

The U.S. Economy in the 1990s: A Neoliberal Success Story?

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A process of neoliberal restructuring has been going on in many parts of the world in recent decades. The belief that domestic and international liberalization, privatization, and cutbacks in public spending are the route to economic success is firmly lodged, despite the absence of supporting evidence. In the 1980s and early 1990s the fastest growing economies in the world – such countries as South Korea, Taiwan, China, Thailand, Malaysia, and Indonesia -- had institutions and policies that significantly departed from neoliberal prescriptions. The closest followers of the neoliberal agenda, such as the US since the late 1970s and the formerly Communist Party ruled states of Eastern and Central Europe since the end of the 1980s, registered economic performance ranging from poor to disastrous.

Then, in the second half of the 1990s, neoliberalism finally found its long-awaited success story, right in the main source of neoliberalism: the US. The US government has followed neoliberal policies, with varying consistency over time, since the second half of the Carter Administration in the late 1970s. Despite Bill Clinton's relatively interventionist rhetoric during the 1992 presidential campaign, upon taking office his administration hewed closely to the neoliberal agenda of cutting public spending, pursuing free trade agreements, and generally seeking to free market forces from public regulation (Pollin, 2000). Public spending was cut so severely that, with an assist from an expanding economy, budget deficits shrank and even disappeared at the end of the decade, with the Administration promising that a complete retirement of the public debt was now in sight.

Following several years of sluggish recovery from the 1990-91 recession, the US economy began growing relatively rapidly after 1995. The growth rate of real gross domestic product (GDP) shot up above 4% per year, and the long-anemic productivity growth rate accelerated. Rapid growth continued through the end of the 1990s, and the unemployment rate fell below 5 percent in 1997 while inflation remained subdued. In 1999 the expansion surpassed that of the 1960s as the longest US expansion on record. The pundits proclaimed that the benefits of neoliberal restructuring had finally been demonstrated. They noted that, by contrast, the Asian growth miracles, except for China, had collapsed in the 1997 financial crisis, while Japan's unreconstructed statist economy remained mired in a decade-long stagnation.

The claims for the US economy in the 1990s went well beyond macroeconomic success from neoliberal restructuring. Led by *Business Week* magazine, some pronounced that a "New Economy" had developed in the US, compounded of some combination of new technologies, new laws of finance, and neoliberal restructuring, which opened an entirely new era in which the old trade-offs and limits would no longer apply. The New Economy thesis, which has been regarded with skepticism even by mainstream academic economists, will not be considered here (see Kotz and Wolfson, 2001). This thesis now appears to have been discredited by the stock market collapse after August 2000 and the recession that was officially proclaimed as starting in March 2001.

This paper examines whether US macroeconomic performance in the 1990s provides evidence that neoliberal restructuring can deliver what it promises: vigorous, stable, sustainable economic growth. The US economic expansion of 1991-2000 will be analyzed to shed light on this question. It will be affirmed that neoliberal policies did contribute to a certain kind of recovery from the 1990-91 recession and did foster an unusually long expansion, with low inflation despite low unemployment.

However, we will argue that the processes by which neoliberal policies contributed to

these outcomes were different from the official story. The neoliberal regime produced an economic expansion in the US in the 1990s that was unstable and unsustainable. While every expansion in a capitalist economy eventually ends in recession, most recessions in the US since 1945 have been relatively mild and short.¹ We will argue that the character of the expansion of the 1990s contained seeds of a possibly severe and long-lasting recession or depression to follow.

Overview of the 1990s Expansion

Table 1 compares the US economic expansion of 1991-2000 to the five previous expansions. By the broadest measure of economic vigor – the real GDP growth rate – the 1990s is near the bottom of the last six expansions. Only the brief and anemic expansion of 1980-81 had slower GDP growth than the 1990s.² Measured by labor productivity growth, the 1990s look better, ranking above the three preceding expansions but still falling far short of the rapid productivity growth of the 1960s and early 1970s.

The 1990s look much better with respect to unemployment and inflation. The last-expansion-year unemployment rate for the 1990s expansion of 4.0% was the lowest since the 1960s, and the last-expansion-year inflation rate was the lowest of any of the six expansions.³ The 1990s expansion lasted an even ten years, compared to the 8 years 10 months of the next-longest expansion in the 1960s. While the unemployment rate remained stubbornly high for the first three years of the expansion, the long duration of the expansion eventually drove unemployment below 5 percent. It is not surprising that an expansion that lasted long and yielded only modest productivity growth eventually brought a low unemployment rate. What needs explanation is the failure of inflation to pick up significantly, as well as the long duration of the expansion.

As the last line of Table 1 shows, economic performance improved markedly in the second half of the 1990s expansion. After 1995 GDP growth averaged 4.1 percent per year, an increase of one-third over the 1991-95 rate, and labor productivity rose at 2.5 percent, an increase of more than one-half compared to the 1991-95 rate. The marked acceleration in output and productivity growth in the later part of an expansion is not typical.

After 1995 some commentators painted an increasingly rosy picture of the expansion. Comparing the “best” part of one business cycle expansion to the entire period of other expansions is, of course, not a valid way to judge an expansion, but even such a comparison does not significantly change the ranking of the 1990s expansion. In GDP growth the period 1995-2000 barely edges out the 1980s expansion, moving up from 5th to 4th place, while productivity

¹ Exceptions were the recessions of 1974-75 and 1981-82. The average recession since 1945 has lasted about ten months.

² If GDP growth is measured from peak to peak, instead of from trough to peak as in Table 1, the 1990s ranks 4th among the six expansions, just ahead of 1973-79 and just behind 1981-90. The peak to peak annual average growth rates are the following: 1960-69, 4.6%; 1969-73, 3.7%; 1973-79, 3.0%; 1979-81, 1.1%; 1981-90, 3.3%; and 1990-2000, 3.2% (source: see Table 1).

³ The unemployment-inflation tradeoff performance of a business cycle expansion can be better judged by the final-year rates than by an average over the expansion. Typically the unemployment rate reaches its minimum in the last year of an expansion, while the inflation rate typically accelerates near the end of an expansion.

performance still failed to come close to that of the 1960s and early 1970s, leaving the productivity ranking unchanged.

The best way to understand the character of the 1990s expansion in the US requires breaking it down into three, rather than two, phases. Phase I, from 1991-95, was a relatively sluggish recovery from the 1990-91 recession. Phase II, from 1995-97, saw an acceleration in GDP growth driven, as we shall see, primarily by an investment boom. Phase III, from 1997-2000, saw even faster GDP growth but driven primarily by a remarkable consumption boom. By analyzing these three phases, it is possible to uncover the underlying forces that drove the 1990s expansion and also see the fundamentally unstable character of the process.

Phase I: 1991-95

Table 2 shows the growth rate in the main components of GDP for the three phases of the expansion, along with some other relevant data. In Phase I the recovery was led by business fixed investment, which grew at the rapid rate of 7.6 percent per year.⁴ Consumer spending, which represents about two-thirds of GDP, grew at about the same rate as GDP, neither leading the recovery nor slowing it down. Residential investment grew almost as rapidly as business fixed investment, but its impact is much smaller, since the latter was almost two and a half times as large as the former at the start of the expansion. No stimulus came from government or international trade, since government purchases of goods and services were practically stagnant in Phase I and imports grew more rapidly than exports. The modest investment boom of Phase I was not strong enough to bring rapid growth in the economy as a whole, given the stagnation of the large government sector and the rapidly rising deficit on trade in goods and services.

Two factors appear to explain the rapid growth in business investment in 1991-95, a long-term upturn in the rate of profit and the information technology (IT) revolution. Figure 1 shows the after-tax rate of profit for the nonfarm nonfinancial corporate business sector during 1946-2000.⁵ As many studies have shown, the rate of profit rose to a postwar peak in the mid 1960s, followed by a marked long-term decline. As Figure 1 shows, the cyclical recovery in the profit rate that began in 1991 had, by 1993, pushed the profit rate to its highest level since the 1960s. The rapid ascent of the profit rate continued through 1994, followed by two more years of continuing if slower increases. By 1996 the rate of profit was 39 percent higher than the highest previous post-1960s peak in 1972 and 52 percent above the most recent cyclical peak in 1988, reaching 84 percent of the 1965 level.

What explains this rise in the profit rate, and is it connected with neoliberal restructuring? To address this question, we analyzed the factors that underlie the change in the rate of profit

⁴ In the first four years of other recent long expansions, the annual average growth rate of real business fixed investment was 10.6% in 1961-65, 4.5% in 1974-78, and 4.3% in 1982-86 (*Economic Report of the President*, 1997, p. 302). The preceding growth rates for earlier expansions are in chained 1992 dollars and are for data prior to recent revisions in GDP and its components. From that series, real business fixed investment grew at 6.9% per year in 1991-95, which is still substantially faster than in the late 1970s or early 1980s, although far below the investment boom of the early 1960s.

⁵ The pattern for the pre-tax rate of profit is similar, as is the pattern for a broader measure of the rate of profit that includes interest. The after-tax rate of profit, after interest has been paid, was used here because it is the rate of profit measure that is most relevant for explaining investment behavior. Data for the nonfarm nonfinancial corporate business sector were used because of conceptual problems with the rate of profit for the entire private sector.

from a date prior to the beginning of neoliberal restructuring in the US in the late 1970s to the 1990s.⁶ To remove the influence of cyclical factors, we compared the profit rate peak in 1996 to a cyclical profit rate peak prior to the late 1970s. There were two cyclical peaks in the rate of profit that occurred after the 1960s but before the beginning of neoliberal restructuring, one in 1972 and another in 1977. We chose the 1972 rate of profit as the base for comparison because the unemployment rate that year (5.6 percent) was very close to that of 1996 (5.4 percent). In 1977 the unemployment rate was 7.1 percent, and using that year for the comparison would introduce unwanted cyclical effects into the comparison.

The rate of profit in figure 1 is corporate profit after taxes divided by net worth. This can be expressed as a product of three variables:

$$r = P/NW = (P/W)(W/TA)(TA/NW) \quad (1)$$

where P = profits, NW = net worth, W = aggregate employee compensation, and TA = tangible assets (all in current dollars). The first term on the right side of equation 1, P/W , is similar to the rate of surplus value.⁷ The second term, W/TA , is similar to (the reciprocal of) the Marxian concept of the organic composition of capital. The last term, TA/NW , is a measure of the extent to which the capital stock is financed by debt, since the difference between TA and NW is the net liabilities of the sector.⁸

The profit-wage ratio can be expressed as the sum/difference of several underlying variables as follows:

$$P/W = Y/W - D/W - T/W - I/W - 1 \quad (2)$$

where Y is gross output, D is depreciation, T is taxes (indirect taxes plus corporate profit taxes), and I is net interest (all in current dollars).⁹ Y/W , the output-wage ratio, reflects the effects of changes in output per labor hour and in real compensation per labor hour (as well as relative changes in the price indices for output and consumer goods). D/W primarily reflects the effect of changes in the longevity of capital goods -- an increase in the required frequency of replacement of capital goods tends to lower the profit-wage ratio. The last two right-side variable in equation 2 show the effects on after-tax profits of changes in tax and net interest payments.

A detailed analysis of the role played by the above factors in the rise in the rate of profit from 1972 to 1996 is presented in the Appendix. Table 3 presents the main results of that analysis. The rate of profit rose by 39.1 percent from 1972 to 1996. The main underlying factors accounting this increase were the following:

⁶ The methodology used here to analyze changes in the rate of profit borrows heavily from Wolff (2001).

⁷ P/W is not a precise measure of the rate of surplus value, for several reasons. P is after-tax corporate profits which is a narrower concept than surplus value, and W includes wages of all employees in the sector including those who engage in unproductive labor.

⁸ For the sector as a whole, $A = TA + FA$, where A = total assets and FA = financial assets. From the definition of net worth, $NW = A - L$, where L = liabilities. Substituting the former equation into the latter, and defining net liabilities $NL = L - FA$, one can derive $NW = TA - NL$.

⁹ Equation 2 is derived from the identity $Y = D + W + I + T + P$.

1. The largest of the three factors in equation 1 was an increase in the profit-wage ratio, which rose by 26.9 percent over the period. This accounted for 68.8 percent of the rise in the rate of profit.¹⁰ The rise in the profit-wage ratio can itself be accounted for by changes in the four right-side variables in equation 2. Note that, since one of the right-side variables in equation 2 (depreciation) tended to lower rather than raise the profit-wage ratio, the other right-side variables in equation 2 can account for more than 100 percent of the increase in the profit-wage ratio and in the rate of profit – as indeed is the case for one of them (Y/W).

1A. The output-wage ratio increased, accounting for 169.1 percent of the rise in the profit-wage ratio, and hence, accounting for 116.3 percent of the rise in the rate of profit.¹¹ This was driven by declining real wages while productivity continued to grow, albeit at a historically slow rate. Labor productivity in the nonfinancial corporate business sector grew at the slow rate of 1.3 percent per year during 1972-96. This resulted in an increase in labor productivity of 36.4 percent over the period, while real compensation in that sector declined over the period by 2.5 percent (see Appendix).¹² This can be seen as an outcome of neoliberal restructuring. The neoliberal regime reduced the bargaining power of workers in a variety of ways – through such channels as legal and political attacks on trade unions, deregulation of business, and lower barriers to international trade and investment – and this has significantly boosted the profit-wage ratio, increasing the rate of profit. This is not the aspect of neoliberalism that its advocates advertise, but it was effective at raising the rate of profit.

1B. The depreciation-wage ratio rose, which tended to reduce the profit-wage ratio and hence the rate of profit. D/W accounted for -149.0 percent of the increase in P/W and hence for -102.5 percent of the increase in r . This means that, had the other factors remained unchanged, the rising depreciation-wage ratio would have resulted in a decrease in the rate of profit over the period (of slightly more than the actual increase in r). This reflects the drag on the rate of profit coming from a decrease in the average lifetime of tangible assets over the period, from 20.8 years to 14.7 years (see Appendix).

1C. The tax-wage ratio declined, accounting for 72.7% percent of the rise in the price-wage ratio, and hence, accounting for 50.0 percent of the rise in the rate of profit. This reflects the reductions in taxation of capital that have been a prominent part of neoliberal restructuring.

1D. The net interest-wage ratio fell slightly, which accounted for 8.1 percent of the increase in the profit-wage ratio, and hence, accounted for 5.6 percent of the increase in the rate of profit. Neoliberal restructuring was supposed to encourage investment by getting the

¹⁰ The percentage of the increase in the rate of profit accounted for by an increase in one of the right-side variables in equation 1 is calculated by dividing the percentage increase in the right-side variable by the percentage increase in the rate of profit over the period. See Appendix.

¹¹ The percentage of the increase in the rate of profit accounted for by changes in the right-side variables in equation 2 (lines 1A through 1D in table 3) is calculated by multiplying the percentage of the increase in P/W accounted for by the change in the variable times the percentage of the increase in the rate of profit accounted for by the increase in P/W . See Appendix.

¹² As is shown in the Appendix, the large difference between the cumulative increase in labor productivity and the decline in real compensation would have produced an even larger positive impact on the rate of profit, had it not been for a sizable increase over the period in the ratio of the consumer price index to the output price index, which eliminated much, although not all, of the benefit for the capitalists from the large productivity-compensation gap.

government out of the way, which should be reflected in lower real interest rates. However, the fall in I/W did not result from falling real interest rates. Real interest rates were substantially higher in 1996 than they had been in 1972, and even nominal interest rates were slightly higher in 1996 (see table 4). The reason for the slight fall in the interest-wage ratio, in the face of a slight rise in nominal interest rates (and a slight increase in nonfinancial corporate reliance on debt – see below), is not clear. It may have resulted from a more favorable spread between the interest rates on the debt and financial assets of the nonfinancial corporate sector (see Appendix).

2. The wage-tangible asset ratio, which increased by 6.7 percent, accounted for 17.1 percent of the rise in the rate of profit. This reflects the net outcome of two technological trends, one of which raised the real fixed capital per worker by 44.4 percent over the period, while the other brought a relative cheapening of fixed capital goods, raising the ratio of the wage to the price of fixed capital by 54.1 percent over the period (Appendix and Appendix table A-3).

3. A slight 2.5 percent rise in the tangible asset-net worth ratio, which reflects a slight increase in the reliance on debt to finance tangible assets, accounts for 6.4 percent of the rise in the rate of profit.

Among the eight factors listed in table 3, the one that had the largest positive impact on the rate of profit, Y/W , partly reflects neoliberal restructuring (the wage decline) and partly technological developments (the slow but positive productivity increase). The factor having the second largest positive impact, T/W , is a straightforward consequence of neoliberal restructuring. If we allocate half of the impact of rising Y/W to neoliberal restructuring, then combined with the effect of falling T/W , neoliberal restructuring would account for more than 100 percent of the rise in the rate of profit over the period. The other factors, which reflect technological developments (D/W , W/TA), financial developments (I/W , TA/NW), and other developments (line 4 of table 3) together are roughly a wash in their impact on the rate of profit. Neoliberal restructuring had the effect of raising the rate of profit over this long period by driving wages down and reducing taxes on capital – that is, by means of reducing the share of income going to workers and the public sector, an enlarged share was allotted to capital.

The long-term rise in the profit rate in the early to mid 1990s is a plausible factor to explain the investment boom that developed in the 1991-95. However, an examination of the components of business fixed investment shows the effect of a second factor propelling the investment boom: the IT revolution. Table 5 shows the movement of three kinds of investment that together make up business fixed investment: investment in information processing equipment and software (which will be called “IT equipment investment”, or ITI), investment in equipment other than information processing equipment and software (which will be called “non-IT equipment investment”, or NITI), and investment in structures. The boom in NITI did not start until 1993 (when it rose by 10.6 percent). The year 1993 was the first in which the profit rate surpassed the previous highs and a rapid upward profit rate trend became well established. Structure investment, which tends to lag in upswings, did not begin rising rapidly until Phase II (its growth first rose above 1 percent in 1995).

However, ITI rose at the very rapid rate of 14.2 percent in 1992, before an upward trend in the profit rate had become well established. Over the next three years it rose at the same 14.2 percent rate, apparently unaffected by the rapidly rising profit rate. It appears that something other than the long-term recovery in the rate of profit was sparking a huge boom in ITI right at the start of the decade. The obvious candidate is the IT revolution, which made available new

equipment each year that promised big cost savings and other benefits to business. A competitive dynamic may have caused business to fear that failure to continually upgrade with the latest IT equipment would spell their doom. ITI failed to slow down in the last phase of the expansion, despite a rapid decline in the profit rate in that phase.

During 1991-95 ITI was over 40 percent of total equipment investment in nominal terms, so the ITI boom had a large impact. Although ITI undoubtedly experienced very rapid growth throughout the 1990s, the peculiarities of the method used by the Bureau of Economic Analysis to compute the price index for ITI may overstate the growth rate of real ITI and increasingly so over time. The last line of Table 3 shows the rate of growth of ITI measured in current dollars. The pattern over time is very similar, but both the absolute rates of growth, and the acceleration over time, appear somewhat less stratospheric in current dollars.

Phases II and III

In Phase II economic growth accelerated, with the annual GDP growth rate rising from 3.1 percent to 4.0 percent (table 2). The driving force was a further increase in the growth rate of business fixed investment, which rose from 7.6 percent per year in Phase I to the historically very high rate of 11.1 percent per year in Phase II, as table 2 shows. In Phase II the growth rate of consumer spending remained essentially unchanged from Phase I, now becoming a retarding force on GDP growth. Residential investment growth slowed in Phase II, government spending growth remained slow, and imports continued to grow faster than exports.

Table 5 shows that NITI growth slowed somewhat in Phase II but remained at the relatively high annual rate of 6.6 percent. Investment in structures, which normally joins an investment boom late, leaped up to 8.1 percent per year growth. However, ITI jumped into the stratosphere in Phase II, if the data for real investment can be believed, rising at 20.0 percent per year. Even the current dollar data show ITI growth of 11.4 percent per year in Phase II.

In Phase III GDP growth accelerated slightly, to 4.2 percent per year (table 2). However, a new and surprising driving force emerged in this phase. Consumer spending, forsaking its traditional position as a relatively passive factor in business cycle expansions, suddenly began growing at 4.9 percent per year in Phase III. Consumer spending now became the chief force propelling GDP growth, in that it represents about two-thirds of GDP and it now was growing substantially faster than the GDP.¹³

The boom in business fixed investment continued in Phase III, growing at 10.2 percent per year, which combined with the consumer boom to drive the accelerating GDP growth. Residential investment picked up slightly as did government spending, although the latter remained slower than GDP growth. In this phase export growth dropped sharply, while import growth increased slightly, producing a rapidly growing deficit on exports of goods and services and working against the GDP growth.

Table 5 shows that the continuing boom in business investment in Phase III was now entirely in ITI, which accelerated slightly to 20.3 percent per year (12.8 percent in current dollars). The other components of business fixed investment, NITI and investment in structures,

¹³ The individual annual figures for growth in consumer spending were 3.2% in 1996, 3.6 percent in 1997, 4.8 percent in 1998, 5.0 percent in 1999, and 4.9 percent in 2000.

showed significantly slower growth, although NITI continued to grow faster than GDP.

Two puzzles about this expansion emerge from the above record. First, why did the investment boom last so long, despite a falling rate of profit and a declining rate of industrial capacity utilization? As Figure 1 shows, the rate of profit hit its peak in 1996, remained almost unchanged for one year, and then began a steep descent starting in 1998, although it was still at a relatively high level in 2000 (near the previous post-1960s profit rate peaks). As table 6 shows, the industrial capacity utilization rate hit a plateau in 1995, and after 1997 it declined.¹⁴

The second puzzle is the remarkable acceleration in consumption growth after 1997. Table 7 shows that consumer spending in Phase III grew much faster than households' disposable personal income. The personal saving rate fell to only 2.7 percent in Phase III. Saving actually became negative toward the end of 2000, a phenomenon that would be expected only in a severe depression, when sharply falling disposable income forces households to spend their past savings and/or borrow to cushion the fall in their spending, yet this time it was occurring during a rapid economic expansion.

The Stock Market Bubble

The explanation for the late-expansion consumer boom, and also a major part of the explanation for the long-lasting investment boom, is found in the speculative stock market bubble that developed in the US starting in 1995. Table 8 shows the speculative character of the runup in stock prices after 1994. Unlike the other tables, the data in table 8 start in 1990 rather than 1991, because both stock prices and corporate profits recovered early from the 1990-91 recession, and both began growing relatively rapidly in 1991 rather than 1992.

As table 8 shows, stock prices grew at the relatively rapid pace of 8.3 percent per year in 1990-94. However, this was close to the rate of growth of corporate profits of 8.8 percent per year during that period. Stock ownership confers the right to receive whatever dividends a corporation pays out of its profits, and the rational basis of stock prices (to the extent that one exists) should be the current and expected future dividend payouts of corporations. Since dividends have a relatively stable relationship to profits, "rational" stock prices should be heavily influenced by actual corporate profits, as well as the expected future course of corporate profits. The stock price appreciation of 1990-94 appears reasonably rational in light of corporate profit growth. Nominal GDP grew somewhat slower than corporate profits, which reflects the shift in income in favor of profits.

Starting in January of 1995, stock prices began rising rapidly.¹⁵ The great 1990s stock market boom had begun. As table 8 shows, stock prices rose at the phenomenal annual rate of 23.6 percent for the next five years. During that period corporate profit growth actually slowed down. The S&P 500 index hit its peak in August 2000 and then began a descent that lasted through September 2001, with some recovery thereafter.¹⁶ The growth in US stock prices during

¹⁴ Manufacturing capacity utilization reached its peak in 1994, but utility and mining capacity utilization continued to increase through 1997.

¹⁵ That same month the price-earnings ratio for the S&P 500 index, which had hovered around 20 for several years, began climbing rapidly.

¹⁶ By September 2001 the S&P 500 price index had fallen by 30 percent from its August 2000 high, while the price-earning ratio of S&P 500 shares had fallen by 37 percent from its previous high in December 1999 (from 44.20 to

1994-99 was driven by speculative factors – that is, by the belief that share prices would continue to rise rapidly and hence would provide large capital gains for shareholders. One can show that, if the share price increases of 1994-99 had been based on an investor assessment of future increases in corporate profits, that assessment implied that, within a relatively short period of time, corporate profits would grow to equal the entire GDP, given even an optimistic forecast of future GDP growth. Hence, the stock market boom can only be explained by speculative motives rather than any rational expected future profit growth.

The financial bubble of 1994-99 was massive in scale. The aggregate market value of the outstanding shares of US corporations rose from \$5.5 trillion in 1994 to \$17.1 trillion in 1999, an increase of \$11.6 trillion (Flow of Funds Accounts, 9/18/01, Table L.213, line 19). By comparison, the entire GDP was \$9.9 trillion in 2000. The price-earnings ratio for stocks in the S&P 500 rose from 19.9 at year-end 1994 to 44.2 at year-end 1999. If one takes a price-earnings ratio of 20 as a long-term normal ratio, then about \$9.4 trillion of the \$11.6 trillion rise in equity values during 1994-99, or 81 percent, may have represented a speculative increase.¹⁷

Markets in securities, like any market in non-produced assets, are subject to periodic speculative bubbles. A bubble begins when some initial conditions persuade a large number of potential investors that the market price of the asset will rise substantially in the near future. As those investors pour money into purchasing the asset, their purchases drive the asset price up, acting as a self-fulfilling prophesy. The large capital gains of the investors in the asset capture the attention of other potential investors, and so the process continues.

Non-produced assets differ from reproducible commodities, such as automobiles or wheat, in several ways that facilitate the emergence of a speculative bubble: 1) they have no cost of production to form a rational center of gravity for the market price; 2) there is no process that leads to an expansion in supply when prices rise;¹⁸ 3) the buyers and sellers are typically the same actors, and once the price starts rising, a large excess demand can quickly develop as practically the entire group wants to buy rather than sell. Once a bubble begins, paradoxically it is not irrational for individuals to join in and stay in. Even though many investors may conclude that the asset price is speculatively based and is in excess of any rational price, they will nevertheless continue to invest in the asset. The reason is that, as long as the bubble lasts, large profits can be made by such investments. Those who decline to participate, or who bail out, fail to obtain the large speculative gains, while those who stay in are enriched, confirming the wisdom of staying in.

There is a hypothetical limit to any speculative asset bubble, which would be reached when all of the investable funds in the world were invested in that asset. Of course, no bubble actually reaches that point. As the asset price gets more and more out of line with any rational value, some event eventually occurs which shifts the psychology and causes at least some significant fraction of investors to expect that the peak has been reached. That leads to net selling, which drives the price down, and the process that had driven the price up then goes into

27.67).

¹⁷ This estimate assumes that the increase in the price-earnings ratio for the S&P 500 during 1994-99 also applied to the entire equity value of US corporations over that period.

¹⁸ In fact, the number of available units of the asset can decrease during a bubble in security prices, because corporations may be motivated to buy and retire outstanding shares.

reverse. The decline can be even more rapid than the ascent, if debt-leveraged investors have to sell quickly to cover their debts.

Six factors contributed to the emergence of the massive speculative bubble of 1994-99. First, the rapid increase in the rate of profit in 1991-93, which, as we noted above, reached a level not seen since the 1960s, created a strong incentive to invest in US corporate securities. Second, the rise in the profit-wage ratio, and more generally the dramatic increase in income inequality, that had been going on since the late 1970s, placed a growing proportion of income in the hands of those at the upper reaches of US income pyramid. Those groups typically save the bulk of their income, and this process produced a growing volume of both institutional and personal investable funds seeking an outlet. Both of the first two factors derive ultimately from the neoliberal restructuring process, which set the stage for a speculative bubble, just as a decade of neoliberal restructuring did so in the 1920s.

Four additional factors spurred the bubble over time and prolonged its life. The third factor was the growing hype, first about the IT revolution, which had a real basis in the new information technologies, and later about the so-called New Economy, which caused many investors to believe that entirely new laws of economics and finance had taken hold in the US, repealing the old principle that what goes up must come down.

The fourth factor was that a string of severe economic crises outside the US in the 1990s caused a growing volume of foreign capital to flee to the US, and also caused US funds previously invested abroad to seek safety in the US. Specifically, the Asian financial crisis of 1997 caused what had been a huge inflow of funds into the rapidly growing East Asian economies to suddenly turn into an even more rapid outflow. The following year, the Russian financial crisis of 1998 created a general investor fear of so-called “emerging markets.” This one-two punch sent a large volume of funds flowing into the US, prolonging the bubble.¹⁹ Neoliberalism can claim a sort of back-handed credit for this factor, in that it was liberalization of the East Asian economies that bore the major responsibility for the Asian financial crisis (Crotty and Dymski, 1998; Wade, 1998), and it was 8 years of neoliberal restructuring that produced the Russian financial crisis (Kotz, 1999).

Fifth, the long time that had elapsed since the end of the last bear market in the US made it easier for stock market investors to believe that end of the bubble would never come. The widely followed, but narrow, Dow Jones Industrial Average declined over a seventeen-year period, from 1965-82. During that period, holding stocks was, in general, not a good investment compared to alternatives. However, since 1982 the general trend in US equities had been upward. The large and sudden market drop in 1987, followed by a quick recovery, was seen by many investors as demonstrating that drops in the stock market are a good time to buy. This psychology helped to reverse the occasional dips in stock prices that occurred during the bubble.

Sixth, the net issuance of equity securities by U.S. corporations became negative in 1994 and remained negative through 2000, ranging from nearly -\$50 billion in 1994 to over -\$250 billion in 1998 (Federal Reserve Flow of Funds Accounts). This resulted from repurchases by

¹⁹ Foreign purchases of U.S. securities other than Treasury securities rose from \$130.2 billion in 1996 to \$197.9 billion in 1997, an increase of 52 percent, while U.S. purchases of foreign securities fell by \$30.8 billion between 1996 and 1997, a decline of 21 percent (US Bureau of Economic Analysis, US International Transactions Accounts Data, Table 1, December 12, 2001).

corporations of their own shares and from acquisitions and mergers. Thus, the rising demand for corporate shares, due to the above five factors, was met with a declining supply of outstanding corporate shares.

Consumption and the Bubble

Table 7 shows that consumer spending grew out of proportion to the increase in disposable personal income during 1997-2000. The stock market bubble is a likely explanation for the consumer spending boom during Phase III. A stock bubble can increase household consumption in two ways. First, studies show that consumer spending, while primarily determined by household disposable income, is also affected by increases in household wealth. Standard estimates of this “wealth effect” on consumption are about 4 percent, which means that a wealth increase of \$100 increases consumption by about \$4 (Baker, 2001).

A second effect of the bubble on consumption may work through retirement pensions. Some retirement funds make pension payments that are linked to the value of the assets in the fund. The value of corporate equities held by private pension funds rose from \$1.0 trillion in 1994 to \$2.2 trillion in 1999 (Federal Reserve System, Flow of Funds Accounts, Table L.213, September 18, 2001). As the bubble caused pension fund assets, and hence the expected future pension payments, to increase rapidly, many people may have concluded that saving out of their disposable income was unnecessary.

The size of the household wealth effect from corporate equity appreciation can be estimated from data available from the Federal Reserve. The value of corporate equities held by households rose from \$3.097 trillion at year-end 1994 to \$9.285 trillion at year-end 1999 (Federal Reserve System, Flow of Funds Accounts, Table L.213, September 18, 2001). Based on the estimated four percent wealth effect, the additional consumer spending during Phase III due to the wealth effect added 1.0 percentage points to the annual growth rate of consumption during Phase III. That is, without the wealth effect, consumer spending would have grown at 3.9 percent per year rather than its actual rate of 4.9 percent per year.²⁰ During Phase III disposable personal income grew at 3.8 percent per year (Table 7), which suggests that the wealth effect of the stock market bubble may have been great enough to account for nearly all of the consumption boom that propelled and prolonged the expansion during Phase III.

The effect of rising equity wealth on consumer spending operates through rising household borrowing. Rather than selling their rapidly appreciating assets, households borrow against them to finance consumer spending. Table 9 shows household liabilities as a percentage of disposable personal income for the three phases of the 1990s expansion. It rose from 80.3 percent in Phase I to 84.7 percent in Phase II and 89.6 percent in Phase III. However, household debt did not rise over the expansion as a percentage of total household assets – it was 13.7 percent in 1992 and 13.4 percent in 2000 – which shows that rising household wealth, propelled upward by the stock market bubble, created the paper wealth against which households could borrow to finance their spending spree (Federal Reserve, Flow of Funds Account, Table B.100).

It is likely that the consumer spending boom of Phase III had an additional cause. The stock market bubble, together with the New Economy hype that grew up with it, created an

²⁰ It was assumed for this calculation that a wealth increase during the calendar year would affect consumer spending in the following year.

atmosphere of great optimism about the future of the economy. Although it is difficult to measure, this may have encouraged borrowing and spending on the part of the population that did not directly benefit from the stock market bubble.

Investment and the Bubble

The investment boom of Phases II and III lasted so long, and was so powerful, for several reasons. First, there was an IT revolution going on throughout the 1990s, which explains at least part of the rapid growth of one component of business fixed investment, investment in information processing equipment and software. However, it is likely that even ITI growth was affected by other factors than simply the IT revolution.

The speculative bubble encouraged investment growth, in two ways. First, the continuing rise in corporate stock values tended to promote an exaggerated view of the prospects of future profitability. Many articles and books were written claiming to prove that the rapidly ascending stock prices simply heralded unprecedented increases in future corporate profits. To the extent that corporate decision-makers believed this, it would have promoted a rising level of real investment, to expand capacity and cash in those future profits. Secondly, the stock market bubble facilitated the raising of funds cheaply for investment. Some sectors of the economy used equity financing for corporate expansion, which was very cheap as a result of the high stock prices.²¹ The bubble also encouraged a large flow of debt capital into the corporate sector.

During 1995-2000 there was a huge inflow of foreign capital into the US. It was partly propelled by the Asian and Russian financial crises discussed above, but it also was drawn by the accelerating growth in the US economy and the rising bubble on the stock market.²² During 1998-2000 the gross capital inflow averaged \$780.8 billion per year, which was equal to 66 percent of business fixed investment and 8.9 percent of GDP (Bureau of Economic Analysis, U.S. International Transactions Accounts Data, Table 1, December 12, 2001).²³ This capital inflow directly and indirectly helped to finance the investment boom in Phase III. Among the indirect effects was that the capital inflow enabled the Federal Reserve to pursue a low interest rate policy without fear of driving the value of the dollar down.

Finally, the consumption boom of Phase III stimulated business investment. Normally consumption spending passively follows disposable income, but, as we have seen, this was not the case in Phase III. The “exogenous” increase in consumer spending due to the speculative bubble created a rising demand for consumer goods that gave business a good reason to increase productive capacity through investment spending (the “accelerator” effect).

Why Inflation Remained Low

As accelerating growth drove the unemployment below five percent in 1997, there was concern, based on past experience, that inflation might take off. Contrary to this expectation,

²¹ However, net equity issuance by corporations was negative after 1994, as was noted above.

²² The inflow of capital was both a contributing cause of the bubble, and also a result of the bubble. It is part of the nature of a speculative bubble that all the sources of investment that propel it are also drawn to it by the previous bubble growth.

²³ The average net capital inflow in 1998-2000 was \$321.6 billion per year.

inflation remained subdued throughout the expansion. Table 10 shows the annual inflation and unemployment rates during 1991-2000. As the unemployment rate steadily declined during 1991-98, neither inflation index rose, actually ending lower in 1998 than it had been in 1992. In the last two years of the expansion, inflation did finally begin to increase, suggesting that the low unemployment rate during 1999-2000 did finally begin to stir some inflation. However, this increase in inflation began from a very low base, so that by the peak of the expansion it was still quite low by historical standards.

It was slumbering inflation despite low unemployment that, perhaps more than any other factor besides the stock market boom, led some analysts to proclaim that a New Economy had arisen, immune to the old trade-offs and limits. The continuing low inflation rate was credited with getting the Fed to maintain a relatively expansionary monetary stance, allowing the expansion to continue for so long. Neoliberal advocates pointed to the vigorous investment and rapid technological progress supposedly unleashed by the neoliberal restructuring as the reason why inflation remained subdued.

The way in which high investment and rapid technological progress can head off inflation is by bringing rapid labor productivity growth. With rapid growth in labor productivity, the rising real wages that normally accompany a low unemployment rate need not raise unit labor costs. This relationship can be expressed as follows:

$$LC/Q = (LC/LH)/(Q/LH) \quad (3)$$

where LC is labor cost, Q is output, LH is labor hours worked. The ratio LC/LH is the wage per hour while Q/LH is output per labor hour. From equation (3), if output per labor hour rises faster than the wage, then labor cost per unit output falls, which averts upward cost pressure on prices.

As we have seen, the high investment, and the rapid technological progress in IT, did not show up very strongly in the data on labor productivity (table 1). Even in the second half of the 1990s, labor productivity growth, while faster than during the period 1974-95, was still well below its rate in the 1960s and early 1970s. Table 11 shows the growth in labor productivity and the real wage during the 1990s expansion, for the private sector of the economy. Comparing columns one and two, there was indeed a significant gap between labor productivity growth and real wage growth in the 1990s. The gap between the two fell from 1.8 percentage points in Phase I to 1.2 percentage points in Phases II and III.

Given the modest rate of labor productivity growth by historical standards, the gap resulted not from impressive technological progress but from employers' ability to keep wages from growing very rapidly even when unemployment fell below 5 percent. This suggests that neoliberal restructuring contributed to low inflation despite low unemployment, not because of high investment and technological progress, but because of the sharp reduction in workers' bargaining power that resulted from that restructuring.

There is a technical problem in comparing the real wage to labor productivity, in that the "output" in output per labor hour is converted from current dollar output to constant dollar output using a price index for the output of the private sector, whereas nominal wages are converted to real wages using a different price index, the consumer price index. For equation (3) above, the "real" wage should be calculated, not based on the consumer price index, but based on the same price index used for output. This form of real wage is called the product wage. While the product wage does not measure the buying power of the wage from the workers' point of view, it is the

appropriate measure of the “real” cost to business of paying wages. Column 4 of Table 11 gives the growth rate of the product wage. The product wage grew faster than the real wage in the 1990s. However, it still grew more slowly than labor productivity, although in Phase III the gap practically disappeared. This reflects the fact that output prices rose more slowly than the consumer price index, which reduced the benefit to employers from their successful effort to limit wage increases. However, this does not change the conclusion that neoliberal restructuring contributed to limiting inflationary pressure by reducing workers’ bargaining power at any given unemployment rate, not by bringing a historically high rate of labor productivity growth.

Another feature of the 1990s expansion contributed to a low inflation rate. The peak industrial capacity utilization rate in the 1990s of 83.5 percent was the lowest of any of the past six expansions, except for the 1-year expansion in 1980-81 (see Table 12). Furthermore, the peak industrial capacity utilization rate in the 1990s was reached three years before the end of expansion, unlike in the other expansions, for which the peak rate was reached in the last or next-to-last expansion year. The low and declining capacity utilization rate during the low unemployment phase in the last three years of the expansion acted as an anti-inflation factor, since firms find it difficult to raise prices in the face of significant, and rising, excess productive capacity. While this anti-inflation factor can be considered a result of the strength of the investment boom of the 1990s, it is not a healthy characteristic of an expansion, as will be argued in the last section below.

Two international factors contributed to the low US inflation rate in the later part of the 1990s, which fall into the category of “good fortune” factors. First, much of the rest of the world economy was relatively depressed in the second half of the 1990s. This made it possible for the rapidly growing US economy to pull in consumer and producer goods in the form of imports from abroad without putting upward pressure on import prices, since relatively depressed foreign economies could readily supply the growing US demand. Had the rest of the world been more prosperous in this period, the flood of imports into the US in the late 1990s (table 1) would have been likely to come at the cost of rapidly rising import prices, which would have tended to raise the US inflation rate.

Secondly, despite the growing US current account deficit in the second half of the 1990s, the international value of the dollar steadily rose rather than falling. The foreign exchange value of the dollar rose by 31 percent from 1995 to the third quarter of 2000.²⁴ This resulted from the large, voluntary capital inflow into the US, for the reasons discussed above. A rising international value of the dollar reduces import prices, which both directly lowers the inflation rate (since imports prices make up part of the price indexes) and also puts competitive pressure on US producers that makes it difficult for them to raise prices.

A Neoliberal Success Story?

Advocates of neoliberal restructuring claim that the US economy in the second half of the 1990s finally provided convincing evidence of the effectiveness of the neoliberal model. It is claimed that liberalization, privatization, and reductions in public spending, by getting the government out of the way, freeing up saving for investment, and letting the free market rule, produced an era of unprecedented prosperity in the U.S. By stimulating investment and

²⁴ The figure cited is for the trade-weighted average of a broad group of U.S. trading partners’ currencies (*Economic Report of the President*, 2001, p. 400).

innovation, this new model unleashed a rapid, stable growth process that benefitted all segments of society.

The evidence does not support this interpretation of the US expansion of the 1990s. Neoliberal restructuring did contribute to an expansion that lasted very long and yielded low unemployment without much inflation. The second half of the expansion did bring growth rates of output and productivity that were better than recent experience, although they were far below the performance of the 1960s and 70s, in the era of big government. Most importantly, the channels through which neoliberal restructuring contributed to a long, low-inflation, moderately high-growth expansion were not the channels claimed by neoliberal advocates, nor were they socially healthy means of spurring economic growth.

Cuts in taxation of business and attacks on workers' living standards raised the long-term rate of profit in the early 1990s. The rising rate of profit, together with an IT revolution which had no obvious relation to the neoliberal restructuring, set off a modest investment boom that launched the expansion. The huge and growing inequality produced by the neoliberal model soon spawned a speculative bubble, which, along with various accidental factors discussed above, led to a prolonged investment boom and eventually a consumption boom as well. The long lasting bubble brought a long expansion. The low inflation rate resulted primarily from the successful attack on workers' bargaining power. The very slow growth of real wages may be beneficial for capital, but it does not fit the neoliberal picture of a rising tide that lifts all boats.

The expansion was inherently unsustainable. Every speculative bubble must eventually burst. When the bubble began to contract in the summer of 2000, investment began to fall shortly afterward. In the quarter immediately following the end of stock bubble – the 4th quarter of 2000 – the growth rate of real business fixed investment fell to a 1.0 percent annual rate, from 7.1 percent in the preceding quarter. In the first three quarters of 2001, business fixed investment fell by 0.2 percent, 14.6 percent, and 9.3 percent (on an annual basis) respectively. It appears likely that, as consumer spending returns to a normal relation to disposable income due to the deflation of the bubble, consumer spending will eventually begin to decline as well. By the 3rd quarter of 2001, consumer spending had fallen to a 1.1 percent annual rate of growth.²⁵

While predicting the course of a recession is a hazardous business, several features of the 1990s expansion suggest that the recession that officially started in March 2001 may be relatively severe and/or long-lasting. The very long investment boom may have created substantial excess productive capacity in the economy. If this is the case, then it may be some time before a strong incentive to invest re-emerges.

There is no reliable way to measure excess productive capacity. The published capacity utilization rate data cover only the industrial sector, which includes manufacturing, mining, and utilities. As was noted above, these data show that the peak capacity utilization rate of the 1990s expansion was lower than that of other recent expansions (Table 12) and also that the capacity utilization rate peak came significantly earlier in this expansion than in other recent expansions. That this variable essentially hit a plateau in 1995 and soon thereafter trended downward suggests that, at least for the industrial sector of the economy, investment was creating more productive capacity than was needed to satisfy the growth in demand for the last five years of the

²⁵ The data cited in this paragraph are from Bureau of Economic Analysis, National Income and Product Accounts, Table 1.2, November 30, 2001.

expansion. Table 13 shows that business fixed investment as a percentage of GDP in 2000 was substantially greater than in the last year of other recent expansions using constant dollar measures, and somewhat greater using current dollar measures. The effect of the rapid decline in investment that took hold in the second quarter of 2001 on the economy as a whole will be magnified by the large share of investment in GDP.

Any actual overcapacity in the economy will depend on the course of future aggregate demand, which, of course, cannot be known in advance. However, the consumer boom of 1997-2000 is one more factor that suggests that substantial overcapacity may afflict the economy in the near future. Table 14 shows the shares of consumer spending and business fixed investment at the start and the end of the 1990s expansion. Consumer spending as a percentage of GDP rose by 0.9 percentage points in constant dollars measure and by 1.9 percentage points if measured in current dollars. The consumer boom presumably stimulated a significant amount of investment in productive capacity to satisfy this demand. As the end of the bubble reduces consumer spending relative to disposable income, much of the late-expansion investment may turn out to be surplus.²⁶

Business fixed investment rose even faster as a percentage of GDP, by 5.5 percentage points in constant dollars and by 2.9 percentage points in current dollars. It is common to think of the shares of consumption and investment as moving in opposite directions, but that need not be the case, since there are other components of GDP, whose shares can decline. Consumption and business fixed investment moved up together in the 1990s as the share of government fell and the absolute value of net exports (which was negative) as a percentage of GDP grew sharply. That is, consumption and investment shares could rise together because the government got out of the way and foreign producers satisfied a growing share of US demand. If neoliberal priorities continue to hold sway, then if consumption joins investment in declining, there will be nothing to stop that joint decline from inducing a large drop in GDP.

Another feature of the 1990s expansion holds a threat for the immediate future – the low inflation rate of the end of the expansion. A shift from expansion to recession typically brings a decline in the inflation rate. Since the inflation rate was so low at the end of the 1990s expansion, there is a danger that deflation will occur, particularly if the recession is relatively severe. Deflation can have devastating effects on the economy, as households and firms postpone purchases to await lower prices and the rising real value of debts forces debtors into bankruptcy. The Japanese stagnation of the past decade provides a lesson in the harmful effects of deflation.

Another successful project of the neoliberal agenda was the building of a globally integrated world economy. As the real and financial sectors of the nations of the world became increasingly linked in the 1990s, the tendency of this linked network to rapidly transmit either upward or downward impulses grew. As a result, the world economy appears to be entering the first global recession since the oil price shock of 1973. If, as it now appears likely, all of the major world economies contract together, the contraction will be magnified, since export demand will fall along with internal demand in each country.

The problem of a neoliberal expansion is related to the underconsumption crisis tendency

²⁶ The industrial capacity utilization rate has declined steadily since August of 2000, going from 82.6 percent in the latter month to 76.2 percent in August 2001, a level not seen since the deep recession of the early 1980s (*Economic Report of the President*, 2001, p. 337; *Federal Reserve Statistical Release*, September 14, 2001, Table 5-A, p. 12).

of Marxian theory, which poses the question, “How can the economy expand if the share of profit rises and the share of wages falls? Where will the demand come from?” Indeed, many Keynesians were doubtful that the economy could expand, if the profit share rose, the wage share fell, and the government share fell all at once. The 1990s expansion shows – as did the neoliberal 1920s expansion – that there is an answer to this question. An expansion can take place with a rising share of profit, a falling share of wages, and even a falling share of government to boot, with the growing demand coming from growing investment. It may take a speculative bubble to achieve this outcome, and the shifting shares of profits and wages help to create the conditions for a speculative bubble. The 1990s added a twist, that consumption, by upper end households with investments in the equities market, can help to supply the needed demand growth. However, such a process produces a very imbalanced expansion, which can only continue as long as the bubble lasts, and which has a tendency to create severe overcapacity that emerges once the bubble bursts.

Based on our analysis of the 1990s expansion and its end, the obvious policy move needed to head off a serious recession would be increased public spending. The emergence of serious overcapacity, and a severe or long-lasting recession, could, in principle, be headed off by the government undertaking a large increase in public spending. With huge unmet social needs in such areas as education, health care, environmental protection, and mass transportation, it would not be difficult to find economically and socially valuable forms of increased public spending. In a ten trillion dollar economy, an increase in public spending on the order of magnitude of \$200 billion to \$500 billion might be needed (that is, 2 to 5 percent of GDP). However, the continuing influence of neoliberal ideas makes such a program unlikely to be adopted at this point.

Appendix: Analysis of the Increase in the Rate of Profit, 1972-1996

Two basic equations are used to analyze the change in the rate of profit from 1972 to 1996, equations 1 and 2 from the text of this paper:

$$r = P/NW = (P/W)(W/TA)(TA/NW) \quad (A-1)$$

$$P/W = Y/W - D/W - T/W - I/W - 1 \quad (A-2)$$

The variables are defined as follows:

- r = after-tax profits divided by net worth (at the end of the preceding year)
- P = corporate profits with inventory valuation and capital consumption adjustments
- W = employee compensation (wages and salaries plus fringe benefits)
- TA = tangible assets at replacement cost
- NW = net worth at replacement cost
- Y = gross product
- D = consumption of fixed capital
- T = indirect business taxes plus corporate profits tax liability
- I = net interest (interest paid less interest received)

As is noted in the text of this paper, the variable P/W is similar to the Marxian rate of surplus value, W/TA is similar to the (reciprocal of the) Marxian organic composition of capital, and TA/NW reflects the reliance on net debt to finance tangible assets.

Due to problems of data availability, the variables r, TA, and NW are for the nonfarm nonfinancial corporate business sector, while the remaining variables are for the whole nonfinancial corporate business sector (including corporate farms.)²⁷ The data used to analyze the change in the rate of profit are all from the National Income and Product Accounts, from the Bureau of Economic Analysis website (www.bea.gov); from the Bureau of Labor Statistics website (www.bls.gov); or from the Federal Reserve's Flow of Funds Accounts. The data were all downloaded in August through December 2001.

Table A-1 shows the variables in equation 1 for 1972 and 1996. Comparing the high profit rate peak of 1996 to the cyclical peak in 1972, P/W rose by 26.9 percent, W/TA rose by 6.7 percent, and TA/NW rose slightly by 2.5 percent. Since the rate of profit rose by 39.1 percent over the period, we can obtain the direct contribution of the rise in each of the three right-side variables to the rise in the rate of profit by dividing the percentage rise in the right-side variable by the percentage rise in the rate of profit. These contributions are shown in column 4 of table A-1 (and in table 3). The rise in P/W accounted for 68.8 percent, the rise in W/TA for 17.1 percent, and the rise in TA/NW for 6.4 percent of the rise in the rate of profit over the period. The sum of the contributions is less than 100 percent because the interaction terms (products of the changes in right-side variables) also contribute to the increase in the rate of profit.

It should be noted that the kind of analysis carried out here is not exactly an analysis of

²⁷ The output of agriculture, forestry, and fisheries (a large part of which is from non-corporate businesses) was only 4 percent of the nonfinancial private sector gross product in 1969 and fell to 2 percent by 1999 (*Economic Report of the President*, 2001, p. 290). Hence, the error in the equations resulting from this data inconsistency should be small.

the causes of the rise in the rate of profit. The equations are identities, and one cannot infer causal relations from an identity. The analysis being performed is a kind of accounting. The meaning of a statement such as “the rise in P/W accounted for 68.8 percent of the rise in the rate of profit” over the period is the following: Let r^* be the rate of profit that would have prevailed if P/W had remained constant over the period while the other two right-side variables had changed as they actually did. Then the actual r in 1996, with P/W rising as it actually did, is greater than r^* by 68.8 percent of the actual rise in r from 1972 to 1996. In our view, this kind of analysis provides insight into factors that underlie the rise in the rate of profit. However, a full causal analysis would require determining the causal interactions among all of the relevant variables, which has not been attempted here.

Equation 2 expresses the profit-wage ratio as the sum/difference of several underlying variables. Given the additive character of equation (2), assessing the relative contributions of the right-side variables to the increase in P/W from 1972-96 requires, not a look at the percentage increase in each term, but a determination of what share of the absolute increase in P/W was accounted for by changes in each of the terms on the right side of the equation.

Table A-2 presents this analysis. The variables with a minus sign in front are those that, by increasing, reduce P/W rather than increasing it. Column 4 of table A-2 shows how much of the rise in P/W is accounted for by the rise in each of the right-side variables in equation 2. Note that the change in one of the right-side variables, D/W, tended to reduce P/W. Hence, although the sum of the percentages in column 4 adds to 100, the sum of the three right-side variables that tended to raise P/W adds to more than 100 percent. Furthermore, individual right-side variables can account for more than 100 percent of the change in P/W, since one variable tended to reduce P/W.

To calculate the how much of the rise in the rate of profit is accounted for by each of the right-side variables in equation 2, one multiplies the percentage in column 4 of table A-2 for that variable by 68.8 percent (the contribution of P/W to the rise in r). For example, the contribution of the increase in Y/W to the increase in r is the contribution of the increase in Y/W to the increase in P/W times the contribution of the increase in P/W to the increase in r . These results are shown in column 5 of table A-2 (and in table 3).

The increase in one of the right-side variables, Y/W, accounted for more than 100 percent of the increase in the rate of profit. This means that, had the other right-side variables in equation 2, and also the other two right-side variables in equation 1, remained constant over the period, the rate of profit would have risen by somewhat more than it actually did. Similarly, the finding that D/W contributed -102.5 percent of the increase in r , means that, if D/W had been acting alone, the rate of profit would have fallen by an amount slightly larger than its actual rise over the period.

The ratio D/W is equal to D/TA times TA/W. Since table A-1 shows that W/TA rose by 6.7 percent, we know that TA/W fell by 6.3 percent. Thus, the rise in D/W was a result of the rise in D/TA, which went from 4.8 percent to 6.8 percent, an increase of 42 percent. This means that the average lifetime of tangible assets fell from 20.8 years to 14.7 years. This probably reflects such developments as 1) the shift toward a higher proportion of equipment relative to structures in the fixed capital stock, and 2) a faster technological obsolescence of parts of the fixed capital stock. The shorter lifetime of fixed capital goods lowers the rate of profit because of

the increased annual expenditure required for replacing the capital stock.²⁸

The contribution of the change in I/W remains a puzzle, and more work is required to figure out how to interpret it. Table A-2 shows that I/W fell slightly, from 4.3 percent to 4.1 percent. The variable I/W can be expressed as follows:

$$I/W = (I/NL)(NL/TA)(TA/W) \quad (A-3)$$

where NL is net leverage, which is liabilities minus financial assets of the sector (which is equal to TA minus NW -- see footnote 8 above). Our data show that I/NL fell by 12.9 percent, NL/TA rose by 16.0 percent, and TA/W fell by 6.3 percent. The rise in NL/TA, which indicates increasing reliance on external debt to finance TA, tended to increase I/W. The fall in TA/W contributed to the fall in I/W. However, the major source of the fall in I/W appears to be the 12.9 percent decline in I/NL, which is a sort of interest rate on net liabilities. However, as noted in the text of the paper, both real and nominal interest rates were higher in 1996 than in 1972. We have not yet figured out why I/NL fell despite rising nominal interest rates. I/NL is a function of several variables including the average interest rate paid on liabilities, the average interest rate received on financial assets, the share of financial assets that are interest-earning assets, and the relative sizes of liabilities, interest-earning financial assets, and other financial assets. It may be that the fall in I/NL stems from a change in the spread between the interest rate paid and the interest rate received by nonfinancial corporations over the period, although there are other possibilities. The author plans to gather the additional data needed to get to the bottom of this.

Our understanding of some of the underlying factors can be increased by considering the movement of the real, or constant dollar, magnitudes. We can express the nominal variable ratios in equations A-1 and A-2 as the product of real variable ratios and price index ratios as follows:

$$P/W = (P_R/W_R)(P_K/P_C) \quad (A-4)$$

$$Y/W = [(P_Y)(Y_R)]/(wN) = (Y_R/N)/[(w/P_C)(P_C/P_Y)] \quad (A-5)$$

$$W/TA = [(w)(N)]/[(P_K)(TA_R)] = (w/P_K)/(TA_R/N) \quad (A-6)$$

The new variables in the above three equations are the following:

P_R = profit in constant dollars (real profits)²⁹

W_R = compensation in constant dollars (real wages)

P_K = implicit price deflator for business fixed investment

P_C = consumer price index

P_Y = implicit price deflator for gross product of the nonfinancial corporate business

sector

²⁸ The data on capital consumption may be inaccurate because tax considerations may play a role in determining the rates that are reported. Thus, it is possible that part of the apparent shortening of the life of fixed capital over the period may be a phantom produced by the tax accountants.

²⁹ There is no ideal price index available for corporate profits. We have used the price index for business fixed investment, on the grounds that fixed investment is a major use of after-tax corporate profits. However, part of after-tax profits is paid out in dividends and part is invested in financial assets. These uses of corporate profits vary over time, and the ideal price index would have to be a specially constructed one that tracked the changing uses of corporate profits.

Y_R = gross product of the nonfinancial corporate business sector in constant dollars

w = average total compensation per full-time equivalent worker

N = number of full-time equivalent workers in the nonfinancial corporate business sector

TA_R = tangible assets in constant dollars.

Table A-3 presents the data for the variables in equations A-4, A-5, and A-6. The ratio P_R/W_R , which is the ratio of real profits to real compensation, rose by much more than the nominal ratio P/W . The former rose by 100.4 percent while the latter rose by 26.9 percent (from table A-1). However, the capital goods price index fell substantially relative to the consumer price index during 1972-96, which reduced the rise in the nominal P/W ratio. If these price indexes are reliable, this means that real profit-wage ratio doubled, which would have produced a much larger increase in the rate of profit than what was observed, had it not been for an adverse movement in P_K/P_C over the period (from the viewpoint of the capitalists). However, the price index for capital goods, as recently revised, has been the subject of much debate, and criticism, with critics arguing that it greatly overstates the relative fall in prices in that sector. Hence, we should take the figure for the rise in the “real” profit-wage ratio with a grain of salt.

Lines 3-5 of Table A-3 shed some light on the (large) rise in Y/W during 1972-96. Real output per worker rose at the slow rate of only 1.3 percent per year, but over the 24 years that produced an increase in real output per worker of 36.4 percent. During that same period, real compensation per worker fell by 2.5 percent. The increase in the nominal ratio Y/W would have been even greater, had it not been for an unfavorable (for capital) shift in the price index ratio, P_C/P_Y , which rose by 35.5 percent. This “deprived” profits of most, although not all, of the “benefit” of the huge gap between rising productivity and a falling real wage.

Lines 6 and 7 of table A-3 are relevant to interpreting the rise in the nominal ratio W/TA . One can interpret TA_R/N , the “real” tangible assets per worker, as similar to the “real” organic composition of capital, while w/P_K is the ratio of the price of hiring labor to the price of fixed capital goods. Table A-3 shows that the “real” organic composition of capital rose substantially over the period, by 44.4 percent, but this was outweighed by a 54.1 percent rise in the ratio of the price of labor to the price of fixed capital goods, which reflects the slow rise in the price of capital goods. Starting in 1982 P_K practically stopped rising, increasing at the rate of only 0.8 percent per year during 1982-96 (it began to decline after 1995). Thus, it appears that a technological trend of rising fixed capital per worker in real terms was more than offset by another (probably technological) trend – the relative cheapening of capital goods compared to labor-power. The balance between those two trends produced a boost to the rate of profit.³⁰

³⁰ Once again, this analysis depends on the reliability of the much-criticized price index for fixed capital.

Table 1. Business Cycle Expansions in the U.S.

Years of Business Cycle Expansion	Real Gross Domestic Product, Annual Growth Rate ¹	Output per Hour Worked, Annual Growth Rate ²	Last-Year Unemployment Rate ³	Last-Year Inflation Rate ⁴
1961-69	4.9%	3.0%	3.5%	5.5%
1970-73	4.8%	3.6%	4.9%	6.2%
1975-79	4.7%	1.5%	5.8%	11.3%
1980-81	2.5%	1.3%	7.1%	10.3%
1982-90	4.0%	1.8%	5.3%	5.4%
1991-2000	3.7%	2.1%	4.0%	3.5%
1991-95	3.1%	1.6%		
1995-2000	4.1%	2.5%		

1. Average annual growth rate in GDP in chained 1996 dollars.
2. Average annual increase in output per hour in the nonfarm business sector.
3. Civilian unemployment rate in last year of expansion.
4. Percentage increase in the Consumer Price Index in last year of expansion.

Source: US Bureau of Economic Analysis, National Income and Product Accounts, August 29 and November 30, 2001; US Bureau of Labor Statistics, Major Sector Productivity and Costs Index, Series ID PRS85006093, September 27, 2001; US Bureau of Labor Statistics, Consumer Price Index, Series ID CWUR0000SA0, December 15, 2001.

Table 2. Growth Rates of Components of US Gross Domestic Product¹

(Average annual percentage rate of increase, unless otherwise noted)

	1991-95	1995-97	1997-2000
(1) Gross Domestic Product	3.1	4.0	4.2
(2) Consumption	3.2	3.4	4.9
(3) Business fixed investment	7.6	11.1	10.2
(4) Residential investment	7.2	4.7	5.1
(5) Government purchases	0.1	1.7	2.6
(6) Exports of goods and services	7.1	10.2	4.9
(7) Imports of goods and services	8.9	11.1	11.9
(8) Net exports as a percentage of GDP (average) ²	-0.7%	-1.2%	-3.0%
(9) Output per hour ³	1.6	2.3	2.6

1. Growth rates are calculated from GDP and its components in chained 1996 dollars.

2. Row 8 is an average over the period, not an annual percentage rate of growth.

3. Output per hour of the nonfarm business sector.

Source: US Bureau of Economic Analysis, National Income and Product Accounts, Table 1.2, August 29, 2001; US Bureau of Labor Statistics, Major Sector Productivity and Costs Index, Series ID PRS85006092, September 27, 2001.

Table 3. Accounting for the Increase in the Rate of Profit from 1972 to 1996

Variable	Percentage of Increase in Rate of Profit from 1972-96 Accounted for by Variable
1. P/W	68.8%
1A. Y/W	116.3%
1B. D/W	-102.5%
1C. T/W	50.0%
1D. I/W	5.6%
2. W/TA	17.1 %
3. TA/NW	6.4%
4. Other ^a	7.7%

a. "Other" includes effects of interaction terms from equation 1.

Variable Definitions:

P = corporate profits with inventory valuation and capital consumption adjustments

W = employee compensation (wages and salaries plus fringe benefits)

TA = tangible assets at replacement cost

NW = net worth at replacement cost

Y = gross product

D = consumption of fixed capital

T = indirect business taxes plus corporate profits tax liability

I = net interest (interest paid less interest received)

Notes:

1. All variables are in current dollars.

2. The sum of 1A through 1D does not exactly equal 68.8% because of rounding errors.

Source: See Appendix.

Table 4. Interest Rates, 1972 and 1996

	1972	1996
Nominal Interest Rate ¹	7.21%	7.37%
Inflation Rate ²	4.26%	1.94%
Real Interest Rate ³	2.95%	5.43%

1. Rate on AAA corporate bonds.
2. Rate of increase in GDP implicit price deflator.
3. Line 1 minus line 2.

Source: *Economic Report of the President*, 2001, pp. 278, 360.

Table 5. Rate of Growth in the Components of Business Fixed Investment¹
(Annual average percentage rate of increase)

	1991-92	1992-95	1995-97	1997-2000
(1) Information processing equipment	14.2	14.2	20.0	20.3
(2) Equipment other than information processing	3.8	9.9	6.6	4.9
(3) Structures	-6.1	2.1	8.1	3.6
(4) All business fixed investment	3.4	9.0	11.1	10.2
(5) Information processing equipment in current dollars	8.9	9.9	11.4	12.8

1. All growth rates are calculated in chained 1996 dollars, except for row (5) which is calculated in current dollars.

Source: US Bureau of Economic Analysis, National Income and Product Accounts, Tables 5.4 and 5.5, August 29, 2001.

Table 6. Industrial Capacity Utilization Rate
(percentage)

Year	Industrial Capacity Utilization Rate
1991	79.3
1992	80.2
1993	81.3
1994	83.1
1995	83.3
1996	82.6
1997	83.5
1998	82.1
1999	81.2
2000	82.1

Source: *Federal Reserve Statistical Release*, September 14, 2001, Table 5-A, p. 12.

Table 7. Consumption, Disposable Income, and Saving
(average annual percentage growth rates, unless otherwise noted)

Period	(1) Consumption	(2) Disposable Personal Income	(3) Personal Saving Rate¹
1991-95	3.2	2.4	6.9%
1995-97	3.4	2.8	4.5%
1997-2000	4.9	3.8	2.7%

1. Average ratio of personal saving to disposable personal income over the period, expressed as a percentage.

Sources: US Bureau of Economic Analysis, National Income and Product Accounts, Table 1.2 and Table 2.1, August 29, 2001.

Table 8. Stock Prices, Corporate Profits, and GDP
(annual average percentage rate of growth)

Period	(1) Common Stock Prices¹	(2) Corporate Profits	(3) GDP
1990-94	8.3	8.8	5.0
1994-99	23.6	8.4	5.6
1999-2000	8.1	6.2	6.5

Note: Growth rates are calculated from variables in current dollars, not constant dollars.

1. Standard and Poor's Composite Index.

Source: *Economic Report of the President*, 2001, Table B-95, p. 384; US Bureau of Economic Analysis, National Income and Product Accounts, August 29, 2001.

Table 9. Household Debt
(average over period)

Period	Household Liabilities as a Percentage of Disposable Personal Income¹
1992-95	80.3%
1996-97	84.7%
1998-2000	89.6%

1. Household liabilities equal mortgage debt plus consumer credit.

Source: U.S. Federal Reserve, Flow of Funds Accounts, Table B100.

Table 10. Inflation and Unemployment

Year	Inflation, GDP Implicit Price Deflator (Percentage Increase from Previous Year)	Inflation, Consumer Price Index (Percentage Increase from Previous Year)	Civilian Unemployment Rate (Percent)
1992	2.4	2.9	7.5
1993	2.4	2.8	7.9
1994	2.1	2.5	6.1
1995	2.2	2.9	5.6
1996	1.9	2.9	5.4
1997	2.0	2.3	4.9
1998	1.2	1.3	4.5
1999	1.4	2.2	4.2
2000	2.3	3.5	4.0

Source: U.S. Bureau of Economic Analysis, National Income and Product Accounts, November 30, 2001; U.S. Bureau of Labor Statistics website, November 29 and December 15, 2001.

Table 11. Productivity and Wage Growth

Period	(1) Output per Labor Hour¹	(2) Real Wage²	(3) Column 2 Minus Column 1	(4) Product Wage³	(5) Column 4 Minus Column 1
1991-95	1.6%	-0.2%	1.8%	0.5%	1.1%
1995-97	2.3%	1.1%	1.2%	1.8%	0.5%
1997-2000	2.6%	1.4%	1.2%	2.4%	0.2%
1991-2000	2.1%	0.6%	1.5%	1.4%	0.7%

1. Annual average rate of increase in output per labor hour in the nonfarm business sector.
2. Annual average rate of increase in average hourly earnings of production or nonsupervisory workers in private industry, in 1982 dollars (deflated by the consumer price index).
3. Same as in column 2, except that hourly earnings are deflated by the price deflator for business sector output instead of the consumer price index.

Source: *Economic Report of the President*, 2001, p. 330; U.S. Bureau of Labor Statistics, National Income and Product Accounts, Table 7.14, November 30, 2001.

Table 12. Maximum Industrial Capacity Utilization Rates

Years of Business Cycle Expansion	Maximum Industrial Capacity Utilization Rate (percent)	Year of Maximum Industrial Capacity Utilization Rate
1961-69	87.3	1968-69
1970-73	88.4	1973
1975-79	86.0	1979
1980-81	81.5	1980
1982-90	84.1	1989
1991-2000	83.5	1997

Source: *Economic Report of the President*, 2001, p. 337; *Federal Reserve Statistical Release*, September 14, 2001, Table 5-A, p. 12.

Table 13. Business Fixed Investment as a Percentage of Gross Domestic Product

Business Cycle Peak Year	Business Fixed Investment as a Percentage of GDP in Constant Dollars¹	Business Fixed Investment as a Percentage of GDP in Current Dollars
1969	8.4	10.6
1973	9.0	11.1
1979	10.0	12.9
1990	9.6	10.9
2000	15.2	13.7

1. Variables for 1969, 1973, and 1979 are in chained 1992 dollars; variables for 1990 and 2000 are in chained 1996 dollars.

Source: *Economic Report of the President*, 1996, p. 282; US Bureau of Economic Analysis, National Income and Product Accounts, Tables 1.1 and 1.2, August 29, 2001.

Table 14. Shares of Consumption and Investment in GDP

	Consumer Spending as a Percentage of GDP		Business Fixed Investment as a Percentage of GDP	
	Calculated In Chained 1996 Dollars	Calculated in Current Dollars	Calculated in Chained 1996 Dollars	Calculated in Current Dollars
1991	66.9	66.3	9.1	10.2
2000	67.8	68.2	14.6	13.1
Change from 1991-2000	+0.9	+1.9	+5.5	+2.9

Source: U.S. Bureau of Labor Statistics, National Income and Product Accounts, Tables 1.1 and 1.2, November 30, 2001.

Table A-1. Components of the Rate of Profit

Variable	(1) Value of Variable in 1972	(2) Value of Variable in 1996	(3) Percentage Increase 1972-96	(4) Contribution of Variable to Increase in r from 1972-96
r	0.04506	0.06267	39.1%	100.0%
P/W	0.1061	0.1346	26.9%	68.8%
W/TA	0.3689	0.3936	6.7%	17.1%
TA/NW	1.1540	1.1831	2.5%	6.4%

Notes:

1. See table 3 for definitions of variables.
2. The sum of the contributions in column 4 add to less than 100% because the interaction terms of the three right-side variables contribute part of the change in the rate of profit over the period.

Source: Federal Reserve Flow of Funds Accounts; U.S. Bureau of Economic Analysis, National Income and Product Accounts.

Table A-2. Determinants of the Profit-Wage Ratio

Variable	(1) Value of Variable in 1972	(2) Value of Variable in 1996	(3) Change in Variable, 1972-96	(4) Change in Variable as a Percentage of Change in P/W	(5) Contribution of Variable to Increase in r
P/W	0.10608	0.13460	0.02853	100.0%	68.8%
Y/W	1.51133	1.55956	0.04823	169.1%	116.3%
-D/W	-0.13097	-0.17348	-0.04251	-149.0%	-102.5%
-T/W	-0.23144	-0.21072	0.02073	72.7%	50.0%
-I/W	-0.04306	-0.04076	0.00230	8.1%	5.6%

Notes: See Appendix for definitions of variables.

Source: Federal Reserve Flow of Funds Accounts; U.S. Bureau of Economic Analysis, National Income and Product Accounts.

Table A-3. Constant Dollar Variables, Price Indices, and the Rate of Profit

Variable	(1) Value of Variable in 1972	(2) Value of Variable in 1996	(3) Percentage Change 1972-96
1. P_R/W_R	0.10537	0.21119	100.4%
2. P_K/P_C	1.00669	0.63735	-36.7%
3. Y_R/N	\$34,362	\$46,867	36.4%
4. w/P_C^1	\$19,636	\$19,153	-2.5%
5. P_C/P_Y	1.15789	1.56900	35.5%
6. TA_R/N	\$52,882	\$76,361	44.4%
7. w/P_K^1	\$19,505	\$30,051	54.1%

1. Because P_C and P_K are dimensionless price indexes, the variables w/P_C and w/P_K are both denominated in dollars per year.

Note: See Appendix for definitions of variables.

Source: Federal Reserve Flow of Funds Accounts; U.S. Bureau of Economic Analysis, National Income and Product Accounts.

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Figure 1: The rate of profit for the nonfarm nonfinancial corporate business sector in the US, 1946-2000 (after-tax rate of profit)

