Crowding out Capitalism: A Law of Historical Materialism

Hagendorf, Klaus

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Crowding out Capitalism: A Law of Historical Materialism

Klaus Hagendorf*

Abstract: *This paper presents a modern response to the problem imposed by Marx in Capital in 1867, "to lay bare the economic law of motion of modern society" and to provide a vision on how, on the basis of this law of motion the transformation of the capitalist mode of production to the socialist mode of production can be perceived. The analysis begins with a discussion of the Marxian analysis of labour values. To overcome the difficulties the marginal analysis of labour values is introduced and it is shown that in an optimal economy where labour is used in an efficient manner commodities exchange at their labour values. There is no transformation problem in an optimal economic system. In a further step the socially necessary character of surplus value as a fund of capital accumulation in order to increase and maintain the productivity of labour is presented and opposed to the capitalists strife for the private appropriation of surplus value. It is argued that the capitalists harmful practices, leading to economic and social crisis, can and must be overcome by the labour movement via economic democracy and collective capital formation thereby eliminating the 'ultima ratio' of the capitalists, the supply of and control over capital. Finally this process of crowding out capitalism is contrasted with the orthodox reformist and revolutionary approaches.*

Keywords: Crowding out capitalism, Historical Materialism, labour theory of value, marginal analysis, Marxian economics, political economy, social revolution, Rosa Luxemburg, transformation problem.

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* Contact: Klaus Hagendorf, 20, rue Turgot, 75009 Paris, France. Email: eurodos@gmail.com. Project MIME – A Marxian Introduction to Modern Economics: http://eurodos.free.fr/mime,

I. Introduction

Crowding out Capitalism is a term in the theory of *Historical Materialism* referring to a) the process of the historical transformation of human society from the capitalist mode of production to the socialist mode of production, b) to the strategy of the labour movement in its struggle for emancipation, and in a more narrow sense c) to the economic policy as part of this strategy. In this article we concentrate only on the first concept of *Crowding out Capitalism* as a law in human history characterizing the essential conditions of the transformation of human society from the capitalist mode of production to the socialist mode of production. The analysis is confined to the economic aspects of this process only.[1]

The fundamental idea, introducing the concept of "the materialist conception of history", is found in Marx's *A Contribution to the Critique of Political Economy*:

> "In the social production of their existence, men inevitably enter into definite relations, which are independent of their will, namely relations of production appropriate to a given stage in the development of their material forces of production. The totality of these relations of production constitutes the economic structure of society, the real foundation, on which arises a legal and political superstructure and to which correspond definite forms of social consciousness. The mode of production of material life conditions the general process of social, political and intellectual life. It is not the consciousness of men that determines their existence, but their social existence that determines their consciousness. At a certain stage of development, the material productive forces of society come into conflict with the existing relations of production or – this merely expresses the same thing in legal terms – with the property relations within the framework of which they have operated hitherto. From forms of development of the productive forces these relations turn into their fetters. Then begins an era of social revolution. The changes in the economic foundation lead sooner or later to the transformation of the whole immense superstructure.
>
> In studying such transformations it is always necessary to distinguish between the

1 This work suffers from the very serious shortcoming of ignoring - with the exception of Leonid Kantorovich and Victor V. Novoshilov and some fundamental textbooks on Marxist-Leninist Philosophy as these have been translated into English - the all important works of the Soviet scientists. Russian scientists are invited to contribute to this discussion by introducing the relevant Soviet and post-Soviet literature.

> material transformation of the economic conditions of production, which can be determined with the precision of natural science, and the legal, political, religious, artistic or philosophic – in short, ideological forms in which men become conscious of this conflict and fight it out. Just as one does not judge an individual by what he thinks about himself, so one cannot judge such a period of transformation by its consciousness, but, on the contrary, this consciousness must be explained from the contradictions of material life, from the conflict existing between the social forces of production and the relations of production. No social order is ever destroyed before all the productive forces for which it is sufficient have been developed, and new superior relations of production never replace older ones before the material conditions for their existence have matured within the framework of the old society.
>
> Mankind thus inevitably sets itself only such tasks as it is able to solve, since closer examination will always show that the problem itself arises only when the material conditions for its solution are already present or at least in the course of formation. In broad outline, the Asiatic, ancient, feudal and modern bourgeois modes of production may be designated as epochs marking progress in the economic development of society. The bourgeois mode of production is the last antagonistic form of the social process of production – antagonistic not in the sense of individual antagonism but of an antagonism that emanates from the individuals' social conditions of existence – but the productive forces developing within bourgeois society create also the material conditions for a solution of this antagonism. The prehistory of human society accordingly closes with this social formation."
>
> (Marx 1859, Preface).[2]

Marx subsequently concentrated on trying to work out the "material transformation of the economic conditions of production, which can be determined with the precision of natural science" notably in his *Capital : A critique of Political Economy.* In the preface to the first edition of this book he writes: *"it is the ultimate aim of this work, to lay bare the economic law of motion of modern society"* (Marx 1867*,* vol. I, preface, p. 14).

Rosa Luxemburg states in her criticism of Eduard Bernstein's *Evolutionary Capitalism (1899)*:

> "The fundamental idea consists of the affirmation that capitalism, as a result of its own inner contradictions, moves toward a point when it will be unbalanced, when it will simply become impossible. There were good reasons for conceiving that juncture in the form of a catastrophic general commercial crisis. But that is of secondary importance when the fundamental idea is considered.
> The scientific basis of socialism rests, as is well known, on three principal results of capitalist development. First, on the growing anarchy of capitalist economy, leading inevitably to its ruin. Second, on the progressive socialisation of the process of

2 The reference refers to the classical Kerr edition of Capital. The text cited is from Marxists.org, S.W. Ryazanskaya; Moscow: Progress Publishers; 1993.

> production, which creates the germs of the future social order. And third, on the increased organisation and consciousness of the proletarian class, which constitutes the active factor in the coming revolution." (Luxemburg 1900, chap. 1).

First, we shall refute the "collapse of capitalism" theses, because the capitalistic economic systems have become highly organized, coordinated systems that can suffer serious breakdowns even on a World scale - as the actual situation shows - but due to the introduction of institutions of economic control a total breakdown should be avoidable as emergency general economic plans should always be possible to be implemented even under the conditions of bourgeois societies.

The more important aspects of the principle characteristics of capitalist development, i.e., its growing anarchy, its progressive socialisation of the production processes and finally the increased organisation and consciousness of the proletarian class "which constitutes the active factor in the coming revolution" is the last one. The core of this proletarian consciousness is Marxian Political Economy. But it turned out that this analysis is much more difficult than it was perceived by the Classical Marxists. Marx and Engels had well been able to pose the proper questions, shown us new horizons, but they were not able to provide a satisfactory answer. Even more important, there is no definite answer as the conditions of the class struggle are constantly changing. A great impact had surely the two World Wars and the Great October Revolution in 1917. Consequently the problem of understanding the neuralgic points of capitalism has become the subject of armadas of social scientists and is very much at the centre of the social theory of today.

On the other hand Western Marxism has not succeeded in providing a satisfactory economic theory of the transformation of the capitalist mode of production to the socialist mode of production and this is mainly due to failures in the proper understanding of the labour theory of value. Marxian economics is totally discredited amongst modern economists as the Marxian labour theory of value with its *transformation problem* of values into prices is full of contradictions. But with every *Krach*

Marxism blossoms anew like the daffodils at Easter and on the contrary it is mainstream economics which is repudiated by the facts of live. Orthodox economists are regarded as meteorologists who deny the existence of the four seasons.

When we observe the conflicts between Marxian[3] and bourgeois economics this should not lead us into the error to believe bourgeois economists have failed to contribute to provide crucial insights and concepts to understanding the problem at hand. On the contrary, it is a rather tragic circumstance that Marx and Engels did not know or were unable to make use of the extremely important contributions of the bourgeois mathematical economists, i.e. Jules Dupuit, Auguste Cournot, H. H. Gossen, Léon Walras and others, although they were well aware of these mathematical developments in political economy. We shall not enter into any further discussion of the development of economic thought but shall try to approach the problem of the *materialist conception of history* by expressing it in terms of modern economic terminology and in the course of this we shall provide a proper interpretation of the labour theory of value.

II. A First Economic Formulation of the Problem

The core of the process from the economic point of view is:

> "At a certain stage of development, the material productive forces of society come into conflict with the existing relations of production or ... with the property relations within the framework of which they have operated hitherto. From forms of development of the productive forces, these relations turn into their fetters." (Marx 1859, preface)

When we attempt to find the proper economic formulation of this process we have to specify what

3 Here again we need to emphasise the lack of Soviet literature in this discussion. At the end of this article we shall refer briefly to the Program of the Communist Party of the Soviet Union of 1986 which hints to the intellectual level of the discussions within the CPSU at that time.

is meant by productive forces. These are first of all the human beings that is labour, involved in the production process as well as the technical, scientific and social know-how, the organizational skills in the production process at the level of the production unit, the industry, the national economy and on a global scale. Furthermore the means of production which have been accumulated over time are of greatest importance. To the physical stock of capital, the transportation and communications networks we must add also the market structures and the control institutions of the economic processes. And most important is Nature. We have to regard the ecosystems we are exploiting and living in as a stock of natural capital.

But at the centre of these productive forces is the human being, the labourer and the sacrifice of her live time, her working effort, in order to produce the "conveniences of live". Through this the labour theory of value takes up a central role. The benefits of the outcomes of the production processes are evaluated against the costs in terms of labour which have to be sacrificed in order to obtain them. The optimal use of labour, the organisation of labour such that it's productivity is highest and the full utilization of the economic resources is the *sin qua non* of any modern mode of production, and also of capitalism.[4]

However, the real economic development, the industrial revolution and the rise of capitalism is and has always been far from an optimal path of development. This introduces a considerable difficulty for the analysis of these development processes. Due to a lack of appropriate institutions of economic control and its anarchistic nature the early development of capitalism was just as violent as the more modern phases. Amongst others, there is an all decisive factor for the violent first stage of the rise of capitalism. The scarcity of capital implied an almost infinite rate of return. It was this the major drive for monopolization of trade by the VOC, the East-India Company, etc. and the wars

4 In the work of Victor V. Novozhilov, (Novozhilov 1970), these questions are discussed in the context of the theory of optimal planning.

they were waging. Those were amongst the major objects of the orthodox Marxist studies. But in spite of the later improvements of the social control of the economic processes, notably through the influence of the great bourgeois economist John Maynard Keynes, the class antagonisms lead to the capitalistic economy being deformed into a system of monopoly capitalism of over-exploitation of the labouring classes with the most severe consequences. The occurrence of unemployment is the most obvious indication of this. In such a state, commodities are not evaluated at their labour values but at monopolistic market conditions. In the following we shall present the essentials of this analysis in greater detail. We shall begin with a critique of the orthodox Marxian value analysis. We shall explore an imaginary optimal economic system in which the production relations allow the optimal use of the productive forces, i.e. labour, and we show that this leads to the commodities being evaluated at their labour values – prices being proportional to labour values.

III. The Problem of Orthodox Marxian Value Analysis

First, we should point out a very simple but important aspect. Bourgeois economists usually do not speak of labour values, they speak of average and marginal costs and prices. The link between costs and labour values is very simple under optimal conditions.[5]

The price of a unit of labour is the wage rate, **w**. In order to obtain the average and marginal costs corresponding to the labour values one multiplies the labour values with the wage rate and *vice versa* divides the costs by the wage rate to obtain the labour values.

5 Bourgeois economists refer to an optimal economic system as a system of perfect competition. Although we do not agree to such terminology we have to adhere to it in order to be understood. We prefer to speak of a perfect economic system.

$$\frac{C}{Q} = w\frac{L}{Q} = \frac{v+c+m}{Q};$$

$$\frac{C}{Q} \text{ - average cost}; \frac{L}{Q} \text{ - average labour value}; \quad \textbf{(1)}$$

and

$$\frac{\partial C}{\partial Q} = w\frac{\partial L}{\partial Q};$$

$$\frac{\partial C}{\partial Q} \text{ - marginal cost}; \frac{\partial L}{\partial Q} \text{ - marginal labour value}; \quad \textbf{(2)}$$

It can be shown that these relations between costs and labour values is valid for equilibrium positions under perfect competition. This implies also the validity of the labour theory of value under perfect competition as prices are equal to marginal costs.

From the proportionality of money values and labour values follow the Marxian definitions of variable capital[6], constant capital and profits (ignoring different monetary forms of surplus value) as:

$$v = w L_w; \quad c = w L_c; \quad P = w L_s$$

$$v \text{ - variable capital}, c \text{ - constant capital}, P \text{ - profits} \quad \textbf{(3)}$$

where $\mathbf{L_w}$ is paid labour, $\mathbf{L_s}$ is surplus labour or unpaid labour, and $\mathbf{L_c}$ is the labour embodied in constant capital.

The total labour, **L**, of some output, **Q**, is:

$$L = L_w + L_s + L_c \quad \textbf{(4)}$$

And from this follows the definition of average labour value

$$\frac{L}{Q} = \frac{L_w + L_s + L_c}{Q} \quad \textbf{(5)}$$

6 Marx considered wages as variable capital. Up to the late 19th century wages were indeed part of capital. Only later they were excluded from the balance sheet.

Average cost or cost of production is the sum of wages, profits[7] and consumption of fixed capital per unit of commodity and is obtained by multiplying **(5)** with the wage rate.

$$\frac{C}{Q}=w\frac{L}{Q}=w\frac{L_w+L_s+L_c}{Q} \qquad \textbf{(6)}$$

$\frac{C}{Q}$ - average cost

In contrast to Soviet value analysis the orthodox Western Marxian value analysis is not based on a proper and thorough theory of cost but on some axiomatic definition of embodied labour, e.g. (Flaschel 2010) which appears to be rather intuitive to the non-economist, but the generally used definition implies a very unrealistic form of the average cost curve, a horizontal line parallel to the x-axis.

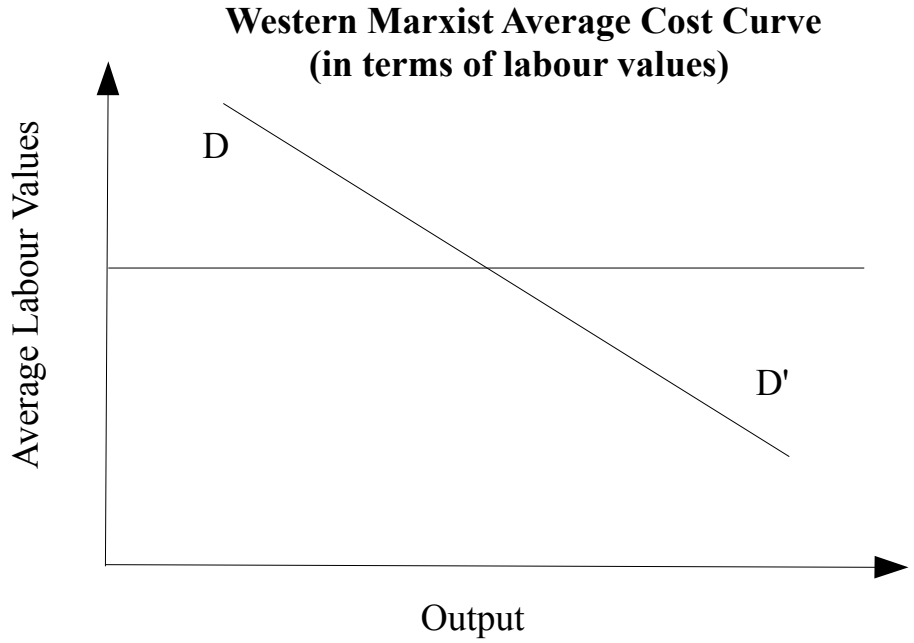

Figure 1.

The *Cambridge Marxists* (Dobb, Sraffa, Meek, Morishima, Okishio, etc.) have indeed succeeded to impose upon generations of post-World War II progressive students of economics this type of reasoning and have prevented them to study the history of economic thought properly.

7 Cost of capital services in bourgeois terminology.

We should realize that wherever the line of average labour values is cut by an inverse demand curve such as $\overline{DD'}$ in terms of labour values (price divided by the wage rate, **Figure 1),** the equilibrium point is on the curve of average labour values. Considering several commodities the labour theory of value applies and commodities exchange according to their labour values. If the curve of average labour values is a horizontal line, the price is fixed by supply conditions only and demand determines only the quantity produced.

When the price is equal to average cost:

$$p = w\frac{L}{Q} = \frac{v+c+m}{Q} \qquad (7)$$

it is clear that the price, **p**, is proportional to labour value, **L/Q**, and the labour theory of value holds. We show it by introducing an index for the type of commodity, **i = 1, 2, ...**

$$\frac{p_1}{p_2} = \frac{w(L_1/Q_1)}{w(L_2/Q_2)} = \frac{(L_1/Q_1)}{(L_2/Q_2)} \qquad (8)$$

However, for orthodox Marxists things are not as easy as that. To show the difficulty we consider only one labourer and the value of output produced by him on a working day. Furthermore we introduce the concept of value of net product which is the value of output less the value of constant capital.

$$pQ_n = pQ - c = pQ - w\,L_c = v + s = w(L_w + L_s);$$
$$Q_n \text{ - net product;} \qquad (9)$$

The labour embodied in the net product is

$$L_d = L_w + L_s \qquad (10)$$

It is a central position of Marxism that the labourer does not obtain a wage equivalent in value to

the value of his net product. The labourer possesses the ability to work, this is his labour power. The price of this labour power is the cost of the reproduction of it, in other words the price of labour is the cost of keeping the labourer in the state of being able to work. When the labourer enters a wage contract he sells his labour power for some time, he does not sell the value of output he will produce in that labour time. This means that he is working only a part of the working day to produce a value of output equivalent to his wage, the value of his labour power, $\mathbf{W_{LP}}$. In fact the difference between the value of the net product and the wage, which is the value of labour power is surplus value or profit. This is an undisputed view also defended by us.

Problematic is that for orthodox Marxists the labour value of the net product of a labourer on a working day, $\mathbf{L_d}$, is equal to the hours worked on that day, $\mathbf{L_w}$. From our equation **(10)** it is clear that this implies that surplus labour, $\mathbf{L_s}$, must be zero.

But orthodox Marxists claim that the wage paid to the labourer does not represent the value of his work but less. This would mean in a mathematical expression something like

$$W_{LP} = w_{LP} L_w < W = w L_w \qquad \textbf{(11)}$$

W_{LP} - value of labour power, w_{LP} - wage rate of labour power

and therefore

$$w_{LP} < w \qquad \textbf{(12)}$$

w_{LP} - 'real' wage rate

We do not want to defend this argument because it would imply something like “cheating” by the capitalists, a position which is contrary to Marx's fundamental attitude that a scientific explanation of the process of exploitation should not rest upon the assumption of “capitalist are cheating the labourers”. This is not to denying the existence of such cheating. On the contrary, it is part of the

daily experiences of live under capitalist conditions. However, it does not provide a coherent argument for the understanding of capitalist exploitation in political economy. In a model of political economy with homogeneous labour a unit of labour time has the money value equivalent to the wage rate, **w**. This is consistent with the Marxist position that in general in the long run the wage is equal to the value of labour power, $\mathbf{W_{LP}}$

$$W_{LP} = W = w\,L_w \qquad \textbf{(13)}$$

When this is accepted the problem occurs how it is possible to have the labour value of the net product of a working day being greater than the hours worked a day? Here is indeed the clue for understanding the labour theory of value. Although one can find the solution to this problem already in the early Marginalist's mathematical works its explicit discovery has been only rather late by the Soviet economist Victor V. Novozhilov. Of course this has never properly entered the discussions of Western economists, Western Marxists included.

The “bourgeois solution” is the abandoning of the labour theory of value and to attribute the value of the net product exceeding the labour costs to the productivity of capital. For orthodox economists, according to the marginal productivity theory profits result from the productivity of capital (sic). Strange enough but even in *Capital* one finds Marx using the term productivity of capital, although he never pretends that capital would create value.

We conclude: If the labour value of the net product, $\mathbf{L_d}$, is equal to the hours of the working day, $\mathbf{L_w}$, and the labourer is paid the price for those hours (the wage), than there is no space for profits or surplus labour value, $\mathbf{L_s}$.

However, it is obvious that the labourers working day can be divided into 2 parts, the part he

produces the equivalent of the value of his wage. This part is paid labour time, and the part during which he produces surplus value, that is profits. This is the exploitation process we want to explain properly.

Before doing so we shall present another problem of orthodox Marxism, the famous *Transformation problem*. In our view this is not Marx's proper position but has been introduced by Engels publishing Volumes II and III of *Capital* posthumously and this has been defended apologetically by the later Marxists.

The whole labour content of a unit of a commodity is:

$$\frac{L}{Q}=\frac{L_w+L_s+L_c}{Q}=\frac{L_d+L_c}{Q} \qquad \textbf{(14)}$$

This is our definition of average labour value, equation **(5),** above. When we multiply the labour value of the net product, equation **(10)**, with the wage rate, **w**, we obtain the sum of wages and profits per unit of commodity as

$$\frac{W+P}{Q}=\frac{w\,L_d}{Q}=\frac{w\,L_w+w\,L_s}{Q} \qquad \textbf{(15)}$$

W - wages, P - profits

The ratio $\mathbf{L_s/L_w}$ is called the *rate of surplus-value* or the *rate of exploitation*. Marx distinguishes between *absolute surplus value* and *relative surplus value.* Absolute surplus value can be increased by extending the working day without pay rise or by reducing the wage rate. *Ceteris paribus*, any reduction of working hours or pay increases diminish absolute surplus value.

But surplus value can also be increased by increasing the intensity of the labour process and by this reducing the time which is necessary to produce the value equivalent to the wage. This is considered as an increase in *relative surplus value*. The variation of the capital labour ratio has an

effect on the productivity of the labour process and therefore on relative surplus value.

> "The mass of the surplus-value produced is therefore equal to the surplus-value which the working-day of one labourer supplies multiplied by the number of labourers employed. But as further the mass of surplus-value which a single labourer produces, the value of labour-power being given, is determined by the rate of the surplus-value, this law follows: the mass of the surplus-value produced is equal to the amount of the variable capital advanced, multiplied by the rate of surplus-value; in other words: it is determined by the compound ratio between the number of labour-powers exploited simultaneously by the same capitalist and the degree of exploitation of each individual labour-power." (Marx 1867, vol. I, chap. XI, p. 331 f).

One should notice that Marx considers here individual rates of surplus-value for each labourer. But then he observes:

> "the masses of value and of surplus value produced by different capitals - the value of labour-power being given and its degree of exploitation being equal - vary directly as the amounts of the variable constituents of these capitals, i.e., as their constituents transformed into living labour-power.
>
> This law clearly contradicts all experiences based on appearance. Every one knows that a cotton spinner, who, reckoning the percentage on the whole of his applied capital, employs much constant and little variable capital, does not, on account of this, pocket less profit or surplus-value than a baker, who relatively sets in motion much variable and little constant capital. For the solution of this apparent contradiction, many intermediate terms are as yet wanted, ..." (Marx 1867, vol. I, chap. XI, p. 335 f).

The effects which are in contradiction with "all experience" could be explained by the increased productivity resulting from an increased capital labour ratio (organic composition of capital) and an increase in relative surplus-value. However, in the volumes II and III of *Capital*, posthumously published by Engels, one finds only a unique rate of surplus-value and in chapter 10 of volume III the following statement:

> "If capitals employing unequal amounts of living labor are to produce unequal amounts of surplus-value, it must be assumed, at least to a certain degree, that the intensity of exploitation, or the rate of surplus-value, are the same, or that any existing differences in them are balanced by real or imaginary (conventional) elements of compensation. This would presuppose a competition among the laborers and an equilibration by means of their continual emigration from one sphere of production to another." (Marx 1894, Vol. III, chap. X, p. 206).

Here is made the assumption that the ratio of $\mathbf{L_s/L_w}$, the rate of surplus value or the rate of exploitation is equal in all employments. But at the same time it is commonly accepted that the rates of profits in all industries should be identical in (long term) equilibrium. In our notation this would mean for the unique rate of surplus value:

$$s = \frac{L_{si}}{L_{wi}};\ for\ i = 1,2,... \qquad \textbf{(16)}$$

s - rate of surplus value

and for the unique rate of profit:

$$\pi = \frac{P_i}{K_i} = \frac{w\,L_{si}}{w\,L_{ci}} = \frac{L_{si}}{L_{ci}};\ for\ i = 1,2,... \qquad \textbf{(17)}$$

π - rate of profit

We take it as a matter of fact and in accordance with actual accounting procedures that wages are not regarded as capital but are paid *ex post* and therefore do not enter the formula of the rate of profit. Notice that this has usually not been the case at the times of the Classical economists and Marx. As our analysis is concerned with modern economic systems and procedures we adhere to this definition of the profit rate.

We may now express the rate of profit also as the ratio of the rate of surplus-value and the capital-labour ratio (the organic composition of capital).

$$\pi = \frac{L_{si}}{L_{ci}} = \frac{L_{si}/L_{wi}}{L_{ci}/L_{wi}} = \frac{s}{o};\ for\ i = 1,2,... \qquad \textbf{(18)}$$

$o = \frac{L_{ci}}{L_{wi}}$ - capital labour ratio

Now, if the rates of surplus value are the same in all industries the capital-labour ratios also have to be the same in all industries for the rate of profit to be unique.

$$o = \frac{L_{ci}}{L_{wi}};\ for\ i = 1,2,... \qquad \textbf{(19)}$$

o - organic composition of capital

But this is obviously not the case and contradicted by the facts.

The first to recognize this was Marx himself. He did not publish the volumes II and III of Capital which contain the *solution* to this problem, the so called *transformation problem. It was* Engels who had presented it: prices would be determined by the prices of production, i.e. by average cost as:

$$AC = \frac{C}{Q} = \frac{W + P + \delta K}{Q} = \frac{w L_w + (\delta + \pi) K}{Q} \qquad \textbf{(20)}$$

AC - average cost, C - cost, δ - rate of depreciation, K - value of capital

Notice that **(20)** corresponds to **(6)** because

$$w L_c = \delta K \text{ and } w L_s = \pi K \qquad \textbf{(21)}$$

According to this interpretation the rates of profits are identical in all industries and profits distributed amongst the industries according to the amounts of capital. On the other hand surplus labour is considered as being created in proportion to the amount of direct labour, $\mathbf{L_w}$. So the surplus value, the labour exploited, is redistributed in the exchange process. According to this, labour values are not proportional to prices any more.

> "In the case of capitals of average, or approximately average, composition, the price of production coincides exactly, or approximately with the value, and the profit with the surplus-value produced by them. All other capitals, of whatever composition, tend toward this average under the pressure of competition. But since the capital of average composition are of the same, or approximately the same, structure as the average social capital, all capitals have the tendency, regardless of the surplus-value produced by them, to realise in the prices of their commodities the average profit, instead of their own surplus-value, in other words, to realise the prices of production.
>
> On the other hand it may be said that whenever an average profit, and a general rate of profit, are brought about, no matter by what means, such an average profit cannot be anything else but the profit on the average social capital, the sum of these average profits being equal to the sum of surplus-values produced by the average social capitals,

> and that the prices brought about by adding this average profit to the cost-prices cannot be anything else but the values transformed into prices of production." (Marx 1894, vol. III, chap. X, p. 204, 205).

It was first Böhm-Bawerk (1896, 1898) who had correctly shown the inconsistencies of this approach but the discussion continues up to the present.

The "error of Marx" or rather the "error of Engels" is the assumption of a unique rate of surplus value. Marx's argument for its justification is purely logical. In Political Economy the concepts of a unique wage rate, an average profit rate etc. are abstractions, but necessary abstractions to understand the underlying economic laws. And because the labourers are competing for the better working conditions this would lead to equal rates of exploitation just as the competition amongst capitals leads to the tendency of profit rates to equalize in the long run. (Marx 1894, vol. III, chap. X, p. 206).

One could object to economic models which use notions of a unique wage rate and/or profit rate because the social system and competition lead to very different outcomes. In fact, it has been shown that wealth, income and earnings are distributed according to Pareto's law, i.e. highly unequally. This applies also to the wage rates and the profit rates. The compensation of labour should be proportional to the sacrifice of human life involved in the labouring process, determined by ergonomic analysis. There can be hardly any doubt that this does definitely not happen in a capitalist system. Those who earn higher wage rates do suffer less in a physiological sense which can be easily verified by comparing the life expectancies of wealthy and poor labourers.

We touch here upon another aspect of this kind of analysis, the assumption of homogeneous labour and how to calculate homogeneous labour units. In this paper we ignore this and outline only the most basic part of the analysis of the law of motion of the capitalist system. But the laws

determining the distribution of personal income or size distribution of income are very important to understand the socio-economic developments of society.

We do not want to use the arguments above as a refutation of a unique rate of exploitation but are going to show that in a perfect economy, where homogeneous labour and other resources are used in an optimal manner, the rates of surplus value are generally not equal. It is then another question if the observable distributions of wealth, income and earnings are consistent with such theorizing. From an ethical perspective it could be desirable to introduce social-economical institutions to equalize the rates of exploitation understood in terms of physiological, ergonomic conditions. This has been a factor determining the wage structure in the Soviet Union and other socialist countries.

Instead of abandoning the labour theory of value as Engels had done, we shall do a more rigorous analysis of cost which leads to more complex average cost curves and the necessary introduction of marginal analysis.

IV. The Marginal Analysis of Labour Values

When we are searching the conditions, necessary for the optimal use of labour, we are facing what is called in mathematics an optimisation problem. To solve such problems marginal analysis is most important. We shall clarify this point by presenting a simple microeconomic analysis of the production of a commodity. We are assuming that the productivity of labour is a function of output. In the short run one may consider the capital stock (the production plant) as given and varying amounts of labour yield different quantities of output. Notice that we make here the assumption that

the only *variable cost in terms of labour* is directly used labour, $\mathbf{L}_{w,}$.[8]

Then there is likely to be some capital-labour combination at which the marginal productivity is

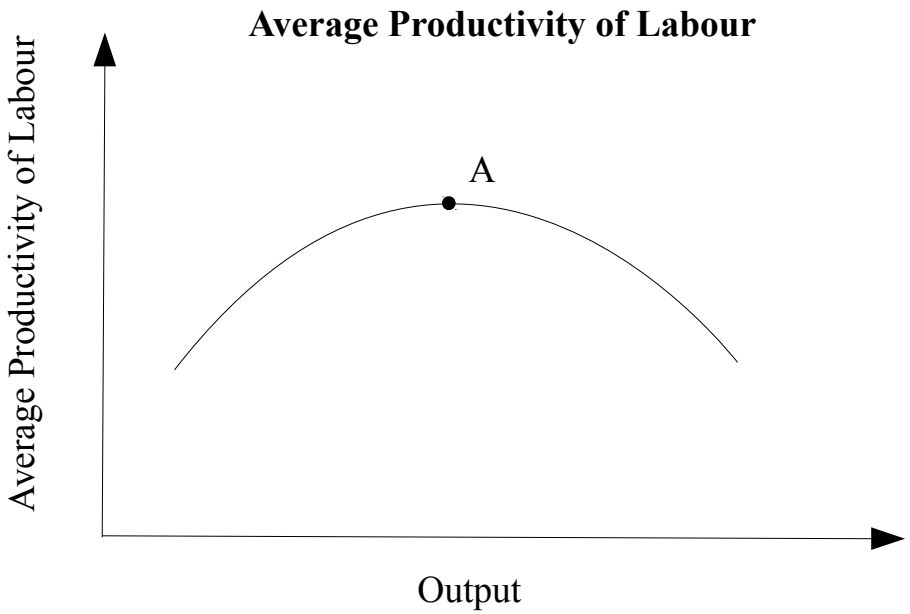

Figure 2.

highest. We do not intend to provide a realistic function, but we use Gossen's approach (1854, p. 10), we take a form as simple as possible to highlight the essence of marginal value analysis. We assume that the function is shaped like in **Figure 2**.

Maximizing the productivity of labour means to find the point **A** of the curve in **Figure 2**. At that point the average productivity of labour is at its maximum and so the socially necessary labour per unit of output is at its minimum. To interpret it this way we have to include in the labour all labour, not only the directly used labour but also the labour of the means of production used up in the production process and we have to distinguish between the variable part of this labour and the fixed part.

8 One could easily include that labour embodied in the materials which also are part of variable cost; to obtain it one just divides the money value of the materials by the wage rate. We neglect it for simplicity.

$$L = L_w + L_f$$

L - total labour , L_w - direct labour hours , L_f - fixed labour **(22)**

The variable part is the direct labour, $\mathbf{L_w}$, measured in terms of hours worked in the production process and we have assumed that it is equal to $\mathbf{L_w}$, ignoring the material inputs.

The fixed labour, $\mathbf{L_f}$, is the labour embodied in the used fixed capital, $\mathbf{L_c}$, and the cost of using the constant, fixed capital, $\mathbf{L_s}$.[9]

$$L_f = L_s + L_c$$

L_s - surplus labour , L_c - constant capital **(23)**

The consumption of fixed capital, $\mathbf{L_c}$, is calculated as

$$L_c = \delta \frac{K}{w}$$

δ - rate of consumption of fixed capital **(24)**

Remember that $\mathbf{c = w\ L_c}$ is constant capital in terms of money value.

The cost of using the constant capital, $\mathbf{L_s}$, is the surplus-value.

$$L_s = \kappa \frac{K}{w}$$

κ − rate - corresponds to the rate of interest in orthodox microeconomics
K - money value of constant capital , w - wage rate **(25)**

Notice, that $\mathbf{w\ L_s}$ (multiplication of **(25)** with **w**) is profits in the sense of the cost of using capital. The **κ**-rate (**κ** for Kantorovich) could be interpreted as the average rate of profit in Marxian analysis but here we define it in the sense of a "norm of effectiveness" (see below). Equation **(25)** eliminates the transformation problem as now surplus labour, $\mathbf{L_s}$, is proportional to constant, fixed capital, **K**.

9 The cost of using the capital or the costs of capital services in orthodox terminology is fixed as the production period is fixed. The variation of labour hours worked, $\mathbf{L_w}$, is achieved by adding labourers.

We have used again the simple method of calculating the labour values by dividing the money values by the wage rate, **w**. This procedure is applicable only in a perfect economy where prices reflect labour values. This is an important problem in a more concrete analysis of capitalism.

Using the expressions above we get the equation for fixed labour:

$$L_f = L_s + L_c = \frac{1}{w}\kappa K + \frac{1}{w}\delta K = \frac{1}{w}(\kappa + \delta) K \qquad \textbf{(26)}$$

κK - price of capital services = profits , δK - consumption of fixed capital

and adding direct labour, $\mathbf{L_w}$, we get the expression for total labour:

$$L = L_w + L_f = L_w + L_s + L_c = L_w + \frac{1}{w}(\kappa + \delta) K \qquad \textbf{(27)}$$

Equation **(27)** expresses total labour in terms of direct labour, fixed capital, the depreciation rate, the **κ**-rate, and the wage rate.

The concept of the average productivity of labour is usually defined as $\mathbf{Q/L_w}$ and relates output only to direct labour, $\mathbf{L_w}$. Our concept aims at defining the socially optimal use of labour and there we have to take into account all labour, direct as well as indirect labour. So we use the expression

$$\frac{Q}{L} = \frac{Q}{L_w + L_s + L_c} = \frac{Q}{L_w + (\kappa + \delta)\frac{K}{w}} \qquad \textbf{(28)}$$

for the average labour productivity. The problem is to find the maximum average labour productivity defined this way.

The dual[10] to this problem is the minimization of average labour value. This is of particular interest as one could perceive this as the *socially necessary labour value*. One obtains average labour values as a function of output as shown in **Figure 3a** by calculating the reciprocal of the average productivity of labour:

10 The dual of a maximization problem is the corresponding minimization problem and *vice versa*.

$$\frac{L}{Q}=\frac{L_d+L_f}{Q}=\frac{L_w+L_s+L_c}{Q}=\frac{L_w+(\kappa+\delta)\frac{K}{w}}{Q} \qquad \textbf{(29)}$$

Equation **(29)** is just the reciprocal of equation **(28).**

The curvature of the average labour value curve in **Figure 3a** is of an U-shape. In fact it is exactly like the average cost curve in ordinary microeconomic analysis. Its slope is at first negative, then at the minimum at point **A'** the curve has a slope of zero and progressing further to the right the slope becomes positive.

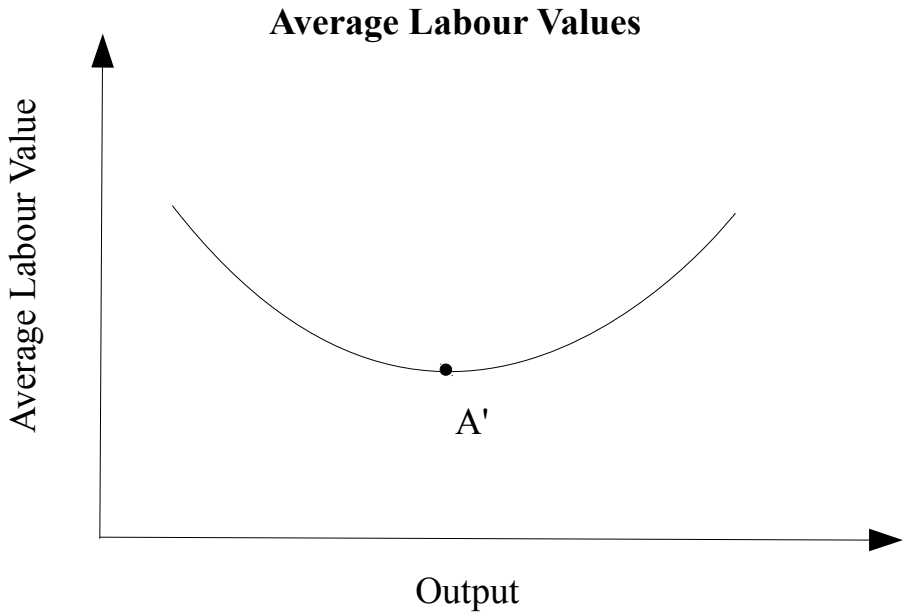

Figure 3a.

Bourgeois economists carefully avoid using the concept of *marginal labour value* in order not to discuss labour values. They lead the discussion in terms of cost. The curves of average and marginal cost as usually discussed in microeconomic theory look the same as those of average and marginal labour values. Under perfect competition they differ only by the factor **w**, the wage rate. Multiplication of the labour values in equation **(29)** with the wage rate, **w,** yields average costs.

$$AC = \frac{C}{Q} = w\frac{L}{Q} = \frac{W + P + \delta K}{Q} = \frac{w L_w + (\delta + \kappa) K}{Q} \qquad \textbf{(30)}$$

AC - average cost, C - cost, W - wages, P - profits

The minimum of average labour values, **A',** is there where the slope of the curve in **Figure 3a** is zero. At first with small quantities of output, **Q**, this slope is negative but it approaches zero. It is zero in **A'** and then becomes positive as shown in **Figure 3b**.

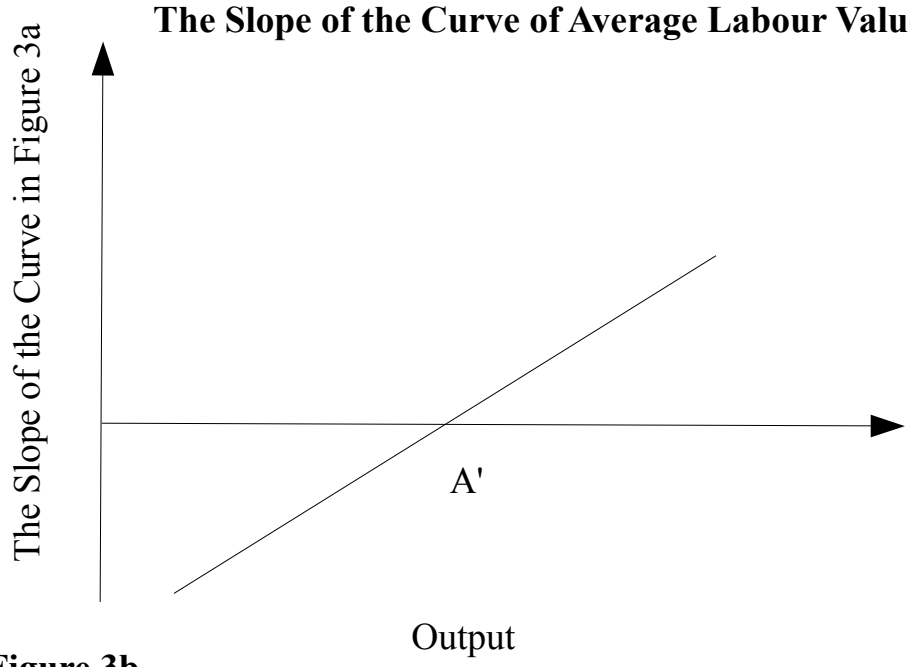

Figure 3b.

Mathematically one obtains the curve in **Figure 3b** by differentiating the function of average labour values **(29)** with respect to output. In order to do so we have to distinguish between that part of labour which varies with the quantity of output and that part of labour which remains constant. This is why we had defined total labour as in **(22).**

At this stage we confine the analysis to the short term as already mentioned above. A production plant with the value **K** is given, the wage rate, **w**, for labour is given as well as the cost of capital services, to which we refer to as the **κ**-rate. The rate of depreciation of the production plant is the

rate **δ**.

We assume a production function which has all the properties of the neoclassical production function as this is necessary to be able to find the minimum!

$$Q = f(K, L) \tag{31}$$

Q - output, K - capital, L - labour

- everywhere twice differentiable, monotonic increasing, diminishing marginal productivities of the inputs - and capital is assumed to be fixed (in the short run).

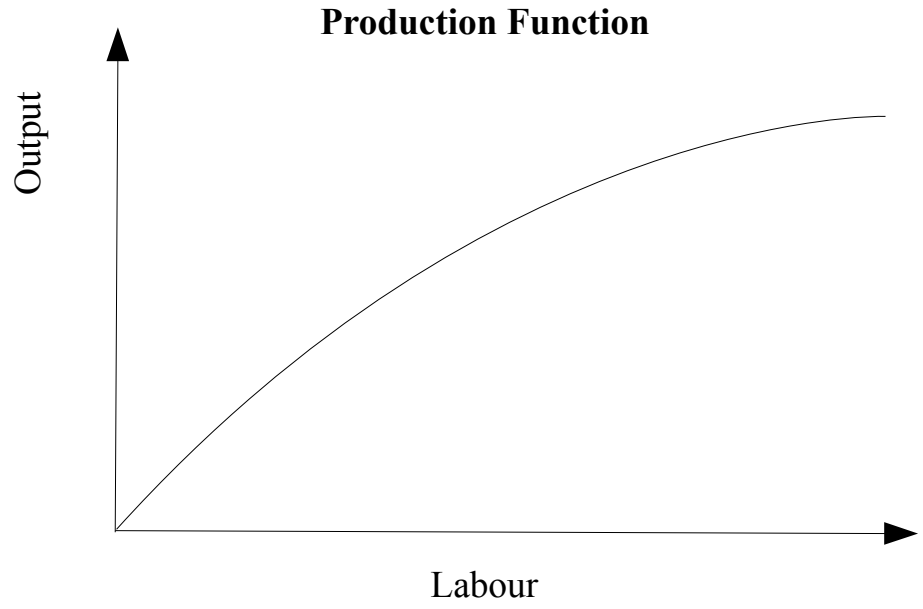

Figure 4a.

In **Figure 4a** such a function is shown. The capital input is considered as fixed at some constant level (the plant size) and output is shown as a function of labour only.

One can invert the function and express labour as a function of output:

$$L_w = f_{inv}(Q) \tag{32}$$

L_w - direct labour hours

In **Figure 4b** the function has been inverted, labour is a function of output.

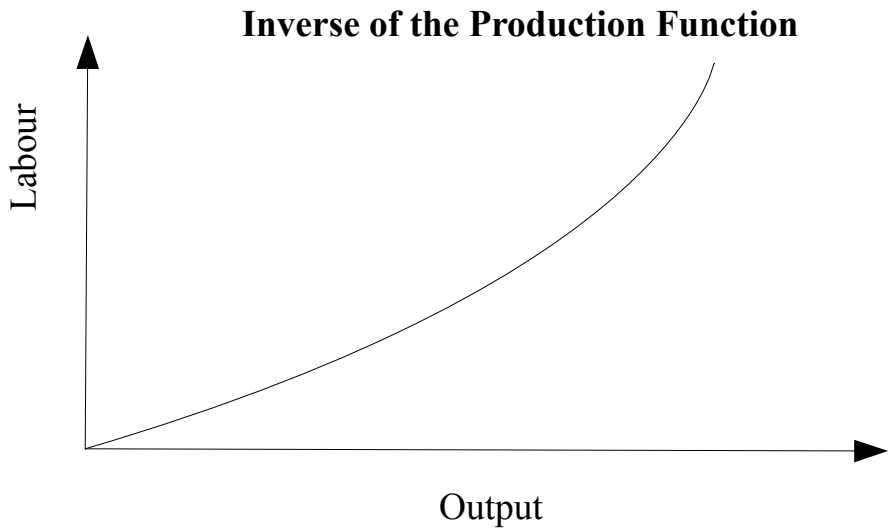

Figure 4b.

This function gives us the amount of direct labour needed to produce a given quantity of output. When we construct the curve of *average variable labour values,* $\mathbf{L_w/Q}$*,* from **Figure 4b** we find that it is increasing.

Notice that the fixed labour, $\mathbf{L_f}$, related to output as *average fixed labour*, $\mathbf{L_f/Q}$ is decreasing with output increasing. This is shown in **Figure 5a**.

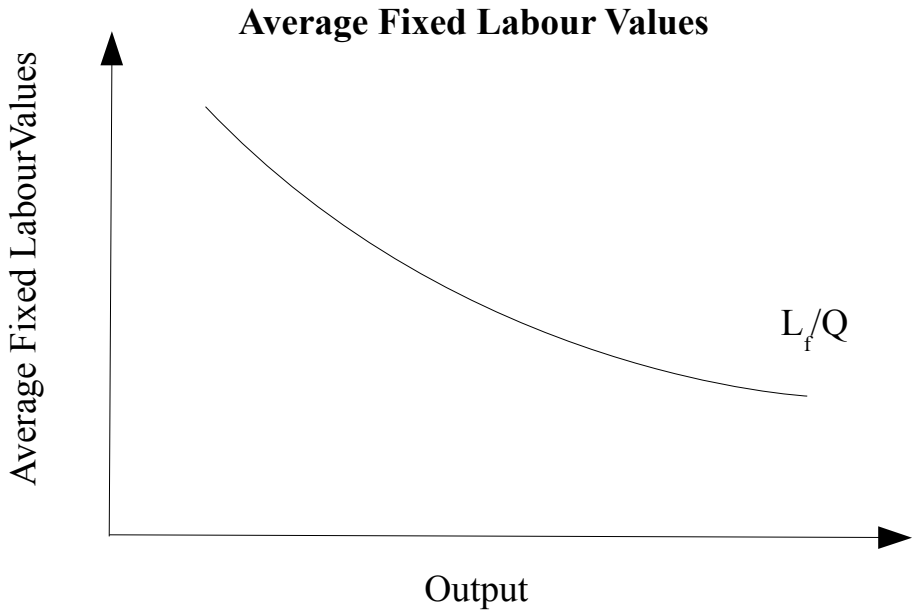

Figure 5a.

We have to consider total labour as in **(27)**, i.e. we have to consider both parts, $\mathbf{L_w/Q}$ and $\mathbf{L_f/Q}$**.** Both curves, *average fixed labour values* and *average variable labour values* are shown in **Figure 5b**.

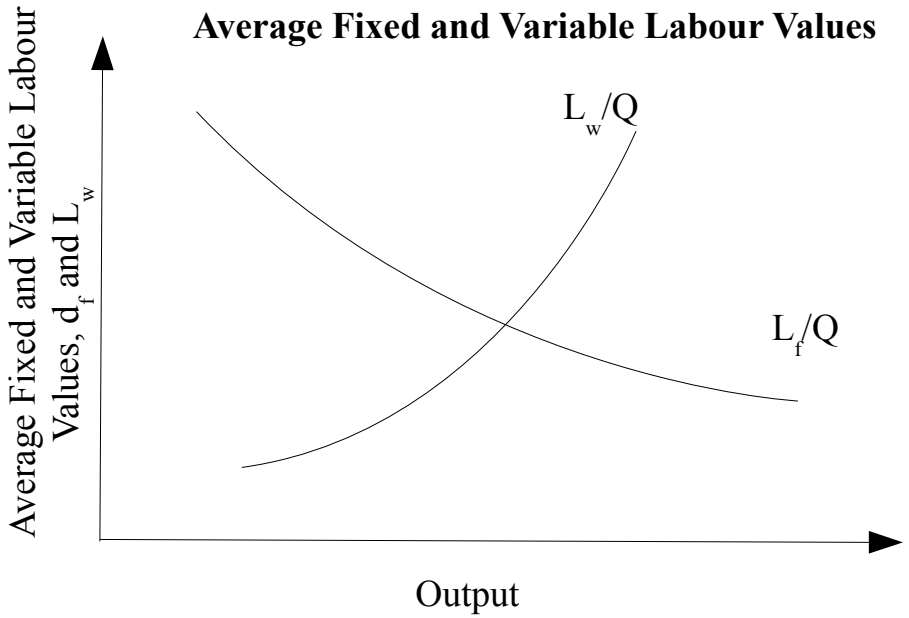

Figure 5b.

Combining both curves we obtain **Figure 3a**.

The term $\mathbf{L_f/Q}$**,** *average fixed labour*, is steadily decreasing with increasing output. This leads to the curve **L/Q** being at first downward sloping. But then the decreasing marginal productivity of labour of the production function sets in, the average variable labour increases steadily and outweighs the decreasing factor at some point and total average labour value increases.

We derive a new function of total labour values on the basis of equation **(22)** and the inverse of the production function **(32)**:

$$L = L_w + L_f = f_{inv}(Q) + L_f \qquad \textbf{(33)}$$

It is important to see that the derivative of function **(33)** with respect to output, **Q,** is the same as the one of function **(32),** because $\mathbf{L_f}$ is a constant. It is

$$\frac{dL}{dQ}=\frac{df_{inv}(Q)}{dQ}=\frac{1}{f'(L)} \qquad \textbf{(34)}$$

This equation states that the function of marginal labour values is the reciprocal of the function of marginal productivity of labour.

Now we can reformulate the equation of average labour values, **(14),** on the basis of the inverse of the production function as

$$\frac{L}{Q}=g(Q)=\frac{L_w+L_f}{Q}=\frac{f_{inv}(Q)}{Q}+\frac{L_f}{Q} \qquad \textbf{(35)}$$

This is the mathematical expression for the curve in **Figure 3a**. To find it's slope we need to differentiate this function with respect to **Q**:

$$\frac{dg(Q)}{dQ}=\frac{d\left(f_{inv}(Q)/Q\right)}{dQ}+\frac{d\left(L_f/Q\right)}{dQ} \qquad \textbf{(36)}$$

Applying the chain rule we obtain

$$\frac{dg}{dQ}=\frac{f'_{inv}Q-f_{inv}-L_f}{Q^2} \qquad \textbf{(37)}$$

And at the minimum the derivative is equal to zero and under the condition that output, **Q**, is positive:

$$f'_{inv}Q=f_{inv}+L_f \qquad \textbf{(38)}$$

or

$$f'_{inv}=\frac{f_{inv}+L_f}{Q}=\frac{L_w+L_f}{Q}=g(Q)^{min} \qquad \textbf{(39)}$$

and considering **(34)** we can write

$$f'_{inv}=\frac{dL}{dQ}=\frac{1}{f'(L)}=\frac{f_{inv}+L_f}{Q}=\frac{L_w+L_f}{Q}=g(Q)^{min} \qquad \textbf{(40)}$$

At minimum average labour value *the average labour value equals marginal labour value,* this is where the curves of average and marginal labour values intersect.

From the above we see that marginal analysis allows us to find the minimum average labour value, i.e., the *socially necessary labour value*. It is that amount of labour necessary to produce an additional unit of output with a maximum average productivity of labour. Obviously it is ridiculous that Western Marxists, in particular Sraffa, have condemned marginal analysis. One must condemn the bourgeois economists instead who have systematically banned labour values from economic analysis and misused marginal analysis to refute the labour theory of value.

The interesting point is that at the minimum of the curve of average labour values, (point **A'** in **Figure 3a)**, the derivative of $\mathbf{f_{inv}(Q)}$ with respect to **Q,** the marginal labour value function, $\mathbf{f'_{inv}(Q),}$ is equal to $\mathbf{g(Q)_{min}}$. This follows directly from **(22)** by setting it equal to zero. This function indicates for each level of output the minimum labour necessary to produce an extra unit of output. It is a marginal cost function in terms of marginal labour values.

It is for this reason that John B. Clark states: "...taking marginal labour as the test of cost. … This virtually unaided labour is the only kind which can measure value" (Clark 1892, p. 263). This is nothing else but the correct definition of the Marxian concept of socially necessary labour. It goes without saying that John B. Clark was not a Marxist but a vehement anti-communist and so he, like the other Marginalists, had carefully avoided to refer to Marxian concepts in such analysis. And contrary to the proper analysis of these marginal labour values he insists that capital creates value, a position which is untenable. Again, the use of capital does increase the productivity of labour but it does not produce or create value.

In **Figure 6** both curves of marginal and average labour values are shown. In fact one can interpret that part of the curve of marginal labour values which is above average labour values as the supply curve of the firm in terms of labour values.

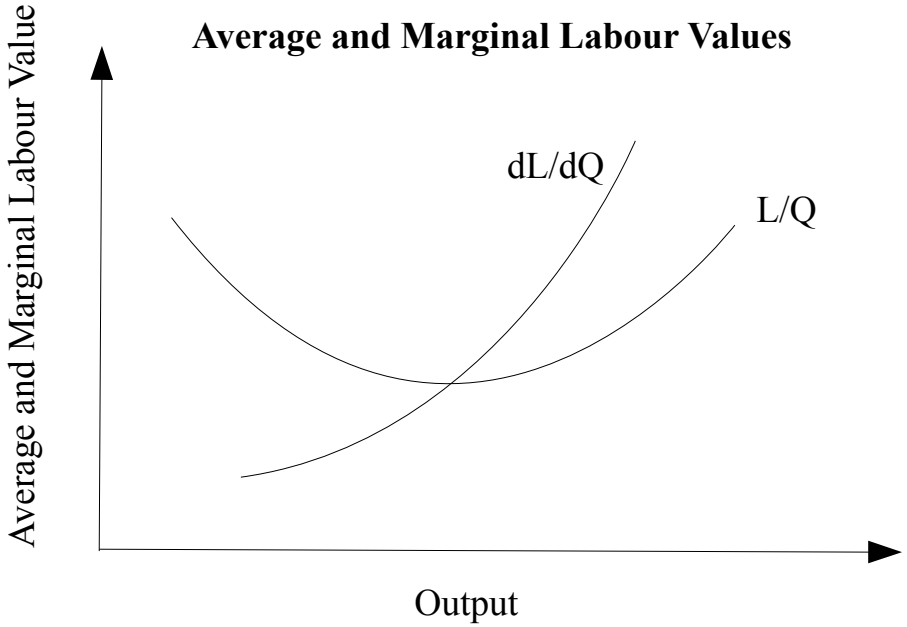

Figure 6.

One obtains the marginal cost curve by multiplying the function of marginal labour values with the wage rate, **w**, the price of a unit of labour as in **(2)**. The marginal cost curve is the supply curve of the firm in terms of money. Under competitive conditions the firm maximises its profits by producing that amount of output at which its marginal cost equals the market price. This is standard microeconomic theory (Henderson, Quandt 1980). For this case the maximization problem consists of finding the maximum of the profit function which is sales revenue minus costs:

$$\Pi = pQ - C$$

$$\Pi \text{ - profits}, p \text{ - price}, C \text{ - cost} \qquad \textbf{(41)}$$

The derivative of this profit function with respect to output is

$$\frac{d\,\Pi}{dQ} = p - \frac{dC}{dQ} \qquad \textbf{(42)}$$

Profits are maximal when marginal profits are zero and price equals marginal cost.

$$p = \frac{dC}{dQ} \qquad \textbf{(43)}$$

From cost minimization follows that marginal cost is marginal labour value multiplied with the wage rate:

$$p = \frac{dC}{dQ} = w\frac{\partial L}{\partial Q} \qquad \textbf{(44)}$$

Under perfect competition the price is equal to marginal labour value times the price of a unit of labour, the wage rate.

This equation and its interpretation one simply does not find anywhere in the literature. What one finds is[11]:

$$w = p\frac{\partial Q}{\partial L} \qquad \textbf{(45)}$$

Under perfect competition, in equilibrium, the wage rate is equal to the value of the marginal product of labour. This is how bourgeois economists hide away labour values. And most of them deny the validity of the labour theory of value by referring to some obscure definition of labour values as supposed to be Marxian.

In this simple microeconomic analysis of the theory of the firm we have shown that labour values are underlying the firm's economic decision processes. This can easily be extended to the demand side. The division of the values of a traditional inverse demand function (price as a function of quantity) by the wage rate gives the inverse demand function in terms of labour values. These labour values can be regarded as *labour commanded* in the sense of Adam Smith, they indicate how many units of labour can be obtained by an amount of money. The labour values of the supply function can be regarded as *labour embodied*, indicating the cost of producing an additional unit at that level of output. At the intersection of both curves labour commanded is equal to labour

11 To obtain equation **(45)** from equation **(44)** one simply multiplies it with $\frac{\partial Q}{\partial L}$, because $\frac{\partial Q}{\partial L} = \frac{1}{\partial L / \partial Q}$.

embodied as is shown in **Figure 7**.

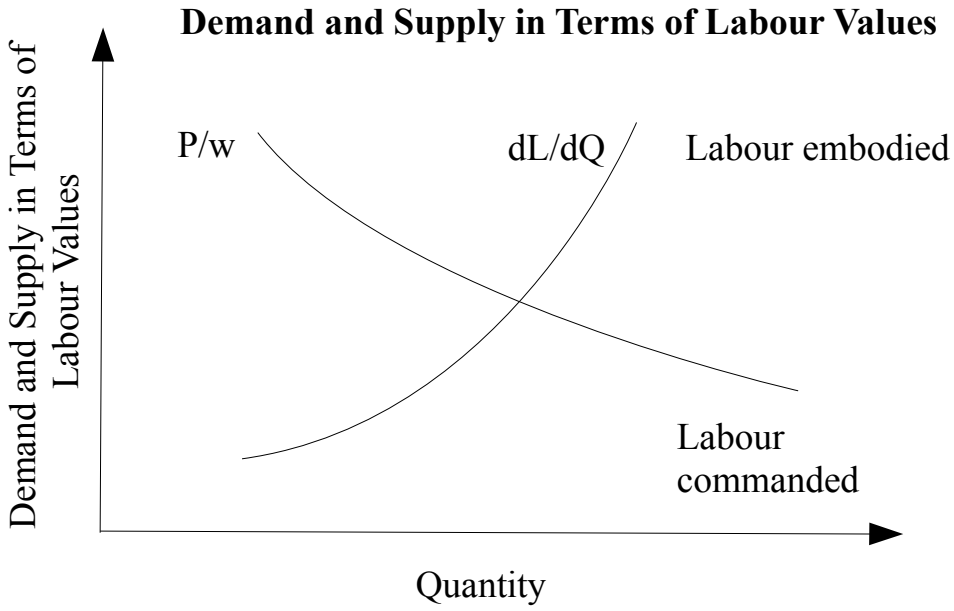

Figure 7.

This analysis can be extended to many markets and to the whole economic system which is done in the theory of General Economic Equilibrium.

V. Remarks on the Labour Theory of Value and General Economic Equilibrium

Beginning with François Quesnay's *Tableau économique* (1759) economists have developed models of the economy as a system. Marx had devised 2 models of reproduction, the model of simple reproduction and the model of accumulation (Marx 1*885*, Vol. II). A complete general equilibrium model has first been introduced by Léon Walras (1874). Such models allow the analyses of the economic system as a whole.

In the context of our discussion it is important to realize that these general equilibrium models do *not* represent an actual capitalistic economy but serve as a kind of optimal system. In fact, quite

often the general equilibrium model represents only an exchange economy without production. Quantities of commodities are treated simply as given and this is used to show that 'embodied labour' does not matter at all in the determination of prices. But of course it is labour which brings into existence the quantities of the commodities. The exchange models show however that exchange can increase welfare.

In the theory of general economic equilibrium even when production is considered, labour values are carefully avoided in the discussions. They are like God, one can't see them but they are there everywhere. The term referred to is marginal cost which is - as we have shown above under conditions of perfect competition - just the monetary expression of marginal labour values. Another shortcoming of the actual discussion of the general equilibrium system is that it regards competitive processes as fundamental but at the same time are hold assumptions which are incompatible with private competitive profit and utility maximizing behaviour, e.g. perfect information about technologies. The discussion of an optimal economic system should use terms appropriate for such a system whereas the language actually used is simply bourgeois neo-liberal apologetics.

Nevertheless, these theoretical models have found very fruitful applications, notably in Input-Output models. The Input-Output analysis had been developed by the Russian economist, emigrated to the U.S., Vladimir Leontief (1941). These input-output models are the most complete realistic presentations of the national economy as a whole or regional models, but they are obtained by introducing important limitations, i.e. linear production relations, *i.e.*, constant average cost.

The conditions under which labour and the means of production and raw materials are used in an optimal manner are called the *1st order Pareto-Optimality Conditions* (Mas-Colell, Whinston, and Green 1995). What is not stated is that these conditions are precisely those conditions, necessary for

the labour theory of value to hold.

We have left aside the demand conditions which form the other part of the 1st order Pareto-optimality conditions. Those demand conditions express that the ratio of marginal utilities equals relative prices just as the ratio of marginal labour values equals those relative prices. These Pareto-optimality conditions have been anticipated by H. H. Gossen in his “Entwickelung” (1854). Bourgeois economists carefully avoid any such interpretation of these conditions in terms of labour values as we have presented them here. But Tugan-Baranovsky in his *Theoretische Grundlagen des Marxismus*[12] has pointed out Gossen's Fundamental Theorem of the theory of pleasure:

> “This relationship between the labour effort for the production of a good and its value was very clear to the founder of the marginal utility school, Hermann Gossen: 'In order to maximize his life pleasure, man must distribute his time and energy among the preparation of various pleasures in such a way that the value of the last atom yielding each pleasure shall be equal to the magnitude of discomfort experienced by him if this atom had been created in the very last moment of the employment of force.'” [Gossen 1854, p. 45, translated by the editor]. (Tugan-Baranovsky 1905, p. 158).

The Keynesian economist Nicolas Kaldor has criticised the neo-classical economic theory along the following lines:

> “Professors Samuelson and Modigliani [(1966), the editor] have written a long critical essay on macroeconomic theories of distribution which demonstrates, not only the splendid analytical powers of the two authors, but also the intellectual sterility engendered by the methods of Neo-classical Economics. The assumption of Profit Maximization under conditions of Universal Perfect Competition involves, as a logical step (given the postulate of substitute relationships between factors), the assumption of production functions which are linear homogeneous and "well behaved" (with isoquants asymptotic to the axes). In addition, it has also been found necessary to assume either that capital is completely "malleable", or else that capital-labour intensities are identical in all industries in all circumstances so that real capital can be uniquely measured in value (money) terms - and that there is no technical progress, except of the "Harrod neutral" type which falls like manna from Heaven. Given sufficient refinement of analysis no doubt many other such "assumptions" may have to be added ... There is no room here for increasing returns, learning by doing, oligopolistic competition, uncertainty obsolescence and other such troublesome things which mar the world as we know it. Markets operate in such a way that "competition will *enforce* [their italics] *at all times* [my italics] equality of factor prices to [the values of (correction by the

12 “Theoretical Foundations of Marxism”.

> editor)] factor marginal productivities" (p. 271) and even if marginal productivities did not exist (in the " fixed coefficient case " on pp. 287-289) "markets" would still operate in such a way as to punish immediately a factor in excess supply, be it Capital or Labour, with a zero price."

And after questioning the realistic character of these assumptions he continues:

> "It is the hallmark of the neo-classical economist to believe that, however severe the abstractions from which he is forced to start, he will "win through" by the end of the day-bit by bit, if he only carries the analysis far enough, the scaffolding can be removed, leaving the basic structure intact. In fact, these props are never removed; the removal of any one of a number of them as for example, allowing for increasing returns or learning-by-doing - is sufficient to cause the whole structure to collapse like a pack of cards."(Kaldor 1966, p. 305 f.).

However, Nicholas Kaldor does not give us a proper clue why the neo-classical economists obstinately insist of using these unrealistic assumptions. But there is a very important reason for this: The foundation of this scaffolding is the labour theory of value! A Pareto-optimal equilibrium implies the optimal use of labour and the validity of the labour theory of value. And obviously, at least from a Marxian point of view there is no alternative to attempting to formulate an economic theory by trying to establish the precise conditions and appropriate institutional settings, guaranteeing the optimal use of labour. The task of the heterodox economist becomes evident: Criticising the hypocritical attitude of the bourgeois economists who deny the very foundations of the science of economics. It is even more important for heterodox economists to pose proper questions like: Can capitalist institutions, private production and profit maximization guarantee the optimal use of labour? Before we are turning to the last question we have to improve our analysis and consider not just a short term static situation but a growing economy. We are turning to the dynamic analysis of labour values.

VI. The Dynamic Analysis of Labour Values

We now come again to the issue raised above in the static analysis that surplus labour is considered as fixed. In the short run this is so because the cost of using fixed capital is fixed and therefore profits are fixed.[13] The question arises how these profits have to be interpreted in the context of the theory of production where it is the price or the cost of using capital. In neo-classical economics the costs of "capital services" are calculated as a fraction of capital, interest on the value of capital. We are ignoring here the rate of interest as a price for loans in the money market and confine the analysis to the sphere of production. Money is simply taken as an accounting unit.

A proper interpretation of the cost of using capital has been given by Kantorovich who considered the cost of providing for the means of production, capital, in the context of an optimal socialist economy (Kantorovich, Bogachev 1970). The basic idea is very simple. We are taking the optimal point of production as presented in **Figure 2**. At the point **A** of maximum labour productivity there is a specific capital-labour ratio which guarantees this productivity. In the context of a growing economy this optimal capital-labour ratio can be maintained only, if capital as well as labour grow at the same rate. This rate of proportional economic growth is called the *steady-state rate of growth*, **g**. To provide for the accumulation of capital to maintain the optimal capital-labour ratio the labour value of this additional capital has to be taken account of in the cost of production, although it does

13 At minimum average labour value this is equal to marginal labour value and surplus value is equal to the "cost of capital services", to use neo-classical terminology. Neo-classical economists do not consider this part of surplus-value as profit. Sometimes it is called "normal profit", however it is surplus value in the Marxian sense. Usually only that surplus-value exceeding average cost, in our terminology marginal labour value being greater than average labour value, is considered as profits. This distinction is not Marxist but it is important for practical purposes considering the institutional arrangements how to control this part of surplus-value, the entrepreneurial profit. For an interesting neoclassical discussion of the concept of profit in micro-economics see (Weston 1950). From a Marxian point of view all forms of profit under perfect competitive conditions constitute labour value.

not enter the production as input. The cost of production have to include not only the direct labour inputs and the labour embodied in the depreciated fixed capital to replace the capital consumed in production but also in addition the increase of that capital. In other words, the socially necessary labour to produce a commodity does not only consist of the labour content of the inputs of the production process but also the labour value of the "socially necessary accumulation of capital".

If these conditions are fulfilled the 1st order Pareto-optimality conditions hold also dynamically. This economic growth in which labour and capital inputs are growing at the same rate and where all profits are accumulated is called the *Golden Rule* of economic growth as it assures the optimal use of labour and the optimal consumption per capita. Notice that under these conditions, in dynamic equilibrium, the rate of capital accumulation is equal to the rate of growth of the labour force, labour force understood as efficiency units taking account of technical progress. The optimal use of capital requires that the "marginal productivity of capital" is as high as this rate of capital accumulation. In Soviet economics this is the "norm of effectiveness" for the use of capital (Kantorovich; Vainshtein 1976). Soviet economists considered that this norm only makes sense in a planned socialist economy because in a capitalist anarchistic economy no such norm exists and comes about only *ex post* via stochastic processes of adjustments of the markets. In capitalistic markets the interest rate, the basic factor determining the "cost of capital services" is influenced by money market conditions, expectations and speculation.

However, in economic theory we can still use the concept in order to calculate the appropriate labour values. We shall introduce the term **κ**-rate (Kantorovich-Rate) to indicate the rate of capital accumulation which guarantees the optimal use of labour in the context of a growing economy. It is this **κ**-rate which enters the cost of production formulas as in equation **(25).**

Here the true meaning of the rate of interest as a "cost for capital services" becomes apparent. For early Marxists and even Karl Marx this was not clear. The emphasis was placed on the exploitation of surplus labour even though Marx had recognized the productive role of the bourgeoisie in the *Communist Manifesto* (Marx 1848, p. 14) as well as in *Capital* (Marx 1867, chap. 24).

The social-democratic economists had no proper understanding of this "socially necessary" character of the accumulation of capital. Emil Lederer, the Marx critic, who had been a leading social democratic economist in the *Socialisation Committee* after the German November Revolution of 1918/19 wrote as late as in 1931:

> "Indeed, in reality can be observed that products produced with "capital" exchange not only in accordance with the labour which is necessary in order to produce them, but that they can realize constantly a higher value because in such ongoing production continuously arise surpluses above costs as what we know in reality as profit, interest, rent, etc.. How is such interest possible in the long run, if all the products exchange only in accordance with the labour that is embodied in them?"(Lederer 1931, p. 118, translated by the editor).

Lederer does not include the value of accumulated capital as *socially necessary labour value* in his definition of labour value. He recognizes that the rate of interest is a dynamic phenomenon. But by concentrating on the explanation of the rate of interest he moves unnecessarily into the monetary sphere.

> "The fact that the interest rate can not be derived directly from the general process of valuation, how it plays out in the static economy, suggests the hypothesis that its origin can not be solved within the static process in general, that the fixation on the static process barricades the way to solve the problem." (Lederer 1931, p. 299).

And he does turn to the exogenous factors of economic growth referring to them as non-economic factors. But to exclude the explanation of enduring profits as a part of the economic model is to deny a solution to Ricardo's definition of the problem of political economy, the explanation of the development of relative shares of labour, profits and rent from within the economic model. For Lederer the existence of profits invalidates the labour theory of value. But profits occur because of wage labour, the all important socio-economic institution of capitalism. We know that the optimal

use of labour is yielding profits as labour is paid only the value of the marginal product of labour whereas the result of labour is valued at marginal labour value. Lederer like all bourgeois economists opposes marginal analysis to the labour theory of value, an inadmissible error which stems in his case from the failure of not having studied Gossen's *Entwickelung* (Gossen 1854) properly although he does refer to Gossen[14]. This error weighs heavily on the political struggle of the German labour movement and can be considered even as one of the ideological factors in economic theory for the rise of Fascism.

We have assumed so far that the economy is already on the Golden Rule path and the capital-labour ratios are optimal ratios. This is of course usually not the case, usually capital is lacking and the capital-labour ratios are suboptimal.[15] Because of diminishing marginal productivities in production, of labour as well as capital, this implies that the marginal productivity of capital is usually greater than the optimal rate. In order to approach the optimal *Golden Rule path* it is necessary that all returns to capital are reinvested, i.e. accumulated, to obtain the optimal capital-labour ratio as soon as possible.

VII. The Contradictions of Capitalistic Economic Development

After having elaborated the relationship between labour values and the optimal productivity of labour we come to an important limitation of capitalistic institutions. The capitalists aim to make profits not in order to maximize the productivity of labour but to live on the profits gained by

14 See his note on Hermann Heinrich Gossen in his “Aufriss der ökonomischen Theorie” (Lederer 1931), p. 184, footnote 1. Lederer's position is later, in 1949, taken up by Fritz Behrens and marks the beginning of the decline of GDR economic theory.

15 The analysis of disequilibrium is beyond the scope of this paper.

economic activity. A part of the surplus value or profits when expressed in monetary terms is not reinvested as a socially necessary cost but privately appropriated and consumed. This is an all important aspect of the class antagonism and basic interests of labour and capital. The part of profits which is not reinvested does not serve to maintain and increase the productivity of labour. In practice this part of not reinvested profits which is either consumed or exported, is decreasing in Western economies as is illustrated in **Diagram 1**.

The aim of profit maximization in order to consume profits is contradictory to the optimal use of labour, the capitalistic profit-maximization is incompatible with optimal economic development. Even worse, the incentive of capitalists not to reinvest because this creates a scarcity of capital and yields higher interest rates and enormous political power is contrary to human development.

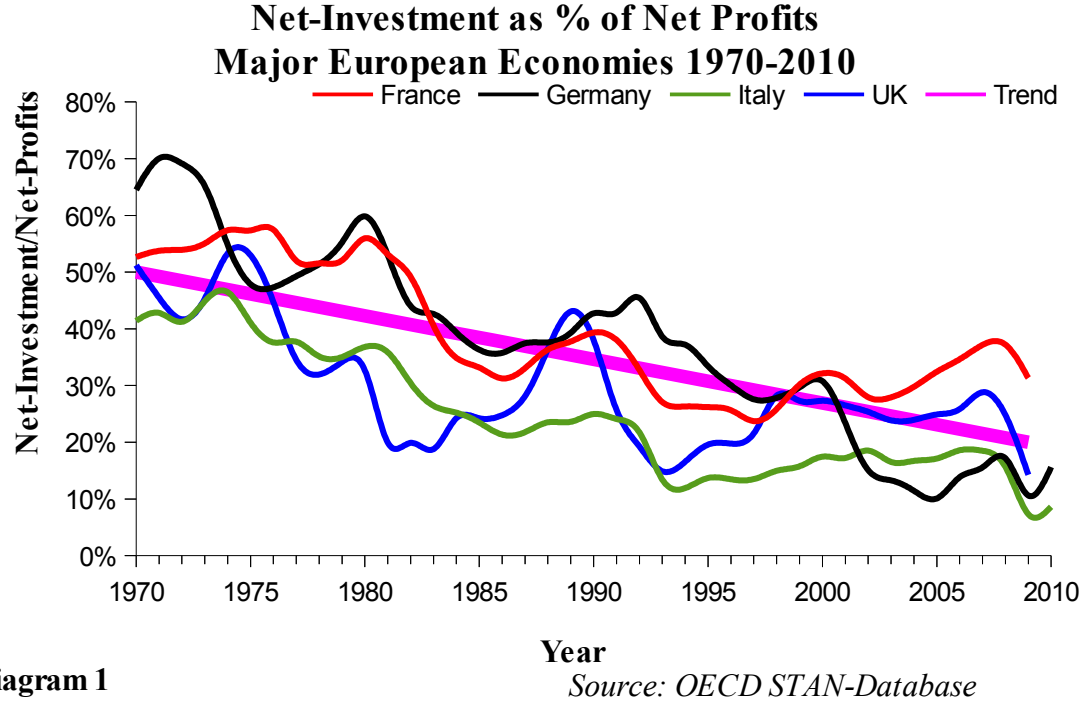

Diagram 1

Source: OECD STAN-Database

Unemployment is a clear indication of this capitalistic development as shown in **Diagram 2**.

Due to the liberalisation of international capital flows the export of profits has become a very important aspect of modern economic development and this is reflected in the discussions of bourgeois economists. But again one finds no reference to the underlying labour values and the

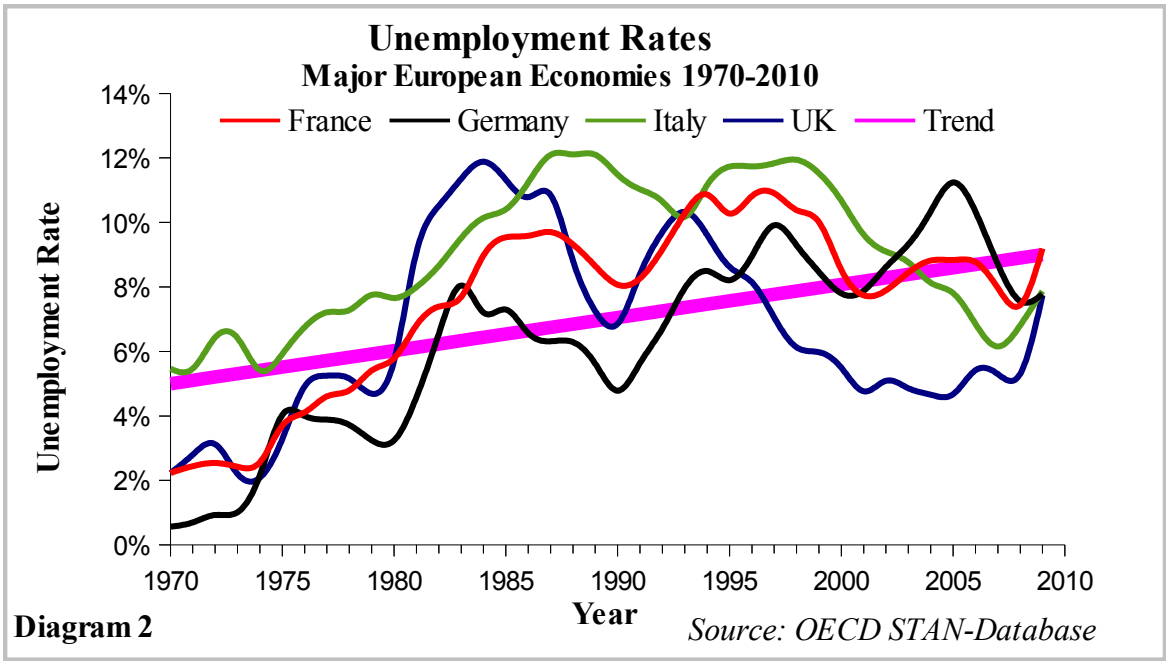

Diagram 2 *Source: OECD STAN-Database*

changes in the international state of the class struggle. Instead one speaks of the Feldstein-Horioka paradox (Feldstein, Horioka 1980) by which is meant a close relationship between domestic savings and investment rates which existed in the period after WWII until the beginning of the 80ies and is disappearing with the liberalization of capital markets. These phenomena should rather be discussed in the sense of Hilferding's *Finance Capital* (1910) as an aggravation of the class antagonism between capital and labour and attempts to stabilize *organized capitalism*.

It is not only the hindrance the capitalists seek to impose upon the accumulation of capital, by consumption of profits, exports of capital or by diverting profits towards military expenditure (Luxemburg 1913, chap. 32), but capitalists strive also to increase profits by restricting competition and directly preventing the exchange of commodities according to their values, instead exchanging

them at monopolistic prices. Under conditions of monopolies, prices exceed the socially necessary cost of production, the value of labour commanded exceeds the value of labour embodied, and the consumers are overexploited as is shown in **Figure 8**.

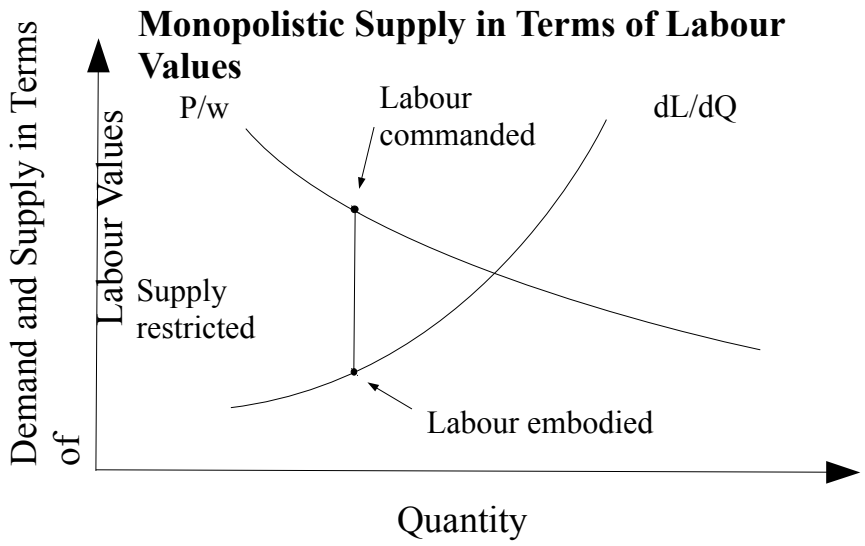

Figure 8.

VIII. The Law of Crowding out Capitalism

We are now in the position of formulating the fundamental problem of the transformation of the capitalist mode of production into the socialist mode of production in the theory of Historical Materialism. At the early stage of capitalist development capital was extremely scarce and accordingly the returns very high. Considering the socially necessary rate of capital accumulation we could speak of an infinite κ–rate. The prospects of high returns on capital, mainly invested in trade, had not only led to the establishment of monopolies such as the VOC or the East-India Company but also to wars and colonization. High rates of investment led to high growth rates and the initiation of the Industrial Revolution with an ever increasing productivity of labour.

But due to the antagonistic character of the capitalistic production relations the economic development is hampered and contrary to humanity. To overcome economic downturns and crisis the progressive forces introduce newer, more efficient organizations of labour. These new methods of social production engender the reform of the superstructure, the socio-economic institutions. The ever increasing control mechanisms of the economy are improved. Most notably this was achieved by Keynes and the Keynesian Revolution in economic theory and even more so in organizing capitalist economies and the world economic system. But the bourgeois reforms have been always only the answers to the revolutionary struggles of the labour movement. And even the reformist strategies within the labour movement are too often only attempts of appeasing the more revolutionary movement. This is particularly true for Fabianism and Social-Democracy.

During the Cold War it was generally not recognized by Western progressive forcesin the labour movement that the profits of capital investments constitute a socially necessary part of the cost of production and have to be reinvested in their entirety to obtain a maximum productivity of labour as long as the return on investment is superior to the rate of growth of the labour supply and that this is contradictory to the most elementary interests of the capitalists who aim at exploiting labour and making profits for their own consumption. Up to the present orthodox Marxists[16] propagate the "over-accumulation" thesis, a position untenable in theory and practice.

Society, in order to avoid economic and social crises, turns against the capitalist class interests by assuring an optimal supply of capital via collective capital formation and optimizes the productivity of labour and eliminates the *ultima ratio* of the capitalists, the supply and control over capital. But

16 The French Communist Party, (PCF) calls for public investments in order to establish full employment at high productivity levels and at the same time their chief economist publishes works which are based on the thesis of over-accumulation. This being just one of many leading Western Marxist, anti-Soviet economists, who are unwilling up to the present to admit their theoretical failures, in particular in the ideological conflicts of the Cold War.

as the capitalistic control over capital is democratically crowded out of the social relations the capitalists, threatened to loose control, turn themselves against the democratic institutions and finally resort to the use of violence in order to maintain their privileges. Only when the labour movement is well enough organized it can overcome the regressive attacks against social progress.

When this scenario is depicted as the "real" law of the transformation of capitalism towards socialism it is obvious that only now this is a realistic opportunity. At the times of the II. International such an outlook was absolutely impossible. Only after the introduction of the Keynesian methods of control of the capitalist economies with the development of the systems of national accounts and the institutionalization of the political control of the economy in the context of the competition of the socialist and the capitalist systems on a world scale and the formation of welfare states this "Marxist Way towards Economic Democracy" has become a realistic one. The question is, if it will remain so or if we are loosing this chance as the labour movement fails to take up the opportunity. The course of the class struggle will decide our destiny.

IX. Political Aspects of the Strategy of Crowding out Capitalism

Marx's and Engels' early outlook on the relationship between capitalist development and political revolution are stated in an article of 1850:

> "Given this general prosperity, wherein the productive forces of bourgeois society are developing as luxuriantly as it is possible for them to do within bourgeois relationships, a real revolution is out of the question. Such a revolution is possible only in periods when both of these factors — the modern forces of production and the bourgeois forms of production — come into opposition with each other. The various bickerings in which representatives of the individual factions of the continental party of Order presently engage and compromise each other, far from providing an occasion for revolution, are, on the contrary, possible only because the bases of relationships are momentarily so secure and — what the reactionaries do not know — so bourgeois. On this all the

> reactionary attempts to hold back bourgeois development will rebound just as much as will all the ethical indignation and all the enraptured proclamations of the democrats. *A new revolution is only a consequence of a new crisis. The one, however, is as sure to come as the other.*" (Marx 1850, part IV).

The German social-democrate Eduard Bernstein (1899) had criticised this approach although he did recognize that Engels had revised it in his preface to *The Class Struggles in France 1848 – 1850.* (Marx 1850, Preface). Rosa Luxemburg amongst others countered Bernstein's criticism in: *Social Reform or Revolution*:

> "At first view the title of this work may be found surprising. Can the Social-Democracy be against reforms? Can we contrapose the social revolution, the transformation of the existing order, our final goal, to social reforms? Certainly not. The daily struggle for reforms, for the amelioration of the condition of the workers within the framework of the existing social order, and for democratic institutions, offers to the Social-Democracy an indissoluble tie. The struggle for reforms is its means; the social revolution, its aim.
>
> It is in Eduard Bernstein's theory, presented in his articles on Problems of Socialism, *Neue Zeit* of 1897-98, and in his book *Die Voraussetzungen des Socialismus und die Aufgaben der Sozialdemokratie* [here quoted as *Evolutionary Socialism* (Bernstein 1899) the editor] that we find, for the first time, the opposition of the two factors of the labour movement. His theory tends to counsel us to renounce the social transformation, the final goal of Social-Democracy and, inversely, to make of social reforms, the means of the class struggle, its aim. Bernstein himself has very clearly and characteristically formulated this viewpoint when he wrote: "The Final goal, no matter what it is, is nothing; the movement is everything." (Luxemburg, 1900, Introduction).

And again in the chapter on *Economic Development and Socialism* she contrasts the perspectives of Socialism of the Blanquists and Bernstein against the proper social-democratic perspective as the integrity of social reform and the struggle for political power:

> "To the Blanquists, who represented a socialist and revolutionary tendency, the possibility of the economic realisation of socialism appeared quite natural. On this possibility they built the chances of a violent revolution – even by a small minority. Bernstein, on the contrary, infers from the numerical insufficiency of a socialist majority, the impossibility of the economic realisation of socialism. The Social-Democracy *does not, however, expect to attain its aim either as a result of the victorious violence of a minority or through the numerical superiority of a majority. It sees socialism come as a result of economic necessity – and the comprehension of that necessity – leading to the suppression of capitalism by the working masses.* And this necessity manifests itself above all in the anarchy of capitalism." (l.c., chap. 6, Economic Development and Socialism)

At the beginning of the discussion of *economic development and socialism* she refers directly to the

historical materialist conception:

> The greatest conquest of the developing proletarian movement has been the discovery of grounds of support for the realisation of socialism in the *economic condition* of capitalist society. As a result of this discovery, socialism was changed from an "ideal" dreamt of by humanity for thousands of years to a thing of *historic necessity*. (l.c.).
>
> "The secret of Marx's theory of value, of his analysis of the problem of money, of his theory of capital, of the theory of the rate of profit and consequently of the entire existing economic system is found in the transitory character of capitalist economy, the inevitability of its collapse leading – and this is only another aspect of the same phenomenon – to socialism."(l.c.).

Her perception rests upon the believe that capitalism would collapse because of its anarchic character. At the same time she rejects the "gradual introduction of socialism":

> "The theory of the gradual introduction of socialism proposes progressive reform of capitalist property and the capitalist State in the direction of socialism. But in consequence of the objective laws of existing society, one and the other develop in a precisely opposite direction. The process of production is increasingly socialised, and State intervention, the control of the State over the process of production, is extended. But at the same time, private property becomes more and more the form of open capitalist exploitation of the labour of others, and State control is penetrated with the exclusive interests of the ruling class. The State, that is to say the political organisation of capitalism, and the property relations, that is to say the juridical organisation of capitalism, become more capitalist and not more socialist, opposing to the theory of the progressive introduction of socialism two insurmountable difficulties." (l.c., chap. 4, Capitalism and the State)

To deny the existence of incredible difficulties of introducing economic reforms which ultimately eliminate the capitalist mode of production is certainly not defended here. On the contrary, the experiences in Sweden in the 1980ies (Sjöberg 2006) underline the highly realistic arguments of Rosa Luxemburg. On the other hand we have to reject the *collapse of capitalism thesis* as argued above and we know that these reforms are necessary and the collective formation of capital will lead to the elimination of the capitalist mode of production. This fundamentally changes the political scenario as it has been perceived hitherto. There are types of reforms which introduce significant changes in the mode of production although one must admit that these changes can be brought about only as the result of a successfully led class struggle by the labour movement. The Keynesian policies have been adapted as a result of the s*ocial threat of Communism* by the maturing

Soviet Union. As the title of W. Beveridge's book indicates *The Price of Peace* had to be paid (Beveridge 1945).

When after the November Revolution 1918/1919 in Germany the labour movement was divided , the revolutionary fraction pressing for the Socialist revolution whereas the more moderate reformers also in the trade unions defended democratic reforms. Although most of these reformers only took up that stance in order to block revolutionary action a truly democratic socialist approach emerged amongst the leaders of the ADGB. In 1928 the democratic socialist economist and journalist Fritz Naphtali published the results of these discussions on Economic Democracy and remarked:

> "The workers had no political equality, no or virtually no political rights when their leaders and the ideologues of the labor movement pleaded for socialism. It was, in their opinion, to acquire political freedom and political power for the working class and only then secure the economic freedom by means of the socialist organization of the economy, indeed this way realizing true freedom in this socialist organization. At the time the idea of economic democracy as opposed to a purely political one could not come about. The economic liberation rather seemed to be inextricably linked to the political. Democracy as such, without any specialized designation meant political as well as economic freedom." (Naphtali 1928, p. 8; transl. by the editor).

These consideration of the relation between political and economic democracy are not opposing political strategies towards socialism but see them as two sides of the same coin and actual conditions determining the precise form of their implementation.

The crucial problem for labour is to overcome the obstacles imposed by the capitalist mode of production of living on the exploitation of labour, leading to underinvestment and unemployment, international conflicts and over-exploitation by imposing social, political and economic institutions and production procedures guaranteeing the optimal use of labour and respecting the labourers. Obviously this is possible only under a state of political democracy. On the basis of political democracy the labour movement extends the sphere of democratic control over the economy and even over Nature. It overcomes the supremacy of the capitalists not by military action but by

eliminating the *ultima ratio* of the capitalists, the supply of capital, by collective capital formation. In this way capitalism is crowded out of the reproduction process of society.

Our analysis - which is *mathematically* perfectly in line with neo-classical analysis but in its interpretation the anti-thesis - shows the way of perceiving the process of transformation from capitalism to socialism. The elimination of the *ultima ratio* of the capitalists, the collective supply of capital is not a means to achieve as an aim the revolution. It constitutes the core element of a "*socialist transformational politics*, a politics that seeks to change the real relationships, the ownership and power relationships in such a way that thereby capitalism is pushed backwards and inklings of non-capitalist relationships develop." (Brie, Klein 2004, p. 6).

A major problem of such a political approach is the avoidance of violent counter-revolutions. The contradictions of the class interests of capital and labour are of an antagonistic character and the imposition of economic democracy, the elimination of the exploitation of the working classes and capitalistic private appropriation of social labour - the crowding out capitalism - is the revolution.

Proletarians of All Countries Unite in Order to Control Capital!

Paris, 24.11.2011

Klaus Hagendorf

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