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The Law of Value and the Analysis of Underdevelopment

By

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Introduction

Karl Marx entitled his first major work on the theory of capitalism *An Introduction to the Critique of Political Economy*,[1] not, it should be stressed, *An Introduction to...Political Economy*. The inclusion of the crucial 'the critique of' provides the key to Marx's break with Classical political economy. As much as he respected the contribution of bourgeois writers, especially Ricardo, he did not consider himself a radical member of the Political Economy School. That the political economy school's most outstanding members focused upon class relations did not save them from an analysis that in Marx's judgement was 'vulgar', in that it focused upon the appearance of phenomena rather than their underlying causes. Political economy focused on relations of exchange, rather than on class relations among human beings. As he wrote famously in an oft-quoted letter,[2] for at least a generation before him bourgeois writers had recognised both class divisions in capitalism and that the basis of profit was exploitation; were these the central elements of his work, his contribution would have been trivial. Marx identified what in his assessment was the central failing of the political economy of Smith, Ricardo, *et. al.*:

> Political Economy has indeed analysed, however incompletely, value and its magnitude, and has discovered what lies beneath these forms. But it has never once asked the question why labour is represented by the value of its product and labour-time by the magnitude of that value.[3]

At first reading this passage may seem obscure. It refers to failure of the political economy school to understand that 'markets' are associated with specific social relations in which production, distribution and exchange are organised. Smith's 'invisible hand' purported to be a social mechanism for all time and all places; what Smith conceived as a guiding principle of self-sufficient individuals, Marx revealed as unique to a society divided between proletarians and capitalists. Marx's formulation of the labour theory of value reveals 1) the laws of reproduction of a capitalist society, 2) that capitalism ('market society') is a historically specific form of class society, 3) that changes in class relations explain the transition from pre-capitalist to capitalist society, and 4) why others explain both the transition and the laws of capitalism in an alternative framework. This four-fold character of the law of value constitutes its methodological break with the political economy school. It is not merely one theory among competitors, but a theory which subsumes its competitors within it by demonstrating that they focus upon the appearance of social phenomena rather than their essence.

Modern political economy ('Neoclassical economics') rejected Classical political economy's value theory; it shares with the latter its ahistorical methodology.

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[1] Indeed, this is the sub-title of volumes 2 and 3 of Capital ('A Critique of Political Economy'), though not of the first volume (sub-titled 'A Critical Analysis of Capitalist Production').

[2] See Marx and Engels (19965, p. 192).

[3] The passage appears in *Capital*, volume 1, Chapter 1, in the famous section, 'The Fetishism of Commodities and the Secret Thereof' (Marx, 1970, pp. 84-85).

The ahistoricism of both the Classicals and the Neoclassicals is not an oversight that might be remedied by the inclusion of a historical analysis in the chronological sense. Especially Smith, but also other classical political economists, made reference to the historical development of capitalism. Their method was ahistorical. Similarly, Neoclassical political economy has produced its own economic historians, but their 'history' is ahistorical in as far as it treats the processes of production, circulation, and distribution of the social product. For the Classicals and Neoclassicals, economic history is the study of relations of exchange. As such, all periods are essentially the same; society has chronology, but no history. Strictly speaking, it is not valid to criticise the Classicals and Neoclassicals for lack of an historical perspective: given their value theory, they should have none.

This paper first develops the core of Marx's theory of value. The main theme is given in the text, with elaborations in footnotes. Value theory is used to reveal the ahistorical character of Neoclassical political economy. Then, it is possible to consider the role of value in the passage from precapitalism to capitalism. Finally, the insights obtained are employed to develop generalisations about the barriers to accumulation in societies in which capitalism is not fully developed. In order to avoid idolatry, the framework developed will not be called 'Marxist', though Marx was its originator and most influential exponent. Rather, we use the oft-maligned term 'historical materialism' to mean that approach in which the process of social reproduction derives from the social relations in which production is organised.[4] Within this school of thought, the analysis of capitalism is a particular historical period, in which social reproduction involves the circulation and distribution of the products of labour as commodities. It is within this period and this period only that the law of value prevails.

Marx's Theory of Value

In capitalist society, the products of labour appear as 'an immense accumulation of commodities' (Marx 1974, p. 43). That commodities are the product of human labour in itself implies no particular value theory; it is a statement of the obvious. A commodity has a dual nature. For the seller it represents a *quantity* of value, which when realised in generally-equivalent form can be used to acquire another commodity through further exchange. This quantity of value is the *exchange value* of the commodity (what it fetches in exchange). For the buyer of the commodity, it represents a *quality* which is sought for a particular purposeful use. This quality constitutes the *use value* of the commodity. The distinction between the quantitative and qualitative aspect of a commodity is obvious and descriptive. It is the pursuit of this obvious and uncontroversial dichotomy that yields the labour theory of value and the laws of capitalist development.

The exchange value and use value of a commodity are not in peace with each other. While the former can vary due to immediate and longer-term influences, the latter retains an intrinsic character; more specifically, improvements in the methods

[4] 'Marxism' or historical materialism does not argue that social dynamics can be reduced to economic causes; rather, it argues that social dynamics derive from the social relations in which the collective reproduction of society is organised.

of production can reduce exchange value for a given use value. On the basis of the tension caused by this real dichotomy arises the need for money, which can now be defined as a general equivalent commodity of exchange.[5] At this early juncture in the theoretical discussion, the analytical method should be noted. We did not at the outset presume the existence of money; rather, its role emerged in consequence of considering the nature of commodities.

Out of the 'unpacking' of the commodity arises the need for a further concept. Since commodities do not exchange directly for each other, but through the intermediary form of money, the possibility arises that the exchange value of a commodity can vary as conditions of exchange vary. This raises the question of what determines the exchange value of a commodity; i.e., the underlying determinant of exchange value as the money a commodity fetches fluctuates due to stochastic influences. All theories of market prices posit the existence of an underlying determinant of exchange value which is hidden beneath the price form of exchange. In Neoclassical political economy the underlying determinant is the 'opportunity cost' of both producers and buyers; for Ricardian political economy it is the technology of production; and for historical materialism it is socially necessary labour, a concept we have yet to unfold. For all the schools, there is a *value* of commodities which lies beneath the surface of exchange. 'Value' has a straight-forward and unambiguous meaning: that which determines price, appearing in the form of quantities of money.

Like commodities, money has a contradictory nature. As the general equivalent, it circulates with commodities, but, unlike other commodities, it need not be sold to realise its exchange value (it *is* exchange value). With this characteristic it can serve as a general store and claim on value. As a claim on value, it can initiate exchange for commodities, commodities which can, in turn, be sold for money again. This process, exchanging money for commodities, then commodities for money, would only be done if the second quantity of money exceeds the initial quantity. It is in this way that money serves as *capital*, which is defined as self-expanding value; money which through circulation yields more money. To this point an increasingly complex series of phenomenon has been unfolded: from the commodity and its two-fold character, money (implying value), to capital. This unfolding as yet produces no theory of the determination of value; indeed, it can be taken as descriptive of the process of exchange. It allows one to note that exchange can be viewed in terms of two forms of commodity circulation, commodities via money to other commodities, and money via commodities to a greater quantity of money. The former is simpler, selling in order to buy (commodities - money - commodities, C - M - C). This is simple, because it requires little theoretical explanation. It involves disposing through exchange of a commodity whose use value is not desired, in order to obtain money, which can be employed to acquire a desired commodity.[6]

The second, buying in order to sell, is theoretically complex. It demands an explanation of the source of the increased quantity of money. Following Marx, we

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[5] It is beyond the scope of this chapter to explain why value theory implies that the general equivalent is a commodity (i.e., money is produced and has value). See Weeks (1981, Chap. IV).

[6] Marx called this process 'simple commodity circulation'.

call the process of buying in order to sell the *circuit of capital*. This increased amount of money that appears through buying in order to sell Marx gave the straight-forward name, 'surplus value'. On the surface surplus value is a simple concept: it is the quantitative difference between the money at the end and beginning of a process of buying in order to sell. The theory of value arises from the need to explain the source of surplus value.[7] Here, again, we must pause and reflect on the implications of what has been, at least superficially, a descriptive discussion. When money does not serve as capital, there is no surplus value[8] to explain, thus no role for a theory of value. Value theory, whatever its logical basis, is historically specific to the circuit of capital, though we have yet to make that historical specification.

We can rule out surplus value deriving in the aggregate from exchange itself.[9] It follows that capital (money) must exchange initially for a commodity whose value increases between buying and selling. A commodity's value increases by entering into a process of production. That value expands in production, would be met with agreement by the Neoclassical political economy school,[10] though its view of production would not conform to that of the historical materialist school.[11] Since an increase in value in the aggregate arises from production, it follows that capitalists must pass through production to obtain surplus value. This obvious point implies that the circuit of capital needs expanding to take the form:

M - C ... P ... C' - M'. [Money >> Commodities,
Production,
Commodities >> Money]

The next step in the analytical unfolding is also obvious and non-controversial: the first purchase by the capitalist (M - C), must involve the acquisition of a

[7] In its role as a theory of prices, the theory of value is a theory of prices under capitalism, when prices include surplus value, part of which is capitalist profit). The discussion of the division of surplus value into its phenomenal forms (as it appears in exchange), profit, interest, rent, and unproductive payments (e.g., salaries of priests and university professors), lies beyond the scope of this paper.

[8] 'Surplus value' is at this point used in the purely descriptive sense of the difference between the money that initiates the circuit of capital and the money that comes at the end.

[9] Consider a two commodity closed economy. The rise in the exchange value of one commodity implies a decline for the other. Thus, exchange redistributes rather than creates surplus value. A Neoclassical would not contest this theoretical argument, but would insist that individual and social welfare is increased by exchange. In turn, one following the Marxian method would not contest the Neoclassical point, but would judge it to be of little theoretical interest.

[10] The Neoclassical disagreement would come on two issues: 1) the process by which value is added in production (marginal productivity theory), and 2) what constitutes 'production' (rejecting the distinction between productive and unproductive labour).

[11] In Neoclassical Political Economy, market prices oscillate around long run general equilibrium prices. If short run and long run average cost curves have a unique minimum point, and no 'above-normal' profits are earned in any sector (perfect competition), then the general equilibrium set of relative prices is independent of demand. Demand determines the composition of output in general equilibrium, but not relative prices.

commodity or commodities which, when used in production, add value. By definition, the elements of production can be divided between workers, the human agency of production, and the material elements of production. We shall call these the labour input and the means of production, where the latter can be sub-divided between those that are materially transformed or consumed during production (e.g., raw materials, electricity), and those which retain their material form (e.g., machines, buildings). Including these elements, the full circuit of capital becomes:

M - C[L, MP] ... P ... C’ - M’ [Money >> Elements of Production,
Production,
Commodities >> Money]

To this point the labour theory of value plays no role; it lies latent in the analysis. The fundamental difference between the foregoing analysis and that of Neoclassical political economy is that the former has re-cast the analysis of value as derivative from capital, while the latter treats value as the outcome of the desire by individual human beings for consumption.[12] The point now has come to declare one’s value theory. The analysis cannot progress beyond description without an explanation of the origin of the surplus value arising from the circulation of capital.[13] Because of the manner in which materialist analysis describes aggregate reproduction, the Neoclassical theory of value cannot be utilised.

Even if one preferred to use the opportunity cost theory of value, our framework, M - C ... P ... C’ - M’, precludes it. In the Neoclassical theory of value commodities are not produced in the real world sense. Stocks of ‘primary inputs’ (‘labour’ and ‘capital’), when combined with a given technology, generate a flow of new value. In this stock-flow description of the economy an opportunity cost theory of value is consistent, albeit under highly restrictive conditions.[14] The materialist description of aggregate reproduction is not stock-flow, but involves the production of commodities by means of commodities, to use Sraffa’s term.[15] In this description, the process of reproduction is considered in time periods. In some arbitrarily selected initial time period (in principle one could go back to the Garden of Eden), there is produced a set of commodities which will be the input in the next time period. In the next time period those commodities are transformed into different material objects,

[12] It is this re-casting that eliminates from the materialist analysis the concept of ‘utility’.

[13] Even as pure description the foregoing is a considerable improvement upon Neoclassical analysis, which treats a capitalist society as the exchange between individual agents, or even the Keynesian ‘circular flow’. For a critique of the latter, see Weeks (1989, chap. 1).

[14] If production involves more than one output the value theory is consistent only in general equilibrium. See Weeks (1989, chap. 10) and Fine (1980, chap. 3).

[15] It would be more correct to write, ‘production of products by means of products’. This indicates the generality of the framework; i.e., it is not limited to a system of commodity (capitalist) production. When viewed in this way, production cannot logically be treated in terms of value added categories alone, but must be analysed in terms of the total social product (value added plus intermediate production). The Keynesian categories of consumption, investment, etc. have their analogues in materialist theory, but are not the relevant categories of analysis (see Weeks 1983, *passim*).

during which value is added to them.[16] This view of production formally excludes marginal productivity analysis. It does so not because it allows no substitution between inputs,[17] but because formally there is no difference between material inputs that are consumed during one period of production and those used-up over many time periods. Just as electricity is consumed in production and passes on no more value than its own, machinery, buildings, etc., are exhausted of their value over many (though in principle a definite number) time periods, passing on their value but no more.[18] The commodity which can expand value is the labour input. This commodity which capitalists buy is the capacity to work, *or labour power*. However, this analysis does not as yet provide a theory of value.

The production of commodities by means of commodities framework requires either a labour-based theory value or the Ricardian technology-based theory. We consider only the former. There is little controversy over whether units of labour time can be employed to *measure* value.[19] Measurement is essentially a trivial exercise for which there are several possibilities. For example, if we consider only material commodities (excluding services), one could aggregate by weight. However useful this might be for certain purposes, such as planning the transport of commodities, it makes no sense as a theory of value. Similarly, labour time can be used as the unit of measure; the debate is over its significance for understanding aggregate reproduction. Marx's argument proceeds from the tautology that each commodity is the product of human labour. When commodities exchange, they are rendered equal in practice. By definition, the labour that produced them is rendered equal through exchange: the concrete labour expended in production is converted to *abstract labour* in exchange (i.e., into money).

This purely formal conversion of concrete labour into its opposite becomes a real conversion through the process of competition. Competition among producers of a particular commodity establishes a standard input requirement, which Marx called *socially necessary labour*. This is rendered abstract through exchange, becoming *abstract* socially necessary labour. *The labour theory of value is explanation of the process by which abstract necessary labour is established through a social process* (how the assumption achieves credibility). This breaks with the Ricardian framework, which explicitly or implicitly takes abstract socially necessary labour as given: all labour is treated as homogeneous (or can be rendered so), and all producers of a commodity use the same technology with the same efficiency (or can be treated as

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[16] The essence of the production process is the material transformation of objects. the addition of value is a historically specific outcome. for example, a subsistence farmer who plants maize seed does not added value in production; he/she engages in specific and concrete labour which, if successful, results in more maize than was planted as seed.

[17] Neoclassical marginal productivity theory is consistent with fix coefficients of production, as demonstrated decades ago in Dorfman, Samuelson and Solow (1958, chap. 3).

[18] At a more concrete level of analysis, the distinction between materials of production (circulating means of production) and tools of production (fixed means of production) is crucial (see Weeks 1981, Chaps. 7 & 8). Unfolding this argument is beyond the scope of this chapter.

[19] There is debate over the proper method to the aggregate different quantities of labour. This is discussed below.

doing so). The Ricardian approach does not explain the special historical conditions under which a norm in production is established (i.e., why the functioning of society requires it). Unfolding the nature of commodities has provided the explanation: competition results from the general production of commodities when labour power is also a commodity; a common norm for the production of each commodity arises from the exchange of inputs and outputs. At each stage in the input-output process capitalists encounter the discipline of exchange (Weeks 1990). Marx referred to the disciplining effect of exchange when he wrote, 'a commodity is, in the first place, an object outside us' (Marx 1974, p. 43).[20]

We can now summarise the development of the materialist theory of value or *law* of value: commodities are the products of human labour which are produced within the discipline of capitalist exchange, both for the output and the inputs that are used to create the output. Production is formally private, but essentially social.[21] Every producer participates in social interaction in which his/her commodity is but one part of an organic whole. This system of social reproduction arises from labour power being a commodity. The commodity status of labour power results from the separation of producers from the means by which production can be carried out.[22] Producers (workers) are re-united with the means of production through the agency of capital. Having re-united workers and means of production through exchange, capitalists must transform commodities back into money.

Theory of Profit

The surplus value arises from the extraction of surplus labour by capitalists in the process of production. This surplus labour is created as a result of the difference between the value of the commodity labour power and the value which labour power creates during a production period. We have yet to explain why these two should differ. In as far as labour power is a commodity, its exchange value is determined by its cost of production. Of all the elements of Marx's theory of value, the analysis of wages is perhaps the subtlest, and only the basic argument is presented here. At a superficial level, it can be treated as a subsistence theory of wages. Without specifying relations of production, society's aggregate labour can be divided between

[20] Pursuing the implications of this quotation takes one through the theory of alienation. A commodity is, among other things, the product of purposeful human activity. Because it must be exchanged, it presents itself to human beings as something external to them, created by a process beyond their control ('the market'). Thus, competition is a process of alienating people from their labour. This is eloquently explained by Marx in Capital, volume III, Chapter L ('Illusions Created by Competition').

[21] It is essentially social for two reasons. First, within units of production it involves cooperation among human beings, a social process. Second, no commodity is created within one production unit. every commodity is the result of the production of many commodities, which serve directly and indirectly as inputs to it. Thus, the essence of production is production in the aggregate, with each individual commodity a constituent part.

[22] If producers control their means of production and labour power is not a commodity, then production is essentially isolated, not social. This point is elaborated below. It results in one of the fundamental ironies of a capitalist society: while the production of commodities alienates workers form their labour, by the same process it integrates those workers into a social matrix of production.

the labour necessary to reproduce the working population, and the labour expended over and above that reproductive minimum. Marx called the former *necessary labour* and the latter *surplus labour*. This division implicitly assumes the division of society into classes, so that there is a dominant group which appropriates the surplus labour.[23]

In a capitalist society this appropriation occurs through the interaction of exchange and production. Capitalists enter into a transaction with workers, in which money (*variable capital*) is exchanged for labour power. The price at which this exchange occurs (the wage) is determined by the exchange value of the collection of commodities which workers require to reproduce their labour power. In return, capitalists receive control over the productive potential of workers for a prescribed length of time. Capitalists use the labour power to produce commodities which they exchange for money. As Kaldor said, workers spend what they get; capitalists get what they spend (plus some, he might have added).[24]

The distinction, between the exchange value of the commodity labour power and the subsequent exchange value of the commodities workers produce, is not the materialist theory of profit as such. Profit as such results from surplus labour. The existence of surplus labour follows from the analysis of production by means of products: labour is the input to production which can expand value in this framework. The distinction between the exchange value of labour power and the exchange value of what workers produce provides the analysis of accumulation; i.e., the explanation of how profit can be increased.

Given the exchange value of the commodities required for the reproduction of the labour force (the value of labour power), surplus labour can be increased in two ways. It can be raised absolutely by the extension of the working day or an increase in the intensity of work. This method of increasing surplus labour has natural limits, but also limits in terms of the norms of 'fairness' in society. Marx called this the raising of surplus value absolutely (or, the production of absolute surplus value): extracting more effort from workers without compensation. He associated this with the early stage of capitalist development, when capitalists faced social relations that limited their ability to introduce technical changes (see Weeks 1985-86). As the financial system develops, allowing capital to be redistributed towards more efficient producers, and the struggle of the working class sets limits the working day, the

[23] A society without classes is a society without a surplus; i.e., a surplus product is not basically a technological phenomenon, but emerges from technical possibility to realisation when a class develops to appropriate it from the direct producers.

[24] There is nothing specially Marxists about the insight that workers are involved in simple commodity circulation and capitalist in the circuit of capital. Indeed, Walt Disney (rather, one of his employees) made the point with succinct clarity in cartoon strip of Uncle Scrooge (the richest duck in the world). Donald Duck (nephew of Scrooge) receives his paycheck from McDuck Enterprises. He then goes to a McDuck petrol station to fill his car, to a McDuck supermarket to do his shopping, and pays his rent to McDuck Estate Agents. Subsequently, Donald goes to his uncle to ask for an advance on his next week's salary. His rich uncle berates him for lack of thrift and tells him, 'I have no trouble keeping my money'. Had this run in a left-wing periodical, it would have been dismissed as communist propaganda.

raising of surplus value absolutely becomes secondary to the raising of surplus value relatively. Surplus value is raised relatively by the reduction of the necessary labour component in societies aggregate working time.[25]

While individual capitalists can raise surplus value absolutely through their own efforts, it is raised relatively through a social process. Consider a capitalist that produces a commodity that serves as an input into a commodity that is part of workers' means of subsistence. A technical change which lowers the cost for one capitalist allows that capitalist to enjoy greater than average profit for that sector of production. This is followed by a process of competition which induces the other capitalists in the sector to adopt the same or similar cost-reducing technology. As all or most capitalists in the sector come to enjoy above average profits, capital migrates from other sectors into the now more-profitable sector. This drives down the exchange value of the commodity, which makes it cheaper for all capitalists that use it as an input. In a second competitive round, the commodity using the cheaper input falls in exchange value. Since by assumption this second commodity enters into workers' consumption, the value of labour power falls. If the standard of living of workers remains the same, then the exchange value of labour (the wage) falls. This process of technical change and competition demonstrates the social character of capitalist production: in as far as any capitalists enjoy a relative raise in surplus value, all do.[26]

It was through his analysis of absolute and relative surplus value that Marx further demonstrated the historically specific character of capitalist production. Surplus labour, appropriated by a dominant class, characterised societies for thousands of years. It was first under capitalism that the increase of surplus labour through the social interaction of producers became a dynamic force of accumulation. This dynamism arises from the general production of commodities, in which society's surplus labour takes the from of surplus value (i.e., it must be realised in money form).

Value and Social Transformation

Since the elements of production in a commodity society manifest themselves as values in exchange, they are converted in the minds of producers into elements of

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[25] Marx used the distinction between absolute and relative surplus value to divide capitalism into two great epochs (Weeks 1985-86), the age of manufacture and the age of modern industry. It may or may not be that Marx believed that extracting surplus value absolutely became of little importance in the second epoch. However, at the end of the twentieth century it is clear that capitalists are constrained in doing so by the strength of the working class, not the logic of accumulation. The neoliberal ideology of 'flexible' labour markets can be seen as a theoretical justification to re-introduce the extraction of absolute surplus value in the advanced capitalist countries.

[26] For surplus value to rise relatively, technical change must affect either the inputs into the commodities that workers consume or those commodities themselves. Technical changes that reduce the labour time in commodities not consumed by workers ('luxuries') do not affect the value of labour power. In Neo-Ricardian terminology, non-luxuries make up 'basic' commodities.

value.[27] This thrusts upon society a set of exchange categories that define the nature of commodities in as far as they are values: materials costs, wages, profit, interest, rent. These categories are real in that they represent actual payments that capitalists must make. More important, they represent the form by which the social character of production is enforced. An independent producer, such as a farmer who owns her/his own land, finds these categories imposed upon her/his activities. Marx makes this point with concise clarity:

> To himself as wage-worker he pays wages, to himself as capitalist he gives the profit, and to himself as landlord he pays rent. Assuming the capitalist mode of production and the relations corresponding to it to be the general basis of society, this subsumption is correct. (Marx 1971, p. 875)

This imputation is the basis for the ahistoricism of Neoclassical political economy. As a result of the real subsumption of non-capitalist production to the categories of capital 'the illusion is all the more strengthened that capitalist relations are the natural relations of every mode of production' (Marx 1971, p. 876). Independent producers are not capitalists (they do not hire themselves in a market); they are not landlords (they do not rent their land to themselves); and they are not financial rentiers (they do not lend themselves money). From the imposition of capitalist categories on all social production in a capitalist society, Neoclassical political economy moves to the generalisation of the categories to all societies in all time periods. Thus, the hunter-and-gatherer is interpreted as weighing the trade off between current consumption and the accumulation of capital;[28] the sharecropper's behaviour is analysed in terms of transactions costs. As a result, the social dynamics of all societies are treated as if they occur under the rules of a capitalist order. This gives Neoclassical political economy its a- and anti-historical character, rendering it incapable of analysing social change.

In contrast, the materialist theory of value provides both a general (abstract) explanation and concrete analysis. Capitalism is the first form of social production in which class relations are sustained through the general circulation of commodities. Beneath this generalised commodity production lies the separation of labour from the means of production. This separation results in competition among capitals, which is the source of the dynamism of the capitalist mode of production. While in previous societies the products of labour were exchanged against money to varying degrees, this exchange was incidental or at most secondary to the dominance of the appropriating classes over the direct producers. As a result, there was little tendency

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[27] Excessive quotation from Marx can prove tedious, but on this point it is difficult to improve on his clarity:

> This division of a product into a useful thing and a value becomes practically important only when exchange has acquired such an extension that useful articles are produced for the purpose of being exchanged, and their character as values has therefore to be taken into account, beforehand, during production. (Marx 1970, p. 78)

[28] The hunter-and-gatherer must assess and give priority to his/her use of time (Marx called this 'the economy of time'). However, the tool he/she might choose to produce in place of immediate consumption is not capital.

for exchange value to feed back upon production and create a social norm of efficiency (abstract socially necessary labour). In other words, pre-capitalist production occurs in isolated units, not socially integrated through capitalist markets. In contrast, capitalist production is formally private (based on private property), but socially integrated through commodity circulation.

The prices attached to pre-capitalist products are superficial; they do not regulate the production process. In general land is not a freely-vendible commodity in precapitalist societies, so prices do not determine its allocation. Similarly, labour power is only marginally a commodity, because the direct producers are not separated from the means of production. As a result of the incompleteness of land and labour power's commodity status, exchange has a limited affect on the social order. To take the most obvious example, it can drive independent producers out of production for exchange, or to the margin of markets, but cannot dispossess them through market processes alone. For this reason Marx made his famous comment that individual private property (petty bourgeois private property) is everywhere a barrier to the development of the capitalist mode of production (Marx 1974, p. 670). The law of value shows, on the one hand, the source of capitalism's dynamism, the separation of labour from the means of production and the rendering into commodities the natural environment. On the other hand, the law reveals through its absence or limited applicability the historical specificity of its social existence.

In all class societies there are two major sources of conflict: 1) between the appropriating (ruling) class and the producing class over the conditions of exploitation of the latter, and 2) among factions of the appropriating class for control of the state. In pre-capitalist society, the latter conflict manifest itself typically as armed conflict in order to extend control over populations and territories. Under the rule of capital, conflict among factions of the dominant class takes the form of competition among capitals (firms). Over no other issue is the difference between Neoclassical and materialist theory more stark than for competition. The former theorists laud it as the mechanism for harmony and social welfare gains; in the analysis of the latter competition is the source of instability and uneven development, which can provoke armed conflict among capitalist states. In materialist theory, warfare is the continuation of market competition by other means.

Conflict in the form of cheapening of commodities does not eliminate armed conflict; quite the contrary.[29] But it is progressive because it results an unprecedented development what Marx called humankind's mastery over nature. This development of the productive forces, inherent in competition, is not necessarily a good thing. 'Progressive' is used in a descriptive, not a judgmental sense, to focus on an essential

[29] Quite the contrary, the civilised competition in markets produces irresolvable tensions which develop into open warfare. Both World War One and World War Two began as conflicts between capitalist countries. The former remained so throughout, while the character of the second became more complicated when Nazi Germany invaded the Soviet Union. The political instability that results from competition in markets was pursued by Marxists within the theory of imperialism, which until after WWII focused primarily on intra-capitalist rivalries. The relationship between advanced capitalist and underdeveloped countries involves the analysis of the interaction of modes of production, discussed below.

characteristic of the expansion of capital: inherent in it is the progressive development of the power to produce.[30] While technological innovation occurs in other social forms of production, only in under capital is it the principal method of struggle within the appropriating class. This makes the dynamics of social change different in precapitalist and capitalist societies. Class struggle in capitalist society is driven in great part by the necessity for capitalists to raise surplus value relatively; class struggle in precapitalist society occurs in the context of the appropriating class largely restricted to raising surplus value absolutely.

One can contrast a capitalist society with a precapitalist, because all capitalist societies share a common characteristic: human labour power takes the form of a commodity (for that is what capitalism is). However, other than being divided into classes, precapitalist societies share no analogously defining characteristic. That is, they share no universal mode of surplus appropriation which generates a common social dynamic among them. For this reason a general and abstract discussion of transition from precapitalist to capitalist society is by its nature extremely limited in analytical power. Theory tells one the abstract outcome of the transition (the appropriation of a surplus product through free wage labour[31]), but not from where the transition came. It is tempting to construct a false, universal precapitalist society which, in effect, is the opposite of an abstract, fully-developed capitalism. This treatment of precapitalist societies, as what they are *not* rather than what they *are*, de-emphasises to the point of insignificance changes in the social relations of production. The transition of capitalism becomes the growth of exchange relations, rather than a revolution in production and property relations.

The analytical unfolding of value theory reveals the superficiality of using the spread of exchange to explain the transformation of precapitalist social relations into capitalist wage labour. Societies maintain their coherence by the effectiveness of the appropriating class in controlling the direct producers. The importance of exchange in a society is derivative from the form that control of the direct producers takes.[32]

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[30] There is a second, better known, sense in which Marx considered capitalism progressive. Especially in his early writings (see the *Communist Manifesto*) he argued that capitalism is progressive because it creates the proletariat, which will be the historical vehicle for the overthrow of capitalism and exploitation in general. Consideration of this argument lies beyond the scope of this paper.

[31] The term 'free' wage labour refers to the specific character of social labour under capitalism:

> Free labourers, in the double sense that neither they themselves form part and parcel of the means of production, s in the case of slaves...nor do the means of production belong to them...they are, therefore, free from...any means of production of their own. (Marx 1974, p. 668).

[32] A quite interesting development of this point, with concrete examples, is found in Chapter XX of volume III of *Capital*, called 'Facts about Merchant's Capital'. For example,

> Of course, commerce will have more or less of a [disintegrating] effect on the communities between which it is carried on. It will subordinate production more and more to exchange value...thereby it dissolves the old relationships...Nevertheless this disintegrating effect depends very much on the nature of the producing community. (p. 330)

Exchange, even capitalist exchange, is a surface phenomenon, constructed upon the prevailing relations of production. Marx called the analysis of exchange 'commodity fetishism', meaning that which treats social relations as relations of exchange:[33] '[the] money-form [price] of the world of commodities...actually conceals, instead of disclosing, the social character of private labour, and the social relations between individual producers' (Marx 1974, p. 80).

In a capitalist society, exchange plays a role unique unto that society: it conceals the appropriation surplus labour. All exchanges appear as equal exchanges (the buyer receives the commodity and the seller its exchange value in a formally voluntary transaction). This equality in exchange is then imposed downwards ideologically to production relations, so that each element of the valued added, wages, rent, interest and profit, is imputed to a 'factor of production' as reflecting equal exchange. The interpretation of these components as flows of value arising from the contribution of land, labour and capital to newly created value Marx sardonically called the 'Trinity Formula'. These income categories ('revenues' was Marx's term) become relevant only under capitalism. They do not reflect the inherent nature of production, but rather the class divisions in a *capitalist* society. To treat them as relevant to all historical periods is the essence of 'commodity fetishism', ignoring social relations to focus on exchange.

Limits to Accumulation in Transitional Societies

Capitalism develops within precapitalist society through the conversion of labour power and land into commodities.[34] This conversion is achieved through a process of coercive social change, such as an armed insurrection or a confiscatory land reform. For a time, perhaps a considerable time, he old social relations persist alongside the emerging relations of capitalist wage labour. Precapitalist relations tend to persist longest in agriculture, because of the difficulty of divorcing the peasantry from the land, and, thus, making land and labour power commodities. As long as precapitalist relations continue in agriculture, this provides a break on the process of accumulation. 'Structuralist' economists have given considerable attention to this problem (summarised in Kay 1989, Chap. 2). In the Latin American structuralist approach, the process of urbanisation generates an increasing demand for food for the growing working class, and the expansion of capitalist production increases the demand for agricultural raw materials. Backwardness in agriculture results in an inelastic supply of foodstuffs and inputs for industry. As a consequence, relative prices move against the capitalist sector depressing the profit rate.[35]

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[33] He quotes a writer named Fernando Galiani as asserting 'value is a relation between persons', and comments, 'he ought to have added: a relation between persons expressed as a relation between things' (Marx 1974, p. 79, footnote).

[34] The conversion of labour power and the natural environment into capitalist commodities Marx called 'primitive accumulation' (see Marx 1974, Chapter XXVI, 'The Secret of Primitive Accumulation'.

[35] A similar effect occurs in the famous Lewis model of 'economic development with unlimited supplies of labour'. In that model, the absence of productivity change in the precapitalist sector results in a relative, then absolute, decline in food production as 'underemployed' labour is transferred to the capitalist sector.

While the description is correct, this analysis lacks a clear theoretical foundation. The movement in relative prices is wholly dependent upon an inadequate *supply* of products from the precapitalist sector. This inadequate supply results from the specific behaviour attributed to the precapitalist landlords, who are assumed not to respond to market signals. The materialist theory of value provides a more analytically general explanation, which is not dependent upon specific institutional arrangements. Consider again the circuit of capital, shown in Table 1. Historically, capital emerged first as merchants' capital, which involved buying in order to sell, the form of capital, M - C - M', without the essential characteristic of capital, wage labour. In this period, prior to the industrial revolution, European merchant houses mediated in the exchange of products arising from precapitalist social relations. Profit (M' > M) arose from the monopoly over trade, buying cheap and selling dear. In this process, the export of commodity capital could reinforce precapitalist production relations, since the origin of the products exchanged was of no concern to merchants' capital, as long as their supply was assured. The trade in commodities neither required nor necessarily brought about a transformation in social relations.

By the middle of the nineteenth century, the growth of merchant houses and the emergence of capitalist relations in Western Europe and the United States brought the rise of large financial institutions, whose purpose was the vending of money as such, rather than commodities. In underdeveloped regions, the export of money capital financed trade, and also provided loans to governments, especially in Latin America, to fund public works such as ports and railroads. As with the trade in commodities, financial houses could pursue their profits without the development of capitalist wage labour.

Table 1: The Life-Cycle of Capital

1. Moment of Circulation *Advance of capital* (Money capital into productive capital)	2. Moment of Production (Productive capital into commodity capital)	3. Moment of Circulation *Realisation of value* (Commodity capital into money capital)
M -- C (MP & LP) [M = C, no change in value]	C (MP & LP) -- C' [C' > C, value expands]	C' -- M' [C' = M', no change in value]
Agency: Financial capital	Industrial capital	Merchants' capital
International Expansion of capital: export of **money capital** [capital movement on basis of existing social relations of production]	export of **industrial capital** [transformation of the social relations in precapitalist societies]	export of **commodity capital** [trade on the basis of existing social relations of production]

The export of commodity capital and money capital had a contradictory tendency in underdeveloped regions, as implied by their position in the circuit of capital. By enhancing the wealth and power of ruling classes in the underdeveloped regions, precapitalist social relations could be rendered more tenacious. At the same time, the import of capitalist commodities into underdeveloped regions acted to destroy local artisanal and peasant production. Simultaneously, infrastructure projects financed by the export of money capital created an emerging class of wage labour. However, even by the early twentieth century internationally trade commodities from underdeveloped countries arose overwhelmingly from systems of forced labour, debt-bondage, and forms of patron-clientage

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Upon this infertile ground of unfree labour, the scope for the export of productive (industrial) capital was extremely limited: the industrialisation of underdeveloped regions required a prior process of the dissolution of precapitalist relations. The materialist theory of capitalist development provides few generalisations about the process by which wage labour emerged in each country and region. No general theory of the rise of capitalism is possible, for in each case the failure or success of the relations of capital to take root is dictated by the nature of the precapitalist society. However, some general insights are possible. In those underdeveloped regions where the relations of capital took hold, accumulation was limited by its essential incompatibility with precapitalist production. From a superficial point of view, precapitalist relations appear beneficial, since they could represent a source of cheap labour power. However, this remains a latent benefit to industrial capital until the precapitalist sector unravels and sheds its labour. Even as this occurs, value theory reveals a profound incompatibility that calls the concept of 'cheap labour' into question; i.e., reveals it as an essentially vulgar concept at the level of appearances.

Because precapitalist production does not conform completely to the discipline of the law of value, production techniques continue, primarily in agriculture, which would be abandoned by capitalists as unprofitable. Restrictions on the alienability of land and the immobility of unfree labour restrict the ability of capital to transform agrarian relations. However, it is the agricultural sector which provides a large portion of the means of subsistence of the workers that capitalists hire. In an abstract, fully capitalist society, the process of competition reduces the value of commodities, which feeds back through the system to reduce the value of labour power. Such is not the case for society in which the means of worker subsistence are produced in precapitalist relations.

Other things equal, a worker with a lower standard of living is 'cheaper' to a capitalist than one with a higher standard of living.[36] However, this refers to increasing surplus value *absolutely*, and cannot be the mechanism for the progressive cheapening of commodities. No matter how low the standard of living of workers, subsequent cheapening of commodities requires that surplus value be raised relatively in the capitalist sector. As we have seen, surplus value is raised relatively through the reduction of the value of labour power. In as far as workers consume commodities produced in the capitalist sector, the process of competition, by cheapening these commodities, reduces the value of labour power. However, the component of workers' subsistence which arises from the precapitalist sector is not cheapened by the process of capital accumulation. The fall in the value of commodities produced by capital is not matched by an equal fall in the value of labour power, resulting in a

[36] On the condition, among other things, that the difference in the standard of living is not cancelled by an equal are larger difference in productivity.

decline in surplus value per worker, even if the standard of living of workers remains the same. Thus, the interaction of the capitalist and precapitalist sectors results in a fall in the rate of profit in the former sector.[37] In simple terms, competition in the capitalist sector results in a transfer of value to the precapitalist sector *via* a movement in relative prices against the capitalist sector.

The fall in the rate of profit does not require that machinery or other means of production are substituted for labour inputs. An autonomous increase in labour productivity[38] is sufficient to bring down the rate of profit. At the initial set of exchange values of outputs and inputs, any autonomous productivity increase appears to the capitalist as cost-decreasing, though it subsequently results in a decline in unit profits. Even if capitalists could foresee the fall in profits due to the productivity increase, they would be forced to adopt by the pressure of competition: if some capitalists did not, others would, in order to reduce their costs and seizing a larger market share. The special conditions of underdevelopment force capitalists to adopt productivity raising-techniques that provoke a tendency for the rate of profit to fall.

The process of accumulation in the context of a pre-capitalist sector producing the means of consumption for the workers in the capitalist sector can be summarised as follows. Competition in the capitalist sector results in the introduction of cost-reducing technical changes. By raising the productivity of labour, these technical changes increase the use of materials per unit of labour, and even more if accompanied by an increase in machinery per worker (not considered in discussion). Were both sectors capitalist, the result of technical change in either sector would be to raise the average rate of profit as exchange values of the means of workers' subsistence fall. Values, then, *via* competition, prices, would fall. The general cheapening of commodities raises the rate of profit in a purely capitalist society.

When the means of consumption are produced under precapitalist relations, the result is dramatically different. As before, competition in the capitalist sector results in the introduction of cost-reducing technical changes. This brings down the price of capitalist commodities. In as far as the capitalist sector uses its own outputs as inputs, the tendency for profit to decline is counter-acted. However, this does not affect the distribution of the working day between necessary and surplus labour time. In order that surplus value rise, it is necessary for the value of labour power to decline. This will occur if and only if there is a decline in the value of the commodities workers consume, or a decline in the value of the inputs to those commodities. Since precapitalist sector may use capitalist inputs (as in the model), the price of its output may fall, and thus the value of labour power may fall. But this will be insufficient to keep unit profit from declining in the capitalist sector.[39]

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[37] This process is demonstrated in a formal model in the appendix.

[38] 'Autonomous' in the sense that more output is achieved from a given input of labour power and means of production.

[39] Formally, this is equivalent to the oft-demonstrated result that technical change which raises the ratio of means of production to labour power (what Marx called the technical composition of capital) will result in a decline in the average rate of profit if the value of labour power remains unchanged. In current discussion, the decline does not result from

There are two major tendencies that can counteract the tendency of the average rate of profit to decline in the context of precapitalist relations in agriculture. First, in as far as the precapitalist sector uses capitalist inputs, technical change in the capitalist sector will lower the value of the means of consumption; i.e., as the precapitalist sector comes under the discipline of exchange in its use of inputs. Second, the tendency is counteracted as worker's consumption incorporates commodities produced in the capitalist sector. The specific historical conditions and social relations in each country will determine the strength of these counteracting tendencies. Most fundamentally, removing the limits to accumulation requires a capitalist revolution in agriculture. The inability of the law of value to bring about the progressive reduction of necessary labour relatively to surplus labour reflects the contractions arising from two systems of social relations which are inconsistent in the long run.

In this context, one can identify a major source of the successful capitalist development of the East and Southeast Asia countries: many of these countries benefited from a fundamental reform of agricultural and tenure prior to their rapid accumulation process. In Latin America, land reforms did not occur at all (e.g., Guatemala) or were not complemented by support services necessary for capitalist transformation (Bolivia, Mexico and Peru). The most successful case of capitalist development, Chile, indicates the importance of land reform in laying the basis for accumulation.[40]

The Limits to the Progressiveness of Capitalism

A important implication of the theory developed above is that underdevelopment is the incomplete development of capitalism in a society.[41] This would seem to imply that capitalism is the solution to the problem of underdevelopment, a conclusion argued with considerable force by numerous authors who considered themselves Marxists (see Warren 1976). It is hardly surprising that many on the left have drawn back from this conclusion, implying as it does some rather unpalatable political practice. While the logic of the law of value implies capitalism is progressive, it is relevant here to recall Oscar Wilde's aphorism that madness is carrying any argument to its logical conclusion.

The overall progressive nature of the capitalist mode of production is integrally linked to the uneven development which capitalism generates, which is

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assuming a constant value of labour power, but from the relatively lower rate of productivity growth in the precapitalist sector.

[40] Land reform in Chile was initiated in the early 1960s, then pursued with vigour by the Christian Democratic government (1964-1970) and the Socialist/Communist government (1970-1973). After the military coup in 1973, the right-wing government continued agrarian modernisation through capitalist farming.

[41] This conclusion is in direct contrast to that of dependency theory. The latter concludes that countries are underdeveloped because of capitalist penetration, while materialist theory concludes that underdevelopment reflects the incomplete dominance of capitalist relations over precapitalist ones.

inherent in capitalist competition. From the days of Adam Smith, the political economy schools, both Classical and Neoclassical, treated competition as a force that produces harmony among capitals ('firms'). This analytical outcome results from presuming that all capitals are identical (the 'typical firm'), entering into the competitive process on equal footing. This assumption presupposes the outcome which the competitive process generates: the tendency for competition to establish a norm of abstract necessary labour in production. By presupposing the outcome, the Neoclassical political economy school precludes the possibility of winners and losers in competition. In this framework competition processes no outcome at all, but rather a harmonious equilibrium among rivals all of whom were identical at the outset and remain so to the end.

This approach, in which capitalist rivals are equals, involves no analysis of competition itself. Indeed, it precludes the very mechanisms by which the competitive struggle is fought. If all 'firms' are 'price-takers', there is no role for price competition, product differentiation, advertising, and the other tactics by which capitalists seek to gain advantage over one another.[42] To understand the uneven development which capitalism generates, it is necessary to reconstruct the analysis of competition on the basis of the law of value. This involves three basic principles: first, that competition be defined as the movement of capital; second, the integration of technical change with the movement of capital; and, third, recognition that within sectors of industry the efficiency of production is unevenly developed. For the analysis of underdevelopment, to these must be added the contradictory impact of the relations of capital on precapitalist formations.

As suggested in the discussion of Table 1, the impact of the expansion of capital on precapitalist relations is determined by the interaction of the form capital takes (commodity, productive, money), and the nature of precapitalist social relations. The expansion of capital in commodity and money forms need not generate wage relations which are the basis of capitalism's dynamism. On the contrary, capitalist trade and finance can reinforce the power of precapitalist elites, blocking the development of industrial capital, both by domestic agents and foreign ones. Further, by expanding international markets for commodities produced in precapitalist relations, the expansion of commodity and financial capital can intensify and strengthen systems of unfree labour. In circumstances in which precapitalist relations are transformed to wage relations, the process is rarely smooth or harmonious. When labour power is not completely separated from the land, exchange is a blunt instrument to achieve reallocation. In this circumstance, force may be required, typically executed by the capitalist state, to render precapitalist relations vulnerable to capitalist penetration. The 'civilised' warfare of cheapening commodities is constructed upon a violent process of dispossessing peasants and artisans from their means of production.[43]

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[42] A more detailed critique of Neoclassical competition can be found in Weeks (1994).

[43] Marx termed this process so-called primitive accumulation.

> The so-called primitive accumulation, therefore, is nothing else than the historical process of divorcing the producer form the means of production...
>
> [T]he history of primitive accumulation...[are] those moments when great masses of men [sic! People] are suddenly and forcibly torn from their means of subsistence, and

Even in an abstracted society of purely capitalist relations, the expansion of capital is simultaneously destructive and creative. If, in general, production units within industries vary in unit costs, then it follows that the movement of capital does not reproduce the average production conditions in an industry, but typically seeks to emulate or surpass the most efficient operator. Far from establishing a harmonious equilibrium, capitalist competition disrupts, eliminates the weak and challenges the strong, to force upon industry a new standard of efficiency and cost. The movement of capital to equalise profits across industries is the process of generating uneven development: equilibration in exchange (a single price in a market) hides the generation of uneven development in production. In a capitalist system regulated but by capital itself, the frontier between the 'civilised' forms of cheapening commodities, on the one side, and banditry, fraud, and violence is easily and frequently crossed.

While capitalist social relations are progressive in the strict sense of laying the basis for a revolutionary development of the productive forces, it does not follow that unregulated capitalism generates this outcome in all circumstances and regions. For example, the current globalisation of commodity and financial markets has been associated growth 'miracles' in East and Southeast Asia, but has reinforced underdeveloped in Africa south of the Sahara. The latter is as much a part of the dynamism of capitalism as the former. Inherent in the progressiveness of capitalism on a world scale is the simultaneous destructive impact of capitalism in particular regions.

Further, part of the progressiveness of capitalism arises from the class struggle out of which restrictions are placed upon the accumulation of capital. The distinction between the absolute and relative extraction of surplus value is at one level of analysis purely formal and definitional. At the more concrete level, it is a critique of unregulated capitalism. In the absence of restrictions on capital, the more primitive absolute extraction is forced upon capitalists by the pressure of competition. Precisely because the raising of surplus value relatively is a social process, it must in part be imposed upon capitalists by limiting their power to raise surplus value absolutely. Historically, limits were imposed through the legal restriction of the length of the working day, regulations on working conditions, and prohibition of child labour. The struggle of workers for work place rights transforms capitalism from its primitive, repressive stage of absolute extraction, and forces it to realise its more progressive character in which society's surplus labour is increased through the dynamism of technical change.

Technical Appendix

In the section, 'Limits to Accumulation in Transitional Societies', it was argued that the persistence of pre-capitalist relations tends to limit the accumulation process. This annex provides a formal proof. At the outset we make a number of simplifying assumptions. Consider a closed economy in which there are two sectors, one capitalist that produces means of production, and one pre-capitalist that produces

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hurled as free and 'unattached' proletarians on the labour-market. (Marx, 1974, pp. 668 & 669) the means of consumption. The capitalist sector does not use the commodity of the precapitalist sector as a direct input to production. The exchange values for each sector can be defined as follows:

$$(p_1a_1\beta + p_2wn_1)(1 + r_1) = p_1\beta \qquad (1)$$

$$(p_1a_2 + p_2wn_2)(1 + r_2) = p_2 \qquad (2)$$

Where a_1, a_2 are the units of commodity 1 required to produce one unit of commodities 1 and 2 (greater than zero and less than unity), respectively; w is the amount of commodity 2 consumed by a worker in a day (greater than zero and less than unity); n_1 , n_2 are the units of labour required to produce one unit of each commodity (greater than zero); and β is a productivity index (equal to or greater than unity). There is no productivity index for the precapitalist sector because it is assumed technologically stagnant relatively to the capitalist sector. The p's are the exchange values and the r's the profit rates. Exchange values and rates of return are measured in units of labour time.

While the precapitalist sector pays wages, the labour there is not 'free' wage labour, but tied to the dominant rural class through relations of clientage. Land is not a freely vendible commodity, in part because the rural labour is tied to the land. As a result, capital cannot move from the capitalist sector to the precapitalist, so there is no tendency for the rates of return to equalise. Each commodity's exchange value tends to equal its value. Because of the tendency for exchange values to equal values, the following holds (price in each sector equals the labour time objectified in means of production plus the new or current labour added in production):

$$p_1a_1\beta + n_1 = p_1\beta \qquad (3)$$

$$p_1a_2 + n_2 = p_2 \qquad (4)$$

Therefore,

$$p_1 = n_1/\beta(1- a_1) \text{ and} \qquad (5)$$

$$p2 = a2[n_1/\beta(1- a_1)] + n_2 \qquad (6)$$

If we substitute (5) and (6) into (1), we obtain (after some manipulation),

$$r_1 = \frac{1 - \{a_1 + w[a_2n_1 + (1 - a_1)n_2\beta]\}}{a_1 + w[a_2 n_1 + (1 - a_1)n_2\beta]} \qquad (7)$$

The profit rate in the capitalist sector reduces to a function of several parameters: the input and labour coefficients for each sector, the standard of living (w), and the productivity index of the capitalist sector (β). Inspection shows that a productivity increase results in a *decline* in the rate of profit, by decreasing the numerator and increasing the denominator. This occurs even though unit costs in the capitalist sector decline.[44] This decline results from the reduction in the living labour

[44] Assume that initially β equals unity. Then, cost per unit of output ('cost price' was Marx's term) is,

$$p_1a_1 + p_2wn_1,$$

for $\beta > 1$, unit cost is

$$[p_1a_1 + (p_2wn_1/\beta)] < [p_1a_1 + p_2wn_1].$$

content of capitalist commodities (the increase of β), in the absence of a tendency for profit rates to equalise across the two sectors. Were both sectors capitalist, the relative surplus value mechanism explained in the text would ensure that the equalised rate of profit for both sectors would be higher than prior to the productivity increase.[45] In the absence of this equalisation, the exchange value of the means of consumption may fall,[46] but less than would be the case with equalisation, and value is in effect transferred from the capitalist to the pre-capitalist sector.

The profit rate falls even though unit costs are lower.

[45] This is the 'Okishio Theorem': any technical change which reduces the cost (cost price) of a commodity at prevailing prices will result in a rise in the system-wide average rate of profit after all prices have adjusted to the new values generated by the new technology matrix (Okishio 1961).

[46] This is because p_1a_2 falls when p_1 declines.

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