Marx's falling rate of profit: a dialectical view

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Marx's falling rate of profit: a dialectical view. Drawing upon Marx's recently translated *Grundrisse*, this paper argues the necessity of considering Marx's view of the dialectical nature of capital in order to understand *Capital* and, in particular, the tendency of the rate of profit to fall. Examination of the dialectical relation between production and circulation of capital leads to a rejection of standard interpretations of Marx's falling rate of profit as a secular prediction similar to that of the classical economists. Its place is, rather, as an inherent barrier of capital, which is constantly surpassed in the course of development.

La baisse du taux de profit chez Marx: une perspective dialectique. A partir de travaux récemment publiés de Marx (*Grundrisse*), ce mémoire suggère qu'il est essentiel d'assumer les vues de Marx sur la nature dialectique du capital pour saisir la portée de son œuvre majeure, *Le Capital*, et en particulier pour comprendre sa proposition sur la baisse tendancielle du taux de profit. Un examen de la relation dialectique entre production et circulation du capital doit nous amener à rejeter les interprétations conventionnelles de la baisse du taux de profit comme tendance séculaire de même nature que celles proposées par les économistes classiques. Il appert que la baisse du taux de profit constitue un obstacle au processus d'accumulation du capital constamment dépassé dans le procès de développement.

'It is impossible completely to understand Marx's *Capital*, and especially its first chapter, without having thoroughly studied and understood the *whole* of Hegel's *Logic*. Consequently, half a century later none of the Marxists understood Marx!!' Lenin (1963, 80)

INTRODUCTION

The 'Poet of Commodities,' as Edmund Wilson described Karl Marx, has suffered the familiar fate of poets translated from their native language by indifferent translators; he has been judged mediocre, a minor post-Romantic. But, to appreciate this particular poet, it is necessary to know something about his language, the significance of his terms, his *method* – which is to say, the dialectical method (Wilson, 1953, 289 ff).

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And, nowhere is this necessity to locate Marx within the context of dialectics more pressing than in relation to the 'tendency of the rate of profit to fall,' a tendency that, some might assure us, is really a tendency to rise, or to be indeterminate, or to fall only *ultimately* (perhaps in some lonely 'last instance'). For, when working on his 1857–8 notebooks, which have become known as the *Grundrisse*, Marx informed Engels: 'By the way, things are developing nicely. For instance, I have thrown overboard the whole doctrine of profit as it has existed up to now. In the *method* of treatment the fact that by mere accident I again glanced through Hegel's *Logic* has been of great service to me' (Marx and Engels, 1965, 100).

To be sure, it is precisely in the *Grundrisse* that Marx threw overboard the classical argument on the falling rate of profit and initially developed an alternative (Marx, 1973). But there is far more there. The *Grundrisse* (only recently translated into English) provides an invaluable guide to the reading of *Capital* and to the understanding of the dialectical nature of Marx's argument, an argument for which Hegel's *Logic* was indeed a great service.

To understand the significance which the falling rate of profit had for Marx, it is necessary to consider the dialectical nature of *Capital* (and this is particularly true, given the fragmentary nature of the material, for Volume III of *Capital*). Such a reading reveals the significant differences between the falling rate of profit as understood by classical political economy and by Marx and shows what Marx offered as a counterpart to the classical position.

CAPITAL: A DIALECTICAL VIEW

The structure of capital

One of the clearest characteristics of the *Grundrisse* is the extent to which Marx developed the concept of capital as a unity containing two elements: production and circulation. 'The total production process of capital' he stressed 'includes both the circulation process proper and the actual production process. These form the two great sections of its movement, which appears as the totality of these two processes' (Marx, 1973, 620). Over and over again throughout this work, there is both the explicit description of capital as a unity of production and circulation and also the *development* of capital as a dialectical unity.

But if capital, the concept, is a unity, then what might we expect to find in *Capital*, the work? Here it is enough to note the method of dialectical exposition that permeates *Capital* and is most explicit in the discussion of the form of value in its opening chapter. That method is the full examination and consideration of one side of a relationship (e.g. the relative form of value), followed by examination and consideration or development of the other side of the relation (e.g. the equivalent form of value), and, finally, the consideration of the relationship 'as a whole.'

This general approach, in which consideration of the 'whole' is a starting point for examining the defects or inadequacy of this whole itself and thus for passing beyond it, is also employed by varying one part of a relationship while holding the other explicitly constant, then reversing this procedure, and finally considering all factors variable and noting their interaction. The latter is the method used in looking at relative and absolute surplus value (i.e. by considering the division of the work-day and then expanding the surplus portion of that day, holding the necessary portion constant, followed by reducing the necessary portion, and finally considering both changes) and in examining the rate of profit.

If capital *itself* is a unity, then the logical method of exposition is quite clear. It is to consider, first, the production process of capital fully, then the development of the circulation process of capital, and thirdly capital as a whole (and then to move beyond). It is crucial to recognize that this is precisely what Marx did in setting out the structure of *Capital*. Volume I is entitled 'The Process of Capitalist Production'; Volume II 'The Process of Circulation of Capital'; and Volume III 'The Process of Capitalist Production As A Whole.'

Thus it is essential for an understanding of *Capital* to see the care with which it is presented as a dialectical unity. And should anyone have missed this dialectical structure, the opening lines of Volume III are there as a signpost for the confused traveller. In Volume II, Marx notes, 'it developed that the capitalist process of production taken as a whole represents a synthesis of the processes of production and circulation.' However, he pointed out that Volume III could not 'confine itself to general reflection relative to this synthesis.' It had to go beyond to consider the various forms which capital assumed 'on the surface of society' (Marx, 1959, 25).

This structure tells us that we can not hope to understand capital by reading (or publishing) only the first volume on the production of capital. To do so is explicitly to take a one-sided (and therefore flawed) view of capital. And certainly it tells us (as we shall see) that 'Marxian models' which draw solely on elements related to the production of capital are similarly one-sided. But the structure says more. It tells us that the critical opposition in capital is between production and circulation, between, in other words, the matters examined in Volume I and those of Volume II. We must do more than simply note this point, which follows logically from the very structure of *Capital*; to understand *Capital*, it is necessary to grasp 'the contradiction between production and realization – of which capital, by its concept, is the unity' (1973, 415).

Production and circulation: the unity of opposites

For Marx, it was self-evident that the production of capital required the act of exchange to be made real. Since surplus value was contained in the value of commodities, it was necessary that commodities be truly commodities (i.e. that they be exchanged) in order that surplus value be realized. Without exchange, he argued, 'the production of capital as such would not exist, since *realization* as such cannot exist without exchange' (1973, 447). The sphere of circulation, the sphere of commodities and money, thus was the sphere in which the 'real self-positing' of capital occurred, the sphere of 'its self-realization as exchange-value' (1973, 260).

Accordingly, production of capital without the act of circulation was inconceivable to Marx. To ignore this and to treat 'production as directly identical with the self-realization of capital,' which Marx suggested was a failing of classical political economy, was to ignore the specific characteristics of capitalist production, which required circulation of commodities for the realization of value and surplus value (1973, 410; 1957, 92). At the same time, however, circulation required production because 'it cannot ignite itself anew through its own resources ... Commodities constantly have to be thrown into it anew from the outside, like fuel into a fire' (1973, 254–5). The production of capital and the circulation of capital thus exist in an inseparable relationship to each other.

Within this relationship, however, circulation was the negation of production. Every moment capital existed in the sphere of circulation was 'pure loss,' time outside the sphere of production of capital. 'As long as capital remains frozen in the form of the finished product, it can not be active as capital, it is *negated* capital' (1973, 535, 546). In this sense, circulation, although necessary to the production of capital, is a barrier to the production of capital.

Any reduction, accordingly, of the time which capital spends in circulation is an increase in the time in which it can be productive. The abolition of circulation time – its negation – would thus be the equivalent of the highest possible production of capital (1973, 545, 630). To the extent, then, that capital has a tendency toward self-expansion, toward growth, this tendency must involve the attempt to reduce circulation time to a minimum; and this is to say that capital attempts to transcend itself, its own nature, 'since it is capital itself alone which posits circulation time' as a necessary part of the production of capital (1973, 629). The growth of capital thus means the necessity to go beyond a barrier which is inherent in capital itself.

Growth and barrier in capital

It has often been noted that Marx had few rivals (even among the worst apologists) in his laudatory account of the 'positive' aspect of capital. It is inherent in the nature of capital, he argued, that it constantly drives to go beyond its quantitative barrier: 'The goal-determining activity of capital can only be that of growing wealthier, i.e. of magnification, of increasing itself' (1973, 270). And, in 'capital's ceaseless striving' to expand itself was its 'historic mission,' that it develops the productive power of labour, that it 'strives towards the universal development of the forces of production' (1973, 325, 540).

In its drive to expand, capital, this self-expanding value, treats what were the inherent limits of earlier modes of production as mere barriers to be dissolved:

> capital drives beyond natural barriers and prejudices as much as beyond nature worship, as well as all traditional, confined, complacent, encrusted satisfactions of personal needs, and reproductions of old ways of life. It is destructive towards all of this and constantly revolutionizes it, tearing down all the barriers which hem in the development of the productive forces, the expansion of needs, the all-sided development of production, and the exploitation and exchange of natural and mental forces (1973, 649–50, 410).

This 'universalizing tendency of capital, which distinguishes it from all previous stages of production,' thus tends toward the absolute development of productive forces and to the destruction of all previous limits to the productivity of labour (1973, 540).

Yet, as we have seen in the discussion of circulation, the other side of capital, capital contains its own barriers. Capital cannot remain in the sphere of production; it must pass through the sphere of circulation to realize itself, and the time it spends there is a barrier to the productive force of capital (1973, 545, 539). In the sphere of circulation, capital encounters a barrier 'in the available magnitude of *consumption* – of consumption capacity' (1973, 405). This means that if capital is to grow, so also must the consumption capacity: 'a precondition of production based on capital is therefore the production of a *constantly widening sphere of circulation*' (1973, 407).

To the extent, however, that capital grows by striving to restrict workers' consumption to a minimum, by striving 'to reduce the relation of necessary labour to surplus labour to the minimum,' it simultaneously creates a barrier to exchange. 'The boundless enlargement of its value – boundless creation of value – therefore absolutely identical here with the positing of barriers to the sphere of exchange, i.e. the possibility of realization – the realization of the value posited in the production process' (1973, 422). It is the contradiction of capital that its barriers, just as its tendency to grow, are inherent in its very nature: 'Contradiction in the capitalist mode of production: the labourers as buyers of commodities are important for the market. But as sellers of their own commodity – labour-power – capitalist society tends to keep them down to the minimum price' (Marx, 1957, 316n).

For Marx, then, it was necessary to recognize both tendencies in capital, the tendency to grow and the tendency to create barriers to growth. Accordingly, he considered inadequate the position of economists who emphasized only one side. Thus he criticized 'economists who, like Ricardo, conceived production as directly identical with the self-realization of capital – and hence were heedless of the barriers to consumption.' On the other hand, he similarly considered limited the view of 'those, who like Sismondi, emphasized the barriers of consumption.' The former, he argued, had better 'grasped the positive essence of capital'; the latter had 'better grasped the limited nature of production based on capital, its negative one-sidedness.' 'The former more its universal tendency, the latter its particular restrictedness' (1973, 410).

The structure of *Capital* thus reveals the attempt to consider both aspects of capital. Volume I, with its emphasis upon the growth, the accumulation, the positive aspect of capital, stands as a reproof to the underconsumptionist position; Volume II, on the other hand, with its emphasis on the necessary circuit through which capital must move and the conditions for realization of capital, is a criticism of the position that considers 'supply without regard to demand,' that treats the realization of capital posited in the production process as 'its *real* realization' (1973, 410–11).

The two sides are united in chapter 15 of Volume III, on 'internal contradictions of the law.' Here it is explained that the production of surplus value, which is limited only by the productive power of society, 'completes but the first act of the capitalist process of production – the direct production process.' The 'second act of the process,' on the other hand, the act in which commodities must be sold, is limited by the 'consumer power of society,' a power which has been restricted by the relations of production (1959, 239).

It is here, in the bringing together of 'Acts One and Two,' that the contradiction of the capitalist mode of production is revealed: 'the more productiveness develops, the more it finds itself at variance with the narrow basis on which the conditions of consumption rest' (1959, 240). Thus, there is continued 'rift' between the tendency toward absolute development of the productive forces and the 'limited dimensions of consumption under capitalism,' between the historic task of capital, 'the unconditional development of the social productivity of labour,' and 'its own corresponding relations of social production' (1959, 245, 251).

Capital thus contains within itself both the tendency to grow and its own barrier to that growth: 'The *real barrier* of capitalist production is *capital itself*' (1959, 245).

Capital as finite

To identify a contradiction in the Hegelian/Marxian sense, however, is not to speak of a logical impossibility, an impasse; it is to indicate a source of movement, change, and development. And to identify a barrier is *not* to speak of an absolute limit. A barrier is a limit which can be negated, which can be surpassed: 'by the very fact that something has been determined as barrier, it has already been surpassed' (Hegel, 1961, I, 146). Indeed, the surpassing of barriers is the way in which a thing develops: 'the plant passes over the barrier of existing as a seed, and over the barrier of existing as blossom, fruit or leaf' (ibid., 147).

Certainly this tendency to surpass its own barriers exists also in capital: 'Capital is the endless and limitless drive to go beyond its limiting barrier. Every boundary is and has to be a barrier for it' (Marx, 1973, 334). Thus, faced with limits in the existing sphere of circulation, capital drives to widen that sphere. 'The tendency to create the *world market* is directly given in the concept of capital itself. Every limit appears as a barrier to be overcome' (1973, 408). And, as it strives 'to tear down every spatial barrier' to exchange and to 'conquer the whole earth for its market,' capital also strives 'to annihilate this space with time, i.e. to reduce to a minimum the time spent in motion from one place to another' (1973, 539).

Similarly, in its attempt to expand the 'consuming circle within circulation,' capital also turns to the 'production of *new* needs and discovery and creation of new use values':

> Hence exploration of all of nature in order to discover new, useful qualities in things; universal exchange of the products of all alien climates and lands; new (artificial) preparation of natural objects, by which they are given new use values. The exploration of the earth in all directions, to discover new things of use as well as new useful qualities of the old; such as new qualities of them as raw materials etc.; the development, hence, of the natural sciences to their highest point; likewise the discovery, creation and satisfaction of new needs arising from society itself (1973, 408–9).

Thus, in its tendency to drive beyond every barrier to production, capital posits Growth as the third term in the sequence: Growth-Barrier-Growth. Though its barriers are constantly overcome, however, they are just as constantly posited, 'and in as much as it [capital] both posits a barrier *specific* to itself, and on the other side equally drives over and beyond *every* barrier, it is the living contradiction' (1973, 410, 421).

This sequence of Growth-Barrier-Growth, which we have identified, is so fundamental to Marx's view of capital that it is a prime candidate as Marx's paradigm for the capitalist mode of production. In contrast to static paradigms such as optimization or market equilibrium, Marx poses a dynamic paradigm, the law of motion. Though it is not very familiar as a paradigm in economics, there is a certain similarity to theories of the growth of the firm. Alfred Chandler's descriptive sequence of Growth-Rationalization-Growth in his *Strategy and Structure* is one with which Marx would have been quite at home (Chandler, 1969, 383–96).

Yet, this process of creating barriers, transcending them, and creating them anew is endless. Indeed it was in the course of exploring the relationship between Ought and Barrier that Hegel demonstrated the manner in which the concept of Finitude passed into Infinity: 'The Finite (containing both Ought and Barrier) thus is self-contradictory; it cancels itself and passes away ... [But] the finite in perishing has not perished; so far it has only become another finite, which, however, in turn perishes in the sense of passing over into another finite, and so on, perhaps ad infinitum' (Hegel, 1961, I, 149).

Is capital, then, infinite? Does its ability to drive beyond all barriers mean that the capitalist mode of production, though changing and developing, is an absolute form for the development of the productive powers of labour? For it to be other than infinite, i.e. for it to be finite, it must be incapable of surpassing a particular barrier. One barrier must, in fact, be its Limit. And, if capital has a Limit, then it is finite and must perish: 'its perishing is not merely contingent, so that it could be without perishing. It is rather the very being of finite things, that they contain the seeds of perishing as their own Being-in-Self and the hour of their birth is the hour of their death' (ibid., 142).

Marx's argument is precisely this: capital is a relative and historical form for the development of the productive forces, rather than an absolute or infinite form, because it comes up against an inherent barrier which is, in fact, its limit. Accordingly, the capitalist mode of production is finite.

THE TENDENCY OF THE RATE OF PROFIT TO FALL

'The Day of Judgment'

It is hardly surprising that Marx should be fascinated by the place occupied by the 'Stationary State' in the theories of classical political economy. Quoting extensively from Ricardo's account of how the decline in the rate of profits would lead to an end to all accumulation, Marx commented, 'This, as Ricardo sees it, is the bourgeois "Twilight of the Gods" – the Day of Judgment' (1968, 544).

For, what was the Stationary State but an account of the end to capital, the end to self-expanding value, the end to the 'historic mission' of developing the social productivity of labour? And what was the declining profit rate, the negation of capital itself, but the identification of a Limit to the capitalist mode of production? Could one wonder at 'the terror which the law of the declining rate of profits inspires in the economists'?[1] Thus Marx commented about Ricardo (who, as noted, emphasized the 'positive essence' of capital) that 'What worries Ricardo 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' (1959, 254).

Of course, the falling rate of profit and the Stationary State were not

1 Marx (1971, 447). Note also Marx's comment about McCulloch giving 'vent to a veritable jeremiad about the fall in the rate of profit' (ibid., 186).

identified by the classical school as signalling the end of a particular mode of production. Given their tendency to 'eternalize' capitalist production, all growth of production and development of social productivity were seen as coming to a halt. Nevertheless, Marx suggested that there was a vague awareness, an intuition, in Ricardo that something deeper was involved, that capitalist production itself was 'not an absolute, but only a historical mode of production corresponding to a definite limited epoch in the development of the material requirements of production' (1959, 254).

An immanent limit in production?

Marx rejected the entire basis of the classical argument, an argument resting upon the assumption of declining productivity in agriculture. This external natural barrier could be surpassed by capital through changes in social relations in agriculture and in particular by putting science (especially the chemical sciences) to work for capital. Indeed, he projected the possibility that, at some point, productivity gains in agriculture would exceed those in industry (1968, 110). Thus Marx considered it 'strange that Ricardo, Malthus, etc. constructed general and eternal laws about physiological chemistry at a time when the latter hardly existed.' And he commented that in assuming declining productivity of labour in agriculture Ricardo 'flees from economics to seek refuge in organic chemistry' (1973, 752, 754).

The central criticism of Ricardo's falling rate of profit argument, however, was that it confused the rate of profit with the rate of surplus value (discussed most fully in Marx, 1968, 373 ff). Accordingly, the only way for the rate of profit to fall was with a decline in the ratio of profits to wages. Nor was Ricardo and the classical school alone in this respect: although Carey rejected the linking of the declining profit rate to declining productivity, he nevertheless connected the decline with an increase in the relative share of labour. Similarly, Bastiat concluded that the falling rate of profit was associated with the fact that 'the worker's share has grown larger' (1973, 558, 754-5, 385). In short, the conventional wisdom held that the falling rate of profit was a product of a decline in the rate of exploitation, and also, for the classical economists, declining productivity.

It is not very surprising, therefore, that Marx chose to demonstrate that even if the rate of surplus value was constant (i.e. did not fall) there was nevertheless a tendency for the rate of profit to fall, and that furthermore this tendency was a concomitant of *rising* productivity. It is, on the other hand, quite surprising, in the light of the *whole* of Volume I of *Capital* and numerous comments in Volume III and elsewhere, that anyone could assume that Marx *believed* that the rate of surplus value was constant (i.e. did not rise). Thus he noted (in contrast with the conventional wisdom): 'The tendency of the rate of profit to fall is bound up with a tendency of the rate of surplus-value to rise, hence with a tendency for the rate of labour exploitation to rise ... The rate of profit does not fall because labour becomes less productive, but because it becomes more productive' (1959, 234).

But did Marx *really* believe that there was a tendency for the rate of profit to fall? There were, after all, the 'countertendencies,' and the analytical basis for concluding that ultimately the tendency would prevail over the countertendencies was never entirely clear. Most significantly, we should consider Marx's last work on the rate of profit, the 1875 notebook, 'The relation of the rate of surplus value to the rate of profits' (written ten years after the bulk of the material incorporated in Volume III of *Capital* by Engels). This long notebook remains untranslated, but a summary of it is the basis for chapter 3 of Volume III of *Capital* (1957, Preface, 2–5; 1957, Preface, 3–5).

In this particular chapter, Marx proceeds by considering the effect on the rate of profit of changes in the organic composition of capital while holding (or attempting to hold) the rate of surplus value constant; he then reverses this procedure, and finally allows both to vary. The basic conclusion derived is that changes in the rate of profit will be determined by the relative rates of change of the organic composition of capital and the rate of surplus value. He offers no reason here to assume that the rate of increase of the organic composition of capital will exceed that of the rate of surplus value, and there is no mention of a falling rate of profit.

Thus, one could argue that there is no necessary tendency for a declining rate of profit in Marx – that 'it all depends.' That it all depends on the relative strengths of tendency and countertendencies, on the relative rates of change of the organic composition of capital and the rate of surplus value. But besides neglecting the importance Marx attached to the tendency of the rate of profit to fall in relation to the intensity of competition and the tendency toward centralization of capital, however, an argument for 'a tendency of the rate of profit to be indeterminate' offers a syncretic rather than a dialectical solution to the problem of the rate of profit.

It is necessary, then, to return to the problem of the falling rate of profit and its relation to the Stationary State, the check to expansion of capital, the concept of Limit. Consider the manner in which Marx originally developed his position, in which he threw 'overboard the whole doctrine of profit as it has existed up to now.' Capital, Marx argued, as self-expanding value, sought to expand without limits: 'The quantitative boundary of the surplus value appears to it as a mere natural barrier, as a necessity which it constantly tries to violate and beyond which it constantly seeks to go' (1973, 334–5). In short, it acts as if it faces only barriers to be transcended.

Yet, the central point that Marx made in the *Grundrisse* is that surplus value contains a Limit given by its very nature – that surplus value is surplus labour. 'The identity of surplus gain with surplus labour – absolute and relative – sets a qualitative limit on the accumulation of capital' (1973, 375). That limit is established by the length of the workday, the number of workers, and the degree of productivity (which determines the extent of necessary labour). In other words, Marx argued that there was a limit to the production of surplus value, a point central to the proposition on the rate of profit which he advanced.

The critical elements in Marx's argument on the falling rate of profit as he developed it in the *Grundrisse* are as follows:

1 / There is a limit to the amount of surplus labour per worker, and this limit is given by the length of the workday.

2 / Relative increases in surplus labour per worker are always smaller than relative increases in productivity (or productive force) – since 'the multiplier of the productive force' is the 'divisor' of necessary labour per worker. Thus, 'surplus labour (from the worker's standpoint), or surplus value (from capital's standpoint) does not grow in the same numerical proportion as the productive force' (1973, 335–6).

3 / As the limit to surplus labour per worker is approached, i.e. as the portion of surplus labour in the workday rises, increases in surplus labour per worker resulting from given increases in productivity tend to decline. 'Surplus value rises but in an ever smaller relation to the development of the productive force. Thus the more developed capital already is, the more surplus labour it has created, the more terribly must it develop the productive force in order to realize itself in only smaller proportion' (1973, 340).

4 / Increases in productive forces are the equivalent of increases in capital relative to the number of workers: 'an increase in the productive force means that a smaller quantity of labour sets a larger quantity of capital in motion' (1973, 389, 380, and this section in general).

It followed from these propositions that increases in surplus labour per worker must be relatively smaller than increases in capital per worker, i.e. that increases in the amount of surplus labour per worker cannot compensate for decreases in the number of workers relative to capital. (See the appendix for a demonstration of points raised in this section.) The rate of profit, the ratio of total surplus value to capital, must decline. 'The profit rate is therefore inversely related to the growth of relative surplus value or of relative surplus labour, to the development of the powers of production, and to the magnitude of the capital employed as (constant) capital within production' (1973, 763).

The above argument is fundamentally the same as that subsequently introduced with minor changes in form. Thus, the later version focuses on the rate of surplus value (surplus labour per worker relative to necessary labour per worker) and the organic composition of capital (total necessary labour relative to total capital); and the basic argument becomes the inability for the rate of surplus value to rise as rapidly as the organic composition of capital.

The argument as developed in the *Grundrisse* is also the essential version.

When Marx wanted to explain why he felt there were limits to the increase in the rate of surplus value, he reverted to the form of explanation appropriate to the *Grundrisse* version:

Now, however much the use of machinery may increase the surplus-labour at the expense of the necessary labour by heightening the productiveness of labour, it is clear that it attains this result, only by diminishing the number of workmen employed by a given amount of capital ... It is impossible, for instance, to squeeze as much surplus value out of 2 as out of 24 labourers. If each of these 24 men gives only one hour of surplus labour in 12, the 24 men give together 24 hours of surplus labour, while 24 hours is the total labour of the two men' (1906, 444–5).

Thus, the falling rate of profit argument is based on the limit to the workday (inherent in the identity of surplus value and surplus labour) and on the 'contradiction which is immanent in it' (the production of surplus value), that 'of the two factors of the surplus value created by a given amount of capital, one, the rate of surplus value cannot be increased, except by diminishing the other, the number of workmen' (1906, 445).

This is essentially an argument about the necessary decline in the *maximum* rate of profit! Even if we were to assume that surplus labour per worker were equal to the entire workday (due to enormous increases in productivity), even if we were to assume that the workday were equal to the calendar day (24 hours), there would still be a tendency for the rate of profit to fall given by the limit to surplus labour (24 hours) and by the reduction in the number of workers relative to capital.[2] Thus, the falling rate of profit is an absolute, ultimate barrier which cannot be surpassed by increases in productivity (relative surplus value) or extensions in the workday (absolute surplus value). The declining rate of (maximum) profit is a Limit to the production of surplus value, a Limit immanent in production.

However, there are definite problems in the above argument. One is that it may be demonstrated that the rate of profit determined here initially *rises* as capital per worker increases. More fundamental is the question of the 'given amount of capital,' i.e. the *value* of the capital. There are two issues relating to the fourth point in the account of the elements in Marx's argument: first, are productivity increases the result of increases in *capital* relative to the number of workers? and, second, does capital relative to the number of workers increase?

First, we may note that, for Marx, it is the *technical* basis or technical composition – the 'definite quantity of means of production, machinery, raw materials, etc.' in relation to a 'definite number of labourers' – which determines the level of productivity rather than the aggregate values of those com-

2 'To produce the same rate of profit after the constant capital set in motion by one labourer increases ten-fold, the surplus labour-time would have to increase ten-fold, and soon the total labour-time, and finally the entire 24 hours of a day, would not suffice, even if wholly appropriated by capital' (1959, 390).

ponents, the value-composition of capital or the organic composition of capital. (1959, 143). Changes in the organic composition of capital which are the result of changes simply of values do not affect the level of productivity: 'As soon, therefore, as this proportion is altered by means other than a mere change in the value of the material elements of the constant capital, or a change in wages, the productivity of labour must likewise undergo a corresponding change' (1959, 51).

Accordingly, it is possible for there to be increases in means of production per worker (leading to increased productivity) at the same time as there are 'mere' changes in the value of those means of production – such that there is no increase in capital per worker.

What, then, does happen to the value of means of production, in the context of increases in productivity? If we were to assume that productivity increases occurred evenly throughout the economy, or at least that relative rates of productivity gain in the Departments producing articles of consumption and means of production were the same, then the relationship of the average value of means of production to the value of labour-power would remain constant. At a result, the organic composition of capital would 'mirror' the technical composition. This would appear to be the most appropriate 'general assumption.'

Under this 'neutral' technological change assumption, however, it can be demonstrated that capital per worker *falls* with an increase in the technical composition of capital. In short, the tendency is for the rate of profit to rise! Therefore unless we assume that the average value of means of production rises relative to the value of labour-power (i.e. the organic composition of capital rises relative to the technical composition), the rate of profit will tend to rise. Such a 'labour-saving' technical bias is not necessarily an inappropriate assumption, since Marx recognized the possibility of differing sectoral rates of productivity change, as in the case of industry and agriculture.

However, the 'falling rate of profit' would then rest on restrictive conditions which could be removed by one of the 'countertendencies,' – economies in the use of constant capital. And the search for such economies would be heightened itself by a fall in the rate of profit (1959, chap. 5, passim). As in the case of the classical argument based on the assumption of declining productivity, the falling rate of profit as developed by Marx is shown to be a mere barrier which can be surpassed rather than a limit immanent in production. There is no Limit within the production of capital, in Act One.

The Second Act

But all this talk about laws of rising rates of profit, while full of sound and fury, actually signifies nothing, because there is no profit rate in the act of production. A profit rate presupposes profits, and profits only emerge through exchange, i.e. in the act of circulation.

The failure to recognize that capital is only made real through the exchange of commodities can produce strange 'Marxian models' in which the rate of profit is high because the rate of surplus value is high which, in turn, is due to high unemployment. If one assumes that production is 'directly identical with the self-realization of capital,' then it is no difficult task to 'prove' that the rate of profit is highest when unemployment is at its highest possible level and wages at their lowest possible level. Marx, however, saw that it was necessary to be able to *sell* the commodities before there was (and one could talk about) a rate of profit.

The rate of profit was introduced in Volume III of *Capital*, that is, after Volume II. Logically, it belongs in the 'synthesis of the processes of production and circulation.' Yet the whole discussion on the falling rate of profit has tended to proceed as if there were no Volume II. All of the elements deployed in the argument (e.g. the rate of surplus value, the organic composition of capital, etc.), are of Volume I vintage. It is as if Volume II were never written, as if economists are able to do what capital cannot do – ignore the process of circulation. This is, of course, in the classical tradition, which is one reason why Marx considered the Physiocratic model superior to that of classical Political Economy (1957, 92, 99).

What must be ascertained is the significance of *position* in the argument. Does the meaning and significance of an element change with a change in its position in a dialectical argument? For there can be no doubt that while Marx's concept of the falling rate of profit was developed in the context of the act of production (as in the case of the classical argument), it is introduced only in the 'second act.'

One of the fundamentals of the dialectical method is the process of enrichment of concepts in the course of development. The new concepts that emerge out of consideration of opposites contain more than those which preceded. What results is 'a new concept, but a higher, richer concept than that which preceded; for it has been enriched by the negation or opposite of that preceding concept, and thus contains it, but contains also more than it, and is the unity of it and its opposite' (Hegel, 1961, I, 65). Thus, by 'dialectical progress,' the concept 'not only loses nothing and leaves nothing behind, but carries with it all that it has acquired, enriching and concentrating itself upon itself' (ibid., II, 483).

Enrichment of concepts is precisely what occurs in Volume II of *Capital*. Thus the rate of surplus value which emerges by the end of Volume II is no longer the same as that which emerged from Volume I; it is now the *annual* rate of surplus value, a concept which draws upon the turnover period (production time and circulation time) of capital and thus the number of turnovers which capital can make in a year (Marx, 1957, chap. 16). Similarly, the total capital advanced is no longer simply capital expended on elements of production – means of production and labour-power. Added to this are sales expenses (including the cost of salesmen, which now 'appears as an additional investment of capital'), office expenses, and costs of storage (1957, 133 and chap. 6). Significantly introduced is the concept of capital tied up in inventories ('lying-fallow') during the time of circulation (1957, chap. 15; 1973, 547–8).

Although the arguments developed in the various manuscripts assembled by Engels for Volume II were written years after the fragments available for Volume III of *Capital*, many of the questions had been worked upon earlier (as in the case of turnover time and capital tied up in circulation, considered at length in the *Grundrisse*) (1957, Preface, 1–5). And, it is clear that these new definitions were to play an important role in Volume III:

> In the process of circulation the time of circulation comes to exert its influence alongside the working-time, thereby limiting the amount of surplus-value realizable in a given time span. Still other elements derived from circulation intrude decisively into the actual production process. The actual process of production and the process of circulation intertwine and intermingle continually, and thereby adulterate their typical distinctive features. The production of surplus value, and of value in general, receives new definition in the process of circulation, as previously shown. Capital passes through the circuit of its metamorphoses (1959, 43).

The rate of profit had to take into consideration the points developed in Volume II (as Marx advised Engels); and this included not only issues in relation to the annual rate of surplus value but also those relating to the additional outlays of capital. The latter necessarily lowered the rate of profit, 'an effect arising from every new investment of additional capital whenever such capital is required to set in motion the same mass of variable capital.' They reduced the rate of profit 'because the advanced capital increases, but not the surplus-value.' (1959, 286, 293; Marx and Engels, 1965, 205).

The time of circulation, the barrier to capital, necessarily has a critical effect on the rate of profit. Time of circulation affects both the number of turnovers in a year and also the amount of capital tied up in inventories ('frozen in the form of the finished product'). The former is derived from the relation of the sum of production and circulation time to a year; and the latter stands in relation to capital in production in accordance with the ratio of time of circulation to time of production (1959, chap. 15; 1973, 653–7, 666). Thus, an increase in the time of circulation, the negation of production time, both reduces the annual surplus value (and annual rate of surplus value) and increases the capital tied up in inventories: 'the capital outlay is greater, the surplus-value smaller and its proportion to the capital advanced is also smaller' (1971, 392). An increase in the time of circulation accordingly reduces the rate of profit, negates capital.

But why should time of circulation increase? For the very reasons noted earlier in the paper. While the time of circulation is affected by such factors as the distance to markets, ultimately it is based upon 'consumption capacity,' upon the 'consumer power of society.' And the drive of capital to expand the production of surplus value by reducing necessary labour relative to surplus labour and the number of workers relative to means of production creates barriers to the realization of capital. A gap opens, a gap between the productive power of society and the consuming power.

Rising circulation time reflects this growing gap; it reflects the difficulty of selling. (Within the extended reproduction model, this can be expressed by relating the time of circulation in Department II directly to the rate of surplus value and the organic composition of capital.) And increasing circulation time produces involuntary inventory investment and reduced cash flows, i.e. increased capital tied up in circulation and reduced turnover of surplus value, both characteristics of the falling rate of profit (1957, 148, 287–91). What follows are pressures on the money market and, ultimately, restriction of production; it is the crisis of 'overproduction,' the forcible assertion of 'the unity of the two phases that have become independent of each other' (1957, 103, 283, 291; 1968, 500). It is the increase in circulation time which leads to the crisis; 'the crisis occurs not only because the commodity is unsalable, but because it is not salable within a *particular period of time*' (1968, 514).

The rate of profit thus can only emerge in the interaction between production and circulation of capital, which means that it depends on the relationship between variable capital and total capital (including capital in circulation) and also the annual rate of surplus value – the 'enriched' concepts. And the decline in the rate of profit is the way in which the contradiction between production and circulation of capital expresses itself, via the emergence of unsold commodities and the increase in circulation time. It is no more possible to eliminate from Marx's argument the tendency for the rate of profit to fall than it is to eliminate the sphere of circulation of capital.

However, this tendency for the rate of profit to fall resulting from the increase in the time of circulation is explicitly a cyclical rather than a secular tendency. 'Permanent crises do not exist' (1968, 497n). They contain within themselves the means of their solution – the restriction of production, destruction of capital. Thus this declining rate of profit is a Barrier rather than a Limit; it does not produce an ultimate limit to the expansion of capital in the manner of the classical argument.

Is there, then, no secular tendency for the rate of profit to decline? We should consider whether, in its efforts to surpass the barrier of the falling rate of profit, capital creates conditions which lead to a secular decline in the rate of profit, which transform the barrier into a limit.

As Marx often noted, one of the principal responses to the falling rate of profit was 'an exertion of capital in order that the individual capitalists, through improved methods, etc., may depress the value of their individual commodity below the social average value and thereby realize an extra profit at the prevailing market-price' (1959, 253). The falling rate of profit was an inducement to innovation in production: 'Improvement, inventions, greater economy in the means of production, etc., are introduced ... when profit falls below its normal rate' (1968, 26). Thus, all the tendencies described in Volume I of *Capital* are means of surpassing the barrier of the falling rate of profit – centralization, rising organic composition of capital, rising rate of surplus value, etc. (It is the Growth-Barrier-Growth sequence.) Of course, the very means used to surpass the barrier necessarily posit it anew.

But there is also the attempt to widen the sphere of circulation – the sales effort. Individual capitals will find it advantageous to hire circulation agents, to expand capital in circulation, as a way to reduce the time of circulation of their own capital, as a way to expand their share of the market (1959, 275, 291). The falling rate of profit induces innovations in circulation. To the extent that competitors, faced with increasing circulation time as the result of the initial innovation, follow suit, the advantage of the innovator declines and what remains is an expansion of selling expenditures. A growing amount of capital is diverted from the development of the productivity of labour; the 'historic mission' of capital is thwarted by the conditions within which capital moves (Lebowitz, 1972, 334–8). But this of course means that more capital is required to set in motion the same variable capital; the rate of profit falls. The attempt to go beyond the barrier produces a falling rate of profit; and this follows logically from a dialectical view of *Capital*.

Yet can we stop here? The sales effort also involves the attempt to create new needs, and this means to create new needs for workers. 'To each capitalist, the total mass of all workers, with the exception of his own workers, appear not as workers but as consumers' (Marx, 1973, 419). But what is the effect of creating new needs for workers? *Capital*, which posits the value of labour-power as dependent on historically developed social needs, has nothing to say about the *growth* of needs. And, the reason is made clear in the *Grundrisse*: *Capital* was originally intended as only the first of six books, and in order to avoid 'confounding everything' the standard of necessary labour (or needs) was *assumed constant* in *Capital*. Changes in needs were to be considered in the book on 'Wage-Labour,' the third book in Marx's work on Political Economy (which, of course, remained unwritten) (1973, 817; Lebowitz, 1975).

The effect of the creation of new needs for workers is to raise the value of labour-power. And the effect where workers are organized in trade unions is to lead to demands for higher wages. Thus the contradiction of the capitalist mode of production emerges in a different form. On the one hand, each capital attempts to restrict wages to a minimum, and this restricts the ability of workers as buyers of commodities. On the other hand, each capital attempts to generate new needs in workers, and this leads to increased wage demands. The result of the effort to widen the sphere of circulation is therefore a tendency to reduce the rate of surplus value. Accordingly, the result of efforts to surpass the barrier of the falling rate of profit produces the tendency for a falling rate of profit: 'Capitalist production seeks continually to overcome these immanent barriers, but overcomes them only by means which again place these barriers in its way and on a more formidable scale' (1959, 245).

THE FINAL ACT

Dialectics is the study of things from all sides: 'the endless process of the discovery of *new* sides, relations, etc. ... the endless process of the deepening of man's knowledge of the thing, of phenomena, processes, etc., from appearance to essence and from less profound to more profound essence' (Lenin, 1963, 222). And the dialectical consideration of the falling rate of profit constantly produces new aspects also, as in the case of circulation costs and the effect of the creation of new needs on the rate of surplus value.

But are *these* Limits? In fact, there is no reason to suggest that these can be the basis of the falling rate of profit as Limit, as opposed, simply, to the repositing of the barrier, at a higher level. There is nothing to suggest that these, too, cannot be surpassed by greater exertions of capital.

So, finally, we must be explicit, must give a name to the place which the falling rate of profit occupies in Marx's view of capital. Examination of *Capital* demonstrates very clearly that Marx did not view – indeed rejected by his method – the falling rate of profit as a Limit. Marx's falling rate of profit is far more fundamental than the falling rate of profit as immanent limit in production, which, once revealed as a theory of the falling maximum rate of profit, can be seen to have very little to do with the relations of production of capital.

Rather, the falling rate of profit, which emerges out of production and circulation of capital, out of the forces and relations of production of capital, is the ever-present, the inseparable barrier of capital. The falling rate of profit is the negation of capital, and, as dialectics tells us, its existence ensures the growth, movement and development of capital: 'Contradiction is the root of all movement and life, and it is only insofar as it contains a Contradiction that anything moves and has impulse and activity' (Hegel, 1961, II, 67). Without contradiction, no movement; without the falling rate of profit, no innovation, no rising productivity of labour, no rising organic composition of capital, etc., in other words, no movement.

Thus, the drive of capital to go beyond its barrier, expressed as the negation of capital, is the law of motion of capital. It is the means by which capital perfects, universalizes itself. Yet, if the falling rate of profit is a barrier which can be surpassed and not a limit, then is the capitalist mode of production infinite?

Marx's answer to this question necessarily takes us beyond the issue of the falling rate of profit, just as it took Marx beyond the standpoint of an economist. Although Marx clearly viewed the creation of ever-more-formidable barriers as part of the development of capital, a breakdown (*Zusammenbruch*) is not part of Marx's economic model. It is necessary to be explicit about why Marx viewed the capitalist mode of production as a relative rather than an absolute form for the development of the productivity of labour, and about Marx's counterpart to the classical Stationary State ushered in by the falling rate of profit.

What, in Marx's view, made capital finite is that people become *increasingly conscious* that these barriers to capital as a form for the absolute development of human productive powers are inherent in capital, that they are inherent results of the relations of production within which capital moves. Thus, 'the limitations of the capitalist mode of production come to the surface.' They include a falling rate of profit which 'must be overcome constantly with crises' and the determination of production by a 'definite rate of profit, rather than the relation of production to social requirements, i.e. to the requirements of socially developed human beings' (Marx, 1959, 253). They include the waste of capital in circulation, the diversion of capital from its 'historic mission' of increasing productivity, the immiseration resulting from the creation of needs more rapidly than they can be fulfilled, and alienation, the fact that 'the working-out of the productive forces, of general wealth, etc., knowledge, etc., appears in such a way that the working individual *alienates* himself; relates to the conditions brought out of him by his labour as those not of his *own* but of an *alien wealth* and of his own poverty (1973, 541; Lebowitz, 1975).

Thus, it is conscious human beings who recognize that capital is its own barrier, who are the Limit to capital. The universality towards which capital irresistibly strives encounters barriers in its own nature, which 'at a certain stage in its development, allow it to be recognized as being itself the greatest barrier to this tendency, and hence will drive towards it own suspension (abolition, transcendence) (Marx, 1973, 410). That Limit is the proletariat, created, united, and expanded by capital in the course of its development. What capital produces, 'above all, is its own grave-diggers. Its fall and the victory of the proletariat are equally inevitable' (Marx and Engels, 1962, 45). This occurs as the proletariat becomes conscious of the nature of capital, conscious that the relations of production of capital are the barrier to the absolute development of social productivity.

Thus, the writing of *Capital*, the 'popularization' of Marx's ideas, was a profoundly political act. It was the attempt to bring consciousness of the inherent barriers in capital to the proletariat, the carrying out of Marx's early project – the uniting of philosophy and the proletariat. To the end, Marx remained the philosopher of *praxis*, of human action.

Capital thus comes to an end, not with the decline of the productivity of the soil, but with the emergence of the conscious individual who grasps 'his own history as a *process* and the recognition of nature (equally present as practical power over nature) as his real body' (Marx, 1973, 542). And it is followed not by some Stationary State, but by the removal of the 'limits to growth,' by the absolute 'development of human productive forces, in other words the *development of the richness of human nature as an end in itself*' (Marx, 1968, 117–18).

APPENDIX

Marx's *Grundrisse* model on the falling rate of profit may be described in the following set of equations:

$$s = d - w, \tag{1}$$

where s, w, and d are, respectively, surplus labour per worker, necessary labour per worker (or the value of labour-power expressed in labour hours), and the length of the workday (assumed constant);

$$w = U/l, \tag{2}$$

where U and l are, respectively, use-values entering into a worker's consumption (assumed constant), and the productivity of labour;

$$l = \sigma k, \tag{3}$$

where σ and k are, respectively, a constant representing 'efficiency' of capital, and capital per worker (in labour hours); and

$$P' = s/k, \tag{4}$$

where P', surplus labour per worker relative to capital per worker, is defined as the rate of profit.

It follows, then, from (1) and (2) that surplus labour per worker rises at a decreasing rate with increases in productivity and has its limit in the length of the workday:

$$D_l s = U/l^2,\ D_l^2 s = -2U/l^3, \text{ and } \lim_{l \to \infty} s = d.$$

With respect to increases in capital per worker, surplus labour per worker exhibits similar properties:

$$D_k s = U/\sigma k^2,\ D_k^2 s = -2U/\sigma k^3,\ \lim_{k \to \infty} s = d.$$

We may also note that, with respect to increases in capital per worker, the rate of profit approaches zero at its limit:

$$\lim_{k \to \infty} P' = \lim s / \lim k = d/\infty = 0.$$

However, it may be demonstrated that the rate of profit will rise initially with increases in capital per worker. From equations (1) to (4), we derive:

$$P' = s/k = (d-(U/l))/k = (d-(U/\sigma k))/k = (d/k) - (U/\sigma k^2). \quad (5)$$

Differentiating (5) with respect to k, we find:

$$D^k P' = (2U/\sigma k^3) - (d\ k^2),$$

and setting $D_k P' = 0$, we find the critical value of $k = (2U)/(\sigma d)$, so that

$$D_k P' \gtrless 0, \quad k \lesseqgtr (2U)/(\sigma d). \quad (6)$$

As noted in the text, however, the above argument is incorrect both because k, defined in labour hours, must be affected itself by increases in productivity and also because the productivity of labour is more appropriately related to the technical composition of capital. In relation to the latter point, we must introduce a new equation in place of (3):

$$l = \alpha t, \quad (3')$$

where t and α, respectively, are the technical composition of capital (means of production per worker), and a constant representing the efficiency of means of production.

In order, then, to establish what happens to capital per worker as productivity increases, it is necessary to determine the relationship between k and t:

$$k = (C+V)/N; \quad t = K/N,$$

where C, V, K, and N are, respectively, constant capital (in labour hours), variable capital (in labour hours), means of production, and the number of workers.

Now, let w_c represent the average value of means of production (in labour hours) such that:

$$C = K \cdot w_c.$$

Given that $w = V/N$, we can define β as the relationship between the average value of means of production and the value of labour-power:

$$\beta = w_c/w.$$

Now, let us assume β constant, reflecting the assumption of no bias in technological change. Then

$$C/V = (K/N).\,(w_c/w) = t\beta.$$

Accordingly, under this assumption, changes in the organic composition of capital (C/V) will 'mirror' changes in the technical composition t.

Substituting, we can solve for k as follows:

$$k = (C + V)/N = (C/N) + (V/N) = ((K \cdot w_c)/N) + (V/N) = tw_c + w$$
$$= t\beta w + w = w\,(t\beta + 1) = (U\,(t\beta + 1))/l. \quad (7)$$

Differentiating (7) with respect to l, we find that capital per worker falls as productivity increases:

$$D_l k = -\,(U\,(t\beta + 1))/l^2.$$

Similarly, capital per worker falls with increases in the technical composition of capital:

$$k = (U\,(t\beta + 1))/l = (U(t\beta + 1))/(\alpha t),$$
$$D_t k = -\,U/(\alpha t^2).$$

Intuitively, then, it appears that the rate of profit has a tendency to rise rather than to fall. This may be demonstrated from equations (1), (2), (3′), (4) and (7):

$$P' = s/k = (d - w)/(w(t\beta + 1)) = (d - (U/\alpha t))/(U(t\beta + 1)/(\alpha t))$$
$$= (d\alpha t - U)/(Ut\beta + U). \quad (8)$$

Then, the rate of profit has the following properties in respect to increases in the technical composition of capital:

$$D_t P' = \frac{U\beta + d\alpha}{U(t\beta + 1)^2}; \quad D_t^{\,2} P' < 0; \quad \lim_{t \to \infty} P' = (d\alpha/U\beta).$$

Accordingly, we may conclude that, assuming d, U, α and β constant, within the sphere of production the tendency is for the rate of profit to rise.

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