THE FALLING RATE OF PROFIT

Marx's Law and its Significance to Twentieth-Century Capitalism

by JOSEPH M. GILLMAN Ph.D.

STATISTICAL AND OTHER historical evidence shows that Marx's formulation of his Law of the Falling Rate of Profit, related to a rising organic composition of capital (a rising ratio of invested capital to the wage bill), requires substantial modification if it is to apply to the capitalist stage of high-monopoly business organization, high monopoly-profit and extensive capital-saving technology.

In this age of the rise of socialism and of colonial emancipation, imperialism and the export of capital can no longer serve as sufficient means of disposing of the excess surplus-value of advanced capitalist countries as was the case before World War I. This represents a forty-year leap from the capitalist conditions described by Lenin in his *Imperialism*.

In view of the above two propositions we come to the conclusion that, as imperialist exploitation becomes less possible and capital-investment potentials at home contract, advanced capitalisms must seek viability in a progressive increase of their domestic consumption potentials.

But in view of the capitalistically circumscribed private consumption potentials, advanced capitalisms must increasingly seek outlets for their fast accumulating surplus-value in government consumption, in various other forms of unproductive expenditures, and in such temporizing expedients as consumer financing.

These means of disposing of excess surplus-value tend to convert capitalism into a consumption economy. Since, however, a trend toward a consumption economy negates the essence of capitalism as a system of private capital accumulation, it becomes an intensifying factor in what Marxists conceive as the general crisis of capitalism and a harbinger of its ultimate transformation into socialism.

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JOSEPH M. GILLMAN, PH.D.

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To

MY WIFE

PREFACE

This little book raises questions of theory and of fact with respect to certain aspects of Marx's theory of capitalist development which, through acceptance or rejection, have for the most part appeared in economic literature as more or less settled matters.

As students of Marx know, Marx related his law of the falling tendency of the rate of profit to his theory of a rising 'organic composition of capital'. By the latter he expressed his idea that 'with the progress of industry' the ratio of the value of the invested capital in the material means of production (c) to wages of productive workers (v) tends to rise; that is, the ratio $\frac{c}{v}$ tends to rise with the development of capitalist production. The law is that with the rise of this ratio the rate of profit tends to fall.

Both these tendencies have always been argued mainly on theoretical grounds. Neither has ever been subjected to extended historical and statistical tests.

In this book the validation of these theories is attempted on both theoretical and historical-statistical grounds, and it is the results of the latter that give us pause.

These results show that whereas for the years before about World War I the historical statistics seem fully to support these theories of Marx, after that war the series studied appear generally to behave in contradiction to the Marxist expectations. The explanation could be that our statistics or our procedures, or both, are wrong. Or, Marx was right for the period of competitive capitalism, but wrong for the period of monopoly capitalism, which began to dominate the capitalist mode of production at about the time of the first World War. Or, again, the terms in which Marx formulated his theories were too narrow to encompass the conditions of monopoly production. Particularly, it appears, may this be true with respect to the countertendencies which became effective as offsets to the falling tendency of the rate of profit in this period.

It is this, third, alternative which is the main concern of this book.

Whatever our findings, however, they can be put forth at best as tentative. The present effort is but the first in this pursuit. Further, while the theoretical argument runs in terms of capitalism in general, the empirical evidence is drawn almost exclusively from American experience. The book can, therefore, claim to have done no more than to open a path for further exploration in this search.

A number of people were kind enough to read the MS. in its various stages of development and give me their critical advice for its improvement. Among these, Maurice H. Dobb of Trinity College, Cambridge, Professor H. D. Dickinson of Bristol University, and Paul M. Sweezy formerly of Harvard University were of especial help. Dr. Dobb, indeed, encouraged me in the work when it was still in its groping stage.

For all this help I wish here to express my deepest gratitude.

I wish here to take the opportunity also to express my appreciation of the courteous services extended to me by Miss Shirley Dakin and her associates at the Economics Reference Division of the New York Public Library.

JOSEPH M. GILLMAN
Hartsdale, N.Y.

June 10, 1956

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ERRATA

PAGE 61: Appendix 3: Explanatory Notes
Line 2. 'Person's' should read 'Persons's'
Line 10. $\frac{102}{100} = 102$ should read $\frac{102}{100} = 1{\cdot}02$

PAGE 117: The title of Chart 6 should read 'American Business Activity 1865–1940'

Appendix 4 should face p. 65, not p. 85

CHAPTER 1

Why a Theory of the Falling Rate of Profit

1. THE TRANSITORY NATURE OF CAPITALISM

It is a Marxist thesis that capitalism, like all predecessor societies, is a historically limited social system. According to Marx's theory of historical materialism, all social systems, including capitalism, develop under the propulsion of inner contradictions. In the case of a class society these inner contradictions ultimately eventuate in a general crisis which leads to its breakdown and to its transformation into a new, higher social system. In the case of capitalism this is expected to lead to its transformation into socialism.

The resultants of the contradictory inner forces of capitalist production Marx summarized in the form of 'laws of motion'. These may be characterized as (1) the law of the falling rate of profit; (2) the law of the increasing severity of the cyclical crisis; (3) the law of concentration and centralization of capital, and (4) the law of the increasing misery of the working class. Like all laws, whether physical or social, these laws must be thought of as expressing tendencies, which under given conditions might be counteracted temporarily by other tendencies or forces. Thus Marx speaks of the law of the falling rate of profit as a tendency to fall.

In Marx's theory of capitalist development this law of the falling tendency of the rate of profit occupies an especially crucial position. It is not only an essential component, but it also serves as a conditioning factor in the formation of the laws of motion which are the other components of that theory.

2. THE CLASSICAL ORIGINS OF THE LAW

Recognition of the fact that the rate of profit tended to fall with the growth of the capitalist system was not original with Marx. It

was a tenet of the classical economists before him. What was original with Marx was his explanation of the phenomenon – of its origins and of its significance to the system.

Adam Smith had treated the falling rate of profit at length some seventy-five years before Marx and suggested that its progress might be discerned in the known fall of the long-term interest rate, inasmuch as statistics of the trend of the profit rate was not otherwise available. 'It may be laid down as a maxim', he wrote, 'that wherever a great deal can be made by the use of money, a great deal will commonly be given for the use of it. . . . The progress of interest, therefore, may lead us to form some notion of the progress of profit.'[1] And he went on to cite the decline of the long-term interest rates in England and in other countries as evidence of the declining tendency of the rate of profit.

As explanation of the phenomenon, however, he could offer no better theory than the ambivalent law of supply and demand. He wrote:

> When the stocks of many rich merchants are turned into the same trade, their mutual competition naturally tends to lower its profit; and when there is a like increase of stock in all the different trades carried on in the same society, the same competition must produce the same effect in all of them.[2]

Ricardo saw the falling rate of profit as resulting from the pressure of a growing industrial population on the scarce land resources of England. Under that pressure the price of 'corn' rose, wages and rent rose, eating into the profits of the industrial capitalist.[3]

[1] The *Wealth of Nations*, p. 87.

[2] *Ibid.*, p. 86.

But, said Marx, 'when Adam Smith explains the fall in the rate of profit as due to the overabundance of capital, the accumulation of capital, he is speaking of a *permanent* effect, and this is wrong. On the other hand, a transitory overabundance of capital, overproduction, crisis, is something different. There are no permanent crises.' *Theories of Surplus-Value*, p. 378, n. 1., Marx's italics.

[3] *Principles* (Sraffa Edition). Cambridge University Press, London, 1951, Chapter VI, 'On Profits', in general, and pp. 118–20 in particular. See also f.n.* on p. 13 of his *Essay on Profits*, Vol. IV of this Edition. Except for Ricardo, the leading capitalist economists of the next century and a half followed Smith's

Neither with Smith nor with Ricardo, however, was the phenomenon of the falling rate of profit fraught with fatal consequences to the capitalist system as with Marx. The tendency could be mitigated, though Ricardo, in the language of Marx, was considerably 'worried' about it all. Smith would mitigate this tendency by extending both domestic and foreign trade to allow expanding capital to find new outlets so as not to evoke profit-depressing competition. Ricardo would cheapen domestic prices of wage-goods, and so hold down wages and rent, by the free importation of 'corn'.

Ricardo, evidently, saw more clearly than did Smith that the falling tendency of the rate of profit was no mere accidental phenomenon, due to such passing pressures as the competition of capitals. True, he attributed the initial force to the niggardliness of nature, a force lying outside of capitalist production relations. But that force exerted its influence, he saw, only by virtue of the fact that it was the capitalist mode of production itself which created the industrial population which so pressed on the limited food supply as to cause prices to rise, wages and rent to rise, and the rate of profit to fall. And it was this that worried him, according to Marx. 'What worries Ricardo', Marx wrote, 'is the fact that the rate of profit, the stimulating principle of capitalist production, the fundamental premise and driving force of accumulation, should be endangered by the development of production itself.' [1]

Thus, neither Ricardo nor, for that matter, any of the other non-Marxist economists discerned the significance of a falling rate of profit to the ultimate destiny of the system that Marx did. Conceiving of capitalism as an absolute, eternal system of social production, they could conceive of the falling tendency of the

lead, as did also Malthus in Ricardo's day. For example, see John Stuart Mill: *Principles of Political Economy*, Vol. 2, pp. 280; 287; 288, and Alfred Marshall: *Official Papers*, p. 49, par. 9678. In our own day, Lord Keynes related the falling tendency of the 'marginal efficiency of capital' in advanced capitalist countries to the growing abundance of invested capital. *The General Theory*, pp. 31; 135–7; 213; 219–21. For Malthus's position see his letters to Ricardo dated April 23 and May 5 1815, in Sraffa's *Ricardo*, Vol. VI, pp. 223 and 225.

[1] *Capital*, Vol. III, p. 304. 'That the bare possibility of such a thing [as the falling rate of profit] should worry Ricardo', Marx compliments him there, 'shows his profound understanding of the conditions of capitalist production.'

rate of profit only as a remediable weakness. They could not conceive of such a tendency as an omen of doom.

3. AS MARX SAW IT

It was different with Marx. The private accumulation of the maximum possible social surplus, or profit, in the form of private capital was for Marx, we have just seen him say, the motive power and impelling force of capitalist production. The ever-expanding formation of capital is the individual capitalist's principal means of warding off competitors and of forging to the top of the heap of the competitive struggle.

Now, said Marx, the very drive toward unlimited accumulation, that is, the piling up of material means of production, causes the rate of profit to fall. This is so because the drive toward unlimited capital accumulation tends to delimit the capitalistically determined consumer market potentials wherein alone profits can be realized. (See pp. 152–8, below and, in particular, the quotation from Marx on p. 158.) With a falling rate of profit, the rate of accumulation, also tends to fall. Thus, a falling rate of profit, creates a barrier to capitalist production 'and this peculiar barrier testifies to the finiteness and historical, merely transitory character of capitalist production'. Not that Marx envisaged the rate of profit and the rate of capital accumulation as continuously declining until they reached zero and so automatically marked the system's demise. What happens, he declared, is that the downward tendency of the rate of profit 'hastens the concentration of capital and its centralization through the expropriation of smaller capitalists. . . . It promotes overproduction, speculation, crises, surplus-capital along with surplus-population'.[1] It is thus that it tends to create such tensions within the capitalist class and between capitalists and workers as can finally be resolved only in the dissolution of the system itself.

In his words:[2]

[1] *Ibid.*, 283. The whole Chapter XIII, 'The Law of the Falling Tendency of the Rate of Profit', in particular pp. 247–63, is pertinent here. Also, *ibid.*, Chapter XV, 'Unravelling the Internal Contradictions of the Law'.

[2] *Capital*, Vol. I, pp. 836–7.

> Along with the constantly diminishing number of magnates of capital . . . grows the mass misery, oppression, slavery, degradation, exploitation; but with this too grows the revolt of the working class, a class always increasing in numbers, and disciplined, united, organized by the very mechanism of the process of capitalist production itself. The monopoly of capital becomes a fetter upon the mode of production. . . . Centralization of the means of production and socialization of labour at last reach a point where they become incompatible with their capitalist integument. This integument is burst asunder. The knell of capitalist private property sounds. The expropriators are expropriated.

4. AS RELATED TO THE CYCLICAL CRISIS

The law of the falling tendency of the rate of profit, then, is associated by Marx with his thesis of the inevitable decline and fall of capitalism. He associated it with this thesis, directly, in that he claimed it to impose a barrier to capitalist accumulation and production. He made the association, indirectly, by arguing that a falling rate of profit 'hastens' the centralization and concentration of capital and 'promotes' still other conditions which tear at the vitals of the system.

How a falling rate of profit 'promotes' these debilitating conditions, what the dialectical inter-connections are between it and them, Marx did not spell out in any manner of detail. He did explain how a falling rate of profit 'hastens' the centralization and concentration of capital. (*Capital*, Vol. III, pp. 283 and 294, for instance.) The others he left to be inferred from contexts elsewhere throughout his works. So, with respect to the cyclical crisis, he simply asserted that 'the development of the productive power of labour creates in the falling rate of profit a law which turns into an antagonism of this [the capitalist] mode of production at a certain point and requires for its defeat periodical crises'. (*Ibid.*, p. 303.)

This is not the place to develop Marx's theory of the periodic economic crises which have been so characteristic of capitalist production. His theory of the cyclical crisis so permeates all his

works and it has led to such a variety of interpretation that any treatment of it short of an extended analysis would give it a distorted view.[1] Suffice it to say *with respect to the profit angle* of his theory of crises that *the cyclical fall in the rate of profit is not a primary cause of the cyclical crisis.* The cyclical fall of the rate of profit is in itself a consequence of the maturation of several tendencies which, in dialectical interaction with its long-run tendency to fall, generate the periodic breakdown of capitalist production. Once, for these reasons, a crisis breaks out and the rate of profit begins to fall sharply, it becomes an aggravating factor of the crisis. It exerts a trigger effect on these other forces, sharpening their inter-effects and the crisis.

Now, suppose that there were no secular downward tendency in the rate of profit. Suppose, on the contrary, that its secular tendency were upward. In that case the successive cyclical peaks and troughs of the profit rate would tend to be rising and the effect could be a mitigation of the crisis-generating forces, rather than a tendency to aggravate and sharpen them. In that case, also, successive business depressions could be expected to grow shallower and recovery easier.

On the other hand, a downward secular tendency of the rate of profit would mean that the successive cycle peaks and troughs of the profit rate would tend to fall and this could have an aggravating effect on the other crisis-generating forces. Successive crises would then tend to increase in severity, depressions to sink lower, and recovery to become slower and more uncertain. All this would accord with Marx's tenet which he put forth in the *Communist Manifesto* in 1848.[2]

5. AS RELATED TO MONOPOLY

Marx did not develop the theory of monopoly-capital in all its important ramifications. When Marx wrote, a fully-developed monopoly-capitalism was still two generations beyond his horizon. Nevertheless, we have seen him talk of 'the monopoly of capital' as becoming a 'fetter' on the capitalist mode of produc-

[1] I shall attempt such an analysis in a later book.

[2] We treat of this subject in some detail in Chapter 9, below.

tion, and elsewhere (*Capital*, Vol. III, p. 1003) we find him explain the price-mechanism by which monopoly manages to 'transfer a portion of the profit of other producers' to itself.

We have noted that Marx viewed the falling rate of profit not as a mechanical necessity, but as a tendency which at times could be offset by counteracting tendencies. Among the countertendencies, which frequently delay and 'thwart' the fall in the rate of profit, Marx treated of such factors as an increase of the rate of exploitation (the increase in the rate of surplus-value) and the 'cheapening' of the material capitals (of the c in the $\frac{c}{v}$ ratio). Another such countertendency resides in the conditions of monopoly production. A major purpose of monopoly formation is to create the economic power and technical means by which to mitigate or, from time to time, reverse this falling tendency – to 'thwart the law'. Monopolies, in addition, achieve this aim by beating down the non-monopolized or competitive firms. Big Business tries to ward off the effects to itself of a falling rate of profit at the expense of Little Business.

In the 'battle of competition', the jagged, cyclical falls of the rate of profit would enter as an especially intensifying factor. The cyclical crisis, in which the rate of profit may fall to zero and even below, is one of the most pressing forces which drive competitive firms to form monopolies.[1] With the command over large amounts of capital, a monopoly, through price and market manipulations, can help weather and then create means for offsetting the devastating effects of the cyclical fall of the profit rate, however temporarily. And it can do more. Monopoly has the power and means, which are not available to competitive small-scale industry, to export capital to foreign lands, where it may, and generally does, reap higher profit rates than are obtainable in the home market.

Thus, it is the Marxist view that under the pressure of the long-run falling tendency of the rate of profit and under the repeated thrusts of the ever-sharpening cyclical crisis there tend to emerge as the chief characteristics of modern capitalism (*a*) the drive of

[1] See pp. 67–70, below.

the industrial monopolies of one nation for an ever-increasing share of the total profit pool of that nation, and (*b*) the drive of the dominant monopolies of the dominant capitalist nations for an ever-increasing share of the total profit pool of all the capitalist nations. At home this drive of the monopolies leads to the gradual extinguishment of the profitability of competitive industry, and even of competitive industry itself. Abroad, the drive leads to economic and political rivalries and to imperialist wars. These conflicts within and between the capitalist classes, according to Marxists, reflect the developing general crisis of capitalism.

6. AS RELATED TO THE CLASS STRUGGLE

With the intensified exploitation of the workers as a means of offsetting the falling rate of profit, Marx has told us, come also an aroused, disciplined working class and an intensification of the class struggle. In the period of growing conflict within the capitalist class, nationally and internationally, the working class comes into its own as the historical agency for the transformation of capitalism into socialism. But, in the Marxist view, no social class system can come to an end solely because of a rising discontent of its underlying, exploited population. Severe discontent and conflict must develop also within the ruling class. This opens up opportunities for alliances between certain of its segments and the discontented masses with respect to given short-term objectives.[1] At critical moments these alliances are transformed into working class leadership which spearheads the revolutionary overthrow of the existing social system.

If, then, we accept the thesis that capitalism is but a historical stage in the social evolution of man, one of the conditions required for its transformation into the next stage is an increasing severity of conflict within the capitalist class. Such a conflict, it would seem, from what has just been said, could be engendered precisely by the pressures of a falling tendency of the rate of profit.

Indeed, it would seem that if there were no deep-seated,

[1] In the *Communist Manifesto*, (p. 19) Marx and Engels remarked that 'in times when the class struggle nears the decisive hour . . . a portion of the bourgeoisie goes over to the proletariat, and in particular, a portion of the bourgeois ideologists. . .'.

systemic tendency of the rate of profit to fall, with all the attendant consequences which Marx ascribed to it, it would be hard to envisage the development of such conflicts within the capitalist class and between it and the working class as would become a threat to the continued existence of the system. To be sure, like all living organisms, it would be beset with pains of growth and development. But these could be regarded as transitory hardships, originating in remediable causes and as furnishing no basis for its ultimate breakdown and for the ultimate necessity of its replacement by another social system of production.

Marxists, therefore, generally associate Marx's law of the falling tendency of the rate of profit with their conception of the ultimate fate of capitalism as a system of social production. It bears specifically on their evaluation of the direction of the current drift of world capitalism, that is, on what they call 'the general crisis of capitalism'.[1]

But suppose the falling rate of profit is a Marxist illusion? Then 'the general crisis of capitalism' may also become a Marxist illusion. Conflict within the capitalist class, nationally and internationally, it could then be assumed, will tend to smoothe itself out as a manifestation of peaceful competition. Cyclical crises could be assumed as eventually diminishing in intensity and as ultimately disappearing altogether, 'broken up', as one Harvard University Professor assured us when the American economy was 'stabilizing' after the 1953–4 'recession'.[2] And the struggle of the working class for a socialist reconstruction of society becomes amenable to the blandishments of day-to-day ameliorative concessions of the 'bosses'. If all this is true, capitalism, unlike all its predecessor class systems can be assumed to be possessed of the elixir of perpetual life, and the advocates of a socialist solution to the ills of capitalism become but Don Quixotes tilting at windmills.

[1] The perceptive Keynesian, Dr. L. R. Klein finds in Marx's law of the falling rate of profit 'one of the first, and probably, one of the best, tools for analyzing the (modern) stagnation theory'. See his 'Theories of Effective Demand and Employment', *J.P.E.*, April 1947, p. 118.

[2] Professor Sumner H. Slichter, in New York *Times* Sunday *Magazine*, October 3, 1954, p. 40. See also his article on this subject in the *Harvard Business Review*, January 1955.

If, therefore, Marx's theory of the falling tendency of the rate of profit bears within it the implications argued above, then its validation becomes imperative both theoretically and empirically and both for Marxists and non-Marxists. And if validated, its significance to the future of capitalism must be objectively appraised.

These are the tasks of this book.

CHAPTER 2

Structure of the Law

A. SOURCE OF CAPITALIST PROFIT

1. REFERENCE CONCEPTS

The structure of Marx's law of the falling tendency of the rate of profit may be said to rest on two principal elements of his theory of value and surplus-value. One is the dual nature of labour, which Marx distinguished as labour-power and labour; that is, as the worker's *ability* to perform labour and the worker's performance of that labour as embodied in a job done.

The other is the dual nature of capital – the capital invested in means of production, called the *constant* capital, and the capital invested in wage payments, called *variable* capital.

The first gives us the origin of profit.

The second gives us the basis for determining its rate.

We briefly review these concepts as a step toward the formulation of the law.

2. LABOUR-POWER, LABOUR AND 'SURPLUS-VALUE'

Marx defined *labour-power* as 'the aggregate of those mental and physical capabilities existing in a human being, which he exercises whenever he produces a use-value of any description'.[1] (A 'use-value' is any article or service which has the quality of satisfying a human want.) *Labour*, on the other hand, is the *exercise*, the use of these capabilities of a worker in the production of usable goods. *Labour is the use of labour-power.* It is the amount of useful work which a labourer performs in a stated time, say, in an hour or in a day. Just as man converts the potential energy of the food he eats into kinetic energy of his muscles in action, so does a labourer

[1] *Capital*, Vol. I, p. 186. In the capitalist's bargain with his workers he buys and pays for their labour-power, but gets their labour. It is in this difference, we shall see, that capitalist profit emerges and capitalist accumulation begins.

convert his labour-power into labour when he works for the capitalist.

The amount of labour which goes into the production of a commodity determines its value. More commonly stated, the values of commodities are determined by the 'socially-necessary labour-time' required for their production.[1] In short, with Marx, 'labour is the substance, and the immanent measure of value.'[2]

Now, said Marx, the value of the labour-power for which the capitalist pays, like the value of any commodity he buys, is determined by the labour-time socially necessary for its production.[3] That is, it is equal to the labour-time required for the production of the subsistence for the labourer and his family.[4]

But the labour-time necessary to produce the means of a labourer's subsistence (for a day, say) is less than the labour-time which the labourer can and does deliver to the capitalist in that time. The result is that in any stated time the labourer produces more value than the equivalent of the wage which the capitalist pays him for the labour-power he uses up. This difference Marx called 'unpaid labour' and 'surplus-value'. This constitutes the capitalist's profit which he appropriates for the permission he gives his workers to work with his capital.

B. THE DUAL NATURE OF CAPITAL

1. CONSTANT AND VARIABLE CAPITAL ('*c*' and '*v*')

The second of the two elements of Marx's theory of value and surplus-value on which the structure of the law may be said to

[1] *Ibid.*, p. 46. [2] *Ibid.*, p. 588.

[3] In this we have the specific advantage of Marx's labour theory of value, in that it can be employed, as Dobb points out (*Political Economy and Capitalism*, p. 17), to explain the determination of the value of labour-power itself.

[4] By 'subsistence' Marx does not mean, of course, the bare necessities of life. The wage, Marx says, must accord with the historically determined 'habits and degree of comfort' of the wage earning class of a country, and with the degree of civilization attained by that country, and it must cover the cost of an education for the special skills. The cost of the socially-necessary labour-power is thus socially conditioned. *Capital*, Vol. I, pp. 190–1.

Elsewhere, in *Value, Price and Profit*, p. 40, Marx had written: '. . . the *Value of Labouring Power* is determined by the *Value of the Necessaries* required to

rest, is the dual nature of capital. We ask these questions: (1) Is labour *really* the only source of value, as Marx claimed it was? What about the material capital? What about the raw materials and supplies, and the plant and equipment used up in production? They enter into the cost of production. Is not this creating value? (2) We know that the machine enhances the output of the very labour to which the theory attributes the sole value-producing quality. Is technology to be ignored altogether?

Marx answers these questions, as follows:

The value of all the non-labour factors is included in the total value of the final product. To that extent they *add* to its value. And machinery does enhance the 'productiveness' of labour. But what the non-labour factors add to the total value of a product is no more than the value with which they enter the given cycle of production. The value with which they enter the production process is the value which is included in the product at the end of that process – no more nor less. *They do not create new additional value.* Also, with the help of the machine labour produces more goods per unit of labour, *but not more value per unit of output.* In fact, the value per unit of output is less, since less labour-time is now embodied in it. 'The value of commodities', he wrote, 'is in inverse ratio to the productiveness of labour.'[1] The machine enhances labour's physical productivity, but not its value productivity.

When Marx spoke of 'socially necessary labour' as determining the value of commodities, he did not think of raw labour, of labourers as working with their bare hands. The labour-time socially necessary, he explained, 'is that required to produce an article under normal conditions of production, and with the average degree of skill and intensity prevalent at the time' – that is, it is the time taken by labour equipped with tools and machinery of average technical efficiency of the given stage of the industrial arts.[2] In other words, a certain degree of the productiveness of labour due to the use of the industrial arts is included in the definition.

produce, develop, maintain, and perpetuate the labouring power.' By 'perpetuate' he meant the rearing of a family as a continuing source of supply of labour-power.

[1] *Capital*, Vol. I, p. 350. [2] *Ibid.*, p. 46. See also *Value, Price and Profit*, p. 33.

Rather than denying the place of technology in the capitalist mode of production, Marx endowed it with special significance. It plays for him an especially vital role in the capitalist's search for ways of increasing his surplus-value. Improved technology, by reducing the amount of labour required per unit of output, tends also to reduce the value of the basket of consumer or wage goods which make up the value of the commodity labour-power. It tends, therefore, to increase the surplus-value, except as it may be offset by increased real wages. 'Hence', said Marx, 'there is immanent in capital an inclination and constant tendency to heighten the productiveness of labour.'[1]

As regards the question of the capital *consumed* in the course of production, that, said Marx, is answered by the fact that its value is passed on in the value of the final product. It is passed on in its original magnitude, no more nor less.

Marx's theory thus involves a division of all capital which enters into the production of commodities into two parts: (1) the physical capital, the 'means of production'; (2) the wage capital; the latter measuring the compensation for the 'paid' portion of the labour-power used up in the production process. The value of the physical capital appears in the value of the final product as the cost of the raw materials, fuel and supplies, and of the wear and tear of plant and equipment. In capitalist accounting, the latter appear in the form of allowances for depreciation. Marx called all these outlays for the physical capital, *constant capital.*

They are 'constant', he said, because in the formation of the value of a product they appear in the same amounts in which they entered the production cycle. He designated the constant capital by the small letter *c.*

He called the wage portion of capital the *variable capital.* This capital is 'variable', he explained, because in the process of production it undergoes an 'alteration of value'. It enters the production cycle as the price of labour-power (as wages). It exits as the greater labour-time value embodied in the completed job. It, thus, produces a value greater than itself. Marx designated the variable capital by the small letter *v.*

[1] *Capital*, Vol. I, p. 351.

The 'value greater than itself' which the variable capital produces Marx called surplus-value, or *Mehrwert* in the original German. In English texts, surplus-value is designated by the small letter *s*.

Thus, for the total capital consumed in a production cycle, we have $c+v=C$. And for the total value which emerges out of a production cycle, we have $c+v+s=C'$. The emergent total value includes the surplus-value.[1]

In the argument, therefore, only labour creates new value. The worker produces the value of his labour-power, plus additional value: surplus-value. The non-labour factors only reproduce their own values; they produce no surplus-value. Only labour does that. And this is the crux of Marx's theory of surplus-value.[2]

Marx often refers to constant capital as 'past' labour and as 'stored-up' or 'dead' labour, inasmuch as it is the product of past production to which labour bestowed the value which now reappears invariant in a new production cycle. Variable capital he frequently calls 'living' labour and also 'necessary' or 'paid' labour, the 'unpaid' labour taking the form of surplus-value.

Thus, we can define the variable capital v as the *surplus-value producing capital* and the constant capital c as the *non-surplus-value producing capital*, and by placing each in a separate category, disclose the origin of the capitalist's profit.[3]

[1] *Ibid.*, pp. 235–6. Marx's italics.

[2] Summarized in Vol. I, Chapter VIII, 'Constant Capital and Variable Capital', pp. 221–34, and in Chapter IX: 'The Rate of Surplus-Value', pp. 235–55 following.

[3] In this classification of capital as constant and variable Marx breaks sharply with the established classical distinction between 'fixed' and 'circulating' capital. In the classical doctrine the 'circulating' capital comprised both workers' wages and the investment in raw materials, fuels and supplies. By separating wage payments, the variable capital, from the classical 'circulating' capital and by treating all physical capital as the constant capital Marx was enabled to locate the source of capitalist profit in the surplus-value produced by the variable capital. The confused classical definition of the capitals concealed this source.

It was this misclassification of the capitals which proved one of the major causes of Ricardo's failure in his search for an 'invariable' or absolute measure of value. See the present writer's article 'Ricardo's Development as Economist', in *Science and Society*, Summer 1956, in particular pp. 213–18.

2. THE MARXIST RATIOS

From the formula $c+v+s=C'$ Marx derived three ratios which served him as foundation stones for his theory of capitalist development. One of these is the ratio between c and v – between constant capital consumed and variable capital consumed. This ratio, commonly expressed as $\frac{c}{v}$, Marx called the *organic composition* of capital.[1] He called it 'organic' because it expresses the relations of the 'dead' to the 'living' labour – of the constant to the creative qualities of the variable capital. Variable capital, we remember, not only reproduces its own value, but also begets extra value, surplus-value, in the course of its use in the process of production.

The second ratio which Marx derived from this formula concerns the magnitude of surplus-value s as related to its source, the variable capital v. This ratio $\frac{s}{v}$, Marx called the rate of surplus-value, which also gives the measure of the 'rate of exploitation'.[2] If a worker's subsistence and, therefore, his wage (the variable capital) requires 4 hours of his labour-time to produce, yet if for that wage he works for the capitalist 8 hours, the extra 4 hours are his 'unpaid' labour-time which produces nothing but surplus-value for his capitalist-employer. The worker is thereby 'exploited' to the extent of 4 hours of labour-time, and the rate of this exploitation is measured by the ratio $\frac{4}{4}$ (four hours surplus labour-time to four hours 'necessary' labour-time) which equals 100 per cent. And that also is the rate of the surplus-value, 100 per cent. Marx designated this rate by the letter symbol s'.

The third ratio gives us p', the rate of profit. This ratio measures the rate of return on the capital used up in the production of a commodity. It is derived, therefore, from dividing the surplus-value s, accruing to a capitalist in any given accounting period, by

[1] For Marx's definition of this concept see *Capital*, Vol. I, pp. 671–2 and Vol. III, pp. 171–2. For short we shall often refer to this ratio as the o.c.c.

[2] *Capital*, Vol. I, p. 235 ff., and pp. 331–41.

the combined constant and variable capitals used up in that period. Thus, this ratio takes the form of $\frac{s}{c+v}=p'$.[1]

Note, however, that the ratio of surplus-value extracted in a given period to the capital used up in that period provides us with only an elementary definition of the rate of profit p'. Normally, the rate of profit is figured on the basis of the invested capital. To go from this elementary form of the definition to the generally accepted form, the p' as here defined must be multiplied by the average rate of the turnover of the capitals consumed. To simplify his argument, Marx assumed an average annual turnover of the capitals of one.

Again, note that the Marxist quantity 'profit' (symbol p) is the same as his quantity surplus-value (symbol s). In Marx's schema, then, 'profit' includes all income accruing to the capitalist above his prime and factory overhead costs and is equivalent to the 'gross profit' in capitalist accounting practice. The whole congeries of administrative expense and selling costs, as well as rent, interest and business taxes, are all part of s.[2]

The reservations noted in the two preceding paragraphs are crucial to the development of the argument of this book.

3. THE ORGANIC COMPOSITION OF CAPITAL AND THE FALLING RATE OF PROFIT

From these three ratios Marx deduced his theory that the rate of profit varies downward with the rise of the organic composition of capital. Recalling that $\frac{c}{v}$ = the organic composition of capital;

[1] *Capital*, Vol. III, p. 63 ff.

[2] Marx treated interest and rent as payments to capital ownership and as in no way distinguishable from industrial profits, all of them deriving from the same source – surplus-value. In *Value, Price and Profit* (*op. cit.*, p. 45), he wrote: '*Rent, Interest, and Industrial Profit*, are only *different names for different* parts of the *surplus-value* of the commodity, or the *unpaid labour realized in it*, and they are *equally derived from this source, and from this source alone*. They are not derived from *land* as such nor from *capital* as such, but land and capital enable their owners to get their respective shares out of the surplus-value extracted by the employing capitalist from the labourer.' [Italics in the original.]

$\frac{s}{v}$ = the rate of surplus value, and $\frac{s}{c+v}$ = the rate of profit, p', we have, dividing both the numerator and the denominator of $\frac{s}{c+v}$ by v,

$$p' = \frac{\frac{s}{v}}{\frac{c}{v}+\frac{v}{v}} = \frac{\frac{s}{v}}{\frac{c}{v}+1}$$

Assuming now, as Marx did, a constant rate of surplus-value, of the ratio $\frac{s}{v}$, p' will decrease as $\frac{c}{v}$ increases, and will increase as $\frac{c}{v}$ decreases. In his words,[1] 'the gradual and relative growth of the constant over the variable capital [the organic composition of capital rising] must necessarily lead to *a gradual fall of the average rate of profit*, so long as the rate of surplus-value, or the intensity of the exploitation of labour by capital, remain the same.' (Marx's italics.)

Note, by the way, that all these ratios are here calculated on the basis of capital consumed. This we shall call the 'flow' basis. Subsequently we recalculate them on the basis of the invested capital. That we shall call the 'stock' basis.

In any case, what these calculations mean is that for the economy as a whole, with the technological progress of industry and the consequent rise of the value of the constant capital relative to the wage constituent, the rate of profit must tend to fall, unless concurrently and correspondingly the rate of surplus-value also rises.

Two issues, therefore, present themselves at this point. One, the question whether 'technological progress' necessarily always means an increase in the value of c relative to v. Technological progress may mean a relative cheapening of the constant capital, a rise in the productivity of labour and, perhaps, a relative increase in v. The $\frac{c}{v}$ ratio may then not rise significantly enough to affect the rate of profit.

[1] *Capital*, Vol. III, pp. 248. See also *ibid.*, pp. 66 ff.; pp. 83–4; pp. 192–3.

Second is the question whether $\frac{s}{v}$ remains the same, as required by the above formula, *when and as* the organic composition rises (or falls).

These are crucial questions for Marx's law of the falling tendency of the rate of profit. To which we now turn.

CHAPTER 3

The Law Questioned

1. THE ASSUMPTIONS

At the end of the preceding chapter we saw that Marx formulated his law of the falling tendency of the rate of profit on two questionable assumptions. (1) That technological progress necessarily always means an increase in the value of the constant capital relative to the variable capital; that is, that the organic composition of capital 'continuously' rises, as he put it in *Capital* (Vol. III, p. 249). Our first question relates to the validity of this assumption.

(2) That one can assume a constant rate of surplus-value as a basis of the law when a rising organic composition is a correlative assumption. This leads to our second question, namely:

How can we assume a constant rate of surplus-value, with a rising organic composition of capital, when the very purpose of the increase of the o.c.c. is to increase the productivity of labour, reduce unit wage costs, and thus raise both the mass and the rate of surplus-value?

Now, as a mathematical proposition the law based on the assumption of a constant rate of surplus-value is obviously no more than a truism. *If* s' is held constant, p', the rate of profit, *must* fall with a rising $\frac{c}{v}$ ratio. Assume $c+v=$ invested capital. Then when $\frac{s}{v}$ is held constant and $\frac{c}{v}$ is rising, $\frac{s}{c+v}$, the rate of profit, must fall, since, as we have just seen $p'=\frac{s'}{\frac{c}{v}+1}$.

Here is a simple example.

Suppose a manufacturing corporation operates with capitals

$v = 50$ and $c = 150$. Then $c + v = 200$ and $\frac{c}{v}$, the organic composition, equals 3.

Suppose, next, the concern modernizes its plant so that $c = 250$, but v remains 50 as before. Now $c + v = 300$ and $\frac{c}{v} = 5$. The organic composition of the capital of the firm is now higher than before the modernization of the plant.

Now assume the same rate of surplus-value of 100 per cent for before and after modernization (Marx always worked with a flat 100 per cent rate). That is, assume s under both conditions $= 50$, so that s' equals $\frac{50}{50} = 100$ per cent. It follows that after its modernization, because of its higher capital composition, the firm suffers a loss in the rate of profit. For $\frac{50}{200} = 25$ per cent, whereas $\frac{50}{300} = 16\frac{2}{3}$ per cent.

Apply this supposition to the economy as a whole, or to one of its major segments, in the form of a time-sequence and you have the proposition that as the organic composition rises the average rate of profit declines.

This, Marx said, describes the conditions under which a capitalist economy generally operates. For individual firms, the law may not always work for a time. But for the economy as a whole, for all individual firms together, the law holds that given a constant rate of surplus-value, the rate of profit will tend to fall as technological innovation raises the organic composition of their capitals.

If this is true, a wholly new, a third, question comes up for an answer; namely:

If the rate of surplus-value has remained constant over the years, that is, if with the development of the system the portion of the national income accruing to capital has remained the same, then the benefits of the tremendous secular advance in the productivity of labour, consequent upon a rising organic composition of

capital, must have been shared in large part with the working class. If that has been the case, what becomes of the theory of the progressive impoverishment of the masses generally attributed to Marx? Does it not constitute, in Joan Robinson's words, a 'drastic inconsistency' in Marx's theoretical structure? 'For if the rate of exploitation tends to be constant', Mrs. Robinson argues, 'real wages tend to rise as productivity increases. Labour receives a constant proportion of an increasing total.' Marx, therefore, Mrs. Robinson concludes, 'can only demonstrate a falling tendency in profits by abandoning his argument that real wages tend to be constant.'[1]

We treat of this third question in a subsequent chapter. Here we return to our second question, namely, how can we assume a constant rate of surplus-value in the face of a rising organic composition of capital?

Marx, of course, was aware of this problem. But nowhere, it would seem, did he really meet it head on. Where he does treat of it he appears to beg the question.

This is the way he formulated the problem:[2]

> If we consider the enormous development of the productive powers of labour . . .; if we consider in particular the enormous mass of fixed capital . . . passing into the process of social production as a whole, then the difficulty, which has hitherto troubled the vulgar economists, namely that of finding an explanation for the falling rate of profit, gives way to its opposite, namely to the question; How is it that this fall is not greater and more rapid?

But this is not the question. The question is why, in the face of an assumed secular rise of the organic composition of capital, should the rate of surplus-value be constant and the rate of profit fall at all?

The answer Marx gave to his own question, though not to ours, was that 'counteracting' forces tend to interfere with the operation of the law and so to slow down the inherent tendency of the

[1] *An Essay on Marxian Economics*, p. 36. All references are to the 1947 edition.
[2] *Capital*, Vol. III, p. 272.

rate of profit to fall. However, his treatment of these counteracting causes opens up possibilities of an answer to our first question, whether technological progress necessarily must mean a rising organic composition of capital.

2. COUNTERACTING CAUSES

The reason, said Marx, that the rate of profit has not fallen farther nor more rapidly than it has, has been due to the fact that the rate of surplus-value does not always remain the same, nor does the organic composition of capital always rise proportionately to the rate of capital investment. There are conditions – there are 'influences at work' in the system – he explained, under which investment does not advance the organic composition, yet which leads to a lowering of labour costs per unit of product and to an increase in the rate of surplus-value. Further, there are conditions which tend to raise the rate of surplus-value without reference to any new investment. Under all such circumstances, the rate of profit not only need not fall, but for a time may actually rise. These 'counteracting causes', said Marx, tend to 'thwart and annul the effects of this general law, leaving to it merely the character of a tendency'.[1]

Marx lists and discusses briefly five sets of causes which tend to counteract the full expression of the law. Three of these, he shows, do that by tending to raise the rate of surplus-value, without a corresponding prior rise of the organic composition of capital. One tends to lower – to 'cheapen' – the elements of the constant capital and so to retard the rise of the organic composition. The fifth, foreign trade, tends to affect both sides of the equation. We state them here in some detail, though not in the same order, as they bear heavily on the later development of our own argument.

[1] *Ibid.* The whole of Marx's Chapter XIV, 'Counteracting Causes' and Chapter XV, 'Unravelling the Internal Contradictions of the Law', following, should be read in this connection. Chapter XVI, 'Absolute and Relative Surplus-Value', of Vol. I of *Capital*, also bears on this subject. Page references in the text of the present section, unless otherwise noted, are to Vol. III.

a. Causes which tend to raise the rate of surplus-value

(i) '*Raising the Intensity of Exploitation*' (pp. 272–6). Under this factor Marx included both the lengthening of the working day and the speed-up system. An extension of the working day increases the 'surplus-labour time' (s), without a corresponding increase in the 'necessary labour-time' (v). The ratio $\frac{s}{v}$, or s', is thereby raised. Even if the lengthening of the working day took the form of an added work-shift, still s' would tend to rise more significantly than the organic composition. More of the plant and machinery would wear out and more materials would be fabricated, thus raising the value of the constant capital consumed. But the total effect would not be to raise it to the extent of the rise of the rate of surplus-value.

Similar results obtain from the speed-up, under which the labourer is set 'to watch a larger number of machines', or when the speed of the machine is increased.[1]

A recent example of the 'lengthening of the working day' would be the use of the multiple shift under the pressure of wartime demand for increased production from the existing plant. However, to the extent that the multiple shift may involve higher rates of pay for night work and for overtime work in general, the rise of the rate of surplus-value may not be very steep, although the ratio $\frac{c}{v}$ may fall drastically. This, in fact, was the American experience during World War II, as we shall see in the next chapter.

Nevertheless, Marx asserted, the rise of the rate of surplus-value from either the lengthening of the work day or the speed-up 'does not suspend the general law. . . . it causes that law to become more of a tendency, that is, a law whose absolute enforcement is checked, retarded, weakened. . . .' But it cannot prevent its operation entirely (pp. 275 and 280).

(ii) '*Depression of Wages Below their Value*' – (p. 276). This is the second of three counteracting causes, and 'one of the most

[1] Marx develops this subject in almost present-day terminology in *Capital*, Vol. I, Chapter XV: 'Machinery and Modern Industry'.

important', which tend to check the fall of the rate of profit by raising the rate of surplus-value. The employment of women and children comes to mind as one such means of raising the rate of surplus-value by depressing wages below their value.[1]

(iii) '*Relative Overpopulation*' (pp. 277–8). The periodic recruitment of the reserve army (cyclical unemployment) is the third of the three factors which tend to raise the rate of surplus-value, independent of the organic composition of the capital involved. To be sure, the reserve army is often recreated through the introduction of new labour-saving machinery. By this means the organic composition of the capital is raised at the same time that it raises the rate of surplus-value. But once the reserve army has been replenished, unemployment has risen, and labour has become cheap, capitalists tend to expand the industries of low organic composition (using more labour) which yield a higher rate of surplus-value and a higher rate of profit. With wages below the average and with a low proportion of constant capital, 'both the rate and mass of surplus-value are exceptionally high'.

b. Foreign Trade (pp. 278–81)

This factor acts so as both to raise the rate of surplus-value and to lower the value of the constant capital. Thus it raises the rate of profit on two accounts. Imports of foodstuffs help to lower the price of labour-power. (Marx here had in mind the effects of the abolition of the Corn Laws in England.) Thus s' is raised. Imports of raw materials reduce the value of the constant capital; and so the organic composition is lowered.

Further, foreign investments fetch a higher than the domestic rate of profit – they earn 'super-profits'. Thereby the average for the total capital is raised.[2]

[1] Marx discusses this point also in the chapter cited in f.n. 1, p. 24 above, specifically on pp. 431–40.

[2] The export of capital and the struggle of national capitals for the exclusive domination of foreign markets, as compelling means of offsetting the falling tendency of the rate of profit, form the basic themes of Lenin's *Imperialism*. Lenin there shows how the growth of monopoly necessitated the expansion of capital exports, as it in turn helped in the formation and growth of monopoly.

Marx's brief sketch of the 'new and international division of labour' (*Capital*,

On the other hand, foreign trade stimulates the expansion of the home capital. To that extent it leads to a rise in the organic composition and to a lowering of the rate of profit.

c. '*Cheapening of the Elements of Constant Capital*' (pp. 276–7)

Under this heading Marx subsumes the factors which tend to raise the rate of profit by virtue of a lowering of the organic composition of capital. One aspect of foreign trade, we have just seen, falls into this category. So also in a depression, the deterioration of the physical assets and their depreciation through write downs, become a factor in the rise of the rate of profit and so acts as a stimulus to recovery.[1]

Marx's analysis of this aspect of capitalist development, that is, of the tendency to minimize the value of the expanding physical capital, reads like a present-day treatise on the technology of capital-saving investment. Already in Volume I of *Capital* (pp. 663–4), he wrote of how 'Science and technology [!] give capital a power of expansion independent of the given magnitude of the capital actually functioning'. And in Volume III (p. 139), he wrote:

> Constant capital may be released without depreciation, *when improvements, the harnessing of natural powers*, etc., enable a constant capital of smaller value to perform the same technical services as those formerly performed by a constant capital of greater value. [Italics supplied.]

And *Ibid.*, pp. 276–7, we read:

> . . . the same development, which increases the mass of the constant capital relatively over that of the variable, reduces the value of its elements as a result of the increased productivity of labour. . . . *In exceptional cases the mass of the elements of constant capital may even increase, while its value remains the same or even falls.* [Italics supplied.]

In a notable chapter on the 'Economies in the Employment of

Vol. I, pp. 493 ff.) throws light on his insight into capitalist developments still decades beyond the economic horizons of his time.

[1] See Marx's discussion of this point in, for example, *Capital*, Vol. III, pp. 297–9.

Constant Capital',[1] Marx tells us that, with a given rate of surplus-value, the rate of profit will increase with a reduction of the value of the constant capital and that with the progress of the industrial-chemical sciences, precisely such reduction tends to become the rule. The quality of the raw materials is improved; waste of materials is minimized – 'Good material leaves less waste' (p. 99) – the 'excrements' of production are converted into valuable by-products, and the machine is made more durable and more efficient. The cost of the constant capital is thereby reduced both as a portion of the total value of product and relative to the variable capital. With larger and improved machinery, large-scale industry becomes possible as only large-scale industry can command the use of the larger, improved machinery. As a result of all this, both the rate of surplus-value and the rate of profit tend to rise.

All these and similar technological advances tend to reduce the rate of growth of the *value* of the constant capital, relative to the rate of growth of its 'material mass'. And this applies not only to the circulating portion of the constant capital – to raw materials, etc. – but also to the fixed capital – to buildings, machinery and the rest of the permanent equipment. 'If five labourers', he wrote, 'produce ten times as many commodities as formerly, this does not increase the outlay for fixed capital tenfold; although the value of this part of the constant capital increases with the development of the productive forces, it does not increase by any means in the same proportion with them.'[2]

The historical tendency of the organic composition to rise is retarded and the falling tendency of the rate of profit is diminished. *The law becomes 'a tendency, whose effects become clearly marked only under certain conditions and in the course of long periods'.*[3]

[1] *Capital*, Vol. III, Chapter V, pp. 92–124.

[2] *Ibid.*, p. 305.

[3] *Ibid.*, p. 280. Our italics. The failure of Marxists (and of anti-Marxists as well) to observe these and similar qualifications by Marx has led to serious distortions of his theory of the law.

3. THE CRUCIAL QUESTION

We have asked the question, how can we assume a constant rate of surplus-value in the face of a rising organic composition of capital? Marx, we have seen, did not treat of this question directly. But his treatment of a question he raised with respect to the operation of his law of the falling rate of profit does bear on our question. The question he raised was, granted that the rate of profit must tend to fall, how is it that it has not fallen faster than seems to have been the case? And his answer was that the rate of profit has not fallen faster and more persistently than the law would suggest because circumstances are constantly at work which thwart this tendency. There are circumstances, he showed, under which the organic composition of the capitals may actually fall, instead of rising and there are circumstances under which the rate of surplus-value tends to increase so as to offset the falling tendency of the rate of profit.

So now we not only have no answer to the question, can we assume a constant rate of surplus-value in the face of a rising organic composition of capital?, but find ourselves casting doubt also on the soundness of the first of the two Marxian assumptions with which this chapter opened, namely: can we assume a rising organic composition of capital as a long-range historical tendency?

We know that since Marx's day it is with respect to the 'cheapening the elements of the constant capital' that capitalism has made its greatest advances. What with Marx were 'exceptional cases' have become the rule of industrial production. (Later we cite examples.) Under these circumstances, the organic composition of capital may not have been rising at all in accordance with the traditional Marxist expectations; *it* may indeed have to be assumed as remaining constant, *instead* of the rate of surplus-value. In that event the rate of profit – to the extent that it is functionally related to the organic composition of capital – not only may not have tended to fall, but might even be expected to tend to rise, unless at the same time the rate of surplus-value was falling or remained rigidly constant. What, then becomes of Marx's law of the falling tendency of the rate of profit?

4. A VARIETY OF ANSWERS

Marx, we have seen, left the law as a tendency, with the positive causes predominating over the counteracting forces in the long run.

Paul Sweezy argues that if both the organic composition and the rate of surplus-value are subject to change, 'the direction in which the rate of profit will change becomes indeterminate.'[1]

John Strachey, on the other hand, minimizes Marx's qualifications. 'We *know*', he declared, 'that as the technique of production develops, less and less living labour [v] and more and more plant and machinery [c] are used to produce a given quantity of products. Therefore, [he argued] less and less value must be created. And if less value is created, less surplus-value also will be created. . . .'[2] Hence the tendency of the rate of profit to fall. Thus Strachey ignores the fact that 'more and more plant and machinery' may not mean correspondingly more and more c in value. And he ignored the fact that though v may be falling, s may rise if s' is increasing.

John Eaton[3] takes it straight, so to speak, asserting simply: 'The rate of profit tends to fall because the organic composition of capital . . . tends to increase.'

And no less a Marxist authority than Stalin has categorically asserted[4] that the average rate of capitalist profit tends to decline, 'in view of the increasing organic composition of capital'.

'Actually', says Sweezy, 'the general impression of the rapidity of the growth of the organic composition of capital seems to be considerably exaggerated.' Further, he argues, there is no reason to presume that changes in the organic composition of capital are relatively so much greater than changes in the rate of surplus-value as to dominate the movements in the rate of profit. On the contrary, he sees the two variables as roughly co-ordinate in importance. Therefore, he concludes, the formulation of the law

[1] *Theory of Capitalist Development*, p. 102.
[2] *The Nature of Capitalist Crisis*, p. 242. Our italics.
[3] *Political Economy*, p. 130.
[4] *Economic Problems of Socialism in the U.S.S.R.*, p. 31.

in terms of the dependence of the rate of profit on the changing organic composition of capital 'is not very convincing'.[1]

Dobb (*op. cit.*, pp. 97–8), takes a middle ground. 'There is often a tendency', he writes (with a glance at Strachey), 'to give Marx's view of this matter a too mechanistic twist, depicting it as though it relied on the forecast of profit falling in a continuous downward curve until it reached a point at which the system would come to an abrupt stop. . . . The true interpretation would seem to be that Marx saw tendency and counter-tendency as elements of conflict out of which the general movement of the system emerged. . . . Doubtless', he concludes, 'Marx not only expected that the tendency of profit to fall would prevail, at least as a long-term tendency, but also saw in this phenomenon an important cause of periodic curtailment of new investment and of production and employment.' That is, he saw it as a factor in the precipitation of the periodic economic crisis.

Joan Robinson (*op. cit.*, p. 7 and p. 39) sees the 'trouble' as arising, 'like most of the obscurities in Marx's argument, from his method of reckoning in terms of value'. If reckoned in physical terms, if the organic composition were viewed as capital per man employed, we would arrive at a more workable theory.

That, of course, would not give us any 'trouble' at all. It just would not be Marx. Marx was very clear on the point that whenever he dealt with the relation between the organic composition of capital and the rate of profit, it was to 'value-composition', not to 'technical-composition' that he referred.[2] It is in the value relations between the constant and the variable capitals that Marx located this aspect of his theory of capitalist development. And if not established in these terms we cannot speak of the falling tendency of the rate of profit as a characteristic of capitalist development or as a factor in economic crises, whether we speak of it, in its latter aspects, as the immediate or as an intermediate cause.

[1] *Op. cit.*, pp. 103, 104, and 106.

[2] 'Wherever I refer to the composition of capital', Marx wrote 'without further qualification, its organic composition [its *value-composition*] is always understood.' (*Capital*, Vol. I, p. 671). For conditions under which the relation between the technical and the value compositions might diverge, see Marx's discussion, for example, in *Capital*, Vol. III, pp. 889–90.

5. THE NEED FOR EMPIRICAL VERIFICATION

Marx developed his economic doctrines largely on the basis of axioms and their demonstration mostly on the basis of purely hypothetical data. This was especially true with respect to his law of the falling tendency of the rate of profit, although his pages abound with numerous factual and historical references. Marxists, as well as anti-Marxists, have used the same methods in arguing about 'what Marx meant'. They have accepted, rejected or interpreted Marx largely in terms of these axioms. (Even as we ourselves have been doing here, so far.) But as Einstein is reported to have said,[1] 'the only virtue of axioms is to furnish fundamental propositions from which one can deduce conclusions to fit the facts.' (How often facts have been tortured to make them fit preconceived conclusions!) 'An economic law', Maurice Dobb reminds us, 'is not merely a conditional sentence stating that if a situation be defined in this or that way it will necessarily have this or that attribute. Such is no more than a tautology.' 'An economic theory must be quantitative in form.' [2]

Marx did not have the facts against which to test his law of the falling tendency of the rate of profit. They first had to emerge from generations of capitalist production. But we now have a considerable accumulation of such facts, and it seems high time that, with Francis Bacon, we counted the horse's teeth instead of continuing to speculate about their number. True, the available statistics are not in the form exactly suited to the purpose. Capitalist business firms do not report, nor do official statistical agencies process their statistics to conform to the Marxist categories. Above all, these statistics do not allow us to separate out the factors which affect the production of surplus-value from those which affect its realization, as a full test of the law as Marx formulated it would require. But with this precaution in mind, they can be made to serve as fair approximations for testing the assumptions which underlie this law.

[1] As quoted in Professor Max Wertheimer's *Productive Thinking*, p. 179. Published posthumously.

[2] *Op. cit.*, p. 29 and pp. 10–11.

What the statistics show, we find, is not very assuring to the traditional notions about the law, whether looked at from the point of view of traditionally-minded Marxists or from that of the critics of Marx.

We turn to the statistical tests of the law.

CHAPTER 4

Statistical Tests of the Law: 1. Flow Basis

A. TRADITIONAL APPROACH

1. THE STATISTICAL CONCEPTS

We seek to establish the statistical relations between the Marxist categories c, v, and s, and to compute their trends. In Marx's terms, c, the constant capital, consists of the cost of 'the raw materials and auxiliary substances, including half-wrought articles' and of the value of the portion of the fixed capital used up in the production of a finished commodity (*Capital*, Vol. III, p. 132). This corresponds roughly to the value of 'materials, supplies, fuel, purchased electric energy and contract work' of the U.S. Census of Manufactures, plus an allowance for depreciation of plant and equipment.

The variable capital v is the wage bill of the production workers and it corresponds roughly to 'wages' in that Census. We confine our inquiry to the manufacturing industries of the United States as the sphere of production for which the Marxist categories can be most clearly defined and for which we have the most data on the longest continuing basis. It is also, of course, the major sphere of production which characterizes a capitalist economy.

When the c and v equivalents of the census are subtracted from its 'value of products', we obtain the s of the formula. Thus in the census data we have the basis for the traditional way of computing the Marxist ratios $\frac{c}{v}$, $\frac{s}{v}$ and $\frac{s}{c+v}$, except for the allowance for depreciation which is not included in the census coverage.

But, we must note at the very outset, this basis contains serious shortcomings. In the first place, for the purpose of demonstrating Marx's law of the falling tendency of the rate of profit, we need to

know not the value of the capital *consumed*, as is given by these data, but the value of the capital *invested*. We need to know the value of the *stock* of the capital on which the profit was made. For the materials element of the constant capital we need to know its average inventory, or its rate of turnover which, when divided into the value of capital consumed, would yield the average inventory.[1] For its fixed element we need to know the value of its reproduction cost at current prices so that it can be related to the current market price of the materials inventory and to the current wage bill — to the v in the formula.

Secondly, the s we obtain from the Census data yields a rate of profit (p') in gross form. The 'value of products' from which the c and the v are subtracted to give us our s is the gross sales realized at the factory gate. This s, therefore, is nothing but the excess value above prime costs, plus factory overhead. It is not the 'net operating income' of the profit and loss accounts of corporations. Neither selling and administrative costs, nor taxes, nor any of the other familiar non-factory overhead costs are allowed for in this reckoning. Since Marx's day these 'costs of doing business', including the cost of government, have been increasingly impinging on the capitalist net profit.

However, statistics bearing on the questions of invested capital and the increasing costs of doing business have not been available for any considerable length of time. In fact, relatively little reliable information in these respects is available for any continuous span of years prior to 1919. For inventories our statistics do not go back before 1922, except for one rough estimate for 1890. For the value of plant and equipment and hence for the depreciation account, we have fairly reliable estimates for the years beginning with 1919. For years prior to that date, we have estimates only for the four years 1912, 1900, 1890 and 1880, receding in dependability with these years. For the 'cost of doing business' our data go back only as far as 1919.

[1] Marx was fully aware of this problem and devoted a goodly portion of Vol. II of *Capital*, (pp. 173–403) to an elucidation of the effect of turnover on the rate of profit, and Engels supplied a special chapter (Chapter IV, Vol. III), to round out the discussion.

Traditionally, Marxist scholars have, perforce, calculated the ratios $\frac{c}{v}$, $\frac{s}{v}$ and $\frac{s}{c+v}$ for purposes of exposition on the basis of the constant capital consumed, with an arbitrary allowance for depreciation of the fixed capital.[1] This may be called the 'flow' basis of calculating the Marxist ratios, in contrast to what we will call the 'stock' basis, wherein the capital invested is used in the calculations.

In our empirical tests of the law we use both the flow and the stock bases for whatever light each may yield. We begin with the flow basis.

Table A. The Organic Composition of Capital (o.c.c.), the Rate of Surplus-Value (s') and the Rate of Profit (p'). United States Electrical Machinery Industry. 1941.

(Dollar amounts in millions)

Line	Item and computation	Amounts and ratios
1	Net Sales (or value of product)	2172
2	Materials*	784
3	Depreciation, etc.**	61
4	Constant capital, (line 2 + line 3) = c	845
5	Variable capital (v): wages of production workers	606
6	Total capital ($c+v$): Line 4 + line 5	1451
7	Surplus-value, (line 1 − line 6) = s	721
8	o.c.c. (line 4 ÷ line 5)	1·4
9	s' (line 7 ÷ line 5) × 100	119
10	p' (line 7 ÷ line 6) × 100***	49·7

* Does not include fuel, etc., as the corresponding Census item does.

** Includes depletion and amortization.

*** This is the elementary form of the profit rate of which we spoke earlier.

[1] For example, see Eugene Varga, *The Great Crisis and Its Political Consequencies*, pp. 174–5. Varga assumed a flat rate of 10 per cent for the depreciation of the estimated value of both plant and equipment, 'in accordance with commercial usage'.

2. THE FLOW BASIS ILLUSTRATED

We illustrate this basis of computing the Marxist ratios with the data for the electrical machinery industry of the United States. They come from a study of the United States Federal Trade Commission which it made on the basis of statistics collected by the Office of Price Administration during the War Years.[1] The statistics treated here are for the one year 1941.

Now we turn to a consideration of the trend of the Marxist ratios over a number of years as computed on this flow basis.

B. TREND OF THE RATIOS

1. FIRST EXPERIMENT

We first compute these ratios on the basis of the data for American manufacturing industries published by the United States Bureau of the Census for the census years 1849–1939. A manufacturing census was taken decennially from 1849 to 1899; quinquennially from 1899 to 1919, and biennially thereafter until 1939. Since no further comparable, full-data censuses have been taken since 1939, the present coverage ends with that year. The data are for the manufacturing industries of the United States taken as a whole for this period of ninety years.

Except for the omission of depreciation, for which the Census collects no information, the ratios for these years were computed as shown in the illustration. They are listed in Table B, following. The original data and the actual computations are given in Appendix 1, at the end of this chapter.

a. The o.c.c.

Ignoring for the moment year-to-year changes, we find that for the first seventy years of this ninety-year stretch, that is, until 1919, the organic composition of capital displays a fairly persistent tendency to rise, thus supporting this part of the Marxist theory. It was a slow rise, compared to what Marx's hypothetical

[1] *Report on War time Costs and Profits of Manufacturing Corporations.* 1941–1945. Appendix. October 6, 1947. Photo-offset. Table 82.

Table B. The Organic Composition of Capital (o.c.c.), the Rate of Surplus-Value (s') and the Rate of Profit (p'). United States Manufacturing Industries. Census Years 1849–1939.

Flow Basis. 1

(Without depreciation allowance)

Census Year	o.c.c.	s' per cent	p' per cent
1849	2·3	96	29
1859	2·7	125	34
1869	3·2	125	30
1879	3·6	108	24
1889	2·7	123	33
1899*	3·2	144	35
1899**	3·4	145	33
1904	3·4	147	34
1909	3·7	155	33
1914***	3·7	148	32
1919	3·8	147	31
1921	3·3	132	31
1923	3·3	142	33
1925	3·5	157	35
1927	3·4	161	37
1929	3·4	181	41
1931	3·2	178	43
1933	3·4	184	42
1935	3·6	154	33
1937	3·5	149	33
1939	3·5	172	38

* Includes factories and 'hand and neighbourhood' industries as hitherto.

** Excludes 'hand and neighbourhood' industries. The o.c.c. is, therefore, lifted somewhat.

*** Includes establishments having products valued at $500 or more as hitherto. Subsequent to 1914 only such establishments were included in the census as had products valued $5000 or more. The effect, as in the preceding case, was to lift the o.c.c. somewhat.

examples might lead one to expect. But it was in accord with his expectations when allowance is made for the interplay of tendencies and countertendencies of which we spoke in the preceding chapter. With the one conspicuous exception, that cast up for 1889, the rise was nearly continuous.[1]

But with the turn of the century this rising tendency slows down perceptibly, and *after* 1919 the o.c.c. registers a decline to a somewhat lower level of ratios and stays at that lower level virtually throughout the remaining twenty years of the period. After 1919, the rise becomes inconspicuous compared with the Marxist expectations (Chart 1, bottom panel).

b. The s′ Ratios

The trend of the rate of surplus-value at first appears to support the assumption of constancy employed in the traditional demonstration of the law of the falling rate of profit. It stays close to a rate in the neighbourhood of 100 for the first forty years. Then, towards the end of the century, it makes a jump to a higher level at which it remains until the mid-1920's, when it jumps to a still higher level at which it essentially remains for most of the rest of the period (Chart 1, middle panel).

c. The p′ Ratio

Rather than declining as required by the law, the trend of p', as computed on the flow basis, *portrays a slowly rising tendency, with a considerable fillip after 1919* (Chart 1, top panel).

The overall picture portrayed by these calculations is that of a slowly rising o.c.c. (until 1919); a rather steeply rising tendency of s', beginning with the turn of the century, and a slowly rising p' through the entire period covered. There is no evidence here

[1] The sharp dip in 1889 reflects the effect of the decline in wholesale commodity prices (the c of the $\frac{c}{v}$ ratio) which followed the depression of 1884. The decline continued until the end of the following decade, marking the culmination of the long declining trend which began with the conclusion of the Civil War. Wages (the v of the ratio) lag behind commodity prices both on the down – and on the up-grade.

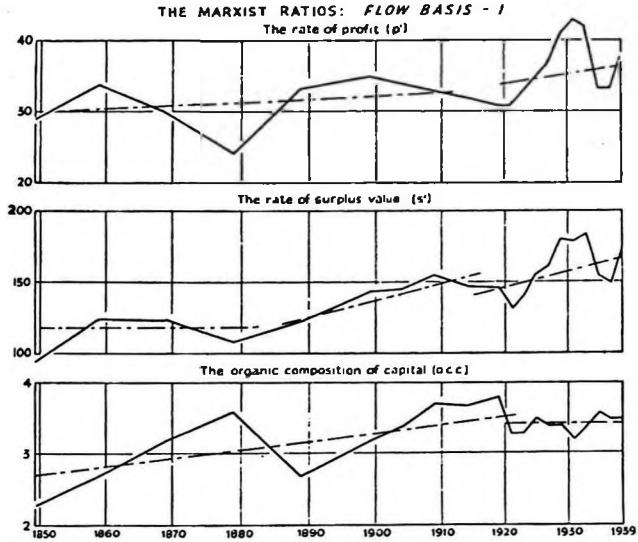


CHART I

in support of Marx's law of a long-run falling tendency of the rate of profit.

2. SECOND EXPERIMENT

Still on a flow basis, we now compute these ratios by including depreciation in our calculations. In this way we add the cost of the fixed capital consumed to the cost of the consumed raw materials, etc. However, depreciation statistics, as we already know, are available to us on a relatively firm basis only since 1919. Since, also, our census data do not go beyond 1939 our second experiment is limited to the twenty-one years 1919–39.

We have, however, in this series still another improvement over the one just treated. In the present instance we have been able to compute the series of ratios on an annual, instead of only on the biennial basis for these years as before. This we were able to do by splicing the biennial data of the Census with those submitted

annually by American corporations to the Bureau of Internal Revenue. This splicing was necessary, in any case, since only the returns to the Bureau of Internal Revenue include the figures for depreciation, which the reports to the Bureau of the Census do not. While we were at it, therefore, we equated the two series for each of the twenty-one years, instead of only for the alternate Census years.

The results of these computations are given in Table C. The

Table C. The Organic Composition of Capital (o.c.c.), the Rate of Surplus-Value (s') and the Rate of Profit (p'). United States Manufacturing Industries. 1919–39.

Flow Basis. 2

(Materials consumed, plus depreciation allowance)

Year	o.c.c.	s' per cent	p' per cent
1919	3·9	135	27·6
1920	3·4	111	25·2
1921	3·5	116	26·0
1922	3·5	124	27·2
1923	3·5	128	28·6
1924	3·6	131	28·9
1925	3·7	142	30·3
1926	3·6	140	30·4
1927	3·6	144	31·6
1928	3·7	159	34·1
1929	3·6	164	35·4
1930	3·6	161	35·0
1931	3·5	154	34·4
1932	3·6	145	31·5
1933	3·7	154	32·9
1934	3·6	137	29·6
1935	3·8	136	28·2
1936	4·0	150	30·2
1937	3·7	134	28·6
1938	3·9	149	30·6
1939	3·7	149	32·0

original data, the splicing procedure and the calculations are given in Appendix 2, at the end of this chapter.

Because of the allowance for depreciation in this case, both the s' and the p' magnitudes are smaller than those of the preceding table. But the trends are essentially the same:

(*a*) With the exception of the depression years 1935–8, the organic composition of capital, computed on the basis of the total constant capital consumed, did not rise in the course of the years 1919–39, any more than it did on the previous basis (Chart 2, bottom panel). On the contrary, after an initial fall of a little over 10 per cent between 1919 and 1920, it remained practically inert, constant, for the rest of the period. The depression phenomenon will be explained in the next chapter (pp. 52–53).

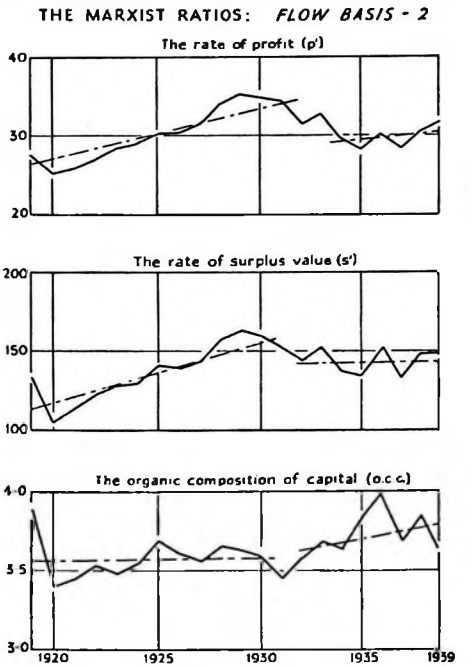


CHART 2

(*b*) Beginning with 1920, the rate of surplus-value rose almost continually until the outbreak of the crisis of 1929–30. Thereafter, it appears to have tended to stabilize at a ratio of slightly less than 150 (Chart 2, middle panel). The sharp declines in 1934, 1935 and 1937, reflect the rise in employment and wage rates from their depression lows.

(*c*) The rate of profit did not fall as required by the law. Instead, except in the depression years, it tended to rise, reflecting the concurrent increase in the rate of surplus-value in the face of an almost stationary o.c.c. (Chart 2, upper panel). For the rate of profit to fall the proportionate increases of s' must be less than corresponding increases in the $\frac{c}{v}$ ratios.

In short, except for the rise of the o.c.c. shown for the years prior to 1919 (with no corresponding fall of p'), and except for the relative constancy of the s' ratios ending in 1889, shown in Table B, none of the trends seems to conform to Marx's law when the ratios are calculated on the flow basis.

C. STOCK *VS.* FLOW

Evidently, since about the beginning of the century, the counteracting forces of which Marx spoke must have been increasingly at work to 'thwart and annul' the effects of the law *as measured on a flow basis*. Among these forces, we know, have been the growing efficiency in the utilization of materials and the improved utilization of plant and equipment which came with the growing integration and monopolization of industry. Elimination of waste and technological improvements in the consumption of materials reduced the amount consumed per unit of finished product, while the v component increased with the output, even if not proportionately.[1] Thus the growth of the constant capital, measured on a *flow basis*, has been retarded and

[1] While value added by manufacture increased 20 per cent between 1919 and 1929, wages of production workers increased 13 per cent and the cost of materials, etc., only 3 per cent. Computed from data in Appendix 1 at end of this chapter.

with it the organic composition of capital. At the same time, the improved technology has tended to raise the rate of exploitation. Hence the phenomenon observed in Tables B and C of a rising s', without an accompanying rise in the $\frac{c}{v}$ ratio.

Besides, vertical integration of industry, a most prominent feature of early twentieth-century capitalist development in America, tends to minimize also the statistical magnitudes of materials *consumed*. As fabricating firms absorb their suppliers, the amount of the materials consumed tends to be minimized in the accounting statistics. What formerly had been a distinct component of the constant capital consumed, and figured in its total value, now becomes part of the account of goods in process of production. Its former separate value as raw materials disappears. There is no longer an accounting of it as such in the books of the integrated firm, no property transfer from one firm to another. Thus, as lines of demarcation between supplier and user are obliterated, the 'statistical' growth of the constant capital *consumed* is retarded and with it the ratio $\frac{c}{v}$.

Finally, the vertical integration of production and the increasing efficiency in the utilization of raw materials are associated with an increasing mechanization of industry. One aspect of mechanization is the increase in the fixed capital component of the constant capital *relative* to raw materials. Now, since the rate of turnover of the fixed capital stock (its rate of depreciation) is so much lower than the turnover rate of the inventory of raw materials, it may actually happen that a rise of the total stock of the constant capital in use becomes associated with a relative decline in the amount of the constant capital 'consumed'.

Take an example. Suppose the average inventory of raw materials equals 100 and its annual rate of turnover is 3. The raw materials 'consumed' in a year, then, would be 300. On the other hand, the rate of depreciation of plant and equipment is generally figured at not more than 10 per cent a year. (The turnover is $\frac{1}{10}$, and therefore $\frac{1}{30}$ of that of the inventory of raw materials.) Then, a fixed capital stock of 1000 would contribute the figure 100 to the

capital consumption statistics, and the total stock of capital of 1100 would contribute a total of 400 (our 'flow' total).

Now suppose that the fixed capital component is raised to 1500 and that this makes possible an economy in the utilization of the raw materials so that their inventory is reduced to 70. In that event, the rate of turnover of both components remaining the same, the capital 'consumed' would be reduced ($3 \times 70 + 10$ per cent of $1500 = 360$, against the former 400) even while the total stock of the constant capital had actually increased ($1500 + 70$, against the former $1000 + 100$).

Thus, a change in the structure of the constant capital stock in favour of its fixed capital component involves both a relative reduction in raw materials consumption and an absolute reduction in the rate of turnover of the total stock of the constant capital. The growth of the stock of the constant capital becomes concealed in the capital consumption statistics – in the 'flow' statistics with which we have been so far dealing.

It is obvious, therefore, that the constant capital c when computed as a flow cannot serve as an adequate basis for calculating the o.c.c. and the p' ratios for the purpose of showing trends over a period in which the structures of the constant capital undergoes a radical change. For the purpose of computing trends, c must be the average value of the invested capital and the ratios must be calculated on this 'stock' basis. Treated in this manner, $\frac{c}{v}$ becomes the ratio of the average value of the stock of the constant capital on hand during the year, divided by the total wage payments during that year. The $\frac{s}{v}$ ratios remain the same as before, while the p' ratios are computed by a new formula. Now these are computed by dividing s by the average value of the stock of the constant capital. Not $\frac{s}{c+v}$, but $\frac{s}{c}$ now equals p'. The v disappears from the formula, since one cannot conceive of a realistically measurable 'stock' of wage-capital. Such a stock defined, perhaps, as that required to meet weekly or semi-monthly payrolls, would be quite negligible in the calculations, compared to these other

values. In the period 1919–1939, v, divided by 52, has run between $\frac{1}{2}$ and $\frac{2}{3}$ of 1 per cent of fixed capital c.[1] It is not likely that these relative magnitudes have changed significantly over the years.

It may also be noted that the calculation of the p' ratio on the invested capital basis as just described conforms more closely with the realities of capitalist business practice than does a p' calculated on a flow basis.

Marx, as we noted earlier (p. 34, n. 1 above), was fully aware of the necessity of converting his flow basis profit rate to an invested capital basis. For that he proposed the use of the turnover rate of the capitals. In our next chapter we compute this and the other Marxist ratios and trends on the stock, or invested capital, directly, using data which have become available only in the recent past.[2]

[1] As may be seen from the data given in Appendix 3, at the end of next chapter.

In 1953 over 75 per cent of the production and nonsupervisory workers in the non-agricultural establishments of the United States were paid weekly, and nearly 81 per cent in manufacturing industries. See U.S. Bureau of Labour Statistics: *Monthly Labour Review*, February 1955, p. 190.

[2] To convert p' from a flow basis to one on a stock basis:

(1) Let the letter a represent the capital consumed during the year. a then, would equal $c+v$ of the Marxist formula as traditionally used.

(2) Let b stand for the value of the stock of the invested capital: of the value of plant and equipment (net of depreciation), plus value of the materials inventory.

(3) The rate of turnover of the stock of the invested capital, then, equals $\frac{a}{b}$ – the ratio of the capital consumed to the stock of the capital computed as under (2).

(4) The rate of profit p' computed on the flow basis, we will recall, equals $\frac{s}{c+v}=p'$ (= flow basis).

(5) To obtain p' on a stock basis, we multiply p' by the ratio $\frac{a}{b}$. Thus, since $a=c+v$, then $\frac{s}{c+v}\times\frac{a}{b}=\frac{s}{b}=p'$ (stock basis).

APPENDIX 1: EXPLANATORY NOTES

Lines 1–4. From *Historical Statistics of The United States. 1789–1945.* U.S. Department of Commerce; 1949. Series J. 1–12, p. 179.

Lines 5–9. As Indicated.

* Includes factories and 'hand and neighbourhood' industries.

** Excludes 'hand and neighbourhood' industries.

*** Includes establishments having products valued at $500 or more. Subsequent to 1914 only such establishments were included as had products valued at $5000 or more.

APPENDIX 2: EXPLANATORY NOTES

Line 1. From *Statistics of Income*, Part 2. U.S. Treasury Department, Bureau of Internal Revenue (B.I.R.) Part 1, 'All Returns'.

Line 2. Odd years, from the U.S. Census of Manufactures. Even years, derived by applying to line 1 the ratios between the sums of each two contiguous odd years of line 2 and the sums of the corresponding two years of line 1.

Line 3. As indicated. The trend of this index reflects the growth of the corporate structure of American manufacturing industries.

Line 4. Odd years, the U.S. Census of Manufactures. Even years, derived by applying to the corresponding 'value of product' (line 2) the per cents which the sums of the 'value added' of two contiguous odd years are of the sums of the corresponding 'value of product' amounts.

Line 5. Odd years, the U.S. Census of Manufactures. Even years, the differences between lines 2 and lines 4, as indicated.

Line 6. B.I.R. data adjusted to the Census series by the conversion index (line 3).

Line 7. As indicated.

Line 8. Computed from the U.S. Bureau of Labour Statistics (B.L.S.), index of payrolls of production workers (1939= 100), and equated to the payroll for 1939 ($9,253 million) and the number of production workers (11,918,000) reported in the Census of Manufactures for 1947. That year the B.L.S. payroll index stood at 326·9 and the payroll at $30,248 million.

Lines 9–13. As indicated.

APPENDIX 1

Computation of the Organic Composition of Capital, the Rate of Surplus-Value, and the Rate of Profit. United States Manufacturing Industries. Census Years 1849–1939.

Line	Item and Computation (Traditional flow basis excluding depreciation)	(Dollar amounts in millions)																				
		1849	1859	1869	1879	1889	1899*	1899**	1904	1909	1914***	1919	1921	1923	1925	1927	1929	1931	1933	1935	1937	1939
1	Value of product	1019	1886	3386	5370	9372	13000	11033	14253	19945	23278	59964	41650	58181	60809	60335	67994	39829	30558	44994	60713	56843
2	Value added by manufacture	464	854	1395	1973	4210	5657	4647	6019	8162	9386	23735	17253	24569	25667	26325	30591	18600	14008	18553	25174	24683
3	Materials, etc. (total constant capital)=c	555	1032	1991	3397	5162	7344	6386	8234	11783	13892	36229	24397	33612	35142	34010	37403	21229	16550	26441	35539	32160
4	Variable capital (wages)=v	237	379	620	948	1891	2321	1893	2441	3206	3783	9611	7451	10148	9980	10099	10885	6689	4940	7311	10113	9090
5	Total capital=$c+v$	792	1411	2611	4345	7053	9665	8279	10675	14989	17675	45840	31848	43760	45122	44109	48288	27918	21490	33752	45652	41250
6	Total surplus-value (line 1 − line 5)=s	227	475	775	1025	2319	3335	2754	3578	4956	5603	14124	9802	14421	15687	16226	19706	11911	9068	11242	15061	15593
7	Organic composition $\frac{c}{v}$ (line 3 ÷ line 4)=o.c.c.	2·3	2·7	3·2	3·6	2·7	3·2	3·4	3·4	3·7	3·7	3·8	3·3	3·3	3·5	3·4	3·4	3·2	3·4	3·6	3·5	3·5
8	Rate of surplus-value $\frac{s}{v}$ (line 6 ÷ line 4) × 100=s'	96	125	125	108	123	144	145	147	155	148	147	132	142	157	161	181	178	184	154	149	172
9	Rate of profit $\frac{s}{c+v}$ (line 6 ÷ line 5) × 100=p'	29	34	30	24	33	35	33	34	33	32	31	31	33	35	37	41	43	42	33	33	38

APPENDIX 2

Computation of the Organic Composition of Capital, the Rate of Surplus-Value, and the Rate of Profit. United States Manufacturing Industries. 1919–1939

Line	Item and Computation (Traditional flow basis including depreciation)	(Dollar amounts in millions)																				
		1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
1	Gross sales of corporations	52289	56649	38442	42576	53889	51436	57084	59863	60932	64361	69236	57687	41977	29273	32612	39562	46055	54985	60244	49230	55982
2	Value of product	59964	63447	41650	46025	58181	55247	60809	61479	60335	63460	67994	54505	39830	27634	30557	37980	44994	54655	60713	49772	56843
3	Conversion index (line 2 as per cent of line 1)	114·7	112·0	108·3	108·1	108·0	107·2	106·5	102·7	99·0	98·6	98·2	94·5	94·9	94·4	93·7	96·0	97·7	99·4	100·8	100·1	101·5
4	Value added by manufacture	23735	25569	17253	19238	24569	23314	25668	26374	26325	28176	30591	24854	18601	12795	14007	16369	18553	22573	25174	21103	24683
5	Cost of materials, etc., (line 2 − line 4)	36229	37878	24397	26787	33612	31933	35141	35105	34010	35284	37403	29651	21229	14839	16550	21611	26441	32082	35539	28669	32160
6	Depreciation, depletion, and amortization	1165	1292	1247	1442	1539	1510	1605	1804	1801	1894	1982	1943	1752	1593	1529	1367	1383	1474	1605	1600	1654
7	Total constant capital (line 5 + line 6) = c	37394	39170	25644	28229	35151	33443	36746	36909	35811	37178	39385	31594	22981	16432	18079	22978	27824	33556	37144	30269	33814
8	Variable capital (wages) = v	9614	11492	7421	7958	10095	9420	9928	10225	10040	10160	10835	8772	6645	4580	4913	6320	7273	8429	10077	7837	9253
9	Total capital (line 7 + line 8) = $c + v$	47008	50662	33065	36187	45246	42863	46674	47134	45851	47338	50220	40366	29226	21012	22992	29298	35097	41985	47221	38106	43067
10	Total surplus-value (line 2 − line 9) = s	12956	12785	8585	9838	12935	12384	14135	14345	14484	16122	17774	14139	10204	6622	7565	8682	9897	12670	13492	11666	13776
11	Organic composition of capital $\frac{\text{(line 7)}}{\text{(line 8)}}$ = o.c.c.	3·9	3·4	3·5	3·5	3·5	3·6	3·7	3·6	3·6	3·7	3·6	3·6	3·5	3·6	3·7	3·6	3·8	4·0	3·7	3·9	3·7
12	Rate of surplus-value $\frac{\text{(line 10}}{\text{(line 8}} \times 100) = s'$	135	111	116	124	128	131	142	140	144	159	164	161	154	145	154	137	136	150	134	149	149
13	Rate of profit $\frac{\text{(line 10}}{\text{(line 9}} \times 100) = p'$	27·6	25·2	26·0	27·2	28·6	28·9	30·3	30·4	31·6	34·1	35·4	35·0	34·4	31·5	32·9	29·6	28·2	30·2	28·6	30·6	32·0

CHAPTER 5

Statistical Tests of the Law: II. Stock Basis

A. RATIOS AND TRENDS

1. FIXED CAPITAL ONLY

As we already know, for the years prior to 1922 we do not have the rates of turnover of raw materials consumed in the American manufacturing industries. We cannot, therefore, estimate the value of their inventories for those earlier years. In order to carry our computations on a stock basis into those earlier years we disregard the materials portion of the constant capital altogether, and compute our ratios and trends on the basis of the values of the fixed capital alone. For this purpose, we will recall, we have fairly firm estimates for all the years beginning with 1919 and less firm figures for the four years 1912, 1900, 1890 and 1880.

On the other hand, we can now carry our calculations beyond 1939, since we now derive our data from other sources than the Census of Manufactures.

Table D lists the ratios as calculated on the basis of the values of the fixed capital. These are the values of plant and equipment taken at their reproduction costs at current prices, net of depreciation. They are, therefore, higher for most of the period under review than the book values as recorded in corporate capital accounts. Book values of corporate fixed assets are generally lower than their reproduction costs at current prices. They are especially so understated in a period of rising prices, such as has been the case in the recent past. For example, the National Bureau of Economic Research study, cited in the Appendix at the end of this chapter, shows in a consolidated balance sheet for American manufacturing enterprises a book value as of December 31, 1946 for capital assets (land, plant and equipment) of $30·0 billion. Allowing 15

per cent of this total for land, we have an estimated book value of plant and equipment of $25·5 billion. Our comparable figure for 1946 is $58·6 billion – more than twice the indicated book value. But since the other values of our equation, namely, the s and the v are figured on a current price basis, the values of the c term had also to be placed on such basis.

Table D. The Organic Composition of Capital (o.c.c.), the Rate of Surplus-Value (s'), and the Rate of Profit (p'). United States Manufacturing Industries. Various years since 1880.[1]

Stock basis. 1
(Fixed capital only)

Year	o.c.c.	s' per cent	p' per cent
1880	·8	102	122
1890	1·1	114	102
1900	1·7	132	79
1912	2·3	137	61
1919	3·2	125	40
1920	3·1	—	—
1921	4·1	103	25
1922	3·5	—	—
1923	3·0	121	41
1924	3·2	—	—
1925	3·1	136	44
1926	3·0	—	—
1927	3·1	139	45
1928	3·2	—	—
1929	3·1	159	51
1930	3·7	—	—
1931	4·4	147	33
1932	5·6	—	—
1933	4·9	150	31
1934	4·0	—	—

[1] It should be borne in mind that the s' and p' magnitudes in this and in the next table include all such items as taxes, sales and administrative costs.

Year	o.c.c.	s' per cent	p' per cent
1935	3·4	130	38
1936	3·0	—	—
1937	2·7	130	48
1938	3·5	—	—
1939	3·0	151	50
1940	2·8	—	—
1941	2·2	—	—
1942	1·8	—	—
1943	1·5	—	—
1944	1·5	—	—
1945	1·9	—	—
1946	2·3	—	—
1947	2·4	129	54
1948	2·5	—	—
1949	2·8	129	46
1950	2·7	141	53
1951	2·6	133	52
1952	2·6	132	51

In any case, computing the rates of profit over the years on the basis of the book values of corporate capital assets, that is, on the basis of the net worth, as is the common practice, would give us very misleading results. In common practice the net worth is frequently readjusted to the earning power of the firm, so that neither the net worth nor the rates of profit thus computed reveal their true trends.

Finally, to bring the c of the years since the beginning of World War II into conformity with the c of the prewar, peacetime years, adjustment was made to include the wartime government investment in production facilities which private industry operated during the war or acquired after the war.

The original data, their sources, adjustments and calculations are given in Appendix 3, at the end of this chapter.

Note that while the o.c.c. ratios have been computed for every year listed in this table, the s' and p' ratios, beginning with 1919,

are given for the manufacturing census and survey years, only. To fill in the ratios for the years omitted, which we might do with the statistics from Appendix 2 of the preceding chapter, would require corresponding adjustments also for the years prior to 1919 for which we have no data. In any case, the runs of the ratios over the alternate years after 1919 establish their trends convincingly enough for the purpose at hand.

The results of this, the third test, in general corroborate our previous findings, besides revealing aspects previously concealed.

(*a*) The organic composition of capital calculated on the fixed capital basis rose, as it had done also on the flow basis (Table B), until 1919; then, again as before, it changed its course (Chart 3, bottom panel). This time, however, the rise shown for the earlier years was much sharper, steeper than on the other basis. Calculated on the basis of the value of the fixed capital, the $\frac{c}{v}$ ratio was nearly three times as high in 1919 as the average of the three ratios ended with the one for 1900. On the flow basis (Table B) it was barely 20 per cent higher than the average of the four corresponding ratios – those of 1879, 1889 and the two for 1899. Thus, for the years before 1919, the rise of the o.c.c. on the fixed capital basis, while it supports this aspect of the Marxist theory, appears to give it too much support.

On further consideration, however, this rapid rise may not be wholly an exaggeration. In part, no doubt, it is due to a probable understatement of the values of the fixed capital of the earliest years. For the most part, however, the figures recorded here probably genuinely reflect the rapid rise of mechanization of American industry in the closing decades of the last century. It is hard to realize in these days of jet propulsion and electronic computors that a bare fifty to sixty years ago America was just shedding its industrial swaddling clothes – was just emerging from the stage of 'hand and neighbourhood' industries, that is, from an era of low organic composition into one of high organic composition of capital.

An example will serve to illustrate this point. In 1880 the

American output of steel ingots and castings, the base of industrial mechanization, amounted to no more than 1¼ million tons. In 1919 it amounted to more than 34½ million tons. (It reached 56½ million tons in 1929, fell to a low of 13½ million in the depression (1932), and did not recover its pre-depression levels until war orders gave it a boost in 1940.)

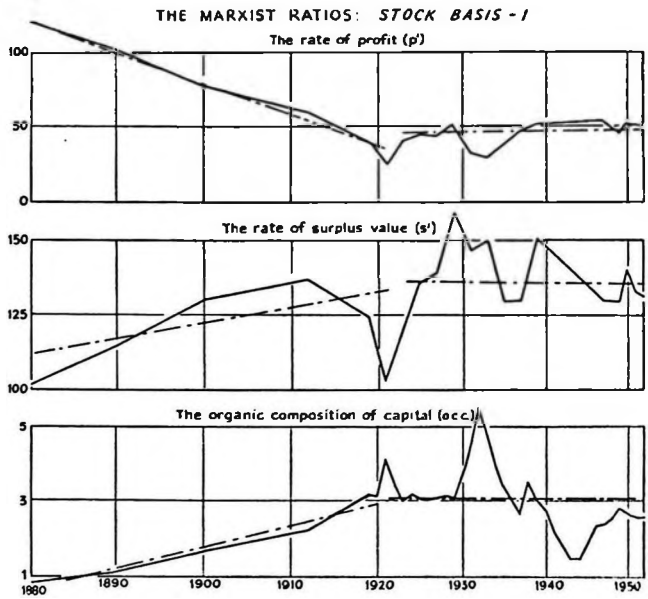


CHART 3

If the index of manufacturing production for the years 1909–13 is taken as 100, it stood at only 8·5 in 1865 and at 61 in 1900, compared with 132 in 1919. The fact is that it was not until 1880 that the number of persons engaged in non-agricultural pursuits in the United States (and that includes mining, manufacturing, transportation, public utilities, trade and distribution, and the services), exceeded the number engaged in agriculture. And it was not

until 1920 that its urban population exceeded its rural population.[1]

The rapid rise of the organic composition in those earlier years is thus seen to have had its base in the rapid transformation of American manufacture from a semi-handicraft to a mechanized industry. The historical fact is that in this respect America was fifty or more years behind the corresponding transformation of British manufacture. Marx's *Capital* describes the increasing o.c.c. in the British economy in the process of that transformation.

By 1919 that transformation was completed in the United States and a new transformation, that from the steam power technology to that of the electric power technology, began. With that the nature of the technical composition of capital changed and with it, apparently, its value composition. Thereby the trend of the $\frac{c}{v}$ ratios was changed. Later we study the character of the technological changes which the application of electric energy effected in the structure of the constant capital of American manufacture and in its value composition.

After 1919, except for the depression-year bulges, the o.c.c. became stabilized at a ratio of between 3 and 3·5 until the war took over. In the war-production years, the advent of the multiple workshift, the upgrading of jobs, and the general increase of wage rates of the greatly enlarged labour force employed raised the denominator v relatively to the numerator c, and the ratio $\frac{c}{v}$ declined, to the lowest level on record. During the first two or three war years the enlarged industrial output and increased employment were accomplished mainly through the increased utilization of existing plant capacity.

The bulges in the depression years, for example, in 1930–2, were, of course, due to the fact that in a crisis capital values do not fall so soon nor so precipitously as employment and wage rates. This applies with special force when the ratios are computed on a stock basis. In the flow basis of computation in which the value of

[1] *Historical Statistics of The United States*, 1789–1945, Series J–165, Series D62–76, and Series B16–17.

materials consumed constitutes almost all of the c value, this bulge does not appear (Tables B and C, Chapter 4). As employment declines, so also does the amount of materials consumed, and the decline in commodity prices serves to offset (it generally precedes) the decline in wage rates. The c and the v decline in about the same time and in about the same proportions, so that on a flow basis the $\frac{c}{v}$ ratio is not seriously affected in a depression.

On the other hand, with the recovery (1933–7) the ratios computed on the stock basis gradually returned to their pre-depression levels, as capital values were written down and as employment and payrolls (v) increased.

After the war, with large-scale investment in new plant and equipment and the concurrent elimination of the multiple-shift work day, the o.c.c. gradually rose from its wartime lows. But despite the unprecedented rate of capital formation in those years, during which the value of the capital plant of the manufacturing industries, in constant prices, was nearly doubled compared with prewar, the ratio $\frac{c}{v}$ never fully came back to its prewar levels. Later we will see why this was so.

(*b*) The s' ratios in this table are lower than in the one preceding because deductions for depreciation are larger here.[1] But the trends were not hereby appreciably altered (Chart 3, middle panel). In general, for the corresponding periods, they follow the patterns observed in Tables B and C, above.

(*c*) As the manufacturing industries of the United States emerged from their 'hand and neighbourhood', low organic composition, stage into the stage of rapid mechanization, and high organic composition, the rate of profit tended to fall (Chart 3, upper panel). If the statistics thrown up in this table for the years 1880–1919 are to be trusted, we have here a vindication of Marx's

[1] The difference is due to the fact that the amounts of depreciation used for Table D were computed on the basis of the current reproduction costs of the physical capital, whereas the amounts used for Table C are those reported by corporations to the Bureau of Internal Revenue and figured by them on the generally much lower book values of these assets. For the methods and bases used in our computations, see Notes to Appendix 3, at the end of this chapter.

law of the falling tendency of the rate of profit. And the fall of the rate of profit then occurred in the face of a rising rate of surplus-value. Or, as Marx might have said, the rate of profit would have fallen still further if it had not been for this concurrently counteracting rise of the rate of surplus-value.

World War I seems to mark a great divide. Beginning with the early 1920's the rate of profit tended to rise and, except for the depression lows, gradually to stabilize above the level ended with that war. Similarly for the rates of surplus-value. These, too, tended to stabilize above the level reached at the end of that war, except that these sharply rise during depression years, reflecting the drastic fall of v. The o.c.c., however, remained almost inert, except, again, for the depression-induced highs and the war-induced lows. Our inquiry, therefore, narrows down to the question of these seemingly contradictory tendencies to those projected in the law.

But before we turn to this question we perform one more experiment.

2. TOTAL STOCK OF CONSTANT CAPITAL

We now compute our ratios, finally, on a stock basis which includes the values of both elements of the constant capital – both its fixed and its circulating portions. We add to the values of plant and equipment the values of the raw materials inventories.[1] Together, the two comprise the value of the entire stock of the constant capital which constitutes the c in the $\frac{c}{v}$ and in the $\frac{s}{c}$ ratios.[2] All the values are, of course, on a current price basis, to fit in with the current annual wage bill (v) and the rate of surplus-value $\left(\frac{s}{v}\right)$.

[1] A goodly, but indeterminate, portion of the inventories consists of finished goods in process of disposal. Inasmuch, however, as the ratio of these goods in the total is not likely to vary much in the course of time, except for short durations in periods of crises, their presence should not seriously distort the trends of the ratios.

[2] $\frac{s}{c}$, instead of $\frac{s}{c+v}$ now gives us the p', as explained a few pages back.

Table E lists the ratios computed on this basis of total stock of the constant capital. The original data, their sources and calculations are given in Appendix 4, at the end of this chapter. As in the previous table, and for the same reasons, we omitted the s' and p' ratios for the non-Census years after 1919. We did, however, carry inventory estimates back of 1922 as extrapolations. The method used is explained in the Appendix.

Table E. The Organic Composition of Capital (o.c.c.), the Rate of Surplus-Value (s'), and the Rate of Profit (p'). United States Manufacturing Industries. Various years since 1880.[1]

Stock basis. 2

(Total constant capital)

Year	o.c.c.	s' per cent	p' per cent
1880	1·5	102	69
1890	1·9	114	60
1900	2·6	132	50
1912	3·2	137	42
1919	4·3	125	29
1920	4·3	—	—
1921	5·6	103	18
1922	4·7	—	—
1923	4·2	121	29
1924	4·4	—	—
1925	4·3	136	32
1926	4·4	—	—
1927	4·4	139	32
1928	4·5	—	—
1929	4·4	159	36
1930	5·1	—	—
1931	5·9	147	25
1932	7·3	—	—
1933	6·7	150	22
1934	5·4	—	—

[1] See note 1 on p. 48.

Year	o.c.c.	s' per cent	p' per cent
1935	4·7	130	28
1936	4·3	—	—
1937	4·0	130	33
1938	4·9	—	—
1939	4·3	151	35
1940	4·0	—	—
1941	3·4	—	—
1942	2·7	—	—
1943	2·2	—	—
1944	2·1	—	—
1945	2·5	—	—
1946	3·3	—	—
1947	3·3	129	39
1948	3·5	—	—
1949	3·8	129	34
1950	3·6	141	40
1951	3·5	133	38
1952	3·6	132	37

(*a*) Because of the inclusion of the inventory values in the numerator c, while the denominator v of the $\frac{c}{v}$ ratios remained the same as in Table D, the level of the ratios shown in the present table is higher throughout the period covered. But the trends again are the same (Chart 4, bottom panel): (1) a relatively sharp rise from 1880 to 1919; (2) a tendency throughout the 1920's to stabilize at the level reached in 1919; (3) a bulge in the depression years, and the return to the 'norms' of the 1920's with the coming of the partial recovery in employment and payrolls effected by the New Deal beginning in 1935. Then (4) comes the sharp decline during the years of war production due to the introduction of the multiple workshift and the high wartime wage rates; and (5) the same gradual rise to, but not quite reaching the prewar norms after the return to peace-time production shifts upon the cessation of hostilities and with the expansion of capital investment.

(*b*) The s' of Table E (Chart 4, middle panel) is, of course, the same as in Table D and requires no new comment.

(*c*) Because of the inclusion of inventory values in the denominator c of the $\frac{s}{c}$ ratios, while the numerator s remained the same, the p' ratios in this table are lower than in Table D. Otherwise,

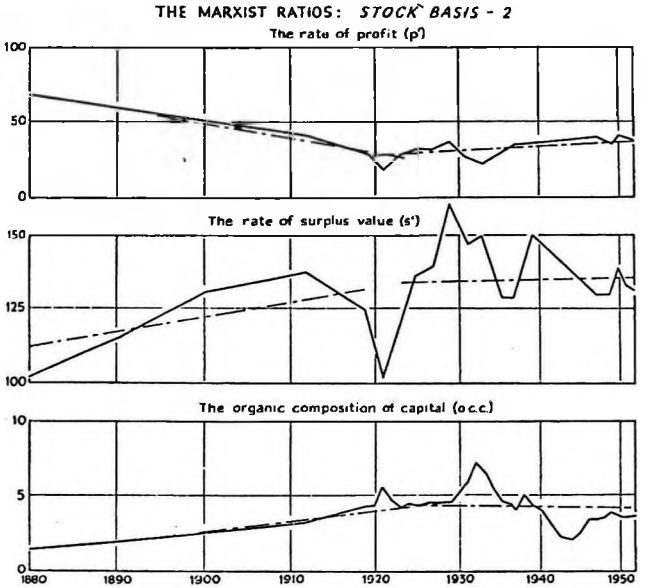


CHART 4

their trends reinforce our previous observations with added confidence. Rather than precipitous, as in Table D, the decline of these ratios over the years 1880–1919 now carries a convincing normalcy about it (Chart 4, upper panel), as is true also of the corresponding rise of the organic composition. Then there is the same manifestation, as before, of a rising tendency in the p' after 1919. Except for the depression years, this tendency kept these

ratios well above the one for 1919, when the long-run decline ended and the rising tendency began.

For the same reason as in the case of the o.c.c., that is, the relatively slower decline of the values of the constant capital than payrolls when a crisis breaks out, the rate of profit falls sharply in a depression when computed on a stock basis. The same tendency for the rate of profit to fall in a depression will appear even on a flow basis, when the depreciation factor is included in the *c*. Thus this tendency shows up in our Table C, where depreciation is included in the reckoning, but does not appear in Table B where these values are not included.

The sharp decline of the o.c.c. in the period of war production has already been explained. Its failure to recover to prewar levels will be dealt with later.

B. WAS MARX WRONG?

The point can be made, it will be argued in a later connection, that without an essentially constant rate of surplus-value the viability of capitalism in its fully developed stage would be an unintelligible phenomenon. Also, a falling tendency of the rate of profit, as we have seen, has been an accepted tenet of the leading capitalist economists both before and since Marx, however differently Marx and these other economists tried to account for it. And a rising organic composition of capital would seem to be of the very essence of capitalism. The formation of capital over the centuries, the mechanization of industry, and the appearance in recent decades of the phenomenon called 'technological unemployment' are all presumably but different aspects of the growth of the organic composition of capital. The latter was not only Marx's view, but also, he wanted us to know, that of his illustrious predecessors.[1]

[1] In *Value, Price and Profit*, (pp. 60–1) he wrote: 'In the progress of industry the demand for labour keeps . . . no pace with the accumulation of capital. It will still increase, but increase in a constantly diminishing ratio as compared with the increase of [the constant] capital.'

And as if to reassure his listeners (the contents of that little book were first presented as an address to a London audience), he added: 'this law has been

Now we find that, while for the measurable years before the early part of the twentieth century these theses are fairly well sustained by the available statistical evidence, since that time, as measured by an extension of the same evidence, they appear no longer to hold true.

Had our investigations stopped with 1919, the case for Marx's law would have been complete: a rising organic composition of capital; a stabilizing tendency of the rate of surplus-value; a falling rate of profit, corresponding inversely with a rising organic composition!

But what of the years beginning with 1919? What of the law after 1919? What has happened since then that seems to have abrogated that law? Since 1919 the ratio $\frac{c}{v}$ has tended to remain constant or even to fall. The rate of surplus-value, if anything, has tended to rise, in spurts. And the rate of profit, rather than fall, has tended to rise. Was Marx wrong? Or is this, in the long history of capitalist development, a temporary aberration? Suppose we had confined our investigation to the years after 1919!

Once more in our search for an answer to one question we seem to have come up against another. There is only one thing of which we are fairly certain as a result of the preceding statistical tests, namely, that neither the Marxist ratios involved in the law of the falling tendency of the rate of profit, nor the law itself, can be established on the basis of the values of the constant capital consumed. The quantitative verification of the law requires the use of the values of the stock of the invested capital.

But after 1919 this basis, too, fails to sustain the law; or, alternatively, after 1919 the law apparently ceases to operate.

This alternative view might be argued in some such manner as the following:

While Marx's law of the falling tendency of the rate of profit applies to capitalism in its stages of rapid development and mechanization, it gradually ceases to apply and asserts itself but feebly as industry becomes fully developed and fully mechanized.

stated in a more or less accurate manner by Mr. Barton, Ricardo, Sismondi, Professor Richard Jones, Professor Ramsay, Cherbuliez, and others.'

This must be so, the argument would run, because the transformation of capitalism from its stage of 'hand and neighbourhood' manufacture to its fully industrialized stage – from *manu*facture to *machino*facture – signifies also its transformation from small scale, competitive conditions of production to large scale and largely monopoly conditions of production. Once these new conditions prevail, the counteracting tendencies of which Marx spoke take on a new, qualitative intensity. New forms of managerial and technological innovations are developed whereby the rate of surplus-value is increased, without such quantitative addition to the values of the constant capital as in the past would have tended to raise the organic composition of capital. Of course, the argument would concede, Marx also saw forces at work which tended to offset the rising tendency of the o.c.c. and the falling tendency of the rate of profit. But these appeared to him as mere temporary impediments to an unfolding of an otherwise irresistible law. He did not conceive of them as possibly becoming permanent and overriding forces which might lead to a stabilized o.c.c. or even to impart into it a declining tendency, and play havoc with the law, for a whole historical epoch.

Now, it can be demonstrated (we do this in the next chapter) that the changes in capitalist production which have taken place in the course of the rise of the monopolies have been precisely of this overriding character. The 'counteracting tendencies' in this period have apparently become so strong and so pervasive a feature of capitalist production as virtually to abrogate the previous tendency of the o.c.c. to rise and to establish the contrary phenomenon of a non-rising o.c.c. If this is true, then the basis of Marx's law of the falling tendency of the rate of profit has been destroyed and with it the law itself.

This would be one view of the matter.

Still another view, which we adopt here, is also possible. Rather than conclude that Marx's law has ceased to operate under conditions of monopoly capital, the view is taken that the traditional *formula* as used by us thus far to demonstrate the operation of the law is not valid under these new conditions. This formula no longer applies, it will be argued, because its terms, as traditionally

APPENDIX 3

Computation of the Organic Composition of Capital, the Rate of Surplus-Value, and the Rate of Profit. United States Manufacturing Industries. Various years 1880–1950.

Line	Item and Computation (Stock basis, fixed capital only)	1880	1890	1900	1912	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952
		(Dollar amounts in millions. Throughout, lines 1–5 rounded to nearest 10.)																																					
1	Value added	2450	4490	5770	10580	23740	—	17250	—	24570	—	25670	—	26330	—	30590	—	18600	—	14010	—	18550	—	25170	—	24680	—	—	—	—	—	—	—	74430	—	75370	89680	102090	108480
2	Variable capital (v)	1180	2020	2370	4180	9610	11500	7450	7990	10150	9480	9980	10290	10100	10210	10890	8800	6690	4620	4940	6340	7310	8480	10110	7750	9090	10260	14960	21990	30270	31540	27040	25130	30240	32590	30250	34570	40660	43420
3	Depreciation	70	160	280	660	2120	—	2160	—	2120	—	2120	—	2200	—	2360	—	2080	—	1680	—	1730	—	1920	—	1910	—	—	—	—	—	—	—	5030	—	5970	6480	7290	7840
4	Surplus-value (s): line 1 – (line 2 + line 3)	1200	2310	3120	5740	12010	—	7640	—	12300	—	13570	—	14030	—	17340	—	9830	—	7390	—	9510	—	13140	—	13680	—	—	—	—	—	—	—	39160	—	39150	48630	54140	57220
5	Value of fixed capital (c)	980	2260	3960	9390	30340	36000	30830	27880	30340	30320	30500	31120	31360	32190	33720	32620	29640	25630	24020	25130	24770	25030	27410	27460	27250	28480	33200	40220	45650	47810	50170	58620	71930	82240	85280	92560	104180	111930
6	Organic composition (line 5 ÷ line 2)	·8	1·1	1·7	2·3	3·2	3·1	4·1	3·5	3·0	3·2	3·1	3·0	3·1	3·2	3·1	3·7	4·4	5·6	4·9	4·0	3·4	3·0	2·7	3·5	3·0	2·8	2·2	1·8	1·5	1·5	1·9	2·3	2·4	2·5	2·8	2·7	2·6	2·6
7	Rate of surplus-value (line 4 ÷ line 2) × 100	102	114	132	137	125	—	103	—	121	—	136	—	139	—	159	—	147	—	150	—	130	—	130	—	151	—	—	—	—	—	—	—	129	—	129	141	133	132
8	Rate of profit (line 4 ÷ line 5) × 100	122	102	79	61	40	—	25	—	41	—	44	—	45	—	51	—	33	—	31	—	38	—	48	—	50	—	—	—	—	—	—	—	54	—	46	53	52	51

defined, are too rigid to encompass and reflect the effects of the new technology and the new forms of business organization on the production as well as on the realization of surplus-value.

For example, with the possibility of producing additional surplus-value without corresponding additions to the invested capital, the chief form of its realization, that of its conversion into capital, becomes impaired. In that case new forms of surplus-value realization must be found if the system is to continue to operate, and these new forms must be accounted for in the formula of the law. This is not possible under the old definition of its terms. In this view it is the method of reckoning that needs changing, rather than that the law be abandoned.

If, therefore, the law is to apply today as it did before 1919, say, then its terms must be redefined so as to conform with the new facts. And since, in addition, capitalists figure costs and profits according to facts and not according to traditional formulae of Marxist origin, and, since it is with the facts of capitalist production and realization of surplus-value that we are dealing, we propose to change the terms of the law, however well they may have fitted the facts of old and however strongly they are imbedded in the Marxist tradition.

APPENDIX 3: EXPLANATORY NOTES

Lines 1–2. Prior to 1919 adjusted to nearest Census year data, as follows:

1880. Census data for 1879 extrapolated by Warren M. Person's index of manufacturing production. *Historical Statistics, op. cit.*, Series J–14. Extension ratio is $\frac{27{\cdot}0}{21{\cdot}7}=1{\cdot}244$

1890. Census data for 1889 extrapolated as above.

Extension ratio, $\frac{44{\cdot}3}{41{\cdot}5}=1{\cdot}067$

1900. Census data for 1899 (including 'hand and neighbourhood' industries) extended by the National Bureau Index of Manufacturing Industries, *ibid.*, Series J–13. Extension index $\frac{102}{100}=102.$

1912. Adjustment was first made for the 1909 Census data for

the virtual disappearance of 'hand and neighbourhood' industries from the Census coverage between the Census years 1899 and 1919. The value added for 1899, including 'hand and neighbourhood' industries, was $5,656 billion; excluding these, $4,676 billion. The ratio of one to the other = 1·213 and the per cent adjustment, ·213. Assuming that by 1909 the disappearance was half completed, that is, by half the adjustment per cent, or by ·107, the 1909 Census figure, $8·162 billion was raised by the ratio 1·107 to $9·04 billion. Similarly, with the wage data.

The figures for 1912 were then derived in the same manner as those for 1900, by the extension index $\frac{185}{158} = 1{\cdot}17$.

Line 1. 1919–39 and 1947 from the U.S. Census of Manufactures; 1949–52 from Annual Survey of Manufactures.

Line 2. From the same sources as above, adjusted to B.L.S. payroll data for production workers.

Line 3. 7 per cent of depreciated value of plant and equipment at current reproduction cost (line 5).

Line 4. As indicated.

Line 5. Depreciated value of plant and equipment, current reproduction cost, excluding capital outlays charged to current expense. Includes 75 per cent of government-financed facilities installed during World War II.

The data represent December 31 values, except for 1880, 1890 and 1900 where they represent June 30 values. For 1919 and prior years the values in 1929 prices, given in the National Bureau of Economic Research study by Simon Kuznets (*National Product Since 1869*) were used as starting points. For 1920 and subsequent years the values were built up by the method described by Raymond W. Goldsmith (N.B.E.R. *Studies in Income and Wealth*, Vol. XIV, Part I) as the method of 'cumulating depreciated capital expenditures' and expressed in mathematical form on pages 15 and 16 of the reference cited.

U.S. Dept. of Commerce data for new expenditures on plant and equipment in manufacturing industries were employed in conjunction with the price indexes used by Kuznets (*ibid.*) for years prior to 1929 and the price indexes used by the Department of Commerce to adjust Gross National Product to a constant price basis for years beginning 1929. A 40-year life period was assumed for plant and a 20-year life period for equipment. (See Goldsmith, *ibid.*, p. 22.)

Equipment of short life, described in the National Income Statistics of the Department of Commerce as 'Capital Outlay Charged to Current Expense' is excluded. Also excluded is adjustment for the form of capital consumption described in the National Income Statistics as 'Accidental Damage to Fixed Capital'. The two exclusions roughly offset each other as far as effect on the accumulated values represented by this series is concerned.

The addition of 75 per cent of U.S. Government expenditure is justified on the ground that about 75 per cent of government-owned manufacturing facilities were operated by private firms during the war and wages paid by them are included in manufacturing industry totals.[1] Hence, if we are going to compare invested capital with wage payments we must include the privately operated government facilities. Secondly, all but 25 per cent of government-owned facilities were declared surplus or expected to be declared surplus at the end of World War II.[2] This means that 75 per cent of government-owned facilities has passed or was to pass into private ownership. This is not necessarily the same 75 per cent as were privately operated during the war and the identity of figures is coincidental. But it is true that 75 per cent of these facilities were always operated or available for operation by private industry and that their exclusion would result in an understatement of the productive capacity of privately-owned industry, in any context where the capacity of plant and equipment is compared with wage expenditure.

Even though these figures are higher than those developed in any other study, they still understate the growth of the productive capacity of the country. Our 1949 figure is 68 per cent greater than our 1939 figure, both expressed in constant dollars, while in the same period manufacturing production, according to the F.R.B. index, increased 85 per cent. The reason for this understatement is brought out in Kuznets's discussion of the Goldsmith study.[3] The depreciation rates used greatly overstate actual depreciation. As Kuznets points out, a great deal of U.S. wartime production was put out with equipment whose book value was nil. However, this over-depreciation may be partly corrected, or even over-corrected, when depreciated values on a

[1] N.B.E.R. *Studies in Income and Wealth*, Vol. XII, p. 299.
[2] *Survey Current Business*, Oct. 1947, Epstein on 'War Surplus Disposals'.
[3] N.B.E.R. *Studies in Income and Wealth*, Vol. XIV, pp. 62–72.

constant price basis are converted to a current price basis as we do here.

Our reproduction cost figures show clearly that book values of plant and equipment carried in the balance sheets and net worth statements of manufacturing enterprises are grossly understated. Thus the N.B.E.R. study[1] shows a book value for capital assets (land, plant and equipment) as of December 31, 1946, of $30·0 billion. Allowing 15 per cent of this total for land we have an estimated book value for plant and equipment of $25·5 billion. Our comparable current-price reproduction cost is $58·6 billion, which is more than twice the indicated book value.

The main reasons for the prevailing understatements of the book values of corporate capital assets (physical) are:

1. Only such government owned capital assets as have actually been purchased by private manufacturing enterprise are included in these book values, *and they are included at the surplus disposal price*. The latter is usually a very small proportion of current reproduction cost.
2. Privately-financed capital assets which were certified for emergency amortization were and are being depreciated at 20 per cent a year, instead of at the 2½ per cent and 5 per cent rates assumed by us, for plant and equipment respectively.
3. The book values reflect other capital write-offs in addition to depreciation, and fail to reflect certain capital expenditures such as for plant construction accomplished by the enterprise's own labour force (so-called construction on force accounts). Until the New Deal reform of capital accounting for tax purposes, there was widespread understatement of capitalizable expenditure and widespread overstatement of capital consumption.
4. The so-called normal depreciation rates (say 2½ per cent for plant and 5 per cent for equipment) are themselves excessive and this overstatement is not corrected, as in our series, by conversion to current reproduction costs through use of a price series with an upward bias.
5. The book values are based on original cost and not on reproduction cost as are our figures.

Lines 6–8. As indicated.

[1] N.B.E.R. *Studies in Income and Wealth*, Vol. XII, p. 285.

APPENDIX 4: EXPLANATORY NOTES

Lines 1–5. As in Appendix 3.

Line 6.

1922–1937. from *Historical Statistics, op. cit.*, Series A–93, p. 11.

After 1937. from *Business Statistics*, U.S. Department of Commerce, 1951 edition, p. 16.

1880–1921. By applying to the fixed capital value of each year prior to 1922 a per cent determined by straight-line interpolation between the per cent of inventory to fixed capital (66) for 1890[1] and that (34) for 1922, the per cent for 1880 taken as 76.

Lines 7–9. As indicated.

Line 10. For years prior to 1919 Census of Manufactures value of materials, adjusted as for lines 1 and 2, Appendix 1. For 1919–39, from line 5, Appendix 2, rounded throughout to the nearest 10.

Line 11. As indicated.

[1] Professor F. C. Mills's estimate of the inventory value. See *Historical Statistics, op. cit.*, Series A–66, p. 10.

CHAPTER 6

The Need for a Reformulation

A. THE LAW IN THE CONTEXT OF TWENTIETH-CENTURY CAPITALISM

1. THE PROBLEM

In the preceding chapter we discovered that from about the time of World War I, tests by the formula which came down to us from Marx failed to reveal the trends which are required to demonstrate his law of the falling tendency of the rate of profit. Since for a half century and more before then tests by the same methods did give support to that law, we were confronted with a choice between two alternative conclusions. One was to abandon the law; to say that since about the period of World War I, the law no longer worked in accordance with Marx's predictions, and the ultimate destiny of capitalism which Marxists relate to the falling tendency of the rate of profit would have to be envisaged otherwise than in terms of that law.

The other alternative was to raise the question whether the terms of the formula as traditionally understood were adequate to reflect the new conditions of capitalist production as these have been developed in America since the turn of the century. The argument which follows would seem to support the view that it is this, the second alternative, that applies to our problem.

We seek, therefore, in this chapter for the basic changes of the American production process and of American business organization and business practice which characterized the development of American capitalism in those years. We seek, in a word, for the changes which since about World War I have affected the production and realization of surplus-value. Then we seek to redefine the terms of the formula to enable them to encompass these changes. In any case, we should seek for an explanation for the

failure of the twentieth-century statistics to continue the trends cast up for the earlier years by the same series.

The changes in production and in business organization and practice which became dominant in America in the years following World War I, and which, we shall find, can be said to bear on our problem, may be subsumed under three headings:

One, the maturation of the institution of monopoly-capital and of the monopoly form of the production and realization of surplus-value.

Two, the revolution in the technology of production, including the application of scientific management, which advanced the productivity of labour, without requiring comparably large additions to the constant capital. Monopoly-capital fostered this technological revolution as in its turn this new technology served to entrench the position of monopoly-capital as the dominant form of business organization in the United States.

Three, the increasing cost of doing business – the increasing cost of the realization of surplus-value in its first form; that is, in the form of money capital through the sale of commodities. (In its ultimate form, surplus-value is realized in the conversion of money capital into means of production, into accumulation.)

B. THE CONDITIONS OF CHANGE

1. THE RISE OF MONOPOLY CAPITAL

The continuing fall of the rate of profit in the closing decades of the nineteenth century, aggravated, as we shall see, by sharpening cyclical crises, evoked on the part of American capitalists two major counter-actions. One was the formation of industrial and banking combinations of various types with the aim of reducing the areas of competition, controlling investment and output and eliminating destructive price-cutting practices.

The other was the progressive increase in the scale of production with the aim of achieving economies of scale, and the progressive improvement in the technology of production with the aim of raising the productivity of labour.

A third counter-action initiated at that time might be men-

tioned here. That was America's first experiment in modern imperialism as a means of offsetting the falling rate of profit at home by commanding higher rates abroad. It took the form of the military occupation of Cuba and the Philippines in 1898–1900. However, except for the 'open-door' policy with respect to Asian markets which America declared at about the same time, this experiment did not then lead to a fully-fashioned imperialism such as would bear on our present discussion.[1] Domestic economic potentials were then still far from having been exhausted. Secondly, the traditional high tariff policies of the country precluded the development of the two-way international trade which an expanding export of capital requires. As a matter of fact, one of the reactions to the depressions of the time was the enactment of the notorious 'McKinley tariff' in 1890, even as forty years later another Republican Congress enacted the high rates of the Hawley-Smoot tariff to safeguard the profits of the protected industries in the then developing depression.

Thirdly, the fashioning of a fully-developed American imperialism was not possible until after the two world wars had bankrupted the old imperialisms and established the United States as the leading capitalist power of the world. (The net private foreign investment of American corporations was increased from about $13·5 billion at the end of 1946 to about $26·5 billion by the end of 1954.)[2]

The first permanent movement toward industrial combinations in America, in the form of 'trusts', was stimulated by the Long Depression of the 1870's and the depression of 1884–6. The crisis

[1] Neither, however, was it a mere hit and run affair. The Spanish-American War was no historical accident. It sank the roots of policy for later fruition. Professor Franklin H. Giddings, then a leading Doctor of Sociology in America, concretized this idea when he justified that war as an expression of 'the restless and pioneering spirit' of the American people. With respect to the American occupation of the Philippines, he wrote:

'All history points to the conclusion that in no way can we make our demand for greater trade facilities in the East so effective as by maintaining our sovereignty over some territory, however small, in that quarter of the world.' *Democracy and Empire*, p. 283. The quotation is from the chapter significantly entitled 'Imperialism'.

[2] *Survey of Current Business*, August 1955.

of 1893–6 gave impetus to the formation of the holding company, trusts, meanwhile, having been declared by congress as being 'illegal combinations in restraint of trade'. The 'Gary Dinners' and the 'Gentlemen's Agreements' were instituted as a result of the Panic of 1907. These were meant to circumvent pending government prosecutions of trusts and holding companies, but to attain the same ends.[1]

The crisis of 1921 gave rise to the merger movement of the 1920's and its resurgence since 1953 may be said to have been impelled by the fear of the developing post-Korean War recession and of the prospects of curtailed military production orders with the conclusion of the war in Indochina.

As noted above, monopolies seek to improve their profit trends by way of eliminating competition and by way of advancing the technology of production. They do so by establishing domination over output and markets and by their command over large masses of investment capital. By dominating the market they aim to reduce the menace of price cuts at all times and especially when a crisis threatens. By dominating output, when a crisis breaks out they cut production to maintain prices.

With their command over large masses of capital they are enabled to build the larger plants and install the bigger, better, the more efficient and the more economical production equipment. With these they can realize the economies of scale not available to their smaller competitors. Always under conditions of normal demand the larger firm has the advantage of use of its newer and,

[1] To readers not familiar with this American nomenclature, the following definitions may be of help.

A trust was an *unincorporated* association of representatives of competing corporations to which they entrusted their voting stocks, in exchange for certificates issued by the trust. This enabled the trust to exercise voting control over investment, output, pricing and marketing policies of the associated firms, with the view of eliminating competition among themselves and of beating down the competition of outsiders.

A holding company is a *corporate* enterprise which uses its own capital to acquire through purchase a *controlling* share of the voting stock of each of several operating firms, thereby establishing in its own hands control over their financing policies and so over their business policies. The pyramiding of holding companies upon holding companies was a common phenomenon before the financial debacle of 1929–30 and was a contributing factor to it.

therefore, more profitable installations, keeping the older, less efficient installations in reserve as its 'excess' capacity. Prices are set at the level of cost of output in the least efficient of the industry's operating units, while the bulk of sales are realized on the output of its most efficient operating units. Not until demand rises to peak proportions at the top of a boom may it become necessary to operate these higher-cost facilities.[1]

It is important to emphasize this dual advantage of monopoly – of its ability to control prices and its ability to profit by economies of scale. It is by way of the progressive improvement in the technology of production, including the application of scientific management, that the productivity of labour is enhanced and the rate of surplus-value is increased. If at the same time competitive price reductions can be minimized, the rate of profit can be maximized.

True, monopolies have not always encouraged invention and innovation. Cases are known where monopolies have bought up patents to suppress them and cases are known where monopolies have withheld the full public use of existing patents.[2] But such have clearly been the exceptions rather than the rule, at any rate for the long run. Else we would be asked to believe that the vast technological advances of the past several decades sprang into

[1] For an illustration of the operation of this principle, see the present author's 'The Price of Pig Iron', Barometer 2, *Business Barometers for The Pittsburgh District*, The University of Pittsburgh, Pittsburgh, Pa., 1927.

[2] For example, *The New York Times* of December 20, 1954, reports the case of a civil suit filed by the Government against the Radio Corporation of America 'charging', in the words of the *Times*, 'monopolization of radio-television patent rights since 1932'. Quoting the government complaint:

'New radio-television developments have been barred by R.C.A. from successful manufacture and use except in so far as they originated and [were] controlled by R.C.A.' A prospective user must pay for all of some 10,000 patent rights owned by the Corporation or get none.

R.C.A., of course, denied the allegations, stating that the agreements complained about had previously twice been approved by the courts.

A similar suit against the American Telephone and Telegraph Company, pending since 1949, was settled through a consent decree January 24, 1956, on the basis of a proposed fair licensing policy. An International Business Machine Corporation suit was similarly settled the next day. See *The New York Times*, January 25 and 26, 1956.

being by spontaneous generation. As of January 1952, we are told, of all the engineers and scientists then working for the 2000-odd largest corporations of America, as many as 40 per cent worked for 2 per cent of them and that it is industries of 'high monopolistic qualities' that encourage technological research.[1] And this in no way contradicts the assertion of another observer that patents have frequently served 'not as incentive to investment but rather as a device for limiting production, establishing restricted markets, fixing prices, etc.'[2] Either way, monopoly uses technology to arrest and if possible to reverse falling trends of the rate of profit.

The growth of monopoly, therefore, has been a necessary and natural resultant of the stresses inherent in the process of capitalist development. In no way is it permissible to call it, as a well-known Keynesian has done, a 'cancerous growth of large business units which consume small unit cells'.[3] Little of the economic and cultural advances which American capitalism made in the past half-century or so could have been achieved with the technologies commanded by the 'hand and neighbourhood' industries of the nineteenth century. Over a hundred years ago Marx could write of capitalism in its young years: 'The bourgeoisie, during its rule of scarce one hundred years, has created more massive and more colossal productive forces than have all preceding generations together.'[4] Today it may as truthfully be said that in a scarce fifty years American Big Business of the twentieth century created 'more massive and more colossal productive forces' than have all the generations preceding it.

[1] W. Rupert MacLaurin, *American Economic Review*, May 1954, pp. 180–1 and p. 182, f.n. 1. See also *Monthly Labor Review*, March 1956 (pp. 274 ff) where it is shown that in 1953 nearly 95 per cent of the industries employing 5000 or more workers maintained research departments, as against only slightly over 8 per cent for the industries employing less than 100 workers.

[2] *Ibid.*, Walter Adams, pp. 190–4. Refer again to f.n. 2, p. 70 above. See also Appendix note at the end of this chapter (p. 85) for a unique historical illustration.

[3] Seymour E. Harris, in *Saving American Capitalism*, p. 5. Needless to say 'saving' capitalism by having the state excise this 'cancer', as Professor Harris would have it, would be curing a disease by killing the patient, assuming in the first place that the monopolies, which control the state, would permit it to perform the operation.

[4] *The Communist Manifesto*, pp. 13–14.

2. THE MATURATION OF MONOPOLY-CAPITAL IN AMERICA

It will have been noted that in our discussion thus far of the nature of industrial monopolies we have equated monopoly with large size. Monopoly as a one-firm domination of an industry is a rarity. When one speaks of monopoly one refers to the domination of an industry by two or more of its 'giants', that is, one refers to an oligopoly.

Many of the present-day monopoly-giants of American industry came into being in the twenty or thirty years before World War I. But it was that war, through its required concentration on mass output for war, and the crisis of 1921 which followed it that confirmed that trend as a national phenomenon. Of the 100 American industrial corporations listed as the largest in terms of assets in 1948, 36 had come into being in all the years before 1909. In the single decade 1909–19 another 21 of these giants were born and by 1929 there were 71 of them. Further, of those which in 1909 comprised the top 10 only 3 survived in that ranking in 1948. But of the 10 top ranking corporations in 1929, 7 were still among the largest 10 in 1948.[1]

Another way of looking at this trend is to recall the fact that whereas in 1909 the 200 largest non-financial corporations accounted for ⅓ of the corporate assets of this sector of the economy, they accounted for nearly 50 per cent of these assets by 1929 and for over 57 per cent in 1933.[2] As of 1947, a survey of the United States Federal Trade Commission found, the 113 largest manufacturing corporations, that is, less than ½ of 1 per cent of the total, had control of 46 per cent of the net capital assets of all of them. Industries in which at least 60 per cent of control was in the hands of no more than 3 firms at that time were: aluminium 100 per cent, tin can and other hardware over 95 per cent, linoleum 92 per cent, copper smelting and refining over 88 per cent, cigarettes nearly 78 per cent, distilled liquors over 72 per cent, and so on through plumbing equipment and supplies, rubber tires and

[1] From A. D. H. Kaplan: *Big Enterprise in a Competitive System*, Tables pp. 145–54.

[2] National Resources Committee: *The Structure of the American Economy*, Part I, 1939, p. 107.

tubes, office and store machines and devices, motor vehicles, biscuits, crackers and pretzels, agricultural machinery, and down to meat products with 64 per cent.[1]

Between 1939 and 1951 the number of all lines of corporations with assets of over $1 million rose from not quite 23,000 to over 43,000 and, according to an authoritative estimate, may have reached 50,000 by mid-1955. The number of these larger corporations has been increasing faster than the total number of all corporations. Among these larger corporations were, of course, the estimated 800 or so giants, with assets of over $100 million.

The 43,000 odd corporations with assets above $1 million in 1951 constituted 7 per cent of the total number of corporations doing business in the United States that year. But they accounted for 72 per cent of all the sales, for 88 per cent of the net income and for 92 per cent of the dividends paid out that year.[2]

It is by virtue of this gigantism that these 'oligopolies' can control the total output of an industry and the price of that output. And it is by virtue of this gigantism that they command the large capitals to build their large plants and install the new equipment to advance total profits and the rates of profit. A study of the Twentieth Century Fund tells us that during the great depression, when most small business enterprises were operating in the red, the giants were still operating with a profit. Thus the giants' portion of the reported net profits of all manufacturing corporations rose from 48·2 per cent for 1929 to 69·4 per cent for 1933.[3]

[1] *Concentration of Productive Facilities, Manufacturing Industries* 1947, pp. 16 and 17.

[2] The above data are from the First National City Bank of New York, *Monthly Letter* on Business and Financial Conditions, August 1955.

Similar concentrations have taken place among America's financial institutions. There are now only half the number of banks in the United States of a generation ago, but with total assets four to five times greater. Even big banks have merged to become bigger; for example, the consolidation in 1955 of the Chase National and the Bank of Manhattan Co. – two of the five largest banks of the city. Perhaps as many as 250 bank mergers occurred in 1955, the largest number since the economic crisis of 1930. See *New York Times*, January 3, 1956, article by J. A. Loftus.

[3] *Monopoly and Free Enterprise*, 1951, p. 285, George W. Stocking and M. W. Watkins, authors. See also *ibid.*, pp. 41–2.

For further evidence of the positive correlation between the rate of profit and

It is because of their command over large capitals that one speaks of the period of the rise of the industrial monopolies as the epoch of monopoly-capital. Initially, and for a considerable span of time, their growth was made possible by the parallel concentration and growth of investment capital. The Morgans and the Kuhn-Loebs, the Harrimans and the Seligmans – 'Wall Street', in short – supplied the finance mechanism, in large part at their own initiative, for the formation and build-up of the oil and tobacco trusts, of the steel and motor-vehicle combines, etc.

Once, however, the industrial giants came into their own, they cut the umbilical cords attaching them to the 'Money Trust' and, while still continuing to draw sustenance from it through the mechanism of intercorporate directorships, increasingly finance themselves out of their own resources – out of depreciation reserves and undivided profits.[1] This condition, too, matured in the years following World War I, and it has meant increasing industrial profits as interest rates fell as a consequence and as the industrial corporations paid up their funded debt.

We shall now learn how this growth of monopoly-capital set the conditions for the advance of capitalism without a rising organic composition of capital, yet with a higher rate of surplus-value and, as computed on the traditional Marxist basis, with a stable, if not actually with a rising rate of profit.

C. THE TRANSFORMATION IN THE CREATION OF SURPLUS-VALUE (of *s*)

1. THE NEW TECHNOLOGY: INSTRUMENTATION

The years following World War I were characterized in America by industry-wide concentrations on the elimination of

industry concentration see the same authors' *Cartels or Competition?* The Twentieth Century Fund, New York, 1948, pp. 122–5, and Joe S. Bain, 'Relation of Profit Rate to Industry Concentration, 1936–1940', in *Q.J.E.*, August 1951, pp. 293–324.

[1] So, for example, the $500,000,000 expansion programme projected by the Ford Motor Company for 1956 will be financed 'from earnings, not from borrowing', according to Mr. Ford's announcement as reported in *The New York Times*, September 30, 1955.

waste; on the standardization of parts, products, and processes; on improving the efficiency of plant and labour, and on the development of by-products.[1] All this tended to reduce the value of c, increase the utilization of labour per unit of c, increase the v of the $\frac{c}{v}$ ratio, and so to retard the growth of the organic composition of capital. The rate of profit, *vis-à-vis* the o.c.c., therefore, tended to remain stationary, or even to rise slightly with the rising tendency of the rate of surplus-value which this rationalization process tended to effect.

What, in large measure, made these advances possible, was the rapid substitution in those years of electricity for steam as the motive power of industrial production and of electrically-driven, automatic mechanisms as regulating and controlling instruments. With the aid of electric motive power and the automatic controllers, bigger and more powerful machines could be operated, new, stronger and more durable metallurgical and chemical products created (synthetic rubber, plastics, nylon fabrics, new metal alloys), productive efficiency multiplied, and the employment of constant capital minimized.[2]

The instrumentation of the production process came into its own with the demand for greater operating precision and for increased output during World War I. It was then also that the electric generator began rapidly to replace the steam boiler as the motive power of American manufacturing industry. Whereas in 1902 American manufactures consumed 1¼ billion kWh of

[1] The report *Waste in Industry*, prepared by a committee of the Federated American Engineering Societies, under the sponsorship of former President Herbert C. Hoover, comes to mind as a manifestation of and stimulus to these concentrations. The report was published by the McGraw-Hill Book Company, New York, in 1921.

[2] The discussion of this section is based largely on the findings of the National Research Project, W.P.A., published in 1938 as *Industrial Instruments and Changing Technology*, George Perazich, Engineer in Charge. See also: Transcript of Testimony of Theodore J. Kreps on *Technology and the Concentration of Economic Power*, before the Temporary National Economic Committee of the United States Senate. Published in 1940 by the Bureau of National Affairs, Washington, D.C. An appendix (pp. 26–8) gives a list of inventions beginning with the tenth century.

electricity and in 1912 9¼ billion, in 1917 they consumed 20¾ billion and in 1920, close to 27 billion.[1] The average annual rate of increase between 1912 and 1920 was more than twice as large as between 1902 and 1912.

It is important to note here that the replacement of the steam boiler by the electric generator did not correspondingly increase the dollar value of the invested capital. On the contrary, unit for unit, the electric generator costs less than the steam boiler when measured in terms of their respective power-producing capacities. The same relationship holds true between the new productive equipment and the old. In general the new machine which is built to replace the old increases total productive capacity, but in no way carries a corresponding increase in the dollar value of its investment.

Parallel with the spread of the use of electric power in industry we find the increased output of industrial instruments. From an index of 1·8 for 1909 (1929=100), sales of these instruments rose to an index of only 4·4 by 1914, but jumped to 10·3 in 1916 and to 26·6 in 1918.[2]

Significantly, the growth of the output of industrial instruments in that period also began rapidly to outstrip that of industrial machinery. Expenditures for instruments rose from less than $4 per $1000 for machinery in 1919 to nearly $16 in 1933. One of the reasons given for this phenomenon has an especial pertinence to our inquiry. It is that

> during periods of rising industrial production, the increased efficiency of operation obtained through the installation of instruments frequently was sufficient to supply the desired increase in production *without new major equipment*; similarly, during the decline in industrial production, an important function served by industrial instruments was that of increasing efficiency and thereby reducing costs of labour and materials per unit of output.[3]

The instruments which have contributed most to this increase of

[1] *Historical Statistics, op. cit.*, Series G–192. [2] *Industrial Instruments*, p. 24.
[3] *Ibid.*, p. 33, Italics supplied.

the productive efficiency of the machine are known as 'controllers' – the electrical mechanisms which impart to it automaticity and sensitivity – the other types being 'indicators' and 'recorders'. (The thermometer is an indicator; the gas meter, a recorder; the thermostat, a controller, to cite homely examples.) While the sales of all three types of instruments, taken together, gained on the average approximately 11 per cent a year on the sales of machinery, those of the controllers alone gained an average of 21 per cent a year. This means, of course, an increase in the installations of controllers relative to those of indicators and recorders. Thus, as late as 1923 sales of controllers constituted less than 8 per cent of the total for all three types of instruments; in 1935 they constituted over 33 per cent of the combined sales, and the gain was continuous over the good business years and bad business years alike.[1]

Industrial instruments automatically control temperatures, pressures, and the rate of flow and consumption of raw materials. They inspect ingredients and finished products for quality, select the sound and reject the defective. In the manufacture of paper pulp, for example, the automatic temperature control of the grinding and cooling operations assures uniformity of quality, and in the pressing and drying of the finished paper instruments automatically regulate 'pressure, temperature, humidity, tension and thickness'.[2]

2. INSTRUMENTATION AS CAPITAL-SAVING

With the aid of instrumentation the speed of the machine may be increased without the risk of excessive wear and tear. Where the instruments serve to maintain operations continuous and uniform, they help prolong its life. Developing defects are automatically detected, and repairs can be made before a damaging breakdown occurs.

The acceleration of the production process reduces the time of the production cycle, thereby increasing the productive capacity of the plant without the addition of new equipment. Thus when

[1] *Ibid.*, p. 39. [2] *Ibid.*, p. 67.

in 1920 the Ford Motor Company reduced the production cycle of a car from 21 to 14 days and in 1931 cut it, further, to 50 *hours*,[1] the company's productive capacity was greatly increased without a corresponding increase of the fixed element of its constant capital. The American Woollen Company reported in 1939 that with only half the plant and equipment of fifteen years earlier it had the capacity to produce the same amount of goods as before.[2] Technological innovations had rendered its productive capital that much more efficient. Cloth production per active spindle increased from 276 sq. yards in 1929 to 410 sq. yards in 1939.

The 'assembly line' introduced in the automobile industry in 1913 reduced the assembly time from 14 hours to 1½ hours per car.[3]

Uniform and efficient operations conserve the consumption also of the circulating element of the constant capital – of materials, fuel and supplies. Steel ingot output rose 4 per cent between 1947 and 1954. But in that process the industry consumed 4 per cent less iron ore, 13 per cent less coal, 6 per cent less limestone, and 9 per cent less scrap, the principal raw materials used in steel ingot making.[4] Central power stations consumed less than 1½ pounds of coal to produce 1 kWh in the 1930's, compared with 3 pounds in 1920 and 6½ pounds in 1902.[5] Considerable wastage is eliminated, and what had been 'waste' is now utilized in production or is turned into valuable by-products. Compare, for example, the wastefulness of the beehive coke production process to the savings of the by-products distillation method.

What is more, the new technology has made the capital plant more enduring by improving the basic materials used in its construction. The new steel alloys make more lasting tools. Cutting-steel made of a mixture of tungsten and titanium carbide cemented with cobalt has 60 times the durability of steel made of earlier

[1] Cited in *Industrial Instruments*, p. 72.

[2] Cited by Theodore Kreps, *op. cit.*, p. 14.

[3] *Automobile Facts*, January, 1954.

[4] *Charting Steel's Progress*, a brochure issued in 1955 by American Iron and Steel Institute.

[5] *Industrial Instruments*, p. 75.

alloys.[1] Treated railroad ties last twice as long as untreated ties. An Empire State building, it seems, can be built to last for ever. The Diesel locomotive not only has the greater tractive power, uses cheaper fuel, and requires less frequent and less costly repairs than either the steam or the electric locomotive, but also outlasts them both.

The new technology, thus, contributes to the minimization of capital consumption, reducing the c of the $\frac{c}{v}$ ratio, both by way of effecting operating economies and by the more efficient utilization of raw materials. Instrumentation not only contributes to the greater output per unit of equipment, but also prolongs the working life of the fixed capital.

3. INSTRUMENTATION AS LABOUR-SAVING

Most of these innovations have been, of course, labour-saving as well as capital-saving, if, indeed, the two processes can at all be separated from each other. Towards the end of the 1920's we are told, for example, the newer designs of steam locomotives and the treatment of water used in their boilers effected an increase of '50 per cent in freight train speeds, 50 per cent in mileage between general repairs and an increase of locomotive runs from about 150 miles to between 400 and 700 miles'. These economies, in turn, cut labour requirements in about half.[2] Man-hour productivity in the manufacturing industries of the United States increased in the ten years 1919–29 at five times the annual rate of the preceding decade.[3] The efficiencies effected in the steel industry between 1947 and 1954, just noted, were achieved with 2 per cent fewer workers.

4. EFFECTS ON THE FORMULA

Here, then, we have two simultaneously operating forces tending to lower both the c and the v values of the formula per unit of

[1] Mary L. Flederus and Mary van Kleeck: *Technology and Livelihood*. Russell Sage Foundation. New York, 1944, p. 46.

[2] Works Progress Administration, National Research Project, *Summary of Findings to Date*. March 1938, pp. 113–14.

[3] *Historical Statistics, op. cit.*, Series D–213. With 1939 = 100, the indexes were: 1909 = 39·4; 1919 = 45·3; 1929 = 78·1.

physical output. The ultimate effect on the $\frac{c}{v}$ ratios for this period cannot, therefore, be determined on *a priori* grounds. Judging from empirical evidence, it would seem that the 'cheapening' of the c element of the ratio $\frac{c}{v}$ by the intensive rationalization of production was paralleled by a proportionate lowering of the v element through its simultaneous labour-saving effect. The two tendencies offset and balanced each other, to the end that throughout the period of observation the o.c.c. remained relatively inert.

At the same time, the increased efficiency of utilization of plant, materials and equipment meant also an intensification of the exploitation of labour. This would account for the rising tendency of the rate of surplus-value observed for most of the period. Since, moreover, these higher rates of surplus-value were achieved without a corresponding rise of the organic composition of capital, the rate of profit calculated on the traditional basis did not fall.

In short, a *qualitative* change had taken place after World War I in the nature of the constant capital (in the c term of the ratios) which was concealed by its *traditional quantitative* expression. The growing substitution of relatively inexpensive industrial instruments for the more expensive industrial machines, and the increased economies in the consumption of raw materials, *slowed down the quantitative expansion* of the constant capital, in its value terms as well as in terms of its material mass.[1] Hence the relative inertia of the organic composition over these years.

But the installation of industrial instruments did not slow down the *qualitative function* of the constant capital, namely, that of serving as a base for the creation of surplus-value. On the contrary, it enhanced that function. Productivity rose in the 1920's at five times the rate of the preceding decade. Wages also rose, but not to the same extent. (The benefits of increased productivity of labour do not *all* accrue to labour!) Hence the rising tendency of

[1] Some seventy-five years ago Marx had written simply:
'Science and technology give capital a power expansion independent of the given magnitude of the capital actually functioning.' *Capital*, Vol. I, pp. 663–4.

the rate of surplus-value after 1919, *without* a corresponding quantitative increase in the organic composition of capital.

5. DECLINING INVESTMENT OPPORTUNITIES

Finally, because the new technology tends to minimize the consumption of raw materials per unit of output and to prolong the life of the fixed capital in terms of product output, it tends also in the long run to minimize the demand for investment capital – it tends to contract the investment market. In former times, when industrial progress required a continuously rising o.c.c., that rise furnished an important outlet for capital goods and investment. Now that this is no longer the case, a growing weakness in the demand for capital goods develops. The new technology creates a new market problem – it intensifies the problem of the disposal of the potential output. It intensifies the problem of the realization of surplus-value.

Which brings us to the second portion of our inquiry.

D. TRANSFORMATION OF THE REALIZATION OF SURPLUS-VALUE

1. THE NATURE AND RISE OF UNPRODUCTIVE EXPENDITURES (u)

In the Marxist formula, we will recall, the mass of surplus-value, total s, is treated as equivalent to the total payment to property. There, s comprises the profit of the industrial capitalist, plus the interest paid to the money capitalist, plus the rent paid to the landlord. Marx called these the shares of the total profit produced. In his schema $s=p$.

But if we examine the procedure whereby we arrived at the figure for s, we find that it is wholly an impure quantum.

What we did there, we will recall, was to subtract wages from the 'value added' figures of the Census of Manufactures and call the reminder s. Following the formula, we let that s stand for the capitalist's profit. But the remainder of the 'value added' after deducting the wages item contains not only the capitalist's profit, including rent and interest, but also all of the costs of disposal of

the product, such as sales and advertising expense, as well as general office expense, officers' salaries and taxes – federal excises and State and local real estate and business taxes – and last, but not least, increasingly also income taxes.

Now, it is quite understandable why for the early days of capitalism, for which Marx generally speaks, the appropriation of surplus-value, as derived by this formula, could be said to accrue in its entirety to the producing capitalist as his profit (minus his interest and rent payments), and to ignore the portion which he may have paid out as his selling and other administrative costs and as taxes.[1] The capitalist then had little other expenses, few other costs, besides his prime costs – besides the costs of his constant capital, *c*, and of his variable cost, *v*. Selling, advertising and most of all the other present-day 'administrative' costs were then minimal, and his taxes then were minimal. Even in Marx's day the 'capitalist' was still predominantly not only the 'entrepreneur', but also the 'administration' of his business. With whatever help of a subordinate nature he required, he served as his own production manager, his own sales manager, his own director of purchases, his own finance officer, his own bookkeeper (they did not need tax accountants in those days) – in short, he was his own everything that was needed to direct the production and the realization of surplus-value.

With the increase in the size and complexity of industrial enterprise, however – with mergers, integrations, and concentrations of industry – the capitalist is no longer, can no longer be, the sole or even the principal operator of his business. In fact, the individual capitalist of the Marxist formula largely disappears and the collective capitalist, the corporation, takes his place. Now the 'capitalist' hires his administration, and the surplus-value which formerly was all his own, except for what he paid out of it as rent

[1] We speak here, of course, of the *s* which the industrial capitalist realizes at the factory gate – the *s* of our statistics not of the total *s produced*, the total derived from the exploitation of productive labour. Of that total a portion goes to pay the merchant class as compensation for its services in the ultimate disposal of the product. Marx speaks of this producer-merchant relationship, of the merchant's capital and of the merchant's profit, extensively in *Capital*, Vol. III, Part IV, pp. 314–96.

and interest, he now shares with a host of administrative functionaries. p no longer equals s; it now equals s, minus the cost of these new functions and minus the greatly expanded costs of government.

But this is not all.

With the new administrative functions goes a variety of expenditures which have been growing with the growing integration and monopolization of industry. Sales, advertising, promotion and a whole congeries of administrative expenses have risen in the past several decades to eat into the capitalist's surplus-value. They are the costs of what economists call monopolistic competition – the costs of wresting customers of one firm by another and of the dollars from customers by all firms. They are the costs which firms incur in trying to induce trusting housewives to pay higher prices for the more decorative labels. They are the costs dictated by the principle of accelerated obsolescence – the principle whereby, for instance, a car owner is induced to discard this year's car for next year's model.

What is more, all these expenditures must increase as a portion of the total sales price as capitalism develops. In an economy in which the private accumulation of capital governs output, production must always tend to exceed consumer market potentials. The growth of capitalism, as we will see in Chapter 8 below, also means the growing exhaustion of the possibilities for the continuous accumulation of capital in so far as this tends to restrict the ultimate consumer market potentials. Under these circumstances, efforts must continually be increased in the form of increased sales and promotional expenditures to effect the disposal of products.

This fact can, perhaps, best be visualized if placed in contrast with the conditions of production and sale of products obtaining in a socialist economy. There, where the ultimate consumer potential governs output, the growth of consumer demand must always tend to exceed the growth of production. Under such conditions, there can be no problem of product-disposal. With the continuing rise of the standard of living of the people as the ultimate objective of production, there can arise no need for 'pushing sales' and for advertising to 'overcome consumer resist-

ance'. Hence, in a socialist society 'promotional' expenditures need never be more than nominal, required for consumer education (as when in the late 1920's, it is said, Russians were being induced to drink canned tomato juice as 'canned sunshine').

The capitalist phenomenon of the secular increase of these expenditures indeed manifests itself strikingly in its cyclical phases. Even casual newspaper readers must be aware of the fact that a crescendo in the clamour for 'increasing sales effort' is always a sure symptom of the approach of the end of the boom phase of a business cycle. As the reserve army begins to be exhausted and as with that consumption tends to level off, so that the need for effecting proportionality between potential production and potential consumption becomes insistent, the economy pulls out all stops on its sales expense budget. These, then, are expenditures incurred, for the most part, not in the creation of surplus-value, but in the attempt at its realization.

They are, therefore, 'unproductive' expenditures, in the Marxist sense. That is, they are unproductive of surplus-value. They are as unproductive of surplus-value when incurred inside the factory gate as, according to Marx, are the expenses of marketing which are incurred outside the factory gate.[1] As we will see a few pages below, since 1919 fifty per cent and more of the surplus-value realized at the factory gate has been going, in the large, to meet these and similar unproductive expenses, including (indirect) business taxes. The *s* in our formula, therefore, is gross, not net as far as the industrial capitalist and his profit rate are concerned. And this 'net', further, is *before* the deduction of corporation income and excess profit taxes and before payment of the taxes imposed on incomes from dividends and rents and on entrepreneurial withdrawals.

So much so has this become a day-to-day fact of the past several decades that businessmen generally attribute the falling tendency

[1] 'The process of circulation', that is, of commerce, wrote Marx, 'is a phase of the total process of reproduction. But no value is produced in the process of circulation, and, therefore, no surplus-value.' *Capital*, Vol. III, p. 329. For reference to his full treatment of the subject, see previous footnote. See also *Capital*, Vol. II, Chapter VI, 'The Expenses of Circulation', in particular pp. 149–51.

APPENDIX 4

Computation of the Organic Composition of Capital, the Rate of Surplus-Value, and the Rate of Profit. United States Manufacturing Industries. Various years 1880–1950.

Line	Item and Computation (Stock basis, total physical capital)	(Dollar amounts in millions)																																					
		1880	1890	1900	1912	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952
1	Value added	(As in previous Appendix)																																					
2	Variable capital (v)																																						
3	Depreciation																																						
4	Surplus-value (s): line 1 − (lines 2 + 3)																																						
5	Value, fixed capital (c)																																						
6	Value of inventory	749	1500	2218	4132	11226	12960	10790	9460	11910	11320	12490	13670	13160	13270	13820	12210	9860	8020	8870	9120	9550	11220	12890	10800	11500	12800	17000	19300	20100	19500	18400	24500	27500	30700	30700	30500	38700	43200
7	Total constant capital (line 5 + line 6)	1729	3760	6178	13522	41566	48960	41620	37340	42250	41640	42990	44790	44520	45460	47540	44830	39500	33650	32890	34250	34320	36250	40300	38260	38750	41280	50200	59520	65750	67310	68570	83120	99430	112940	115980	123060	142880	155130
8	Organic composition (line 7 ÷ line 2)	1·5	1·9	2·6	3·2	4·3	4·3	5·6	4·7	4·2	4·4	4·3	4·4	4·4	4·5	4·4	5·1	5·9	7·3	6·7	5·4	4·7	4·3	4·0	4·9	4·3	4·0	3·4	2·7	2·2	2·1	2·5	3·3	3·3	3·5	3·8	3·6	3·5	3·6
9	Rate of profit (line 4 ÷ line 7) × 100	69	60	50	42	29	—	18	—	29	—	32	—	32	—	36	—	25	—	22	—	28	—	33	—	35	—	—	—	—	—	—	—	39	—	34	40	38	37
10	Materials, etc.	4230	5510	7490	14820	36230	37880	24400	26790	33610	31930	35140	35110	34010	35280	37400	29650	21230	14840	16550	21610	26440	32080	35540	28670	32160	(Not available after 1939)												
11	Rate of inventory turnover (line 10 ÷ line 6)	5·6	3·7	3·3	3·6	3·2	2·9	2·3	2·8	2·8	2·8	2·8	2·6	2·6	2·6	2·7	2·4	2·2	1·9	1·9	2·4	2·8	2·9	2·8	2·7	2·8													

of the profit rate to these increasing costs. When they complain of their inability to 'make a fair profit' on their investment it is to the increasing overhead costs, to the rising sales and advertising expenses, and the 'growing tax burdens' that they assign the blame. Taking the economy as a whole, these growing 'unproductive' expenditures eat into the surplus-value produced and tend to effect a decline in the rate of the *net* surplus-value *realized* and, so, of the net profit realized.

It is these *net* results which guide capitalists in their business decisions and which determine the trends of capitalist development, and it is these that we must contrive to measure if we are to demonstrate the operation of the law of the falling rate of profit after 1919. *The formula as we have used it so far cannot reveal these net results.*

If, therefore, our formula is to apply today as it did before these changes had become effective on the American business scene, our concepts of its *s* term must be recast. It must be so defined that it would reflect and measure these changes. Before we decide that the businessmen's explanation of the falling profit rate is altogether wrong, we should consider whether the traditional Marxist formula does not really comprehend the problem in terms which are too narrow to allow for the very 'progress' which it purports to portray.

Appendix Note to Chapter 6

Attached to the 21st Annual Report of the Executive Committee to the Members of the Eastern Railroad Association, 1887 (I. C. C. Library) is the following typewritten memorandum:

The I. C. C. Library about 1909 had a complete file of the annual reports of the Eastern Railroad Association in bound form. Secretary Mosely had a caller who wanted to see the reports and I gave the bound vol. to Mr. Mosely in his office. About a month later I asked Mr. Mosely for the volume and he said he let the man have it, and had forgotten his name. At the time the Association was under fire in Congress as being a railroad organization to discourage railroad patents or to buy up good patents and not use them.

Dec. 26, 1924 L. S. BOYD

CHAPTER 7

Surplus Value and Unproductive Expenditures

A. THEORY OF THE DIMINISHED *s*

1. REALIZATION VS. PRODUCTION OF SURPLUS-VALUE

The difficulty in following the thesis that in the period of monopoly-capital the problem of the falling rate of profit becomes primarily the problem of *net* surplus-value realization arises from the fact that traditionally, following Marx's lead, Marxist's have tended to treat the problem of the falling rate of profit chiefly in terms of the rate of creation of surplus-value. The problem of its realization has been treated in a more or less subordinate manner. Actually, there is no warrant in Marx for such a disparate treatment of the two aspects of what, in reality, is a dialectical unity. The creation – the *production* of surplus-value – Marx argued, is but the 'first act' of the capitalist process of production. Then there is a 'second act', he said, which is required to complete this process, and that is the sale of the 'entire mass of commodities' produced.[1] This is true of the monopoly period as it was true in Marx's day. There is the same type of unity of dialectical opposites here as in the case of production and consumption. There can be no surplus-value created unless it be realized, any more than there can be production without consumption. In each case the two sides of the dialectical unity must be analysed separately for the purpose of conceptual clarity. But their interpenetration in reality must never be lost sight of. Thus, from a statistical or factual research point of view it must be asserted that the amount of surplus-value created exists only in so far as it is realized and thereby is measurable.

If, then, there is evidence to the effect that in the epoch of

[1] *Capital*, Vol. III, p. 286.

monopoly-capital the problem of realization of surplus-value has increasingly become a pressing problem, involving increasing internal business costs and increasing costs of government, we can not ignore it even if we continue to hold that surplus-value must first be created before it can become an object of realization.

2. PRODUCTIVE AND UNPRODUCTIVE LABOUR

Of a similar nature, and linked to the problem of the dialectical unity of the creation and realization of surplus-value, is the problem of the dialectical unity of productive and unproductive expenditures – of productive and unproductive labour. In this case, too, a formal logical separation between the two concepts is necessary for clarity of treatment, and here, too, the separation does violence to the interpenetrating unity of the two dialectical opposites.

From a formal logical point of view, the Marxist definition of productive labour under capitalism is labour which produces surplus-value, which produces commodities for sale, at a profit for an employer.[1] Self-employed artisans, and farmers who do not produce for the market are not productive workers in this sense. Production of use-values is not the test; nor is the social desirability of the things or services produced. Neither the police nor school teachers, nor the fire wardens who protect our forests, nor the admirals and generals who defend and extend our way of life, useful as their services might be deemed to be, are productive workers under this definition; they do not produce commodities and services which are sold at a profit for an employer. On the other hand, prostitutes in a bawdy-house, who are paid less than 100 per cent of the admission fee and who are thereby a source of profit to the employing madam or pimp, are productive workers under this definition.

Now, if we take a more legitimate business enterprise, say, one employing factory hands, clerks, engineers, salesmen, ad men, and the like, how can we tell who are the productive workers? – who of them are the producers of the surplus-value

[1] In his *Theories of Surplus-Value*, Marx devotes a full chapter, pp. 148–97, to a discussion of 'Productive and Unproductive Labour'.

of the establishment? It is not as though surplus-value can be seen to be oozing in measurable quantities out of the finger-tips of the men tending the machines. We do not know how much surplus-value has been created until it has been realized. And this realization, under present-day capitalism, is increasingly impossible without the services of clerks and salesmen and advertising writers, and of government. Even if these are 'unproductive' services, they are, nevertheless, essential to the functioning of the system. This being the case, why not take the position, which Joan Robinson, for example, does, that the distinctions between productive and unproductive labour and between wages of productive labour and expenditures for unproductive labour are unnecessary and arbitrary?[1] If we take this position, v becomes very much larger, being expanded to include at least, say, the salaries of office, sales and advertising personnel below the executive level. s and s' would then be correspondingly reduced.

The traditional Marxist conceptions of v and s, and of productive and unproductive labour can be defended on several counts. One is that we can conceive of both the creation *and* the realization of surplus-value without the aid of salesmen and advertising men. Thus we can envisage the operations of a socialist economy in which many of these categories of employment will be eliminated as parasitic.

A sounder defence, perhaps, for retaining these Marxist distinctions is that offered for the definitions, conventions and axioms of any scientific theory – that the theory constructed on the given assumptions is fruitful of predictions which will square with the emerging facts; with Einstein, once more, that it furnishes 'fundamental propositions from which one can deduce conclusions to fit the facts'.

3. GROSS AND NET SURPLUS-VALUE

It is from this point of view that we here retain the Marxist distinction between productive and unproductive labour, in the

[1] Mrs. Robinson makes this pointed observation in her *Essay*, *op. cit.*, n. 1, pp. 20–21.

form of a distinction between productive and unproductive expenditures. For purposes of statistical testing we adopt the convention that only wage workers using tools and machinery (in manufacture the 'production workers' of our census enumeration) are productive workers and that all the other categories of employees are unproductive workers.[1] We accordingly designate the wages of the productive workers (Wages in our Census of Manufactures) as the v of our formula and introduce the new symbol u to stand for the salaries and wages of the unproductive workers and for all the sales, advertising and all other administrative expenditures as well as for taxes.

Now, since all these expenditures, by definition, are not productive of either value or surplus-value, they can be derived only from the values otherwise produced, with Marx, from the surplus-value produced by the productive workers.[2] The traditional s, as measured by our statistics, can be looked upon, therefore, as the 'gross surplus-value realized' and $s-u$ as the 'net' realized surplus-value. u becomes the expense of realization of surplus-value. And since nowadays the realization of surplus-value depends so much on 'political climate', the cost of government – taxes, and government debt increments also become a part of u.

Under these assumptions, then, we have also a 'gross' p' and a 'net' p'. The net profit rate is $\frac{s-u}{c+v+u}$ on the flow basis and $\frac{s-u}{c}$ on the stock basis; i.e., when the c is calculated as the stock of the invested capital. Since the stock basis is the more pertinent of the two in the operation of capitalist enterprise, we propose to reformulate the law of the falling rate of profit for the monopoly

[1] By 'productive' workers, Marx essentially meant wage earners who are engaged in the conversion of raw materials, through various stages of production, into finished consumable products and of making them available, through transportation (but not through selling), to the ultimate consumers. These, alone, produce surplus-value. See, for example, *Theories of Surplus-Value*, *op. cit.*, pp. 195–7.

[2] 'The general law,' Marx wrote in *Capital*, Vol. II, p. 169, 'is that all expenses of circulation . . . do not add any value to the commodities. They are merely expenses required for the realization of value . . . and are, from the point of view of the entire capitalist class, a deduction from surplus-value or surplus product.'

period as the tendency of $\frac{s-u}{c}$ to fall. And our proposition would be that in the period of pre-monopoly capitalism and of a rising o.c.c., when u was a relatively negligible factor in the realization of surplus-value, the basis of the law lay in the faster relative rise of the $\frac{c}{v}$ ratio than the $\frac{s}{v}$ ratio. In the period of monopoly capitalism, of the new technology and of rising unproductive expenditures, when $\frac{c}{v}$ is relatively stable, the basis of the law lies in a faster rise of the $\frac{u}{v}$ ratio than the $\frac{s}{v}$ ratio.

B. DEMONSTRATION OF THE LAW, $s-u$ BASIS

1. CONVERSION OF THE DATA

We now compute the Marxist ratios and their trends on the basis of this, the revised formula. The following table illustrates one part of the procedure. Detailed calculations covering the entire period since 1919 will be found in Appendix 5, at the end of this chapter.

The actual magnitude and the rate of growth of unproductive functionaries and of the unproductive expenditures associated with them are not available to us in precise figures. We know, for example, that in mid-twentieth century America advertising costs alone ran in the neighbourhood of $9 billion a year ('Printers' Ink', *Advertisers' Annual*, 1955).[1] But we do not know the share which they constituted of total manufacturing costs over the years. The Bureau of Internal Revenue began publishing such figures only in 1939.

[1] The amount spent for advertising in 1867 is estimated there at not more than $50 million. In 1900 it was still not more than a little over $1½ billion. By 1919 it had risen to over $2¼ billion and by 1929 to nearly $3½ billion. The amount declined sharply during the depression and rose but slowly during the War. It barely reached the 1929 figure in 1946. But between then and 1955 it nearly trebled, exceeding the rate of increase of consumption expenditures by more than two times.

Table F. Computation of the Rate of Surplus-Value and the Rate of Profit (before income taxes). United States Manufacturing Industries. 1919, 1929 and 1939.

Diminished s Basis

(Dollar amounts in millions)

Line	Item and Computation	1919	1929	1939
1	Total surplus-value $=s$	12,956	17,774	13,776
2	Compiled net profit (before taxes)	5,566	4,990	3,634
3	Apparent cost of realization (line 1 – line 2)	7,390	12,784	10,142
4	Prepaid profit (interest and rent)	855	969	652
5	Unproductive expenditures (line 3 – line 4) $=u$	6,535	11,815	9,490
6	Net surplus-value (line 1 – line 5) $=s-u$	6,421	5,959	4,286
7	Variable capital (v)	9,614	10,835	9,253
8	Rate of net surplus-value $\left(\frac{\text{line 6}}{\text{line 7}} \times 100\right)=s'$	67	55	46
9	Total capital, stock basis	41,566	47,540	38,750
10	Net rate of profit on stock basis, $\frac{(s-u)}{c}, \left(\frac{\text{line 6}}{\text{line 9}} \times 100\right)=p'$	15·4	12·5	11·1
11	u as per cent of s = cost of realization	50	66	69
12	u as per cent of v	68	109	103

We do not have the statistics even for the year-to-year growth of the total cost of distribution, except as these may be inferred from *estimates* of the growth of the number of persons engaged in that pursuit. Thus a Twentieth Century Fund study estimates that the proportion which those engaged in distribution have constituted in the total number of persons gainfully employed in American industry has risen from 12 and 13 per cent in 1870 and 1880 to 27 per cent in 1930.[1]

[1] *Does Distribution Cost Too Much?* Twentieth Century Fund, New York, 1939, p. 378, Table C.

Harold Barger in his *Distribution's Place in the American Economy Since 1869* (N.B.E.R., 1955), gives the following percentage distribution of the labour force for the three years 1870, 1920 and 1950 (p. 61):

In the manufacturing industries in 1930, we are told (Kreps, *op. cit.*, p. 47), more than one-third of the employees performed administrative and service functions.

Again, we know (*Historical Statistics*, *op. cit.*, Series d–83 and 93) that between 1910 and 1940, when the total labour force had increased 40 per cent, the number of 'clerks and kindred workers' increased 234 per cent and that of 'bookkeepers, accountants and cashiers', 189 per cent. In fact, these groups increased faster in this period than any other social-economic group in the labour force.

All such figures are suggestive. But they are not precise enough to help us determine the *trends* we seek for our thesis. Further, not all 'clerks', 'bookkeepers', etc., are unproductive in the sense in which this term was defined above. Clerks that are engaged in packaging, sorting, receiving and shipping at the factory participate in the production process even as do the workers that tend the assembly line. (Marx deemed all workers engaged in the transportation industry to be productive.) So also are the accountants, statisticians, *et al.* productive who are engaged in time-and-motion studies, in quality control, in computing, recording and disbursing wages. These are all productive services, auxiliary to the production process, as are, for instance, the services and costs of repairs and maintenance.

But none of our available statistics separates out these produc-

Industry*	1870	1920	1950
Commodity-producing industries	70·0	57·0	40·4
Services:			
Commodity distribution	6·1	9·9	16·4
Other services	18·0	27·9	36·8

Thus, by 1950 the labour force engaged in service exceeded that engaged in commodity production.

* Commodity-producing industries include: agriculture, forestry and fishing, mining, manufacturing and hand trades.

Commodity distribution includes: retail and wholesale trade, including advertising, accounting, auditing and bookkeeping and miscellaneous business services.

'Other services' include: transportation and public utilities, finance, professional service, personal service and government.

We, of course, would include transportation and public utilities with the commodity-producing industries. A cubic foot of gas is not less a commodity than a can of peas. As for transportation, see p. 89, n. 1, above.

tive from the unproductive services and expenditures. The best we can do, then, is to assume that the auxiliary expenditures of a productive nature vary directly with the basic productive costs, namely, with the wages of the known productive workers. On this assumption the trends of the ratios would not be affected whether these auxiliary expenditures are excluded from the u or are included, as they are in our reckoning.

2. A TEST ILLUSTRATION

One indication of the rising trend of unproductive expenditures is furnished by the striking trend of the ratios of white collar workers' salaries to wages of production workers. The growth of the cost of the white collar personnel is, in some degree at least, a measure of the growth of the cost of realization. Here are found the advertising managers, the directors of public relations, the legal counsel, the tax experts, the 'sales engineers', the legislative lobbyists, their clerical assistants, as well as the rest of the growing host of white collar workers – in short, the dispensers and consumers of the unproductive expenditures. The growth of one is a function of the growth of the other.

Here are the ratios:[1]

Table G. Employee Salaries as per cent of Production Workers' Wages. United States Manufacturing Corporations. Census Years 1899–1914, and annually 1919–1938.

Year	Per cent
1899	19·3
1904	22·5
1909	28·0
1914	35·2*

[1] The ratios for the years before 1919 are based on census data and are exaggerated relative to those of subsequent years to the extent that the census data cover non-corporate as well as corporate enterprise. Beginning with 1919 the coverage is for corporate manufacturing enterprise only. For further explanation, see Appendix 6, at the end of this chapter.

Year	Per cent
1919	28·7
1920	26·1
1921	32·6*
1922	31·0
1923	28·1
1924	30·5
1925	29·8
1926	30·8
1927	33·8
1928	35·9
1929	36·8
1930	44·3*
1931	48·0*
1932	52·1*
1933	42·6*
1934	38·2
1935	35·3
1936	32·5
1937	30·5
1938	36·2

* In years of depression the ratios rise sharply, both because wage earners are dismissed and wage rates cut in greater proportion than the white collar employee personnel and their salaries, and because that is the time when the pressure for the realization of surplus-value is greatest. 'Pushing Sales' becomes the despairing slogan of business and, in terms of cost, the campaign is conducted with more generals than privates.

A Federal Trade Commission study has shown the following distribution and administrative costs of the farm machinery industry as per cent of net sales for the years 1927–36:

Year:	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
Per cent cost:	15·2	14·7	14·8	18·4	26·3	42·8	33·9	23·4	15·7	14·0

Report on The Agricultural Implement and Machinery Industry. 1938, p. 622.

Disregarding the high ratios of the depression years, which we explain in the footnote, the rise of the ratio is unmistakable. From just a little over 19 per cent in 1899 the ratio of salaries to pro-

duction workers' wages rose to close to 29 per cent for 1919 and to nearly 37 per cent for 1929. The latter was almost exactly double the ratio of 30 years earlier.

After 1929 the depression takes over and distorts the trend. The decline below the 1929 ratio after 1934 reflects the rise of wage rates consequent upon, among other forces, the rise of the workers' power of collective bargaining with the birth of the C.I.O. By 1938 we are back to 'normal' again.

Let us, now, return to Table F.

3. RATIOS AND TRENDS, DIMINISHED *s* BASIS

From the total surplus-value as formerly computed (line 1) we deduct all payments to property (lines 2 and 4) as recorded in the income-tax returns of corporations. The difference (line 5), for the most part, represents the unproductive, or *u*, expenditures (except income taxes), as we defined them in the previous paragraphs, and these, we find, have constituted an increasing portion of *s* (line 11). They amounted to 50 per cent of *s* in 1919, to 66 per cent in 1929 and to 69 per cent in 1939. To be sure, a goodly portion of the derived *u* figures consists of payments to auxiliary production workers (time keepers, etc.) and on account of auxiliary functions (repairs and maintenance and similar factory costs). But these we have assumed to run parallel with the direct production costs and to have no effect on the trend of the ratios of the unproductive expenditures. They affect the magnitude of these ratios, though, and of this we should be conscious in our analyses.

A telling sidelight is the greater growth of the *u* expenditures relative to wages of production workers (line 12). In the one decade 1919–29 the ratio $\frac{u}{v}$ increased from 68 per cent to over 100 per cent. In the highly monopolized wage-goods industries, we learn elsewhere – in food products, tobacco and beverages – 'selling, general and administrative expenses' generally *exceed* the wages of labour. In the chemicals and allied products industry these *u* expenses in 1941 were double the wage payments. So also were they double wages, before the war took over, for petroleum

and coal products.[1] In both these latter industries drugs, cosmetics and proprietary medicines probably claim the greater proportion of these *u* expenses. And both these industries, also, are highly monopolized.

When the *u* expenditures (except income taxes) are deducted from the original total surplus-value, we obtain the net surplus-value, or net *s* (line 6) of Table F. The several pertinent ratios for the years 1919–39 are constructed on this basis. They are given in Table H.

We begin with the ratios of *u* expenditures to wages (column 2), and observe their rise over the years. This strikingly parallels the rise of the ratios of the salaries to wages of Table G, as it should, since the salaries are a part of this total. Here, too, depressions distort and exaggerate the rise. But the upward trend is unmistakable.

Both this series and the series of Table G contrast with the rising rates of surplus-value as traditionally computed (Tables A to E, Chapters 4 and 5). The result is strikingly displayed in columns 3 and 4 of the present table. *u* as a per cent of *s* (col. 3) has an upward trend over the twenty-one years under observation. The rising *u* expenditures over these years eat into the rising rate of surplus-value and impart into it a tendency to remain constant or even to decline (Chart 5, lower panel). So, *u* as a per cent of *s*, we see, rises from 50 in 1919 to 66 in 1929 and to 69 in 1939, while the rate of net surplus-value declines, correspondingly from 67 to 55, to 46.

Finally, the rate of profit (stock basis) measured in terms of this diminished *s* is seen to tend to fall for this period (Chart 5, upper panel). There are, indeed, year-to-year fluctuations. But in the twenty-one years covered by our data the rate never came back to the near–15 per cent of 1919. Excluding the depression year 1921 from the first five years of the period and the depression year 1938 from the last five years, and excluding the years 1929–34, altogether, to avoid the years of the Great Depression, we have the following average stock basis rates of profit (before income taxes).

[1] The data are from the F.T.C. – O.P.A. report cited earlier.

1919–23 (average for four years): 11·9 per cent
1924–28 (average for five years): 11·1 per cent
1935–39 (average for four years): 10·7 per cent

Table H. *u* Ratios, the Rate of Surplus-value and the Rate of Profit (before income taxes). United States Manufacturing Industries. 1919–1939.

Diminished s Basis

Year (1)	*u* as per cent of *v* (2)	*u* as per cent of *s* (3)	Rate per cent of Net Surplus-value (4)	Rate per cent of Net Profit (Stock basis) (5)
1919	68	50	67	15·4
1920	70	63	41	9·2
1921	104	90	11	2·0
1922	72	58	52	10·6
1923	77	60	51	12·2
1924	86	66	45	10·2
1925	93	65	49	11·4
1926	88	63	52	11·8
1927	100	69	44	10·0
1928	106	67	53	11·9
1929	109	66	55	12·5
1930	131	82	29	5·7
1931	156	95	7	1·3
1932	159	110	—	—
1933	131	85	23	3·4
1934	106	77	32	5·8
1935	94	69	42	8·9
1936	99	66	51	11·9
1937	90	67	43	11·0
1938	120	81	29	5·9
1939	103	69	46	11·1

Note also that profit rates calculated in terms of the diminished *s* give a more realistic picture of business returns than do those calculated in the traditional Marxist manner. There *are* times when

business in general *does not* make profits (for example, 1932 in Table H). On any of these other bases business never seems to lose.

The theory of the diminished *s* does seem to open possibilities of an explanation.

4. AUGMENTING THE *c*

If we wish to stretch a point, we could arrive at similar results by expanding the value of the constant capital by the amount of the *u* expenditures, instead of diminishing the surplus-value by them. *u*, as a non-surplus-value-producing expenditure, is added to the equally non-surplus-value-producing constant capital, *c*, and our formula for value of product becomes $(c+u)+v+(s-u)$. Here, of course, the *c* is the constant capital consumed. (We cannot add the

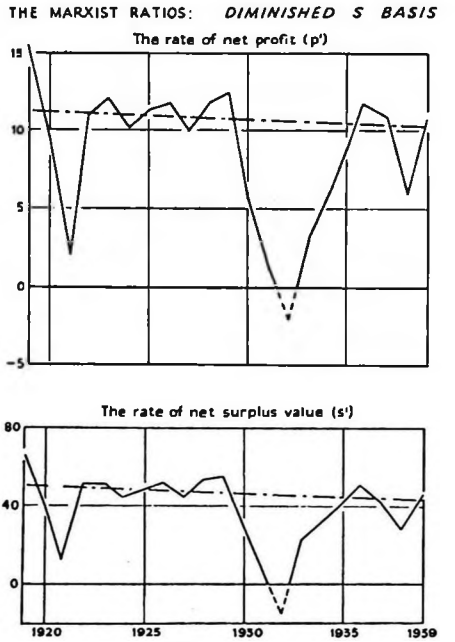


CHART 5

u expenditures, a 'flow', to the value of the fixed capital, a 'stock'.)

Let us see what ratios and trends we get on the basis of an augmented *c*.

Table I. Computation of the Organic Composition of Capital and of the Rate of Profit. United States Manufacturing Industries. 1919, 1929, and 1939.

Augmented c, Flow Basis

Line	Item and Computation[1]	1919	1929	1939
1	Constant capital (*c*), flow basis	37,394	39,385	33,814
2	*u* expenditures (line 5 Table F)	6,535	11,815	9,490
3	Augmented *c* (line 1 + line 2)	43,929	51,200	43,304
4	Variable capital (line 7, Table F)	9,614	10,835	9,253
5	Total capital (augmented *c* basis) (line 3 + line 4)	53,543	62,035	52,557
6	Organic composition $\left(\frac{\text{line 3}}{\text{line 4}}\right)$	4·6	4·7	4·7
7	Net surplus-value (line 6, Table F)	6,421	5,959	4,286
8	Rate of profit, $\frac{s-u}{c+v+u}$ $\left(\frac{\text{line 7}}{\text{line 5}}\right) \times 100$	12·0	9·6	8·2

Note that in this case we can compute an o.c.c., which we could not do in the preceding calculations because there we used the stock basis for computing the ratios. We could not there add the *u* expenditures, a flow, to the value of the physical capital, a stock.

Now, if we extend our computations to cover the whole period 1919–39, we obtain the following trends:

Table J. The Organic Composition of Capital and the Rate of Profit. United States Manufacturing Industries. 1919–1939.

Augmented c, Flow Basis

Year	o.c.c.	p' per cent
1919	4·6	12·0
1920	4·1	8·0

[1] See lines 13–17, Appendix 5, at end of this chapter.

Year	o.c.c.	p' per cent
1921	4·5	2·1
1922	4·3	9·8
1923	4·3	9·8
1924	4·4	8·3
1925	4·6	8·8
1926	4·6	9·4
1927	4·6	8·0
1928	4·7	9·3
1929	4·7	9·6
1930	4·9	4·9
1931	4·9	1·2
1932	5·2	—
1933	5·0	3·8
1934	4·7	5·6
1935	4·8	7·2
1936	5·0	8·6
1937	4·6	7·9
1938	5·1	4·7
1939	4·7	8·2

Computed on the basis of the augmented c, the o.c.c., tends to rise. The rise is not as phenomenal as was the case with the traditionally computed o.c.c., for the pre-1919 decades. But it is a discernable rise, in contrast to the trends observed for the post-1919 period in the preceding chapter. In averages it rose in the four five-year periods 1919–39, from 4·4 to 4·8 to 4·9 and to 4·8. If we remember that the augmented c is constructed by the addition of the relatively small amounts of the rising u expenditures to the three-to-five times larger amounts of the traditional c which yielded a non-rising trend, the fact that the organic composition on the new basis rises at all would appear to be significant.

The rate of profit tends to fall. Calculated in the same year-groupings as for the stock basis calculations, that is, omitting 1921 and 1938, we have the following trend:

1919–23 (average of four years): 9·9
1924–28 (average of five years): 8·8
1935–39 (average of four years): 8·0

Which gives us the same general declining tendency as does the stock basis calculations. But, as we have said, in this case we have stretched a point. The constant capital is an expense which adds to the value of a commodity – adds its own value. The *u* expenditures (by definition) do not add to the value of a commodity. Our procedure might, therefore, be challenged on these theoretical grounds.[1]

5. TAXES AS AN UNPRODUCTIVE EXPENDITURE

Finally, we propose one more amendment to the traditional formula.

The *u* expenditures which we have used in our calculations so far covered only selling, advertising, and other unproductive administrative expenditures, *including* indirect business taxes (excises, tariffs, licenses, fees, the general property tax, etc.). They did not include the corporate income and excess-profits taxes. In our calculations thus far they remained in *s*. Now we ask, what about these taxes? These are not any more productive of surplus-value than are the radio-singing commercials or the television advertising banalities. Like the business taxes and all the other unproductive expenditures, these too should be deducted from surplus-value. We have Engels's word for it that all taxes are a deduction from

[1] Still our concept of the 'augmented *c*' would seem to find support in one of Marx's own formulations of the nature of the kind of unproductive expenditures which we are discussing. Speaking of the merchant and of the circulation of commodities as creating neither 'products nor values', Marx wrote (*Capital*, Vol. II, p. 151):

'And if the expansion of his business compels or enables him [the producing capitalist] to hire his own wage-labourers as agents of circulation, the nature of this phenomenon is not changed in any way. . . . It is as though one part of the product were transformed into *a machine which buys or sells the rest of the product.* This machine deducts so much from the product. It does not participate in the productive process, although it can reduce the labour-power required for the circulation. It constitutes simply a part of the expenses of circulation.' [Italics supplied.]

surplus-value. 'The state [national] and municipal taxes, as far as they affect the capitalist class [he wrote[1]], are paid from it [surplus-value], as are the rent of the landlords, etc. On it rests the whole existing social system.' In Engels's day the corporate income tax, let alone the excess-profits tax, had not yet come into existence. He still had in mind the strictly indirect business taxes. But if these are a deduction from surplus-value, the direct income taxes clearly are such. What, now, if we include these taxes in our *u* total? In the final analysis, the profit rate which figures in the capitalist's calculations is the net *after* his income and excess-profits taxes.

Now, if we treat the corporation income and excess-profits taxes as *u* expenditures (the rise of the corporation income tax has been strikingly high since after the crisis of 1929–33), this is what we get:

Table K. The Rate of Profit. Corporation Income and Excess-Profits Taxes included as *u* Expenditures. United States Manufacturing Industries. 1929, 1939, and 1949.

Stock Basis

(Dollar amounts in millions)

Line	Item and Computation[2]	1929	1939	1949
1	Value added	30,591	24,683	75,370
2	Depreciation	2,360	1,910	5,970
3	Wages and salaries	16,090	13,590	43,830
4	Federal and state corporation income and excess-profits taxes	635	755	5,810
5	'Net' surplus-value, line 1 – (lines 2, 3 and 4)	11,506	8,428	19,760
6	Total capital	47,540	38,750	115,980
7	Rate of profit (line 5 ÷ line 6) × 100	24·2	21·7	17·0

The rate of profit after corporation income and excess-profits taxes tends to decline.

Note that we treat in this table only of three years, ten years

[1] *Engels on Capital*, p. 6.

[2] For sources, see Appendix 7 at the end of this chapter.

apart, and we use the corporation income and excess-profits taxes as the sole *u* expenditures (besides including employee salaries with wages of productive workers). But what we find may be assumed to be a fair enough example of the probable trend if this were computed over a longer period and on the basis of all the pertinent data. If included with all the other *u* expenditures they would produce a lower level of profit rates, but would not affect the trend.

C. CONCLUSIONS

Quantitative validation of the Marxist law of the falling tendency of the rate of profit, for the period following World War I, requires a modification of the formula which generally applied in the pre-monopoly stage of capitalism.

The formula which would be used to quantify that law for the period after World War I must be broad enough to encompass the qualitative changes which have taken place in the production and realization of surplus-value in those years. It must be broad enough to allow for the fact that in this period a new technology and new forms of business organization and business practice made possible a rising tendency of the rate of surplus-value without a corresponding rise in the organic composition of capital, creating new marketing problems and increased cost of surplus-value realization. And it must be broad enough to allow for the qualitative changes which have occurred in the functions of government aimed at creating a 'favourable climate' for profitable business investment at home and abroad.

The latter, in particular, has been systematically overlooked by Marxists in considerations of the conditions for the production and realization of surplus-value. In the epoch of monopoly capitalism, which has gone hand-in-hand with the drive towards imperialist expansion and wars, the cost of government rises as these become the primary functions of the capitalist state. The rising cost of government must be met chiefly through increasing taxes. And taxes are unproductive expenditures, the same as are advertising and sales-promotion expenses. In fact, *they are a form of sales-pro-*

motion expense in that they are aimed to expand and safeguard the capitalist world market.[1]

The corporation income tax and the excess-profits tax, together with the advertising, sales promotion, lobbying and all the rest of such non-surplus-value producing expenditures, must be deducted from the surplus-value produced as a gross figure, in order that we may obtain the net amount of surplus-value on the basis of which the net rate of profit might be computed.

On the old basis, the tendencies postulated by the Marxist law of the falling rate of profit appear to have been halted or even reversed, to some extent, after 1919. When that basis is modified to allow for these new expenditures, the original tendencies are seen to reassert themselves. The rate of surplus-value, rather than rise, tends to remain constant, or even to fall; the rate of profit tends to fall, and, if we stretch a point (by adding u to c), the organic composition of capital tends to rise again.

APPENDIX 5: EXPLANATORY NOTES

Line 1. From Appendix 2, Chapter 4, line 11.

Line 2. B.I.R. data adjusted by the conversion index, *ibid.*, line 3.

Line 3. Line 1 – line 2.

Line 4. B.I.R. data, interest and rent adjusted by conversion index, *ibid.*, line 3. Interest paid declined to almost half by the end of the period, compared with the beginning of the period. A lowered interest rate and a lowered funded debt account for this phenomenon. Rent data are available since 1933 only. Since for the years available the figure showed no appreciable change, the item was carried back to 1919 at an arbitrary figure close to the average for these later years adjusted by the conversion index. An extrapolation backwards did not seem to offer any improved alternative. The original data are as follows:

[1] The ultimate aim of imperialism is, of course, not so much the acquisition of foreign markets as outlets for commodity exports and for the realization of surplus-value produced at home, as the acquisition of new areas for capital exports. The ultimate aim is the exploitation of new labour supplies and new sources of raw materials abroad for the *production* of higher rates of surplus-value and higher rates of profit than are any longer possible at home.

APPENDIX 5

Computation of the Organic Composition of Capital, the Rate of Surplus-Value, and the Rate of Profit. United States Manufacturing Industries. 1919–39.

Line	Item and Computation (Diminished s and Augmented c Bases)	(Dollar amounts in millions) 1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
	(Diminished s Basis)																					
1	Total surplus-value $=s$	12956	12785	8585	9838	12935	12384	14135	14345	14484	16122	17774	14139	10204	6622	7565	8682	9897	12670	13492	11666	13776
2	Compiled net profit, adjusted	5566	3676	1131	3154	4215	3301	3942	4339	3522	4417	4990	1645	−338	−1431	416	1375	2421	3702	3751	1621	3634
3	Apparent cost of realization	7390	9109	8716	6684	8720	9083	10193	10006	10962	11705	12784	12494	10542	8053	7149	7307	7476	8968	9741	10045	10142
4	Prepaid profit, adjusted	855	1017	983	970	957	947	955	957	942	971	969	919	836	769	702	628	606	605	674	619	652
5	Unproductive expenditures $=u$	6535	8092	7733	5714	7763	8136	9238	9049	10020	10734	11815	11575	9706	7284	6447	6679	6870	8363	9067	9426	9490
6	Net surplus-value, $s-u$	6421	4693	852	4124	5172	4248	4897	5296	4464	5388	5959	2564	498	−662	1118	2003	3027	4307	4425	2240	4286
7	Variable capital $=v$	9614	11492	7421	7958	10095	9420	9928	10225	10040	10160	10835	8772	6645	4580	4913	6320	7273	8429	10077	7837	9253
8	Rate of s' (line 6 ÷ 7) × 100	67	41	11	52	51	45	49	52	44	53	55	29	7	—	23	32	42	51	43	29	46
9	Total capital	41566	48960	41620	37340	42250	41640	42990	44790	44520	45460	47540	44830	39500	33650	32890	34250	34320	36250	40300	38260	38750
10	p' stock basis, $\left(\frac{\text{line 6}}{\text{line 9}}\right) \times 100$	15·4	9·2	2·0	10·6	12·2	10·2	11·4	11·8	10·0	11·9	12·5	5·7	1·3	—	3·4	5·8	8·9	11·9	11·0	5·9	11·1
11	Cost of realization, u as per cent of s	50	63	90	58	60	66	65	63	69	67	66	82	95	110	85	77	69	66	67	81	69
12	u as per cent of v	68	70	104	72	77	86	93	88	100	106	109	131	156	159	131	106	94	99	90	120	103
	(Expanded c Basis)																					
13	Traditional c, flow basis	37394	39170	25644	28229	35151	33443	36746	36909	35811	37178	39385	31594	22981	16432	18079	22978	27824	33556	37144	30269	33814
14	Expanded c (line 13 + u) $=c'$	43929	47262	33377	33943	42914	41579	45984	45958	45831	47912	51200	43169	32687	23716	24526	29657	34694	41919	46211	39695	43304
15	Total capital, $c'+v$	53543	58754	40798	41901	53009	50999	55912	56183	55871	58072	62035	51941	39332	28296	29439	35977	41967	50348	56288	47532	52557
16	Organic composition c' basis $\left(\frac{\text{line 14}}{\text{line 7}}\right)$	4·6	4·1	4·5	4·3	4·3	4·4	4·6	4·6	4·6	4·7	4·7	4·9	4·9	5·2	5·0	4·7	4·8	5·0	4·6	5·1	4·7
17	Rate of profit, $\left(\frac{\text{line 6}}{\text{line 15}}\right) \times 100$	12·0	8·0	2·1	9·8	9·8	8·3	8·8	9·4	8·0	9·3	9·6	4·9	1·2	—	3·8	5·6	7·2	8·6	7·9	4·7	8·2

Year	Interest	Rent	Total
1919	470	275	745
1920	633	275	908
1921	633	275	908
1922	622	275	897
1923	611	275	886
1924	608	275	883
1925	622	275	897
1926	657	275	932
1927	677	275	952
1928	710	275	985
1929	712	275	987
1930	698	275	973
1931	606	275	881
1932	540	275	815
1933	460	289	749
1934	367	287	654
1935	342	278	620
1936	337	272	609
1937	374	295	669
1938	328	290	618
1939	344	298	642

Line 5. Line 3 – line 4.
Line 6. Line 1 – line 5.
Line 7. From Appendix 2, Chapter 4, line 8.
Line 8. As indicated.
Line 9. From Appendix 4, Chapter 5, line 7.
Line 10. As indicated.
Line 11. As indicated.
Line 12. As indicated.
Line 13. From Appendix 2, Chapter 4, line 7.
Line 14. As indicated.
Line 15. As indicated.
Line 16. As indicated.
Line 17. As indicated.

APPENDIX 6

Employee Salaries

For the years prior to 1919 the ratios were computed from the data of the U.S. Census of Manufactures. (*Historical Statistics, op. cit.*, Series J-6 and 7.) For all the subsequent years the computations were based on Professor S. Kuznets's Series, Table M3 p. 578, Vol. II, of his *National*

Income and Its Composition. 1919–1939. (National Bureau Economic Research, New York. 1941.) Dr. Kuznets's Series includes compensation of salaried officers of corporations, supervisory, technical and clerical employees, and employees of central administrative offices, and is therefore more inclusive than the Census coverage which misses the central administrative offices. The difference becomes striking beginning with 1925 when the merger movement led to the rapid expansion of such offices. The Kuznets Series ends with 1938.

APPENDIX 7

Allowance for Corporation Income and Excess Profits Taxes

Line 1. For 1929 and 1939, from Appendix 1, Chapter 4, line 2; for 1949, from the U.S. Census: Annual Survey of Manufactures.

Line 2. Seven per cent of the value of plant and equipment, Appendix 3, Chapter 5, line 5.

Line 3. From *National Income*, 1951 Edition. U.S. Department of Commerce, pp. 160 and 161.

Line 4. *Ibid.*, pp. 168 and 169.

Line 6. From Appendix 4, Chapter 5, line 7.

CHAPTER 8

The Dynamics of the Law

I. AS STATED BY MARX

Now that we have taken the movements over time of the o.c.c., of s' and p' out of the purely conceptual and placed them in the realm of reality, we ask what is their causal interrelationship? So far we have established only their historical parallelism, or lack of parallelism. What we wish now to know is the possible mode, the conditions of their interaction. In short, we ask, in what manner and under what conditions does the fact of a rising o.c.c. effect an opposite change in the rate of profit? How is the law of the falling rate of profit established?

As formulated by Marx this relation appears to be purely a mechanical one: as the organic composition of capital goes up, the rate of profit goes down – just like the two opposite weights suspended from a pulley. The dynamics of their interaction is missing. He merely assumed that as $\frac{c}{v}$ goes up, $\frac{s}{v}$ will remain constant and so $\frac{s}{C}$, the rate of profit, must decrease. His mathematical examples are but restatements of the same assumptions in the more precise language of numbers and symbols.

It was for this reason that we earlier raised the question: how can we assume a constant rate of surplus-value, with a rising o.c.c., when the very purpose of the increase of the o.c.c. is to increase the productivity of labour, reduce unit wage costs and thus raise both the mass and the rate of surplus-value?

So far we have not really answered this question. We showed that in the nineteenth century and in the first two decades of the twentieth the ratios moved in correspondence with Marx's assumptions. But that did not supply an answer to our question, nor did it demonstrate the validity of the law.

2. THE KEY TO AN ANSWER

What we did, at various points of our analysis, was to imply that while *a priori* we cannot assert the validity of the assumption of a constant rate of surplus-value in the face of a rising o.c.c., we can argue that the tendency of a rising o.c.c. to produce a *rising* rate of surplus-value, and hence a constant or rising rate of profit, is defeated by counter-tendencies stemming from the same process of capital accumulation which produces the rising o.c.c.

The key to the solution of our problem, therefore, would seem to lie in the interactions of the antagonistic forces which govern the creation and realization of surplus-value. On the one side we have the drive through a rising organic composition of capital to maximize the creation of surplus-value. On the other, is the compelling necessity to overcome the narrow conditions of realization of surplus-value which are the result of the conditions of its creation.

In brief:

An increase in o.c.c. increases the productivity of labour. That is its purpose. It increases also output potentials and, most important from the point of view of capitalist profit, the potentials for creating surplus-value. But potentiality and actual emergence are not the same things. The immediate effect of an increase in the o.c.c. is not only that it increases the productivity of labour and total output potentials. It tends also to reduce employment or at least prevent it from rising in proportion to the rise in accumulation. It, therefore, tends to maintain or increase the size of the industrial reserve army (the amount of unemployment) or to slow its rate of decrease.[1] Thus a rising o.c.c. tends to dampen the growth of consumer market potentials relative to the growth of output potentials.

Our use of the word 'potentials' in these connections is deliberate. The thought is that even though the total current output of industry finds a market, a divergence between the rates of growth of production and consumption potentials tends to develop in

[1] This follows the 'law of population peculiar to the capitalist mode of production'. *Capital*, Vol. I, pp. 692–3.

accordance with capitalist production relations. Sooner or later the conflict of these potentials finds expression in an intensification of the difficulties of surplus-value realization in the market-place. In the pre-monopoly period the characteristic reaction to these realization difficulties was price-cutting. In the period of monopoly capital, the characteristic reaction is price-maintenance and increased selling costs. Both lead to a falling rate of profit. In the pre-monopoly period price-cutting prevented the rise of the rate of surplus-value, of the ratio $\frac{s}{v}$, which a rising o.c.c. tended to produce. In the monopoly period the ratio $\frac{s-u}{v}$ is the quantum which reflects the efforts to overcome realization difficulties.

Viewing the same problem from a different angle, we may say that, in the pre-monopoly period the organic composition of capital $\frac{c}{v}$ had to be increased as a pre-condition to raising the rate of surplus-value $\frac{s}{v}$, while the requirements for the realization of the surplus-value prevented the realized rate from increasing to the same degree as the rate of increase in the organic composition of capital. For if both the $\frac{c}{v}$ and $\frac{s}{v}$ ratios tended to increase in the same degree (so that $\frac{s}{c}$, the rate of profit, remained constant), it would necessitate that the stock of invested capital grow in compound interest fashion. But such a rapid pattern of growth of capital accumulation (for example, doubling every fifteen years if the annual rate is 5 per cent) is inconceivable in the face of a consumer potential whose growth is sharply depressed by this very same process of capital accumulation. In other words, a sharply disproportionate development of capital and consumption potentials negates the requirements for the realization of surplus-value. Conversely, the realization of surplus-value requires such a balance between capital investment and consumption as can be achieved only if $\frac{s}{v}$ grows

less rapidly than $\frac{c}{v}$, and the rate of profit falls. This contradiction between capital accumulation and consumption is concealed in periods when the labour force is rising rapidly, but is exposed most fully when the labour force is no longer increasing or is increasing but slowly.

In the monopoly period, instrumentation, automation, scientific management and other capital-saving forces combine to advance the creation of surplus-value with relatively little increase in the organic composition of capital. And this period is characterized by an enormous increase in unproductive expenditures. In part, we have argued, this rise of unproductive expenditures was due to the substitution of selling expense and advertising costs for price cutting as an aid to the realization of surplus-value. But a rising $\frac{u}{v}$ ratio is also a substitute for the failure of $\frac{c}{v}$ to rise during that period. The surplus-value which during the pre-monopoly period was realized by increasing the organic composition of capital now has no place to go – except into unproductive expenditures. And, as we shall see in the next chapter, the dampening of the rate of growth of the labour force, which is also characteristic of the monopoly period, has reduced still a third important outlet for surplus-value realization – that provided by investment in capital plant and equipment absorbed in the employment of additions to the labour force.

Thus in the monopoly period the conditions which block the realization of surplus-value combine to drive surplus-value increasingly into channels of unproductive expenditures.

3. ILLUSTRATION FROM THE BUSINESS CYCLE

We may trace the dynamics of the law of the falling rate of profit through the course of a business cycle, bearing in mind the fact that other forces which operate in conjunction with it at times amplify and at times muffle its effects. We assume for this purpose that the organic composition of capital rises throughout the recovery period of the business cycle.

We begin from the conditions of a depression, when unemployment is most widespread. Wage rates then are low. Consumers' stocks of durable and semi-durable goods have been used up or have deteriorated. The people have need for new clothing, new housing, new furniture and new furnishings. At the same time a portion of the productive equipment has become obsolescent. The stocks of work materials as well as of finished goods have been depleted. The values of the capital stock have been written down to a lower level. The unemployed workers require new productive equipment, new clothes, more food, if they are to be put to work again. The stage is set for a resumption of production, for an upward turn of the cycle.

At first, the absorption of the unemployed raises consumer income and permits of a parallel advance of production and consumption, without an impairment of the rate of profit, even though the o.c.c. is rising. Indeed, the rate of profit may even be advancing with the early advance of the o.c.c. But as the reserve army begins to be exhausted, as production approaches the peak of productive capacity, these things begin to happen:

(1) With the absorption of the industrial reserve army, the new employment rate tends to level off.

(2) At the same time wage rates tend to rise and press against profit margins.

(3) Capital investment then tends to shift from a predominantly extensive form (from building new plants and new equipment to employ new workers) to a predominantly intensive form (to improving plant and equipment to increase the productivity of old workers). The organic composition of the capitals begins to rise sharply and the recreation of the reserve army begins through the technological displacement of parts of the labour force.

(4) In the face of threatening unemployment, the employed workers tend to conserve their earnings, thereby offsetting the favourable effects of the increased wage rates on consumer demand.

In the absence of new additions to the labour force, the production of both producers' goods and consumers' goods reaches its limits of profitable disposal. At the time when production and

consumption are at their highest, there are no longer any increases in the labour force to serve as an outlet for *further* increases in the output of food, clothing and shelter, as well as for production equipment. Business has reached a peak. It has become stabilized. A new turning point is at hand.[1]

The fact is that the mere failure on the part of consumer demand to continue to increase, tends to cause a fall in the demand for production goods beyond replacements and betterments. This is so because the productive capacity already in existence suffices to supply the existing consumer demand. 'Pushing sales' by price cuts or increasing advertising expense to 'overcome sales resistance' only eats into profits. Price cuts and increased sales costs, combined with the concurrently rising tendency of money wages depress the $\frac{s}{v}$ and $\frac{s-u}{v}$ ratios. This, in association with the rising organic composition of capital, produces a decline in the rate of profit.

The rise of the o.c.c. does not, then, directly, mechanically, as it were, produce a decline in the rate of profit. Since it improves the efficiency of labour, it rather tends to offset the depressing effects of the rising wages rates; perhaps, even more than offset them. But since this influence operates in a context of reappearing unemployment, of increasing market difficulties, of declining prices and of rising sales expenses, the net result is a falling rate of profit. The increased surplus-value which the rise of the o.c.c. tends to produce through increased labour productivity cannot for long overcome the adverse effects of these other factors, and so the rising o.c.c. becomes associated with the fall in the rate of profit.

Since the business cycle is a permanent feature of capitalism, the long term tendency of the rate of profit to fall is manifested through a series of sharp cyclical falls. Between the cyclical falls there are cyclical rises. This only means that there are other features of capitalist development which at times inhibit and at

[1] This, of course, does not mean that a business 'peak' and a condition of economic 'stabilization' always require a condition of full employment. The 'equilibrium' which characterizes a crisis in the Marxist sense may, and often does, occur under conditions of less than full employment.

times accentuate the basic long term or secular tendency of the rate of profit to fall.

It should be clear that what we have just described as the dynamics of the law as manifested in the course of a business cycle involves only a partial account of the dynamics of the business cycle itself. This partial account is further circumscribed by the fact that it illustrates largely conditions which operate in a pre-monopoly stage of capitalism. The account would need to be substantially modified if we were to deal with the dynamics of the cycle in the monopoly stage of capitalism. For instance, in the monopoly stage of capitalism, an increase in the o.c.c. at the very end of the boom need not necessarily be a feature of its cycle-dynamics. Productive capacity, productivity and s' may be increased through the various rationalization processes described earlier. On the other hand, a sharp rise of unproductive expenditures and an increase in spurious forms of capital accumulation would play a dominating role. We may include as spurious forms of capital accumulation such 'investments' as consumer financing, government debt and the inflation of stock market values. These provide u type expenditures directly, such as expenditures of government, or indirectly in that they act to relieve the pressure for further u type expenditures. This latter is the case with debt-financed consumer expenditures and luxury expenditures of stock market profits.

CHAPTER 9

The Increasing Severity of the Cyclical Crisis

A. THEORY AND FACT

1. MARX'S DICTUM

In our introductory chapter, above, we raised the point that a long-run falling tendency of the rate of profit is dialectically interrelated with the tendency of an increase in the severity of the cyclical crisis. And this increasing severity of crisis, we there said, would be in conformity with established Marxist doctrine. In the *Communist Manifesto* (p. 15), Marx wrote that capitalism gets over its periodic crises 'by paving the way for more extensive and more destructive crises, and by diminishing the means whereby crises are prevented'.

What we wish now to establish is whether this Marxist dictum is true. Can it be demonstrated empirically and theoretically? An overall impression one gets from observing the long series of business cycles since America entered upon its period of industrialization following the Civil War, seems to support Marx's thesis. See, for example, the chart on pages 116–117.[1]

But capitalist economists have persistently denied the existence of such a tendency. In the early 1920's the Swedish Professor Gustav Cassel wrote: 'The old proposition that crises will become ever more devastating, is, at all events, already very obsolete. The facts lead to the conclusion of a weakening in the most advanced and economically best schooled countries.'[2] The late Professor Wesley C. Mitchell, the dean of business-cycle economists in

[1] This is a segment of the chart originally constructed by the late Dr. Leonard P. Ayres for the Cleveland Trust Co. *Business Bulletin* as revised in 1954. The full chart portrays the American Business Cycle since 1790. Reproduced here with the permission of the Bank.

[2] In his *Theory of Social Economy*, Vol. II, p. 476.

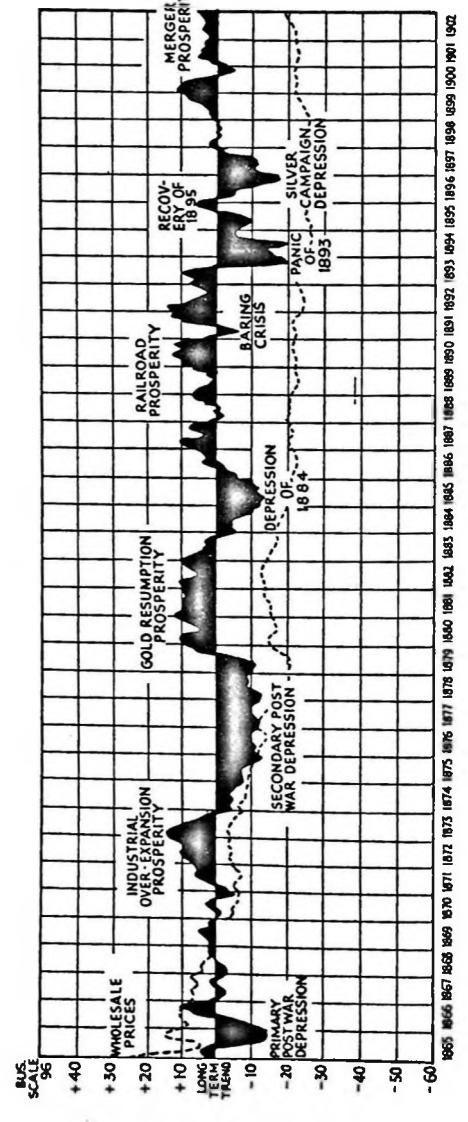
America, held to a similar view. Both in his earlier works and in his last full study he argued against Marx's theory of the increasing severity of crises.[1] What are the facts?

2. THE STATISTICAL EVIDENCE

In measuring the severity of economic crises in Marx's sense the concept must be extended to what is nowadays treated as the business cycle – to the wave-like movement of business in capitalist countries from peak-to-trough-to-peak. For purpose of analysis the business cycle is generally broken down into four phases: the boom; a recession from the boom into a depression; the depression; the recovery from the depression to the next boom. Each of these phases has varied in length and in intensity, and the cycles as a whole have varied in length and intensity. Thus, for the period 1865–1940 which our chart covers, and which is our concern for the moment, cycles appear to have differed from two to eleven years in length and from mere ripples to veritable cataclysms in intensity.

But as in the case of so many other of Marx's doctrines little work has been done to validate or refute this theory empirically. A study by Professor A. Ross Eckler in 1933 led him to conclude that over the period 1873–1932 no substantial change had occurred in the amplitudes of the business cycle. But his method of measurement is so questionable that his result can at best be termed inconclusive. He measured the relative severity of depressions by the percentage decline in business activity which takes place between the trough of each cycle and the corresponding preceding peak. This method of measuring the relative severity of depressions is defective, for two reasons. It leaves out of account the comparative lengths or duration of the depressions. And instead of

[1] Wesley C. Mitchell: *Business Cycles: The Problem and Its Setting*, pp. 8–9; 42–4; 232; 255; and Arthur F. Burns and Wesley C. Mitchell: *Measuring Business Cycles*, pp. 382–3 and Chapter 10 following. The book reviewers thought they gave this book the best possible send-off by featuring it as providing a new proof that Marx was wrong on this point. See, for example, the review in *The New York Times*, August 26, 1946, p. 29, col. 2. In the *New Republic* (October 14, 1946), George Soule headed his review of this book with the caption, 'Marx was Wrong on Depression'.


BUS. SCALE
96
+40
+30
+20
+10
LONG TERM TREND
-10
-20
-30
-40
-50
-60
WHOLESALE PRICES
PRIMARY POST WAR DEPRESSION
INDUSTRIAL OVER-EXPANSION PROSPERITY
SECONDARY POST WAR DEPRESSION
GOLD RESUMPTION PROSPERITY
DEPRESSION OF 1884
RAILROAD PROSPERITY
BARING CRISIS
PANIC OF 1893
RECOV-ERY OF 1895
SILVER CAMPAIGN
DEPRESSION
MERGER PROSPERITY
1865 1866 1867 1868 1869 1870 1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900 1901 1902

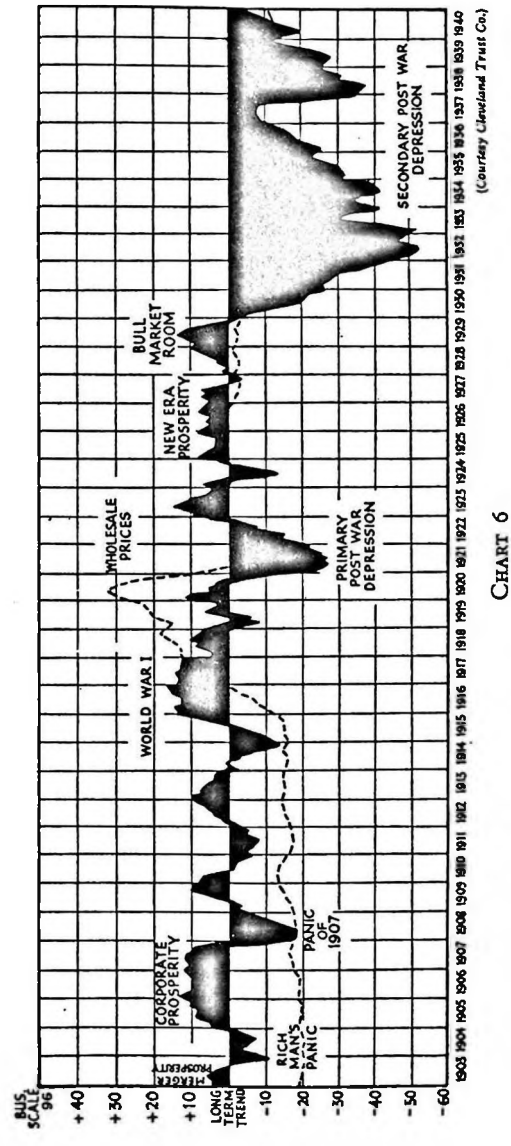

BUS. SCALE 96
+40
+30
+20
+10
LONG TERM TREND
-10
-20
-30
-40
-50
-60
1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940
HEATED PROSPERITY
CORPORATE PROSPERITY
RICH MAN'S PANIC
PANIC OF 1907
WORLD WAR I
WHOLESALE PRICES
PRIMARY POST WAR DEPRESSION
NEW ERA PROSPERITY
BULL MARKET ROOM
SECONDARY POST WAR DEPRESSION
(Courtesy Cleveland Trust Co.)

CHART 6

measuring the decline in terms of a fall of production or of general business activity from a 'normal' base line, it measures it in terms of a percentage drop from a peak. Thus, it does not permit a measure of the combined effect of duration and intensity, and it fails precisely to measure the sharpening of crises if both the peaks *and* the troughs tended to fall.

Nevertheless, even by his reckoning the depressions of 1914, 1921 and 1932 displayed a deepening tendency. But Professor Eckler felt that this number of cases was too small 'to warrant any inference as to change in the nature of the cycle' and that 'taking into account the distribution of the major *and minor* movements for the sixty years, it seems unwarranted to conclude that the amplitude of the business cycle has been substantially modified'.[1] (Italics supplied.)

A more recent article on this question, based on the absolute data rather than on the percentage fall between peaks and troughs, and including both duration and amplitude as measures of severity, reached the conclusion that 'the most that can be said is that we have strong evidence to the effect that the most severe depression of the twentieth century (thus far) was worse than one of the most severe depressions during the nineteenth century'.[2]

But here we have a comparison between two terminal cases only, so that no *trend* can be established, although one is indicated.

Most frustrating in this respect is Burns' and Mitchell's *Measuring Business Cycles* (cited in n. 1, p. 115). This is the most comprehensive work on the swings of the business cycle done to date. Yet one seeks in vain there for a definitive answer to our question, has there been a tendency for the cyclical crisis to increase in severity? To be sure, as we will see in a moment, the methods of *measuring* the cycles and amplitudes used by these authors are not such as might clearly reveal any long-run shifts in cycle patterns. And to be sure, evidence from other sources repeatedly appear in their book to lead one to believe that such long-term shifts have,

[1] 'Measurements of Severity of Depressions, 1873–1932', *Review of Economics and Statistics*, May 15, 1933, pp. 75–81.

[2] Ira O. Scott, Jr.: 'A Comparison of Production During the Depressions of 1873 and 1929', *American Economic Review*, September 1952, pp. 569–76. The quotation is from the last page.

indeed, occurred. Furthermore, some of the authors' own computations seem to lead to the same conclusion. Yet, they repeatedly assert their conviction that such is not the case.

Burns and Mitchell mark off their cycles as the swings of business between certain reference dates, 'showing the months and years when business cycles reached troughs and peaks' (p. 24).[1] The average of the monthly values of each cycle is called the base of that cycle and the individual, seasonally adjusted monthly values, computed as percentages of this base, are called cycle relatives. The difference between the cycle relative at the peak and that of the initial trough measures the *rise amplitude* of the cycle. The difference between the cycle relative at the peak and that at the terminal trough measures the *fall amplitude* of the cycle. The sum of the rise and fall amplitudes of the cycle together is used as the measure of the total amplitude of the cycle. To eliminate the effect of the *length* of the cycle these amplitudes are reduced, respectively, by division into the number of months on the rise, on the decline and the two together (pp. 24–8; 131).

Working on this basis with two production time series and five series of financial data the authors arrived (p. 390) at the 'dominating impression . . . that the duration and amplitudes of successive cycles have varied in a highly irregular fashion, and that substantial secular changes have not taken place'. The same general conclusion is repeated again and again throughout the book (e.g. pp. 392–3; 398; 402).

Yet elsewhere (pp. 464) they felt that

> From the tests in this chapter we cannot draw any far-reaching conclusions. In the first place, we have analyzed only a small sample of time series and tested only a few hypotheses. In the second place, our technical methods are rough. . . . In view of these limitations we are in no position to say whether business cycles have or have not varied cyclically.

A direct examination of some of the computations in this book, however, would seem to justify another conclusion, namely, that

[1] Unless otherwise indicated, page references shown between parentheses in this section are to their *Measuring Business Cycles*.

cycle-amplitude changes did take place over the years studied. On page 403, Table 156, last column we find, for instance, that for the major cycles of three prominent *production* indexes the average amplitudes of contraction tended to increase over the fifty years 1882–1933 while the average amplitude of expansion tended to decrease. Ranked in order of magnitude,[1] these were as follows:

Reference Expansion	Rank of Average Ranks	Reference Contraction	Rank of Average Ranks
1879–82	12	1882–85	11
1891–93	3	1893–94	13
1904–07	7·5	1907–08	12
1919–20	6	1920–21	14
1927–29	4	1929–33	15

Again, when the average duration and amplitude of the authors' own seven series are measured for the cycles before 1914 and for the cycles after 1914 (p. 407) we find that for five of the series the 'per month' *amplitude* was higher after 1914 than before, conspicuously so in the case of the two production indexes, and the average *duration* in months of *contraction* was higher in three cases, lower in three and no change in one. We find similar tendencies shown elsewhere throughout the book, e.g., on pages 459, 461 and 463, and notably for the production series.

In Mitchell's work *What Happens During the Business Cycle: A Progress Report* (published posthumously, A. F. Burns, Editor),[2] we find further corroborative evidence of the increasing amplitudes of the business cycle. We read there (pp. 102–3): 'All in all, the amplitudes of the five reference cycles in 1919–38 and of the four in 1921–38, seem to exceed those of earlier cycles covered by our data.'

It is our view that the test of the increasing severity of crises cannot be confined to the long-term cyclical behaviour of a small sample, consisting chiefly of financial time-series, as is the case

[1] 'The mildest contraction or expansion is assigned a rank of 1, the next a rank of 2, and so on.'

[2] The National Bureau of Economic Research, Studies in Business Cycles. Publication No. 5.

with Burns's and Mitchell's work, nor can it be based on the percentage drops between peaks and troughs, as was the case with Professor Eckler.

The test required for measuring changes in the severity of crises must, in the first place, be that of the behaviour in this respect of the cycles of production as a whole or of a major segment thereof.

In the second place, that test requires a base which goes beyond the data of each individual business cycle treated in isolation from all others. What is required is a base line which encompasses at least two successive cycles if we wish to discern any secular changes between them. In the Burns and Mitchell procedure the individual cycle-average which is used as the base line is an ever-shifting one. It is always being shifted to the mid-point between the peak and trough of each separate cycle. This makes inter-cycle comparison of depression depths and of cycle peaks impossible.

An alternative treatment would be to compute a base, or 'normal' line from data covering all the cycles under observation. But such procedure would involve the inclusion of cycles of heterogeneous historical periods and so, perhaps, obliterate their distinctive characteristics. Such global extreme is obviously as unacceptable for our purpose as is the Burns-Mitchell isolationist extreme.

The most logical procedure, therefore, would seem to be to compute a separate base line for each distinctive historical period to serve as the common reference line for all the cycles of that period. As far as we have been able to discover, the hundred per cent 'long-term trend' line of the Ayres Chart comes closest to meeting this criterion. Accordingly, in what follows, we use this chart and its supporting data for the computation of four related measures of the comparative severity of depressions in the years 1865–1940, the period of our immediate concern, and we confine these measures to its 'major' depressions, as presently defined. The four measures are: (1) the depth of 'trough'; (2) the average depth of the depression; (3) the duration of the depression in months; and (4) a 'composite' index.

For purposes of these measures we assume that whenever the index of business activity on the Ayres Chart falls 10 per cent or more below its 'normal' or base line and for a consecutive period

of 12 months averages at least 10 per cent below that line, we are witnessing a *major* depression. The conditions of the definition are that the depression, (*a*) must cover a period of at least 12 months; (*b*) its terminal points must be at least 10 per cent below the base line; and (*c*) any 12-month continuous segment of it must average at least 10 per cent below that line.

By the depth of trough of a major depression we mean the average decline of its 12 months of *greatest* depth. By the *average depth* of such a depression we mean the average of all the percentage declines between the terminal points. By the *duration* of the depression we mean, of course, the total number of minus months between the terminal points. The 'composite' index is the duration of the depression multiplied by the average depth.

Here are the findings:

Relative Severity of Major Depressions. United States, 1865–1940

Period Covered (1)	No. of Months Involved (2)	Year of Maximum Depth (3)	Trough: Greatest Average Per cent Depth (4)	Average Per cent Decline (Average Depth) (5)	Composite Index: (Duration × Average Per cent Decline)(6)
9/1875– 4/1878	32	1877	10·8	10·8	347
10/1884–10/1885	13	1885	11·3	11·3	146
8/1893– 7/1894	12	1894	16·6	16·6	199
8/1896– 7/1897	12	1896	12·6	12·6	151
11/1920– 5/1922	19	1921	23·9	20·4	387
6/1930–11/1936	77	1932	49·5	32·6	2512
9/1937– 8/1940	36	1938	33·6	23·3	838

For the most comprehensive index of non-financial business activity in the United States all four measures computed by us indicate an increasing severity of business depressions over the years 1865–1940. This becomes especially clear when we compare the major depressions of before World War I with those after that war. By all the four measures, all three post World War I major depressions were more severe than any of the four major depressions which occurred before that war.

For the two measures of depth (columns 4 and 5) the trend of

increasing severity is almost continuous. The two deviations from this trend, the one for 1896 and the one for 1938, are more apparent than real. The depressions of those years are essentially continuations of the depressions preceding them. There was an interruption of but four 'plus' months between the depression of 1893–4 and that of 1896–7.[1] The depression of 1937–40 was clearly of the same causal origins as that of 1930–6, and if it had not been for the outbreak of World War II in Europe, who knows how much deeper and how longer this last depression would have gone? If each of these two pairs of depressions were respectively reckoned together the trend toward the deepening of depressions would become even more obvious. Only the length, and the 'composite' index, of the depression of the 1870's would remain the exception to this general observation.[2]

B. THE EXPLANATIONS

Now, if what we just saw is a true portrayal of the historical development of the severity of the cyclical crisis, then an explanation of this trend is in order. And this explanation, as we have suggested, will be found to be linked up with the conditions which produce the long-term tendency of the rate of profit to fall.

From among those we cite three as bearing on our problem, especially as applying to the years after World War I. These are:

[1] Of the other intervening months, eighteen were minuses, but of less than ten per cent depth and two were of zero change from the long-term trend.

[2] A similar deepening trend of depressions is displayed in a study of the long-term trends of industrial production in the United States, 1860–1954, published by the American Institute of Economic Research at Great Barrington, Massachusetts, in its *Technical Bulletin*, dated March 22, 1954 (Reprinted February 1955). The annual indexes (1935–9 = 100) of the percentages of the Institute's 'Estimates of the Long-Term Trend' for the years which we have designated as the centres of major depressions are as follows:

1877	87
1885	92
1894	86
1896	85
1921	80
1932	56 (average 1930–6 = 70)
1938	69

(1) the changed character of the effective demand; (2) the restrictive growth of the labour force, and (3) the increasing cost of surplus-value realization, including, since the New Deal, the rising cost of government.

(The period of World War II to date presents certain new developments in this respect, and these are treated separately a few pages below.)

1. THE EFFECTIVE DEMAND

The realization of surplus-value, we remember, is a two-fold process. First is its conversion into money-capital through sale of the output. Unless the surplus-value is realized in the market, we have argued, its creation at the factory is an incomplete, a truncated act.

The second part of the process of surplus-value realization is the conversion of the money-capital which capitalists choose not to use for their personal consumption into productive capital – into c and v. This is the role of the effective demand which Marx so vigorously advanced in his criticism of Say's Law of Markets and which Keynes popularized three generations later in his thesis that potential savings must equal potential investment if the economy is to operate evenly at full employment. What capitalists intend to save from their profits they must as a class contrive to invest, if the economy is to continue to prosper. Savings not invested, as Keynes has argued, disappear from the production-income stream, and the investment-employment equilibrium asserts itself at progressively lower levels of production and employment.[1]

a. The Stabilized o.c.c.

We know that with the new technology, as it manifested itself under monopoly conditions of the interwar period, the conversion of surplus-value into productive capital became a diminishing possibility. Less, relatively, of surplus-value was required for investment than before that period to produce an equivalent amount of output. Less was required for building up the o.c.c. as an outlet for investment: *a lesser rate of increase in dollar value of*

[1] Keynes treats of the equality of savings and investment in his *General Theory*, pp. 61–5 and 74–85.

plant and equipment was required to improve the productive efficiency of the existing labour force.

At the same time, the new technology accelerated the creation of surplus-value.

We know, for a fact, that manufacturing, the major outlet for capital investment in an advanced capitalism, accounted for none of the expansion in employment which took place in America between 1920 and 1929, in the period of the installation of the new technology. The major increases in income, we are told, were in finance and in the service industries; the major increases in employment were in the service industries and in trade – in the unproductive occupations which feed on the surplus-value produced elsewhere. Total investment, in constant dollars, in plant and equipment by the manufacturing industries had passed its peak in 1920. For the American economy as a whole, the rate of capital formation began to slacken 'noticeably' already before World War I.[1]

What we have here is a statement in other words of what we already know from our own findings, namely, that after about World War I the ratio of the value of the constant capital to the variable, $\frac{c}{v}$, ceased to rise in the manufacturing industries in conformity with its earlier trends. We find similar corroboration of our findings from a still later study of the National Bureau of Economic Research where it is shown that the *ratio of capital to output* of American manufacturing industries experienced the same type of change of trend at about the same time as the o.c.c.[2] The lessened rate of rise of the o.c.c., discerned already at the turn of the century, and its essential stabilization after World War I, tended to contract this outlet for investment.

But this contracting tendency of investment holds true for the

[1] R. A. Gordon: *Conference on Business Cycles*, 1951, pp. 182–5 and p. 186. Professor Gordon drew these conclusions mainly from the statistical findings of the National Bureau of Economic Research and from Lowell J. Chawner: 'Capital Expenditures for Manufacturing Plant and Equipment – 1915–1940', *S.C.B.*, March 1941, p. 11.

[2] Daniel Craemer: *Capital and Output Trends in Manufacturing Industries, 1880–1948*. Occasional Paper 41.

economy as a whole as well as for the manufacturing industries. The five-year overlap decennial averages of net capital formation in the United States as *percentages of the national income* began to decline as far back as the turn of the century. They rose continuously from the decade 1869–78 until the decade 1889–98, and declined as continuously thereafter, culminating in near extinguishment in the years of the Great Depression. The statistics, in constant prices, as computed by Professor Simon S. Kuznets, are as follows:[1]

Decade	Per cent Capital Formation	Decade	Per cent Capital Formation
1869–1878	13·7	1894–1903	14·8
1874–1883	14·4	1899–1908	13·6
1879–1888	14·6	1904–1913	13·1
1884–1893	16·1	1909–1918	13·0
1889–1898	16·2	1914–1923	11·4
		1919–1928	10·2
		1924–1933	6·0
		1929–1938	1·4

Note that we do not on this account arrive at a theory of secular stagnation in the manner of certain leading capitalist economists, notably, certain Keynesians. One cannot talk of 'secular stagnation' because the rate of investment in terms of money-value has declined when this relatively lesser investment creates the much larger productive capacity and produces greater amounts of surplus-value. If there is a crisis in capitalism, it is not because the system has become 'stagnant', but because it has become too productive for its own continuing good health. Or, as Professor Schumpeter once had it, 'capitalism is being killed by its achievements'.[2] Capitalism is in crises, it would seem, because it produces too much surplus-value for its ultimate realization in the progressive accumulation of productive capital. And this is entirely different from stagnation, and raises entirely different

[1] N.B.E.R. *National Income – A Summary of Findings*, New York, 1946, p. 53.
[2] In the Preface of his *Capitalism, Socialism and Democracy*.

questions. Some of these we discussed in the preceding chapter. Of others we treat in the next, the final chapter of this book.

2. THE DIMINISHED RATE OF GROWTH OF THE LABOUR FORCE

At the same time that the new technology tended to minimize the rate of capital formation (in terms of value) required to employ the existing labour force, a slowing down of the rate of growth of the labour force was setting limits to the production of new capital equipment designed to employ new workers.

As the figures below show, the rate of growth of the American labour force declined noticeably already in the last decade of the nineteenth century. A decline of over 1½ million in immigration that decade, compared with the preceding decade, probably aggravated a developing declining tendency of the rate of growth of the native stock. In the next decade the arrival of 8½ million immigrants slightly more than offset this declining tendency. But then came the war in 1914 and put a stop to any further mass immigration, and the annual rate of growth of the labour force beginning with that decade fell to less than half of what it had been 30–40 years earlier. The annual per cent increase of the American labour force in the period 1869–1939 has been, by decade, as follows:[1]

January, January	Annual Rate of Growth
1869–1879	3·0
1879–1889	3·0
1889–1899	2·2
1899–1909	2·5
1909–1919	1·3
1919–1929	1·4
1929–1939	1·2

An expanding, actual or potential, free labour force, we know, was a prime condition of the very rise and development of capitalism. The creation of such a labour force in England, Marx

[1] As computed by J. Steindl: *Maturity and Stagnation in American Capitalism*, p. 160, Table 28, column 5. A new burst of population growth occured after World War II. We comment on this phenomenon a few pages below.

tells us, was accomplished by means of 'primitive accumulation' whereby, beginning in the later decades of the thirteenth century, feudal labour and independent farmers and artisans were pried loose from their land and bench and compelled to sell their labour-power as wage-labourers.[1]

A pool of employable labour is equally a prerequisite for a recovery from a cyclical depression. The maturation of the conditions of a cyclical crisis is intimately associated with the exhaustion of the industrial reserve army – with full employment – and recovery from a cyclical depression is equally intimately associated with the replenishment of the industrial reserve army – with the existence of a large pool of unemployed workers.[2]

So long as the pre-capitalist and the non-capitalist worlds continued to be sources of new labour supplies, they supplied the stimulus to capitalist expansion in the form of rather long cyclical movements and could effect relatively quick recoveries within each cycle. Equipment of new workers and the re-equipment of previously-employed workers furnished expanding outlets for the realization of surplus-value in the form of capital accumulation.

Since about the turn of the present century this has become increasingly less feasible. As the pre-capitalist and the non-capitalist production areas have tended to contract, at first because of the very expansion of the capitalist sphere of production and later because of the conversion of large segments into spheres of socialist production, the *world* supply of non-capitalist labour available for continued capitalist exploitation has sharply diminished.

This condition for the increasing severity of crises was aggravated in America following World War I by the limitations imposed, for political reasons, on the recruitment of labour from abroad.[3] The immigration acts of the early 1920's shut off the most

[1] Marx tells that story in all its gruesomeness in *Capital*, Vol. I, pp. 784–821.

[2] Marx treats of the industrial reserve army and of its relation to the cyclical crisis in *Capital*, Vol. I, pp. 671–711 (Chapter XXV) and *Capital*, Vol. III, pp. 294–305 (section iii: 'Surplus of Capital and Surplus of Population').

[3] See, for example, the present writer's article 'Statistics and the Race Hypothesis', in the *Journal of Social Forces*, June 1926, pointing out this fact at the time of the enactment of this legislation.

fruitful source of labour-power which for a century past had been repeatedly used to refill the American industrial reserve army. The migration of Negroes from the South to the industrial North served to mitigate this loss somewhat. So also the migration from the farms to the cities. So also the increased employment of women in industry. But, on balance, these replenishments have been insufficient to absorb the vastly more rapid long-run growth of the mass of surplus-value seeking profitable investment outlets.[1]

3. INCREASING RATIO OF UNPRODUCTIVE EXPENDITURES

What so far has prevented this excess mass of surplus-value from becoming a source for a chronic depression, has been its growing absorption in unproductive expenditures. Increasingly, since the early 1920's, *u* has tended to replace *c*. At first, we find large portions of this excess surplus-value going to pay for the services of unproductive personnel employed in the promotion of disposal of the products of industry. Later large portions find an outlet in financing private consumption, and in the inflation of stock market prices.

Since the days of the Great Depression large and increasing portions have been diverted to the government through individual income and through the corporation income and excess-profits taxes to pay for the expanding functions of the state, including its expanding war functions. Still other portions have found outlets in the increased government debt – in their conversion into government notes and bonds, the proceeds of which are also diverted to unproductive expenditures.[2]

[1] America is not the only country bedevilled by an excess of surplus-value. Most capitalist countries today are. An article in *The New York Times* by its correspondent Michael L. Hoffman, dated Geneva, September 26, 1954, bears the following captions:

Capital Surplus Arising in Europe.

Rich Little Nations Encounter New Problem: Where to Place Big Idle Funds. Interest Rate Declines.

[2] As a per cent of the annual gross national product, government expenditures (Federal, State and local) have been:

1929	1939	1949	1953	1954
8·1	14·6	17·0	23·4	21·4

[over

What we observe is that before 1929 *u* expenditures take the, now classical, form of increased sales, advertising and general administrative expenses in consonance with the growth of size, complexity and monopolization of business enterprise. Associated with this trend, we find a rising trend also of consumer financing. In effect, this also is a means of facilitating and advancing consumption as are these other sales efforts. In appearance financing consumer debt cannot be classified as a *u* expenditure, because it has the form of capital accumulation. By this means surplus-value is realized in the sale of products. But in essence it is only a means of relieving further *u* expenditures of the classic form. It is a substitute for them. By extending credit to consumers, the sellers foreshorten their sales efforts. At the same time consumer financing is a spurious form of capital accumulation, since it is no more than a mortgage on future consumer income.

Another form of relief from *u* expenditures in the 1920's, and closely related to consumer financing in its effects on the economy, were the luxury expenditures made with capital gains from the stock market speculation. Here, too, a spurious form of capital accumulation emerges. Inflationary stock market investment does no more generally than advance prices of existing shares. And since the stock market inflation of the late 1920's was largely bank-financed, the luxury expenditures of stock-market 'profits' had the character of financed consumption.

In the 1930's, at first as a means of mitigating the depression, a wholly new form of diverting surplus-value to financing consumption, that was soon destined to become its principal form, came into being. This was financing consumption by the government. It was by channelling some of the excess surplus-value of the time into consumer markets that the New Deal was able to achieve the level of recovery from the depths of the Depression that it did before war orders took over.[1]

At the peak of war production, in 1943, they amounted to 46 per cent of the G.N.P.

Computed from National Income Number, *S.C.B.*, July 1955, Table 2, p. 8.

[1] Steindl glimpsed this implication when he wrote (*op. cit.* p. 175): 'If the [U.S.] government had not borrowed the greater part of the outside savings in the 1930's, then – as business was not willing to borrow them for the purpose

During the War practically all of the nation's *u* expenditures were, of course, those of the government. But even after the war ended the government had to continue to be a major outlet for *u* type expenditures if the economy was not to recede into a depression. *u* expenditures of the classic types, together with an inflationary stock market and a phenomenal upsurge in consumer financing, contributed the rest of the supports that kept the economy in a viable condition.

We need not here elaborate on the nature of stock market inflation as a spurious form of investment. Also, we have already cited the historic rise of the classic types of *u* expenditures. As regards consumer financing, that made its definitive appearance already in the middle 1920's, chiefly as a means of financing the purchase of the newly developed electrical household equipment and automobiles. The General Motors Corporation then even financed an academic study to prove the soundness of consumer credit.[1]

Unproductive expenditures help maintain production, to the extent that as purchasing power of 'third party' consumers – of advertising men, of government workers, of the military, of the unemployed – they tend to ease the disposal of consumer goods and the realization of surplus-value as money-capital. But in so far as they are derived from the surplus-value elsewhere produced they tend to lower the rate of the net profit. This aspect of the rise of unproductive expenditures tends to deepen and prolong depressions, just as their role in advancing surplus-value realization tends to postpone and mitigate the severity of depression.

The conversion of surplus-value into government loans has a two-fold significance for us. In so far as it supplies the government with means of consumption it has the same effect on the economy as does the extension of any form of private consumer credit—of charge accounts, instalment sales, mortgages. It stimulates current production, only more so, since the amounts involved are generally so much larger, *and* because surplus-value so placed does not

of investment – the system would almost certainly have been driven rapidly into strong decumulation of capital, with increasingly negative profit rates.

[1] E. R. A. Seligman: *The Economics of Installment Selling*.

automatically flow back into the capital market as do repayments on instalments and mortgages. And the effect is the same whether the proceeds are spent for direct or for work relief of the unemployed, as under the New Deal effort to mitigate the ravages of the Great Depression, or for military stockpiles, as in the period of the cold war.[1] In either case it instils an artificial element into the rate of production which on that account must suffer the greater reduction when this special stimulus is removed.

The other aspect of the investment of excess surplus-value in government obligations is that it is a form of surplus-value realization which eventuates neither in the conversion of product into money-capital by way of sale, nor in the conversion of money-capital into a productive asset. It is, therefore, a wholly illusory form of investment. As far as capitalist production goes, it has nothing to show for itself, except pieces of paper decoratively engraved at the Government Printing Office. It produces neither value nor surplus-value, as true investment must. It is, in fact, an escape from real investment. The conversion of the proceeds into war expenditures only concretizes its unproductiveness. War is a *u* expenditure *par excellence*, of purest form.[2] World War II

[1] The first inventory of the 'military wealth' of the United States was announced in October 1955 as amounting to nearly $124,000,000,000. This was exclusive of the $12,500,000,000 invested in atomic energy installations and products. *The New York Times*, October 30, 1955.

It is also exclusive, of course, of the 8 billion 'invested' in 'surplus' farm products held by the Government. In the ten years 1946–55 U.S. expenditures for 'National Security' added up to 309 billion, equal to the entire national income in 1955, the highest in its history to date.

[2] Military expenditures are one way of absorbing capital. Another is export of capital – the emigration of capital in search of a labour supply, in contrast to the importation of labour for the employment of capital at home.

What we see here is that capitalism could grow and thrive, and its recurrent crises could be mitigated quickly only so long as its universe was expanding. The withdrawal of the Russian peoples from this universe as a consequence of the Bolshevik Revolution and the later denial of more than a half billion Chinese people to capitalist exploitation, not only put a halt to the further expansion of this capitalist universe, but actually must cause it to begin to contract. A non-expanding capitalism must mean a contracting capitalism, as accumulation becomes excessive within the limited potentialities of the growth of the domestic exploitable population.

absorbed several hundred billion dollars of previously accumulated and of currently produced surplus-value.

These developments may be reviewed in the context of the maturation of monopoly-capital.

In defence against the long-run tendency of the rate of profit to fall and the sharpening of the cyclical crisis, capitalists organize industrial and banking monopolies whereby they are enabled to control investment, output and prices as a means of safeguarding or increasing existing profit margins, and to advance the technology of production as a means of raising the rate of surplus-value and profit.

In the years following World War I, technological innovation through the instrumentation of the production process led to a decline of investment opportunities. The same means which advanced the production of surplus-value tended to reduce the potentials for its ultimate realization as productive capital. At the same time a declining rate of growth of the labour force tended to reduce these market potentials still further.

All this led to increased competition on the monopoly level and to increased costs of output disposal. Meeting the costs of depressions and wars has necessitated huge increases in government expenditures. All these unproductive expenditures are a charge against the surplus-value produced, reducing its rate of realization and the rate of profit.

The defences which monopoly capital contrived against the long-run falling tendency of the rate of profit, it would seem, contributed further to that tendency, aggravating the conditions of the cyclical crisis and tending to increase its severity.

Then came World War II.

C. EFFECTS OF WORLD WAR II

Like World War I, World War II marked a divide in the trends of American capitalism. This time, however, the departures are more sharply defined and potentially are of much more far-reaching consequences.

I. EXPORT OF CAPITAL

For one, America is now finally and irrevocably committed to a policy of imperialism. So much so has this become a national policy that a President elected by the Republican Party, traditionally the party of high protective tariffs, has been urging the Congress to legislate tariff reductions to permit the two-way international trade which earnings on foreign investments require. In a message to Congress in January (10), 1955 President Eisenhower even urged, as a further inducement, that earnings from overseas investments be taxed at no more than about two-thirds of the rate on incomes from domestic investment.

The initial government outlays for the encouragement of this new foreign economic policy have been prodigious. Large portions of the cost of the 'cold war' may be said to have been directed to this end.

We cannot here pursue the question whether, in the end, the returns on American foreign investments will justify these expenditures to promote them. The areas of imperialist exploitation are today quite limited in extent, compared with what they were before the socialist revolutions in Europe and Asia. Besides, the economically underdeveloped peoples of the world are not now so susceptible to imperialist exploitation as was the case in days of yore.[1] But whatever the cost to the economy as a whole, the

[1] The Pastoral Letter issued by the Bishops of the Protestant Episcopal Church at their convention in Honolulu, September 15, 1955 is pertinent in this regard. Referring to the awakened Asian lands and peoples, that Letter reads (*New York Times*, September 16, 1955):

'In all these lands . . . there is a tidal upheaval of deprived, hungry peoples, struggling for food and nationhood, human status and acceptance, and resentful towards the West and towards the white man in his pride and power. . . . These people are in full revolt against foreign political and economic control, against colonialism and imperialism. . . .'

In the U.N., late in 1955, the United States voted against the clause in a proposed convention on national self-determination which asserted that 'the people may, for their own needs, freely dispose of their national wealth and resources'. United Nations, 3rd Committee (Social, Humanitarian and Cultural) vote, November 29, 1955.

In 1886 Engels wrote: 'America will smash up England's industrial monopoly [in the world] – whatever is left of it – but America cannot herself succeed to that monopoly.' Karl Marx and Friedrich Engels: *Selected Correspondence*, p. 443.

relatively few large corporations that can engage in capital exports must profit by them. Foreign investments fetch 1½ times the rate of profit of the domestic investment after deductions for the corporation income tax. Thus, on the basis of net worth, the returns after taxes on American private investments abroad ran at about 15 per cent in the years 1951–3, compared with a little over 10 per cent for the domestic corporate investment, *with the earnings from abroad included in the domestic totals.*[1] And this, further, when the earning power of these foreign investments had not yet fully materialized.[2]

As we have said in an earlier connection, rates of profit computed on the basis of net worth are not always very revealing of the actual earnings. The rates just given are cited for what they may be worth. What is clear, from the point of view of our thesis, is that both the foreign investments and the cost of these investments are absorbing and, for a time will be absorbing large masses of excess surplus-value, which, if not otherwise absorbed would lessen the effective demand and, so, domestic employment and production.

These foreign investments and the government expenditures related to them have been one of the factors of the boom which has characterized American business in the years following the reconversion from war production.

2. THE INCREASED LABOUR FORCE

Another effect of the last war was to reverse, for the time being at least, the declining tendency of the rate of growth of the American labour force of the preceding several decades. This reversal came about in two ways: (*a*) through recruitment for war production; (*b*) through the geographical relocation of industry.

[1] Computed from reports in the *Survey of Current Business*, October and November 1954, specifically, pp. 5 and 6, respectively.

[2] The reasons for this fact have been listed in the *S.C.B.*, August 1955, pp. 15–16, as follows: (1) a large amount of the investment had not yet reached the full production stage; (2) a considerable amount of earnings has been used for research and development and so was deducted as an operating expense; (3) in some important instances accelerated depreciation allowances conceal actual earnings; (4) local currency depreciation and (5) in a few instances discriminating exchange rates and taxes have cut into earnings.

(*a*) It is a commonplace nowadays to say that the Great Depression of the 1930's did not come to an end in a 'natural' way, but that it was war orders that put an end to it. In 1940, when the Gross National Product had recovered close to its 1929 level, the unemployed still numbered near seven million. Even in 1941, when the G.N.P. averaged 20 per cent above 1929, the unemployed still numbered close to three million.

But in another three years war production not only absorbed all the remaining employable workers, but added six million more to the employed labour force. Besides, more than eleven million men and women of working age were at the same time serving in the armed forces. Thus in the four war years over seventeen million persons were added to the American labour force. This was equal to the increase in the *total population* in the decade 1920–30 and to twice that increase in the decade 1930–40.

These additions to the American labour force came from the unpaid family farm labour, from the retired, from the kitchen and from the schools.

When the war was over, some of the women went back to the kitchen and the older folk went back into retirement; several hundred thousand youths returned to, or for the first time entered, schools and colleges. But for the most part the vastly enlarged war-recruited labour force became available for new civilian employment. So, with the demobilization the civilian labour force was increased by four million between 1945 and 1946, by nearly another three million in 1947, and by 1¼ million in 1948. 'Normally', before the war, annual additions to the labour force ran in the neighbourhood of 600–700 thousand.

The demobilization of the armed forces meant also a spurt in marriages and family formation. The annual increase in the number of new households was raised from the average of scarcely over 500,000 for the decade 1930–40 to over one million in 1947 and to 1½ million in 1948. It was still close to a million in 1953. And although the number of marriages was then beginning to decline towards 'normal', babies were still being born at an unprecedented rate. In both 1953 and 1954 close to 4,000,000 babies were born, records in the population annals of the United States.

A tendency even developed toward raising larger families. Along with home-ownership in suburbia has come a reversal from the small-family norm of the previous generation. To have more children 'than mother had' seems to have become a new form of conspicuous consumption, as Veblen might have put it.

All this stimulated production, to equip the new labour force and to house, clothe and feed the fast expanding population. The very high rates of capital formation and of housing construction in these years may be attributed in large measure to this unusual rate of growth of the labour force and family formation, as the latter was in turn, sustained by the prevailing high degree of employment derived from the high rate of capital formation and housing construction.[1]

(*b*) The other new source of labour supply was developed through the migration of industry into the South and West of the United States. The growing mechanization and chemicalization of agriculture in recent years have released untold thousands of workers of the South and West for factory work. The effect of the war-induced bulge in the American labour force and of the consequent stimulus to the general population growth can at best be short-lived. Once the new equipment to employ the new workers has been built and the new housing to provide for the newly-formed families has been constructed, the economy will go on from there on the basis of the new equilibrium. The new babies born in the immediate postwar years will not join the labour force until some twenty years later. The industrial migration south and west, on the other hand, is opening up frontiers of labour supply capable of continued expansion for some time.

While this source of labour supply also originated in the demand for war production, it has been seriously exploited only since the end of the war. The attached chart, published in the *Survey of Current Business* for November 1954, graphically portrays the geographical impact of this industrial migration in the five years 1949–53. In the two principal segments of the economy, in the manufacturing and the service industries, this migration

[1] The booms in capital construction in years following wars reflect, in large measure, replacement of capital unproductively consumed during the wars.

southward and westward seems even to have taken place at the serious expense of growth in the older areas.

At least three factors have combined to induce this new industrial migration: one political, one economic and one technological.

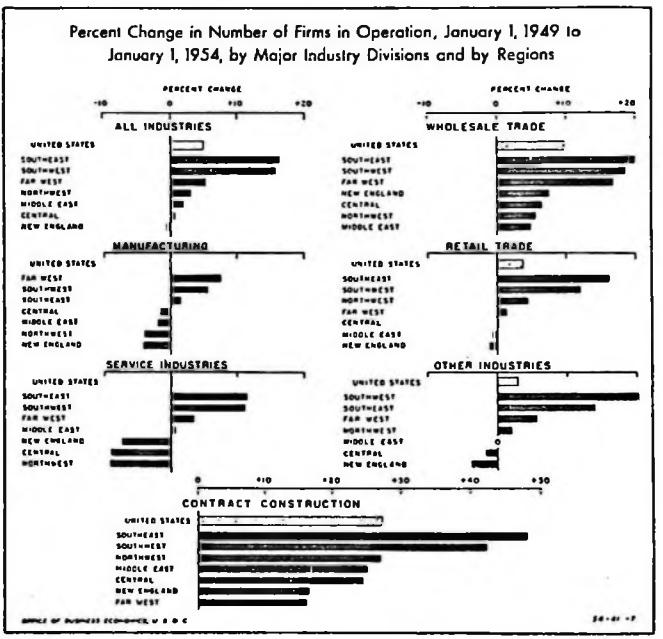


CHART 7

The first is the demand of the military agencies for the dispersal and decentralization of industrial installations to minimize the possible effects of an attack by nuclear weapons. As an inducement the government permits the amortization of some of the investment from current profits in five years. A large portion of the postwar industrial installations consist of stand-by production

units to be activated in the case of war. (The extent and location are, of course, military secrets.)

The economic factor, however, can be characterized much more definitively: wage-labour beyond the new frontier is unorganized, relatively docile and cheap.[1] For the foreseeable future this labour can be exploited in the manner of the immigrants from foreign lands who flocked to these shores in the generations preceding the First World War. The rate of surplus-value can be raised by their employment and so also the rate of profit.

The technological factor lies in the newly developed automation of the production process which makes possible profitable operation in relatively small and scattered production units. Widely separated, moderate-size plants are specialized to produce given sets of standardized parts which are sent for assembly in still other small plants located nearest prospective markets. For example, in 1953–4 the General Motors Corporation invested $1½ billion in plant expansion. In this expansion production installations were set up in twenty-eight different cities, located in eleven different States running from New York to California and from Missouri to North Carolina. In addition, thirty new dealer-training centres were built in twenty different States, running from Florida to California and from Massachusetts to Texas. The production units were for the most part specialized installations.[2]

3. AUTOMATION

Finally, a third important effect of the war has been the acceleration of the development of the new science of electronics and automation. (The proximity fuse and radar were wartime applications of electronics.) Much of the immense capital investment of the post-war years has been for the construction of the equipment of automation and for the plants to house it. And, as we have just

[1] Less than one-third of the production workers outside the South get less than $1·50 an hour; in the South two-thirds of the production workers get less than that amount. The *Monthly Labour Review*, U.S. Department of Labour Current issues.

[2] Listed in an article in *The New York Times* of January 9, 1955.

argued, the current geographical relocation of industry in America is in large part predicated on the use of automation.

Automation may be defined as the use of instruments which by electronic impulses stimulate and activate manufacturing processes so as to make them continuous and automatic. As such, one expert recently explained, 'it embraces the automatic making, inspecting, assembling, testing, and packaging of parts and products in one continuous flow without direct human intervention'.[1] The process may involve the operation of a series of interconnected machines or no more than one self-integrating machine such as the quarter-mile engine-assembly machine installed in the Plymouth division of the Chrysler Corporation in the autumn of 1955.

The novel idea of it all is the automaticity of the sequence of machine operations once the initial impulse is given. So in England, at Wilton on the Tees, two employees operate a plant at night in which a phenol moulding plastic is made for Imperial Chemical Industries, the parent company. 'Their job? – watching gauges', the report reads, and adds: 'One attendant would do. But two are employed just in case one gets sick or is otherwise accidentally incapacitated.'[2]

In America an 'electric brain' now assembles freight cars in a classification yard.[3]

In Oakland, California, a carbon dioxide plant capable of producing 50 to 60 tons of carbon dioxide a day is run by only two attendants.[4]

In a very informative article, 'The Real Revolution', published by T. A. Dickinson in the *Machinists Monthly Journal* for November, 1949, the author writes: 'Where the first [the Industrial Revolution] produced machines which could accomplish the physical labour of men, the second revolution [automation] is producing electronic devices which can "feel" and "think" like men' and so can dispense with so many of them. Thus:

[1] Arthur F. Vinson, Vice-President, General Electric Co., in the New York *World-Telegram & Sun*, January 4, 1955.

[2] *Fortune*, May 1950, p. 85.

[3] Reported by John J. Ryan in *The New York Times*, November 7, 1954.

[4] *New York Times*, September 1955.

(*a*) In a large food-processing plant, thirty women and two men were employed in 1948 for the purpose of 'candling' or grading and packaging eggs.

Now, by an electronic egg-processing method more eggs can be candled and packaged in less space by only two women and one man. The workers merely operate on-off push-buttons. An initial investment of $50,000 has been amortized in less than four months.

(*b*) In an Oregon woodworking plant, where twenty full-time carpenters were required in 1948 to assemble wood pallets, four unskilled labourers are now producing more pallets in only about 20 sq. ft. of floor space by making use of an electronic assembly press. . . .

The manufacturer regained a $30,000 investment in the machine in a little more than four months.

(*c*) In one of the major automotive factories, it was until recently necessary to employ at least one skilled machinist to operate each of the company's boring machines.

Now as many as six machines can be operated by a semi-skilled electrician who manipulates controls at a single master panel.[1]

(*d*) In many oil refineries, where crude petroleum is processed to produce gasoline and related products, dozens of college-trained chemists were once required to make routine analyses. . . .

Today, with the aid of a 'mass spectrometer' a man or woman with little or no knowledge of chemistry can be trained within a day or two to make the same analyses with improved accuracy in about one eighth of the time. . . .

The machine operator in this case merely sets a few dials, throws a few switches, and places a small sample of petroleum

[1] Since this was written these six machines have been superseded by one huge horizontal broach. *Automobile Facts*, for January 1954, tells this story as follows:

'In 1912, it took 162 machines to finish the four flat faces of 108 cylinder heads an hour. By 1946, the same output was being achieved from six machines. Last year [1953] these six machines were out-produced by one huge horizontal broach and from 1912 to 1953, total investment in needed machines dropped from $243,000 to $230,000.'

produce in a specimen chamber on the mass spectrometer. The spectrometer does the analysis automatically.[1]

'A new labour-saving machine', we are informed by *The New York Times* (October 15, 1955), 'will take over much of the work of handling Government checks, with a money saving estimated at $2,250,000 a year.' Some 450 employees will be dispensed with as a result. The machine rental will be about $900,000. It will replace the machines now used at an annual rental of $725,000, besides the 450 employees.

In the chemical industry, we are told (*The New York Times*, October 19, 1955), while output between 1947 and 1955 increased by more than 50 per cent, the number of production workers, because of automation, increased only 1·3 per cent. On the other hand, 'non-production workers – professional, supervisory, clerical and sales personnel' – increased in proportion of the output. As a result, there was one non-production worker to every two production workers in the industry in 1955, as against one to every three production workers in 1947.

A well-advertised electronic computer, it is claimed, can perform certain calculations in less than four minutes which would require 200 clerk-hours if standard desk calculators were used.[2]

Automation, therefore, is one of the most drastic labour-saving devices yet invented by man. But like all labour-saving installations automation is also capital-saving. This explains why in the years of the greatest capital investment in American history – in 1946–53 – the organic composition of capital failed to rise above its wartime lows to its higher prewar levels. Yet, in both these effects automation is only now beginning to be felt. In the initial period of the construction of the instruments of automation and of the plants to house them, employment was high and payrolls were high. So, while c rose v also rose, even if not to the same degree as the c.

But once this initial phase of automation passes over into the

[1] T. A. Dickinson, *op. cit.*, pp. 140-2. In commenting on this section of our discussion Maurice Dobb noted that in the U.S.S.R. a certain large cement factory is operated by only 16 workers.

[2] *Fortune*, November 1953, p. 14.

operating stage on an enlarged scale; when, to borrow a term from the economics profession, the period of 'gestation' of this new technological revolution is completed, the 'push-button' will take over. Less labour will then be employed relative to the value of the installed capital. v will decline relative to c and the organic composition of capital will once more rise, perhaps to its pre-1919 levels. This will be so unless capitalists will be willing to pay the same total wages to the diminishing number of the employed workers or to the same number of workers working only thirty-six or thirty hours a week.

This is the 'forecast' for the immediate future. For the more distant future the trend of the $\frac{c}{v}$ ratios experienced under the impact of instrumentation may once more assert itself.

Instrumentation, it will be recalled, was largely a matter of increasing the productive efficiency of existing, depreciating capital equipment through a series of small investments. These investments were ordinarily not large enough to absorb current depreciation reserves. The net result was a decrease and stabilization of the $\frac{c}{v}$ ratio.

In the case of automation we are dealing with the construction of new plants and equipment typically involving large initial capital outlays. Once, however, automation permeates the major industries and parts and processes become standardized, further advances will once more take the form of low-investment technological improvements. Once more the rise of the $\frac{c}{v}$ ratio will be arrested and the ratio will perhaps decline or become stabilized in the manner of the inter-war period.

Furthermore, the $\frac{c}{v}$ ratio may tend to decline under automation for still another reason:

With the advance of automation a shift must take place in the nature of the labour skills employed in production. Already under the impact of instrumentation the proportion of low-paid, unskilled labour employed in industry had declined relative to that

of the higher-paid skilled and semi-skilled labour.[1] (This was part reason for the rise of v relative to c in the inter-war period and, therefore, for the inertness of the $\frac{c}{v}$ ratio in those years.)

Under automation, many even of the traditional skills will have no place in the production process. Co-ordinating, planning and designing the processes of automation and operating its 'gauges' will call for 'engineers' and technicians of more varied skills than those of the old 'master-mechanic' and for much greater educational and training qualifications than those required for operating a mechanically driven assembly line. Wage and salary rates will, therefore, be upgraded accordingly.

In that case the v of the traditional Marxist formula will undergo a radical change if it is to have any relevance to the traditional $\frac{c}{v}$ and $\frac{s}{v}$ ratios. It will no longer be meaningful to define v as the 'wages of production workers'. If strictly wages are retained to represent v, then both the $\frac{c}{v}$ and the $\frac{s}{v}$ will rise, perhaps, exponentially. A generation from now a student who might wish to test the application of the Marxist formula to the law of the falling tendency of the rate of profit will have to devise a method for 'expanding the v', to include the '*salaries* of production workers', even as we here have attempted to 'expand the c' by adding to it the rapidly increasing u expenditures.

[1] There were 50 unskilled workers (outside of farm labourers and servants) to every 100 skilled and semi-skilled workers in 1920. This ratio declined to 44 by 1930 and 33 by 1940. This despite the fact that the ratio of skilled workers in the total labour force also declined after 1920. Computed from *Historical Statistics*, Series D 84–9, p. 65.

CHAPTER 10

Final Appraisal

A. THE 'SECULAR IMPOVERISHMENT OF THE MASSES'

1. THE QUESTION

At the end of Chapter 2 and the beginning of Chapter 3, we will recall, we raised three questions regarding the validity of Marx's Law of the Falling Tendency of the Rate of Profit. We repeat them here to bring them back into focus. They were:

(*a*) Can we assume that technological progress must always mean a rising organic composition of capital, at least in the long-run, as Marx had asserted?

(*b*) Can we assume a constant rate of surplus-value, for purposes of demonstration of the law, when a rising organic composition of capital, whose sole object is to raise it, is a correlative assumption?

Our discussion up to now has been concerned with these two questions, and our findings were that the first of these assumptions must be greatly modified in view of the qualitative changes which have taken place since Marx's day, both in the production and realization of surplus-value and in the nature of the capitalist business structure. The second assumption we found to be generally valid on both theoretical and historical grounds. This view is reinforced in a further analysis a few pages below.

(*c*) The third question, as we saw Mrs. Joan Robinson put it, was this:

If the rate of surplus-value has remained constant over the years then the benefits of the tremendous advances in the productivity of labour, consequent upon a rising organic composition of capital, must have accrued in large part to the working class. In that case, what becomes of the theory of the progressive impoverishment of the masses generally attributed to Marx? Does it not, in

Mrs. Robinson's words, constitute a 'drastic inconsistency' in Marx's theoretical structure?

A final appraisal of the validity of the law requires that we deal with this question, too.

2. PRELIMINARY ANSWER

As raised by Mrs. Robinson, and as a matter of historical accuracy, this question cannot be addressed to Marx at all, but only to certain of his devotees. For Marx never directly propounded a theory of the secular impoverishment of the masses. It was imputed to him by his political enemies, the German Revisionists. Once proclaimed by them, it was taken up and nurtured by all and sundry Marx-critics. In turn, it was abetted by certain Marx-zealots who played into the hands of his enemies by attempting to prove for him a theory which he himself had never promulgated.

In the orthodox Marxist ideology, the Revisionists argued, the growing impoverishment of the masses forms one of the historical bases of the ultimate rise of the proletariat against their exploiters, of the revolutionary overthrow of capitalism, and of its transformation into socialism. If the theory of the secular impoverishment can be shown not to be true, then the presumed inevitability of the revolutionary solution to capitalist exploitation is precluded, and socialism can be attained by gradual, peaceful, evolutionary processes. Thus, to discredit Marx, by imputing to him this false theory, served them as a means of advancing their own political purposes.

3. MARX'S POSITION

As for Marx, *he never spoke* of the *growing poverty* of the working class, and, as one American Marxist correctly pointed out,[1] 'Marx did not consider the growing poverty of the working class a *necessary* result of the evolution of capitalism.' Marx speaks (*Manifesto*, p. 21) of the pauperization of the working class – of its growing dependence for a livelihood on the will of others, that is, on the will of the capitalists, and he speaks of the growing

[1] Louis B. Boudin: *The Theoretical System of Karl Marx*, p. 220. Boudin's italics.

'misery', 'mental degradation', and 'slavery' of the workers. He speaks of the growing precariousness – of the growing insecurity – of their employment and asserts that 'in proportion as capital accumulates, the *lot* of the labourer, *be his payment high or low* [!] must grow worse'.[1] But nowhere does he speak of the *secular impoverishment* of the workers. He does speak, on the contrary, of the differences in the levels of workers' subsistence as the 'product of historical development' and as dependent 'to a great extent on the degree of civilization of a country'. And, he further asserted: 'In contradiction therefore to the case of other commodities, there enters into the determination of the value of labour-power a historical and moral element.'[2]

An *absolute* increase in real wages is a historical possibility. But Marx warned:

> A rise in the price of labour, as a consequence of the accumulation of capital, only means, in fact, that the length and weight of the golden chain the wage-worker has already forged for himself allow of a relaxation of the tension of it.

The dependence of the workers as 'wage-slaves' on the will of the capitalists for their livelihood, not their poverty, said Marx, constitutes the '*differentia specifica* of capitalistic production'.[3]

Already in 1849 he had written:

> An appreciable rise in wages presupposes a rapid growth of productive capital [which] calls forth just as rapid a growth of wealth, of luxury, of social needs and social pleasures. Therefore, although the pleasures of the labourer have increased, the *social* gratification which they afford has fallen in comparison with the increased pleasures of the capitalist, which are inaccessible to the worker, in comparison with the stage of development of society in general. Our wants and pleasures have their origin in society; we therefore measure them in relation to society. . . . Since they are of a social nature, they are of a *relative* nature.[4]

[1] *Capital*, Vol. I, pp. 708–9. Italics supplied. [2] *Ibid.*, p. 190.
[3] *Ibid.*, pp. 677–8.
[4] *Wage Labour and Capital*, p. 33. First published in 1849 as a series of articles in the *Neue Rheinische Zeitung*. Italics supplied.

Relative decline in the workers' living standards, apparently, yes. Absolute decline, evidently, no, except, it might be added, as may and does occur in a cyclical depression or as a result of war.

4. WHAT THE STATISTICS SHOW

Marx in the above connection went on to explain that in a period of rising prices, *real* wages might decline if the money wages do not rise to offset the rise in prices. We should now add as another factor in the determination of real wages the duration of full-time employment. For no matter if money wages do keep up with prices, the worker's *real earnings* will decline if he receives his higher wages only intermittently or for part time employment. What counts in all this reckoning is not the individual worker's hourly real wage, but the annual per capita real income of the whole working class, employed and unemployed.

Here is a statistical series of workers' per capita real earnings in the period 1890–1946, after allowance was made for both the changing cost of living and the degree of unemployment.

In five-year averages, these are:

Annual Average Per Capita Real Earnings of Non-Farm Employees of the U.S. 1890–1946. (1910–14 = 100)[1]

Years	Money Earnings	Real Earnings
1890–94	$502	$636
1895–99	468	597
1900–04	554	644
1905–09	597	647
1910–14	649	649
1915–19	918	678
1920–24	1,235	682
1925–29	1,384	781
1930–34	950	640
1935–39	1,103	721
1940–44	1,763	1,066
1945–46 (two years)	2,408	1,261

[1] From 'Earnings of Non-Farm Employees in the U.S., 1890–1946', by Stanley Lebergott. *Journal of The American Statistical Association*, March 1948, p. 75.

Clearly, in the half-century 1890–1939 there was not much of an advance in the real earnings of the American wage earner, not more indeed, than about 10 per cent between the first half and the second half of the period. *But neither was there a secular decline*, even when the frequent spells of unemployment are taken into account.[1] A big spurt in real earnings occurred with the onrush of war orders and overtime pay and with the general upgrading of jobs and skills after 1939. But that is another matter. If a modicum of security and advance of the livelihood of the American wage earner can be achieved only at the cost of the insecurity of life itself, then a new facet should be added to Marx's doctrine of the 'servitude' of the wage earner, and the working class informed accordingly.

Now, if the periods of unemployment are disregarded from our computations, and only the cost of living factor is allowed for, the *employed* workers can be shown on the whole to have received rising real wages over most of the hundred years 1820–1919, or at least until the decade 1900–9 when they stabilized on a plateau reached in the preceding decade. That wages did not continue this rise after the turn of the century may be explained, in part at least, by the depressing effects which the large influx of immigrants of the time exerted on the American labour market. More than forty per cent of all the immigrants that came to America in the ninety-five years 1820–1914 came in the 1½ decades ending

[1] If allowance is made for the fact that the series includes salaried workers who have been increasing in number, whose rates of pay have been higher than those of wage workers and who are least likely to be laid off in periods of unemployment, the American worker can be said to have just about held his own in these forty years. The number of 'lower salaried' employees increased from less than 1½ million in 1890 to over 11¼ million in 1950, or close to 9 times, whereas the number of industrial wage earners increased from 10¼ million to 24¾ million, or less than 2½ times in the same period. It is a matter of interest to our central thesis that the number of industrial wage earners as a percentage of the total of all non-agricultural employees decreased from 57 in 1920 to 48 in 1950, despite the extraordinary increase in the labour force in the decade 1940–50.

See Tillman M. Sogge, 'Industrial Classes in the United States, 1870 to 1950', *Journal of The American Statistical Association*, June 1954, pp. 251–3. Also our remarks on the recent experience in the chemical industry in this regard a few pages back.

with the outbreak of the First World War in 1914. That war put a stop to all immigration, but at the same time stimulated a rapid price inflation which checked any possibilities of a rise of real wages for that portion of the period covered.

The figures, in ten-year averages as indexes (1913 = 100), are as follows:[1]

Decade	Index
1820–29	46
1830–39	48
1840–49	56
1850–59	52
1860–69	53
1870–79	77
1880–89	85
1890–99	103
1900–09	103
1910–19	102

It is sufficient to destroy the charge of a 'drastic inconsistency' in Marx if the 'active labour army' is permitted to enjoy a rising real wage. A rising real wage of the *employed* workers is in no way inconsistent with a tendency toward increasing unemployment and the increasing 'misery' of the wage-workers as a class. It is, therefore, not inconsistent with the general law of capitalist accumulation.

What the Revisionists and, with them, Mrs. Robinson did was to equate Marx's theory of the increasing misery of the working class as a whole with an assumed theory of declining real wages of employed workers. They ignored the unemployed, what Marx called the 'lazarus-layers of the working class' – the industrial reserve army – and the dependence and insecurity of all wage-workers which must become ever more sinister and insidious with the increasing severity of crises and the deepening and lengthening of depressions, and with the increasing dependence of capitalism

[1] From Alvin H. Hansen, 'Factors Affecting the Trend of Real Wages', *American Economic Review*, March 1925, p. 33.

on war expenditures for its viability. At the same time they ignored, also, what Marx termed the 'historical and moral' elements which enter into the determination of wage levels of the employed workers. Only by ignoring Marx are they able to argue for a 'drastic inconsistency' in Marx.

Here another question comes up for an answer: how to account for the indubitable rise of the standard of living of the masses as a whole in recent decades? The 50 million motor-cars cluttering the American highways are not all driven by capitalists. And the American worker's family is better clothed, better housed and eats better than the immigrant family of yesteryear in which he was raised.

The answer, it would seem, lies to a very large extent precisely in the word *family*. In considering the above question a distinction must be made between the earnings of the *individual* worker and his *family income*. The average *annual* (prewar) *real earnings* of the average American wage earner would, alone, we have just seen, not have permitted him to raise his living standards much above those he had experienced in his childhood. What made possible the big advance in his standard of living is chiefly the enlargement of the family income through the increased employment of married women.[1] What is more, these increased *family* earnings were now shared with a smaller number of children, as, in turn, the decrease in the size of family made it possible for married women to take on employment outside their homes. The growing mechanization of kitchen and other domestic chores have, of course, been permissive agents. The wife may not be getting equal pay for equal work with her husband. But the contribution she makes to the family income enables the *family* to live in a heated apartment instead of a cold-water flat and to enjoy some of the other amenities of American civilization – the radio and television, a car, an extra suit of clothes – and to keep their (fewer) children at school longer than they themselves had been privileged to attend.

[1] The percentage of married women in the female labour force of the United States has increased from 14 in 1900 to 36 in 1940, to 55 by 1952. *The Statistical Abstract of the United States*, 1951, Table No. 202, p. 171, and the United States Department of Labor, Women's Bureau: *Women as Workers* (1953), Table 26, p. 65.

To argue for a theory of the secular impoverishment of the working class is to deny the increased productivity and the technological advances which permit increased output per man-hour and a consequent increase in hourly wages. And it would deny the undoubted advances made by labour in this respect through the growing power of the trade union. Secular impoverishment would mean not only that labour got none of this increased output per man-hour, but also that he got less because of it. And it would mean that the growth of capitalism has taken place without an increase in mass consumption.

As we shall presently see, it is this, the increasing consumption of the masses, rather than their presumed secular impoverishment, that bears on the validity of the law.

B. THE 'MYSTERY' OF THE CONSTANT RELATIVE SHARES

1. REQUIREMENTS OF A MATURING ECONOMY

When Mrs. Robinson raised the question of a contradiction in Marx between his assumption of a constant rate of exploitation and his (presumed) theory of the secular impoverishment of the masses, she equated the concept of a constant rate of exploitation with what she labelled the 'mystery of the constant relative shares'. 'In a wide variety of times and places,' she wrote, 'statisticians have found a remarkable constancy in the proportionate share of labour in output as a whole.' And she declared, 'the mystery of the constant relative shares remains as a reproach to theoretical economics.' [1]

[1] *Op. cit.*, pp. 80 and 81. Keynes discoursed on the same phenomenon some three years earlier (March 1939) in the *Economic Journal*, in an article 'Relative Movements of Real Wages and Output'. For a more recent discussion of this subject see E. H. Phelps Brown and F. E. Hart, 'The Share of Wages in the National Income'. *Ibid.*, June 1952, pp. 253–77, and the several contributions in the *American Economic Review*, May 1954, pp. 236–321, under the general headings 'Diminishing Inequality in Personal Income Distribution' and 'Wage Determination in the American Economy' – and *A.E.R.*, Dec. 1954, A. M. Carter: 'Income Shares in Great Britain and United States'. Also: Selma Goldsmith, *et. al.*, 'Percentage Distribution of Family Personal Income by Type of

This 'mystery', however, is of Mrs. Robinson's own making. It begins to get resolved when it is noted that this constancy does not hold true on a year-to-year basis;[1] that at best it can be said to hold true only on a cycle-to-cycle basis, and, finally, that the data from which Mrs. Robinson derives this 'mystery' cover only the years since 1919, the period of rapidly maturing world capitalism. In a fully-developed capitalism it would be a mystery, indeed, if the tendency towards a constancy of relative shares did not become a prominent characteristic of its production relations. In a fully-developed capitalism the disproportionalities between production and consumption, which are essential for the accumulation of capital, cannot be sustained continually over long stretches of time.

In its growing stages, the relatively faster growth of capital accumulation, over relatively long periods, compared with the

Payment', in the *Review of Economics and Statistics*, February 1954, pp. 1–32, and the definitive article by Edward F. Denison: 'Distribution of National Income', in the *Survey of Current Business*, June 1952.

[1] For the United States the statistics for the years 1919–34 are as follows:

Year	Labour Share	Year	Labour Share
1919	34·9	1929	36·1
1920	37·4	1930	35·0
1921	35·0	1931	34·0
1922	37·0	1932	36·0
1923	39·3	1933	37·2
1924	37·6	1934	35·8
1925	37·1		
1926	36·7		
1927	37·0		
1928	35·8		

In these sixteen years the share differed as widely as between the less than 35 per cent for 1919 and 1931 and the more than 39 per cent for 1923. We find similar year-to-year variations in the relative long-run constancy in labour's share of the corporate income in the period 1929 to date. See the National Income editions of the *Survey of Current Business*, Table: 'National Income by Legal Form of Organization'.

Mrs. Robinson based herself on the statistics constructed by M. Kalecki in his *Essays in The Theory of Economic Fluctuations* from Studies of the National Bureau of Economic Research.

growth of consumer income in the form of workers' wages, was an essential to its development and growth.

In its fully developed stages it is no longer permissible to build factories in order to build factories without regard to the limitations of the capitalistically conditioned ultimate consumer market potentials. There are not now, for one, the expanding potentials of a rapidly growing labouring population as formerly, to absorb and to be absorbed by an uninterrupted growth of productive capacity over an extended period. Such an extended growth is now possible only under conditions of prolonged military demand or under the special peacetime circumstances engendered by such military demand. So, for example, in the post-World War II United States the reabsorption of some eleven million returning veterans into the economy – feeding, clothing, housing and re-equipping them as industrial workers – provided a fillip to the economy which carried it in high gear until 1949. Then, as we have shown before, the formation of added millions of new families by these same veterans stimulated the high-level production of the years following 1949. (The cold war and the Korean war helped to lift the economy into wholly abnormal heights.)

In the early stages of capitalist development the vastly greater rate of output of capital goods than consumption goods was patent and an essential to the rise and growth of capitalism. Lenin argued precisely from this point when he polemicized against the Narodniki, the populists of late nineteenth-century Russia. Starting from the premise that production was production for consumption, and in view of the patently limited consumption power of the Russian masses of the time, the Narodniki could see no future for capitalism in Russia unless it could develop external markets then, they argued, no longer possible because these had been pre-empted by existing imperialisms.

That, said Lenin, was arguing from the point of view of a peasant economy, of a precapitalist economy. A capitalist economy, capitalist production creates its own consumer population, the domestic working class, which it brings into being through the process of primitive accumulation. And if the relatively faster

growth of production goods than consumption goods seems paradoxical, if, that is, we appear to have a case here of 'production for production', this, he explained, is not a contradiction in theory. It is a manifestation of the nature of capitalism. As Dobb has paraphrased Lenin's argument, 'it was precisely in this expansion of production without a corresponding expansion of consumption that the historical mission of capitalism consisted.'[1]

Always this discrepancy between production and consumption has been 'corrected' in the periodic crisis through an enforced proportionality between them, through the enforced assertion of their dialectical unity, however temporarily. In a fully-developed capitalism, in large part because of the rapidity with which production can be accelerated, this periodic enforcement of proportionality becomes increasingly urgent so that it appears as almost a continuous process and as if effected by conscious design. But in no way may this be taken as the manifestation of a newly-discovered inner harmony of the capitalist system of production. Rather is it a manifestation of the compelling need of the more continuous enforcement of the dialectical unity of the production and consumption aspects of that system of production.

The fact is that, to be viable, capitalism cannot tolerate an endless divergence between the tendencies of development of consumption (workers' income) and of accumulation (capitalist profit). Nor, on the other hand, can it *voluntarily* eliminate this divergence by accepting a reduction in profit through a deliberate policy of increasing wages. The result of this conflict between the need for proportionality between consumption and accumulation and the inability consciously and in a planned way to effect it is (1) the involuntary periodic crisis, (2) the involuntary periodic and connected long-term reduction in the rate of profit, and (3) the involuntary tendency toward a constancy of the relative shares.

Thus, this tendency towards a constancy of the relative shares is

[1] *The Modern Quarterly* (London), Spring 1952, p. 100, in his review of the English translation of Rosa Luxemburg's *The Accumulation of Capital*. Rosa there is shown to have argued very much in the manner of the Narodniki. The reference to Lenin is to his *Collected Works*, Russian Edition, Vol. III, p. 30. Quoted in *The Marxist Study Courses*, p. 43.

a reflection of the contradictions which under the capitalist mode of production exist between production and consumption. It reflects that aspect of these contradictions which asserts that production cannot escape from the limitations of consumption. It does *not* reflect that aspect of these contradictions which asserts that production under capitalist conditions *must* escape from these limitations. It is the conflict between these two incompatible musts, as an expression of the basic contradictions of capitalism, which generates both economic crises and the falling rate of profit.

In a fully-developed capitalism, such as the period which the cited data portray, the adjustment of capitalist production to the ultimate potentials of the consumer market becomes a compelling force. The growing constancy of the relative shares is not an element of strength, as underconsumptionists might reason, but an omen of doom. When capitalist investment must be increasingly geared to the expansion of consumption; when investment can no longer find its *raison d'être* in the accumulation of capital *per se*, then capitalism comes to the end of its 'historical mission' and must cease to grow as a system of social production.[1] To slow down that decline, capitalism in recent years has had to find outlets for investment even in financing consumption![2] – in accelerating its paralysing conversion into a consumption economy and, alternatively and still more devastatingly, in the investment in means of destruction and in its conversion into a war economy.

[1] For evidence of the decline of the rate of capital formation in recent decades in England, see Colin Clark, *National Income and Outlay*, p. 270 and *passim*. For United States statistics, see Simon Kuznets, 'Capital Formation, 1879–83', in the University of Pennsylvania Bicentennial *Studies in Economics and Industrial Relations*, University of Pennsylvania Press, 1941, p. 67, and the statistics cited on pages 125–6, above.

[2] By the middle of 1955 short-term non-farm consumer credit came close to $34 billion and was still rising, compared with $5½ billion at the end of 1945. (It had reached $6 billion in 1929, but declined during the Depression of the 1930's and during the war years.) Between the same two postwar years non-farm and non-corporate mortgage debt increased from $27 billion to over $95 billion. (*S.C.B.*, May and August, 1955, respectively.) According to the Cleveland Trust Co. *Business Bulletin*, of August 16, 1955, new automobile purchases in 1947 were 71 per cent cash and 29 per cent credit. In 1954 they were 38 per cent cash and 62 per cent credit.

And as we have argued earlier, a war economy is a perverted form of consumer economy.

2. CONSTANT RELATIVE SHARES AND THE RATE OF PROFIT

This tendency towards increasing consumption relative to accumulation has been forcefully demonstrated in a recent study of the National Bureau of Economic Research. In it Professor Frederick C. Mills shows that since the beginning of the present century 'successive decade increments to the national product have been mainly devoted to consumption', including consumption by Government. 'No less than 72 per cent of the total of the increments to national product', he wrote, 'was devoted to consumer needs. Nine per cent was devoted to additions to gross capital, and 19 [!] per cent to war and defense.'[1]

In other words, if to the labour share we add the share of the growing army of unproductive consumers, including the military, in order to arrive at Professor Mills's consumption total, then the tendency has been not alone towards the relative constancy of the consumer's share, but even to its relative increase.[2]

Now, a constant relative labour share, let alone a rising total consumer share, negates the very essence of capitalism – negates the capitalist drive towards unlimited capital accumulation. For the maintenance of a constant relative share for labour must mean a fall in the rate of profit when the o.c.c. is increasing. In the period of a constant o.c.c. the rate of profit tends to fall when the consumer and government shares are increasing. It is in this that lies the significance of the 'mystery of the constant relative shares',

[1] In *Productivity and Economic Progress*, Occasional Paper 38, p. 16.

[2] That such a relative increase has actually taken place since the late 1920's has been argued by Professor S. S. Kuznets of the National Bureau, in his *Share of the Upper Income Groups in Income and Savings*. In part that increase is purely a statistical reflection of the fact that other shares, notably net interest payments and rent, have declined in the 100 per cent total national income. In part it is due to an actual increase in wages because of a decrease in the unskilled low-wage portion of the labour force, because of a general upgrading of skills and jobs and because of the increased bargaining power of organized labour. All these and similar considerations will be found in the references cited in n. 1, p. 152, above.

not in its presumed refutation of the so-called Marxist theory of the secular impoverishment of the masses.

Look at it from the angle of the rate of profit trend.

The maintenance of a constant rate of profit of which a constant share is invested must mean a capital stock growing in geometric progression, advancing upward like a compound interest curve. Such a growth must sooner or later outstrip the capitalistically limited growth of the population in general, of the labour force in particular, of employment and of the national income. Factories would have to be built to build factories, to build factories *ad infinitum*, irrespective of the ultimate possible consumer takings and of the possibility of the realization of the surplus-value created in that process. The endless accumulation of capital under these circumstances would create such disproportionalities as to precipitate a crisis.

Now, these disproportionalities can be avoided only by a fall in the rate of profit and in the rate of accumulation. For if a constant rate of profit implies an eventual disproportionality between capital accumulation and consumer potentials, then proportionality is consistent only with a falling rate of profit.

But a falling rate of profit which is the outcome of the conflict between the drive for unlimited capital accumulation and the need for proportionality between capital accumulation and ultimate consumer potentials is itself a precipitating agent of crises. It is the alternative evil, so to speak, to disproportionality as a precipitating agent of crises.

Marx formulated this conflict in these words:

> The stupendous productive power developing under the capitalist mode of production relatively to population, and the increase . . . of capital values, which grow much more rapidly than the population, contradict the basis, which, compared to the expanding wealth, is ever narrowing and for which this immense productive power works, and the conditions, under which capital augments its value. This [he concluded] is the cause of crises.[1]

[1] *Capital*, Vol. III, p. 312–3.

3. CAPITALISM AS A CONSUMPTION ECONOMY

In the long run, finally, a constant relative labour share, in the face of a relatively stable labour force, implies the threat of conversion of capitalism into a consumption economy. For, as we have seen, in the absence of an expanding labour force, the maintenance of a constant labour share means higher real wages, a fall of the rate of profit, and a slowing down of the rate of capital accumulation. This does not mean that the capitalists as a class willingly accept a falling rate of profit, higher real wages, and constant relative shares as a principle of private business enterprise. They cannot voluntarily accept such a principle, without ceasing to be capitalists. Nevertheless, the system itself periodically enforces this outcome. Simultaneously, it also seeks to defeat this result by the mass destruction of capital values and by mass unemployment in the violence of the periodic crisis.

If these views are correct, the life of mature capitalism is a constant struggle to escape crucifixion on the cross of a consumption economy. More and more it seeks to avert this culmination by the self-contradictory diversion of production and consumption into military and other government channels in return for government promises to pay, and into other forms of spurious capital accumulation. Indeed, this has been a major means by which American capitalism has been able to maintain operation above depression levels since war orders took over in 1939–40. The question, then, naturally arises: how long can unproductive consumption expenditures and spurious capital accumulation be tolerated in an economic system the very existence of which is ultimately predicated upon the private accumulation of real capital, on the private accumulation of *c*? That is, how long can capitalist *u* be tolerated as a substitute for capitalist *c*?

However, this is a question which cannot be treated here. Evidently, the answer to it must depend on an appraisal of the nature and sharpness of the social, economic, political and moral conflicts, national and international, which these and related conditions generate in time. Clearly, such an appraisal lies outside the

scope of this volume. All that may be ventured here is to say that ultimately, from a Marxist point of view, these must lead to a breakdown of the capitalist mode of production and to its replacement by a socialist mode of production.

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ABBREVIATIONS

A.E.R.: American Economic Review. *F.R.B.*: Bulletin of the Board of Governors of the Federal Reserve System. *Ec. Jl.*: Economic Journal. *J.A.S.A.*: Journal American Statistical Association. *J.P.E.*: Journal of Political Economy. *N.B.E.R.*: National Bureau of Economic Research. *N.R.P.*: National Research Project, Works Progress Administration (W.P.A.). *Q.J.E.*: Quarterly Journal of Economics. *Rev. E.S.*: Review of Economics and Statistics. *S.C.B.*: Survey of Current Business of the United States Department of Commerce. *T.N.E.C.*: Temporary National Economic Committee (U.S. Senate).

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SUBJECT INDEX

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Dr. Gillman comes to this study from a long number of years as college teacher, as government economist and as economist in private industry. During the last war he served as economist in the Office of Price Administration, in The Foreign Economic Administration and on the War Production Board. His last government position was as Chief Economist of the War Assets Administration.

In the last several years Dr. Gillman has devoted his full time to the study of the nature and causes of the capitalist periodic crisis, or the business cycle as this is known in the economics profession. The present book is the first of a series of three projected by him on this subject.

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FROM THE PREFACE OF *Prosperity in Crisis:*

"Despite the assurance from high places that never again will there be a depression in America, that a rise of unemployment to, say, 5,000,000 is no more than a "breather" in an otherwise unending reign of prosperity, the fear of another depression continues to stalk the American people. This fear arises from the gnawing feeling that the long-run prosperity of the post-war years was born in war and has been nurtured by preparations for war. Peace, so ardently wished for by all the peoples of the world, would bring on a depression.

Can this dilemma be resolved? Can a capitalist economy live in peace and enjoy prosperity at the same time?

To answer these questions we must find out, first, why capitalist economies, such as the United States, suffer from repeated breakdowns. Second, can capitalism be so modified that these breakdowns will not occur?

. . . The problem of finding an answer to these questions was first placed permanently on the order of the day in America by the depression of the 1930's. It had become clear then to all that would see that another depression of that magnitude would not be tolerated by the mass of Americans who earn their livelihood by working for wages. The very survival of the system was threatened by its repeated breakdowns and resulting mass unemployment. Provisions for the maintenance of full employment were provisions for saving capitalism, as some economists have since put it.

. . . Even by building a Welfare State, can an advanced capitalism in *peacetime* find enough outlets for expenditures of a civilian nature to fill all the gaps in prosperity left by private investment and consumption?

. . . Is a Welfare State at all possible in a capitalist economy?"

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