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THE CAUSES OF THE 1929-33 GREAT COLLAPSE: A MARXIAN INTERPRETATION

James Devine

Why was the Depression so Great? In any study of the historical causes of the depth, breadth, and length of the Great Depression of the 1930s, one must discover the origins of four main phases: (1) the Great Collapse, from 1929 to 1933; (2) the Great Stagnation, from 1933 to 1937; (3) the abortive recovery and recession toward the end of the 1930s; and (4) the actual recovery at the start of World War II. The issue at stake in this paper concerns the first of these. But following the Marxian tradition, this paper finds the causes of the Collapse to be historical and structural: my focus is on what might be called "phase 0," the period from 1900 or so until 1929. This examination should in turn allow us greater understanding of the Stagnation and the later phases, but those are left for other papers.

The world economy of the 1920s was fundamentally unstable—in the language of cliché, a "house of cards"—so that the exact nature of the Collapse-inducing trigger (such as the 1929 crash) is less important than the roots of basic instability. The international political economy was characterized by intense nationalist

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competition among the core capitalist powers, what Marxian theorists at the turn of the century termed "Imperialism." After the first major result of this contention, that is World War I, the nationalist competition continued, changing only its form. Simultaneously, the post-War efforts at conservative restoration and profit-promotion, though "paying off" for the ruling classes in the short run, undermined economic prosperity in the long run. Given the post-War international stagnation, conditions in the United States became increasingly important in allowing the world's shaky prosperity of the late 1920s to continue. But this country's growth became increasing unstable, undermining the feeble progress of other countries. Thus, the U.S. receives special attention in this paper. There, a process of over-investment relative to consumption occurred, in which accumulation surged forward despite stagnant real wages and slowing consumer demand. This meant that as the 1920s progressed, the U.S. economy—and thus the world economy—became increasingly fragile and prone to ruin.

This paper's order of presentation starts with the abstract and works toward the concrete. The first section sketches a general Marxian framework and states the nature of the debate. Part II applies that theory to the international political economy. Part III discusses events in the United States, the leading sector of the world economy in the 1920s. Section IV summarizes the conclusions of the paper by comparing and contrasting the 1920s with the era since 1980. This allows some sense of the implications of this paper.¹

I. THEORETICAL FRAMEWORK

As part of its effort to construct a Marxian interpretation of the Collapse's origins, this paper critically appropriates many different types of research, including neoclassical work. Such a method can produce eclectic rather than synthetic results. To avoid this pitfall, this section develops a general Marxian perspective, which will then be applied. Within this framework, it will be seen that many neoclassical authors excel at empirical work and description of superficial processes. What they lack, however, is theoretical depth.

These authors typically emphasize accidents or conjunctural institutions.² This is partly accurate for any concrete situation or event. But while both structural causes and unique shocks to the system ("triggers") play a role, it is one-sided to ignore the societal structures affecting events. Given this, some theoretical principles are needed to help us discover which factors and which structures are most important in causing the event in question, the Collapse. First, structural causes are more important than one-shot events: because of their greater persistence, structures help to shape and constrain individuals' actions and determine events again and again. Given this, how does one decide which social structures are most important? A social structure is more likely to be determining rather than determined to the extent to which it is durable, large, and world-encompassing.³

By these criteria, an analysis of capitalism and its laws of motion are most likely to produce an understanding of the origins of the Collapse.⁴

In terms of impact on the general historical process, long-term trends, and major events, capitalism (with other durable social structures) is more important than such one-shot events as the October 1929 stock-market Crash, which Christina Romer, among others, has brought back to the fore as a cause of the Collapse.⁵ First, Romer (1993, 31), is wrong to argue that since stock-market "bubbles are, almost by definition, inexplicable events, the [downward] stock market swing is legitimately viewed as an exogenous shock." Such bubbles (and their popping) are not mysterious but are a normal outcome of unfettered stock-market behavior, while the stock market itself is a commonplace accouterment of capitalism as a system. Second, and more importantly, the degree of structural stability of the world outside of Wall Street is central to the impact of such shocks. The degree of systemic stability differed drastically between 1929 and 1987 and thus was decisive in determining the impact of the stock-market crashes in those years: even though the magnitude of the Dow's decline was similar to that of 1929, the crash of 1987 had far fewer negative effects on the U.S. economy; its impact seemed limited to the brokerage industry. In fact, given the late-1920s fragility of world capitalism described below, other triggers could have substituted for the Crash in causing the Collapse. Finally, the dynamic nature of capitalism normally makes the existence of "shocks" the rule rather than the exception.

A similar logic applies to durable structures such as corporate law, which are constrained and shaped by the even more durable social structures such as capitalism. The laws of motion of capitalism are consistent only with a limited set of possible bodies of corporate law, while the capitalists actively push for an even smaller set, perceived to favor their interests. Part of the instability of capitalism in the late 1920s was due to that period's corporate law, which allowed pyramiding of corporations (e.g. Insull's utility schemes) and other forms of excessive leverage (Sobel, 1968, chs. 5, 6).⁶ But the possibility of extreme leveraging is a determined outcome rather than a determining factor. Though post-1929 reforms helped prevent these problems for a long time, profit-seeking encouraged innovation and political lobbying to recreate them: in the 1980s, new forms of leverage (e.g., leveraged buy-outs using junk bonds) were invented. Further, as with stock-market crashes, the impact of excessive leveraging depends on the general stability of the economy.

Capitalism's laws of motion, however, cannot be the only determinant, even when complemented by corporate law. After all, we did not see crises of the 1930s magnitude before that time, even though capitalism and broadly similar corporate laws existed long before 1929. Further, the less resilient structures and one-shot events cannot be *reduced to* mere epiphenomena of the more basic social structures, since they are relative autonomous. The set of possible corporate legal systems consistent with capitalism is not singular; thus, corporate lawyers can

have an impact on history. Similarly, the speculative dynamic of the stock market, as studies of the 1929 and 1987 crashes suggest, cannot be simply explained by economic information about "fundamentals" (such as the dynamics of the profit rate). The structure of the stock market allows and encourages fads and speculative bubbles to affect its dynamics. Because of this relative autonomy of the less durable structures from the more durable ones, and of one-shot events from "deeper" causes, these can and do play a role in determining the actual course of events. Specifically, they are crucial to the *timing* of economic crises. As argued below, the issue of timing can be pivotal, because the persistence of a capitalist expansion encourages the accumulation of imbalances that can make the ensuing recession more intense.

In sum, the 1929 Crash might be seen as analogous to a match that starts a fire that burns down a building. This chain of events can only occur if the building is already dry and flammable. But analogies are never enough: we have to move toward a concrete understanding of the causes of the Collapse. First, in section I.A, we need to describe capitalism and its crisis tendencies. As we shall see, capitalism in general is not sufficient to historical explanation, so more historically-specific institutions and events play a role, as developed in section I.B.

A. Over-Accumulation and Crisis⁷

Crises are possible because of the unplanned nature of the capitalist system as a whole. But Marxist theory goes further, beyond disproportionality theory or Keynesianism, to predict that they are necessary or inevitable; this does not mean that crises cannot be delayed, but rather that forces that delay a crisis only tend to intensify it.⁸ Capitalism is an inherently dynamic system consisting of different parts (production, circulation, credit, and so forth) that develop unevenly. When the different parts get out of step, typically due to excessive accumulation, they suddenly adjust to get back into sync, which can allow further accumulation. It is this forcible adjustment which is an economic crisis. The initial maladjustment, as we shall see, is reflected in changes in the profit rate. The form of these changes can vary depending on the objective conditions encountered by accumulation.

Driving capitalism into over-accumulation and crisis are two structurally-based tensions, class antagonism and capitalist competition. First, the capitalists' domination and exploitation of workers in production and the resulting alienation results in persistent class antagonism. This *antagonism*, however, is not always expressed in overt *conflict*, because competition among workers typically mutes class issues. But despite the many divisions within the working class, class conflict appears (to different degrees) in almost all workplaces, due to the underlying class antagonism and the interconnectedness of the different workers' experiences and interests. The reality of, and potential for, this conflict has an impact on management decisions: they are not simply making technical decisions about how to allocate resources but are also trying to solve a socio-political

problem of how to induce workers to promote the owners' profit goals. This problem affects the management techniques used and the technologies introduced, as with Taylorization (cf. Braverman, 1974). It also encourages capitalist expansion (to get greater power over labor) and/or capital flight.

While capitalist competition contributes to divisions within the working class, thus moderating societal stress, it is also the *second* basic structural tension of capitalism. Unlike the passive competition of vendors under simple commodity production, competition among capitalists is dynamic and aggressive (cf. Marx, 1849, sect. 5). Each capitalist must worry about falling behind actual and potential rivals and so must actively expand—invade old markets, create new ones, introduce new technologies and management strategies, and so forth. Each *must* accumulate to survive as a capitalist, rather than fall into the overworked petty-bourgeois fringe or even lower.

Both tensions encourage expansion of the system, to swallow almost the entire world. Competition also tends to disrupt established institutions, including stalemates in class relations. The latter encourages overt class conflict as businesses try to pass the costs of competition (e.g., those of a crisis) onto workers or onto other classes such as the petty bourgeoisie. Alternatively or in tandem, each capitalist tries to dump such costs onto other capitalists, intensifying capitalist competition.

Competitive accumulation also drives the business-cycle expansion, which is allowed and encouraged by the competition among banks in supplying credit. Such expansion complements—and thus amplifies—the results of multiplier-accelerator interaction and other reasonable mainstream explanations of instability.⁹ This regularly leads to aggregate over-investment and crisis ending a boom. Here, “over-accumulation” has been replaced by “over-investment” because the emphasis is on excessive fixed capital. Circulating capital, unlike fixed capital, is not a persistent imbalance that can block accumulation for long.

The main effects of over-investment can be explained in terms of its impact on rate of profit. For Marxists, this rate gets as much attention as does the money supply for monetarists: in Thomas Michl's (1988) words, it is both the thermometer and the thermostat of capitalist accumulation, a key measure of the system's health—from a capitalist perspective—and an agent of causation, as capitalists react to its fall.

Before developing this rate's role in crises, we must address two dimensions of controversy about how the profit rate should be measured. Should one calculate it using value (labor hours) or price magnitudes? Second, to use Moseley's (1991) terms, should one use the “Marxian” profit rate or the “conventional” rate of profit? The former, among other things, includes the wages of unproductive labor as part of surplus-value or profits, while the latter uses the more empirical definition of profits. Because we want to understand the decisions of capitalists, this paper uses the profit rate calculated from *price* data following *conventional* definitions.¹⁰ Since capitalists make decisions at the level of empirical appear-

ances rather than at that of socialized production, this profit rate is the one most likely to determine the rate of accumulation of fixed capital (fixed investment) and to be the proximate cause of crises.¹¹ Thus, the following profit rate will be used:

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

where R is conventional profit income, Y is national production, Z is full-capacity production, and K is the stock of fixed means of production ("capital").¹² R/Y , Y/Z , and K/Z are the profit share, the rate of capacity utilization, and the capital-capacity ratio, respectively. These are rough price analogs of Marxian value categories, i.e., the rate of surplus-value, the speed of turnover of commodities (the inverse of commodity turnover time), and the value composition of capital, respectively.¹³

The tendency toward over-accumulation is expressed in at least three different ways: underconsumption, the high-employment profit squeeze, and the rising composition of capital. First, in the *Grundrisse*, Marx writes that individual capitals compete to push real wages down relative to productivity, possibly causing underconsumption (1857-8, 420). Even though such cost-cutting is seen as good for individual profit production, it can hurt profits on the societal level as wage incomes constrain consumption, which in turn prevents the full realization of profits. As with realization problems in general, this depresses the profit rate by slowing the circulation of commodities and thus lowering capacity utilization (Y/Z).

Classical underconsumptionism posited that depression is *normal* for a capitalist economy, arising from a persistent tendency toward low consumer spending (Bleaney, 1976, 11). Marx and many Marxists decisively criticized this theory and have been absolutely right to reject such universal stagnation tendencies (cf. Bleaney, 1976; Clarke, 1993).¹⁴ However, we should not reject the role of stagnant consumption in causing or encouraging crises under certain specific historical conditions. Unlike classical underconsumption theory, this paper (1) emphasizes forces endogenous to capitalism which drive it to over-expand rather than to stay mired in stagnation (see above); and (2) sees major periods (such as the 1960s) in which low consumption did not cause problems for capitalism.

Underconsumption forces can play a role in two cases (Devine, 1983). First, underconsumption problems can be crucial during the period *after* the crisis (whatever its reason), in an "underconsumption trap."¹⁵ Falling wages and workers' consumption hurts profit rates if other elements of aggregate spending are prevented from rising enough to fully realize profits. Specifically, if capitalist accumulation is blocked by a mutually reinforcing combination of unused capacity, excessive debt, and pessimistic expectations, the competition to cut

wages can contribute to turning a recession into a depression, as in the early 1930s (see section III.F).

Second, in the theory of “over-investment relative to consumption,” the existence of stagnant workers’ consumption requires a growing share of accumulation in the national product in order to realize surplus-value and profits. The structural tensions discussed above and rising profit rates can encourage such growth. Though in theory it is possible for growth to continue forever in this situation, accelerating accumulation implies that the economy becomes increasingly unstable and prone to collapse.¹⁶ The theory centers on the negative effects of excessively rising profit rates in an economic boom, and is developed for the 1920s in section III.C.

The other two major crisis theories emphasize over-accumulation relative to supply constraints as leading to the accumulation of persistent imbalances that depress profit rates. The second theory, emphasizing external constraints, appears when Marx writes (in chapter 25 of volume I of *Capital*) of over-accumulation relative to labor-power supplies, the high-employment profit squeeze: as the economy moves toward high employment, accumulation can pull up wages, lowering R/Y. Similar effects arise if capitalists spend too much on unproductive labor (cf. Moseley, 1991) or on raw materials (or as capitalism drives itself into ecological crises). Usually these three happen simultaneously to different degrees, as part of over-expansion relative to supply. To many readers, the high employment profit squeeze is not a crisis theory at all but instead a theory of an automatic mechanism which allows the restoration of the normal conditions for capitalist exploitation and accumulation.¹⁷ However, if excessive accumulation is allowed to continue by countervailing forces such as government war spending or credit expansion (as during the 1960s), we can see persistent imbalances develop. This in turn can cause the forcible adjustment of the system—the painful purgation of imbalances—that defines a crisis.

The third theory emphasizes capitalism’s endogenous creation of supply constraints to accumulation. It stems from Marx’s famous discussion, in volume III of *Capital*, of the tendency for the rate of profit to fall: over-accumulation results in excessive use of fixed capital, which raises the composition of capital and K/Z, depressing the profit rate and thus accumulation.¹⁸ This theory has been criticized largely using models that assume static rather than dynamic competition and, crucially, that real wages stay constant despite increases in labor productivity (the Okishio theorem). If real wages rise with productivity (so that the rate of surplus-value or R/Y is constant), as in several of Marx’s presentations, this theory is more viable (cf. Laibman, 1992, ch. 6). More generally, the theory works better to the extent that real wages rise relative to productivity. Further, as Dobb (1937) argued, the over-accumulation relative to labor-power supplies might actually induce excessive K/Y. The high-employment profit squeeze and rising composition of capital can thus be seen as being potentially complementary phenomena, as in Armstrong, et al. (1991, ch. 11). Finally, there is some evidence

for rising K/Z contributing to falling profit rates in the U.S. during certain periods, for example, before 1919 or so (see section III.D) and after 1972 (see section IV.C).

Over-investment, whatever its cause, leads to recession and/or financial crunch (as over-expansion of loans becomes obvious to creditors). Once a cyclical downturn hits, it spawns movements toward both recovery and continued stagnation. On the former, the downturn often reverses the forces that depressed the profit rate, restoring the conditions allowing accumulation. Rising unemployment depresses wages relative to productivity, allows production speed-ups, and lowers the demand for raw materials, encouraging any high-employment profit squeeze to end. Further, some fixed capital is scrapped or sold far below historical or reproduction cost, moderating or reversing any rise in the composition of capital (and in K/Z). Excessive debt can be purged via bankruptcy. So the recession helps create conditions allowing the next boom. On the other hand, it is possible for the imbalances created by the expansion phase to block the normal aggressiveness of accumulation, as in the underconsumption trap. Moreover, a decrease in the system's social legitimacy and a resultant intensification of overt class conflict might discourage accumulation and thus recovery.

B. The Institutional Environment

The above formulation of crisis theory does not provide enough information to determine which of the major crisis theories predominates at any one time. Even given a basic cause, abstract tendencies determine neither the length and robustness of the prosperity period nor the timing and intensity of economic downturns. Similarly, the conflict between tendencies that result from a downturn means that the actual outcome depends on factors as yet unexplained. Thus, in explaining the empirical path of the economy over the cycle and longer periods, there is a role for historically-specific conditions and institutions. Most importantly, this social environment helps determine whether a downturn is merely a *cyclical* crisis (a recession followed by a recovery) or a deeper and more serious *structural* crisis,¹⁹ such as the Depression of the 1930s or the contemporary "Silent Depression" (see section IV.C). So we must move from abstract capitalism toward considering actually-existing capitalism. A contrast with the Marxist "Regulation" school sets the stage for this paper's theory.²⁰

In this view, each historical era of capitalism's development has a dominant "regime of accumulation." For capitalist growth to be stable for decades, as after World War II in the core capitalist countries, the regime of accumulation must be complemented by an institutional "mode of regulation." Crises such as the Great Collapse occur because the mode of regulation is inadequate to stabilize the regime of accumulation. Since the start of the twentieth-century (until perhaps the 1970s), the regime of accumulation in the United States and other core capitalist countries was based on intensive accumulation, that is the Taylorization

of production, rapid increases in labor productivity, and capital deepening. The rise of mass-production technology made the economy unstable, because it did not mesh well with pre-World War II "competitive regulation" which centered on regular wage-cutting. In order to regularize the production and realization of profits, mass-production technology requires the existence of stable mass consumer markets—based on high and rising real wages. Because this could not exist under competitive regulation, the U.S. economy during the 1920s was ripe for a fall into Depression.²¹

Rather than criticize the Regulation school at length (cf. Brenner and Glick, 1991), four major points should be emphasized. First, we should avoid that school's tendency to ignore the international regime, since the world economy is crucial. Given the long-term growth of interdependence since the eighteenth-century, it is increasingly central to the behavior of all national economies. Also, it must be explained why the United States was so crucial so that Regulationists such as Aglietta can devote almost all of his attention to it.²² Below, this paper emphasizes the structural need for a hegemonic power on the international level; this requirement seems to be part and parcel of the increasingly overt socialization of capitalism, which in the limit requires a world government.²³ As Kindleberger (1986) and other "global Keynesians" argue, the United States failed to fulfill this role during the inter-War period, even though its size and financial impact made the U.S. economy the key link in the international chain. But Kindlebergerian analysis is insufficient: we need to bring in the classical-Marxist theories of imperialism. Of all of these theories, this paper emphasizes that of Nikolai Bukharin (1917) and what John Willoughby (1979) terms the "Rowthorn-Mandel Rivalry-Hegemony-Rivalry Cycle." This suggests not only that the absence of a hegemon destabilizes the system but also that the normal uneven development of the world system makes the existence or non-existence of a hegemon a temporary state of affairs. Capitalist development involves not only hegemony but hegemonic decline and wars of succession (cf. Goldstein, 1988, chs. 5, 6, 13, 14).

Second, for the United States itself, Brenner and Glick (1991) argue convincingly that "intensive accumulation" is normal under full-blown capitalism and precedes the twentieth-century by decades and the notion of competitive regulation is poor. There is also much doubt concerning the hypothesis that Taylorism surged in practice or effectiveness (as opposed to in rhetoric) before the Collapse (Edwards, 1979, 97-104; Nelson, 1991); the rise of "scientific" management instead seems to be a gradual long-term trend, applied in a general way that put into practice principles that predated Taylor. One point in favor of the Regulation view is the ratchet upward of the trend labor productivity growth rate after 1919 or so. But this shift needs explanation (see section III.A).

Instead of modes of regulation, this paper emphasizes the role of different long-term regimes of the relative abundance or scarcity of labor-power [cf. Dobb, 1963, 23]. "Labor scarcity" should not be interpreted in narrow economic terms; it simply means that real wages rise relative to productivity as accumulation

progresses. This can be due to one or more of the following factors: (1) increasingly powerful (and widespread) working-class organization; (2) bottlenecks preventing labor-power from moving to where demand is growing or capital from moving to where the labor-power is abundant; (3) the normal increase in working-class needs encouraged by capitalist accumulation, which pushes workers to fight for higher wages (cf. Lebowitz, 1992, ch. 2); or (4) barriers to labor-saving technical change. Relative labor abundance is the opposite of this, a period when capital "gets its way," at least in the short term.

The normal tendency for capital to over-accumulate appears differently in the two types of regimes (cf. Devine, 1983, 1987).²⁴ In a "labor scarce" situation such as that of the United States in the 1960s, over-expansion leads to profit rates being squeezed by high labor and raw material costs plus a rising composition of capital. But in a labor-abundant economy such as that of the 1920s in the United States as accumulation proceeds, production of surplus value is relatively easy and the share and rate of profits rises in leading sectors (see sections III.A and B). This led to over-investment relative to demand (see section III.C). The underconsumption trap theory (see section III.F) also presumes that real wages fall relative to productivity.

Third, the long-term fall in the profit rate in the U.S. before the 1920s (Duménil et al., 1987) must be integrated into the story, though the reasons for this decline are beyond the scope of this paper. These authors' focus on the 1900-1929 period as a way to understand the 1920s and 1930s also seems a step forward. However, this paper tries to go beyond their excessively aggregative analysis in order to understand uneven development among sectors within the United States. Thus, we should reject these authors' view, and that of Gordon et al. (1983) and Brenner and Glick (1991), in which the rise in the wage share of income was a cause of the Collapse. In the crudest possible terms, this paper's conclusion is that the problem in the late-1920s United States was low rather than high wages.

In more sophisticated terms, a long-term fall in the economy-wide profit rate (up to the end of the 1910s) encouraged an intense effort to boost profit rates, which was largely successful in the leading sectors (manufacturing, the corporate sector) until 1929. In that year, the latent problems of growing income inequality and slow growth of consumption that resulted from this effort came to the surface, encouraging the Collapse. This theory follows the classic falling-profit-rate-and-then-underconsumption sequence mentioned in section A, but there is a long delay associated with the "then."

Fourth, the Regulation school's (and the related Social Structure of Accumulation school's) emphasis on historically-specific institutions ("modes of regulation"), while not wrong, is one-sided. Institutions such as the state, banks, and the like, can and do stabilize capitalism, at least temporarily. But since the essential elements of capitalism that encourage crises are not abolished by such stabilization, temporary prosperity is purchased at the price of allowing the piling-up of imbalances which simply make the crisis more severe when it comes.

Moreover, such institutions reflect and involve the same basic tensions that encourage crises in the first place, that is, class antagonism and capitalist competition. Thus, they are necessarily imperfect stabilizers. In fact, they can intensify crisis tendencies.

Turn now to more concrete analysis, which combines these elements, that is, worldwide inter-state contention and, in the United States uneven development and labor abundance, profit-decline-induced over-investment relative to demand, and historically-specific institutions and events.

II. THE INTERNATIONAL POLITICAL ECONOMY

Within the world's capitalist core, the 1920s were part of a temporary truce in what Winston Churchill termed the "Second Thirty Years' War" or what Goldstein (1988, 285) calls the third modern hegemonic war.²⁵ Despite the truce, the intensity of international tensions was very similar to those existing before World War I; what differed was the form of the strain, as trade rivalry had replaced military contention. The tensions both before and after the War can be further understood in terms of the stage that capitalism was passing through, specific to the period from about 1870 to 1945 and very different from those during the other hegemonic wars: the 1920s should be seen as part of the classical Monopoly Capitalist or Imperialist stage.²⁶ For this period, as Bukharin argued, "the anarchic structure of world capitalism is expressed in two facts: world industrial crises on the one hand, wars on the other" (1917, 53). That is, both World War I and the 1929-33 Collapse should be seen as encouraged by the dynamics of this species of world capitalism. Thus, the common view (e.g., Maddison, 1982) that the War was a shock entirely exogenous to capitalism should be rejected.

A. Imperialism

In most of the core countries, capitalist competition had been transformed and limited since the mid-nineteenth century, as domestically-based capitalist industries became increasingly concentrated and centralized. The limits on atomistic competition—cartels, trusts, joint-stock corporations, and the like—spawned the term "Monopoly Capitalism." But instead of being abolished, capitalist competition increasingly spilled out on the international level. As nationally-based capitalists pushed for state policies in their favor (especially tariffs), competition shifted from being firm-against-firm to being increasingly nation-against-nation. In many ways, this shift to "national capitals" (state/capital unity) *intensified* competition. Further, by limiting foreign competition, protection (along with transportation and communication costs) gave further support for the consolidation of cartels in each country. Thus, protectionism and the centralization of capital interacted, reinforcing each other to form a vicious circle.²⁷

Nation-against-nation competition was based on and intensified by ethnic nationalism, which had arisen as part of capitalist socioeconomic development (rather than as an exogenous force). Economic and political unity—fomented by absolutist monarchs—encouraged the rise of the nation-state. Within this framework, nationalism represented a cross-class alliance, replacing overt class struggle: this involved an uneasy merger of popular and democratic proto-nationalisms of the working classes, the ethnic-linguistic chauvinism of many of the middle strata, and elite state-patriotism aimed at stabilizing the social situation, legitimating taxes and centralized government, and raising troops (cf. Hobsbawm, 1990).²⁸ Nationalisms defined themselves relative to each other as the modern nation-states increasingly began to collide in economic and military competition.

More specifically, Germany and the United States led the way in eschewing free trade. They did not encounter the limits to import-substitution so familiar to their latter-day imitators in the periphery and thus could challenge the international economic hegemony of Britain. Their accomplishments were aided by the U.K.'s reluctance to use tariffs in retaliation. That country had not progressed as far down the road toward Monopoly Capital and had not yet declined enough in relative power to be driven to protectionism. Crucially, the power of the internationally-oriented and *rentier* segments of the British capitalist class, which were not very interested in the fate of domestic industry, encouraged this passivity in the face of other nations' rising competition.²⁹

Nationalist competition to promote industry reinforced the normal process of capitalist competition-via-accumulation. Given the anarchic organization of the world economy, the usual shortage of markets faced by the individual capitalist became more evident on the macroeconomic level. Aldcroft (1977, 6) notes the appearance of industrial excess capacity before the War, especially in Britain. He also notes that the international over-supply of primary products—and cartel-type efforts to limit production—was already developing in this period. These problems were not as severe as after the War, since that calamity led to their intensification. But even the limited pre-War over-production reinforced existing nation-against-nation conflict over access to markets.

More important than any overproduction, the uneven economic development of the core capitalist powers, that is the decline of British hegemony and its balance of power, destabilized the European equilibrium. This balance, what Karl Polanyi (1944) idealized as the "Hundred Years Peace," had been largely restricted to the European core, was quite far from absolute, and approached true peace only at the turn of the century. But compared to the hegemonic wars, that is those of Mercantilism, the 1793-1815 wars, and (especially) the two World Wars, it was peace.

The upsetting of the balance of power stimulated a rush to gain colonies, especially in Africa, the Caribbean, and the Pacific and also the common use of the term the "new Imperialism" or simply "Imperialism." The incessant search for new product markets and low-cost raw material sources (and safe locations for

investment) was linked to state-against-state competition (and the search for coaling stations for the navy). Germany, the United States and other nations tried to emulate the established colonial empire of England, as a way to boost economic and political power on the world stage. Nationalist crusades in the colonies (often fomented by political and military elites) also helped mitigate the domestic social stresses. Sometimes the conquered areas could be directly colonized by disgruntled or ambitious workers (often involuntarily), while colonial administration and military functions could sop up parts of the reserve pool of unemployed workers (including the "second sons" of aristocrats) that threatened social stability.³⁰

The competition in trade and the struggle for colonies encouraged military rivalry. Some nations, especially Britain and Germany, engaged in arms races, accumulating battleships and military bases.³¹ Given the way that the major powers were crowded in Europe, this inter-state rivalry was a central structural cause of World War I, and also of the social, economic, and political chaos afterwards.

Rather than presenting a complete explanation of the Great War, the point here is to examine the relevance of rampant competition between national capitals in the post-War era. With the additional element of increased social disorder (class conflict) and a change in the form of international contention, it helps to explain the main elements of Temin's (1989) description of the international political economy, that is the clash between nation-state rivalry and the deflationary policy regime. These should be seen as aspects of an *internal contradiction* of the political economy of a stage of world capitalism. The class dimension is central: the quest for the restoration of capitalist order was ultimately contradicted by the effort to boost profits.

B. The Interregnum

Neither the War nor the 1919 Treaty of Versailles abolished the inter-state discord characterizing the Imperialist stage: there was no overall victor (hegemon) with the power to impose a long-lived solution.³² Though President Wilson sailed to Europe, with grand images of leadership (his Fourteen Points), his attempt to be the hegemon was in vain. To the extent that some sort of pacifying principle was applied, it was ethnic nationalism (a.k.a. "the right of nations to self-determination"), enshrined as the major principle for redrawing national boundaries in the wreckage of the multinational empires. The diplomats struggled to deal with widespread social conflicts, including the challenge of the Bolshevik and Hungarian Revolutions: compared to boiling social conflicts, ethnic nationalism seemed a superior organizing principle. However, this principle was hardly sufficient to maintain world order. Several new nations were created to compete on the world scene. Sometimes these were based on intellectual abstractions imposed from above that did not fit with the fuzziness of

ethnic boundaries. So some (such as Czechoslovakia) were born suffering from structural instability. Further, economic rationality was often ignored in a way that hurt the potential for prosperity: the newly-created national boundaries often had no connection with economic realities (cf. Aldcroft, 1977, chs. 2-3).³³

Even peace did not arrive in Europe until 1923: the British naval blockade imposed food shortages and even starvation on Germany for five months after the 1918 armistice, while the Russo-Polish and Greco-Turk wars continued into the 1920s. Crucially, the Versailles Treaty itself was a continuation of the War by other means against the losers, encouraging economic stagnation and social unrest (as Keynes pointed out).³⁴ But military antagonisms cooled as the decade progressed, despite such events as the French and Belgian occupation of the Ruhr in January 1923. Their power withered by War and dominated by debt, the major nations signed arms-control and -reduction agreements during the 1920s (the Naval Arms Conferences of 1921-22 and 1929). In fact, the 1928 Kellogg-Briand Pact, ultimately ratified by 64 nations, renounced war as an instrument of national policy.

But instead of being abolished, only the form of state-against-state rivalry changed: instead of a rush for colonies, arms races, and military rivalry, discord among the core capitalist states operated primarily on the economic plane until the 1930s (the rise of Hitler and remilitarization).³⁶ The further struggle for colonies by the traditional European powers was discouraged by the unprecedented destructiveness of the War, the absence of easy and profitable targets in the periphery, by the victory of two-thirds of the Triple Entente, and by the diminishing returns that set in after the initial stages of colonization.³⁶

As Maddison (1982, 92) writes, this entire period was one of generalized "beggar-your-neighbor" policies, that is, creeping protectionism. New nations imposed tariffs as an easy way to raise revenues to finance shaky states and to promote national development, while older nations used them to fight domestic stagnation. After some post-War retreats, the vicious circle of protectionism and cartelization began again. Kenwood and Lougheed argue that

In only one respect did pre-war trends continue into the interwar period. In the field of commercial policy the movement towards protectionism became more marked, as international considerations were increasingly subordinated to national monetary and employment policies made necessary by post-war reconstruction and, later, by the onset of a world depression [1911: 175].³⁷

These problems were recognized by the World Economic Conference of 1927 and elsewhere, but generally ignored in practice, especially as the world trade situation began to deteriorate and each nation retaliated in a growing trade war. The political forces favoring international contention were too strong.

As noted, the relatively calm inter-state rivalry of this period was merely a temporary truce in a longer war, which ended only in 1945. In that year, the United States became the new hegemon, succeeding the United Kingdom. The

fact that the U.S. had suffered scant damage (in either World War) to its own territory and actually had amplified its relative advantages in international military, manufacturing, trading, and financial rivalry was a crucial determinant of this "passing of the torch." The period between the wars, on the other hand, was an *interregnum*. The absence of a military and economic hegemon meant that it was unlikely that any Bretton Woods-type agreement could have been created (though important aspects of it had been proposed) or that if one had been made, that it would have lasted. Even the League of Nations was rejected by the rising but not-yet superpower, as "isolationist" U.S. Republicans opposed any world union not completely under their government's control.³⁸ All of this encouraged chaos, and intensified economic competition between nations.

This view goes deeper than Kindleberger's, focusing on the economic and military power of the hegemonic nation instead of simply financial and trade matters.³⁹ The provision of so-called "international collective goods"—for example, an international central bank—will occur only if there exists a country (or a very tightly-knit coalition of countries) with economic and military dominance. In very simple terms, few nations' elites will accept domination by a supranational organization (or a super-power) unless they (1) are pushed to accept the system by the big power(s) using sanctions or threats, or (2) clearly control the organization and thus benefit from it, as with the big power(s) themselves. It helps to have a clear common enemy which raises the benefits to each country, as with the Soviet Union after World War II: the Cold War and the Truman-McCarthy Red Scare helped unite the core capitalist world's elites, allowing the establishment of post-World War II international institutions.

After World War I, on the other hand, the power of the United States was not large enough relative to its competitors to the hegemon's throne. Both France and the United Kingdom still had their hegemonic pretensions. The emerging Soviet Union was hardly a threat sufficient to unify the contentious core capitalist countries for long. Also, as Goldstein (1988, 341) suggests, the delay in the accession of the United States to the throne arose partly because the location of the capitalist world system's core shifted away from Europe; the rising power could not immediately move beyond its traditional sphere of influence. One can also point to a learning process: after World War II, many of the power elite feared a replay of the inter-War period and consciously sought to avoid a repeat of the negative results.⁴⁰ Finally, as developed in sections D and F, below, the U.S. did not yet have the internal solidity necessary to playing a hegemonic role.

This vision of hegemony implies that Kindleberger's emphasis on the need for a world central bank is less accurate than Temin's stress on "intense nationalist rivalry" as a structural cause of the Collapse. But intense international discord does *not* automatically cause an economic Collapse. If the War had been even less decisive or destructive, it is likely that countries would have dedicated more resources to war preparations. Even though the regular balancing of government budgets was still the orthodoxy, military spending and especially wars have been

the traditional exceptions to that rule. Thus, the world could have stumbled onto military Keynesianism (and/or war), maintaining macroeconomic stability of sorts. In sum, it was not simply the international rivalry that encouraged Depression as much as the *specific degree and type* of rivalry that existed after the War.

C. The Restoration

Turn next to the dominant "policy regime" that Temin (1989) argues existed during the 1920s: *laissez-faire*, a deflationary bias, and the gold standard. This regime, whose origin he does not try to explain, should be seen as part of the post-War conservative Restoration movement (cf. Maier, 1988)—the effort to clean up the economic, political, and social mess that was partly intensified and partly created by the War. The form of this response depended on the interests of the politically-dominant fractions of the capitalist class. On the other hand, the success of this Restoration in attaining its goals of order-creation and profit-promotion resulted in part because of the weakness of the resistance offered by the working class, the petty bourgeoisie, and the more "enlightened" elements of the capitalist class.

This Restoration was organized in a completely different way from that of the post-World War II era. In the latter, a triumphant United States reorganized the world from a position of strength, steeled by the crusade against "Godless Communism." It could thus back up its efforts to restore order and normal economic operations with a flood of Marshall Plan dollars and C.I.A.-organized covert operations (cf. Armstrong et al., 1991, part I).⁴¹ In contrast, the post-World War I Restoration began with most industrial countries starting from a position of weakness, engaging in only futile efforts at international co-ordination.

In the so-called "return to normalcy" of U.S. President Harding and other leaders, capitalist governments reacted to the Bolshevik revolution and also serious revolts in the losing countries (Germany, Hungary, Austria, and to a lesser extent, Italy) and the post-War waves of strikes and disorders. To some extent, working-class grievances had been suppressed by and channeled into nationalistic fervor during the War. But these reappeared with a vengeance toward the end, and in the aftermath, as the accumulating costs, stupidity, and immorality of the War became increasingly obvious; the birth of an alternative in Russia further stimulated this change of heart. Both the War's losers and its European winners (the United Kingdom, France, Italy) did poorly immediately after the War. On the other hand, the United States was faring relatively well, barely having dipped its toe into the Great War. But even it was not exempted from the post-War strike wave and world recession.

Finally, U.S. leaders were responding to the pressure put on business by the long-term fall in profitability since the turn of the century [Duménil et al., 1987; Duménil and Lévy, 1991]. Whether other countries were suffering from similar

long-term declines is a topic for further research; in any case, many were suffering from *short-term* declines as a result of the end of artificially-high War profits, post-War adjustments, and recession. At least for the U.S., corporate War profits had been high and those of the immediate post-War era were disappointing (see charts 3-B and 3-D, below).

Laissez-faire, the reaction against the corporate-liberal “Progressive Era” and War-time central planning in the United States represented a return to “that old time religion” perceived as having promoted profitability and prosperity in the previous century.⁴² This “religion” did not exclude international protectionism: the ascendant U.S. Republicans, for example, had been the pro-tariff party since the 1850s. But then again, *in practice laissez-faire* has always meant intervention in markets to aid business and the rich, as with the massive railroad land-grants of the Nineteenth-century United States or the “trickle-down” policies of the Reagan and Bush administrations. That is, *laissez-faire* represents the political-economic program of a specific fraction of the capitalist class more than a set of principles of “hands off the market.”

D. Deflationary Bias

The deflationary tinge of the interwar years reflected its political economy. Political elites were responding to the political, social, and economic chaos—linked to serious inflation—after World War I in Germany, in the other losing powers, and in the fragile new states of central Europe. Deflation was also encouraged by the international regime. In turn, this bias helped cause the Collapse, just as military Keynesianism after World War II contributed to the rise of stagflation in the 1970s.

Power elites usually resemble the stereotyped French generals who always are fighting the previous war: just as those of a later generation were to respond to the Depression with Keynesianism, the late-1920s elites were working to prevent the recurrence of the interconnected threats of social disorder and hyperinflation.

The post-War social havoc encouraged large government deficits: embattled governments lost much of their ability to raise or to collect taxes and suffered simultaneously from increased costs of rebuilding and reconverting the economy and of establishing and maintaining social order. Given the shakiness of these states, creditors were unwilling to lend at anything close to normal or affordable interest rates (so such loans veered toward Ponzi finance). So unbridled money-printing, hyperinflation, and finally economic collapse were encouraged, as with revolutionary Russia, post-World War II Nationalist China, many Latin American nations in recent decades, or the new capitalist countries of Eastern Europe after 1989.

The inflationary process had extra force because the political crisis interacted with and intensified social antagonisms; it became more difficult to push adjustment costs onto any sector: in order to reconcile conflicting claims on the

domestic product and to avoid straightforward class-against-class conflict over the real product's distribution, inflation was encouraged.⁴³ As inflation intensified, this spurred further conflict as the less-organized sectors organized to try to reverse losses in real income and to catch up with the more organized ones. Such a vicious circle of conflict and inflation makes demand-side anti-inflationary tools much less effective and thus more costly. With a boldness reminiscent of Milton Friedman, one might say that hyperinflation is always and everywhere a phenomenon of political collapse and social conflict.⁴⁴

Turning to the most famous example, the German government faced a defeated army marching home in chaos, war- and blockade-imposed food shortages, mutinies, proto-Nazi *freikorps*, and socialist revolts. Order was eventually restored, but at a cost. The costs of creating order included a decreased ability to collect or raise taxes and the need to maintain the support for the government of a significant percentage of its own personnel: thus the budget deficit could not be cut. Moreover, Germany had lost territory and productive capacity and had to pay reparations. The Franco-Belgian occupation of the Ruhr in 1923 was the straw that broke the bank, setting off hyperinflation. Some have argued that the government provoked this debacle deliberately in order to prove that reparations could not be paid (cf. Aldcroft, 1977, 84). But the fact that the government might have been so desperate is a symptom of the severe social and political antagonisms present. On the social-conflict dimension of the German hyperinflation, Burkett and Burdekin (1991) show how the societal conflict between workers and their employers helped create the hyperinflation. This hyperinflation only ended when the economic civil war had been won by the capitalist class, imposing higher unemployment on the workers and weakening their organizations.

This formed the model for the deflationary consensus. The immediate post-War "pent-up demand" inflations (in most countries), the hyperinflations (in Germany, Poland, Hungary, Austria, and Russia), and the relatively minor inflations during the 1920s (in France, Belgium, and Italy) also strongly encouraged the deflationary bias of policies in the late 1920s and early 1930s. The chain of inflation terrified bankers, central bankers, and many ordinary citizens world-wide. This, combined with foggy memories of the deflation during the "good old days" before the War, the fresher remembrance of inflation and shortages during the War, and most importantly, the normal anti-inflationary bias of bankers, formed the basis for an international deflationary consensus. The backbone of this consensus is the bourgeois effort to use monetary discipline as a weapon of class struggle.

On the international level, Arsen (1991) and Marglin (1991) point out that the absence of a hegemon encourages deflation. The penalties for running a balance of payments surplus are less obvious and direct than those for running a deficit. A country that runs a payments surplus imposes a deficit on others, while a deficit country that deflates in order to attain trade balance will broadcast deflation to the world. To solve this, "the hegemonic country must possess an internationally dominant manufacturing sector which generates a permanent trade

surplus ... [and] must also be willing to lend and invest abroad an amount greater than its trade surplus" (Arsen, 1991, 5; cf. Marglin, 1992, 10).

On a more concrete level, deflationary policies were encouraged by the unstable network of payment of reparations and debt service left over from the War, with actual and threatened non-payment as a constant theme for the entire decade (Aldcroft, 1977, ch. 4) The accumulation of international debts had allowed the European powers to push many of the costs of the War into the 1920s: in that decade, the chickens were coming home to roost. Further, England and especially France continued to fight the War by pushing for German reparations payments, no matter what the economic and social impact on Germany, on the world, and in the end, on them. At the same time, France lead efforts to prevent the large rise of German exports needed to finance reparations payments.

Reparations and international debts have directly deflationary effects, as countries must raise taxes or cut government spending and then translate these funds into foreign currency. The former depresses domestic aggregate demand, *ceteris paribus*, while the latter involves cutting imports and promoting exports. As Kindleberger and Aldcroft each argue, Germany always tried to get out of its reparations (actual payments were relatively small) and at the end of the 1920s pursued deflationary policies in order to convince the world that it needed to get off the hook. In sum, domestic consumption is cut while any world market over-supply is exacerbated. The export-promotion effort, if common enough on a world scale, encourages competitive devaluation, export subsidies, import controls and the like; as was discovered in the 1930s, when this process is competitive, few countries gain permanently and all can lose—as the volume of world trade shrinks. During the 1980s, competitive austerity programs all across the world (especially in Latin America, but elsewhere) encouraged world depression, but the realization of that tendency in the form of world collapse was largely blocked by countries which were willing and able to run large current-account deficits and accumulate international debt (especially the U.S.) But during the late 1920s, such offsets did not exist.

As the 1920s progressed, one could see the development of a rough triangle of payments. Germany paid (some) reparations to England and France, while those countries paid interest to the United States. Completing the triangle, and keeping things going for awhile, were U.S. loans to Germany (under the 1924 Dawes plan and the 1930 Young plan). But as Aldcroft notes, "Germany was simply incurring one debt to pay another (in fact building up an even larger debt in the process) so that the problem of real redemption was never faced squarely" (1977, 92). Like Ponzi finance, the "triangle" was unstable. The shift of funds to the New York stock market (starting in 1928) helped break the triangle, though given its instability it is quite possible that another shock could have had the same impact. As both Kindleberger and Aldcroft note, the shaky triangle could have been made firm if there had been an effort for a general settlement. But the United States almost always refused to allow linkage of war debt-service and reparations: only

piece-meal case-by-case solutions were allowed. So the interregnum again played its structural role in encouraging Collapse.

As Temin notes, a deflationary consensus such as existed in the late 1920s could have dominated Kindleberger's hypothetical world central bank, thus negating the positive impact of such a bank. This possibility seems likely: consider how the contemporary I.M.F. pushes large numbers of nations to restructure in a deflationary way, ignoring any potential depressionary effects on the world level. Thus, we might provisionally see the existence of a hegemonic power as necessary *but not sufficient* to world economic stability. "Restorationist" and deflationist ideology might dominate policy, as Temin argues, swamping the positive aspects of leadership and causing macroeconomic disaster.

But what are the bases of such ideology? First, if the hegemonic power (or coalition) is not very strong relative to contenders, then it is more likely, in desperation, to follow world macro-destructive policies (even though they feed back and hurt the power); only when it is largely insulated from economic competition, can the hegemon's ruling elite stand above the fray and take a global view, seeing that their narrow domestic goals can be served by world stability.⁴⁵ Second, we must go beyond Temin: for the dominant power to play its stabilizing role, it must have domestic tranquility; facing an overt civil war between classes, ethnic groups, or whatever, even the most internationally powerful nation will be pushed to turn inward and to abdicate its Kindlebergian responsibilities in the name of Restoration. Again, the powerful United States of the two decades after World War II, easily able to contain or suppress most of its internal conflicts, was less likely to ignore its impact on the world. So in the end, hegemony becomes crucial: a strong power will eschew deflationary ideology. This point reinforces our emphasis on the costs of nationalist rivalry (Temin) over the need for an I.M.F. (Kindleberger).

E. Gold

The gold standard (a.k.a. the "gold exchange standard") is often seen as central to the instability of the world economy of the 1920s (Temin, 1989, 1993; Eichengreen, 1992; Cooper, 1992). But this system's rise was not an accident, since it was a part of the multi-pronged, if somewhat incoherent, effort to restore social order and business profitability. First, in the absence of a hegemonic military and economic power or a strongly unified combine of nations willing and able to impose a non-metallic international system of payments, the gold standard is an obvious artifice (in some ways like the Versailles emphasis on ethnic nationalism). In order to have a world currency not backed by gold, such as the dollar since the 1970s, its circulation must be backed by the military and economic power of the country issuing the currency. Marx (1867: ch. 3) saw inconvertible paper currency as only being feasible when the government forces its circulation. Extending his thesis to the international arena,⁴⁶ a *world* government could force the circulation of such money on the international level. More generally, the

stronger the government—or the stronger the hegemonic power—the greater the stability of such a paper-money system, *ceteris paribus*.

Another reason for the acceptance of the gold-exchange standard was its well-known deflationary bias (reinforced by the post-War shortage of gold), which melded well with the policy tone of the era. This international deflationary bias in turn pushed contractionary domestic monetary policies on those countries committed to fixed exchange rates. In theory, on the other hand, fiscal policy is made more powerful by fixed exchange rates. However, for reasons developed in section III.E, expansionary fiscal policy was generally ruled out during this period. On the other hand, contractionary fiscal policy was encouraged (in response to recession-induced deficits).

The gold standard's instability was also not accidental. Though the gold standard was an "obvious artifice," it hardly solved the problems of international payments, especially in the long run, given the absence of a hegemon. As discussed above, the asymmetries of international payments imply the need for hegemony. The gold standard had worked relatively well during the during the Nineteenth-century, as Britain was able (given its economic power) to shoulder the relatively small short-term costs of adjustment. But in the long run, without a hegemon, the asymmetries undermine the operations of an informal gold standard of the sort that predominated in the 1920s (cf. Eichengreen, 1992; Cooper, 1992). There was no simple agreed-upon process of exchange-rate adjustment.⁴⁷ With or without gold, with or without fixed exchange rates, the international monetary system needs clear "rules of the game," enforced by some central agency. But in the 1920s, there was no hegemon to back up any such agency. As a substitute for a hegemon's role, one can point to war or war-preparation: during World War I, the world monetary system was inflationary rather than deflationary. But, as noted, that form of international competition faded during the 1920s.

On a more concrete level, the gold standard was disrupted by the policies of major participants during the 1920s. In 1925, Britain, led by rentiers, financial capitalists, and international investors with little concern for the domestic economy, went back to gold with the pound clearly overvalued, at its pre-War value.⁴⁸ This policy, justified by hopes of returning to former financial glories through the application of economic magic, encouraged domestic deflation, stagnation, and social strife (e.g., the General Strike of 1926). On the other hand, France continued its international competition by accumulating gold reserves (which was mostly sterilized), imposing trade deficits on other countries. In 1928, in fact, France started to accept *only* gold in some international transactions. The U.S. also accumulated gold during the 1920s, though with less determination.

F. The Pre-Depression

Deflationary policies, technical changes such as the introduction of artificial rubber, and the rush of combatants back into production after the War encouraged

a world primary products depression (Lewis, 1949; Aldcroft, 1977: ch. 9; Kindleberger, 1986, ch. 4), including U.S. agriculture (the "Farmer's Depression"). This not only hurt the ability of these sectors to demand manufactured goods, but made them shaky creditors, prone to bankruptcy but desperate to get new loans (often to finance the maintenance of stocks in an effort to prop up prices or to finance interest payments on old debt). In the late 1920s, there was some recovery of the primary products markets, but this prosperity was quite dependent on the prosperity of the manufacturing sectors of the core capitalist countries.⁴⁹ So when industry slipped into recession, the primary producers fell even more steeply.

The fact that the world commodity depression involved the United States has an important implication for Kindleberger's view. He sees the unwillingness of the United States to accept "distress goods" (goods in extreme excess supply) as a key element of the failure of U.S. leadership in the 1930s. But with his focus on New York and Washington decision-makers, Kindleberger forgets that the politically-crucial U.S. agricultural sector shared in the world distress. This made the passing of the Smoot-Hawley tariff not simply a matter of irresponsibility: the pressure from farmers (who were more powerful in 1930 than in recent years) and other suffering sectors overwhelmed the petitions of economists and other nations. This suggests that the problem was that United States had not sufficiently settled its domestic problems and so was not yet enough of an international economic power to make the short-term sacrifices required to be the world leader that Kindleberger prescribes.⁵⁰

For many countries and sectors, the Depression started long before 1929. The Collapse was not only an aggregate disaster but also a downward convergence of the prosperous toward the sluggish sectors, the forcible adjustment of the relations among unevenly-growing parts of the world economy. The non-farm U.S. was one of the few major capitalist sectors that escaped the post-War chaos, while New York had become the financial capital of the world. These facts of uneven development on a world scale make matters a little easier for those examining the origins of the Collapse. A good first approximation of the story behind the Collapse can be discovered by focusing attention on the United States: when the United States growth stopped, a world Collapse (the end of the late 1920s boom) was encouraged. The world crisis then fed back to depress the U.S. economy further. This focus on the United States seems a general consensus among students of this period (cf. Romer, 1993).

Given the above litany of world economic problems, this attention is understandable. However, looking at the world from the primary-producing periphery rather than the manufacturing centers, one might conclude that the Depression actually began in 1919-1920. In fact, one should wonder why the entire world economy (rather than simply primary products) did not collapse into Depression as a result of the sharp post-War recession that hit many countries around the world.

An immediate reason for recovery from that collapse—rather than a 1930s-type stagnation—was the obvious need for reconstruction after the War, to “get business moving again” (mitigating realization problems), and to avoid even worse delegitimation and social tension than actually occurred. Reconstruction and a wave of technical spin-offs from the War (and the fact that the War had delayed implementation of civilian technologies) then stimulated a shaky business recovery, competitive expansion, and late-decade prosperity. However, as the need for reconstruction abated, and as rebuilt industries began to compete with similar industries abroad and the international imbalances discussed above intensified, the world became increasingly dependent on U.S. leading sectors for demand stimulus.

The actual drama of the Collapse of the world economy centered on two nations, the United States and Germany. Germany, saddled as it was with reparations and debts, was clearly dependent on the former nation, and on the general health of the world economy. Other nations had already begun their depressions (such as England) or suffered a delayed reaction and thus had a hard time prospering amidst the general stagnation (such as France). In the end, however, the United States was the capstone in the world arch, so special attention must be given to that country. Turn next to an examination of its “bootstrap” growth.

III. THE UNITED STATES

Global Keynesians such as Kindleberger and Temin minimize the role of U.S. internal events in causing the Collapse. But even though this country was a major bright spot in the world economy, all was not well. To some extent, the hidden rot reflected the world situation while the represented represented a microcosm of the world pre-Depression: the United States participated in the Restoration, the deflationary policies, *laissez-faire*, and the gold standard. And to some extent, the U.S. economy’s problems were unique and internal.

These statements conflict with the common image of the 1920s as a “New Era,” a golden age perhaps analogous to that of the 1950s and 1960s. But this common vision is based on the fallacy of treating the U.S. as a homogeneous bulk. But uneven development affected the United States as much as it did the world economy. Much of the anecdotal evidence about “roaring 20s” prosperity comes from the sectors on the high end of this uneven development, so it is easy to forget the sectors and classes left behind.⁵¹

Diagram 1 shows the shares of different sectors in total income.⁵² While the relative claims on national income of the agricultural and non-farm entrepreneurial (i.e., proprietorship, small business) sectors were shrinking, those of non-entrepreneurial (corporate) manufacturing and “other”⁵³ were growing steadily. The usual stories of 1920s prosperity either ignore the former two sectors and focus on the latter two areas (the leading sectors) or deal only with aggregate numbers.

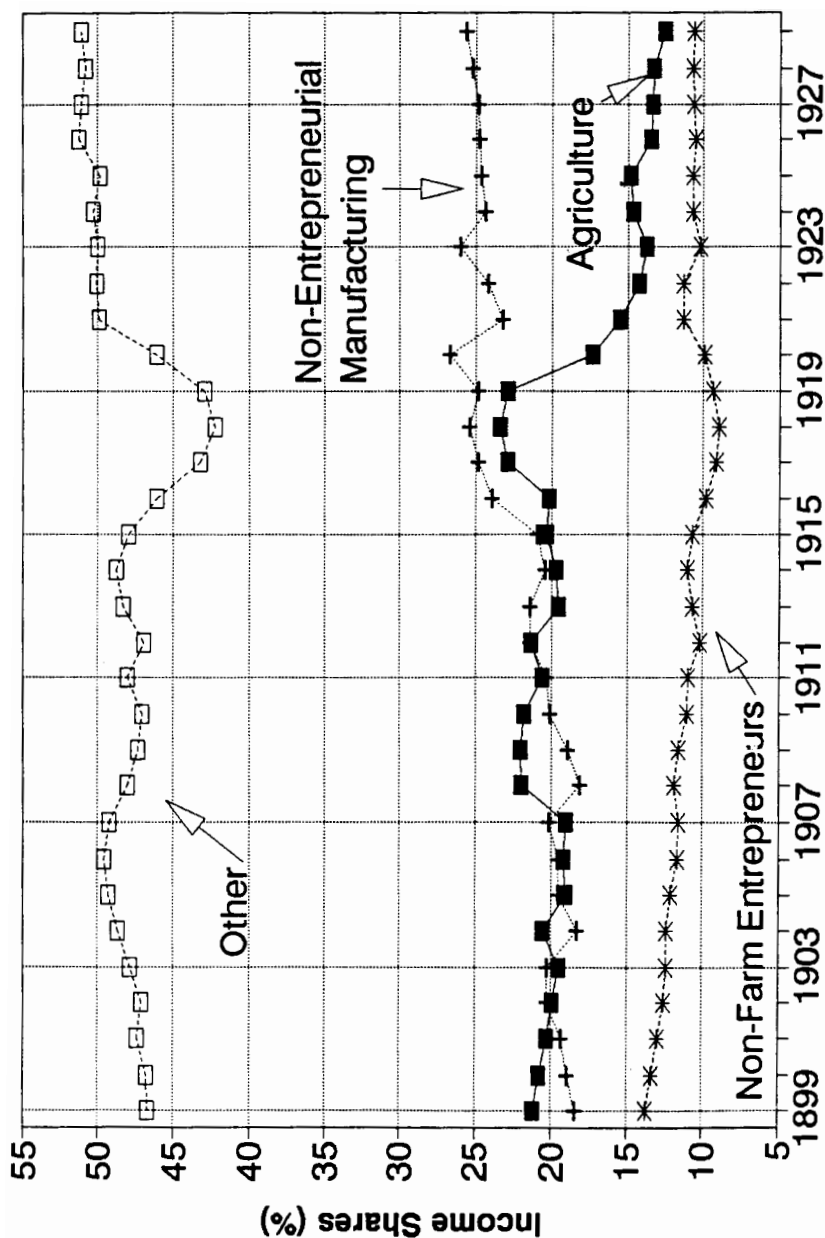


Diagram 1. Sectoral Shares of Total Income

These stories also ignore the employers' offensive against labor. The success of this assault was partly due to the workers' weakness, which in turn reinforced that weakness, as did the technological unemployment encouraged by rising labor productivity. This allowed rising profit rates in the leading sectors and an unstable boom.

As mentioned in section I.B, this paper develops and presents evidence for a historically-specific version of a theory of underconsumption resulting from a falling profit rate, but with a long delay. The lag is crucial to the story, since the accumulated fixed capital, luxury goods, and consumer debt that allowed this long delay (roughly a decade) also meant the deepening of imbalances that helped make the U.S. Collapse so Great (Devine, 1983). This suggests that if the Collapse had been delayed even further, it would have been even worse.

A. Labor Abundance

The 1920s "employers' offensive" against labor occurred partly in reaction to high War-time wages and the post-War strike wave. This offensive was part and parcel of *laissez-faire* in practice, and continued the War-time repression (and was in some ways preminiscent of the period of the late 1970s until the present). It was given extra fervor by low profits: as Duménil et al. (1987) and Duménil and Lévy (1993) point out, the U.S. economy as a whole suffered from declining profit rates during the first two decades of this century (1900-1920). Most data also show a steep profit-rate fall immediately after the War. This offensive—part of the more general Restoration—was seen most dramatically in the Wilson-Palmer raids after the War, but also in the "American Plan" of company unions and open shops plus the repeated anti-union injunctions by the courts.⁵⁴ The post-War recession and deflation (starting in January 1920) was part of this offensive, an effort to cut wages in order to raise profit rates in the longer term: in the dominant economic-policy view of the time, such recessions were seen as a "natural" way to deal with the economic imbalances including high wage demands and inflation. Given this attitude, the power elite needs not have a conscious desire for an anti-labor offensive for it to have such effects. However, the main macro-policy-making institution of the time (the Federal Reserve) was clearly anti-labor, in that it was controlled by bankers.

As a result of the offensive and the conflicts within the labor movement, workers' organizations lost power. The unionization rate peaked in 1920 and fell steeply after that, reversing all gains after 1916.⁵⁵ The A.F. of L. shrank to the most elite of craft sectors, losing its political influence with the end of corporate liberalism and war-time planning. The I.W.W. and the Socialist Party (which had scared business before and during the War) faded from the scene. Workers' ability to capture productivity gains or to resist wage cuts shrank. The organizational frailty of unions and workers' political parties resulting from the

Table 1. Labor Supply indices (1900 = 100)

	Civilian Labor Force	Non- Agricultural Civilian L.F.	Proletarian Non-agr. Civilian L.F.	Proletarian Non-agr. Civilian Labor Hours	Effective Labor Supply
1900	100.0	100.0	100.0	100.0	100.0
1909	125.9	141.7	149.3	144.0	173.8
1919	139.9	168.5	188.2	166.2	247.0
1929	168.3	214.8	241.3	206.8	385.8
	(1)	(2)	(3)	(4)	(5)

Source: For sources and methods, see appendix A.

Table 2. Components of Labor Supply and Demand
Growth average annual growth rates (percent)

	Civilian Labor Forcer	Rural- urban Migration	Prolet- arianization	Hours of Work	Prole. & Entrepren- neurial Labor Supply	Output Per Labor Hour	Effective Labor Supply	Non- Agric. GDP
1900-09	2.56	1.32	0.58	-0.40	3.47	2.09	5.56	4.67
1909-19	1.06	0.68	0.58	-0.88	0.85	2.08	2.93	2.71
1919-29	1.85	0.58	0.06	-0.30	2.13	2.27	4.40	4.36
	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)

Notes: Column (10) is the sum of columns (6), (7), and (9). Column (12) is column (10) plus column (11).
For more on sources and methods, see appendix A.

employers' offensive helped create a situation of "labor abundance" for the leading sectors.

This abundance occurred despite the racist and highly restrictive 1921 and 1924 immigration laws which slowed the growth of the supply of labor.⁵⁶ First, as Jacoby (1985, 170) notes, migration from Mexico helped prevent labor-power shortages, even in northern industry. Second, as part of the general phenomenon of U.S. domestic uneven development, labor migrated from the countryside to the city. The stagnation of the farm sector created an ample flow of labor to the city, continuing the trend of the pre-War period (cf. Jacoby, 1985: 171; Lazonick, 1990: 254-5). As shown in Table 1, though the civilian labor force was only 68.3 percent larger in 1929 than in 1900, the non-agricultural civilian labor force rose by 114.8 percent between those years. Table 2, column (6), shows that this migration slowed during the 1920s compared to the pre-War period. But it still had a significant impact on the urban labor-power supply.⁵⁷

Other potential sources of labor-power to the leading sectors are examined in Tables I and II. First, it might be hypothesized that the secular shrinkage of the

petty bourgeoisie predicted by Marx (reflected in the decline of non-farm entrepreneurs in Diagram 1) provided a labor supply. In the Table 1, column (3) shows the growth of the estimated proletarian work-force (excluding the self-employed). Though this adjustment had an effect, it was very minor in the 1920s (see column 8 of Table 2), in that the nonfarm "proletarianization rate" was constant between 1920 and 1930 (M. Reich, 1986, 125).⁵⁸ Next, changes in hours worked can raise the labor-power supply. Column (4) of Table 1 and column (9) of Table 2 show that changes in work-hours actually reduced labor-supply growth during the 1920s. Not shown, however, is a significant change, that is the cessation (or even reversal) after 1925 of the long-term trend toward shorter hours as shown in the series on weekly hours of work in manufacturing.⁵⁹ The fact that the long-term trend halted or was even reversed is in itself evidence for labor abundance in the late 1920s, since it shows labor's low or falling ability to resist the extension of the working day. Finally, and most importantly for the 1920s, the accelerated growth of productivity during this period helped preserve labor abundance, by reproducing a high level of technological unemployment over time (cf. Jacoby, 1985, 168-70). The effect of productivity growth on raising the "effective labor supply" is shown in column (5) of Table 1 and column (12) of Table 2.⁶⁰ Productivity growth contributed to 51 percent of the increase in the effective labor supply in the 1920s; the next most important was the growth of the civilian labor force (41%).⁶¹

Table 2 compares the growth of the effective labor supply with that of labor demand (non-farm Gross Domestic Product growth).⁶² In all three decades, demand (column 13) grew more slowly than supply (column 12). The "under-shoot," that is, the amount that labor demand growth grew less than supply, fell from decade to decade, so that during the 1920s, demand grew at only slightly more slowly than supply. Errors in measurement could mean that, in reality demand grew more than supply in the 1920s. Does that mean that a labor shortage was about to develop? Possibly. In fact, the closing gap between demand growth and supply growth might be interpreted as a harbinger of things to come in the 1950s and 1960s, when for a time, profits were squeezed by high wages (cf. Devine, 1987). After all, according to Lebergott (1964, 512), in 1926 the nonfarm unemployment fell to less than 3 percent.

But a more complete examination of unemployment in the 1920s leads to the rejection of this preliminary conclusion. First, examine part A of Table 3. First, as shown by column (14), the average of Lebergott's nonfarm unemployment rates was high during the period 1919-29, though lower than in previous decades.⁶³ Romer (1986) recalculated his national unemployment rates to take into account pro-cyclical changes in the labor force (to make the data consistent with current estimation practice). This makes unemployment rates less volatile, meaning that her measured unemployment is lower than Lebergott's in 1921 and higher in 1926 (i.e., 8.7% and 4.0%). She does not calculate urban unemployment rates, but column (15) shows estimates of what her numbers would look like, assuming that the ratio of urban to total unemployment rates is as with Lebergott's data.⁶⁴ In

Table 3. Estimates of Leading-Sector Unemployment

	<i>Percent of the Non-farm Labor Force</i>		<i>Percent of manuf. & Transport. Labor Supply</i>
	<i>Lebergott</i>	<i>Estimated Romer</i>	<i>Douglas (with extrapolations)</i>
A. decade averages			
1900-09	8.9%	9.4%	5.3%
1909-19	8.5	9.0	6.8
1919-29	6.6	8.1	8.1* (8.0, 8.0)
B. cycle averages			
1900-02	9.4	10.2	4.8
1903-07	7.4	8.6	4.3
1908-10	11.3	10.2	6.9
1911-13	9.1	9.6	5.0
1914-18	8.9	9.4	7.2
1919-20	5.1	6.5	4.2
1921-23	10.2	10.2	13.7
1924-26	5.2	7.8	6.0
1927-29	5.5	7.3	5.6* (7.0, 6.9)
C. yearly data			
1919	2.3	5.0	4.0
1920	7.9	7.9	4.3
1921	16.3	12.2	21.2
1922	10.2	10.5	15.4
1923	3.9	7.8	4.4
1924	7.7	9.0	8.3
1925	5.1	7.8	5.1
1926	2.8	6.4	4.5
1927	5.1	7.1	5.6
1928	6.5	7.7	(8.3, 7.9)
1929	5.0	7.1	(7.1, 7.1)
	(14)	(15)	(16)

Notes: *No data are available for 1928 and 1929. Numbers in parentheses are extrapolations.

Source: For sources and methods, see appendix A.

general, this "estimated Romer" urban unemployment rate is higher and shows less of a downward trend than does the Lebergott series. In 1926, this number is 6.4 percent, significantly higher (and closer to the decade average) than Lebergott's 2.8 percent of the urban labor force.

Next consider an even smaller level of aggregation, which shows the most important part of the urban leading sector. Column (16) of Table 3 shows unemployment rates in manufacturing and transportation, as estimated by Douglas (1930). As seen in simple regressions against time, unlike the other two series, the Douglas numbers show a slight upward trend. Despite the statistical insignificance of the coefficient, even the absence of a trend is evidence for labor abundance in the 1920s: there was a continuation of the labor-power market conditions of the pre-War period. As the numbers in parentheses show, this is so even when Douglas' numbers are extrapolated to 1929, using the Lebergott and estimated Romer numbers (and a time trend) in simple regressions.⁶⁵

One might quarrel with the use of a decade averages and long-term trends. One alternative way of looking at matters appears in part B of Table 3, which shows average unemployment rates by business cycles. All three series show upward trends from 1919-20 to 1927-29. On the other hand, if we start the comparison with 1921-23, which includes the severe post-War recession, matters appear differently: unemployment is relatively low in the late 1920s. But when comparing 1927-29 to 1924-26, both the Lebergott numbers and the extrapolated Douglas numbers moved upward.⁶⁶

At this point, we must remember that the effect of the reserve army of the unemployed is not simply a matter of the current year's unemployment. Record unemployment rates such as those seen in 1921 (see part C of the table) have a sustained impact on the morale, institutions, and relative bargaining power of workers, even as the unemployment rate fell (temporarily) in the mid-to-late 1920s.⁶⁷ The early 1920s recession represents a "sneak preview" of the depression and an indication that U.S. urban workers shared in the world pre-depression: crucially, the 1921 rate for manufacturing workers is close to the 1933 overall rate (25%). This point brings us full circle, to the beginning of this subsection: wages and the relative scarcity of labor-power do not simply depend on "market forces"; they also depend on working-class institutions and consciousness, which are part of the mechanism by which supply and demand affect wages. These institutions were in full retreat during the 1920s. The unemployment rates of the late 1920s may have been lower than during the early parts of that decade. But the institutional weakness of the working class also meant that unemployment was less necessary to protect and boost profits. That is, capitalists' the fragility of the unions and other working-class organizations meant that capitalists could afford to eschew some of disciplining power of the reserve army of the unemployed and allow relatively high employment.

In theory, the U.S. economy might have been moving toward a regime of labor scarcity during the middle 1920s. But even in the low-unemployment year of 1926, the numbers cited below show no profit squeeze.⁶⁸ Further, this move toward scarcity was not persistent enough to reverse the general urban labor abundance. With each of the three measures in Table 3, unemployment rose between 1926 and 1929. In each case, this rate fell from 1928 to 1929, but not

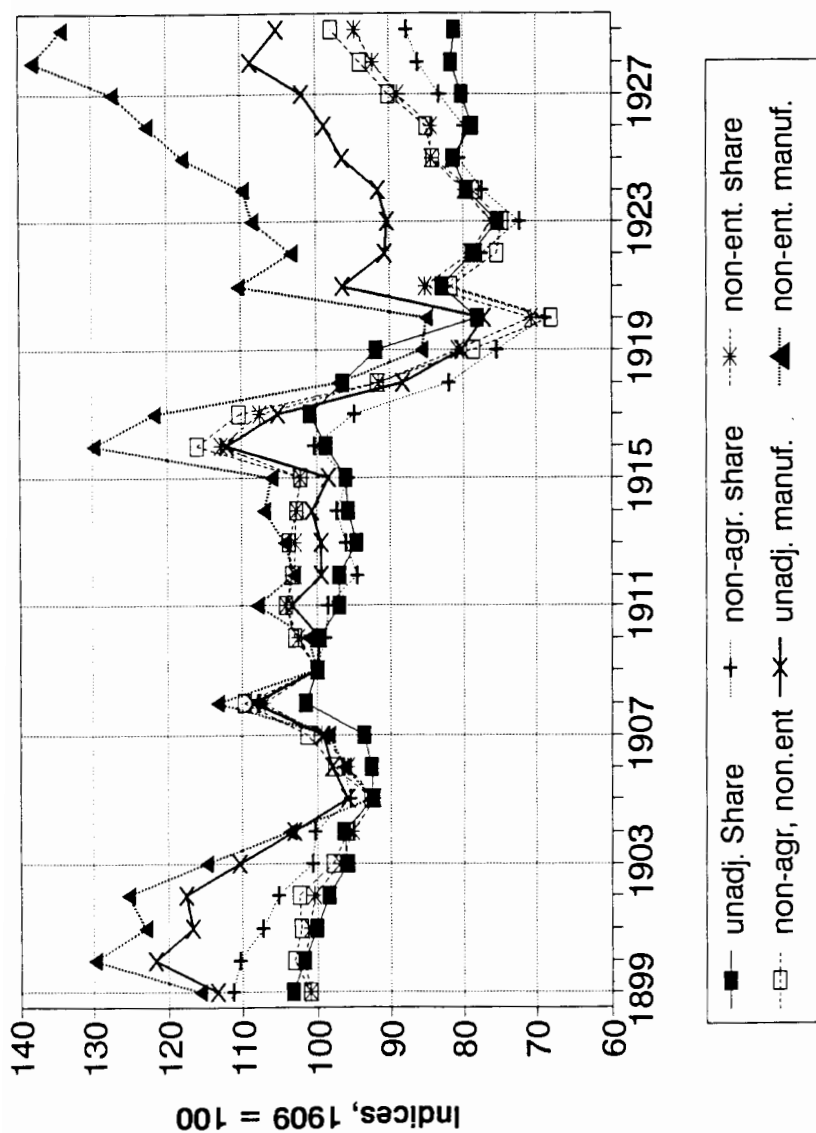


Diagram 2. Uneven Development of Profit Shares

enough to negate the upward trend. Key to the problem is that the government had not yet embraced military Keynesianism, which might have counteracted the almost automatic slowdown in capitalist accumulation that results when unemployment falls toward more rational levels.

Before turning to the effects of labor abundance on profits, we need an explanation of the "kink" in long-term labor-productivity growth that unites the period after 1919 with the 1950s and even the 1960s rather than with the pre-War era.⁶⁹ Most of the literature trying to explain this change stresses generalities about the institutionalization of science and improvements in education (cf. Rosenberg, 1972, ch. 5; Abramowitz, 1993); others emphasize the importance of the introduction of electric and internal combustion engines (cf. Oshima, 1984). But without denying these points, one can point to some specific facets of this change related to the present argument.

The depressed profit rate may have encouraged capitalists to accelerate the introduction of new technologies, or example, "pent up" technology denied to the civilian sector during the War and the steep post-War recession, which had the desired effect of speeding up labor productivity growth. Further, technical spin-offs from the War, many of which were developed partly in response to labor scarcity and thus were labor-saving, allowed this to occur. Technology was simple compared to today's and the wasteful military-industrial complex was very undeveloped at the time, so unlike in recent years, these spin-offs were relatively inexpensive. For example, the War-time effort to build a fleet using mass production and prefabricated parts (Scheiber et al., 322) probably accelerated the spread of such techniques in civilian production.

Third, during the 1920s, business followed two tracks to promote productivity using management techniques. On the one hand, Lazonick (1990) argues that for some important large firms, "welfare capitalist" efforts to limit employee turnover and to gain greater control over the work-place more than paid for their costs with productivity increases. On the other hand, for the vast majority of firms, such a "carrot" approach was unneeded or untried: they increasingly returned to the "stick"-oriented management systems of the pre-War era, involving speed-up and the like (Jacoby, 1985, 174-205; Gitelman, 1992). This return to "stick" techniques seems a symptom of labor abundance and low worker bargaining power. Either way, greater capitalist power sapped any resistance to the introduction of new technologies into existing factories. The success of the employers' initiatives in general was partly due to the workers' weakness, and in turn reinforced that weakness, as increased productivity boosted effective labor supply.

B. The Profit Boom

Who benefited from the abundance of labor? Not surprisingly, it was primarily the owners of companies in the leading sectors of the "roaring 20s," that is the industrial and corporate sectors. The flow of relatively cheap labor encouraged

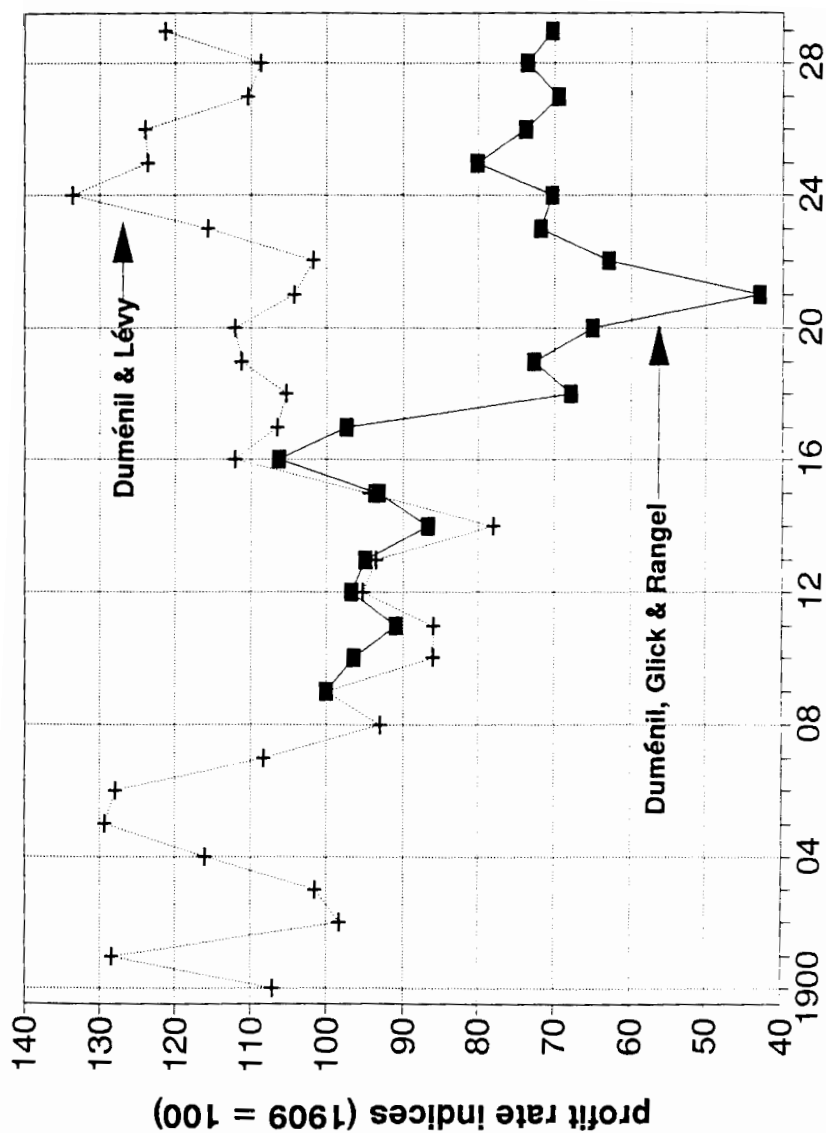
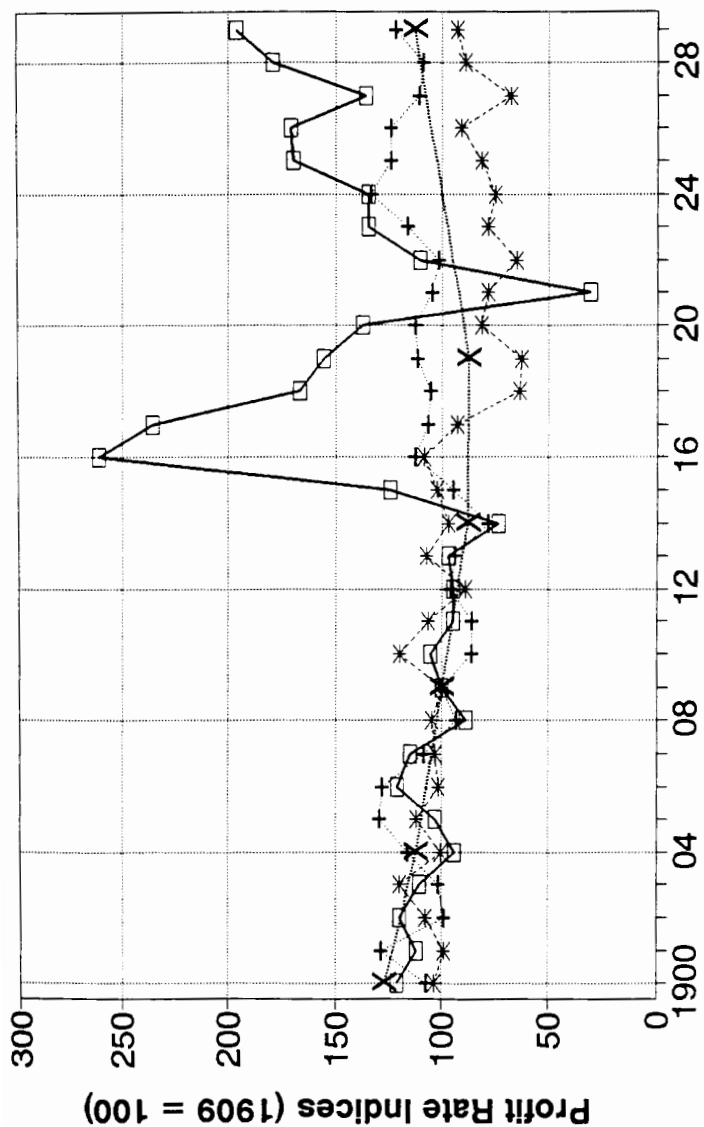


Diagram 3-A. Two National Profit Rates



+ D-L total economy * Merged Non-Farm □ Merged Corporate x Unadj. Manufact.

Diagram 3-B. Four Sectoral Profit Rates

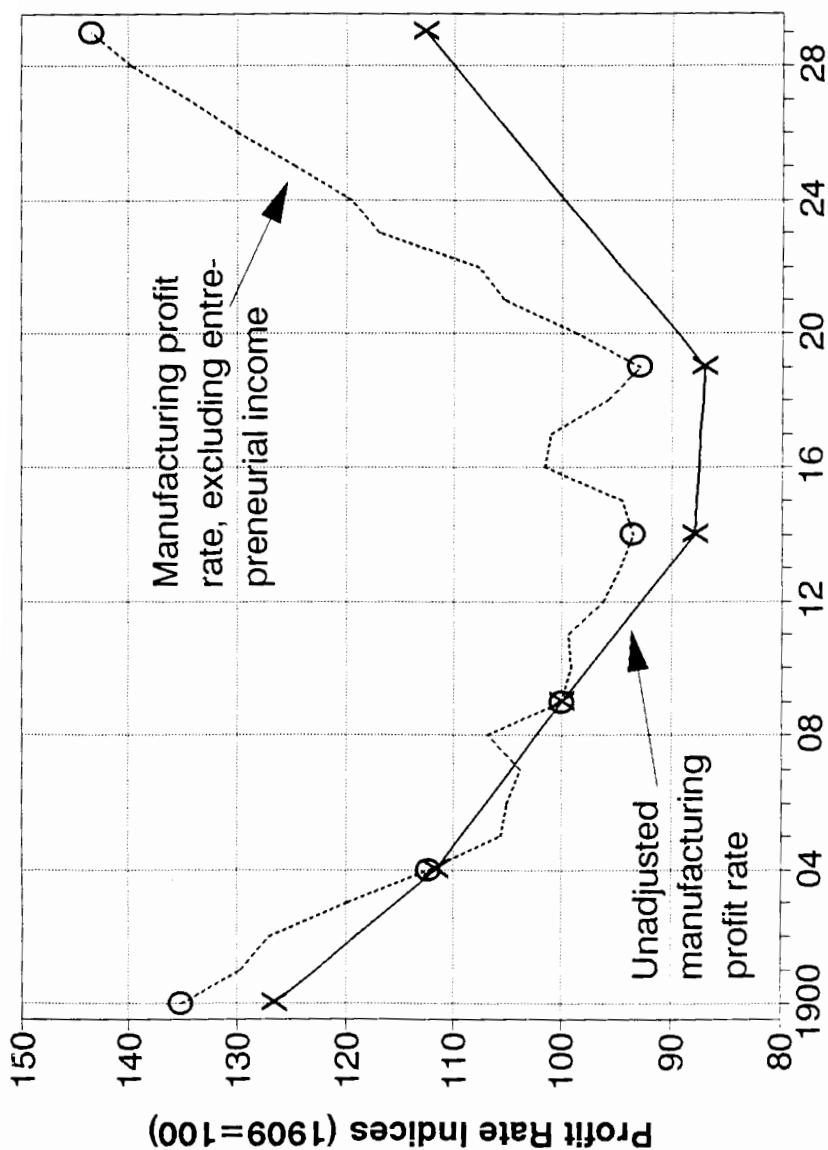


Diagram 3-C. Two Manufacturing Profit Rates

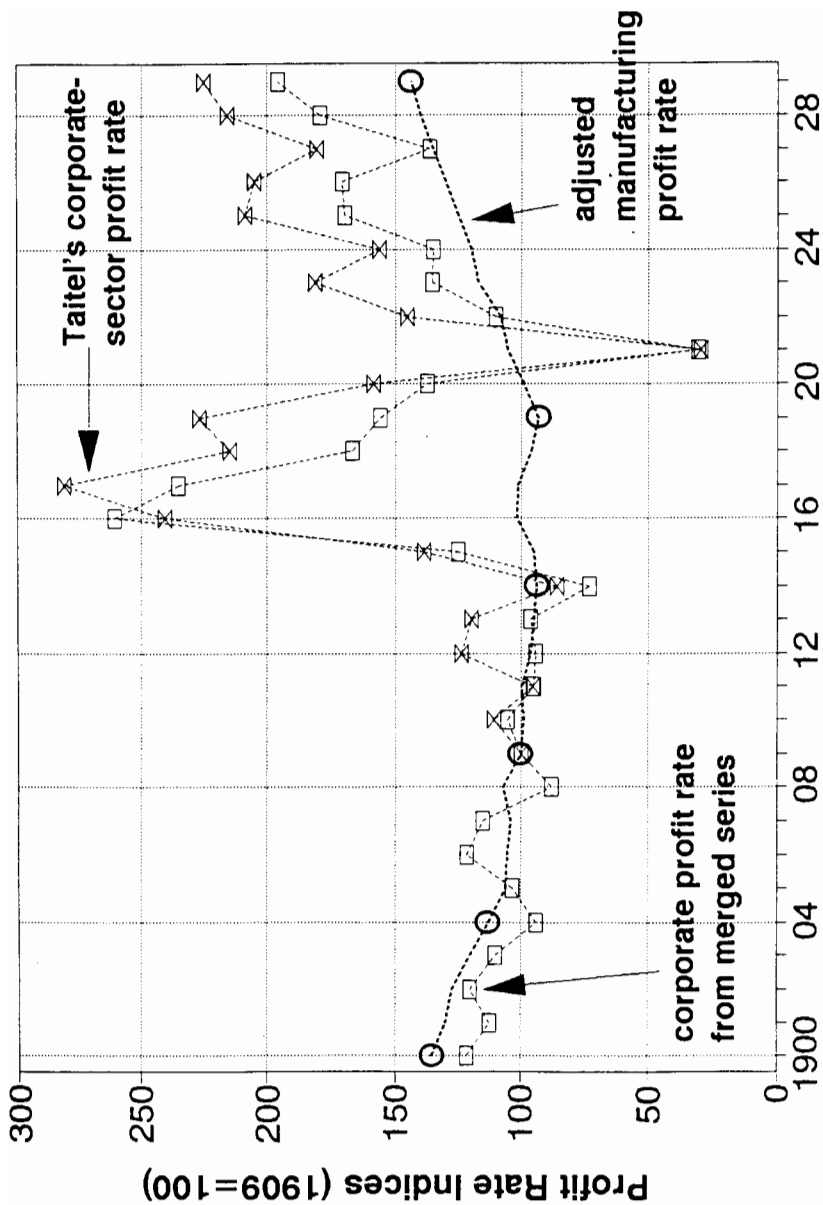


Diagram 3-D. Three Corporate Profit Rates

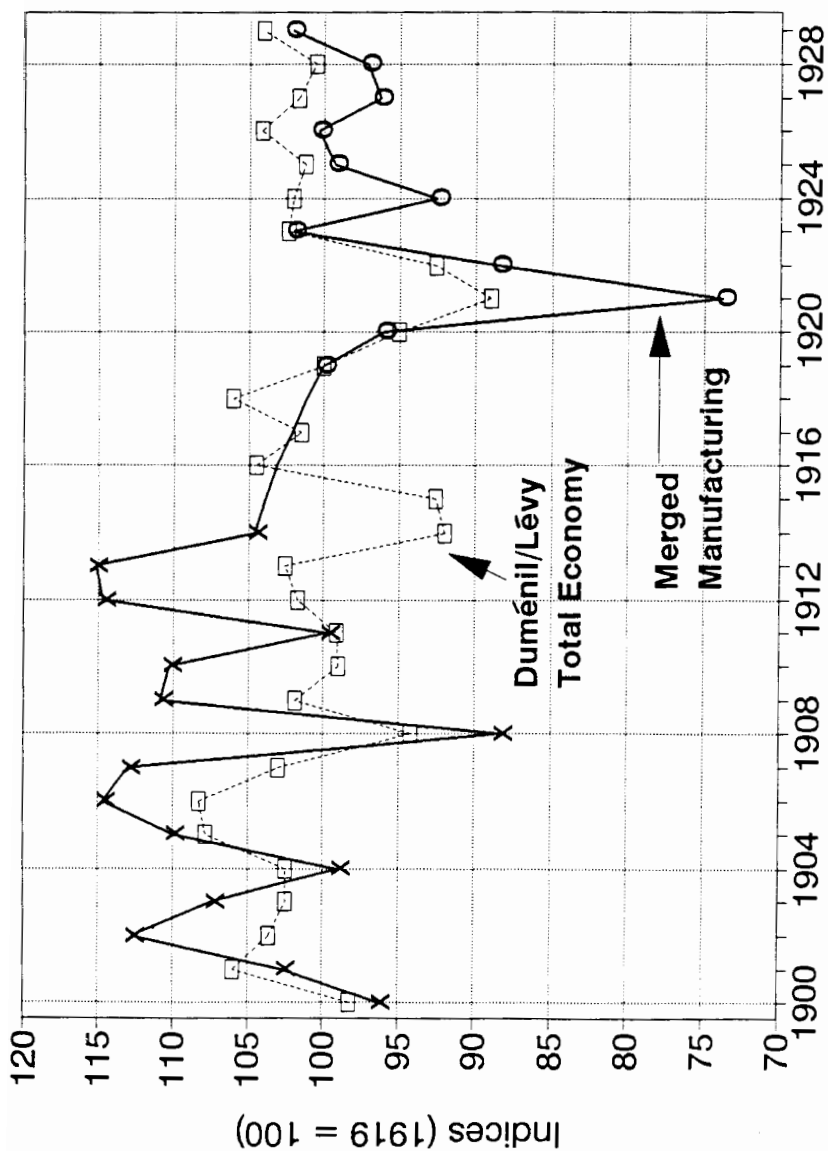


Diagram 4-A. Capacity Utilization, 1900-29

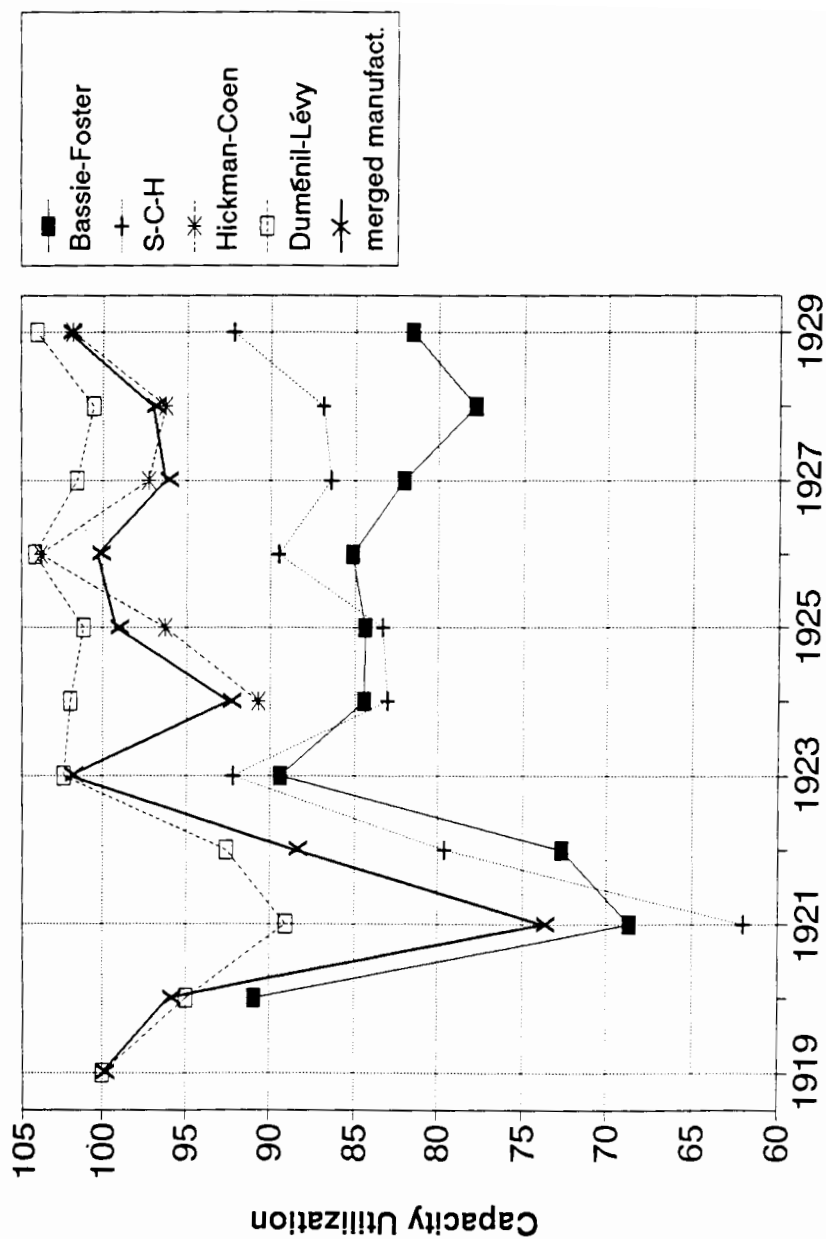


Diagram 4-B. Capacity Utilization in the 1920s

high and rising profit shares and rates in these sectors. Of course, this encouraged the leading sectors to continue to lead: since "nothing succeeds like success" (a slogan that captures the 1920s spirit), relative profit-rate rises attract accumulation. Moreover, the dominant political power of the most *laissez-faire*-oriented sections of the capitalist class meant that the government policies reinforced the trend toward inequality. The epitome of this process was the role of millionaire Andrew Mellon as Secretary of the Treasury, who pushed through tax cuts for the rich (including himself).

So even though the profit share (R/Y) fell for the economy as a whole between 1909 (or 1916 or 1925) and 1929 (Duménil et al., 1987), the share of profits rose for the leading sectors (Devine, 1988). Whereas before the War, there is no large difference between the behavior of profit shares when one breaks down the data into sub-sectors, in the 1920s uneven development is manifest, favoring these leading sectors. Figure 2 shows this process: the income share of property (non-wage) income in the economy as a whole (the "unadj. share") and in the non-agricultural sector ("non-agr. share") trended downward during the whole period. But these two sectors show substantial (but not complete) recovery during the 1920s, once self-employed or "entrepreneurial" income is deducted ("non-ent." and "non-agr., non-ent."). The behavior of unadjusted property income in the manufacturing sector was similar to these last two series, but once entrepreneurial income is subtracted (the solid triangles), the manufacturing sector had a profit boom that exceeded that of the War. The non-entrepreneurial manufacturing sector roughly tracks the behavior of the corporate sector as a whole. In general, the behavior of the different indices is similar before the War and then exhibits clear uneven development. Over the entire period, non-entrepreneurial manufacturing trends upward, while all the rest trend downward.

The increasing inequality between sectors according to profit share was reflected in estimates of the profit rate, as shown by Diagrams 3-A through 3-D. Diagram 3-A shows two estimates of profit rates for the national economy by Gérard Duménil and co-authors. Between 1909 and 1916, the two series show similar trends, a decline before the War, followed by a profit-surge. After 1916, the two diverge. Duménil et al. (1987) estimates show a continuation of the downward trend after the War, while Duménil and Lévy's (1993) series shows a recovery, so that the 1900-29 trend was generally flat.⁷⁰ Because of the current paper's emphasis on the leading sectors, the difference between these two total-economy series is unimportant here. The point is that for the economy as a whole profit rates fell up until the War and, including the impact of the post-War recession, until 1920 or so.

Diagram 3-B shows uneven development of profit rates between sectors, which turns out to be similar to the uneven development of profit shares in Diagram 2. Most series show a flat trend or a very slight downward trend during the period.⁷¹ The exception is the corporate rate, which shows large profit

booms during the War and the 1920s and a general upward trend. The manufacturing number, which includes entrepreneurial income as part of the numerator, did more moderately, rising in the 1920s but not recovering fully. Diagram 3-C shows that if the manufacturing profit rate is adjusted to exclude entrepreneurial (proprietor's) income, that rate showed a greater boom in the 1920s (and a upward trend over the entire period) than did the unadjusted rate. Diagram 3-D shows three estimates of the corporate profit rate, including the adjusted manufacturing profit rate from 3-C. The "merged series" represents several series based on limited samples of companies. Despite the clear limitations of such numbers, it turns out this profit rate follows much the same pattern as Taitel's series, representing the corporate sector as a whole, which starts only in 1909. If we can assume that the Taitel series would have followed the merged series path, we can conclude (in tandem with Diagram 3-B) that corporate profit rates boomed in the 1920s, relative to the rest of the economy, and showed a long-term upward trend. But only the 1920s profit boom is central to this paper.

Turn next to the issue of capacity utilization (Y/Z), a possible determinant of profit-rate fluctuations (see equation 1) and an important datum for estimating the full-capacity profit rate. Existing statistics for Y/Z are not very good, but we can reach some tentative conclusions.⁷² Diagram 4-A shows the trend between 1900 and 1929 for two series that use the ratio between actual and trend production as a proxy for more direct measures of Y/Z . Duménil and Lévy's numbers represent Y/Z for the economy as a whole, showing a similar but smoother trend than the merged manufacturing series. The trends for both series are downward, with manufacturing falling more steeply and more significantly.⁷³

The long-term downward trend in Y/Z is not severe, while it is quite possible that an upturn in the 1920s might have negated this trend. For that decade, as shown in diagram 4-B, all available series except that of Bassie and Foster show an upward trend in Y/Z . The cyclical behavior of all series except Bassie-Foster also show remarkable similarities. This suggests first that the S-C-H and Hickman-Coen series, which cover only part of the period, would have shown behavior similar to the Duménil/Lévy and merged manufacturing series if they could be extended backwards to 1900. Second, we might conclude that the Bassie-Foster series (which has been used to indicate a long-term stagnation hypothesis) is somehow mismeasured.

However, rather than throw out such data, it is plausible to conclude that, in the long-term trend, either the Y/Z ratio either stayed roughly constant or fell. This, along with the profit-rate data, suggests that the "potential" or full-capacity profit rate (r^*) of the leading sectors also rose.⁷⁴ If we assume that the long-term trend of Y/Z was downward, potential profit rates would have been even higher than in charts 3-A through 3-D. If the trend is flat, then the trend of potential profit rates would have matched that of actual profit rates.

C. Over-Investment Relative to Demand

Because of the potential profit rate's rise, conditions necessary to sustained stable growth in the leading sectors (and the unequally-distributed "prosperity" of the economy as a whole) became increasingly unlikely to be met. It meant that behind the rising profit rates of the late 1920s lurked a severe but latent instability. This instability can be seen as "over-investment relative to demand," in which investment grows too far relative to other sources of demand.

To understand the conditions necessary for a leading sector's stable growth, examine a simple equation in the tradition of the Harrod-Domar knife-edge.⁷⁵ The leading sector is seen as part of a world economic system that is developing unevenly: while that sector has rising r^* (as argued in the last sub-section) and growth rates, the lagging sectors are stagnant. The leading sectors can pull up the lagging, but any prosperity of the latter is totally dependent on that of the former. It is presumed that the structural problems of the world were so bad (as described in section II) that a world-wide process of self-sustained growth was impossible during this period. That is, it is assumed that the leading sector does not pull the lagging sectors beyond the notional threshold that allows a general sharing of prosperity on relatively equal terms among the core capitalist countries (perhaps as in the 1950s and 1960s), so that each country's prosperity can reinforce that of the others.

The equation is stated in terms of necessary conditions for the maintenance of steady growth at a "normal" rate of capacity utilization (v^* , near full capacity), because persistent actual utilization (v) below normal discourages investment. This assumes that utilization rates affect investment directly (as with the stock-adjustment model of investment), in addition to their indirect effect of determining expected profit rates via actual profit rates (r).⁷⁶ To keep capacity utilization constant at the normal rate, that is, to keep v equal to a constant v^* ,

$$(\epsilon + g)/\alpha \cdot r^* \text{ must equal } v^* \quad (2)$$

where

ϵ is the ratio of "net exports" of the leading sector to that sector's existing means of production, where this external demand includes the effects of domestic fiscal deficits;

g is the growth rate of the leading sector's stock of means of production; and

α is the share of saving in profit income for the leading sector.

As is standard with knife-edge models, condition (2) is met only by a happy accident in which the value of the five parameters just happen to be "right." But this simple model need not be seen as an absolute knife-edge in which *either* $v = v^*$ *or* the economy spins into stagnation (or hyperinflation). Instead, given the nature of investment's response to capacity use, this condition should be inter-

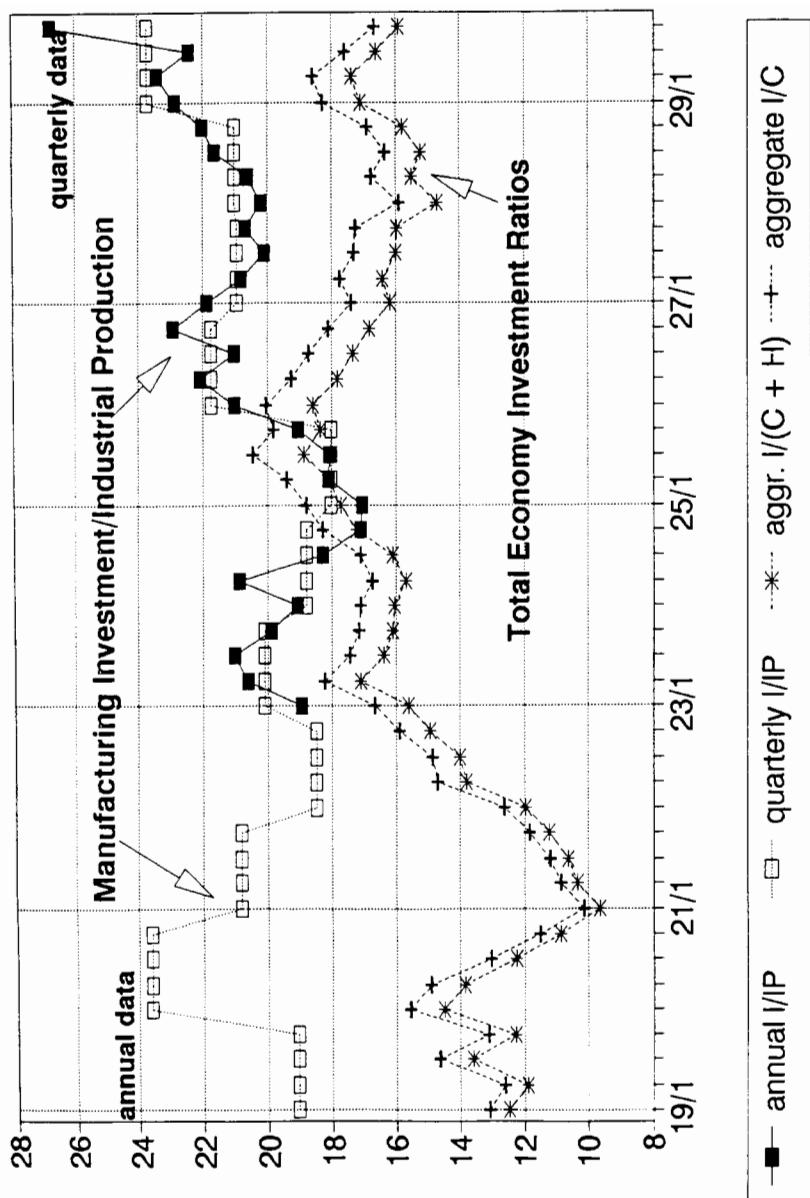


Diagram 5. The Investment Boom, 1919-29

preted probabilistically: the constant v^* should be seen as allowing the greatest probability of stable growth, while the greater the deviation of v from v^* , the greater the likelihood of recession. The greater and more persistent the deviation, that is, the more likely it is that the gap will affect expectations and investment decisions.

Assume that we have shown convincingly that for the leading sectors, r^* rose during the late 1920s. This means that to maintain $v = v^*$, either (1) the growth rate of the stock of means of production (g) must rise; (2) capitalist (luxury) consumption must rise, that is, α must fall; or (3) external demand must rise relative to the stock means of production (ϵ must rise). The "right" combination of these trends options would also allow $v = v^*$ to be maintained.

The first option is possible, given the rising full-capacity profit rate—if capacity utilization indeed stays stable or rises. For this to be true, condition (2) must be met, on average. If so, the rise in r^* boosts the actual profit rate (r), and—through the indirect route of affecting expectations of profitability—increases the growth of the leading sector's stock of means of production. This is "bootstrap" growth, because it has elements of a self-fulfilling prophecy (or the "Tugan-Baranowsky Path" (Devine, 1983), a process of investing to serve investment demand). This seems to be part of the late-1920s growth process.

Over the long haul, the behavior of investment relative to consumption is ambiguous. Between the turn of the century (1897-1901) and the late 1920s (1927-31), the ratios of net and gross producer durable investment (I) to consumption (C) rose. But on the other hand, if housing investment (H) is treated as a form of consumption, the trends are generally downward.⁷⁷ (Residential construction is interpreted as a form of consumer durable purchase.) But our concern here is not with the long period, but with the growth process of the 1920s. Diagram 5 shows the trends during the 1920s. As indicated by the total-economy data, the investment boom occurred *despite* the relative decline in personal consumption, either including or excluding housing (cf. Devine, 1983). These numbers (which do not capture the level of aggregation we are seeking) show a slowdown in investment relative to consumption in the late 1920s, and in 1929 itself, but the ratios are far from stagnant relative to the early 1920s. Now move to a more appropriate level of aggregation: in the last years of the decade, the ratio of manufacturing investment in plant and equipment rose relative to manufacturing production. Interestingly, the ratio of manufacturing investment to industrial production surged in the last quarter of 1929. Investment was over-shooting (as production fell) and would soon be cut back drastically.

This over-investment process is akin to a "bubble" in financial markets: the economy is growing because of faith that the economy will continue to grow, while profitability is maintained because high profit rates encourage investment. Similarly, the "bubble" of high profits and high growth rates is latently unstable and can easily be popped. Investment is more volatile than is consumption, so the average degree of instability of the sector's growth process increases with g . This

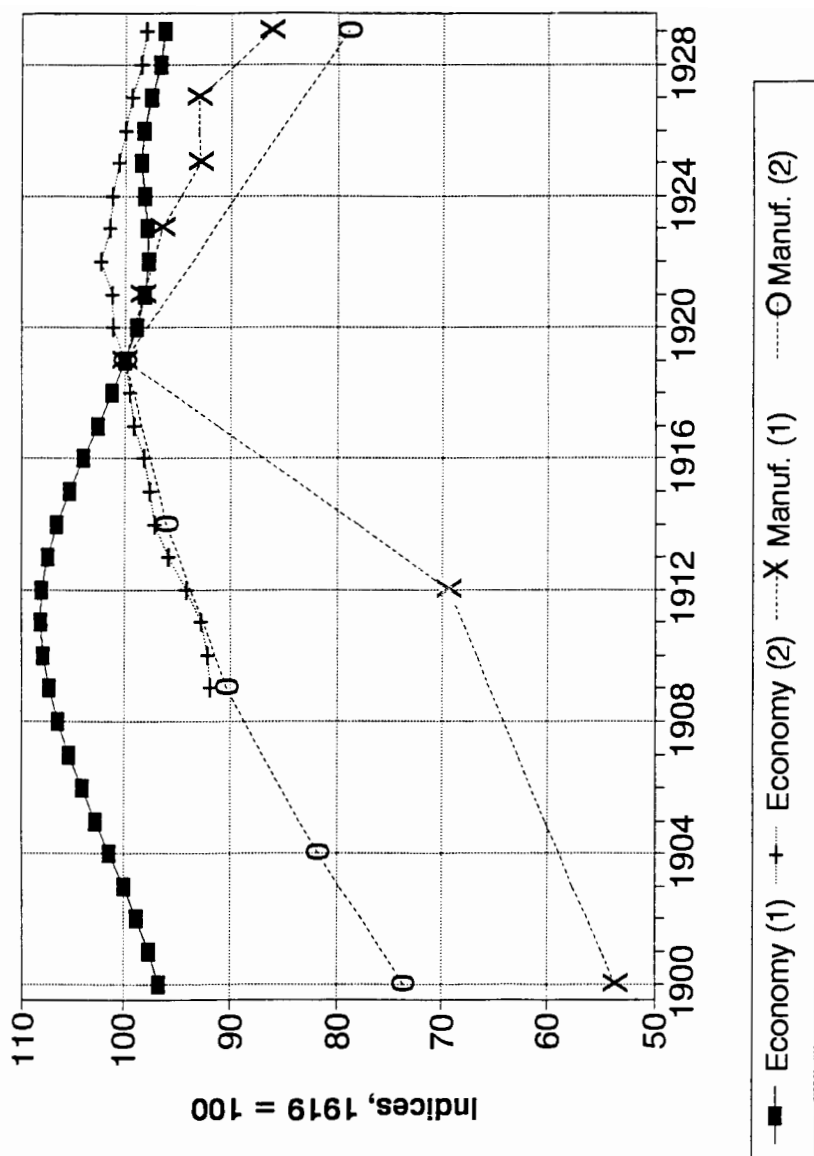


Diagram 6. Capital/Output Ratios

means that the probability of an economic crisis rises. Further, this type of growth creates imbalances that can block recovery: the production capacity created so abundantly during the boom is a factor discouraging the rebound of investment once the crisis occurs.⁷⁸

The second option, rising consumption rates (falling α), is possible and are part of the story of the 1920s. This may be due to rising capitalist consumption, fitting with the model of Appendix B.2. Further, in a more complex story, we could drop the assumption that workers consume all of their income: condition (2) could be met despite rising r^* if workers consumed a larger percentage of their income, by cutting down on saving or by accumulating debt. In fact, luxury and debt-financed consumer spending partially substituted for investment in promoting the economy's growth during the 1920s, as seen in Devine (1983) and DuBoff (1989, 88-9). But that does not change the result. Because it is easier to delay, capitalist consumption of luxury goods is more unstable than is workers' consumption. For the second case, the economy would also become more unstable over time as interest payments weigh increasingly on workers' stagnant incomes.

For the third case to occur, the growth rate of leading-sector "net exports" must exceed the growth rate of its means of production (g). If this happens, it means that the sector becomes increasingly dependent on the health of the rest of the world. This was especially problematic during the late 1920s, given the stagnation of the world outside the U.S. leading sectors. It is possible that there were other leading sectors in the world besides the U.S. corporate sector, but these sectors suffered from the same problem as that sector. In a generally stagnant world economy, bootstrap growth becomes increasingly unstable.

In fact, for the U.S. economy as a whole, the growth of real exports had fallen or leveled off (depending on the deflator used) between 1927-28 and 1928-29, while the growth rate of real imports became positive in 1928-29. Thus the export/import ratio fell between 1928 and 1929 (Temin, 1976, 145). Given the leading sectors' growing role in the economy as a whole (shown in diagram 1), this also made their growth more fragile.⁷⁹

D. The Composition of Capital

As a final point on the pre-Collapse trends in the U.S. economy, notice that this paper changes the classical Marxist attitude toward the "composition of capital" and K/Z . A rising composition of capital is usually seen as depressing the profit rate, *ceteris paribus*, discouraging accumulation. Not noticed, however, is that a falling capital-output ratio can also have a negative effect on accumulation. Though this fall promotes the production of profit, it can hurt the realization of profit, the ability to sell what can be produced: rising "capital productivity" means that the new factories and machinery created by investment have a larger output at full capacity utilization. This process (as one factor boosting actual and potential profit rates) intensifies the likelihood of excess capacity arising.

Diagram 6 shows the behavior of four capital-output ratios; because of the long time periods covered, these estimates of K/Y approximate K/Z . Until about the end of the War, these ratios fit Marx's prediction, as does the series (not shown) presented by Duménil et al. (1987, 30, 37-38] which peaks in 1918-1921. A minor exception is the Duménil/Lévy series which peaks in 1911.⁸⁰ One might think that an investment boom such as that in the 1920s would lead to a rising K/Z ratio, but all of these ratios reverse their movement. This may be due to the falling age, and thus rising quality, of the capital stock in the late 1920s (USDC, 1975, 261, series F-516, 519), the technological boom discussed above, and/or the abundance of labor, which encourages the use of labor-intensive technology. Further, the shift of aggregate demand toward investment could have also encouraged this aggregate fall, if the sectors producing means of production have lower capital-output ratios.

No matter the explanation of the reversal of the trend in K/Z , growth with a sharply rising full-capacity profit rate is difficult to sustain, especially when the rest of the world is stagnant, the stage was set for the Great Collapse. Once the conditions necessary to maintain $v = v^*$ are no longer met, the actual profit rate falls below the full-capacity profit rate. As a result, the expected profit rate and investment fall, hurting profits further. So the economy goes down a steep slope, which is discussed in greater detail in section III.F.

E. Triggers

The collapse of the U.S. economy might have been delayed if certain familiar shocks had not occurred. However, since the nature of capitalism as a system makes "shocks" very likely if not normal, it is hard to imagine a shaky growth process of the sort described in the sub-section C as persisting. As noted in section I, the Marxian vision does not deny as much as play down the role of depressionary triggers: the stock market Crash and contractionary fiscal, monetary, or tariff policy were not structural causes but mere *sparks* causing a greater conflagration. These types of events need not cause a Collapse except when the economic structure is unstable initially. Further, these events are to a large extent explained by the theory rather than being *diabli ex machinae*.

After a long period of downplaying its influence (cf. Temin, 1976, 69-83), some mainstream economists have recently given the Crash more attention as a cause of the Collapse:

[B]oth the initial recession in the United States in the summer of 1929 and the acceleration of the decline in late 1929 and 1930 are ultimately attributable to the stock market boom and bust of the late 1920s. The stock market boom is the prime explanation for why the Federal Reserve was pursuing tight monetary policy starting in 1928. The stock market crash is the prime source for the collapse of durable goods starting in November 1929 (Romer, 1993, 31).⁸¹

As argued above, tight monetary policies in 1928 should be seen as part of the policy bias of the time. On the crash itself, Romer sees the 1929 Crash as simply

an exogenous "bubble that burst," claiming to follow White (1990). But White attributes the Crash to the adjustment of speculator expectations to news of the recession that had started earlier (1990: 78-81). That is, the Crash was partly explained by the beginnings of the Collapse and cannot be seen as purely exogenous. This can be extended to the degree that uncertainty about the late 1920s growth process—its latent instability—spread to the stock market. Further, as argued elsewhere (Devine, 1983), the Big Bull market itself could be explained partly by the uneven development of the 1920s: increasing income inequality spurred the Big Bull, by giving income to those most able and apt to speculate; at the same time, rising corporate profit rates inspired the price of equities to rise. Speculation (normal to capitalism) and a *laissez-faire* system of finance (more specific to this era) also encouraged this boom. The Bull was able to continue partly because it could attract funds from places as far away as Europe and Japan.

Because of the latent instability of profit rates discussed above, and the way in which equity prices roughly reflect the profit rate, the Bull was teetering on the edge despite all appearances.⁸² This is an addition to the common story of a speculative bubble: when the real economy itself resembles a bubble, the question of whether or not price-equity ratios were justified by "fundamentals" is not very important to the tale. However, as with any stock-market process, the actual timing of the Crash cannot be explained by the fundamentals in the economy.

The changes described in sections III.B through D made spending more responsive to stock-market events. Romer (1990) concludes that stock-market uncertainty had an immediate negative effect on consumer durables purchases. But there are missing links in this story (cf. Devine, 1983). First, the large share of consumer durables that were purchased by the speculating, richer, classes (the less than 2% of the U.S. population that owned significant amounts of stock) made private spending more prone to being affected by stock-market events. Second, the growing importance of durables purchases in aggregate demand—partly or wholly reflecting the wealthy's rising share of income—made such effects more important.⁸³ This links up with the discussion of section III.D.2: growth that is promoted by greater luxury demand or working-class debt accumulation is also more fragile. Given the more general fragility of the growth process, a financial shock like the Crash could have major effects.

As discussed above, the government and Fed policies often seen as causes of the Collapse were not mere "policy mistakes" (as in Romer [1993, 34]). Rather, they were products of an era of Restoration of order and of pro-business politics of the most narrow-minded sort. That is, these policies—such as the tax hikes (e.g., in June 1932) aimed at balancing the federal budget during the Collapse—were poor only when seen through the omniscient lens of hindsight, and were hardly "mistakes." Avoidance of Keynesian expansionary fiscal policies was a product of conservative rule (reinforced by ignorance) and a relatively non-militaristic international environment. If a war occurred or was being planned, there is little doubt

that balanced-budget strictures would have been forgotten, as with previous and later wars (or as in Germany in the 1930s). The same can be said if the working class and other dominated groups had been pushing for social programs despite increases in deficits (as in the middle-to-late 1930s or in Sweden in this era).

What about monetary policy, as emphasized in the long quote above and by Friedman and Schwartz [1965], who see a "Great Contraction" of the money supply resulting from the Fed's passivity in the face of waves of bank failures? Post-Keynesians and Marxians have argued that such policy can be rendered impotent (and thus unable to prevent or reverse a Collapse) because of the uncontrollability of the supply of or demand for credit and also the unresponsiveness of fixed investment to interest rates. Whether we accept these arguments or not, it is hard to see how the Great Contraction could not have made matters worse. But these authors presume that the Fed *actually cared* about the health of the domestic economy. Epstein and Ferguson (1984) present an excellent empirical analysis of the Fed's policies during this period, which indicated that the Fed was concerned with external balance rather than domestic prosperity and was unwilling to go against the interest of banks (except the small and less influential banks catering to farmers).

First, the Fed waited a long time before any serious efforts to reflate because Conventional doctrine among businessmen, bankers, and economists in the period held that occasional depressions (or deflations) were vital to the long-run health of a capitalist economy. Accordingly, the task of central banking was to stand back and allow nature's therapy to take its course. As one well-known voting member of the Fed's Board of Governors, Treasury Secretary Andrew Mellon, expressed it, the way out of a depression consisted of a sustained effort to 'liquidate labor, liquidate stocks, liquidate the farmers, liquidate real estate' (1984: 963).

As with the international deflationary consensus mentioned above, the inflationary experience of the United States during and immediately after the War, though incomparable to that in Germany, encouraged deflation. The post-War inflation was scarier than that during the War, as U.S. bankers saw inflation as normal during war-time. On the other hand, the success of the post-War recession in taming said inflation (effectively stabilizing the price level until 1929) encouraged the use of deflation in later years. The Restoration had been successful so far, so why change orientation?

Even though the deepening recession spurred calls for reflation, public works spending, the veterans' bonus, and so forth, concern with the gold standard restrained any Fed effort to reflate. This was especially true after the run on the dollar that followed Britain's leaving the gold standard. After the 1932 Glass-Steagall Act, on the other hand, the gold-standard constraint was loosened and the Fed moved to use open-market operations to stimulate the economy.

But this program was abandoned in the face of three effects (Epstein and Ferguson, 1984, 968-83). The Collapse pushed banks to liquidate their loans and invest in short-term securities (especially T-bills), so that falling short rates directly and significantly hurt their earnings. The bankers then successfully pushed the Fed

to abandon expansionary policies. Second, a growing number of Federal Reserve branches resisted expansion since their gold reserves were threatened. Third, foreign depositors—led by France—started pulling their balances from U.S. banks, especially those in New York. In the end, the Fed was pushed to deflate.

The process of learning the wrong lesson from past success was also applied to tariffs. In the past, domestic stimulus had arisen from tariffs: the most recent case was the tariff hike of 1921, which had been followed by the “roaring 20s” (which benefited the politically-relevant populations). The effect of the tariff making the economy less flexible, emphasized by Gordon and Wilcox (1981) was balanced by the tariff’s promotion of domestic demand, which lowers the need for flexibility, at least in the short run. Further, if the tariff had not limited price flexibility, the debt-deflation (see below) might have been more devastating. President Hoover and Congress, therefore, instituted the Smoot-Hawley tariff of 1930, which helped to convert creeping protectionism into a trade war. The destabilizing impact of protectionism was international.

F. Collapse

To summarize, U.S. prosperity was fragile even before late 1929, due to the process of over-investment relative to demand and the international environment. Then the Crash, restrictive fiscal and monetary policy, and protectionism interacted to break the unstable prosperity and to accelerate the downward movement. This movement involved the famous “multiplier/accelerator” interaction, reinforced by wage-cut induced underconsumption, debt deflation, and international interactions.

The multiplier-accelerator interaction is familiar and a version of this process is implicit in the conditions for stability introduced in section III.D.⁸⁴ On the second point, there exists some preliminary evidence for an underconsumption trap during the first years of the Collapse. Lebergott corrects some of the biases of the BLS data to find that for manufacturing production workers, hourly money “wages fell at least 31 percent from 1929 to 1932 for workers of given ability” (1990, 11). With nonfarm output per worker-hour trending upward roughly 2 per cent per year (a conservative estimate) due to technical change (cf. USDC, 1975, p. 948, series W-3), this means that unit labor costs fell more than 37 percent over this period. On the other hand, consumer prices fell only about 20 per cent during these years (USDC, 1975, p. 211, series E-135). Due to obvious data problems, Lebergott was unable to correct for the effects of speed-up, which was quite common during these years. Such correction would make the wage and unit labor cost cuts effectively even larger. These falls relative to prices help explain the fact that falling “consumption accounted for a much larger fraction of the decline in real GNP in 1930 [and 1931-33] than in most previous or subsequent recessions” (Romer, 1993, 30, Table 2; cf. Temin, 1976, 62-83).

Once the downturn occurs, domestic and international debts (and reparations) represent an imbalance discouraging recovery, as does the existing stock of luxury

Table 4. Stages and Stresses of World and U.S. Capitalism

	<i>International Regime</i>	<i>Downfall</i>	<i>U.S. Regime</i>	<i>Downfall</i>
1812-99	U.K. hegemony and balance of power: "100 years Peace"	Uneven development	Rising economic & political power	
1900-45	Classic Monopoly Capitalism & the (new) Imperialism	Unity of nation with capital: aggressive Nationalist competition leading to War and Depression	Urban labor abundance	Falling profit rate
1920s	Interregnum & Restoration. laissez-faire deflation bias pre-Depression		Leading sector but not hegemon of world capitalism	Over-investment relative to demand for corporate sector
1945-72	U.S. hegemony and Cold War "golden age"	Vietnam War Rising World Competition (uneven development) Rising International direct Investment	Military Keynesianism (warfare/welfare state relative labor scarcity leading sector of world capitalism)	Over-expansion relative to supply in late 60s Falling profit rates Stagflation
1972-??	Declining U.S. hegemony New Restoration. Global Capitalism: Decline of nation/capital unity (Japan etc. lagging) universal dependency	Competitive Austerity & Export-promotion Nations compete to attract Transnational capital	Relative labor abundance Leading role lost except in weakness (double deficit)	Silent Depression

goods. Such debts, as mentioned above, may encourage debt-deflation: debt makes deflation destructive (Fisher, 1933). Calomiris (1993) summarizes recent research indicating that such a debt-deflation occurred during the 1930s. Once deflation begins, outstanding debts and debt-service obligations become greater in real terms, encouraging yet more cutbacks in spending and world aggregate demand. Falling prices hurt even those sectors that had relatively low debt ratios during the previous prosperity, such as the U.S. corporate sector. Borrower default and bankruptcy then hurts the creditors. Falling demand also hurts the value of real assets, causing a "balance-sheet crunch." All of this, plus the competitive wage-cutting discussed above, encourages further collapse and deflation.⁸⁵

IV. CONCLUSION: ANOTHER COLLAPSE?

Either explicitly or implicitly, any paper on the Collapse also concerns the present day: are we about to suffer from a new collapse and depression? or, are we in a depression already? It is quite common to note the similarities between the present

period and that of the 1920s or even the 1930s. But no two historical periods are exactly alike (nor could they ever be), so we must emphasize not only the similarities but also the differences if we want to understand what is going on. If anything, we should presume that history will not repeat itself, that though the future may be bleak, it will be so in different ways than during the 1920s and 1930s.

In order to deal with the question of the future, consider the main topics in the rough order they were approached in section II, but integrating the United States into the analysis of the world economy, just as the real-world U.S. economy itself has been increasingly integrated. So consider the roles of nationalist rivalry, the newest Restoration, and the current "Silent Depression." This very sketchy survey allows some provisional results. Some of the conclusions of this section and the entire paper are summarized in the Table 4, which places both the current and the inter-war periods in historical perspective. It should be stressed that the cut-off dates of the various eras are approximate.

A. Nationalist Rivalry

Section II emphasized the importance of a hegemon to the avoidance of the type of rampant nationalist rivalry that helped produce both World War I and the Great Collapse. Given the uneven development of the world capitalist system, that is the way in which the United States is suffering from an economic and financial decline relative to other major capitalist countries (Japan, Germany, etc.), some "Newly Industrialized Countries" such as South Korea, and (temporarily during the 1970s) oil-producing countries, an alarmist might conclude that the world economy is facing either a new world war or new collapse. The United States it is said, is suffering from "imperial over-reach," that is world military and diplomatic ambitions far beyond its domestic economic capacity, and will be pushed to tend its own garden (cf. Kennedy, 1987). The breakdown of the Soviet Union as an external threat pushing the core capitalist nations to unite, combined with the potential abdication by the United States of its "global responsibilities," suggests that the world economy will collapse in economic chaos and trade warfare (or even actual warfare).⁸⁶

But this alarmist conclusion is very premature. The nature of hegemony may have changed, but it has hardly ended. The International Monetary Fund seems increasingly powerful, as countries beg to be let in, even when admission entails a loss of economic sovereignty and submission to excruciating austerity programs. Further, with Soviet opposition removed, the United States has been able to use the United Nations and other international institutions to organize "new world order" campaigns (as with the 1991 war against Iraq). International organizations such as the General Agreement on Tariffs and Trade seem able to prevent future trade wars, among the core capitalist countries, while hot wars among these powers seem very unlikely.

The origins of this state of affairs can be found in the U.S. reign as hegemon: "Open Door" policies (cf. Williams, 1959) encouraged the world-wide breakdown of barriers to trade (formalized as G.A.T.T.) and, more importantly, the international spread of direct investment, that is the rise of transnational capital. The latter is more crucial because it implies a divorce between a nation-state and "its" capital. This in turn undermines domestic coalitions that form behind protectionist programs, along with other forms of nation/capital unity. The increasingly powerful internationalist sector of capital opposes protection; the class forces left pushing for raising or not lowering trade barriers include that fraction of capital permanently tied down to domestic production, a shrinking sector, and some of organized labor, a severely weakened force. "Buy American" campaigns (incipient protectionism) run up against common-sense arguments that many goods of "foreign" corporations are built in the United States and many of the products of "domestic" corporations are produced abroad. Moreover, many of the components in both types of products are now made all over the globe. This reinforces the effects of the normal conflicts among domestically-based industries (e.g., steel vs. autos) and the like.

Thus the situation discouraging protectionism by the United Kingdom prevailing before the 1930s now involves the United States. This setting has also affected much of the rest of the core capitalist countries.⁸⁷ So the integration of the world economy via direct investment makes the abolition of G.A.T.T. or its new incarnation, the World Trade Organization, unlikely.⁸⁸ Instead of the protectionism/cartelization vicious circle seen during the first four decades of this century, the next decade could instead see increasing international trade and investment.

Also weakening the tendency toward state-against-state competition among the core powers was the post-World War II fall of formal empires (of France, Britain, etc.) in the periphery. Diminishing returns to empire became negative returns as anti-imperialist movements grew in strength, while the United States campaigned for "Open Door" anti-colonialism immediately after World War II. Though the latter push slowed during the Cold War, the long-term trend was toward decolonization. Replacing formal and political colonization in most peripheral countries was less formal neo-colonialism or informal economic dependency.

Replacing military battles among the core countries over territory were civil wars in, and border-wars among, peripheral countries (now including Eastern Europe)—along with efforts by core countries against individual countries in the periphery (as against Panama in 1990). Wars have shifted from the core to the periphery even more than during Polanyi's "Hundred Year's Peace." In the core, state-against-state economic competition also seems increasingly less likely than the less-violent competition among transnational capital.⁸⁹

At some point between the 1960s and the 1990s, the nature of world capitalism changed qualitatively. To liberal Robert Reich (1991), a truly world economy is emerging as countries lose many or even most of their independent economic

roles. To Marxists Robert Ross and Kent Trachte (1990), we have gone beyond the Monopoly Capitalism and new Imperialism of the pre-World War II era (described in section II), and the post-World War II stage (to be sketched below). Instead of the unity of the state with a nation's capitalist class, we have "Global Capitalism," a new stage of imperialism in which states are increasingly subordinated to the *world* capitalist class. This means that at the same time that the hegemon has faltered, the economic distinction between nation-states has been sapped. The economic dependency that hobbled or prevented self-sustained (autocentric) growth in the formally independent peripheral countries has become more generalized, so that such growth is becoming possible only if it occurs on a world-wide scale.⁹⁰

It is true that there has of late been some movement toward a breaking-up of the advanced countries into trading blocks (Western Europe, the North American Free Trade area, Eastern Asia), but this has hardly reached the extent of that of the late 1920s and early 1930s and seems unlikely to do so (cf. Nye et al., 1991). There is currently no equivalent of the formal British Empire to bolster a new Sterling Block; similarly, Japan does not dominate Eastern Asia politically (in the style of the old empires) and, as an exporting powerhouse, would hardly benefit from building further trade barriers. The U.S. uses its still-substantial clout to prevent the unified European market from excluding U.S. goods and investment. Further, as North America unifies its markets, this might lead to more, not less, international trade: the Mexican government brags that its economy is one of the most open in the world; if this claim is accurate, the North American Free Trade Agreement would expose Canada and the U.S. to freer trade not only with Mexico but with the rest of the world.

But it would be wrong to conclude, as free-traders do, that the opening of the world to increasingly free trade is a "virtuous circle," the opposite of the vicious circle discussed in section II. In fact, trade competition is playing a role in the competitive austerity which forms a key element of the 1980s-90s Restoration.

B. The Monetarist Restoration

The stage of capitalism during U.S. hegemony and the Cold War has been termed "Monopoly Capital" by Baran and Sweezy, "Fordism" by the Regulation school, and a three-fold "Accord" by the Social Structure of Accumulation school. Though these schools' descriptions do have something to contribute, I emphasize an aspect of the U.S. political economy that meshes with its hegemony. The military-Keynesian role of the state helps define this period: United States spending on wars, the "containment" of Communism, and the nuclear balance of terror stabilized the realization of profits and thus private investment, especially in privileged sectors (the military-industrial complex). Complementing this was civilian spending, so one can follow James O'Connor (1973) to refer to the "warfare/welfare state." In the United States emphasis was on infrastructure such

as the "National Defense Interstate Highway System" and education (the G.I. Bill). In nations of Western Europe with stronger labor movements, the welfare state received greater emphasis. This stabilized consumer spending and further encouraged the stability of profits and investment.⁹¹

Though these programs were successful in promoting the stable realization of profits for a long period, in the end the production of profits was hurt, encouraging a falling rate of profit.⁹² As discussed below, over-expansion occurred not relative to demand, but relative to supply constraints (cf. Devine, 1987). With the large role of government in stabilizing accumulation, the process is no longer one of simple excessive *investment* by capitalists, but one of over-expansion of demand as a whole. Further, because of the relatively autonomous and thus often slow process of government decision-making, this over-expansion lasted for a longer time, so that supply-side imbalances had a chance to accumulate. Finally, the response to the resulting fall in the rate of profit was also more politicized: instead of simple wage cuts as in the 1930s, we see competitive austerity programs engineered by governments and central banks.

Examine these issues more concretely. The U.S. war in Vietnam (an important side-effect of its hegemony) unleashed tendencies toward a world-wide social crisis and later spurred the late twentieth-century Restoration. On the one hand, the anti-war movement and domestic prosperity sparked the rise of a variety of insurgent social forces in the United States, including environmentalism, feminism, minority-rights movements, and wildcat strike waves. This trend was mirrored in many other countries, from Mexico to Italy to France to Czechoslovakia.

On the other hand, the rise of international competition (the slow eclipse of U.S. economic domination) was jump-started by Vietnam war expenditures. Helped partly by Marshall Plan-type aid, Japanese and German capitalism had recovered from World War II, as did other areas on the front-line of the fight against the Communist Menace (South Korea, Taiwan). Then Vietnam-era high demand helped them enter U.S. markets. Rising social unrest and fears of not being reelected discouraged both Presidents Johnson and Nixon from cutting social programs or raising taxes enough to pay for the war, avoid inflation, and prevent the rise of foreign competition. Spoiled by years of economic hegemony, U.S.-based companies had a tendency to rest on their laurels rather than to modernize existing domestic plant and equipment. When push came to shove, they responded by accelerating the internationalization of their operations. This in turn helped to speed the decline of the U.S. economy (as opposed to U.S.-based companies). Rather than an absolute decline, however, the United States is suffering from the embarrassment of equality with its competitors, compared to its dominance during the 1950s and 1960s. All of these factors and the growing integration of world markets conspired to disrupt the *status quo* that had promoted a historically-unique period of relatively equally distributed growth during the 1950s and 1960s.⁹³

Over-expansion in the context of a regime of relative labor scarcity also encouraged falls in profit rates in the advanced capitalist countries, even before 1973 oil-shock. As Armstrong et al. (1991, especially ch. 11) show, reserve pools of labor had helped both U.S. and Western European profits after World War II. So when the pools began to dry up, profits were squeezed, not only in the United States but in the core capitalist world as a whole. The persistence of high demand also allowed oil producers to raise prices dramatically twice during the 1970s, hurting profit rates further. The final result was the general stagflation crisis of the mid- to late-1970s.

In response came the "monetarist" Restoration. Though much the 1970s has been termed a "one-sided class war," the Restoration hit with a vengeance with the ascent of Margaret Thatcher in the United Kingdom and Paul Volcker in the United States and the general trend toward tight-money, reactionary, and anti-labor policies all over the world (both core and peripheral).⁹⁴ Severely rising interest rates encouraged world recession, but helped ruling elites fight inflation and dissident movements. These movements were pushed to take more "pragmatic" stands, since there was a smaller economic pie to divide. Adding to this trend were direct anti-labor efforts (such as the destruction of the U.S. PATCO union), huge tax-cuts aimed to help the rich, and the like. In sum, the class and social struggles were won by the most conservative sector of the capitalist class, as in the early 1920s.

Though working-class and other movements became increasingly marginalized so that class struggle became progressively one-sided, the 1920s vicious circle of protection and cartels was not in operation. But this did not mean that world competition among nation-states has ended. Again, as with after World War I, competition changed its form. Despite the rise of global capitalism, nation-states still exist and have important economic functions, including the collection of taxes to pay interest on external debt, the maintenance of law and order, and efforts to attract international capital.

Many peripheral countries (especially in Latin America and Eastern Europe) had accumulated international debts during the relatively prosperous 1970s. The monetarists' rising interest rates sparked the "Debt Crisis," which in turn became a series of I.M.F.-style austerity programs. Each country cut civilian spending, subsidies, wages, and so forth, while stepping on the monetary brakes. Numerous countries attempted to cut imports and expand exports. The fact that so many countries were engaging in similar programs (and the stagnation that was encouraged) meant that each had to keep on trying harder. This process was abetted as transnational corporations raised the ante by pitting one country (or region) against another, whipsawing competing countries just as they pit individual factories' workforces against each other.

This *competitive austerity* has spread, to involve many other sectors of the world economy burdened by debt accumulated during the generally illusory prosperity of the 1980s: this competition now includes most U.S. workers, corpo-

rations, state and local governments, and even the Federal government. With anti-systemic movements weakened or destroyed, there was little resistance to the downward spiral of wages and social benefits.

Rather than being a virtuous circle, the rise in international trade has encouraged cutting of wages and social programs. For example, the Canada-U.S. free trade agreement has forced Canadian businesses to compete with cheaper labor in the traditionally anti-union southern United States. Though in theory and in the long run, freer trade might increase world production, in the crucial short run the adjustment costs are encouraging a distributive shift against the working class and the poor and also a shrinkage of the middle layers.

The reason for the general lowering of wages and similar standards is the return to "labor abundance" in United States and other countries after the early 1970s. This return is only partly due to the migration of labor and the like (as outlined in section III.A for the 1920s), for example, the new supplies of cheap labor arising in the newly peripheral countries of the former Soviet bloc. Making labor abundance decisive (and immune to restrictions on international labor immigration) is the international hypermobility of capital (cf. Bluestone and Harrison, 1982, 1988).

As a result of growing international integration and labor abundance, wages are being equalized world-wide, tending toward the lowest common denominator. The equalization is modified by inter-country productivity differences. But capital mobility tends to undermine the productivity advantage of the core countries.

Global capitalism may be "the new Leviathan" (in Ross and Trachte's terms) but this Colossus does not abolish the anarchy of production or the inevitability of crisis: competitive austerity can lead to a global underconsumption trap. As mentioned in section II.D, if all or most economic units in the world engage in extraordinary measures to cut demand and boost supply, all it does is to encourage deflation and depression. For this scenario to be played out, the non-consumption elements of world demand have to be blocked. This is quite possible given the generality of the debt overhang and excess capacity, which discourage investment.

This deflationary bias is made worse by the behavior of relatively prosperous countries such as Japan, and its imitators in the East Asian "Tigers": these countries have so far resisted integration into Global Capitalism and have stuck to the "old system" of unity of nation and capital ("Japan, Inc.," "Korea, Inc.," etc.) and have run large trade surpluses. Further, other countries are trying to imitate them; in fact, this is the export-led growth model encouraged in the periphery by the World Bank, though not in a statist way practiced by Japan et al.

So far, no international agency aims to prevent deflation. Indeed, the World Bank and the I.M.F. have encouraged it, with the latter acting more as a collection agency and enforcer for creditors than as a world central bank. This seems a symptom of hegemonic weakness: a stronger hegemon would be more concerned

with world economic stagnation and less concerned with restoration of capitalist power and the service of debts.

Ironically, it has been the *weakness* of the U.S. that has to a large extent blocked the deflationary result of competitive austerity and export promotion (and has encouraged world agencies to continue their deflationary policies). The U.S. federal government's accumulation of debt (via the budget deficit), boosts domestic demand, while the U.S. economy's accumulation of external debt (via the current-account deficit) boosts world demand. A sort of global Keynesianism based on hegemonic weakness has prevented collapse. The anti-contractionary effect of deficits has become more common as more governments have had increasing financial problems.

The U.S. "double deficit" balancing act has become less tenable in recent years, as interest charges on outstanding debt grow faster than tax revenues and as U.S. policy-makers become increasingly nervous about the balance on the current account. Expansionary fiscal policy has been blocked and President Clinton has shifted toward contraction. Further, with the Cold War over, there seems to be no rational excuse for not cutting the military budget, even to capitalists. It is possible that a recession in the United States (stimulated by excessive private-sector debt, and the decreased willingness of banks to lend) could spark a new world Collapse. Recession has encouraged further austerity ("downsizing") by companies, individuals, and state and local governments, while the fall in U.S. imports broadcasts depression to the world. To make things worse, Japan has suffered from a slowdown after its feverish speculative boom ("the Bubble economy") collapsed.

But this scenario of a spectacular new Collapse in the near future makes the unlikely assumption that the United States will *suddenly* balance its government budget, raising taxes or shaking the addiction to Military Keynesianism in a cold-turkey bout. Just as the power of the rich prevents a significant rise in their taxes, that of the U.S. military-industrial complex and the fear of throwing voters out of work prevents such a rapid change, despite its seeming rationality. These fears, plus the obvious need for more civilian infrastructural and education spending even from a capitalist perspective (cf. R. Reich, 1991) might also mean that a severe military cut-back would be counterbalanced elsewhere in the government budget.⁹⁵

The sudden shock, if it comes, might come from Japan: as Walter Russell Mead (1992) suggests, Japan is playing the role now that the United States played in the 1920s, so that world stability depends on the prosperity of Japan. The drastic fall of stock and real-estate prices in Tokyo, in this view, could trigger effects analogous to that of the U.S. stock-market Crash of 1929. Not only does the Japanese slide hurt world trade, but it can make the cost of loans more expensive to the United States. Only time will tell whether Japan's role in the world economy is large enough to spur a world collapse in the face of persistent U.S. deficits. It seems unlikely, however, that the Japanese economy has played a large

role in propping up the world economy so that the removal of that role would lead to a sudden Collapse. Further, to the extent that their prosperity is independent of their ability to export, the East Asian "newly industrialized countries" might prop up the world economy.

If a new collapse occurs, it will likely be reinforced by the current international monetary system. The post-Bretton Woods floating-exchange-rate monetary system is much less stable than had been advertised by Milton Friedman and his followers: this system has involved massive and rapid changes in exchange rates that have disrupted international trade, has encouraged the rise of the world Casino Economy (cf. Strange, 1986), and has broadcast inflation internationally. (Most countries have thus moved toward managed floats and currency blocs.) Unregulated international banks, the flows of "hot money" across borders, and rapid financial innovation make any single country's monetary and fiscal policies much less effective for promoting domestic prosperity.

But though the world monetary system (or lack thereof) was an element of the 1930s crisis, it is less important in causing a new world Collapse than the more basic avoidance of trade wars or competitive austerity. That is, the shaky gold standard of the 1920s might have worked well if there had not been intense nation-state contention, problems with debt and reparation overhang, and the like; further, the somewhat chaotic monetary system in place during World War I was not a total disaster. The monetary system only contributes to collapse by reinforcing the effects of more fundamental factors.

C. The Silent Depression

Dramatic tales of sudden world collapse exaggerate the quality of the previous period of prosperity. To a large extent, the prosperity of the 1980s was similar to that of the 1920s, that is largely illusory and unequally distributed. Many sectors of the world economy have been suffering from Depression conditions for a long time, especially those directly involved in competitive austerity. Unemployment rates have been rising in recent years even in many core countries. Income distributions have become more unequal, while discontent with economic conditions has spilled over to xenophobic movements in many countries.

Most of the economic statistics for the United States in the 1980s indicate that the "prosperity" was poorly distributed. Real weekly wages in the private sector were lower in 1991 than in 1959 (Council of Economic Advisors, 1992, 346), while the "social wage" has been steadily cut.⁹⁶ The family supply of labor to the wage-labor market has increased, as more women have been working for wages in addition to doing their domestic labor, to try to maintain household income, while hours of work have increased for those able to find work (Schor, 1992). As a result, real median family pecuniary income in 1990 is not that different from that of 1971 (CEA, 1992, 330) despite the much more significant fall in real weekly earnings during the same period. Even so, consumers have been pushed to accumulate debt

in order to keep afloat (cf. Pollin, 1987). Unemployment hurts more than in previous decades, because of accumulated debt, cut-backs in unemployment and other state-provided benefits, and the linkage of affordable health insurance to employment. Some areas of the U.S. economy—specifically the “minority” communities in the rapidly decaying cities—are suffering from a combination of the worst aspects of 1930s-style depression and 1920s-style gangsterism.

What makes this unequally-distributed prosperity different from that of the 1920s is that efforts to raise the rate of profit in the United States were not very successful even before the 1991-1992 recession.⁹⁷ Though Michl (1988) found that declining profit share tended to squeeze profit rates between 1948 and 1972 (especially between 1965 and 1972), a “profit unsqueeze” (rising profit shares) started in 1972. Counteracting this, and preventing a recovery of the profit rate (and in fact depressing it) from 1972 to 1985 were rises in the composition of capital and falling capacity utilization.⁹⁸ Arsen (1991) interprets this latter fall in profit rates in terms of intensified international competition; this would fit with the fall in profit rates in other core capitalist nations. Much of the success in raising profit rates in the United States has been through tax cuts, that is at the expense of the public purse, which contributed to the government deficit. As a result of the profit-rate fall between the 1960s and the 1980s, corporations have faced severe debt loads (Pollin, 1986), so the U.S. economy has faced historically high bankruptcy rates (CEA, 1992, 404). It is true that certain sectors of the U.S. economy have benefited: in the 1980s, it was the speculative buccaneers such as Michael Milken, while in the early 1990s it was the top management of the U.S. corporations. But these have been exceptions to the general stagnation of incomes—exceptions to what Wallace Peterson (1991) terms the “Silent Depression” and Alain Lipietz calls the “Slow 1929” that has persisted since the 1970s. Over-investment has been primarily financial rather than real.

In final summary, it should be expected that those sectors of the world economy (e.g., Japan) that are out of step with the world-wide competitive austerity should join the crowd. But it seems unlikely that there will be a *forcible readjustment* on the scale of the early 1930s. There is little evidence that over-investment of the 1920s sort occurred during the 1980s in the United States. Instead, prosperity was based on U.S. military Keynesianism and tax-cuts for the rich, which should dissipate not rapidly (a sudden crisis) but only gradually. If over-investment occurred, it was in Japan, but it is hard to believe that the world-wide impact of its fall would be sudden. Instead, any deepening of world stagnation is likely to be gradual.

APPENDIX A: DATA SOURCES AND METHODS

Tables I and II: Column (1) comes from USDC (1975, 126), series D-4. Subtracting those employed in agriculture (series D-6, p. 127) gives column (2). Multiplying by M. Reich's (1986, 125, table 4-C) nonfarm proletarianization rate (interpolated between 1900, 1910, 1920, and 1930) gives column (3). An index of weekly hours in manufacturing was used as a proxy for hours of work in the non-farm sector: it was an average of three similarly-moving series (D-831, D-803, and D-765) with overlapping time periods. (Other indices of working hours showed similar trends: see series D-796 (p. 169) and D-846,847 (p. 172).) This was multiplied by column (3) to get column (4). Finally, to get column (5), column (4) was multiplied by nonfarm output per labor-hour (series D-684). All are converted to index numbers. Column (6) is the growth rate of column (1), while the sources of all the data is explained above. Column (7) is growth of column (5) due to the subtraction of the farm sector. Column (8) is that due to changes in the proletarianization rate. Column (9) is that due to changes in hours per week, while column (11) is due to changes in productivity. Column (13) is from USDC (1975, 232), series F-128. Except for 1929, average data was used.

Table III: Column (14) is from USDC (1975, 126), series D-10, adjusted so that it measures unemployment as a percentage of the nonfarm labor force rather than employment. Column (15) is Romer's (1986) total-economy unemployment rate, multiplied by the ratio of the Lebergott nonfarm unemployment rate to the Lebergott total-economy unemployment rate. Column (16) is from Douglas (1930, 445). Extrapolations for 1928 and 1929 are based on a simple regression equation for 1900-27:

$D = \alpha + \beta A + \mu T + \epsilon$, where D is the Douglas series, A is the alternative series (Lebergott non-farm or estimated Romer), T is a time trend, and ϵ is random error.

	<i>A: Lebergott</i>	<i>A: estimated Romer.</i>
constant	6.08412	-15.8802
Std. Error of Est.	2.403506	2.782648
R squared	0.721435	0.626619
coefficient of A:	1.045191	2.015525
t-stat:	7.73506	6.1878192
coefficient of T:	0.264988	0.285005
t-stat:	4.484839	4.06749

Regressions using the natural log of time had similar results.

Diagrams 1 & 2: Martin (1939), tables 4, 7, 10, 16.

Symbols: W = total wages and salaries, E = Entrepreneurial Income, Y = realized private production income. Subscripts: A = agriculture, M = manufacturing.

Diagram 1: Non-Farm entrepreneurs = $(E - E_A)/Y$; Agriculture = Y_A/Y ; Non-Entrepreneurial Manufacturing = $(Y_M - E_M)/Y$; Other = 1 - (all of the above)

Diagram 2 (before conversion to index numbers):

Unadjusted = $(Y - W)/Y$ Non-Entrepreneurial = $(Y - E - W)/(Y - E)$

Non-Agricultural = $(Y - Y_A - W + W_A)/(Y - Y_A)$

Non-Ent., Non-Agr. = $(Y - Y_A - W + W_A - E + E_A)/(Y - Y_A - E + E_A)$

Unadjusted Manuf. = $(Y_M - W_M)/Y_M$

Non-Ent. Manuf. = $(Y_M - E_M - W_M)/(Y_M - E_M)$

Diagram 3-A: Duménil et al. (1987: appendix) and Duménil and Lévy (1993).

Diagram 3-B: Total Economy: Duménil and Lévy (1993).

Non-farm: Mage (1963: 174, 256-7): total pre-tax gross surplus value minus capital consumption divided by capital stock.

Merged Corporate: a merged series, calculated from Epstein and Gordon (1939), Goldsmith (1955: 925), and merged NBER data (USDC, 1975: 941, series V304, V292).

Unadjusted Manufacturing: (1 - share of total payroll in manufacturing value-added) [USDC, 1975: 666, series P10 and P7] divided by the ratio of total capital to value-added in manufacturing, in 1929 dollars [Creamer, Dobrovolsky, and Borenstein, 1960, 40, column 4]. Data years are marked by the "X" and the curve was linearly interpolated between those dates. The share of payroll for 1900 was extrapolated between 1899 and 1900.

Diagram 3-C: Unadjusted manufacturing: see diagram 3-B.

Adjusted manuf.: this is the unadjusted rate, times $(R_M - E_M) * Y_M / (Y_M, E_M) * R_M$, where data come from Martin (1939). See diagram 1 for definitions. This equals the actual non-entrepreneurial profit rate if the output-capital ratio for non-entrepreneurial manufacturing equals that of the manufacturing sector as a whole.

Diagram 3-D: Adjusted profit rate: see diagram 3-C. Merged corporate, see diagram 3-B. Taitel is from Taitel (1941), profit rate on net worth of the corporate system, before taxes, using 1923 valuation of net worth.

Diagram 4-A: Duménil-Levy [1991], exponentiated.

Merged manufacturing series: USDC (1975: 667, series 13, 15, 17). The Federal Reserve's index of manufacturing output was merged with Frickey's index, using the NBER's values for 1914 and 1919. Capacity utilization is measured

as a ratio between the actual production index and the exponential trend (between 1860 and 1970). Data points based on the FRB are marked with an "X," while those based on Frickey are marked with an "O." The section of the line based on interpolation has no marking.

Diagram 4-B: See diagram 4-A.

S-C-H is Spenser, Clark, and Hoguet (1961); Hickman-Coen is Hickman and Coen (1976). Bassie-Foster is from Foster (1984), averaging year-end figures to give a yearly figure.

Diagram 5: Investment/Industrial Production: Manufacturing investment in plant and equipment from Chawner (1941), deflated with a wholesale price index and divided by manufacturing industrial production. Both annual and quarterly numbers presented for 1923-29.

I/(C+H): calculated from Balke and Gordon (1986), where I is business investment, C is personal consumption, and H is residential construction.

Diagram 6: Total Economy (1): Duménil & Lévy [1993].

Total Economy (2): Capital-Output ratio (smoothed series), La Tourette (1965).

Manuf. (1): Gillman (1958; appendix 3, lines 3, 5). 1920 dropped, since it reflects severe recession conditions.

Manuf. (2): Creamer et al. (1960, 40, column 4).

APPENDIX B: MATHEMATICAL MODELS

1. Conditions for Stable Growth

In the leading sector, net income (Y) is distributed between surplus (R) and wages (W), according to a distributive factor s and the rate of capacity utilization (u). The former variable reflects class conflict, which in turn primarily depends on the progress of accumulation and the degree and type of organization of the classes. The latter variable reflects the fact that as capacity use rises, overhead labor is used more fully so that a greater surplus is realized relative to output.

$$R/Y = s u^{\beta}; \quad 1 > s > 0; \beta > 0 \quad (\text{B-1})$$

$$W/Y = 1 - s u^{\beta}; \quad (\text{B-2})$$

where β is a coefficient of elasticity of the surplus share with respect to capacity utilization. On the other hand, $u = Y/Z$, where Z equals full-capacity output.

For simplicity, assume that the economy operates at or below full utilization ($u \leq 1$) so that there is no squeeze on surplus due to excessively high utilization and the resulting bottlenecks. Any squeeze on profits due to high demand for labor and high wages (cf. Devine, 1987) would be reflected not in u , but in s . Though

the possibility of this latter type of squeeze cannot be ruled out *a priori*, it seems not to fit the labor-abundant 1920s and thus will be ignored below.

Note that if $u = 1$, then $Y = Z$ and $R/Y = R/Z = s$. So the profit rate with $u = 1$, that is, the full-capacity profit rate, equals:

$$r^* = (R/Z)/(K/Z) = s/k \quad (\text{B-3})$$

where k is the capital-capacity ratio (K/Z). The variable r^* will be taken as given and presumed to rise (as in section III.C).

Next assume a Kaleckian consumption function where all wages are consumed but only part of surplus:

$$C = W + (1 - \alpha) R ; \quad 0 < \alpha < 1 \quad (\text{B-4})$$

$$= (1 - \alpha s u^\beta) Y \quad (\text{B-5})$$

where (B-5) is derived from (B-4), (B-2), and (B-1).

Total demand (which in equilibrium equals net income, Y) depends not only on C but on planned net investment (I) in the leading sector and external demand (E). E is “net exports” to other (non-leading) sectors, including the demand-side benefits of fiscal stimulus received by the leading sector. Thus, from (B-5):

$$Y = E + I + C = E + I + (1 - \alpha s u^\beta) Y \quad (\text{B-6})$$

Solving for Y :

$$Y = (E + I)/(\alpha s u^\beta) \quad (\text{B-7})$$

By definition, capacity utilization is

$$u = Y/Z = k Y/K \quad (\text{B-8})$$

Therefore, from (B-7) and (B-8),

$$u = (E + I) k/(\alpha s u^\beta K) \quad (\text{B-9})$$

Simplifying using $v = u^{1+\beta}$ and equation (B-3),

$$v = (E + I)/\alpha r^* K = (\epsilon + g)/\alpha r^* \quad (\text{B-10})$$

where g and ε are defined in section III.C. Condition (2) in the text is derived from this.

Using v as a proxy for u ,

$$dv/dr^* = -(\varepsilon + g)/(\alpha r^{*2}) = -v/r^* \quad (\text{B-11})$$

This is negative since both v and r^* are positive. Capacity utilization (and thus v) cannot be negative, while a "leading sector" will have a positive *potential* profit rate. Therefore, v and capacity use fall as the full-capacity profit rate rises, *ceteris paribus*. As seen from (B-3), this happens if either the capital-capacity ratio (k) falls or the surplus-capacity ratio (s) rises.

2. A Simple Model of Investment

In the stock-adjustment model, desired net investment is

$$I^d = \Theta(K^d - K_{-1}) = \Theta(k^d Y^{ex} - k Z_{-1}) \quad (\text{B-12})$$

In the first part of this equation, K^d is the desired stock of means of production, K_{-1} is the stock of these goods left over from the previous period, and Θ is the stock-adjustment coefficient. In the second part, k^d is the desired capital-output ratio at full capacity utilization, Y^{ex} is the expected level of demand, k is the actual capital-output ratio at full capacity utilization, and Z_{-1} is full-capacity output in the previous period. This equation can be restated as the desired rate of growth of the capital stock:

$$g^d = I^d/K_{-1} = \Theta (k^d/k)(Y^{ex}/Z_{-1}) - \Theta \quad (\text{B-13})$$

The Θ and k^d/k ratios are partly determined by expected profit rates (and indirectly by actual profit rates): investment plans should be sped up and desired capital stocks boosted as profit rates rise. But supposing that these ratios are constant, this implies that if expected capacity utilization (closely related to Y^{ex}/Z_{-1}) falls, g^d also falls.

3. Interaction

The interaction of the conditions for stable growth (part 1) and the actual determination of the growth rate (part 2) is relatively complex. Only a simple version is considered here. Assume that $\beta = 1$, so that $u = v$. Also assume that $u = Y^{ex}/Z_{-1}$ and $g = g^d$ (a sort of short-term equilibrium). Then, it can be shown that

$$du/dr^* = (\delta g/\delta r^* - \alpha u)/(\alpha r^* - \Theta \phi) \text{ where } \delta g/\delta r^* = (\phi u - 1)\Theta_r + \phi_r u \Theta \quad (\text{B-14})$$

and Θ_r and ϕ_r are the partial derivatives of Θ and ϕ with respect to r^* .

The denominator of (B14) must be positive for the product market equilibrium to stable (investment responds less than does saving to changes in capacity utilization). So

$$du/dr^* > 0 \text{ iff } \delta g/\delta r^* > \alpha u \quad (\text{A-15})$$

A rise in r^* can hurt capacity utilization if g is relatively unresponsive to r^* . The extreme case is that of part 1 of this appendix: if g does not change at all, then a rise in r^* lowers u . On the other hand, if g is highly responsive to r^* , then capacity utilization can rise with r^* . This seems unlikely since it is not r^* but the actual profit rate (r) that determines investment. But if we assume that u is constant as r^* rises, so that the actual profit rate rises with r , it is more likely that $\delta g/\delta r^* > \alpha u$. But this condition is less likely to be met if u is high. This implies that we could have r^* rising, stimulating g and u to rise. But when u rises, the validity of condition (A-15) could be negated, so that the continued rise in r^* causes u to fall.

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NOTES

1. This work goes further than my earlier (1983, 1988) papers on the subject, because it deals with recent literature, presents a more complete perspective, especially concerning international political economy, and introduces new data. Compared to the 1983 article, there is a greater emphasis on uneven development among sectors on both the national and international levels.

2. Capitalism is implicitly assumed to be stable. Typical is Temin (1976) who starts with "precipitating factors" and moves to analyze their effects without discussing the nature of the system being hit by those shocks. In his later work (1989, 1993), he stresses conjunctural institutions as causing the Collapse.

3. This summarizes some of the conclusions of Devine (1992). The most important institutions also can produce a surplus, have relatively unchanging laws of motion, and are independent of other structures. Which structures are most important also depends on what question one is asking (one's standard of importance).

4. One could look for deeper causes than capitalism, for example, class society *in general*, bound up with the institution of the state *per se*, or the conditions of scarcity dominating human history so far. However, these seem too general to be relevant to the specifics of the 1930s. The demand-driven business cycle and depressions (as opposed to hard times due to bad harvests) arose with capitalism (and not with class society or scarcity) and seem specific to that mode of production.

Similarly, though patriarchy and racial domination are key (and durable) institutions in our social formation, it is hard to see how they contributed to the origins of the Collapse, except perhaps by dividing and weakening labor and thus encouraging stagnant consumption.

5. For more on the Crash, see sections III.E.

6. The rest of this paper does not stress this element, because excessive leveraging was restricted to only a few industries, as indicated by the corporate debt figures reported by Goldsmith (1955).

7. The following survey is not meant to describe Marx's theory of crisis or Marxian crisis theory in general, but my version of Marxian crisis theory. On both of the former, see Clarke (1993), whose excellent critical survey helped my presentation immeasurably.

8. It should be stressed that even if crises are inevitable, revolution is not: unlike capitalism, the development of working-class and other opposition forces does not behave in a law-like or inevitable manner.

9. See Crotty (1993) for a recent extension of Marxian investment theory, which is consistent with the discussion here.

10. Moseley (1991) argues for the use of the price-based profit rate. On the other hand, he sees the conventional profit rate as empirically relevant, but as determined by the Marxian rate. This paper skips Moseley's step of first analyzing the Marxian rate and then examining the effects of its fluctuations on the conventional rate. The existence of "indirectly productive" labor (unproductive labor that promotes the productivity of productive labor) makes the distinction between productive and unproductive labor—and thus the two profit rates—fuzzy (cf. Laibman, 1992, ch. 4). Also, the role of unproductive expenditure in lowering conventional rates seems relatively unimportant when those rates are rising, as in the 1920s.

11. A falling conventional profit rate tightens constraints on funds available for accumulation, decreases cash-flow compared to previously-fixed interest-payment obligations, decreases the incentive to invest in fixed capital (as opposed to, say, real estate speculation), encourages pessimistic expectations, and (when relative to other countries) spurs movement of capital out of that country.

12. This presentation originates from Weisskopf (1978).

13. Devine (1990) presents a preliminary examination of the nature of the connections between value and price categories on the macro-societal level.

14. Devine (1983) rejects one Marxian underconsumption theory specific to the twentieth century, that of Baran and Sweezy (1966).

15. This is an extension of Marx's discussion in the *Grundrisse* cited above and volume III of *Capital* (1994, ch. 15). It is not a theory of over-accumulation per se.

16. This might be seen an extension of Engels' (and Marx's early) theory summarized by Clarke (1993: chap. 2, 3). In this theory, capitalist competition drives accumulation and production ahead of consumption, whose growth is determined by quite different laws of motion. As developed in section I.B, the growth of workers' consumption depends on labor-power market conditions.

17. This is the presentation in Marx (1867).

18. Again, the emphasis on fixed rather than constant capital arises from the emphasis on imbalances that block accumulation.

19. Gordon, Weisskopf, and Bowles (1983) see this as the distinction between a "reproductive" and a "nonreproductive" cycle. In the former, the crisis helps reproduce long-cycle prosperity.

20. See Aglietta (1979), Lipietz (1987: chap. 2), and Piore and Sabel (1984: chap. 4). For the similar "Social Structure of Accumulation" (SSA) school, see Gordon, Edwards, and Reich (1982) and Bowles, Gordon, and Weisskopf (1983). For an effort to synthesize these views, see Marglin and Schor, eds. (1991).

21. In turn, Regulationists argue that the Depression helped spur the rise of "monopoly regulation" that allowed more stable growth after the second World War. Together, intensive accumulation and monopoly regulation form "Fordism," which is seen as persisting from World War II until the 1970s.

22. Lipietz (1987: 39-40) introduces the importance of a world-hegemonic power to Regulation theory. See also Marglin (1991).

23. Included as part of the increasingly overt socialization of production is the concentration and centralization of capital. This tendency also involves the greater role of governmental, quasi-governmental, and other non-market institutions (formal and informal) in organizing and regulating production and circulation.

24. Part of the theoretical debate between the partisans of the three crisis theories arises because of Marx's deliberate decision in *Capital* not to deal with the determination of the value or supply of labor-power (the "laws" of motion of working-class struggle) in any detail (cf. Lebowitz, 1992). Instead of developing a full-scale political economy of the working class in order to explain labor abundance and scarcity, however, this paper takes labor-power supply conditions as historically given. For one effort at such explanation, see Lemcke (1991-92).

25. The first hegemonic war (the Thirty Years' War), established the Netherlands as hegemon, while the second, the wars of 1793-1815, put the United Kingdom in that role.

26. This Monopoly Capitalism differed drastically from the stage of the same name described by Baran and Sweezy (1966), in which competition (even among nations) was severely limited.

27. The increasing size and integration of world markets, along with the development of new industries, are counter-tendencies to the centralization of capital. So monopolization of markets is hardly permanent or universal. But during the period before 1929, the centralization tendency dominated. This was partly due to the absence of a hegemon playing the role of breaking down trade barriers, that is the absence of a G.A.T.T.

44. A similar formulation (for more moderate inflation) can be found in Bowles et al. (1983, 116f).

45. From the point of view of nations and classes dominated by the Global Cop, the story is much less rosy. The benefits of this stability have been concentrated in the advanced capitalist nations.

46. Marx himself applied this insight to the domestic arena, seeing world money as being inherently metallic.

47. The idea of a freely-floating exchange rate system does not seem to have been seriously considered in the 1920s. Policy-makers lacked the optimism of Milton Friedman, the major advocate of totally-free exchange rates. The stresses and inflation of the floating exchange-rate system that prevailed (by default) during World War I may have undermined such optimism. Further, being deflationists, they valued the international discipline the gold standard imposed on the domestic economy.

48. Winch (1970: 75) argues that "When the Cunliffe Committee recommended that the overriding aim of British policy in the post-war period should be to return to the gold standard at the pre-war parity, they commanded the overwhelming support of informed opinion and sentiment of the day. The issue was settled as soon as it was raised; there was no mention of any alternative." Another government committee saw this step as being "a decisive step towards the reconstruction of the international economy. It would restore London to the center of the international financial network, and, it was hoped, create conditions favorable to the revival of multilateral trade" (Winch, 1970, 84). Winch also points to fear of inflation as central to the decision.

49. This dependency arises because both the demand for and the supply of primary products is typically price-inelastic.

50. This differs from the 1990s, in which the Bush and Clinton administrations seemed willing to sacrifice the U.S. farming sector's subsidies in the G.A.T.T. discussions. Not only is the farm sector now relatively weaker in terms of political clout, but perceptions now are that U.S. agriculture (or at least the larger and more influential farmers) would win with freer trade.

51. Recent authors who do not fall for this fallacy include Dowd (1974: 91-6), Scheiber et al. (1976), and DuBoff (1989, 86-9).

52. For more information on all diagrams, see the Appendix A.

53. This refers to the mining, electric light, power and gas, construction, transport, communication, trade, finance, services, and miscellaneous sectors.

54. See Scheiber et al. (1976, 348-50), Devine (1983), Jacoby (1985, ch. 6), and Lazonick (1990: ch. 8) for more details and references on this era.

55. This rate is measured by union membership (either series D-940 or D-941 from USDC [1975, 177]) divided by the labor force (series D-4, p. 126). The downward slide far exceeded the degree of the falls after 1904 and 1913. Work stoppages (USDC, 1975: 179, series D-977) fell drastically after their peak in 1917 and their minor peak in 1919-20.

56. The ratio of immigrants aged 14-44 to the labor force fell from 3.2 percent in 1907 to about 0.5 percent in 1929 (calculated from USDC, 1975, series C141, D1, pages 112, 126, assuming that the ratio of the 14-44 age group to the 16-44 age group is constant). However, among the advanced industrial countries, population growth in the United States during the 1920s was second only to Australia's (Maddison, 1982, 184-5).

57. In the 1920s, the increase in the labor-force participation rate of women canceled out much of the effect of the men's declining labor-force participation rate. Between January 1920 and April 1930, women's LFPR rose from 22.7 percent to 23.6 percent, especially among those older than 20 years of age. Men's LFPR fell, from 84.6 percent to 82.1 percent. Over-all, the LFPR stayed relatively constant, at 54.3 percent and 53.2 percent (USDC, 1975, volume 1: 132, series D-29, 30, 3).

58. Missed is the extent to which small business was "semi-proletarianized," that is, the extent to which they had to work part-time for wages. Also not measured is the degree to which labor-abundance and unemployment may have encouraged people to seek or preserve self-employment, so that the slowdown in proletarianization was a symptom of labor abundance.

59. USDC (1975), series D-831 (vol. 1, p. 172) started rising. Series D-803 (vol. 1, p. 170), on the other hand, leveled out. Because they are collected from employers rather than from workers, these numbers do not capture the effects of moonlighting.

60. The effective labor supply is non-agricultural proletarian labor-hours times output per hour, while its growth rate is Harrod's "natural" rate of growth (representing the dynamic labor supply constraint on the "warranted" growth of output).

61. Rural-urban migration contributed 13 percent, with proletarianization trivial (1 percent) and hours per worker actually hurting (-7 percent). These do not add to 100 percent due to rounding.

62. Given data problems, it was necessary to include the self-employed (entrepreneurs) as part of the effective supply. But as noted, this was trivial.

63. In all cases, ratios of the unemployed to the employed were converted to ratios of the unemployed to the labor force (employed plus unemployed).

64. This ratio shows a steady and relatively smooth decline over the period. Replacing the actual ratio with a exponential or linear trend in the calculation of the "estimated Romer" series does not change the results substantially.

65. We cannot reject the hypothesis that the Douglas numbers (either non-extrapolated or using the two different extrapolations) have no time trend (t -stats = 1.29, 1.32, 1.32). (Against the log of time, these t -stats are 1.16, 1.27, and 1.25. His two other series (1930, 458, 460), which add construction and mining (but do not include 1927), are highly correlated with this series and have similar correlations with time.) On the other hand, the t -statistic on the time-coefficients for the Lebergott and estimated Roemer series are significant (t -stat = -2.00, -2.48), indicating a downward trend in unemployment. Against the log of time, these t -stats are -1.55 and -2.24.

66. One can only speculate about the extent to which unemployment was structural as opposed to being part of the (floating) reserve army of the unemployed. Gordon's (1987, 582) numbers for structural-frictional (mis-named "natural") unemployment are entirely conjectural and only for the economy as a whole.

67. This effect is similar to the way in which high unemployment rates in the early 1980s had effects that persisted into the late 1980s and 1990s.

68. Following the conflict theory of inflation presented in section II.D., the downward drift of prices during the 1920s is also a symptom of the absence of worker power. The wholesale price index for nonfarm, nonfood commodities went from 161.3 in 1920 to 100.6 in 1923 to 100.0 in 1926 to 91.6 in 1929 (USDC, 1975, 200, series D41).

69. See Kendrick (1961, 65-71). A similar (and more meaningful) break can be seen in output per labor-hour in manufacturing: using Kendrick's (1961, 465-6), this productivity

measure rose 1.6 percent per year for 1899-1919 (t-stat = 14.37) and 2.5 percent for 1919-1957 (t-stat = 25.48). Regressing the log of productivity against a time variable for the whole period and also one for the period after 1919 gave a t-stat of 5.74 for the coefficient of the second time trend, suggesting that the kink was significant.

70. The differences seem to arise from the latter series' emphasis on long-term trends (so that it does not fall in the post-War recession, unlike all other series) and more importantly from different data used in the calculation. A simple regression of the Duménil/Lévy profit rate against time for the period 1899 to 1929 indicates a positive but insignificant trend. The profit rate fell from the beginning of their series (1869) until 1929 and generally rose from 1890 until 1929. Unfortunately, the quality of the data falls as we go further back.

71. Unfortunately, data limitations mean that a variety of different methods of calculation are used. When different series lead to the same result, however, this strengthens the certainty of results.

72. Discussion of the third determinant of r in equation (1) is delayed until section D.

73. The regression coefficient against time using the D/L series was insignificant, that of the merged manufacturing series was significant.

74. This concept (a hypothetical rate measured at full capacity utilization) is analogous to the "high employment government budget." See Appendix B, equation B-3.

75. This equation is derived in part 1 of appendix B. Marx's "reproduction schemes" (1967b) for expanded reproduction is an obvious precursor of the Harrod-Domar model and the present formula. The present model is far simpler than Marx's because it is not split between departments I and II, and leaves out the role of money.

76. See part 2 of appendix B.

77. The ratios were derived from USDC (1975, 231-2), with **I** from series F112, **H** from F108+F109, and **C** from F100. These calculations suffer from the obvious problems arising from the inclusion of Collapse years in the end-point data.

78. Corporate debt may also be a barrier to recovery, but this was not a major problem (until debt-deflation set in) because the existence of abundant profits for internal financing and the emphasis on equity-financing in the late 1920s. Goldsmith (1955a, 210) presents ratios of debt to total assets for different sectors over the longer haul: for nonfinancial corporations, there is a *downward* trend after 1912, equaling 41.9 percent in 1900, 50.0 percent in 1912, 40.8 percent in 1922 and 40.5 percent in 1929. This ratio rose for farm and non-agricultural households, banks, and miscellaneous financial institutions over this period. It fell for unincorporated businesses and nonfinancial nonprofit institutions. For a deeper analysis, see Isenberg (1987).

79. After the collapse of the leading sectors, both the exports and the imports of the United States fell, as world trade imploded.

80. The reasons for the fall are beyond the scope of this paper, while the exact timing of the peak is not crucial here.

81. This fits with Keynes' view in the *Treatise* (quoted in Temin, 1976: 31).

82. Strangely, the latent instability of the U.S. economy seems implicit in Friedman and Schwartz's view that the stock market was more robust than the economy: in the late 1920s, Federal Reserve policy was "too easy to break the speculative boom, yet too tight to promote healthy economic growth" (quoted in Temin, 1976, 23).

83. Unlike Romer, Galbraith (1961, 182-91) looks for and finds factors that made the U.S. economy "fundamentally unsound" in 1929, so that the Crash, a relatively small trigger compared to the size of the U.S. economy, could trigger the Collapse. These were the highly

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