Marx and Keynes: from exploitation to employment

Author: Fritz Helmedag

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Fritz Helmedag*

Abstract

Marx's and Keynes's analyses of capitalism complement each other well. In a rather general model including the public sector and international trade it is shown that the labour theory of value provides a sound foundation to reveal the factors influencing employment. Workers buy 'necessaries' out of their disposable wages from an integrated basic sector, whereas the 'luxury' department's revenues spring from other sources of income. In order to maximize profits, the wage good industry controls the level of unit labour costs. After all, effective demand governs the volume of work. On this basis, implications for economic policy are outlined.

* Chemnitz University of Technology, Economics Department, Thüringer Weg 7, D-09107 Chemnitz, Germany. Email: f.helmedag@wirtschaft.tu-chemnitz.de

1. Surplus value and the rate of profit

The essence of this article is that the great economic thinkers mentioned in the title make a good couple not only regarding their exposure of capitalism's malfunctions but also, and more importantly, from an *analytical* point of view. In fact, the labour theory of value (Marx's approach) provides a firm basis to inquire into the determinants of employment (Keynes's concern). First, let us take a glance as to the complaints advanced by our protagonists against the prevalent mode of production.

   Until his death in 1883, Karl Marx experienced the excesses of 'Manchester capitalism'. The miserable living conditions of the working poor at that time raised the later so-called 'Social Question'. Correspondingly, it reads in *Das Kapital*:

> 'Accumulation of riches at one pole is . . at the same time accumulation of misery, agony of toil, slavery, ignorance, brutality, mental degradation at the opposite pole, *i. e.*, on the side of the class that produces its own product in the form of capital.' (Marx (1867), p. 675, author's translation)

John Maynard Keynes, born in 1883, witnessed the Great Depression in the early 1930s, when millions of unemployed persons became destitute. In the *General Theory* he uttered his fundamental criticism against the prevailing social evils:

> 'The outstanding faults of the economic society in which we live are its failure to provide for full employment and its arbitrary and inequitable distribution of wealth and incomes.' (Keynes (1936), p. 372)

Marx and Keynes wanted to uncover the causes for the serious deficits of modern market economies. To be sure, Marx predicted the inevitable demise of the bourgeois regime, whereas Keynes considered himself rather as a saviour of the system. The 'doctor at the sickbed of capitalism', as he was sometimes called, even promised the patient to have good prospects in the distant future (Keynes (1930)). In spite of these differences, the present study reveals in a rather general setting that there is a close connection between the investigations of Marx and Keynes. The synthesis of both inquiries yields deep insights into the *modus operandi* of the contemporary economy. Using the least indispensable complexity, the model presented below not only features wage and profit earners, but also international trade and the public sector. The derived results are in accordance with the 'heroes' of this paper. Consequently, the findings also darken the

hope that the often invoked self-regulating forces of laissez-faire alone change still deplorable grievances for the better.

Marx's scrutiny of capitalism is based on the labour theory of value, serving to identify 'exploitation' as an essential trait beneath its surface. He shared the classical subsistence wage hypothesis to the effect that the pay only suffices to acquire 'necessaries' for the reproduction of the labour power including certain historical and cultural needs (see Marx (1867), p. 185) .[1] The surplus product as the physical substance of profit is materialized in commodities which exceed the wage basket. Against this setting it is sensible to separate the whole output in two components. Incidentally, this procedure was common practice in classical political economy. Adam Smith expresses this fundamental idea as follows:

> '. . when … the labour of one family can provide food for two, the labour of half the society becomes sufficient to provide food for the whole. The other half … can be employed in providing other things …' (Smith (1776), p. 180).[2]

Likewise, Ricardo (1815) proceeded in his corn economy[3], and Marx's exemplary sectoral division of the economy can also be reduced to a wage good industry and the remaining rest (see Helmedag (2014)). This view was also taken up by Pigou, when he distinguished in his unemployment theory between 'wage-goods' and 'other goods' (Pigou (1933), p. 71); a segmentation which was approved by Keynes ((1936), p. 273), too.[4]

However, it would be misleading to characterize the workers' consumption in kind, hereafter alternatively labelled basic, necessary or primary commodities. Rather it is decisive for an aggregation that the respective items are purchased out of wages. By contrast, non-wage income, *e. g.*, profits and tax revenues, finances the acquisition of 'luxuries', synonymously classified as secondary commodities, including investment and public goods.

Although it is not perceptible from a tube of toothpaste whence the money came to acquire it, analytically the article falls into one of the two collections, depending on whether its procurement came out of pay or other revenues. The separation always refers to sources of proceeds and not to persons who indeed

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[1] The classical theory of value is presented at length in Helmedag (2018), pp. 103 ff.

[2] Smith refers in a footnote to Pufendorf, Cantillon and Hume who also adhered to this dichotomization.

[3] For a detailed account of the model's properties see Helmedag (2018), pp. 121 ff. and pp. 146 ff.

[4] On the difference between the 'true' and the textbook doctrine of Keynes see Helmedag (2012a).

may receive earned as well as unearned income. In this vein, national accounting compiles the functional distribution by reporting the wage bill and the total remuneration from entrepreneurial activities and wealth.

The abstraction even goes one step further. By assumption, the elements in the assortments are homogeneous, so that a fictitious amount of basic or luxury goods can be specified. Both imaginary sectors produce in a vertically integrated way, *i. e.*, all intermediate and capital goods are obtained from a supplier in the same branch if not manufactured in-house. Of course, the primary department provides commodities for all employees including the workforce in the secondary division. Although in reality no specific objects correspond to the virtual separation of production, it will be demonstrated that the bifurcation makes it possible to identify the determinants of employment and the effects of process innovations.

According to Marx, a uniform rate of exploitation characterizes equilibrium in capitalism. This ratio (r) can be measured in time spans or in pecuniary units (see Helmedag (2012b)). If y denotes the mean nominal return of a labour hour and w the corresponding compensation, in all firms the identical relation between surplus and remuneration reads:

$$r = \frac{y-w}{w} = \frac{1-\dfrac{w}{y}}{\dfrac{w}{y}} \tag{1}$$

The numerator in the first fraction of Eq. (1) indicates the hourly profit contribution; a gross amount including all incomes which derive from entrepreneurial activities and wealth. This combined revenue comprises interest on invested capital, payments for raw materials, land rent, and 'pure' profit.

Alternatively, r also arises from the consideration of the basic good which is sold for a certain price (p_B). The uniform nominal wage rate (w) can be decomposed in a quantity of the wage good (w_B) times its money value: $w = w_B p_B$. Furthermore, let v_B represent the total amount of working time embodied in the basic product. Now, instead of Eq. (1), the following expression holds:

$$r = \frac{p_B - v_B w_B p_B}{v_B w_B p_B} = \frac{1 - v_B w_B}{v_B w_B} \tag{2}$$

Equalizing the right-hand sides of the surplus-ratios (1) and (2) gives the real unit labour costs (h), a pure number, because dimensions cancel out[5]:

$$h = v_B w_B = \frac{w}{y} < 1 \tag{3}$$

In Marx's terminology, $v_B w_B$ corresponds to the 'value of labour power' or 'paid labour', a proportion informing which part of his working time the labourer works for himself. Additionally, a surplus is generated under capitalistic conditions. Thus, the less-than symbol in Eq. (3) applies and assures a positive rate of exploitation (1) resp. (2). Furthermore, as a consequence of the model's structure, this percentage coincides with the rate of profit.

The profit factor ($1 + r$) reads:

$$1 + r = 1 + \frac{y - w}{w} = \frac{y}{w} = \frac{1}{h} = \frac{1}{v_B w_B} > 1 \tag{4}$$

The reciprocal of the unit labour costs can be interpreted as the production- or core-price level, indicating how often the wage rate is included in the hourly yield. Adam Smith called this term 'labour commanded' (see Smith (1776), pp. 47 ff.). This number specifies how many labour units can be hired in return for the sale of a commodity. Keynes also used the 'wage-unit' to exclude changes in the nominal pay from his theory: Sums of money are divided by the ordinary wage rate, thus transforming pecuniary values into labour quantities (see Keynes (1936), p. 41).

2. Unit labour costs and sectoral profits

The average rate of fiscal charges levied on the gross wage bill (t_W) encloses direct and indirect taxes as well as the social security contributions. In order to calculate the effective burden, transfers like sickness benefits or rent subsidies are set off. Yet, disposable income is not completely spent on home-made goods. One part of the available remuneration is diverted into savings (s_W) and another share flows abroad to pay for imports (m_W). Therefore, the propensity to consume out of disposable wages (c_W) only refers to domestic demand. Analogous

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[5] However, the denominator of *nominal* unit labour costs, which are irrelevant in this examination, refers on the microeconomic level to a periodical output quantity, whereas from a macroeconomic perspective a quasi-physical benchmark is provided by deflated gross domestic product.

definitions apply for profits, symbolized by the subscript P. The parameters are subject to the following restrictions:

$$0 \le t_W, s_W, m_W < 1 \quad \text{and} \quad 0 < c_W = 1 - s_W - m_W < 1$$
$$0 \le t_P, s_P, m_P < 1 \quad \text{and} \quad 0 < c_P = 1 - s_P - m_P < 1 \tag{5}$$

Sectoral gross profits – including rents for resources and interest on invested capital – amount to the rate of profit (r) times the vertically integrated wage sums in the basic industry (W_B) and in the luxury department (W_X), respectively. This approach is in accordance with the conception of Keynes:

> 'I sympathise . . with the . . doctrine that everything is *produced* by *labour*, aided by what used to be called art and is now called technique, by natural resources which are free or cost a rent according to their scarcity or abundance, and by the results of past labour, embodied in assets, which also command a price according to their scarcity or abundance. It is preferable to regard labour … as the sole factor of production …' (Keynes (1936), p. 213 f.).

The difference between revenues and integrated labour costs constitutes profit. The gains of the wage good sphere (P_B) total up to:

$$P_B = rW_B = c_W(1 - t_W)(W_B + W_X) - W_B \tag{6}$$

Among other things, the secondary division satisfies demand arising from aggregated autonomous expenditures (A), based on discretionary spending decisions. These disbursements are independent of current earnings and encompass private net investments (I) and exports adjusted for imported components expressed in local currency (X). Besides, a budget deficit of the Treasury including social security (D) has to be added, whereas a surplus would have a negative effect:

$$A = I + X + D \tag{7}$$

Furthermore, the revenues in this sector are augmented by domestic demand from disposable profits plus the tax-funded services of the public sector; while credit-financed benefits are included in autonomous outlay. Subtracting the wage bill yields profits in the luxury branch (P_X):

$$P_X = rW_X = A + c_P(1 - t_P)r(W_B + W_X) + (t_W + rt_P)(W_B + W_X) - W_X \tag{8}$$

From Eq. (6) and Eq. (8) labour costs in the basic industry are derived either depending on the profit rate r or on unit labour costs h:

$$W_B = \frac{c_W(1-t_W)A}{(1+r)\left[r(1-c_P)(1-t_P)+(1-c_W)(1-t_W)\right]} =$$
$$= \frac{hc_W(1-t_W)hA}{(1-h)(1-c_P)(1-t_P)+h(1-c_W)(1-t_W)} \tag{9}$$

The workers in the luxury division obtain:

$$W_X = \frac{\left(r+1-c_W(1-t_W)\right)A}{(1+r)\left[r(1-c_P)(1-t_P)+(1-c_W)(1-t_W)\right]} =$$
$$= \frac{\left[1-hc_W(1-t_W)\right]hA}{(1-h)(1-c_P)(1-t_P)+h(1-c_W)(1-t_W)} \tag{10}$$

At large, the workforce receives:

$$W_B + W_X = \frac{A}{r(1-c_P)(1-t_P)+(1-c_W)(1-t_W)} =$$
$$= \frac{hA}{(1-h)(1-c_P)(1-t_P)+h(1-c_W)(1-t_W)} \tag{11}$$

The first fraction in Eq. (11) straightforwardly shows that the total wage bill is negatively correlated with the profit rate. Then the opposite relation holds with respect to unit labour costs.[6] Calculating the proportion between the sectoral compensations leads to:

$$\frac{W_B}{W_X} = \frac{hc_W(1-t_W)}{1-hc_W(1-t_W)} \tag{12}$$

This ratio can be used to determine how the basic profit varies with labour costs in the luxury branch:

$$P_B = \frac{1-h}{h}W_B = \frac{1-h}{h}\frac{hc_W(1-t_W)}{1-hc_W(1-t_W)}W_X = \frac{(1-h)c_W(1-t_W)}{1-hc_W(1-t_W)}W_X \tag{13}$$

Equation (13) reveals that the basic sector has an ambiguous attitude towards remuneration: On the one hand, the division would prefer to pay the employees as little as possible in order to reduce costs. On the other hand, the surplus in-

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[6] Obviously, autonomous demand A has to be positive in order to avoid the collapse of the economy. Thus, a possible budget surplus of the public sector has to be smaller than net investments plus exports.

creases with a rising wage bill in the luxury segment, since part of it makes the cash tills ring in the primary sector.

Actually, there is always a profit maximum in the wage good production because, according to Rolle's theorem, every continuously differentiable function has an optimum between two different roots. These preconditions apply for the basic industry. Starting from zero, rising unit labour costs cause an *increase* of gross profits in this branch up to a maximum at $h*$. Then the surplus P_B decreases and vanishes at $h = 1$:

$$0 < h* = \frac{(1-c_P)(1-t_P) - \sqrt{(1-c_P)(1-t_P)(1-c_W)(1-t_W)}}{(1-c_P)(1-t_P) - (1-c_W)(1-t_W)} < 1 \qquad (14)$$

In addition to this level of paid labour[7], another value is of special interest. Setting the right-hand side of Eq. (12) equal to one, may result in unit labour costs $\hat{h}$, situated between 0.5 and 1, where wages and profits in the departments coincide:

$$\frac{1}{2} < \hat{h} = \frac{1}{2c_W(1-t_W)} < 1 \quad \text{for} \quad 1 > c_W(1-t_W) > \frac{1}{2} \qquad (15)$$

Noticeably, this magnitude, which equalizes the incomes in the sectors, as well as the ratio between the wage sums (12) only hinge on the workers' domestic demand and their tax burden. In contrast, the corresponding parameters of the profit earners do not appear.

Figure 1 exhibits gross profit in the primary and secondary industry as functions of unit labour costs. The diagram is based on the following arbitrarily chosen specification: $A = 1$, $c_W = 0.75$, $t_W = 0.1$, $c_P = 0.5$ and $t_P = 0.2$. In the present example the maximum gain in the wage good division is reached before the profit curves intersect.[8]

Assuming all companies receive the same profit, then the quantity of enterprises in the sectors will adapt to the relation P_B / P_X. Though aggregated profits are higher in the luxury branch up to the intersection of the profit curves, the greater quantity of firms operating in this department compensates for this difference. Eventually, given the constellation depicted in Figure 1, the maximal

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[7] A second solution is located outside the interval $0 < h < 1$.

[8] For $(1 - t_P)(1 - c_P) = (1 - t_W)(1 - c_W)$ the number $h*$ converges to 0.5, corresponding to a profit rate of 100 %. See for details Helmedag (2012b) and (2012c). It is shown in the appendix that for the secondary sector no inner profit maximum exists, since its surplus always falls with increasing unit labour costs.

gross profit of the basic sector and the corresponding unit labour costs $h*$ should emerge.

Fig. 1: Sectoral profits depending on real unit labour costs
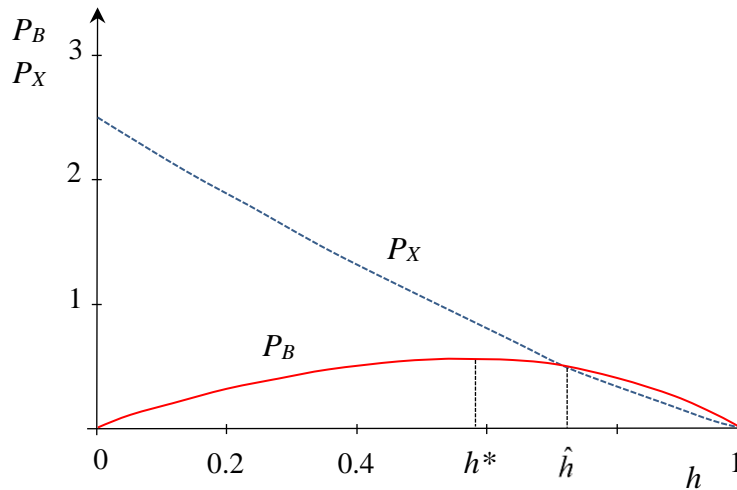
Yet, depending on the underlying data, both profit functions can also intersect to the left of the profit maximum in the wage good production. There, gains in both industries and the number of (equal) corporations coincide. Because more profit ensues, in that case unit labour costs settle down at $\hat{h}$, which is lower than $h*$.

3. Employment and technological progress

At this point it is apposite to address similarities and differences to a widespread model in post-Keynesian circles which was advanced by Bhaduri and Marglin (1990). They postulate vertically integrated production and mark-up pricing on (direct and indirect) labour costs, just as in the present exposition. Yet, the authors assume exogenous real wage variations. In truth (and in this paper), however, these are the result rather than the starting point of the economic process. Bhaduri and Marglin argue that contingent upon behavioural reactions to changes in distribution, either workers' spending ('wage-led') or entrepreneurial investment expenses and export revenues ('profit-led') drive the system. The 'openness' of the approach is reflected by contradicting empirical findings, which surely did not promote its applicability to economic policy.[9]

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[9] Hein (2017) discusses alternatives to assign certain variables of the model an exogenous or an endogenous status.

In a certain manner, the distinction in this study between a primary fabrication which produces the wage basket and a secondary industry, responsible for the rest of the supply, extends the Bhaduri-Marglin-model. Though these researchers distinguish two groups of commodities serving either private consumption or private investment at the outset, this separation is not reflected in two analytically divided production spheres, let alone in the hierarchical relation between them.

Of course, in reality there are no representative bosses in the sectors who operate along known profit curves. In addition, the supposition of identical company sizes contradicts facts. Nevertheless, unit labour costs might tend towards the lower of two positive values, referring either to the intersection of the profit curves or to the basic sector's maximum profit.

Against this backdrop, it is *a priori* unclear which concrete level of real unit labour costs is targeted and, finally, comes out. Regardless, real life wage good manufacturers – entrepreneurs who sell primarily to employees – at least intuitively perceive that a 'mean' level of the profit rate is advantageous for them. Consequently, they will prevent unit labour costs from falling too low or rising too high.[10]

Gross national income *(Y)* amounts to:

$$Y = (1+r)(W_B + W_X) = \frac{(1+r)A}{r(1-c_P)(1-t_P) + (1-c_W)(1-t_W)} =$$

$$= \frac{A}{(1-h)(1-c_P)(1-t_P) + h(1-c_W)(1-t_W)} \tag{16}$$

Dividing the wage bill (11) by total earnings (16) gives $(W_B + W_X) / Y = h$, hence the functional income distribution fluctuates just as much as unit labour costs. But while the variation of this magnitude is positively correlated with staff emoluments, the effect on the domestic product is subject to the parameter constellation:

$$\frac{\partial Y}{\partial h} \lesseqgtr 0 \quad \text{for} \quad (1-c_P)(1-t_P) \lesseqgtr (1-c_W)(1-t_W) \tag{17}$$

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[10] For example, as of March 2017 the German retail store chain 'Lidl' has raised the internal lowest hourly rate to 12 Euros which is significantly above the country's statutory minimum wage (see https://www.lidl.de/de/faire-entlohnung/s7373177). Fairness considerations lead to a labour share in gross domestic product of approximately 61.8 % (see Helmedag (2010)).

Yet, if unit labour costs h are given alongside the propensities to consume, *ceteris paribus*, economic activity increases at a steady production-price level with autonomous demand A and fiscal charges t_W and t_P.[11] In fact, these links put economic policy in a position to promote employment. But a deeper look behind the scenery even yields further insights.

In the present framework the volume of work (N), *i. e.*, the quantity of labour hours per period of time, usually a year, is easily computed. One just has to divide national income (Y) by the uniform hourly yield (y):

$$N = \frac{Y}{y} \tag{18}$$

From Eq. (18) immediately follows the occasionally so-called 'scissors' tautology: Fluctuations in the volume of work arise from different rates of output changes on the collective and individual level, respectively:

$$\frac{dN}{N} = \frac{dY}{Y} - \frac{dy}{y} \tag{19}$$

Therefore, total labour input per year rises if the macroeconomic growth rate – *e. g.*, due to the just mentioned measures – excels the microeconomic evolution. Consequently, unemployment can be diminished while individual working hours are kept constant. Yet, the past was sometimes characterized by a reverse ranking of the influencing factors. Aggregate demand growth more often stayed behind the productivity increase consequent upon process innovations. Then, the total number of labour hours shrinks, even if the 'golden wage rule' is fulfilled, *i. e.*, real unit labour costs remain stationary. As a result, shorter average individual working time is inevitable to avoid dismissals (see Helmedag (2016)).

In addition, the effects of technological innovations in the basic industry principally differ from those in the luxury department. This aspect can be examined, however, only with a 'mesoeconomic' approach implementing an assignment of all products either to the primary or secondary sector. Of course, the ratio between the industries' wage bills (12) also holds for the relation of employments in the basic (N_B) and in the profit (N_X) industry. Therefore, the volume of work results in:

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[11] Since higher levies tend to enlarge the public sector at the expense of private business, politics has to decide on the taxable capacities.

$$N = N_B + N_X = \frac{hc_W(1-t_W)}{1-hc_W(1-t_W)}N_X + N_X = \frac{N_X}{1-hc_W(1-t_W)} \tag{20}$$

Notionally, the workforce in the surplus industry can be resolved into the quantity of virtual luxury goods (X) times the embodied labour content in each object (v_X).[12] Furthermore, according to Eq. (3), unit labour costs h conform to the value of labour power $v_B w_B$. The substitutions lead to:

$$N = \frac{v_X X}{1 - v_B w_B c_W(1-t_W)} \tag{21}$$

Thus, the connection between the volume of work and labour values is established. The alteration of employment emerges as the bottom line of varying determinants[13]:

$$\frac{dN}{N} = \frac{dX}{X} + \frac{dv_X}{v_X} + \frac{v_B w_B c_W(1-t_W)}{1 - v_B w_B c_W(1-t_W)}\left(\frac{dv_B}{v_B} + \frac{dw_B}{w_B}\right) \tag{22}$$

The first two fractions on the right-hand side of the 'motion equation' (22) reflect modifications in the surplus department. If productivity rises in this branch, the labour value per unit decreases, so the rate of change is negative: $dv_X / v_X < 0$. If nothing else happens, technological progress in the luxury division is completely mirrored in employment: The volume of work drops with the same percentage. As compensation, secondary output X would have to increase accordingly. Hence, higher investments or more public spending are appropriate – means which always foster labour requirements in the presence of idle capacities.

From Eq. (3) and Eq. (12) it follows that the fraction preceding the brackets in Eq. (22) coincides with the relation between the sectoral wage bills W_B / W_X. *Ceteris paribus*, this weighting factor determines how the volume of work is affected: on the one hand negatively by a reduction in the basic products' labour value, and on the other hand positively through an increase in real wages. In case of constant unit labour costs, *i. e.*, the rise in remuneration matches the productivity growth in the basic sector, the terms in brackets cancel out. Then the dynamics of job opportunities only hinges on the quantity of luxuries compared to the

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[12] The relative price of the secondary item (p_X) expressed in the primary good (p_B) coincides with the ratio of labour values: $p_X / p_B = v_X w_B p_B(1 + r) / v_B w_B p_B(1 + r) = v_X / v_B$.

[13] The expression corresponds to the formula derived in a simpler framework, see Helmedag (2013a).

productivity in their creation – an insight obtained by drawing on the labour theory of value. Yet other findings deserve emphasis, too.

4. Reaping rewards for the work

The classical method to categorize output in either necessary or luxury goods has proven to be exceptionally fruitful. The founders of the discipline recognized the production of provisions for the employees as the fundament of the modern economy. To boot, they assumed substantially fixed subsistence remuneration. Based on this supposition, striking features of the system were revealed: Because input and output in the wage good sector are homogeneous, a material rate of profit (or exploitation) can be ascertained by setting the amount of profit (or surplus) in relation to labour costs. In equilibrium, this ratio is adopted by the luxury sector which satisfies remnant demand.[14] Therefore, a hierarchy between the primary and secondary industry exists.

But it is deceptive to identify the output of the basic sector with the worker's typical basket of goods, which allegedly represents their consumption behaviour. This attempt leads astray since there are many commodities bought more or less by wage *and* profit earners, not only the aforementioned toothpaste, but also salt, sugar, paper tissues etc. After all, a physically interpreted subsistence level of the employees is a far-fetched premise which does not push economic theory forward.

In order to escape from the impasse, the analysis has to focus on the financial origin of expenses. In a closed economy without any economic activity of the state, the two fundamental markets described at the beginning can be separated by their customers' sources of income. Revenues in the basic industry are paid out of wages whereas the luxury division receives proceeds financed by profits from entrepreneurial activities and wealth. In a more realistic model including international trade and the public sector, the primary segment *ab ovo* manufactures commodities exclusively acquired by the workforce. The turnover of the also vertically integrated secondary division is paid with money which does not come from disposable total wages. Though this branch is called luxury, other than the delivery of consumption items bought with capital income, the surplus industry comprises autonomous investments, exports and public goods. Besides,

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[14]Alas, down to the present day, the dimensionless magnitude 'rate of profit' is habitually confounded with a 'rate of return on investment' or a 'rate of interest', which always relate to a certain period of time, mostly a year.

it makes sense to express the respective output of both sectors in a distinctive, yet fictitious final product each representing a certain labour value.

The basic sphere determines – possibly in a trial-and-error process – the real unit labour costs and at the same time the general rate of profit, because, when no frictions occur, this percentage must be uniform throughout the economy. Furthermore, in the wage good production unit labour costs and the amount of gross profit do not always move in the same direction. Rather, gains in this branch increase up to a certain point with the employees' remuneration in the secondary department, which benefits the basic industry's proceeds. Starting from zero, the gross margin in this sector rises with the value of labour power – accompanied by a falling rate of profit – until either the maximum gain of the primary division is reached or sectoral total profits coincide. Therefore, the wage good fabrication displays in practice a more or less intuitively perceived interest in a sufficiently high emolument of staff. This explains that in spite of decades of mass unemployment unit labour costs have not hit rock bottom, but settled somewhere in a mid-range (see Helmedag (2013b), p. 153). Obviously, business may also be made with workers' earnings! And of course, unit labour costs may swing in a certain range around the focal points $h*$ or $\hat{h}$ as it was observable in the past.

Viewed in this light, trade unions should not indulge in effusive hopes to enforce by mere wage improvements the individual and collective share of their clientele in national income. For this, the increment in real pay has to exceed the productivity growth in the basic industry. Furthermore, according to Eq. (22), rising unit labour costs entail, taken by itself and subject to the weighting factor, a more or less pronounced surge in the volume of work. This leads, as Eq. (11) in contrast to popular opinion indicates, to an augmented wage bill. The threat of reduced profits, however, induces employers in good time to put a stop to the workers' wishful thinking. At first, bosses in collective bargaining try to keep the redistribution component in the settlement as low as possible. If and when they do not succeed completely, entrepreneurs in step two have an effective remedy to neutralize excessive wage agreements: Higher prices thwart the workers' plans by preventing an increase in the purchasing power of pay.

If workers associations nevertheless accomplish at least steady unit labour costs, the technological progress in the non-basic department reduces, *ceteris paribus*, the volume of work equally. As an offset to this redundancy, a strengthening of autonomous demand or a vaster supply of public goods is needed. But as it stands, doubts remain as to whether the appropriate economic policy

measures will be adopted, and to the necessary extent. Thus, in the foreseeable future, there is little chance of full employment and a reversal of the escalating concentration in income and wealth all over the globe (see Alvaredo *et al.* (2018)).

In this perspective, not only have Marx's and Keynes's analyses of capitalism proven complementary in an excellent manner, but (unfortunately) the essence of their statements cited at the outset regarding the serious deficits of the contemporary economic regime still applies. And both pundits may agree to the view that it requires much more than only cosmetic corrections of symptoms to effectuate a change from quantity into quality.

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Appendix

In footnote 8 it was reported that the profit of the luxury branch P_X decreases with rising unit labour costs. In order to verify this statement, the positive correlation between the sector's gain and the rate of profit is proven. From Eq. (10) follows:

$$P_X = rW_X = \frac{r\left(r+1-c_W(1-t_W)\right)A}{(1+r)\left[r(1-c_P)(1-t_P)+(1-c_W)(1-t_W)\right]} =$$
$$= \frac{(r^2+ra)A}{r\alpha_P + \alpha_W + r^2\alpha_P + r\alpha_W} \tag{A1}$$

In the second fraction the subsequent abbreviations have been used:

$$0 < a \equiv 1 - c_W(1-t_W) < 1$$
$$0 < \alpha_P \equiv (1-c_P)(1-t_p) < 1$$
$$0 < \alpha_W \equiv (1-c_W)(1-t_W) < 1$$

The partial derivation of P_X with respect to the rate of profit r can be written as:

$$\frac{\partial P_X}{\partial r} = \frac{A(Z_1 + Z_2)}{(\cdot)^2} \tag{A2}$$

The symbols Z_1 and Z_2 stand for:

$$Z_1 = 2r^2\alpha_P + 2r\alpha_W + 2r^3\alpha_P + 2r^2\alpha_W + ar\alpha_P + a\alpha_W + ar^2\alpha_P + ar\alpha_W$$

$$Z_2 = -(r^2\alpha_P + 2r^3\alpha_P + r^2\alpha_W + ar\alpha_P + 2ar^2\alpha_P + ar\alpha_W)$$

Since $0 < a < 1$, the sum of Z_1 and Z_2 is positive:

$$Z_1 + Z_2 = r^2\alpha_P(1-a) + \alpha_W\left(r(r+2) + a\right) > 0 \tag{A3}$$

Thus, according to (A2), the gain in the secondary industry always moves in the same direction as the rate of profit or varies inversely with unit labour costs. Consequently, only the basic industry exhibits an interior profit maximum.

q. e. d.