant over time, and the changes in the prices of the fixed assets acquired in the past would therefore accurately reflect the changes in fixed-asset costs that businesses currently face.

But when, for instance, businesses were in the process of buying word-processing programs, computers, and printers instead of *replacing* their worn-out typewriters, changes in the *replacement cost* of typewriters became an ever-less meaningful measure of the inflation (or deflation) they experienced when they purchased what became known as desktop-publishing equipment. The replacement cost of typewriters became an ever-less meaningful inflation measure even for businesses that continued to use typewriters, because they were not replacing the typewriters when they wore out but instead *substituting* computer equipment. But current-cost measures are, precisely, replacement-cost measures. They measure the percentage change in the cost of replacing the entire current stock of fixed assets, which contained a relatively large number of typewriter prices, not the percentage change in the cost of the fixed assets that businesses are actually acquiring currently, which contained a relatively large amount of computer equipment and relatively few typewriters.

Figures 8 and 9 show the trajectories of the deflated (inflation-adjusted) and labor (MELT-adjusted) rates of profit and, for comparison, the unadjusted historical-cost rates, during the post-World War II period. (Definitions of the adjusted rates and the computations I performed in order to obtain them were discussed above in part II, section B.) We see that the adjustments lower the level of the rate of profit, but they generally do not influence the trend markedly. The period of rapidly accelerating inflation, the 1970s, are the key exception to this generalization. The nominal (i.e., unadjusted) rates of profit rose markedly during that period, while the adjusted rates in which before-tax profits appear in the numerator increased only modestly, and the adjusted rates in which property income appears in the numerator fell.

Figure 8
Before-tax Profits as % of Historical Cost of Fixed Assets, U.S. Corporations

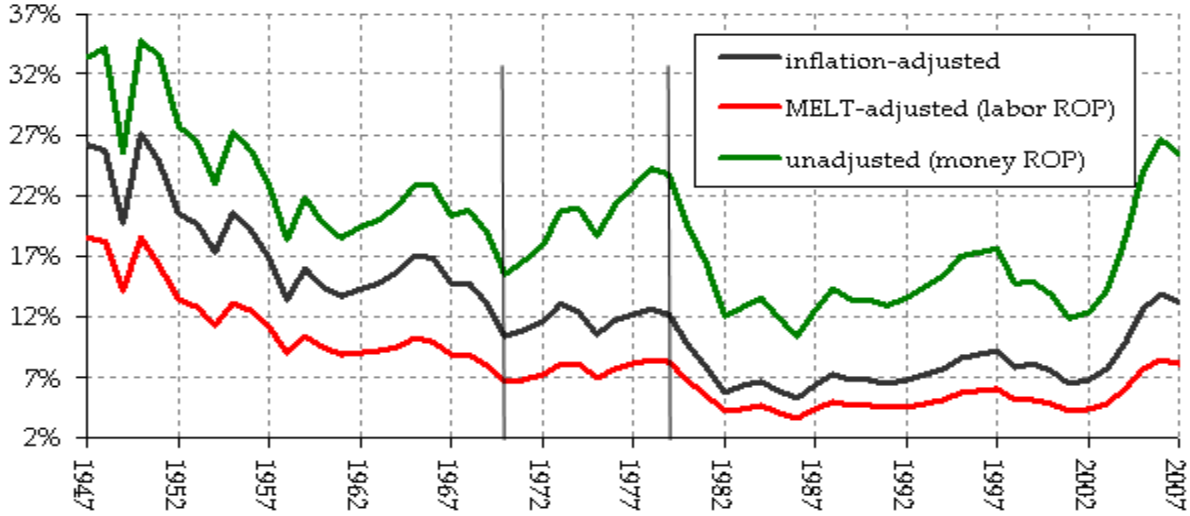
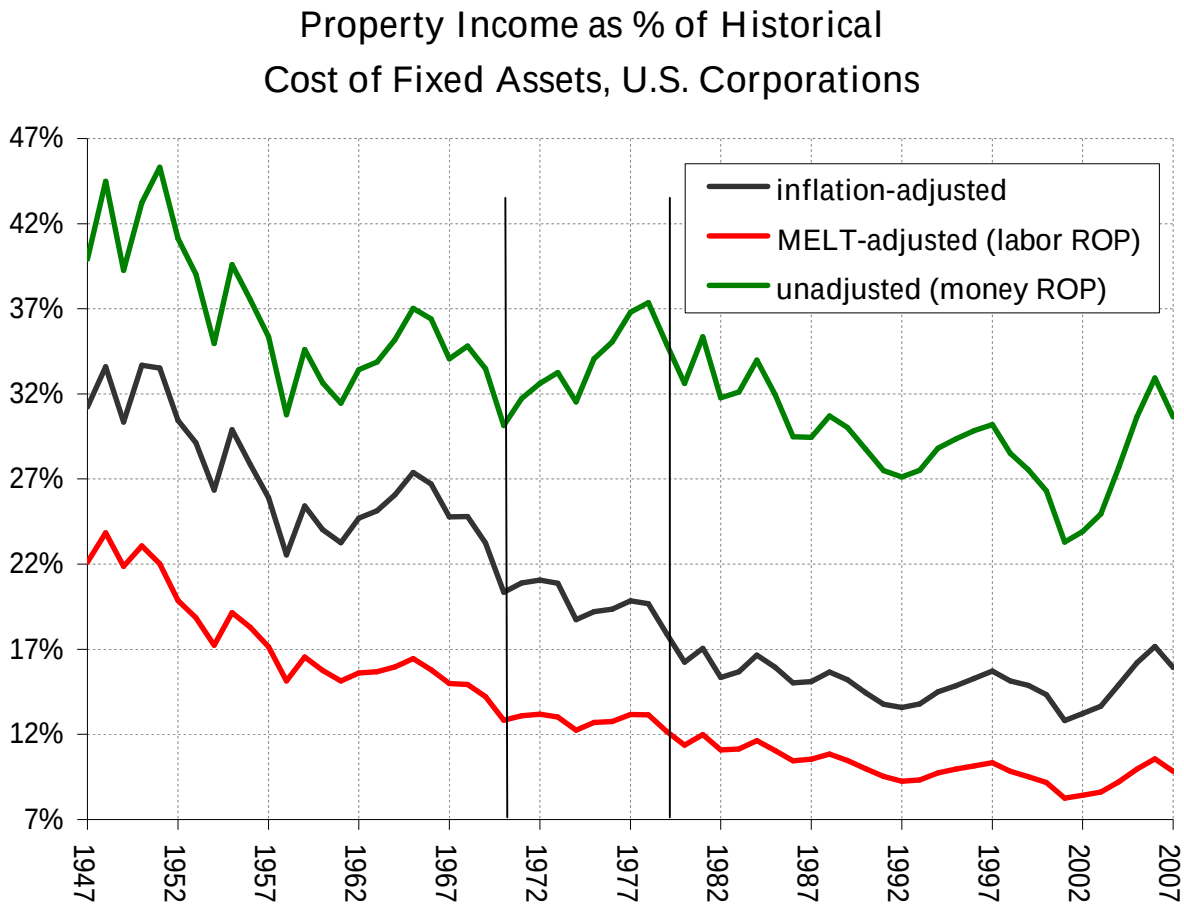


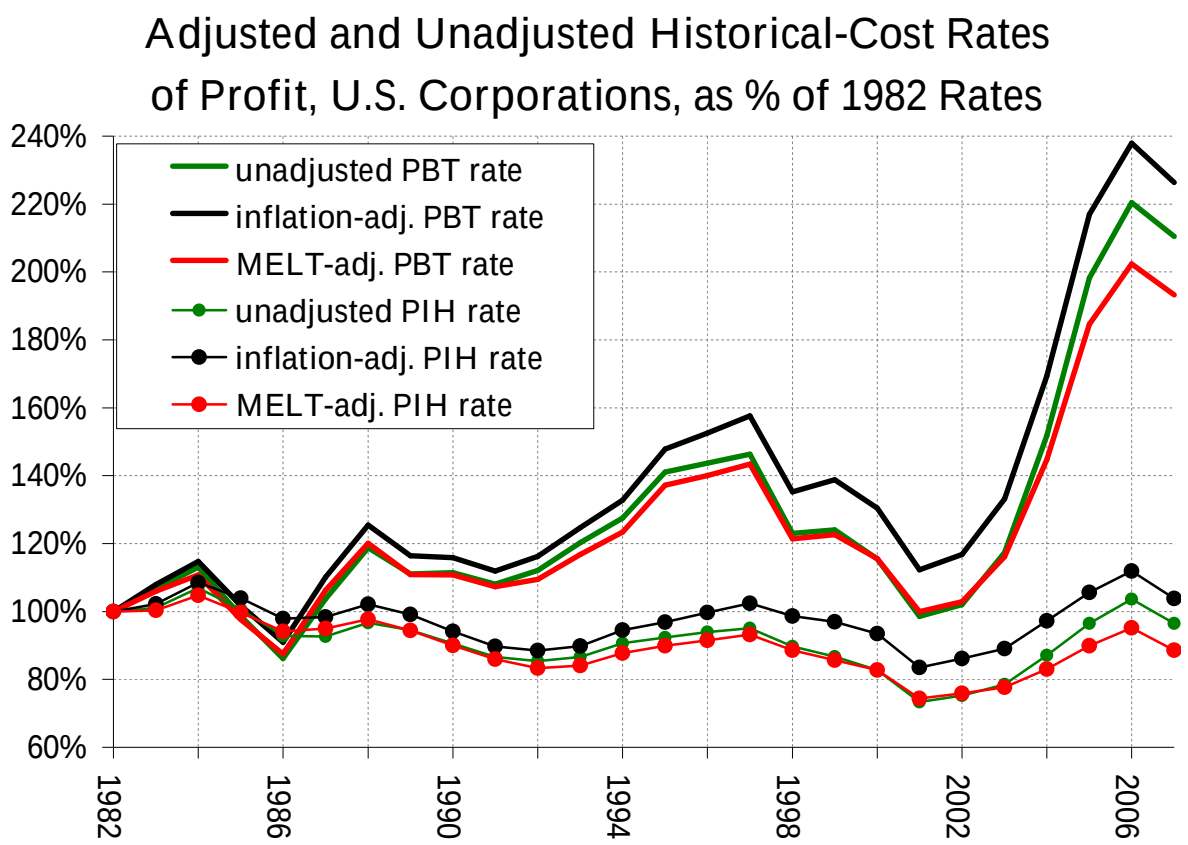
Figure 9



Since 1982, however, the trajectories of the inflation- and MELT-adjusted rates of profit have been very similar to one another and to the trajectory of the unadjusted historical-cost rates of profit, as Figure 10 shows. This reflects the fact that the rate of inflation of the general price level and the rate of inflation of the MELT (i.e., the rate by which the money prices of commodities rise in relationship to their labor-time-determined values) were both roughly constant, relative to the growth rate of net investment, throughout this period.[25]

[25] It follows from the definitions of the rates given in part II, section B of this paper that if (a) the cost of fixed assets is the sole component of the denominators of the rates of profit and (b) the percentage growth rate of (nominal) net investment, $\dot{I}$, is greater than the percentage growth rate in the general price level, $\dot{G}$, and the percentage growth rate of the MELT, $\dot{M}$, then the ratio of the deflated rate of profit to the historical-cost rate of profit tends toward $1 - \frac{\dot{G}}{\dot{I}}$ and the ratio of the labor rate of profit to the historical-cost rate of profit tends toward $1 - \frac{\dot{M}}{\dot{I}}$.

Figure 10



The adjustments therefore fail to significantly affect the conclusion that the rate of profit has failed to recover since 1982. Between the troughs of 1982 and 2001, all rates in which property income appears in the numerator fell. The percentage (not percentage-point) fall in the inflation-adjusted rate of profit, 16.5%, was about three-fifths as large as the percentage fall in the unadjusted rate, while the fall in the MELT-adjusted rate, 25.6%, was very close to the 26.7% fall in the adjusted rate. These results all stand in marked contrast to those for the analogous constant-cost rate, which *rose* by 14.2%. And whereas the unadjusted rate in which before-tax profits appears in the numerator fell by 1.4% between 1982 and 2001, the MELT-adjusted counterpart remained constant while the inflation-adjusted rate rose by 12.3%, less than one-sixth of the rise (76.9%) needed for it to recover to its 1970 level. Meanwhile, the constant-cost counterpart to these rates rose by 36.6%.

VI. The Rate of Profit and the Rate of Accumulation

The ratio of net investment to advanced capital is generally known as the rate of accumulation. Since the rate of profit is the ratio of profit to advanced capital, the rate of accumulation is equal by definition to the ratio of net investment to profit times the rate of profit:

$$\frac{net\ investment}{advanced\ capital} \equiv \left(\frac{net\ investment}{profit}\right)\left(\frac{profit}{advanced\ capital}\right)$$

$$rate\ of\ accumulation \equiv \left(\frac{net\ investment}{profit}\right)(rate\ of\ profit)$$

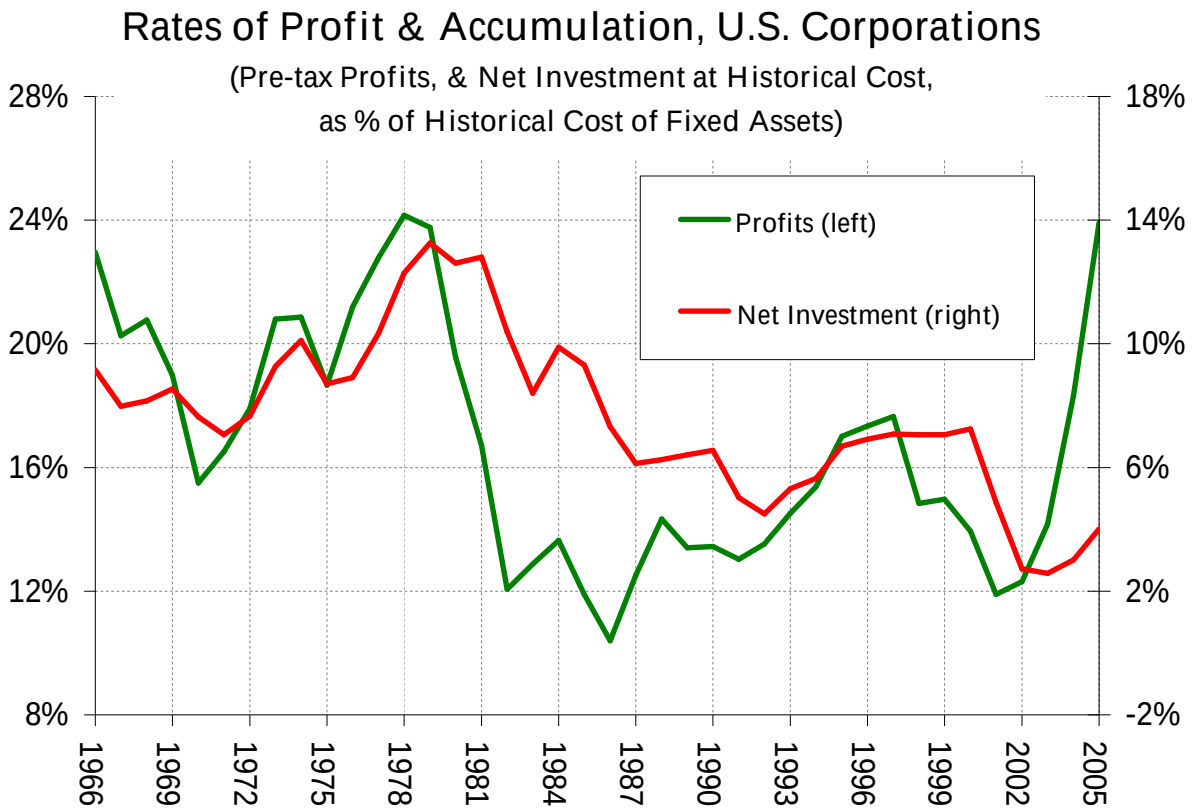
The rate of profit is therefore a key determinant of the rate of accumulation. If all profit were invested, the rate of accumulation would equal the rate of profit, so the rate of profit is essentially the maximum rate of accumulation. Moreover, if the fraction of profit that is used for (productive) investment is roughly constant over time, the rate of accumulation will rise and fall by roughly the same percentage as the rate of profit. It is therefore reasonable to expect that the rate of accumulation will track the rate of profit.

However, use of the simultaneist physical "rate of profit" to measure profitability yields the rather paradoxical result that the rate of accumulation has failed to recover since the early 1980s despite a significant recovery in "the rate of profit." U.S. corporations' rate of profit (before-tax profits as a percentage of the current cost of their fixed assets) was 37% higher in the trough year of 2001 than in the trough year of 1982. Yet their rate of accumulation (net investment in fixed assets as a percentage of fixed assets, both in constant-cost terms) was 13% lower in the trough year of 2002 than in the trough year of 2003. And although the trend rate of profit increased by 0.22 percentage points per year between 1982 and 2001, the trend rate of accumulation increased by only 0.01 percentage points between 1983 and 2002.

It follows from these simultaneist results that an ever smaller of profit is being invested in production, and an ever-greater share is being diverted into acquisition of financial instruments and real estate. The above results thus tend to reinforce the view that the financial sector has become increasingly decoupled from the productive sector of the economy, as well as the view that the current crisis is almost exclusively a crisis of the former without roots in the latter.

The paradox goes away when we look at the rate of accumulation in relationship to the *actual* rate of profit. As Figure 11 reveals, the rate of accumulation has in fact closely tracked the actual rate of profit, especially during the 1970–2003 period. Before-tax profits as a percentage of the actual capital advanced (the historical cost of the net stock of fixed assets) fell from a peak of 24.2% in 1978 to a trough of 11.9% in 2001, and the rate of accumulation fell from a peak of 13.3% in 1979 to a trough of 2.6% in 2002.

Figure 11



The data in Figure 11, like the simultaneist data above, indicate that the gap between the rate of profit and the rate of accumulation widened from the early 1980s. Whereas the rate of accumulation was 1.7 percentage points less than the rate of profit in 1982, it was 9.6 percentage points less in 2001.

However, the widening of this gap was not caused by a rise in the rate of profit, but by the delay with which the rate of accumulation fell in response to the fall in the rate of profit. Because of this delayed response, the gap between the two rates narrowed greatly in the early 1980s as the rate of profit fell sharply while the rate of accumulation fell to a much smaller extent. Yet the rate of accumulation then continued to decline until the gap that existed prior to the early 1980s was *restored*. There was therefore no long-term fall in the rate of accumulation relative to the rate of profit. Instead, there was *an initial rise that gradually dissipated* as the decline in the rate of accumulation gradually caught up with the decline in the rate of profit.

In other words, there was no long-term fall in the ratio of net investment to profit, no ever-smaller share of profit invested in production, no ever-greater share diverted into acquisition of financial instruments and real estate. On average, net investment (in historical-cost terms) equaled 30.2% of before-tax profits from 1947 through 1965, 43.8% between 1966 and 1977, and 42.8% between 1987 and 2001. Thus the ratio of net investment to profit fell only in the sense that returned to the levels of 1966–1977 after having temporarily shot up sharply in the late 1970s and early 1980s (reaching a peak of 86.1% in 1982 and averaging 75.8% between 1981 and 1985).

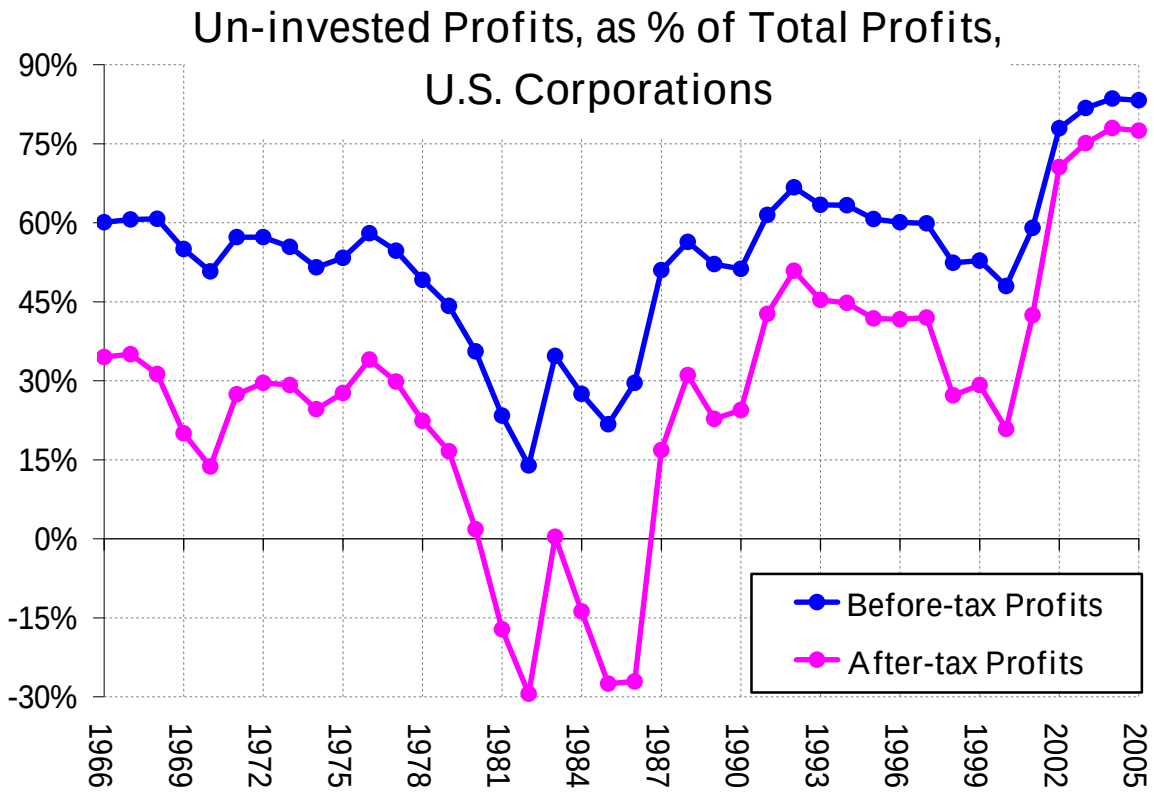
In light of the claim that investment behavior has largely become uncoupled from profitability considerations, it is important to stress that both the short-lived upward spike in the ratio of net investment to profit and the subsequent fall in this ratio were the direct results of declining profitability. Between 1977 and 1979, before-tax profits increased by 29.2% and net investment increased by 59.0%.

Then, between 1979 and 1981, before-tax profits fell by 10.4 and net investment grew by 23.1%, which was less than two-fifths of the growth rate during the prior two-year period. Yet since investment rose while profits fell, the ratio of investment to profit shot up from 55.8% to 76.6%. In response to the decline in profits, net investment fell by 8.5% 1982. However, before-tax profits fell yet again, and more sharply, by 18.5%. This caused the ratio of investment to profit to shoot up further, to 88.1%. Thus the ratio rose because, although investment did decline in response to the decline in profits, the decline in investment was delayed and offset by a further decline in profits.

Putting the same thing somewhat differently, un-invested profits plummeted drastically because of the delay with which investment was reduced in response to the fall in the rate of profit. As Figure 12 shows, un-invested profits as a percentage of total before-tax profits fell to a low of 13.9% in 1982, and un-invested profit as a percentage of after-tax profits fell to a low of –29.4%. Corporations were investing more after-tax profit than the after-tax profit they actually had! (Since dividends continued to be paid, this means that corporations were depleting the funds set aside to replace and maintain their physical capital.) This situation persisted for several years,

had! (Since dividends continued to be paid, this means that corporations were depleting the funds set aside to replace and maintain their physical capital.) This situation persisted for several years, but it clearly could not persist forever, so the long-term ratio of net investment to profit was then gradually re-established.

Figure 12



The data thus tell a story markedly different from the one put forward by proponents of the uncoupled-economy thesis. There has not been a long-term, voluntary increase in the share of profit that makes its way into the financial and real estate markets as a result of heightened inducements to speculate, nor a

long-term, voluntary fall in productive investment. There was no long-term fall in the latter share, and thus the falling rate of accumulation is attributable to the falling rate of profit.

VII. Distributional Analysis

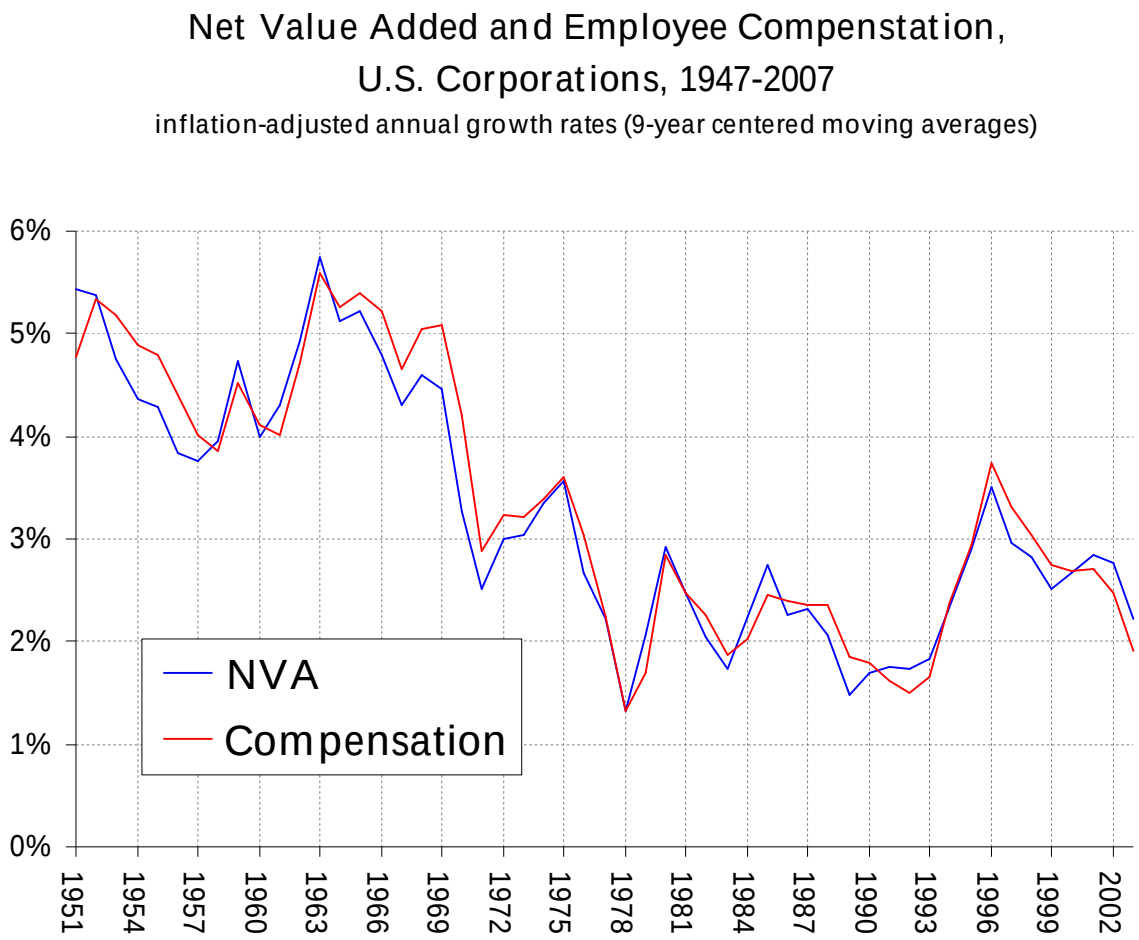
A. "Wage" and Profit Shares of Income

The failure of the rate of profit to recover might seem curious, since so much has been written about the stagnation of real (i.e., inflation-adjusted) wages, and an alleged redistribution of income from wages to profits, over the four decades. Yet the former phenomenon is misleading, and the latter is not actually a fact, at least not in the U.S. corporate sector.

Figure 13 shows the rate of growth of employee compensation in the corporate sector. This rate did indeed undergo a sharp and sudden fall at the start of the 1970s. In the early part of

the post-World War II period, 1947-1969, total compensation rose on average at a 4.8% annual rate, but the average growth rate then fell by half, to 2.4%, between 1970 and 2007. However, as Figure 13 also shows, the slowdown in the growth rate of compensation went along with, and can be attributed almost completely to, a slowdown in the growth rate of corporations' net value

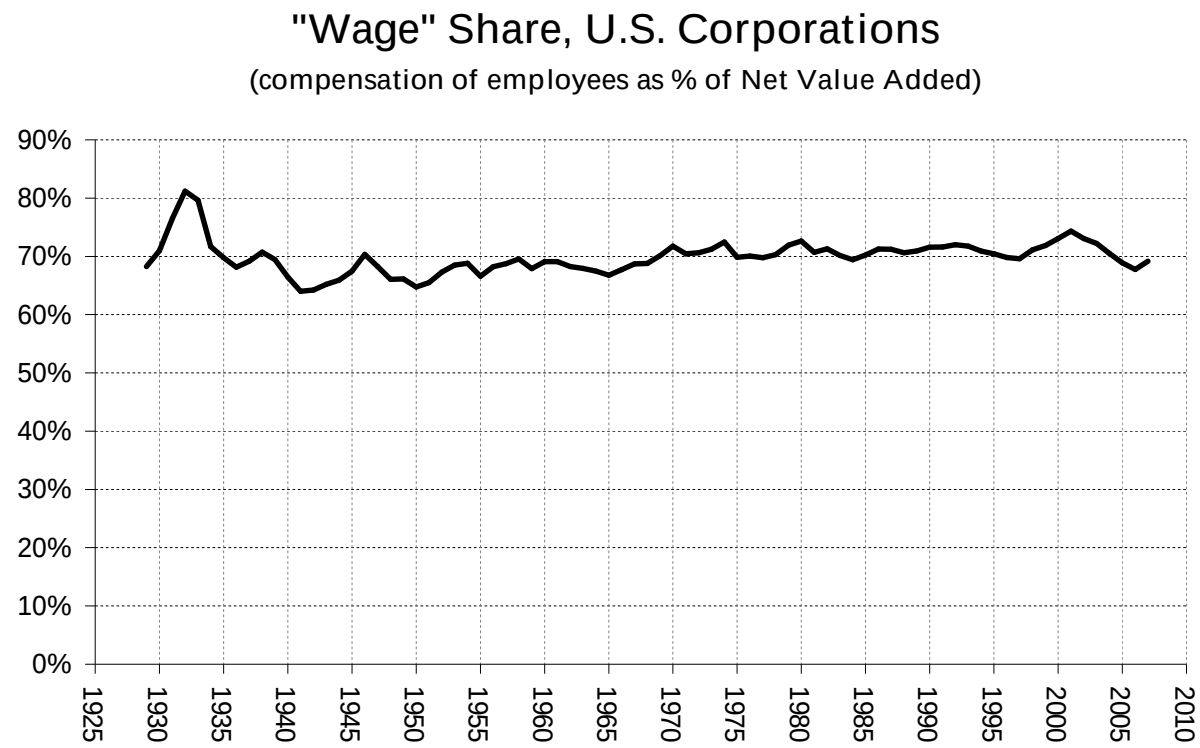
Figure 13



added.[26] The latter also fell from an annual average of 4.8% in the first subperiod to 2.4% in the second subperiod.[27]

The slowdown in the growth of employee compensation is consequently not a distributional phenomenon. It has its roots in the sphere of production. As Figure 14 shows, there has been very little change in employee compensation as a percentage of net value added throughout the post-World War II period (the coefficient of variation between 1947 and 2007 was just 2.9%). In fact, this percentage (which I shall call *the "wage" share*) has increased slightly over time.

Figure 14



Between 1947 and 1968, employee compensation was equal on average to 67.7% of corporations' net value added, rising to an average of 70.9% in the 1969-2007 period. The corresponding percentages for corporations' before-tax profits and property income were 21.3% and 32.3% in the 1947-1969 period, and 16.0% and 29.1% between 1969 and 2007.[28]

[26] All references to net value added in this section are to net value added with depreciation valued at historical cost, i.e., NVAh.

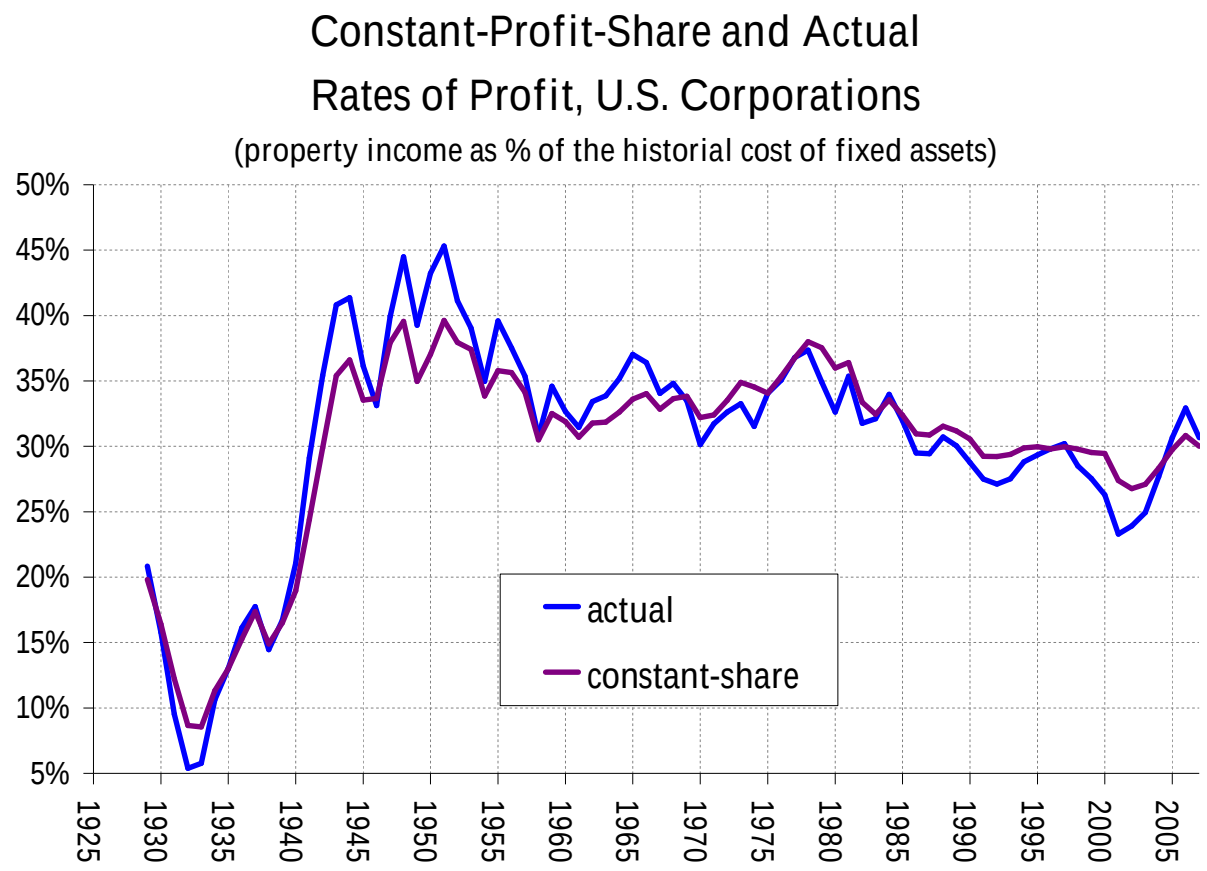
[27] The growth rates in Figure 13 are growth rates of the "real" (inflation-adjusted) variables. To adjust for inflation, I used the annual average Consumer Price Index for all urban consumers (CPI-U), available at the U.S. Bureau of Labor Statistics website (ftp://ftp.bls.gov/pub/special. requests/cpi/cpiai.txt). Corporations' compensation of employees is reported in the BEA's NIPA Table 1.14, line 4. The net value added figures are the difference between gross value added of corporations and the historical-cost depreciation of corporations' fixed assets, reported in the BEA's NIPA Table 1.14, line 1, and Fixed Asset Table 8.6, line 2, respectively.

[28] The predominant reason why before-tax profits fell more sharply than property income is that net interest and miscellaneous payments, a component of the latter, increased from 0.2% to 2.7% of corporations' net value added. Figures for net interest and miscellaneous payments are reported in NIPA Table 1.14, line 9.

These facts have several important implications. First, while the failure of the rate of profit to recover seems paradoxical if we imagine that the "wage" share has fallen, knowledge of the fact that it has not fallen eliminates the paradox.

Second, there has been no redistribution from "wages" to profits—either before-tax profits or property income—in the corporate sector; the movement has been in the opposite direction. This does not negate the fact that the pay of regular (production and non-supervisory) workers in the U.S. has stagnated, both absolutely and as a share of total income. It does mean, however, that the relative decline in regular workers' pay has not translated into a boost in the profit share of income. Instead, "third parties" have been the beneficiaries. Since compensation of employees has risen as a share of income (net value added), while regular workers' pay has stagnated, the "third parties" whose incomes have risen as a share of income have been employees other than regular workers—executives, managers, and professionals.

Figure 15



Third, the relative constancy of the "wage" share implies that the decline in the rate of profit is not mostly a distributional phenomenon. Figure 15 helps clarify this fact. The blue line is the actual rate of profit (property income as a percentage of the historical cost of fixed assets), while the purple line is what the rate of profit would have been if the "wage" and profit shares of net value added had been exactly constant throughout the 1929-2007 period.[29] The movements in the two series are similar, which is a consequence of the fact that the actual "wage" share has indeed remained relatively constant.

[29] The hypothetical figure for property income in the numerator of the constant-profit-share rate of profit was computed by multiplying net value added by the average ratio (0.3018), between 1929 and 2007, of property income

Finally, however, since the "wage" share has actually risen slightly, this fact helps to account for *some* of the fall in the rate of profit.[30] Between 1947 and 2001, the actual ratio of property income to the historical cost of fixed assets fell by 41.7%, while its constant-profit-share counterpart fell by 27.8%. Since the fall in the constant-profit-share rate is the portion of the fall in the actual rate that is *not* attributable to a rising "wage" share, the remaining portion of the fall in the actual rate, 13.9 percentage points, *is* attributable to that rise. Thus, we can say that one-third of the decline (13.9/ 41.7 = 33.3%) of the fall in the actual rate was due to the rising "wage" share, while two-thirds of the decline was due to a fall in the ratio of net value added to the advanced capital.[31]

B. The Rate of Surplus Value and the Value Composition of Capital

However, this last comparison is quite misleading. It greatly exaggerates the impact of distributional changes on the rate of profit throughout almost the entire post-World War II period.

This is because almost all of the long-term rise in the "wage" share, and thus almost all of the decline in the rate of profit attributable to this rise, occurred during a very brief period, from 1968 to 1970. The average "wage" share was 67.7% between 1947 and 1968, and 71.0% between 1970 and 2007. The difference, 3.2 percentage points, is only slightly greater than the 3.0 percentage-point rise in the "wage" share, from 68.8% to 71.8%, that took place between 1968 and 1970. During those two years, compensation of employees jumped by 17.3% while property income rose by just 1.6%. *Apart from this two-year period, the fall in the rate of profit of U.S. corporations is due almost entirely to a fall in the ratio of net value added to advanced capital, not to distributional changes.*

To put the matter in Marxian terms, the decline in U.S. corporations' rate of profit between 1947 and 1968, and again between 1970 and 2003, is almost entirely the result of a rise in the value composition of capital (*c/v*, the ratio of the constant capital advanced to the variable capital) rather than a fall in the rate of surplus-value (*s/v*, the ratio of surplus-value to variable capital). Since variable capital does not appear in the denominator of the particular measure of the rate of profit under discussion (property income as a percentage of the historical cost of fixed assets), the rate of profit is *s/c*, and this can be expressed as

$$\frac{s}{c} \equiv \left(\frac{s}{v}\right)\left(\frac{v}{c}\right)$$

where *v/c* is the *reciprocal* of the value composition of capital. When the value composition rises, its reciprocal falls, and vice-versa. Of course, the rate of profit could be expressed instead as the rate of surplus-value divided by the value composition of capital itself, but the above expression allows us to express changes in the rate of profit as the sum of parts, since

$$\%\ \text{change in}\ \frac{s}{c} \approx \%\ \text{change in}\ \left(\frac{s}{v}\right) + \%\ \text{change in}\ \left(\frac{v}{c}\right)$$

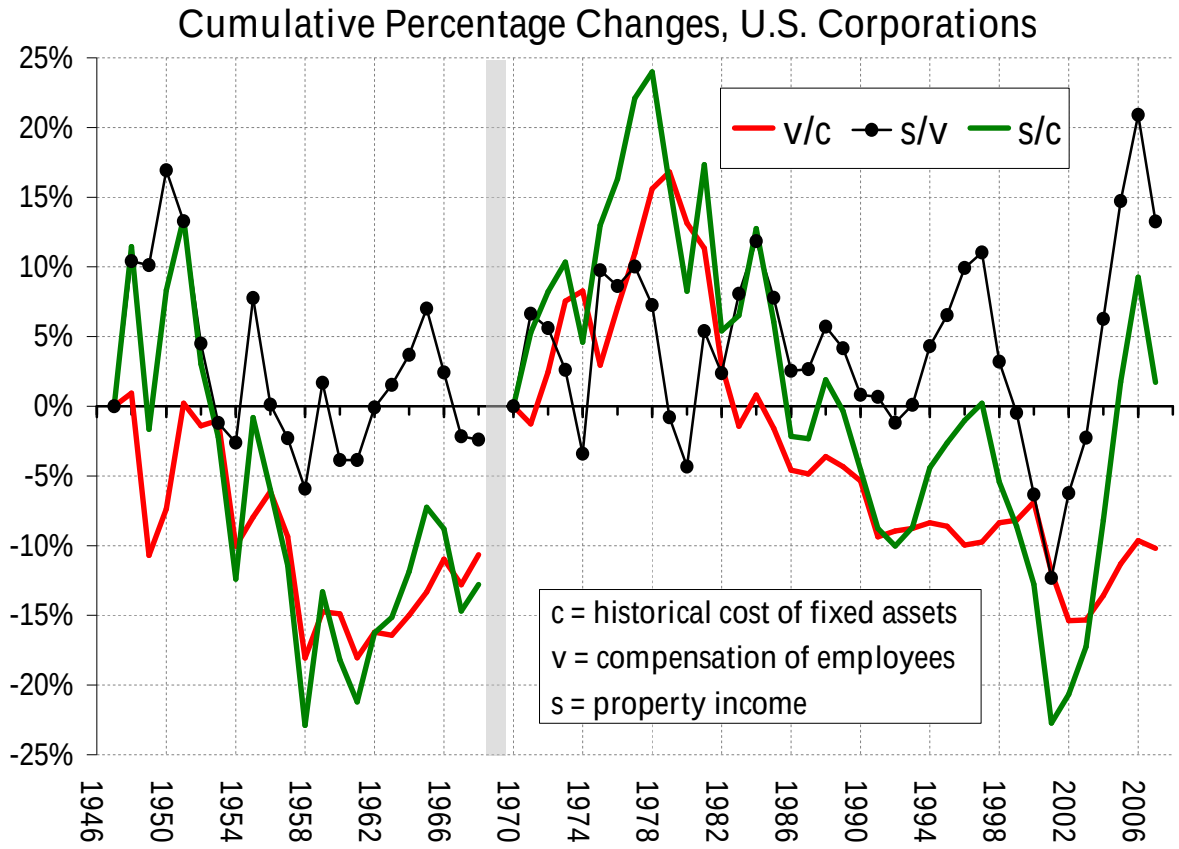
---

to net value added. Replacement of the latter by average ratio between 1947 and 2007 (0.3022) has almost no effect on the results.

[30] However, it does *not* account for the failure of the rate of profit to recover after 1982, because the "wage" share stopped rising after 1980. If the "wage" share had risen after 1982, the gap between the constant-profit-share and actual rates of profit would have widened, but the size of the gap in 2001 was little different from its size in 1982, as Figure 15 indicates.

[31] By definition, the percentage change in the constant-profit share rate is equal to the percentage change in the ratio of net value added to advanced capital.

Figure 16



Using U.S. corporations' property income as a proxy for *s*, compensation of employees as a proxy for *v*, and the historical cost of fixed assets as a proxy for *c*, Figure 16 shows the cumulative percentage changes—i.e., the percentage changes since the start of the period—in the rate of profit and its components for the 1947-1968 and 1970-2003 periods. On the one hand, we see that short-term movements in the rate of profit were strongly driven by movements in the rate of surplus-value; the former rose and fell along with the latter. Yet since the rate of surplus-value remained roughly constant over the entire course of each period taken as a whole, the rate of surplus-value had only a very minor influence on the rate of profit over longer spans of time. Thus, the long-term decline in the rate of profit throughout each period was almost entirely due to the rise in the value composition of capital (i.e., the fall in its reciprocal).

Specifically, between 1947 and 1968, the rate of profit fell by a total of 12.8%, because the reciprocal of the value composition of capital fell by a similar percentage, 10.6%, while the rate of surplus-value fell by 2.4%. Between 1970 and 2003, the rate of profit fell by a total of 17.2%, the reciprocal of the value composition of capital fell by 15.3%, and the rate of surplus-value fell by 2.4%.

There is nothing special about the ending year, 2003. Had I chosen an earlier or later ending point, I would have gotten somewhat different results for the period since 1970. But 2003 is a appropriate ending point. That is because the cumulative change in the rate of surplus-value since 1970 has fluctuated around zero again and again, and its cumulative change in 2003 was likewise very close to zero. Thus the selection of 2003 as the ending year allows us to capture something close to the average effect on the rate of profit that changes in the rate of surplus-value have had since 1970.

Actually, it would not be wrong to say that the changes in the rate of surplus-value had *no* long-run influence, on average, on the rate of profit during either period. The rate of surplus-value crossed the horizontal axis seven times between 1947 and 1968, and eight times between 1970 and 2007. Each time it crossed, its cumulative change was zero. Thus, the cumulative change in the rate of profit at these moments can be attributed *exclusively* to the change in the value composition of capital. The most recent of these moments was in late 2003 or early 2004.

Another helpful way of decomposing movements in the rate of profit gives very similar results. If workers were able to "live on air" (Marx 1991a, p. 356), receiving no wages or other compensation, the whole of the net value added (NVA) would be appropriated as surplus-value, and the rate of profit would be at its maximum possible level (see Freeman 2009, p. 6). Thus the maximum rate of profit is $\left(\frac{NVA}{c}\right)$ and the actual rate of profit is equal by definition to the profit share of net value added, $\left(\frac{s}{NVA}\right)$, times the maximum rate of profit:

$$\frac{s}{c} \equiv \left(\frac{s}{NVA}\right)\left(\frac{NVA}{c}\right)$$

This implies that

$$\text{\% change in } \frac{s}{c} \;\approx\; \text{\% change in } \left(\frac{s}{NVA}\right) \;+\; \text{\% change in } \left(\frac{NVA}{c}\right)$$

or

$$\text{\% change in actual rate of profit} \;\approx\; \text{\% change in profit share} \;+\; \text{\% change in maximum rate of profit}$$

If the "wage" and profit shares of net value added are constant, then *NVA* is a constant multiple of *v*, so the % change in $\left(\frac{s}{NVA}\right)$ = % change in $\left(\frac{s}{v}\right)$, and the % change in $\left(\frac{NVA}{c}\right)$ = % change in $\left(\frac{v}{c}\right)$, and this decomposition yields results identical to those of the previous one. And since the "wage" and profit shares were in fact close to being constant on average throughout each of the periods in question, the results are indeed very similar (see Figure 17). The scatterplots depicting the two decompositions look almost the same.

Between 1947 and 1968, when the rate of profit fell by a total of 12.8%, the maximum rate of profit fell by 11.3% while the profit share fell by 1.6%. Between 1970 and 2003, when the rate of profit fell by a total of 17.2%, the maximum rate of profit fell by a 15.9% while the profit share again fell by 1.6%. Thus the long-term decline in the rate of profit is almost solely the result of a decline in the maximum rate of profit, not a decline in the profit share, except between 1968 and 1970. And because the profit share repeatedly crossed the horizontal axis during both periods, at which moments its cumulative effect on the rate of profit was zero, it would not be wrong to say that the fluctuations in the profit share had *no* long-run influence, on average, on the rate of profit during either period.

Figure 17

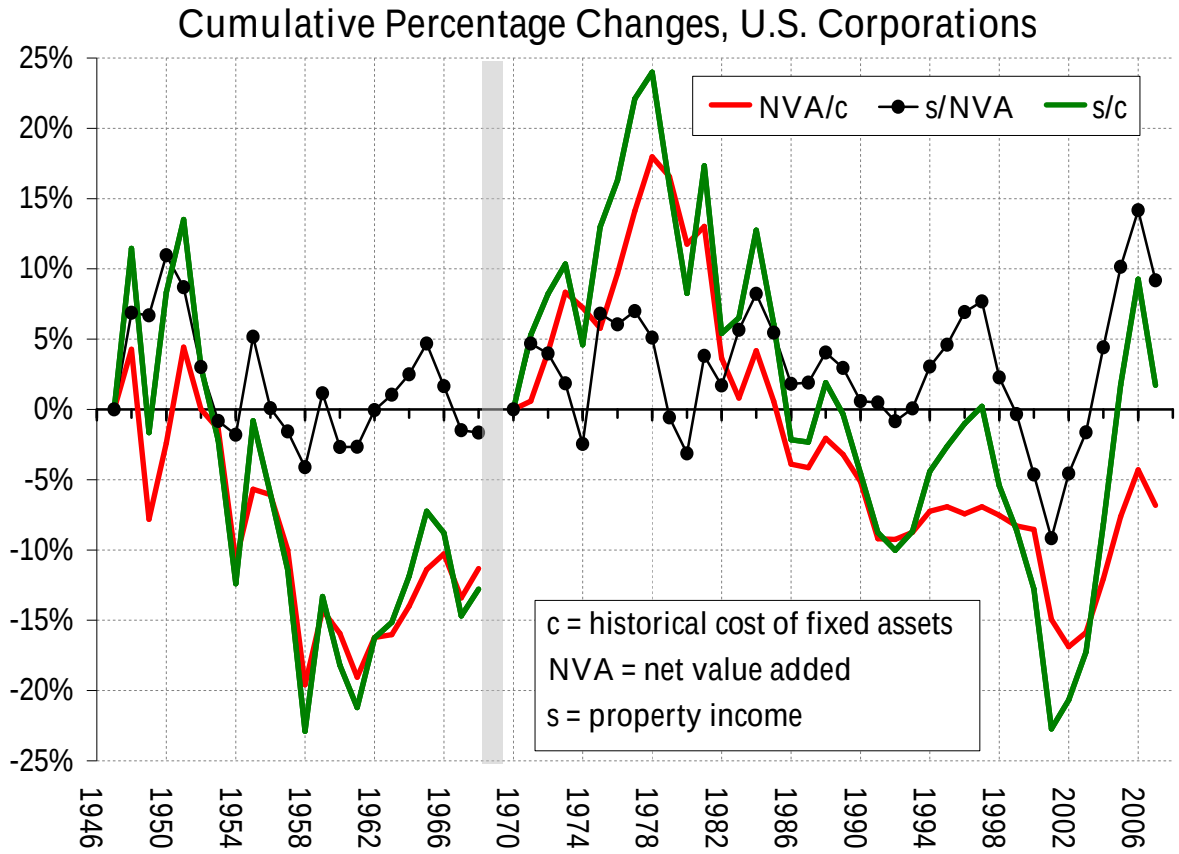


Table 8 presents the key results of both decompositions together. It shows that changes in the value composition of capital and the maximum rate of profit had very similar and large long-run effects on the rate of profit. However, the rate of surplus-value and the profit share had very similar and small long-run effects; as noted above, this will always be the case whenever the rate of surplus-value remains roughly constant.

Table 8. Cumulative Changes in Components of the Rate of Profit, U.S. Corporations

	s/v	v/c	s/c	s/NVA	NVA/c	s/c
1947–1968	–2.4%	–10.6%	–12.8%	–1.6%	–11.3%	–12.8%
1970–2003	–2.3%	–15.3%	–17.2%	–1.6%	–15.9%	–17.2%

The results of this section are consistent with Marx's law of the tendential fall in the rate of profit. The law says that labor-saving technical progress under capitalism causes the technical and organic compositions of capital to increase, that the value composition of capital consequently tends to increase as well, and that this in turn tends to lower the rate of profit. Periods such as 1968-1970, in which the rate of

profit instead fell because of rising wages, are compatible with the law insofar as they are exceptions rather than the rule.[32]

Although the results are consistent with Marx's law, I would not wish to claim that they confirm the law. A single country, not the world's total social capital, has been analyzed here, and the proxies to Marx's variables that have been employed are very far from ideal.

One discrepancy that may come to mind is that my proxy for variable capital is the total compensation of all employees, not just regular workers (proletarians). However, adjustment of the above results in light of this fact would lead to the conclusion that the tendency of the rising value composition of capital to reduce the rate of profit was actually *more* pronounced than the above analysis suggested. During the last few decades, the compensation paid to managers and other non-proletarians has risen as a share of total employee compensation. If we were to count it as profit rather than as variable capital, we would conclude that, instead of remaining roughly constant, the rate of surplus-value has risen. Consequently, we would also conclude that the rate of profit fell, *even though the rate of surplus-value rose*, because the composition of capital rose to an even greater extent.

Another important discrepancy is that my proxy variables are in nominal terms, and are therefore affected by changes in the monetary expression of labor-time (MELT)—i.e., by changes in the amount of value, in money terms, created by an hour of labor. However, when Marx discussed the rate of profit and the variables that affect it in his presentation of the law of the tendential fall in the rate of profit, he implicitly abstracted from changes in the MELT. (Statements such as "the total labour of these 2 million workers always produces the same magnitude of value" (Marx 1991a, p. 323) would otherwise be ridiculous.)

Adjustment for changes in the MELT would not affect the rate of surplus-value if we were to use the same MELT to "deflate" the year's surplus-value and variable capital. But a rise in the MELT causes variable capital to increase by a greater percentage than constant capital, *ceteris paribus*. This is because all of the variable capital will increase because of the rising MELT but only a portion of the constant capital will increase—the investment that took place after the rise—if the advanced capital is measured at its historical cost (net of depreciation). Increases in the MELT thus tend to lower the nominal value composition of capital. This is why the reciprocal of the nominal value composition rose, by 27%, between 1961 and 1979 (see Figure 16), a period of accelerating inflation. Once changes in the MELT are removed, the reciprocal falls by 8% during that period.[33] Thus, while the nominal fall in the value composition of capital may seem at first to contradict a key premise of Marx's law, it does not actually do so.

Changes in the MELT can also produce a discrepancy between movements in the observed nominal rate of profit, which have been analyzed here, and movements in the constant-MELT rate of profit to which the law refers. Consequently, the law cannot properly be tested by means of an analysis that deals only with movements in the nominal rate and its components. As a test of the law, and especially as an explanation of the observed movements in the rate of profit in the U.S. corporate sector, the decomposition analysis that will be reported in the next part of this paper is much superior, since it isolates changes in the MELT as a distinct variable, a distinct source of changes in profitability. Thus, to repeat, the above results are *consistent* with Marx's law, but I do not claim that they *confirm* it.

[32] "Nothing is more absurd, then, than to explain the fall in the rate of profit in terms of a rise in wages rates, even though this too may be an exceptional case" (Marx 1991, p. 347).

[33] To remove the changes in the MELT, I divided each year's figures for employee compensation by that year's MELT and used the MELT-adjusted series the historical-cost of fixed assets.

VIII. Why the Rates of Profit Fell

A. Incremental Labor Rates of Profit

A decade ago, in Kliman (1999), I hypothesized that

(a) the actual rate of profit has a persistent tendency to converge upon the incremental rate of profit (the ratio of the change in surplus-value or profit to the change in advanced capital), so that the latter is the "long-run rate of profit"; and

(b) the incremental rate is probably trendless; but

(c) the actual rate of profit exceeds the incremental rate at the start of a boom; and thus

(d) the actual rate has a persistent tendency to decline (toward the incremental rate).

In Kliman (2003, pp. 125–26), a revised version of Kliman (1999), I expressed the hypotheses as follows:

> Thus *r* converges over time to $\dot{S} / \alpha$, which we can call r_{LR}, the long-run profit rate.
>
> It seems reasonable that movements in α are principally short-term ones, associated with the business cycle, and thus that α is essentially trendless in the long run. Nor is there good reason to predict any specific trend in $\dot{S}$.[34] Strong theoretical and empirical arguments suggest that profit will be a more or less constant share of the aggregate price of output over the long haul, since wage increases that threaten profitability will be temporary and self-negating. Thus [surplus-value or profit] will grow at close to the same rate as [the aggregate price of output], and there is little, if any, reason to presume any particular trend in the latter's growth rate.
>
> There is consequently little, if any, reason to suppose that the long-run profit rate will fall over time! How, then, can the profit rate have a falling tendency?
>
> The answer is that the falling tendency is not a matter of a different steady state (a decline in r_{LR}), but of "transition dynamics," i.e., adjustment toward the steady state. As we saw above, if the profit rate is initially greater than r_{LR}, it will tend to fall over time. *The tendency of the profit rate to fall is precisely this tendency of the profit rate to adjust downward toward* r_{LR}.
>
> Put differently, the profit rate will decline if r_{LR} is too low to allow the current rate to be sustained. But what makes r_{LR} too low? It is limited by the growth rate of profit, which in turn is held in check by sluggish employment growth and reduced by productivity growth. To see this, assume as before that profit is a roughly constant fraction of the aggregate price of output over the long haul. Profit then grows at essentially the same rate as does aggregate price, [the sum of the percentage growth rates of employment and of the MELT]. Thus the profit rate is limited in the long run by the growth rate of value, which in turn depends upon the growth rate of employment.

These hypotheses are tested below. I also wish to decompose the movements in the nominal rate of profit in order to identify distinct sources of these movements. In particular, I wish to distinguish movements in the nominal rate produced by the acceleration and deceleration of inflation, and movements produced by changes in income distribution across classes, from movements that result from other factors.

In order to isolate the influence of accelerating and decelerating inflation, I will focus on the incremental *labor* rate of profit (ILROP). Just as the actual labor rate of profit is the nominal rate of profit as adjusted for changes in the MELT, the ILROP is the incremental nominal rate of profit as adjusted for

---

[34] $\dot{S}$ is the percentage change in surplus-value or profit, i.e., the change divided by the level of surplus-value or profit. α is the ratio of net investment to surplus-value or profit. Since net investment is the change in the advanced capital, it follows that the long-run rate of profit $\dot{S} / \alpha$ is equal to the change in surplus-value or profit divided by the change in advanced capital, i.e., the incremental rate of profit.

changes in the MELT. In other words, it is the ratio of the change in surplus-value to the change in advanced capital (rather than the ratio of the change in nominal profit to the change in advanced capital). It measures what the incremental rate of profit would have been in the absence of increases in commodities nominal prices above their values as determined by labor-time.

In order to isolate the influence of class-based changes in the distribution of income, I will focus on the hypothetical ILROP whose numerator is what the change in surplus-value would have been in the absence of any change in the profit share (rather than the actual change in surplus-value). Holding the profit share constant in this manner has little effect in the long run since, as hypothesized in the passage quoted above and as shown in part VII of this paper, the profit share has indeed been roughly constant throughout the post-World War II period.

The ILROP to be considered here is therefore what the incremental nominal rate of profit would be if prices did not rise in relationship to commodities values (as determined by labor-time) and if the profit share were constant. If we let *s* stand for surplus-value, *c* stand for advanced capital (both in terms of labor-time), and *E* stand for employment, the ILROP is

$$\text{ILROP} \circ \frac{\Delta s}{\Delta c} \circ \frac{\Delta\left(\frac{s}{E}E\right)}{\Delta c} \qquad \text{(VII.1)}$$

This is simply the labor rate of profit on new investments. For instance, if an additional investment of 100 results in an 8-unit increase in surplus-value, then $\frac{\Delta s}{\Delta c} = 8\%$. If new investments continue to yield an 8% rate of profit, then the actual labor rate of profit heads toward 8% in the long run.[35]

The profit share is defined as property income divided by net value added.[36] If prices did not rise in relationship to commodities' values, then profit would equal surplus-value. And net value added in terms of labor-time is simply employment (since all new value is created by living labor, according to Marx's theory). Thus, if the MELT were constant, the profit share would equal s/*E*. And if we abstract from class-based distributional changes by holding the profit share (i.e., s/E) constant, identity VII.1 becomes

$$\text{ILROP} \circ \frac{\Delta s}{\Delta c} \circ \frac{\Delta\left(\frac{s}{E}E\right)}{\Delta c} = \frac{\left(\frac{s}{E}\right)\Delta E}{\Delta c} = \frac{\left(\frac{\Delta E}{E}\right)}{\frac{\Delta c}{s}}$$

or, in other words, the percentage rate of growth of employment divided by the share of surplus-value that is reinvested. My estimates of the incremental labor rate of profit are estimates of this ratio.[37]

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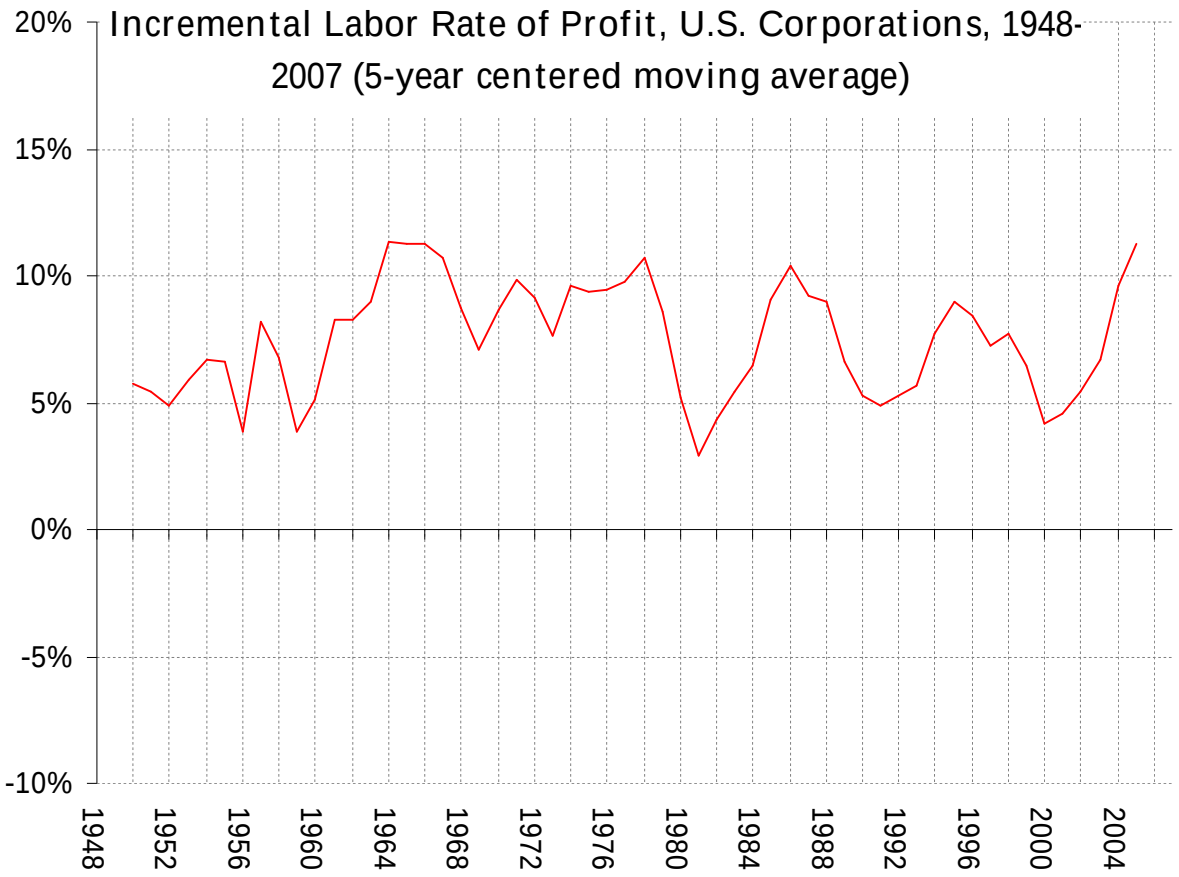
[35] In the same manner, if the additional guests at a party are all eight years old, then the average age of the guests gets closer and closer to eight as additional guests join the party.

[36] The analysis will be limited to the rate of profit in which property income is used to measure profit because I am concerned here with the class-based distribution of income (i.e., compensation of employees vs. the rest of net value added). The ratio of property income to net value added is a "pure" measure of this class-based distribution, while the ratio of before-tax profits to net value added changes when, to take just one example, profits increase or decrease in relationship to interest income.

[37] Because of limited data on the early years of this study (which begins in 1929), I have had to approximate *E* using the series for employment (the number of employed persons in the adult civilian noninstitutional population) reported in the U.S. Bureau of Labor Statistics' household survey. The surplus-value of any year *t* is the profit of year *t* divided by the MELT of year *t*. Year *t*'s change in advanced capital is the net investment in fixed assets in year *t* divided by the MELT of year *t*. Historical-cost rates of profit compare the profit received throughout the year to the capital advanced at the start of the year, and I have computed the ILROP in an analogous manner. Thus the

Figure 18 presents the ILROP associated with the ratio of property income to the historical cost of fixed assets, for the whole period since the postwar reconversion that followed World War II. The first year after reconversion was 1947, so the first year for which there are post-reconversion changes is 1948. The ILROP in Figure 18 is therefore based on computations for the years 1948 through 2007, although only the years 1950-2005 are shown in the figure, since it depicts five-year moving averages.

Figure 18



The ILROP has been quite low throughout the entire post-World War II period; its average value is 7.6% while. Thus, if nominal prices had not risen in relationship to commodities' values (as determined by labor-time), and if the profit share had been constant, the each $1000 of new investment would have generated $76 in additional property income, on average.

As hypothesized above, the ILROP has also been essentially trendless throughout the period. Linear regression of the annual (rather than the moving-average) ILROP data against time indicates that it rose by 0.0196 percentage points per year. The associated *t*-value was only 0.426, which means that if the "true" ILROP were absolutely trendless, the estimated ILROP would rise or fall by an average of at least 0.0196 percentage points per year more than two-thirds of the time. So this rise was statistically insignificant according to usual standards. The measured trend in the ILROP is also quite sensitive to small changes in the time span under consideration. For instance, the trend changes from positive to negative if the last three years, 2005–2007, are removed.

---

change in employment resulting from net investment of in year *t* is employment in year *t* + 1 minus employment in year *t*.

B. Decomposing Trends in the Rates of Profit

The nominal (money) rate of profit can be decomposed into four components. It is the sum of:

(a) the constant-profit-share ILROP;

(b) the gap between the constant-profit-share ILROP and the constant-profit-share labor rate of profit;

(c) the gap between the constant-profit-share labor rate of profit and the constant-profit-share money rate of profit; and

(d) the gap between the constant-profit-share money rate of profit and the actual money rate of profit.

As noted above, (a) measures what the money rate of profit on new investments would be if nominal prices did not rise relative to values and if the profit share were constant. (b) is what the difference between the money rate of profit on all investments and the money rate of profit on new investments would be if prices did not rise relative to values and if the profit share were constant; a decline in (b) captures the tendency for the money rate of profit to decline toward the incremental money rate of profit. (c) measures the extent to which the money rate of profit is boosted by increases in nominal prices relative to values (i.e., increases in the MELT).

(d) measures the effect of changes in the profit share on the money rate of profit.

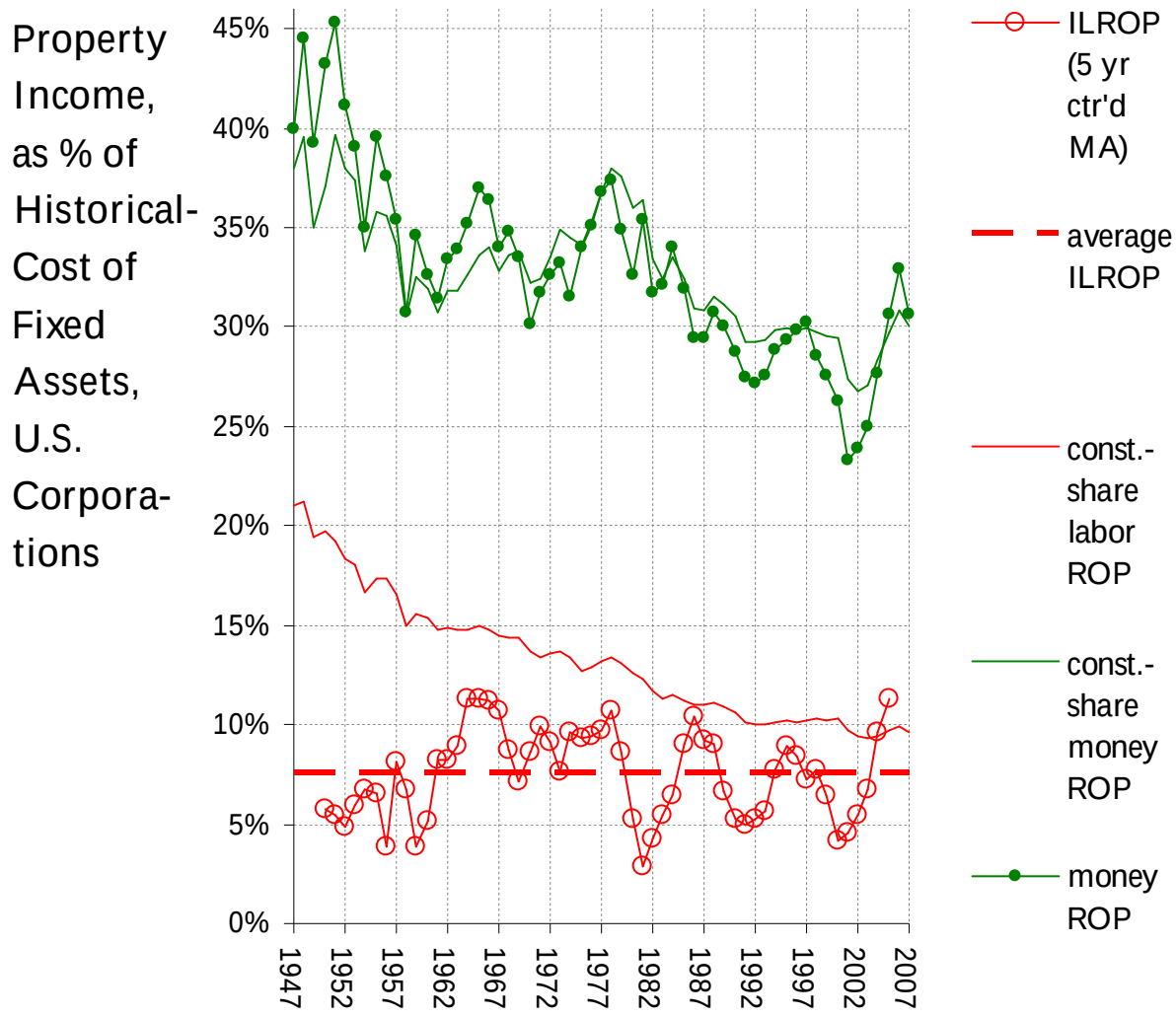
According to the hypotheses presented in the previous section, the rate of profit will exceed the incremental rate at the start of the boom, and the latter will be essentially trendless over time, so there will be a long-term tendency for the rate of profit to head downward toward and converge upon the incremental rate. Figure 19 shows that these hypotheses turn out to have been remarkably accurate.

The tendency for the rate of profit to fall toward the incremental rate is particularly striking. This tendency is measured by the decline in the gap between the constant-profit-share labor rate of profit and the average constant-profit-share ILROP. The constant-profit-share labor fell more or less consistently, from 21.0% in 1947 to 9.4% in 2004, so the gap between it and the average constant-profit-share ILROP (7.6%) narrowed by 11.6 percentage points (from 13.5 points to 1.9 points) in 2004. Throughout the 1991–2007 period, the average gap was just 2.4 percentage points.

The decline in this gap was by far the dominant cause, almost the exclusive cause, of the fall in the actual money rate of profit. The actual money rate of profit, which stood at 39.9% in 1947, had fallen by 12.2 percentage points, to 27.7%, by 2004. Since 11.6/12.2 = 95%, we can say that *95% of the total decline in the actual money rate of profit between 1947 and 2004 was attributable to the tendency for the rate of profit to fall toward the incremental rate*.

The tendency for money prices to rise in relationship to commodities' real values (as determined by labor-time) had a very large effect on the level of the rate of profit throughout the whole period. This effect is measured by a second gap, between the constant-profit-share money rate of profit and the constant-profit-share labor rate of profit. For instance, this second gap was 16.9 percentage points in 1947, which means that the money rate of profit would have been 16.9 percentage points lower than its actual level if nominal prices did not rise relative to values.

Figure 19



Over the next six decades, the gap remained roughly constant (see Figure 20).[38] Thus, as the constant-profit-share labor rate of profit tended downward to the ILROP, the constant-profit-share money rate of profit was pulled down by roughly the same amount, owing to the relative constancy of the gap between them. And thus, the tendency for nominal prices to rise in relationship to commodities' values did little to counteract the tendency of the rate of profit to fall toward the incremental rate. Despite their large effect on the *level* of the rate of profit, the increases in the MELT did not substantially alter its *trend*.[39]

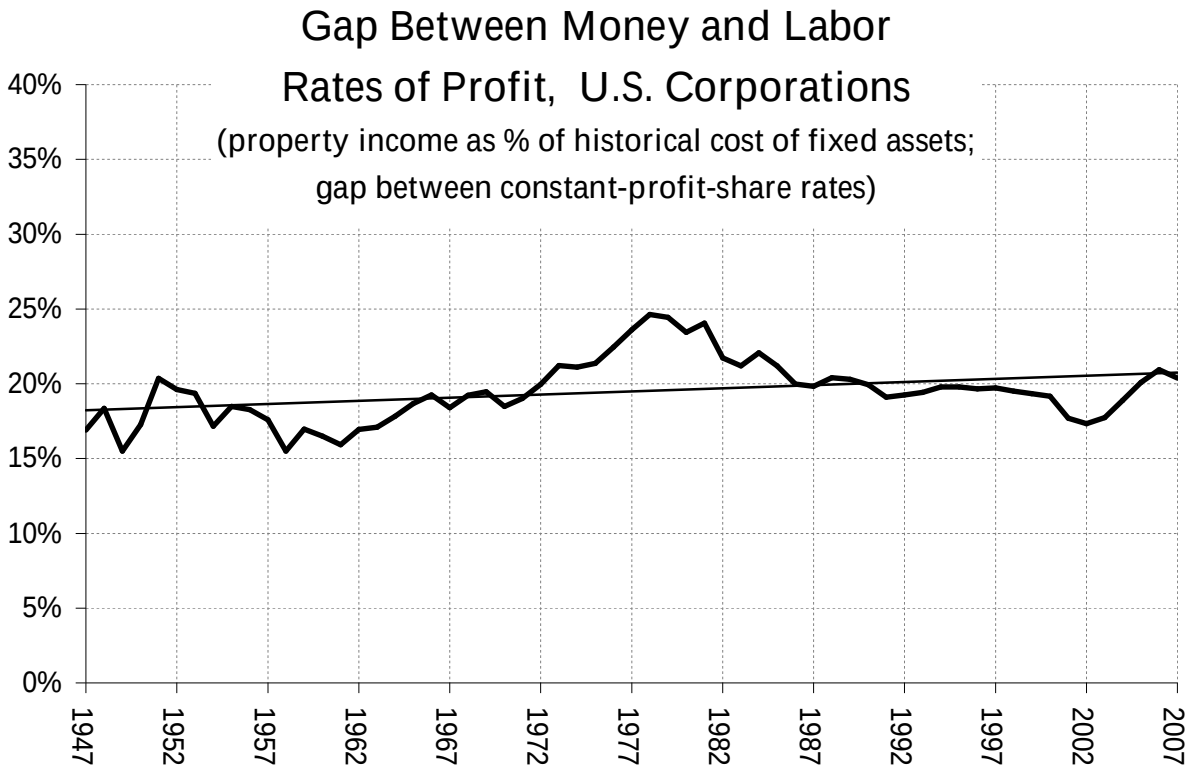
They did have a modest effect, however. As Figure 20 shows, the gap tended to increase slightly (by 0.04 percentage points per year on average). In 2004, it stood at 18.9 percentage points, 2.0 percentage points more than in 1947. This rise served to counteract the fall in the rate of profit to a slight extent; had

[38] Further research is needed in order to account for the relative constancy of this gap. However, it is clear from the double-digit inflation of the 1970s and the subsequent disinflationary slump triggered by Federal Reserve policy that there are strict political limits to the rate of growth of money prices relative to values. Owners of assets will not sit idly by when these assets' command over labor, and goods and services, is rapidly eroded by inflation.

[39] See chapter 7 of Kliman (2007) for further discussion, from a theoretical perspective, of the limited influence of a rising MELT on the rate of profit.

it not occurred, the actual money rate of profit would have fallen by 14.2 percentage points instead of 12.2 points.

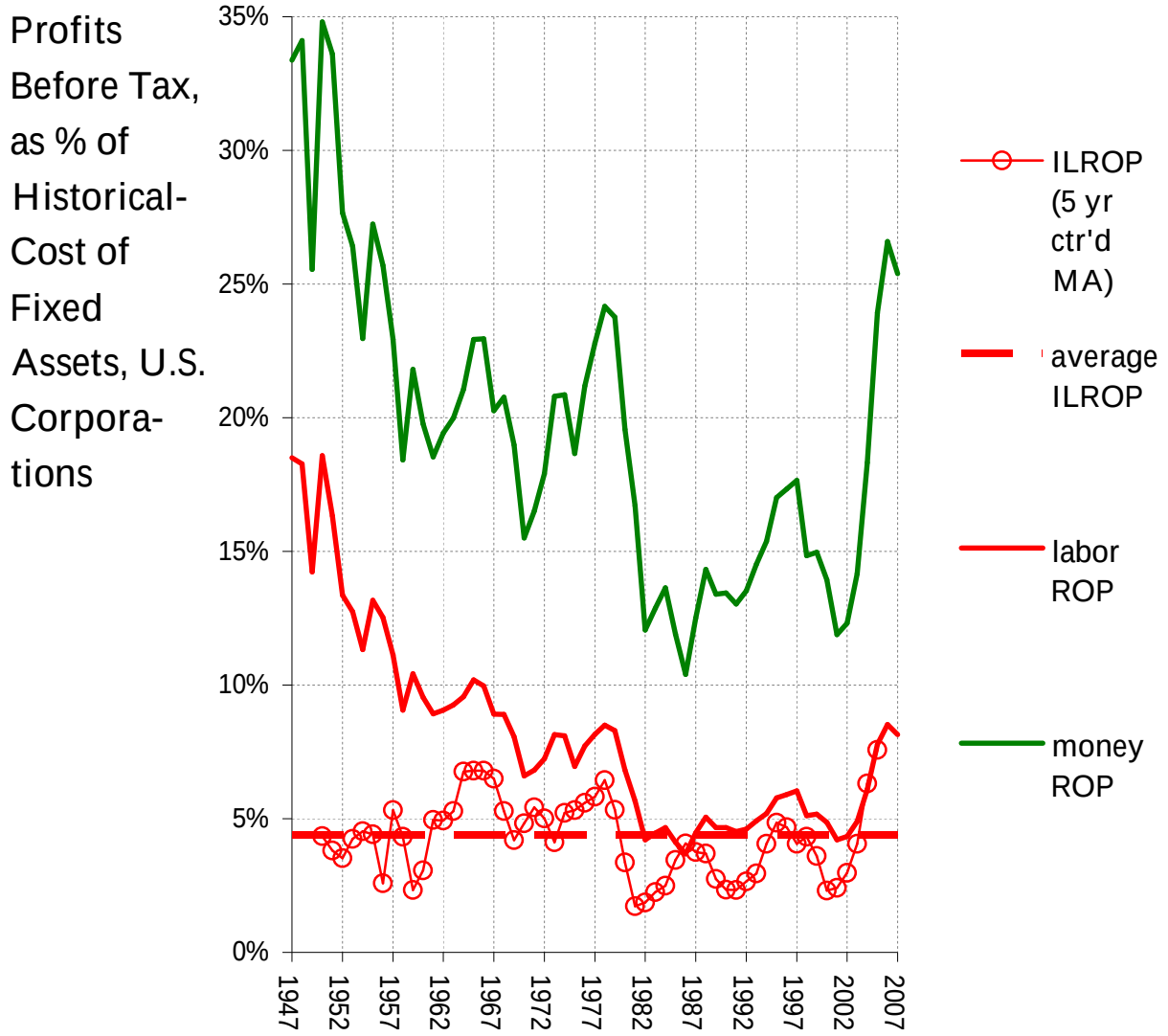
Figure 20



Finally, there is the effect of changes in the profit share of income on the rate of profit, measured by the gap between the actual money rate of profit and the constant-profit-share money rate. As we saw in part VII, this distributional effect was small. The actual money rate exceeded the constant-profit-share money rate by 2.0 percentage points in 1947, and fell short of it by 0.6 percentage points in 2004. The decline in the profit share thus served to lower the actual money rate of profit by 2.6 points. Technically, this means that 2.6/12.2 = 21% of the total decline in the actual money rate is attributable to the fall in the profit share. However, since the fall in the profit share was a one-off event, as I stressed in part VII of this paper, so was its effect on the rate of profit. In the period prior to the late 1960s, and again in the period from the early 1970s onward, almost none of the fall in the rate of profit is attributable to changes in the profit share, because it changed very little over either period.

Although the rate of profit in which before-tax profit serves as the profit measure in the cannot be meaningfully decomposed in the manner it was decomposed above, it is nonetheless instructive to look at the extent to which the actual labor and money rates of profit have fallen toward the (constant-profit-share) ILROP. Figure 21 shows that the actual labor rate declined rapidly toward the ILROP until converging upon the average ILROP (4.4%) by 1982, and that it remained very close to the average ILROP for more than two decades thereafter, averaging 4.9% from 1982 through 2004.

Figure 21

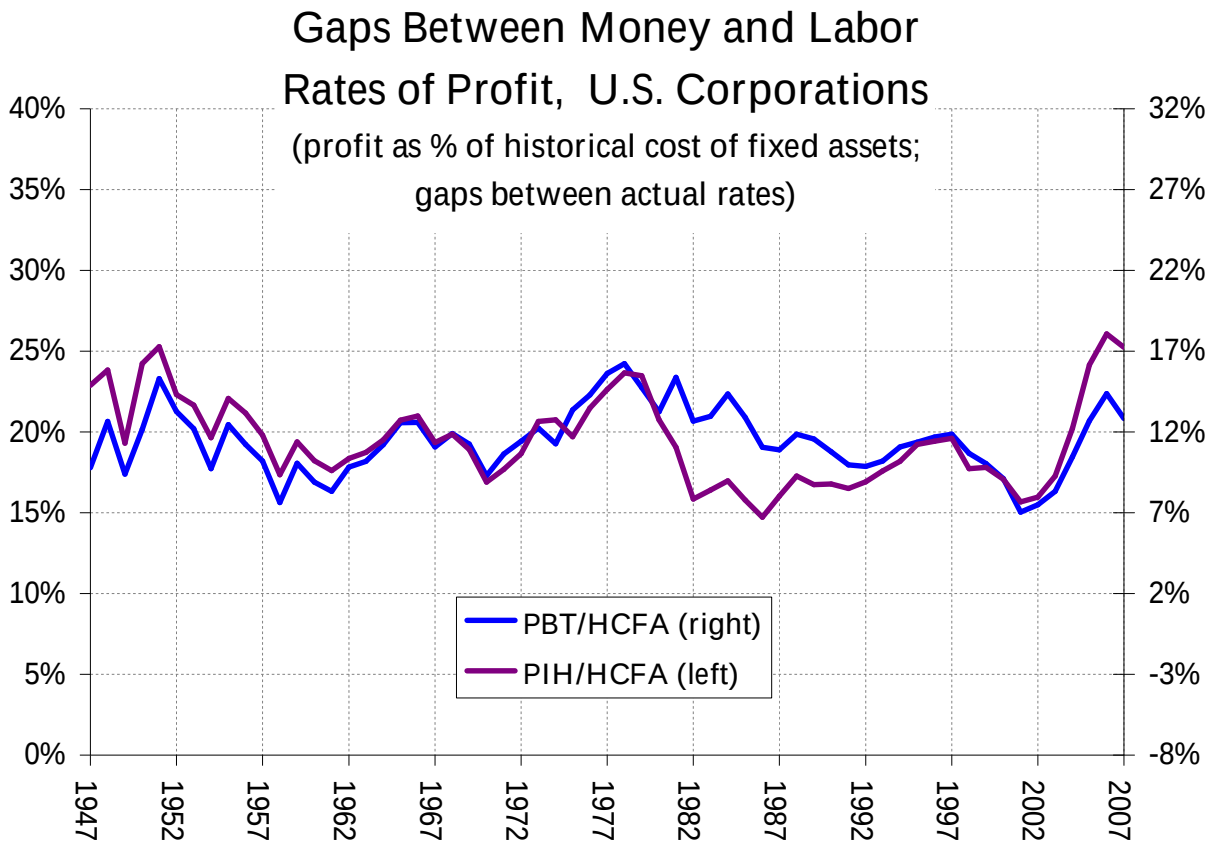


The decline in the money rate of profit can be decomposed into the decline in the labor rate of profit and the change in the gap between these rates. The latter factor captures changes in the extent to which the money rate of profit was boosted by increases in the nominal prices of commodities above their values. Between 1947 and 2004, the labor rate of profit fell by 12.4 percentage points, from 18.5% to 6.1%, while the money rate fell by 15.1 percentage points, from 33.4% to 18.3%. Thus the decline in the labor rate of profit was the dominant cause of the decline in the money rate; 12.4/15.1 = 82% of the decline in the money rate is attributable to the decline in the labor rate. The remaining 18% of the fall in the money rate of profit is attributable to the fall in the degree to which increases in the MELT served to raise the money rate above the labor rate. The gap between the two rates, which was 14.9 percentage points in 1947, had fallen to 12.2 points by 2004.

Whereas Figure 20 presented the movements in the gap between the *constant-profit-share* money and labor rates of profit, for rates in which property income is the measure of profit, Figure 22 presents movements in the gap between the *actual* rates of profit, for rates based on each of the two profit measures. Both gaps fluctuated within a rather narrow band throughout the entire post-World War II period. The standard deviation in the profit-income-based gap is 2.0 percentage points, while the standard deviation in the before-tax-profits-based gap is 2.7 percentage points. The former gap has a very slight downward trend (an average of 0.005 percentage points per year), while the downward trend in the latter

gap is somewhat larger (an average of 0.044 percentage points per year), owing principally to the fact that before-tax profits as a share of total property income fell sharply in the 1980s. The relative constancy of these gaps again indicates that increases in nominal prices about commodities' real values (as determined by labor-time) have done little if anything to ameliorate the falling trends in the rates of profit; over the long haul, they have had very little effect on the trends.

Figure 22



The results of this part of the paper show clearly that the dominant cause of the fall in the observed, money rate of profit was the fall in the labor rate of profit toward the constant-profit-share ILROP. The latter is the ratio between the very factors singled out in Marx's law of the tendential fall in the rate of profit: the growth of employment and the growth of advanced capital.

In the absence of counteracting factors that were in fact absent—a substantial increase in the profit share of income or a substantial acceleration of the rate at which prices increase relative to labor-time-determined values—the labor and money rates of profit both *inevitably* tend toward the constant-profit-share ILROP rate. Moreover, if the labor rate of profit is greater than the constant-profit-share ILROP rate, then the rate of profit on *additional* investments is less than the existing average rate of profit, and thus the labor and money rates of profit both *inevitably* fall.

That the constant-profit-share ILROP was quite low and trendless throughout the post-World War II period is thus a tremendously important fact. In light of this fact, the fall in the rate of profit is no longer a mystery. It is exactly what we should expect. *The rate of profit fell simply because a dollar of new investment never generated enough additional surplus-value to keep it from falling.*

It is likely that these relationships have held true in other periods of capitalism as well and that they will continue to do so (if the system survives the present crisis). Thus the difficult question is not why the rate of profit falls, but why it ever rises.[40]

IX. The Effect of Moral Depreciation on Rates of Profit

BEA profit measures are poor proxies for surplus-value—in other words, profit from production—largely because of the manner in which the BEA treats depreciation of fixed assets due to obsolescence, which Marx called "moral depreciation." "[I]in addition to the material wear and tear, a machine also undergoes what we might call a moral depreciation. It loses exchange-value, either because machines of the same sort are being produced more cheaply than it was, or because better machines are entering into competition with it" (Marx 1990, p. 528).

The BEA defines depreciation as "the decline in value due to wear and tear, obsolescence, accidental damage, and aging" (Katz and Herman 1997, p. 70). Since it does not distinguish between obsolescence and the other sources of depreciation, it regards all of them as factors that reduce profits and the net stock of advanced capital. However, Marx treated the decline in value due to obsolescence differently from the decline in the value of a means of production due to wear and tear.[41]

The difference is a consequence of his theory that the value of any commodity is the monetary expression of the average amount of labor (living and past) currently needed to *reproduce* commodities of the same kind. If a fixed asset undergoes moral depreciation, a portion of the labor that was actually expended in its production is no longer needed to reproduce new fixed assets of the same kind, so the value of the commodities produced by means of it is less than it would have been had moral depreciation not occurred. Thus, a portion of the amount of money that was spent to acquire the fixed asset will not be recovered if (as is true in the aggregate, according to Marx's theory) these commodities at sold at their value. In contrast, if the depreciation resulted from material wear and tear of the fixed asset, the amount of labor used to produce continues to be needed in order to produce fixed assets of the same kind. Hence, the money that was spent to acquire it will be recovered in full if the commodities produced by means of it sell at their value.

For instance, consider a machine purchased for $10,000. If the only depreciation it undergoes is depreciation due to wear and tear, the whole $10,000 will be recovered, *ceteris paribus*. In Marx's terminology, the using-up of this machine "transfers" a value of $10,000 to the products. Imagine, on the other hand, that the price of such machines falls to $7000, because of a technological improvement, even before this particular machine can be used in production. Thirty percent of the labor that was expended in order to produce it is no longer needed to produce machines of this kind, and so 30% of its original cost, $3000, will not be recovered if the products produced by means of it are sold at their value. The using-up of this machine therefore "transfers" a value of only $7000 rather than $10,000 to the products: "If, as a result of a new invention, machinery of a particular kind can be produced with a lessened expenditure of labour, the old machinery undergoes a certain amount of depreciation, and therefore transfers proportionately less value to the product" (Marx 1990, p. 319).

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[40] I am indebted to Alan Freeman for this formulation,

[41] As for the other two sources of decline in value, accidental damage and aging, I interpret Marx as having treated them like wear and tear rather than like a decline in value due to obsolescence. Although he does not explicitly discuss these factors as far as I know, he holds that declines in value due to loss of physical utility (use-value) are transferred to products (Marx 1990, p. 310–16), and this applies to aging, insofar as aging is distinguished from obsolescence, no less than it applies to wear and tear. In addition, he argues that since a certain "amount of waste is normal and inevitable under average conditions," the average amount of value lost to waste is transferred to products (Marx 1990, p. 313). It is thus reasonable to infer that the average amount of value lost to accidental damage is likewise transferred to products, since it too is normal and inevitable under average conditions. In contrast, declines in value due to obsolescence cause the prior *average* expenditure on means of production to be in excess of the *average* expenditure that is currently "normal and inevitable."

In other words, when a fixed asset undergoes moral depreciation, its owner realizes a loss. Thus Marx speaks of "the danger of moral depreciation," and he argues that because capitalists try to avoid this danger by using up their machines quickly, before they become obsolete, "It is … in the early days of a machine's life that this special incentive to the prolongation of the working day makes itself felt most acutely" (Marx 1990, p. 528).

Now, because depreciation is a deduction from profit, and the BEA treats moral depreciation just like material wear and tear, its profit figures are not measures of surplus-value —profits generated in production—but of surplus-value *minus* losses due to moral depreciation.[42]

If we denote surplus-value as S, gross value added as GVA, compensation of employees as COMP, depreciation due to wear and tear as W&TD, "realized profit" (profit as measured by the BEA) as RP, and moral depreciation as MD, then

$$S = GVA - COMP - W\&TD$$
$$RP = GVA - COMP - W\&TD - MD$$

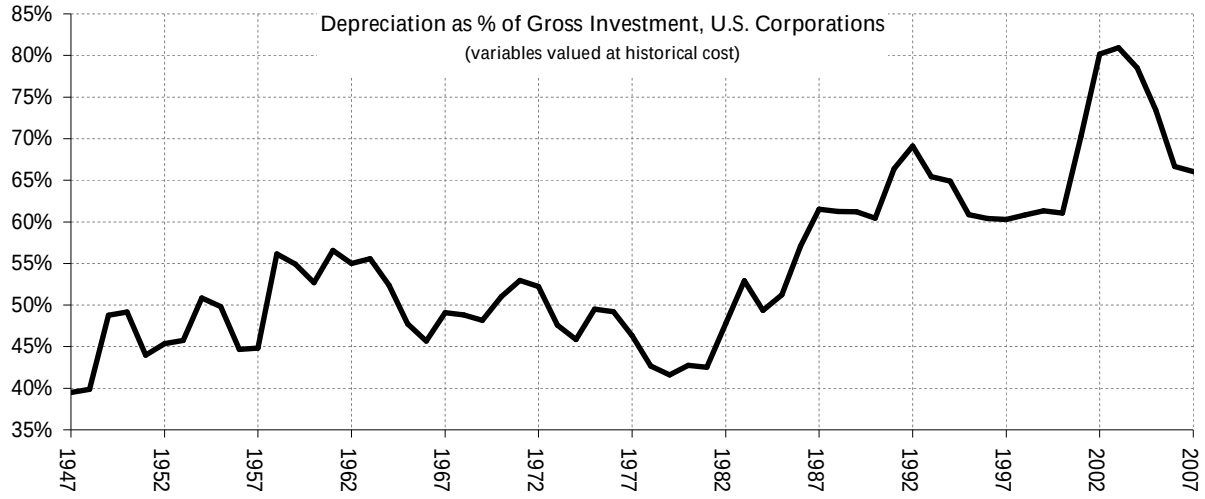
and thus

$$RP = S - MD.$$

Because the BEA does not estimate the amount of depreciation that is due to obsolescence, and no independent estimates seem to be available, it is not possible to directly gauge the magnitude of the difference between surplus-value and realized profit. This might not be a significant problem if depreciation due to obsolescence were a roughly constant share of investment. In that case, although it would alter the level of the rate of profit, it would not greatly affect the trend.

However, there are strong reasons to suspect that depreciation due to obsolescence has in fact risen markedly as a share of investment. In the U.S. corporate sector, total depreciation as a share of gross investment (both in terms of historical cost) rose rapidly after 1981, from 42.5% in that year to an average of about 68% since 1995 (see Figure 23).[43]

Figure 23



[42] In Marx's theory, extraction of surplus-labor, the total living labor expended minus the labor-time equivalent of the wages the workers receive, is the exclusive source of surplus-value. Since moral depreciation does not alter either the amount of living labor expended or wages, it does not alter surplus-value.

[43] The trends in these percentages are similar when current-cost data are used, the main exception being that the rise in the ratio of depreciation to gross investment begins 15 years earlier.

It seems that this increase in the depreciation rate is closely related to increased moral depreciation stemming from increasing use of computer and communications equipment that quickly become obsolescent. (BEA depreciation figures are based on the estimated "service lives" of the various kinds of fixed assets rather than on depreciation figures reported in tax returns.) Okubo et al. (2006, p. 15) write, "Products that embody a high level of R&D, such as computers and communication equipment, tend to have relatively short life cycles, paced by the rapid introduction of new, R&D driven technologies."

BEA depreciation data published in a report available at http://bea.gov/national/FA2004/Tablecandtext.pdf provide examples of this phenomenon. The report lists 107 different categories of equipment and software. Prepackaged software has the shortest service life, according to BEA estimates, while custom-made and "own-account" software have shorter lives than any of the other kinds of equipment except for nuclear fuel (see Table 9). The estimated service life of "office, computing, and accounting machines" is also well below average and has fallen since 1978. Table 9 also provides data, taken from another BEA publication (Herman et al. 2003, Table B., p. M–30), on the resale value of 5-year-old used cars and computer equipment. Whereas 5-year-old used cars were worth almost one-third of what new cars were worth, 5-year-old used personal computers and printers were worth less than 15% of new ones.

Table 9. Rapid Depreciation of Computer Equipment

	service life (in years)
software	
pre-packaged	3
custom	5
own-account	5
nuclear fuel	4
office, computing, and accounting machines	
before 1978	8
since 1978	7

	service lives of private non-residential equipment					
number of years	3-5	6-10	11-15	16-20	21-25	> 25
percentage of all 107 equipment categories	3.7%	14.0%	38.3%	25.2%	12.1%	6.5%

value of 5-year-old asset, as percentage of the price of a new asset	
automobiles	32.6%
computers and peripheral equipment	
personal computers	10.6%
printers	13.4%
computer storage devices	17.7%
terminals and displays	22.2%
tape drivers	29.2%

Almost all of the depreciation of computer and computer-related equipment seems to be moral depreciation. Software undergoes no physical wear and tear. As for computer hardware, in a paper that examined depreciation of Compaq and Gateway computers produced between 1984 and 2001, Geske, Ramey, and Shapiro (2004, Table 9) estimated that, on average, only one-eighth of their total depreciation was due to wear and tear ("age-related"). The rest was moral depreciation; half was due to "obsolescence" in the narrow sense, while three-eighths of total depreciation was the depreciation of "age-zero" computers, which occurs when they are taken out of the box.

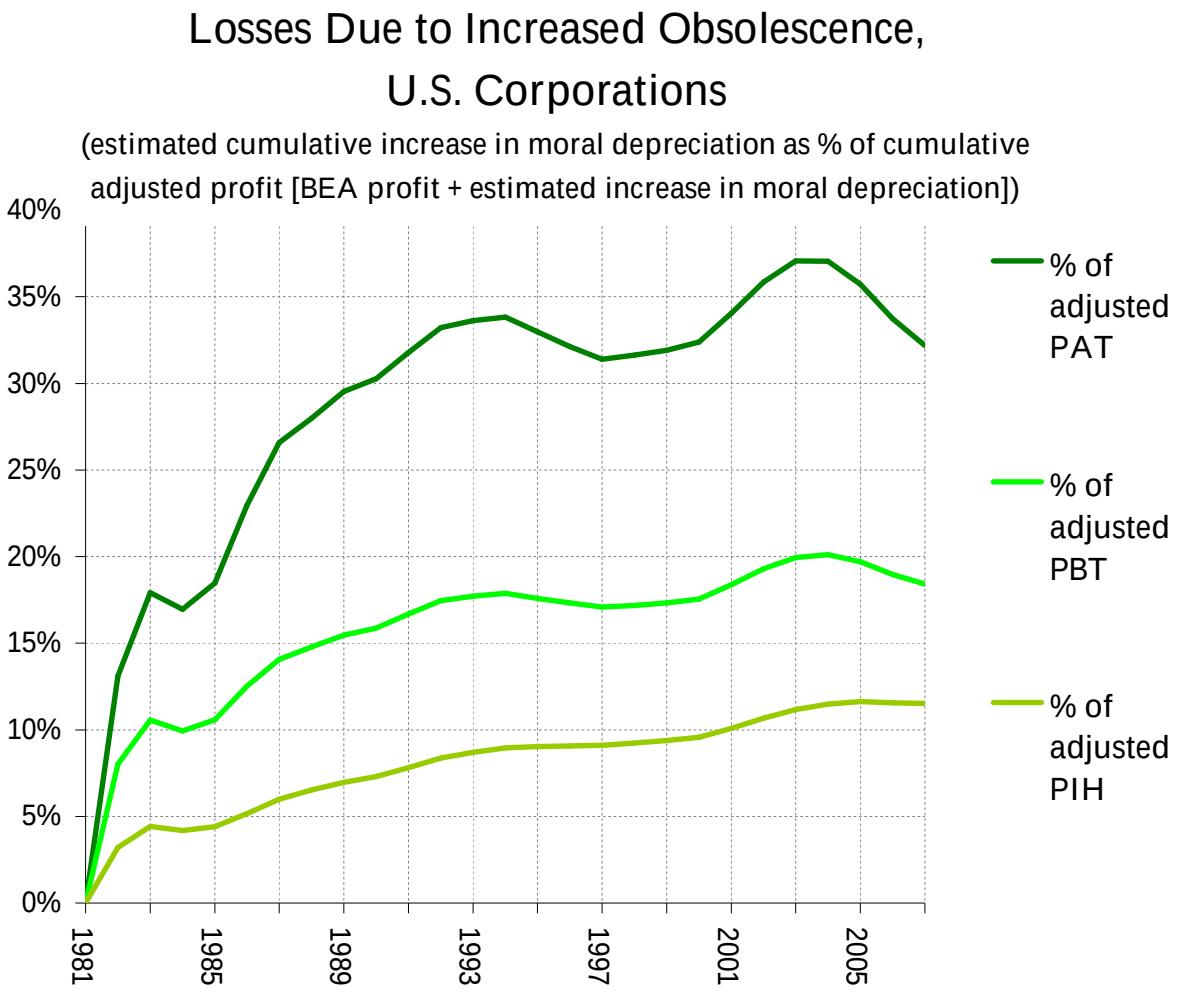
Because computers and related equipment and software depreciate more rapidly than other kinds of equipment, the average depreciation rate rises as investment in computer-based technology increases as a share of total investment. According to estimates published by Tevlin and Whelan (2003, p. 7), this phenomenon is the source of almost the entire rise in the rate of depreciation of fixed assets: "once computers are excluded, the estimated depreciation rate shows only a slow and modest upcreep over time." It is important to note that they excluded only "computers and peripheral equipment" investment, which in 2007 was less than one-sixth of the total investment in "information processing equipment and software." Software investment accounted for 46% of the total.

Since computer investment alone was responsible for almost all of the increase in the depreciation rate, it is reasonable to assume that the rate would be flat or even declining if these other computer-related investments were excluded. And since all software depreciation is moral depreciation, and almost all depreciation of computers seems to be moral depreciation as well, it is reasonable to assume that the entire increase in the average depreciation rate since 1982, when it began to skyrocket, is the result of additional moral depreciation.

On the basis of this assumption, I have computed losses due to increased moral depreciation since 1982. The estimated increase in moral depreciation is the difference between the depreciation figure reported by the BEA and what the depreciation figure would have been if depreciation were 42.5% of gross investment, the rate that prevailed in 1981. The cumulative loss due to moral depreciation, as a percentage of cumulative adjusted profit (the cumulative profit as reported by the BEA plus the estimated cumulative increase in moral depreciation), is shown in Figure 24. Such losses increased rapidly in throughout the 1980s and early 1990s and continued to rise through 2002. In that year, the cumulative loss peaked at about 11% of the adjusted property income, 20% of adjusted before-tax profits, and 37% of adjusted after-tax profits.

This means that a remarkably large share of the *surplus-value* generated between 1982 and 2002 was not realized as *profit*, because of losses stemming from increased moral depreciation. There is really no way to know how large that share was, because we do not know the extent of moral depreciation prior to 1982. If we assume, unrealistically, that there was no moral depreciation prior to 1982, then the percentage of surplus-value that was not realized as profit was 37% in the case of after-tax profits, 20% in the case of before-tax profits, and 11% in the case of property income. These figures are the *minimum* percentages. But every additional dollar of moral depreciation would raise both the numerator and the denominator by a dollar, and therefore raise the losses as a percentage of adjusted profit (since the numerator is smaller than the denominator and it would thus rise by a greater percentage).

Figure 24



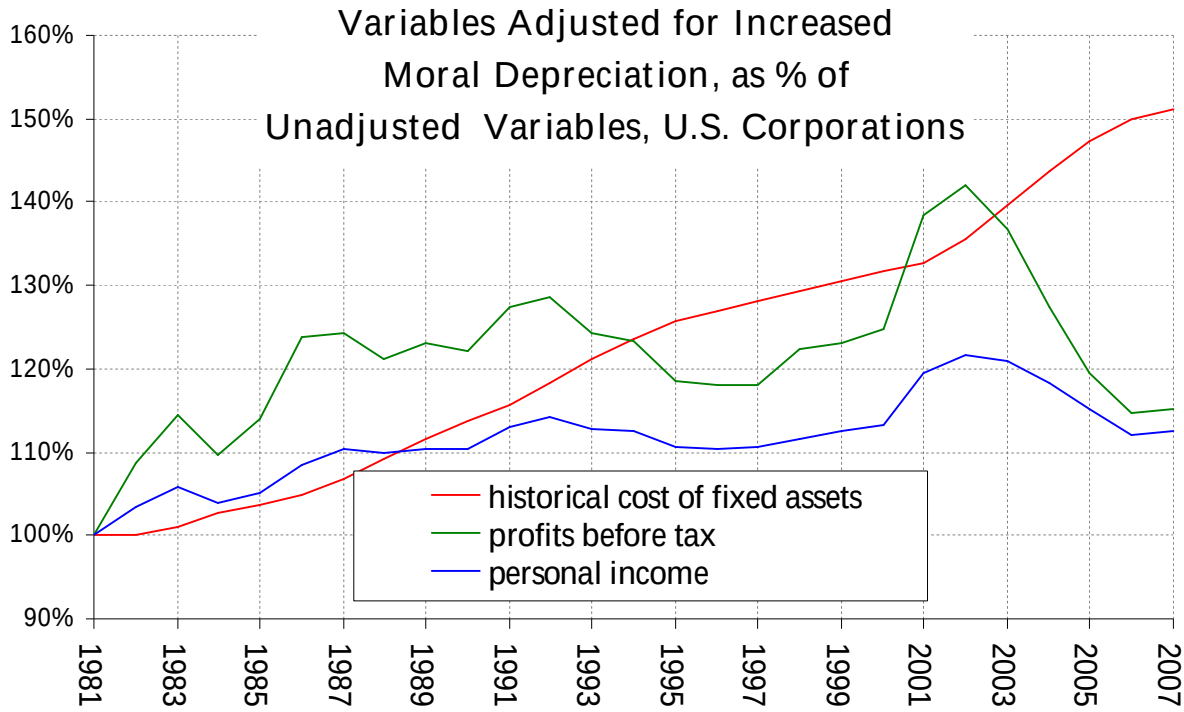
I shall presently look at how the increased moral depreciation affected estimates of the rate of profit. Before doing so, however, I need to point out that it affected the denominator of the rate of profit, the advanced capital, as well as the numerator. This is because the data for advanced capital used here (and in all other studies of the rate of profit, as far as I am aware), are data for the "net stock" of capital. The addition to the net stock of capital, net investment, is gross investment *minus* depreciation. Thus, when moral depreciation takes place, not only is profit reduced relative to surplus-value, but advanced capital is reduced as well. Because both the numerator and the denominator are reduced, the effect of moral depreciation on the rate of profit is indeterminate in principle. Over time, however, the advanced capital advanced tends to be reduced by a relatively larger amount than profit is reduced, because the reductions in the net stock of capital, unlike the reductions in profit, are cumulative and permanent. For instance, if a machine undergoes $3000 worth of moral depreciation, the net stock of capital is reduced by $3000 forever after.

Profit-rate measures based on BEA data are therefore realized profit (surplus-value minus losses due to obsolescence) as a percentage of advanced capital *minus* losses resulting from moral depreciation. But what was the ratio of surplus-value to capital advanced? Again, we do not know, because data are not available that would allow us to estimate how much of the depreciation reported by the BEA is moral depreciation. It is nonetheless possible to estimate the effect of the increase in moral depreciation on the rate of profit.

The procedure I used to estimate the increase in moral depreciation after 1981 was explained above. To compute the effect of this increase on the rate of profit, I obtained adjusted profit estimates by adding, as before, the estimated additional depreciation of each year to the BEA estimates of the year's before-tax profits and property income. I obtained adjusted estimates of advanced capital by adding the estimated additional depreciation of each year to net investment (in terms of historical cost). Whereas the BEA figure for advanced capital at the start of some year is the advanced capital at the start of the prior year plus the net investment of the prior year, my adjusted figure for advanced capital is the adjusted advanced capital at the start of the prior year plus the net investment of the prior year *and* the estimated additional depreciation of the prior year.

Figure 25 shows how the adjustments affected each of the three variables. Profits before tax are increased by a greater percentage than property income is increased, because the additional depreciation, which is the same in both cases, is a larger share of before-tax profits. And the adjustments eventually cause advanced capital to increase by a greater percentage than the profit measures increase because, as noted above, additional depreciation lowers the advanced capital, but not profit, permanently and in a cumulative manner.

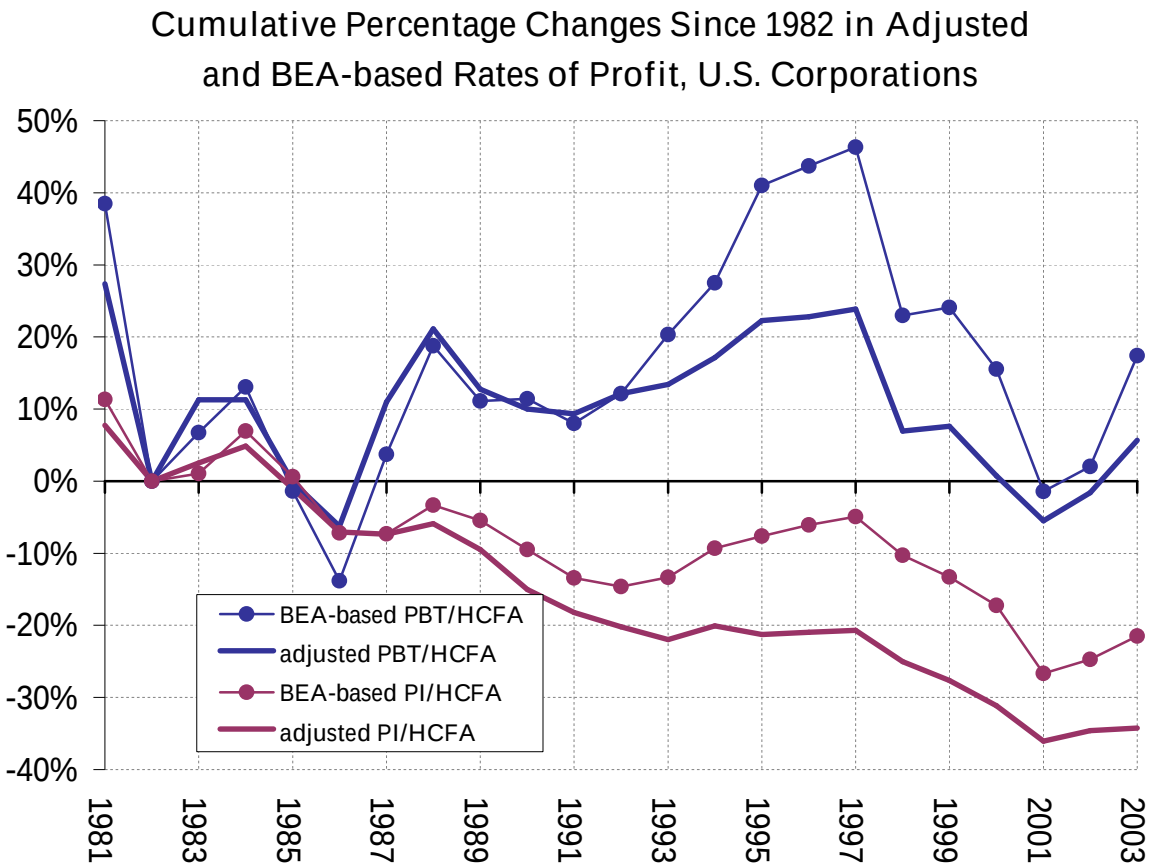
Figure 25



The effects of the adjustments on the rates of profit are presented in Figure 26. Between the troughs of 1982 and 2001, the BEA-based ratio of before-tax profits to the historical cost of the net stock of fixed assets fell by 1.4%, from 12.1% to 11.9%. When the estimated excess depreciation is added back into the numerator and denominator of the rate of profit, it falls by 5.5%, from 13.1% to 12.4%. The BEA-based ratio of property income to the historical cost of the net stock of fixed assets fell by 26.7%, from 31.8% to 23.3%. When the estimated excess depreciation is added back into the numerator and denominator of the rate of profit, it falls by 36.1%, from 32.8% to 21.0%. The adjustments affect the second rate of profit to a greater degree than the first one because property income rises by a smaller percentage than before-tax profit when excess depreciation is added back into the numerator. It is also noteworthy that the adjustment completely

eliminates the rise, during the 1990s, in the rate of profit in which property income serves as the measure of profit. This suggests that the rise in the associated BEA-based rate stems from the reduction in the estimated advanced capital that results when a decline in the values of assets due to obsolescence is not distinguished from a decline in value due to wear and tear.

Figure 26



The above adjustments suggest that the ratio of surplus-value to advanced capital has fallen by more since the early 1980s—a bit more in one case, and substantially more in the other—than rates of profit based on the BEA's concept of depreciation would suggest. They therefore give us an additional reason to be skeptical of claims that "the" rate of profit has recovered substantially.

These results also indicate that careful attention to moral depreciation is needed when one assesses the impact of technological progress on profitability and when one attempts to test Marx's law of the tendential fall in the rate of profit. When moral depreciation is not distinguished from depreciation due to wear and tear, the measured rate of profit tends to rise in relationship to Marx's rate of profit, the ratio of surplus-value to advanced capital. This does not mean that the technological progress that causes moral depreciation tends to raise the rate of profit rather than lower it. On the contrary, it means that one way in which technological progress lowers profitability is *by way of* the moral depreciation that causes realized profit to fall short of the actual surplus-value generated in production. Just as other sorts of destruction of capital-value first lead to losses that lower profitability, and then raise profitability after the losses are written down and the value of advanced capital is reduced accordingly, so too in the case of moral depreciation. That the measured rate of profit ultimately tends to rise because of moral depreciation means that the technological progress *first* caused profitability to fall. In other words, the subsequent rise in the rate of profit is not due to technological progress itself, but to the writing-down of losses.

X. Conclusions

This paper's principal findings are

1. U.S. corporations' rate of profit began to fall about a decade after the end of World War II and the falling trend has persisted until the present time. Some measures of the rate of profit leveled off or increased very slightly after the early 1980s, while others have continued to decline. None indicates that a genuine, sustainable rebound in profitability took place.

2. Claims to the contrary are based on cherry-picking of the data and on the use of current-cost "rates of profit" that are not rates of profit in any normal sense.

3. The persistence of the fall in the rate of profit is not eliminated when rates of profit are adjusted for inflation in the general price level or in the monetary expression of labor-time.

4. Because the rate of profit has not rebounded, there has not been a growing divergence between the rate of profit and the rate of capital accumulation. The rate of accumulation has tracked the rate of profit quite closely, and the former has fallen in response to the fall in the latter.

5. Distributional changes account for little of the fall in the rate of profit because, apart from a one-time fall in the profit share of income in the late 1960s, there has been no sustained distributional change. Once that brief period is set aside, almost the entire fall in the rate of profit is traceable to a rise in the value composition of capital rather than to a fall in the rate of surplus-value.

6. The dominant cause of the fall in the rate of profit, by far, was the tendency of the rate of profit to fall toward a lower incremental rate of profit determined by the growth rate of employment and the share of profit that is reinvested. Changes in the profit share of income, and in the relationship between nominal prices and the real value of commodities as determined by labor-time, had a very minor influence.

7. Since 1982, the ratio of surplus-value to advanced capital seems to have fallen in relationship to the rates of profit derived from official government data, because of a marked increase in depreciation due to obsolescence (moral depreciation) resulting from increased employment of computer technology.

These results strikingly disconfirm the claim, which is based on the contention that the rate of profit has rebounded during the last quarter-century, that the present economic crisis is rooted in nothing deeper than financial-sector phenomena (such as irresponsibility and deregulation that produced unsustainable asset-price bubbles) that are essentially *unrelated to and separable from* movements in profitability. They therefore fail to lend support to the now-fashionable belief that greater state control over the financial sector will suffice to prevent the recurrence of similar crises in the future.

My findings also indicate that Marx's law of the tendential fall in the rate of profit fits the facts remarkably well. The substantial explanatory power of this law can be seen especially in the fact that the principal source of the fall in the observed nominal rate of profit was the pronounced tendency for the rate of profit to fall toward a lower incremental rate of profit that is regulated by the factors that the law singles out (the growth rate of employment and the rate of surplus-value that is reinvested).

It is time to reclaim this law and the value theory in which it is grounded. Yet they cannot be reclaimed as long as the myth that they have been proven to be internally inconsistent is allowed to persist. The record needs to be set straight, and the "Marxian economics" tradition —which has given us "consistent" but spurious current-cost rates of profit that head ever upward while the economy goes down the tubes and, as a direct result, Marxian theories of the current economic crisis that take surface financial-sector phenomena to be essential causes of the economic crisis—needs to be repudiated.

References

A. Statistical Sources

to be completed

B. Published Works

Beggs, Mike. 2009. Post to "lbo-talk" e-mail discussion list, Feb. 16. Available at http://mailman.lbo-talk.org/pipermail/lbo-talk/Week-of-Mon-20090216/002355.html .

Duménil, Gérard and Dominique Lévy. 2004. *Capital Resurgent: Roots of the Neoliberal Revolution*. Cambridge, MA: Harvard University Press.

_____. 2005, The Profit Rate: Where and How Much Did it Fall? Did It Recover? (USA 1948-1997). Available at http://www.jourdan.ens.fr/levy/dle2002f.pdf .

Farjoun, Emmanuel and Moshé Machover. 1983. *Laws of Chaos*. London: Verso.

Freeman, Alan. 2009. What Makes the US Profit Rate Fall? Available at http://mpra.ub.uni-muenchen.de/14147/1/MPRA_paper_14147.pdf

Freeman, Alan and Andrew Kliman. 2000. Two Concepts of Value, Two Rates of Profit, Two Laws of Motion, *Research in Political Economy* 18, pp. 243–67.

Geske, Michael J., Valerie A. Ramey, and Matthew D. Shapiro. 2004. Why Do Computers Depreciate? Available at http://www-personal.umich.edu/~shapiro/DeprComp23Dec04.pdf .

Harman, Chris, 2009, *Zombie Capitalism*: *Global Crisis and the Relevance of Marx*. London: Bookmarks.

[Herman, Shelby W. et al.]. 2003. *Fixed Assets and Consumer Durable Goods in the United States, 1925–99*. U.S. Department of Commerce, Bureau of Economic Analysis. Washington, DC: U.S. Government Printing Office, September. Available at http://www.bea.gov/national/pdf/Fixed_Assets_1925_97.pdf

Katz, Arnold J. and Shelby W. Herman. 1997. Improved Estimates of Fixed Reproducible Tangible Wealth, 1929–95, *Survey of Current Business*, May, pp. 69-92.

Kliman, Andrew. 1999. Debt, Economic Crisis, and the Tendential Fall in the Profit Rate. Available at http://akliman.squarespace.com/crisis-intervention/

_____. 2003. Value Production and Economic Crisis: A temporal analysis. In Richard Westra and Alan Zuege (eds.), *Value and the World Economy Today*, London and New York: Palgrave Macmillan, pp. 119–36.

Kliman, Andrew. 2007. *Reclaiming Marx's "Capital": A refutation of the myth of inconsistency*. Lanham, MD: Lexington Books.

Kliman, Andrew. 2009. "The Destruction of Capital" and the Current Economic Crisis, *Socialism and Democracy* Vol. 23, No. 2, pp. 47-54.

Laibman, David. 1999. Okishio and His Critics: Historical cost versus replacement cost, *Research in Political Economy* 17, pp. 207–27.

Marx, Karl. 1973. *Grundrisse: Foundations of the critique of political economy*. London: Penguin.

————. 1989. *Karl Marx, Frederick Engels: Collected Works*, Vol. 32. New York: International Publishers.

————. 1990. *Capital: A critique of political economy*, Vol. I. London: Penguin.

———. 1991a. *Capital: A critique of political economy*, Vol. III . London: Penguin.

———. 1991b. *Karl Marx, Frederick Engels: Collected Works*, Vol. 33. New York: International Publishers.

———. 1994. *Karl Marx, Frederick Engels: Collected Works*, Vol. 34. New York: International Publishers.

Mead, Charles Ian, Brent R. Moulton, and Kenneth Petrick. 2004. NIPA Corporate Profits and Reported Earnings: A Comparison and Measurement Issues. Available at http://www.bea.gov/papers/pdf/corp_pr1.pdf

Moseley, Fred. 2008. Some Notes on the Crunch and the Crisis," *International Socialism* No. 119. Available at http://www.isj.org.uk/index.php4?id=463&issue=119 .

Moseley, Fred, 2009, "The US Economic Crisis: Causes and Solutions," *International Socialist Review 64* , March-April. Available at http://www.isreview.org/issues/64/feat-moseley.shtm

Okishio, Nobuo. 1961. Technical Changes and the Rate of Profit, *Kobe University Economic Review* 7, pp. 85–99.

Okubo, Sumiye, Carol A. Robbins, Carol E. Moylan, Brian K. Sliker, Laura I. Schultz, and Lisa S. Mataloni. 2006. BEA's 2006 Research and Development Satellite Account: Preliminary Estimates of R&D for 1959–2002, Effect on GDP and Other Measures, *Survey of Current Business*, December, pp. 14-27.

Potts, Nick. 2009. Back to C19th Business as Usual: A Surprise? Presented at conference of the Association for Heterodox Economics, Kingston (London), July.

Steedman, Ian. 1977. *Marx after Sraffa*. London: New Left Books.

Tevlin, Stacey and Karl Whelan. 2003. Explaining the Investment Boom of the 1990s. *Journal of Money, Credit and Banking*, 35:1, February, pp. 1-22.