The Falling Rate of Profit and the Economic Crisis in the U.S.

ANWAR SHAIKH

INTRODUCTION

The developed capitalist world entered a crisis phase in the early 1970s. It came a bit earlier in the countries with the relatively less developed capitals, such as England; and it came a bit later in those with relatively advanced capitals, such as West Germany. The United States was just in the middle. And Japan was of course the last to feel the effects of the crisis.

It is the argument of this paper that this worldwide crisis is basically caused by a long-term decline in profit rates in most advanced capitalist countries, due to a mechanism which is built-in to capitalist growth itself. The economic and financial crisis of United States capitalism is primarily due to this same general fall in the profit rate, and only secondarily to any slippage of United States productivity relative to that of its most advanced competitors such as Japan and West Germany. In what follows I will show how and why the profit motive leads to periodic and devastating general crises. Then I will present and analyze the empirical evidence, primarily for the United States. Lastly, I will try and draw out some of the implications of all this for ongoing struggles in the United States.

PROFIT AND TECHNICAL CHANGE

Profit is the veritable bottom line of the whole capitalist system. And in order to get as much profit as possible, individual firms must constantly struggle on two fronts: against workers, in the labor process; and against other capitalists, in the battle for sales.

In the labor process, the productivity of labor is determined by two things: the nature of the technology being used, and the length and intensity of the work effort being extracted from labor. Productivity can therefore be raised by "improving" the technology (improvements being defined by the point of view of capitalists) and/or by intensifying the work effort. Firms constantly push workers to work harder. Productivity schemes, piecework, and threats are all part of this pressure. But there are limits to how far the work effort can be pushed. Therefore, in the long run it is the development of new methods of production which becomes the critical factor underlying a secular rise in the productivity of labor.

On the other front, in the battle over sales, firms must also use every available method and trick. Advertising, whether true or false, works just fine. So does bribery, espionage, and even a little industrial sabotage every now and then. However, in the end it is the cost of the product which emerges as the crucial variable. The lower the price for a product of a given quality, the better the chances of success (higher quality for a given price is the

same as selling a given quality for a lower price). It comes as no surprise, therefore, that businesses are continually preoccupied with the idea of lowering costs.

Increasing the productivity of labor to get the most out of the labor process and reducing unit costs to get the most out of the market is how the profit motive is put into practice. The drive to raise productivity leads above all to the *mechanization of production*. Machines replace workers, materialized labor replaces living labor. More fixed capital is required per worker. But if mechanization is to be successful as a weapon against other capitalists, it must also reduce unit costs. And once again, it is fixed capital which comes to the rescue. Larger scale plant and equipment tie up greater amounts of fixed capital per unit product in the initial investment, which is precisely what makes it possible for them to achieve lower operating costs per unit product. Higher fixed costs are traded off in return for lower variable costs — as long as the overall costs per unit output are reduced. This is the *capitalization of production*.

Once a new, lower cost method of production becomes feasible, then the whole investment picture changes. The first few firms to adopt the new method are in a position to lower their selling prices, undersell their competitors, and expand their own shares of the market. All firms thus face a round of falling prices (relative to the trend of the price level, which has other determinants as well). Under such circumstances, the firms with the lowest unit costs have the greatest chance of survival precisely because price reductions damage the anticipated profit rates of the higher cost methods more than those of the lower cost ones. A firm with unit costs of $100 is much more vulnerable than a firm with unit costs of $80, since a drop of price from $120 to $100 could wipe out the former while still leaving the latter with a healthy profit. While profit rates as a whole might fall, those of the lower cost firms *would rise relative to all others* because they would fall proportionately less (their elasticity with respect to price would be smaller, other things being equal). Indeed, the new lower cost producers could always drive prices down to the point where their own profit rates were the highest ones in the market. This means that the very existence of a cheaper method of production would change the investment picture in such a way as to make its expected rate of return the highest now available. Since capitalist investment is motivated by the highest expected rate of return, competition among capitals would enforce the adoption of the lowest cost production methods.

But there is a catch here. It can be shown that while more heavily capitalized methods of production may benefit individual capitalists by lowering their unit costs of production, they nonetheless also tend to lower the average rate of profit for the economy as a whole. Thus the same factor which fuels the competitive struggle among individual capitalists also produces a *slow but steady downward drift in the economy wide average rate of profit* (Shaikh 1978b, 1987; Nakatani 1979).

It is important to emphasize here that this built-in tendency towards a falling rate of profit is not generated by rising real wages. Insofar as workers are successful in their struggles for higher wages, they may *accelerate* the fall in the rate of profit. But this effect is limited because rising real wages are generally constrained by the growth of productivity. No firm can sustain rising unit labor costs (real wages rising faster than productivity) for any length of time without risking extinction. Thus, whereas class struggles over the length and intensity of the working day and over wages are vital in determining the exact level of real wages and the rate of profit, they operate within limits regulated by the built-in tendencies of the system. These tendencies are the result of the

class relation itself, of capitalist production as a characteristic form of exploitation, and of the systematic mechanization and capitalization of production to which it gives rise. Class struggles which aim to overthrow them must therefore take on the system itself.

Lastly, note that the process described above depends on two essential elements: the competition of capitals, which enforces the adoption of methods with lower unit cost of production; and the capitalization of production, in which lower unit variable costs are generally achieved at the expense of higher unit fixed costs. It is interesting to note that these processes are so familiar to the business world that they have come to represent the standard pattern of technical change not only in empirical studies (Pratten 1971:306–307) but also in some management textbooks (Weston and Brigham 1982:145–147). Yet academic writings tend to present a very different picture. Most neo-Ricardian and neo-Marxian authors, like their neoclassical colleagues, implicitly or explicitly analyze capitalist competition and technical change within the profoundly ideological framework of "perfect competition." This framework is constructed in such a way as to rule out the kinds of aggressive, price-cutting competitive behavior described above. Not surprisingly, within the harmonious world of perfect competition a secularly falling rate of profit *can only be caused by workers* through some combination of excessive wage demands (wage squeeze) and reduced effort (productivity slowdown). While it is understandable that neoclassical economists would adopt a framework which is tailored to portray capitalism in the most favorable of lights, it is far less understandable when some radicals insist on doing the very same thing (Roemer 1979; Steedman, Armstrong and Glyn 1980; Laibman 1982).

THE FALLING RATE OF PROFIT, CYCLES, AND CRISES

Capitalist growth is a turbulent and erratic process in which demand and supply constantly fluctuate around various inner tendencies. It is therefore important to separate out the different levels operating in this process. This means distinguishing between partial crises, business cycles and general crises. First of all, the anarchy and turbulence inherent in capitalist reproduction give rise to all sorts of disturbances and partial crises due to specific events such as crop failures, monetary disruptions, stock market panics, etc. Secondly, below the surface of these erratic disturbances are a series of more rhythmic fluctuations which are called business cycles. Research points to at least three distinct patterns which exist up to the present time: a short (3–4 year) inventory investment cycle which is referred to as "the business cycle"; a medium (7–11 year) fixed capital equipment cycle which is what the term business cycle referred to in the nineteenth and early twentieth centuries; and a longer (15–25 year) fixed capital structures cycle. Finally, underlying all of the above disruptions and cycles is a long (45–60 year) rhythm in which accumulation first accelerates, then decelerates, and finally stagnates (van Duijn 1983: Chap. 1). It is in this last stagnant phase that the system tends toward general economic crises: extended periods of stagnation, stagflation (stagnant accumulation with inflation) and/or depression, with attendant social and political problems (Mandel 1975: Chap. 4).

The theory of the falling rate of profit addresses itself to this long rhythm of accumulation and its associated general crises. Capitalism runs on profit. As capitalists invest, they add to their aggregate capital stock. With a constant rate of profit, the total amount

of profit would grow correspondingly. But when the rate of profit is falling, profit grows more slowly than the capital stock. What is more, a secular fall in the rate of profit progressively undermines the incentive to invest and thus slows down the rate of growth of the capital stock itself. It can be shown that both of these effects of a falling rate of profit serve to undermine the growth of total profits. An initially accelerating mass of profit thus begins to decelerate until at some point it stagnates or even declines. And when total profits are stagnant, the capitalist class as a whole finds itself in the position of having invested in additional capital without getting any additional profit. This means that a portion of its capital stock is really redundant.[1] If the situation persists, as it would if it was the result of a long-term decline in the rate of profit, then investment is cut back, excess capacity becomes widespread, and workers are laid off in droves. This is an all too familiar picture.

Once the crisis breaks out, the whole scenario changes. Inventories pile up and profits fall, often quite sharply. Firms increase their borrowing to tide them over the bad times, and this drives up interest rates — which only makes matters worse for firms, though of course it makes banks happy. On the other hand, as businesses start to fail, they default on their debts, and this puts the banks into jeopardy. The rising tide of business bankruptcies begins to trigger bank failures. Interest rates reverse themselves and begin to fall. The stock market index slides downward.

For workers, matters are even worse. Layoffs and business failures give rise to widespread unemployment and increasing hardship as savings and unemployment benefits run out in the face of a persistent lack of jobs. On the other hand, those workers who do still have jobs come under severe pressure to make major concessions on wages and working conditions in order to save their jobs. In all of this, it is of course the ones on the bottom — nonwhites, women, teenagers, the non-unionized — who usually get hit the hardest.

The above patterns are common to all depressions. They always produce great social turmoil and precipitate broad institutional changes. But in the past these patterns have played themselves out in two different ways: the long decline and steady attrition of what was originally known as the Great Depression of 1873–1893; and the sharp collapse and widespread devastation of the subsequent Great Depression of 1929–1941. The current phase seems to resemble the former — so far. But the enormous overhang of debt which has papered over this crisis always contains the threat of the latter.

THE EMPIRICAL EVIDENCE ON THE FALLING RATE OF PROFIT

The theory of the falling rate of profit requires us to empirically separate out structural patterns from various cyclical or conjunctural fluctuations. Since the latter fluctuations generally show up as variations in capacity utilization, we must adjust stock-flow ratios such as the rate of profit and the capital-output ratio for short, medium and long-run changes in capacity utilization. This is a fairly standard procedure, provided one has an adequate measure of capacity utilization. The problem is that most available measures tend to focus on short-run fluctuations, so that adjustments which use them fail to remove the effects of longer term fluctuations in capacity utilization. This problem applies to survey measures of operating rates (BEA, Census, and Rinfret Associates), to the Federal Reserve Board measure (which gets its trend of capacity from survey data on operating rates) and to peak to peak measures (Shnader 1984; Rost 1983). The sole

exception occurs with the capacity utilization index initially developed by Foss and subsequently improved by others (Christensen and Jorgenson 1969). This index is based upon the utilization rates of the electric motors which drive capital equipment, and therefore picks up not only short run but also medium and long-term fluctuations in capacity utilization. Unfortunately, the data series needed to construct this index was discontinued in 1963. But it turns out that the McGraw-Hill survey data on expansion investment and on annual additions to capacity can be used to construct a new measure of capacity utilization. A strong independent check of the validity of this new measure is provided by the fact that it is remarkably similar to the Foss electric motor utilization index over the period of their overlap from 1947–1963. Moreover, when put alongside the widely used Federal Reserve Board index of capacity utilization, even though all three measures behave alike in the short run, the Federal Reserve Board index diverges considerably from the other two in the long run (see Figure 5 in Appendix B). This bears out my comments on the deficiencies of conventional measures for long-run analysis. Appendix B outlines the construction of the new capacity utilization index, and a more detailed paper on the subject is available from the author upon request.

The four figures below show that the basic predictions of the theory of the falling rate of profit are borne out by the data for the postwar period (1947–1985). All data sources and methods are described in Appendix A.

Figure 1 shows that, adjusting for fluctuations in capacity utilization, the ratio of capital to production-worker wages (the value composition of capital K/Wp*) rises by

Figure 1
Capital Intensity
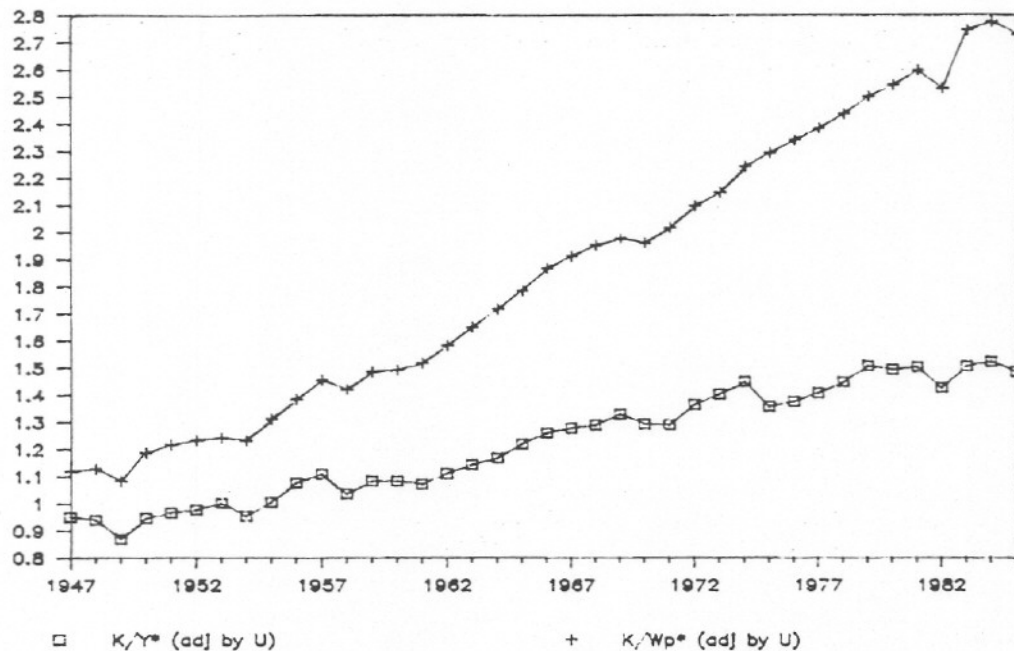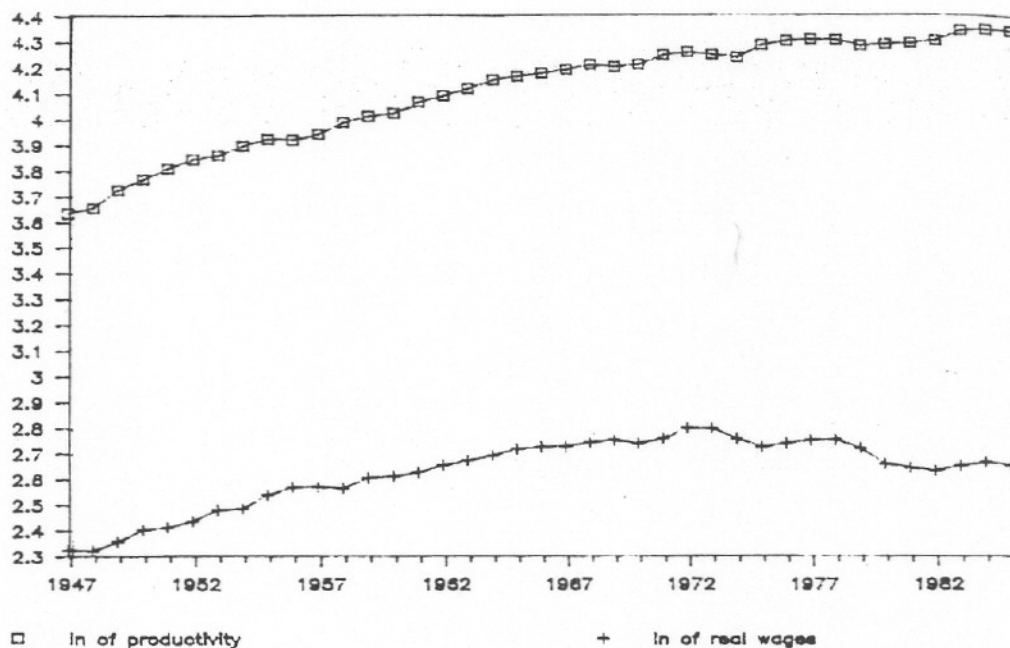Adj for Changes in Capacity Utilization

□   K/Y* (adj by U)   +   K/Wp* (adj by U)

Figure 2
Productivity and Real Wages
(Natural Log's)

□   ln of productivity   +   ln of real wages

103 percent, while the capital-output ratio K/Y* rises by 56 percent. Figure 2 shows that productivity y rises faster than real wages rwp, just as the theory anticipates. From a Marxist point of view, the ratio of y to rwp is an index of the rate of exploitation of workers, and this index *rises* 46 percent in 38 years.

Figure 3 shows that the profit rate adjusted for variations in capacity utilization falls by almost 53 percent over the postwar period. Since the ratio of profits to production worker wages actually rises slightly over this period (from .40 in 1947 to .46 in 1985), *the fall in the rate of profit is entirely explained by the rise in fixed capital relative to production worker wages (i.e. by the rise in the value composition of capital)*. This is an absolutely central result. The unadjusted (actual) profit rate is also depicted, and one can see that it oscillates around the adjusted (potential) rate. This too is an expectation of the theory. Taken together, Figures 1–3 provide strong empirical support for the basic Marxian analysis of the structural tendencies of capitalist accumulation (Shaikh 1987). Finally, Figure 4 addresses the connection between a secularly falling rate of profit and a general economic crisis. It will be recalled that according to theoretical expectations, a falling rate of profit leads to an eventual stagnation in the total amount of profit, which in turn signals the beginning of the crisis phase. The top series in Figure 4 shows that the total amount of real pre-tax corporate profits peaks between 1966–1968, and then starts to fluctuate ever more sharply around a basically stagnant trend (post-tax profits behave in roughly the same way). This would imply that the United States entered a crisis phase around 1967 (the dividing line shown in the graph). It is particularly striking that the

Figure 3
Profit Rates
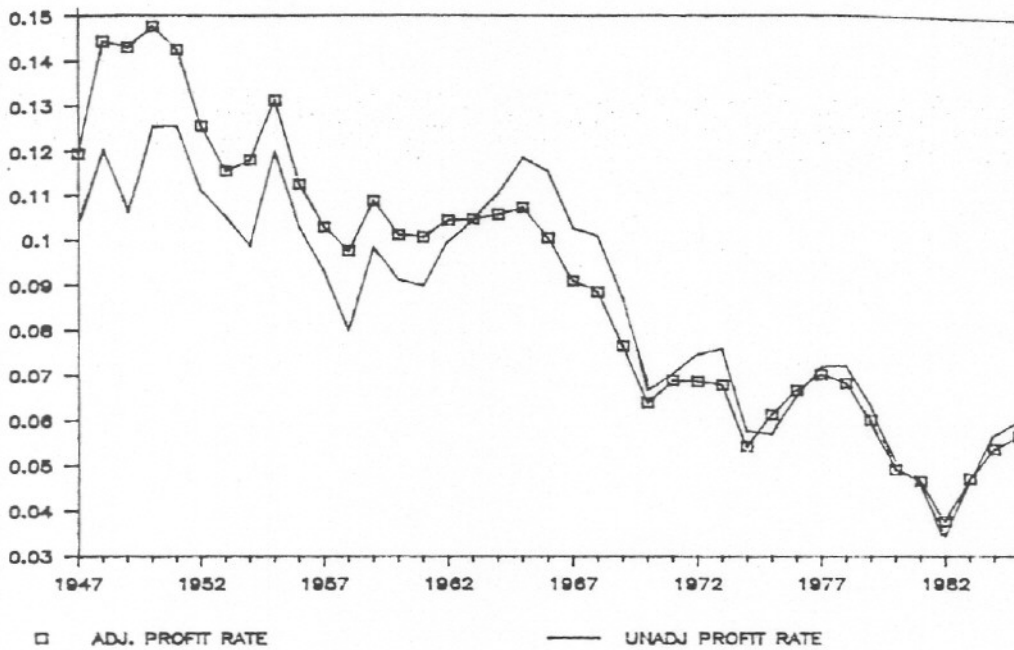
second series in Figure 4, which represents the real stock market index, *also* stagnates around the same time (actually a bit earlier, as befitting its role in attempting to forecast profitability), and then starts falling steadily. From its early peak in 1965 to its low in 1982, the stock market index fell *over 56 percent in real terms, which is about the same as it fell in the worst part of the previous Great Depression.* It is a sobering fact that the current Dow Jones would have to stand at 3000 in order to simply catch up to 1965 in real terms.

The preceding analysis leads us to expect a qualitative change in the behavior of the system after 1967. And the data amply confirms this. In the first phase from 1947–1967, the system grows at a healthy pace: unemployment averages 4.8 percent, real wages per production worker grow by almost 50 percent, and the average annual federal budget deficit is a mere $1.7 billion. By way of contrast, during the second phase from 1968–1985, unemployment rises sharply to a peak of almost 10 percent in 1982 and then ends up hovering around the historically high level of 7.5 percent, real wages actually *fall* by 8.5 percent over the whole period, so that by 1985 they have fallen back to the levels of 23 years earlier, and the average federal budget deficit explodes to $70 billion (an increase of over *forty-fold* over the average in the first period).

Figures 2–4 also enable us to briefly address three alternate explanations of the present economic crisis.[2] The first of these is the *underconsumption/stagnation* approach (Sweezy 1981) which argues that the crisis originates in a deficiency of demand which leads to falling capacity utilization, falling profits, slowed growth, and eventual crisis. If

Figure 4
Real Profits & Stock Market Index

| □ | REAL PROFITS | ——— | REAL STOCK MKT INDX |
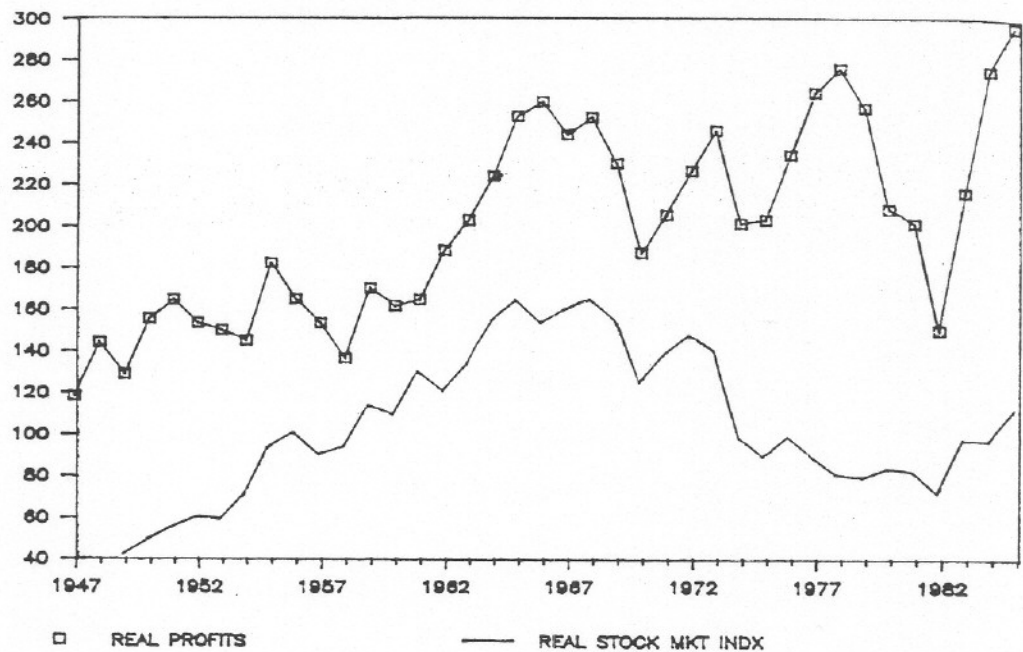
this theory is correct, adjusting the rate of profit for capacity utilization should produce a stable or even rising rate of profit. But the data show just the opposite. The adjusted rate of profit falls strongly throughout the postwar period (Figure 3), even in the boom phase from 1947–1967 when demand is strong and capacity utilization is rising (Appendix B, Figure 5). Indeed, once these critical facts are recognized, it becomes possible to see that the fall-off in demand and hence in capacity utilization occurs in the crisis phase itself, as a consequence of the falling rate of profit (rather than as its cause).

The second explanation is called the *wage squeeze* approach, which traces the crisis back to some combination of excessive growth in real wages (Glyn and Sutcliffe 1972) and a slowdown in productivity growth due to a reduction in worker effort in the late 1960s (Bowles, Gordon and Weisskopf 1983). From the latter point of view, the root of the problem can be found in a supposed upsurge of worker resistance and alienation in the late 1960s, buttressed by the greater security afforded by high employment and a benign Welfare State. But this notion loses all of its force once we recognize that the slowdown in productivity originates directly in a slowdown in the rate of capital accumulation, which in turn has its roots in the already noted decline in profitability. Capital accumulation means the introduction of new, more modern methods of production with correspondingly higher levels of productivity, so that when the former slows down the latter does so also. In fact, the rate of growth of fixed capital peaks in 1966, and then begins to decline thereafter (Kopcke 1982). This suggests that the observed slowdown in productivity growth is an effect, not a basic cause, of the onset of the crisis. It should be noted, incidentally, that the sharp rise in unemployment from 1968–1973 and the parallel

slowdown in real wage growth cast serious doubt on any story that roots the whole problem in the putative strength and security of workers in this same period (Bowles, Gordon and Weisskopf 1983).

The third explanation relies on the damaging effects of *foreign competition*, particularly one notion that the gains made by Japan and Germany cause United States profitability to decline which in turn eventually triggers a worldwide decline (Brenner 1986). But this argument confuses secondary factors with primary ones. First of all, such international competition cannot explain the persistent decline in the United States rate of profit over the whole postwar period. Secondly, over the 1965–78 period for which there exists comparable data for all three countries, and during which competition is supposedly the most intense, the Japanese rate of profit declines somewhat *more* (− 33 percent) than the United States (− 30 percent), while the German declines somewhat *less* (− 19 percent) (OECD 1982). This hardly supports the notion that the evolution of profit rates is primarily explained by the competitive positions of these countries.

There are many other subsidiary facts which reinforce the basic argument made in this paper. The current wave of bankruptcies is at an epidemic level, and it is accelerating. In the throes of the recession of 1982, there were *36 business bankruptcies every hour of the business day* in the first quarter of the year, and the annual business failure rate had climbed to 89. Since then it has climbed even higher, to 114 by 1985, a level which is surpassed only by the worst two years of the Great Depression. Workers suffer the most here, because in 80 percent of bankruptcies the jobs are lost altogether. And of course, throughout all of this the Reagan government has been actively dismantling the social support system, rather than trying to strengthen it. What is more, as businesses fail, so do banks. In recent years, the problem has shifted to the farm sector, and from there to the farm banks themselves. All in all, the situation has become so dangerous that it has become increasingly commonplace to see business press headlines such as, "Under Major Banks, Land Mines" (*New York Times*, Jan. 11, 1985) and "Scenario for Disaster"? (*Financial World*, Nov. 26, 1985, p. 12). Virtually the same pattern can be found in Europe, where business and bank failures have also begun to approach the historic highs only seen before in the Great Depression. Worst of all, because of the international scope of the modern banking system, the fate of hundreds of American and foreign banks is directly tied to that of dozens of debt-ridden Third World nations. Whole nations, most notably Mexico, the Phillipines, Argentina and Brazil, are already over the edge of bankruptcy. A default by any one of them could trigger a whole round of such defaults, which in turn could easily lead to the collapse of the world-wide banking system. The nine largest United States banks alone have over *$76 billion* tied up in loans to Third World countries, many of whom are not even able to pay the interest, let alone the principal, on their debts.

SUMMARY AND CONCLUSIONS

The Great Depression of 1873 (the original "Great Depression") lasted 20 years. This was a period of great social turmoil and of great restructuring of the capitalist system. It was marked by widespread concentration and centralization of capital, and culminated in the age of imperialism. The Great Depression of 1929 lasted 10–12 years. It too was a period of great social change and turmoil. It culminated in a bloody and devastating world war. And now the profit motive which dominates this system has once again

brought us to the brink of another devastating collapse. So far the state has managed to stave off such a collapse by propping up the credit and banking system and by occasionally pumping up the economy. It has therefore succeeded in *stretching out* the crisis, transforming potential collapse and deflation (as in the 1930s) into stagnation.

A crisis is not only a period of great distress but also one of great possibility. One way or another, the capitalist system will be changed. The current corporate strategy is clearly attempting to place the burden of the crisis on the backs of working people and to restructure the system so as to greatly increase profitability. As the crisis drags on, the attempts to divide the working class continue to mount: the employed against the employed, men against women, black against white, and unions against environmental and anti-nuclear forces.

We do not have to submit to this. Once we recognize that the problem stems from the very nature of the profit motive, from capital itself, then we can attempt to go beyond the automatic defense of liberal Keynesian policies and prescriptions, beyond the myth of an all powerful state which can somehow save us from the devastation of a crisis, and beyond individual or local defensive struggles. This means attempting to rebuild the broad ties which were forged among working people in the last Great Depression; attempting to join our separate struggles for jobs, for civil rights for women and non-whites, for the preservation of the environment, and for the struggle against imperialism; and above all, attempting to create a social system which is regulated by the needs of people instead of by profit. It is clear in many parts of the capitalist world that the current world crisis is an objectively revolutionary situation. We need to bring the message home. Either we fight to make socialism possible, or we submit to corporate rule. This is, in the end, an issue of class struggle.

APPENDIX A

MAIN DATA SOURCES AND METHODS

The data covers the nonagricultural and nonresidential sector. I leave out agriculture because there is no data available on production workers in agriculture, and I leave out the residential business sector because it includes a very large fictitious component (national accounts treat homeowners as residential businesses renting out their homes to themselves).

Figure 1: K/Y*, K/Wp*, where K = fixed nonresidential, nonagricultural capital stock (bill \$), from the Office of Business Economics (OBE), Department of Commerce, for 1947–1980, extended to 1985 by regressing the OBE series on the corresponding Bureau of Economic Analysis (BEA) series (R squared = .99938) and using the BEA data to extrapolate. U = a new capacity utilization index described in the text and in Appendix B, graphed in Figure 5 below. Y* = Y/U, where Y = current-\$ nonresidential, nonagricultural GDP, calculated as GDP — Farm — Gross Housing Product in *National Income and Product Accounts of the U.S., 1929–1982, (NIPA)* Table 1.7, lines 2,7 and Table 1.23, line 7. Updates to 1985 are from various *Survey of Current Business (SCB)*. Wp* = Wp/U, where Wp = wp × Lp, wp = the annual wage of production workers, *Economic Report of the President, (ERP)* 1986, Table B.39, Col 1, multiplied by 52 (weeks), and Lp = no. of production workers in mining, constr., manuf., transp./utilities, and services, *Employment and Training Report of the President*, 1986, Table C-2.

Figure 2: y, rwp, where y = productivity = real nonagricultural, nonresidential output per production worker = (Y/pgnp)/Lp, pgnp = implicit price deflator for GNP, *SCB*, Feb. 1986, Table 5, p. 22, and rwp = annual real wage of production workers, *ERP*, Table B39, Col 2.

Figure 3: r*, r where r* = r/U = adjusted (potential) rate of profit, and r = P/K = unadjusted (actual) rate of profit, where P = Corporate Profits with IVA and CCA, *NIPA*, Table 6.18A-B, line 1, for 1947–82, and various *SCB's* for subsequent years. This profit data does not come in sufficient detail to allow us to exclude the agricultural and residential sectors, but related data in Table 6.19A indicate that altogether these sectors probably account for less than 3 percent of total profits.

Figure 4: Real Profit = P/pgdpi, Real Stock Market Index = ST/pgdpi where pgdpi = implicit price deflator for gross private domestic investment, 1982 = 100, *SCB*, Feb. 1986, Table 5, p. 22, and ST = Standard and Poors Composite index, *ERP*, Table B91.

Additional statistics discussed in the text are: business failure rates, *Historical Statistics of the U.S.: Colonial Times to 1970*, Series V23, p. 912, and *ERP*, Table 92; the unemployment rate, *ERP*, Table B35, all civilian workers; federal government budget surpluses and deficits, *ERP*, Table B73, Col 3; comparable profit rates for Japan, Germany, and the United States are gross operating surplus over gross capital stock, both in current $, from *National Accounts, 1963–1980*, Vol II, Annex III, OECD, July 1982.

APPENDIX B

CAPACITY UTILIZATION INDEXES

My index of capacity utilization is created by dividing the Federal Reserve Board (FRB) index of industrial production by an index of industrial capacity. This is the procedure which also underlies the widely used Federal Reserve Board index of capacity utilization (FRBCU). The difference arises from the fact that our index of capacity is based on a new use of annual McGraw-Hill (MH) survey data on business plans. I wish to particularly thank Ken Kline of DRI for making the original questionaires and data available to me.

Among other things, the MH survey provides two widely used series: the annual additions to capacity in manufacturing (DCAP), and the annual proportion of gross investment (E) which goes towards the expansion of capacity (as opposed to its replacement). Up to now, these two series have been used independently. By combining them, I have been able to correct for a major deficiency in the existing MH capacity index. This latter index is created by simply cumulating the annual additions to capacity to arrive at an index of the level of capacity, *on the assumption* that the survey responses on additions to capacity refer to *net*, not gross, additions. But it soon became clear that the resulting capacity index had a strong upward bias because firms seemed to interpret the survey question in terms of *gross* additions to capacity (which is hardly surprising since all the prior questions on the survey form refer to gross additions to capital stock, i.e. to gross investment) (Rost 1983). In order to address the above ambiguity in the survey response, I assume that of the total additions to capacity (DCAP), a yet unknown fraction p represents gross additions (GDCAP = pDCAP) and rest net (NDCAP = (1-p)DCAP). The gross additions were multiplied by the capacity expansion proportion of gross investment (E), in order to convert gross into net, and then added to the previously assumed net additions (NDCAP). The result is a new measure of net additions to capacity NDCAP* = p(DCAP)E + (1-p)DCAP, which can then be cumulated to create the new index of capacity upon which my capacity utilization index is based.

It is worth noting that the existing MH and the FRB procedures implicitly assume that p = 0 (all additions are net), while Rost of the FRB's Division of Research and Statistics concludes that p = 1 (all additions are gross) (Rost 1983:520). I estimate p by finding the particular value that makes my measure correspond most closely to the Foss electric motor utilization index (described earlier in the text, and recalculated by me) over the period of their overlap from 1950–1962. This is done by means of a nonlinear least squares estimation procedure, with p constrained to be 0 < p < 1. Interestingly, the optimal value turns out to be p = 1, just as Rost suggests. Calculations are available from the author upon request.

Figure 5
Capacity Utilization Measures
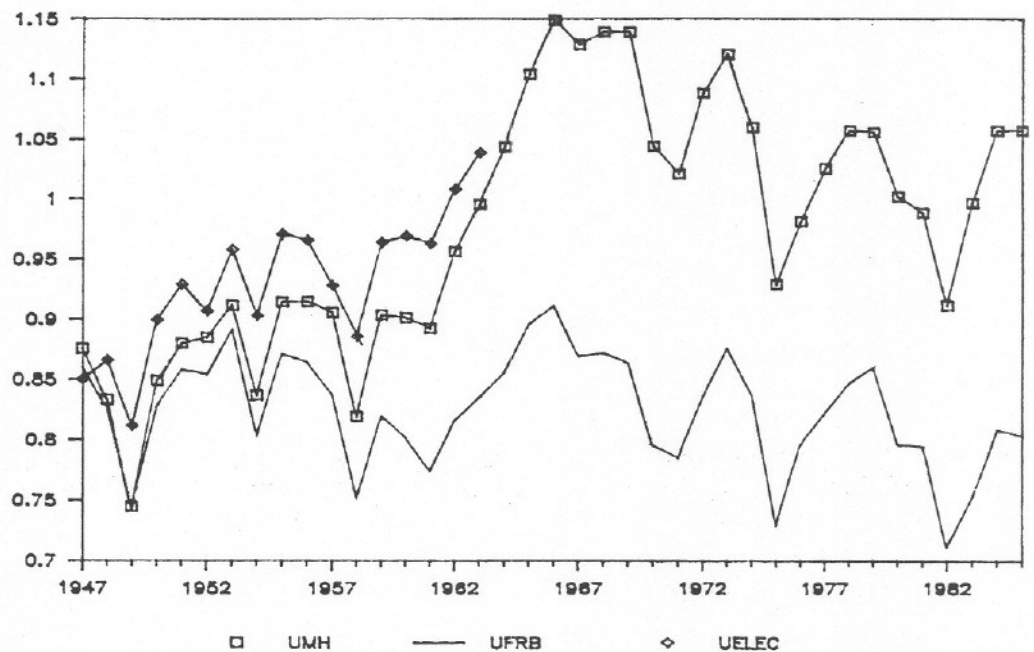
NOTES

1. The above description corresponds to the highest level of abstraction. Once we introduce the rate of interest into the analysis, then total industrial profit can be separated into two components: the amount equivalent to interest which could be earned on the total capital invested; and the amount of profit above that, which Marx calls profit-of-enterprise. At this more concrete level of analysis, the critical point comes when the mass of profit-of-enterprise stagnates — i.e. when the incremental rate of return on capital equals the interest rate.

2. For more detailed discussions of underconsumption/stagnation and wage squeeze theories of the crisis, see Shaikh (1978a, 1986).