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A Critique of Distributional Interpretations of the Labour Theory of Value

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Content

1 Introduction

The labour theory of value (LTV) can be considered as the core of Karl Marx' economic theory. Its basic idea is that a commodity's value is determined by the amount of labour time which is necessary for its production. It is, however, not immediately clear in how far this statement is relevant. There is even disagreement about whether to understand it as a definition of the term "value" or as a genuine proposition of the LTV which is up for theoretical and empirical evaluation. I argue that this debate – as well as many others – is rooted in diverging views on the explanatory purpose of the LTV which give rise to various alternative interpretations. My primary aim is to shed some light on the question what the LTV can and cannot explain.

For that purpose, the writings of Karl Marx play a central, albeit ambiguous role. On the one hand, I treat Marx as something like a prime witness concerning the LTV's explanatory aim. However, I do not aim at an accurate reconstruction of Marx' psychological motivation. In the context of this thesis, his intentions are only relevant as a guide towards a fruitful understanding of the LTV. On the other hand, Marx' text are the main source of confusion about the role which the LTV plays in his framework. This is because I suspect – and about Marx intentions, I do not want to utter more than suspicions – that he indeed intended the LTV to explain multiple things. Consequently, most of the interpretations of the LTV which I discuss in this thesis can be defended by citing some passages from Marx. However, I argue that many of the possible interpretations *should* not be defended. More precisely, I want to establish that the LTV is not an appropriate theoretical tool to explain distribution.

In section 2, I start with a brief exposition of the LTV. Many arguments of the later sections are foreshadowed but the primary aim is to establish a basis for the subsequent discussion. The main part of my thesis – sections 3 and 4 – is devoted to a critique of distributional interpretations. I distinguish two. Firstly, there is the price theoretical interpretation which holds that there is a strong link between values and prices. By thus explaining prices, the LTV is thought to explain how goods are distributed via markets. Secondly, the LTV can be interpreted as theory of exploitation. By explicating how capitalists exploit labourers, the exploitation-centred interpretation of the LTV aims at explaining the distribution of goods among the classes of society. I argue that invoking the LTV for either of those purposes is wrong, misleading or, at best, unnecessary.

As an alternative, I propose non-distributional interpretations of the LTV in section 5. In particular, I argue that the LTV should be understood as a tool for gaining insights about the origin of capitalist profit as well as the untransparent power relations within capitalism. Finally, in the most explorative part of my thesis, I propose to interpret the LTV as an account of the *power of capital itself*. Thus understood, value constitutes a measure of the influence of capital.

My arguments are probably most relevant for Marxists or economists and philosophers who are inclined to Marxist ideas who *do* defend distributional interpretations of the LTV. By doing so, they lay themselves open to valid criticism and run the risk of engaging in fruitless discussions. Ultimately, I argue that Marxists are better advised to focus their attention on the non-distributional aspects of the LTV – not only because of reasons which are immanent to the LTV, but because of reasons which are immanent to capitalism. It is not the way in which goods are distributed which makes capitalism a particularly interesting system or one that is particularly deserving of criticism. It is the underlying dynamics and the specific organisation of production which require a careful investigation. This fundamental Marxist insight is obscured by the distributional interpretations of the LTV.

2 Exposition of the Marxist Labour Theory of Value

In this section, I give a brief reconstruction of the LTV and introduce some concepts which are necessary for the subsequent discussion. To do so, I primarily draw on the first and the third volume of *Capital*. This is where Marx expounds the LTV in greatest detail. Section 2.1 is concerned with the philosophical roots of the LTV and a metaphysical justification of its importance. In section 2.2, I properly introduce the LTV and give some clarifications in order to avoid basic misunderstandings. Section 2.3 is devoted to the historical interpretation, which holds that the LTV was only accurate before the onset of capitalism. I argue that we should expect more from the LTV. At least we should not settle on the historical interpretation without discussing more inspiring approaches which take the LTV to be a tool for understanding the economic system of today. In section 2.4, I present the labour theory of surplus value. Roughly speaking, it is the result of applying the LTV to the commodity of labour power. In section 2.5, I discuss the normative interpretation, according to which the LTV should be understood as a normative template for distribution. There is not much to support the usefulness of this interpretation – neither in the writings of Marx nor elsewhere. However, since it is a common misinterpretation of the LTV, it demands some attention.

2.1 The Aristotelean question of value

Before getting into the LTV as a specific *theory* of value, a few more general remarks about the *concept* of value are necessary. To begin with, the economic debate on value is not about abstract values like honesty or justice but about valuable *things*.[1] Central questions are for instance: Why are certain things valuable? What is the source of value? How valuable are specific goods, compared to each other? What could be a measure of value?

To approach these questions with some clarity, Marx first draws a distinction between the use-value and the exchange-value of a commodity. Use-value describes an immediate qualitative relation between a physical object and a person. A coat is valuable because it keeps warm; a watch is valuable because it tells the time, etc. Things which are not commodities – i.e. things which are not produced to be bought and sold on markets – can also have use-value. One example is fresh air, which, because of its physical characteristics, is very useful to people even though it is not a commodity. Exchange-value, on the other hand, describes how much one can get in exchange for a certain quantity of a specific commodity. It is therefore a quantitative relation which presupposes other people who also possess commodities which they can offer in exchange. Marx acknowledges that investigations about the use-value of commodities are important. (MEW 23, 50) What he is particularly interested in, however, is exchange-value. The fact that exchanges of commodities take place – that commodities have an exchange-value – is the starting point of Marx' investigation. (51)

The tradition to think about value along those lines can be said to begin with Aristotle. He already observes that all possessions can be used for two distinct purposes. What he calls the primary use roughly corresponds to Marx' use-value: A shoe's primary use is to be worn. Its secondary use is to be exchanged for something else. Aristotle classifies the secondary use which relies on the shoe's exchange value as "improper". (Pol. 1257a) This indicates why Aristotle's distinction is not only of historical interest for the debate about Marx' value theory. Marx, who occasionally explicitly refers to Aristotle (e.g. MEW 23, 167, footnote), is tied to the Aristotelian tradition in two interesting ways. Firstly, he offers a much more elaborated and nuanced account of the criticism which Aristotle expresses against the "improper" use of commodities. Secondly, he sometimes remains within the narrow boundaries of Aristotelean metaphysics which ascribes proper and improper uses to commodities.

In particular, Marx relies on a metaphysical argument by Aristotle to make the step from exchange value to value. Aristotle holds that in order for exchange to take place, say, between the shoemaker and the tailor, their products must be equal in some way. (NE, 1133a) Of course, both shoes and coats satisfy a need – they have a use-value. That is why they are exchanged in

[1] Of course, there is also an economic debate about the value of services or non-material entities like intellectual property, patents etc. These aspects I exclude from my discussion of the LTV.

the first place. However, Aristoteles argues, their use-value is not enough to determine the quantitative exchange ratio of shoes and coats. The problem raised by Aristotle's argument is how different commodities can be quantitatively compared. He himself thinks that this problem is ultimately insoluble because things as different as, for instance, shoes and coats, are incommensurable. (NE, 1133b) However, a practical remedy to this problem has been found in the "conventional agreement" (NE, 1133b) that currency should be used as a common measure for commodities of all sorts.

Marx, in turn, is not willing to resort to conventional agreement to solve the Aristotelean problem. Instead, he continues to look for something that makes commodities commensurable. It cannot be their use-value, because only commodities with different use-values will be exchanged – after all, the most obvious reason for exchanging commodities is to acquire something useful which one does not yet possess. When therefore abstracting from a commodity's use-value, Marx argues that all that is left is its quality of being the product of human labour. He thus solves the Aristotelean problem by arguing that the equal substance which makes commodities commensurable and thereby exchangeable is the labour that is necessary for their production. Human labour is the source of value, and value appears in the form of exchange-value. (MEW 23, 52; 53)

This is (a condensed version of) the preparatory work which Marx offers in the beginning of the first volume of *Capital*. It seems to function as a justification for the LTV, his version of which he develops in the subsequent sections. As an explanation of why he considers labour to be of central importance for an analysis of exchange value, this is insufficient, because the relevance of the Aristotelean problem can be questioned: Why should commodities have to contain an *equal substance* of anything, in order to be exchanged? Against the objectivist position, which holds that people evaluate goods according to some objective characteristic – like being the product of human labour – one can bring forward the subjectivist position. Here, individuals are taken to only care about the use-value of goods and their exchange-value only depends on the subjective use-value for others, or, more precisely, their willingness to pay. The subjectivist approach promises to deliver a theory of prices without an underlying theory of value, and neoclassical price-theory goes a long way towards that aim. Before continuing with an overview of the LTV, it is therefore important to note that Marx' initial metaphysical argumentation for why there is at all a need for a value theory is not enough to settle the question. Consequently, I will refer to the accusation that the LTV is superfluous throughout the thesis.

2.2 The Labour Theory of Value

The central idea of the LTV is that a commodity's value corresponds to the amount of labour time which is necessary for its production. Marx emphasises that it is average labour time which he has in mind. This specification is crucial to avoid various potential criticisms. Firstly, a particular commodity's value does not increase if the person who produces it takes more time than usual, for instance because of laziness or a lack of skill. What matters is the time which an averagely skilled and averagely dedicated worker needs. Secondly, a commodity's value does not increase because it is produced with inefficient production technology. Again, it is a society's average production technology which determines values. Marx also offers the alternative terminology that it is *socially necessary labour time* which is relevant (MEW 23, 53) From this it follows that a decrease of socially necessary labour time – for instance a society-wide switch to a more advanced production technology – will decrease the value of the commodity in question.

There are two further clarifications which I want to address in the beginning. They both have quite some literature devoted to them, so they would deserve a much more elaborate treatment, but since they are not close to the core of my argument, a brief mention must suffice. The first concerns the role of machinery. As with all other commodities, the value of machines corresponds to the labour time which is socially necessary for their production. They transfer their value to the commodities they are used to produce in proportion to their average lifespan. So even if machines produced by machines are required for the production of the final commodity, its value is determined by tracing back the labour time expended in the production chain. (MEW 23, 408) Finally, there is the complication raised by commodities which require educated labour. Skill, understood as natural giftedness, whose distribution in society is relatively stable, can be accounted for by taking the average. In contrast, the requirements of education change drastically in a growing economy. Roughly speaking, the Marxist strategy is to reduce all labour to simple labour by factoring in the time and resources which it takes to provide the education. In the literature, this is discussed as the "reduction problem". While being interesting in its own right, a more detailed discussion is not necessary in the context of my thesis.

According to this characterisation, value is a quality of individual commodities. Albeit being socially determined, a commodity has its value irrespective of the values of other commodities and irrespective of whether it is actually exchanged or not. However, under certain assumptions, the values of commodities also fully determine the rates at which they are exchanged. This is the case if, for instance, no means of production are used in a society. In Marxist terminology, means of production consist of raw materials, intermediate products and machinery. In this example, only labour is required for production and consequently, necessary labour time is the only determinant of exchange ratios. If it took nothing but a total of ten hours to produce a pair of shoes and a total of five hours to produce a coat, two coats will be exchanged for one pair of shoes. This gives a first idea of how the LTV can be used to explain prices.

However, means of production *are* used and therefore, not only labour is required for production. In fact, the increasing importance of means of production is one of the distinctive features of capitalism, according to Marx. As he elaborates when proposing the tendency of the falling rate of profit, he considers an ever-increasing organic composition of capital to be a law of the capitalist mode of production. (MEW 25, 222) This requires the introduction of some more of Marx' terminology. He distinguishes constant capital (c) and variable capital (v). Constant capital corresponds to the costs for means of production, i.e. raw materials and machinery, and variable capital corresponds to wages.[2] The organic composition of capital is the ratio between the two. Marx takes the organic composition of capital – i.e. the relative importance of c – to necessarily increase with rising productivity. Without going into a further discussion of the tendency of the falling rate of profit, this shows that Marx does not subscribe to the assumption that no means of production are used – they are used and in capitalism, the economic system which Marx is interested in, they are *necessarily* used. Proponents of what I call the historical interpretation of the LTV, however, hold on to its central importance.

2.3 The historical interpretation of the LTV

The historical interpretation already appears in Adam Smith's *Wealth of Nations*. As its basis, he offers a philosophical argument that labour is the source of value[3] which, in its clarity, is more convincing than the one which Marx gives in the beginning of the first volume of *Capital*. Smith argues that labour is the original value because exchanging commodities saves the toil and hardship of producing them. It is not some metaphysical quality which all products of human labour have in common. Value is a measure of the ability to command and use other people's labour, and as such it is wealth. (Smith 1977 [1776], 50; 51) This understanding of value as power is an idea which I revisit in section 5.4.

[2] The reasoning behind this terminology becomes apparent in section 2.4.

[3] Smith also distinguishes between value in use and value in exchange. Here and onwards, "value" refers to exchange-value, unless indicated otherwise. The subtle differences between exchange-value as a quantification and value as the specific form which this quantification takes can largely be disregarded for the purposes of my thesis.

It is, however, only in an early and rude state of society that the quantities of necessary labour are the sole determinants of exchange ratios. (Smith 1977 [1776], 73) Smith explicitly marks the end of this state by the accumulation of stock in the hands of a few people. (74) This is to say, the commodities cease to be exchanged according to their values as soon as means of production play a significant role in the production process and do no longer belong to the labourers themselves.

Friedrich Engels argues in a similar vein in his additions to the third volume of *Capital*. Here, he reacts to the already in 1895 lively debate on how to interpret the role of the LTV in the work of Marx. He proposes to understand the LTV historically. The law of value according to which commodities are exchanged according to the labour time which is, on average, required for their production, has been valid in the period of simple commodity production. He dates that period from the establishment of regular trade relations a few millennia ago to the onset of capitalism in the fifteenth century. (MEW 25, 909) Then, in the course of capitalist development, values are transformed into production prices and the law of value loses its strict validity. (916)[4]

Engels bases his historical interpretation of the LTV on a remark by Marx that values should be understood not only as theoretically but also as historically prior to production prices. (MEW 25, 186) Even though Engels apparently neglects the theoretical aspect which Marx mentions, the historical interpretation *does* appear in Marx' writing. For its evaluation, however, it is more important what the historical interpretation enables Smith and Engels to explain, than whether or not Marx intended the LTV to be understood like that. Smith's philosophical justification of labour as the source of value is not necessarily tied to the historical interpretation of the LTV. However, it is more convincing to point towards a time and – like Smith – claim that labour was *actually* the only factor determining exchange ratios, than – like Marx – to somewhat mysteriously demand to abstract from a commodity's use-value to arrive at labour as the source of value. (MEW 23, 52) Smith argues that in a society without significant means of production, all that people care about is enjoying the fruits of labour without having to put in the time. It is therefore *natural* that the exchange ratio between beavers and deer only depends on the average time it takes to hunt the respective animal. (Smith 1977 [1776], 73) Engels goes even further and claims that labour time is indeed the *only possible* measure. (MEW 25, 907)

Despite this apparent advantage of the historical interpretation in explicating the special role of labour, it means to give up the idea that the LTV can tell us much about the society we actually

[4] I revisit this transformation in the discussion of the transformation problem in section 3.1.

live in. Means of production *are* used, so we cannot infer exchange ratios from socially necessary labour time. However, it was clearly Marx' intention to apply the LTV in the present. For instance, he writes that it is socially necessary labour time which ultimately regulates seemingly arbitrarily fluctuating exchange ratios. (MEW 23, 89) Accepting the historical interpretation therefore means not to tap the LTV's full potential. If the LTV is thought to explain exchange ratios, it is not satisfactory to simply stop the explanation in the fifteenth century. Instead, one has to investigate what happens when the no-means-of-production-assumption is relaxed. Engels suggests that the law of value has been modified by the emergence of capitalism. (MEW 25, 909). How exactly these modifications look like and to which verdict they lead concerning the LTV's ability to explain exchange rations are questions which I take up in section 3 on the price-theoretical interpretation.

2.4 The Labour Theory of Surplus Value

The discussion of the historical interpretation of the LTV shows that basically everyone agrees that the law of value does not hold in capitalist societies. That is to say, commodities are not exchanged according to their labour values. However, Marx assumes that precisely this is the case throughout the first volume of *Capital*. He did not do so because he believed it to be true, but in order to present his insights on surplus value. I agree with Mark Blaug – a historian of economic theory – that "The first volume of *Capital* is so constructed as to bring out the essential nature of profit as surplus value produced by labour." (Blaug 1985, 227) Consequently, the theory of surplus value is of central importance.

The initial observation is that individual profits exist. It is possible to invest a certain amount of money to make more money. In Marx' characteristic notation: M-C-M'. This expresses that money can be transformed into a commodity which can then be transformed into a larger quantity of money. Money begets money. In the realm of value[5], this implies the existence of surplus value. Where does this surplus value come from? The initial answer which Marx discusses and ultimately dismisses is that the surplus somehow arises in exchange. For instance, the shoemaker could be in need of a coat while the tailor's shoes just wore out. When they then exchange shoes against a coat, they can be thought of as both making a profit, because they get what they need. According to Marx, this argument misunderstands the characteristics of capitalist profit because it rests on a confusion between use-value and exchange-value. The tailor and the shoemaker both increase the use-value they get from the commodities they own, but no increase in exchange value has happened. This becomes apparent when they try to make

[5] For a more careful distinction between values and monetary prices, I refer to section 3.

a profit by selling the commodities which they just exchanged with a third person – it will not be possible. An alternative is that surplus value arises because a cunning merchant makes a profit by buying commodities under their value or by selling them above it. However, all that she gains is lost by someone else. In terms of exchange-value, trade is a zero-sum game where the emergence of aggregate surplus value is impossible. (MEW 23, 173-178)[6] The empirical observation that total capital profits are positive therefore requires an explanation which is not based on individual exchanges.

After making the point that surplus value cannot arise in the sphere of circulation – Marx' term for markets in the broadest sense – he faces the following problem: Where else is surplus value coming from? Here, the significance of the assumption that commodities are exchanged according to their values becomes clear. Marx is not willing to accept an answer to the question which relies on violating the assumption, so insisting on the assumption helps to clearly define his problem. Marx is well aware that commodities are not exchanged according to their values but his goal is to show how the emergence of surplus value would be possible, even if that was the case.

Marx' solution relies on the distinction between labour and labour power. Labour is a human activity. In Marx' formulation, it is the expense of brains, nerve, muscle, hand etc. (MEW 23, 58) Labour power, on the other hand, is a commodity which is bought and sold at markets. As with every other commodity, the value of labour power is determined by the amount of labour time which is necessary for its production. Most immediately, that includes the time which is necessary to produce the food, shelter, clothing etc. which labourers have to receive in order to be able to work again the next day. In the long run, the value of labour power is also determined by the time it takes to raise children and give them the education they need in order to be able to perform labour, given the current state of production technology. The value of labour power thus depends on the time which is necessary for its continuous reproduction. (MEW 23, 184-186) If labourers are paid according to the value of their labour power, this is frequently referred to as them receiving *subsistence wages*.

The unique quality of the commodity labour power is that its use – the performance of active labour – does not simply transmit value to the product, as it is the case for constant capital. Labour adds value. This is why Marx singles it out as *variable* capital. Crucially, the amount of

[6] So, while Blaug writes that "it seemed obvious to Marx that the origin of surplus value cannot lie in an exchange between capitalists" (1985, 227), the opposite seems to be the case. Far from obvious, it is the position which Marx explicitly tries to argue against.

value which is created by labour is not limited by the value of labour power. For instance, a labourer might have to work six hours a day in order to reproduce the value of her labour power. If she is then made to work ten hours daily, four of those are used for the creation of surplus value. In this example, 6 hours daily are necessary labour and 4 hours daily are surplus labour. Based on this distinction, Marx introduces the rate of surplus value as $\frac{\text{surplus labour}}{\text{necessary labour}}$. (MEW 23, 553) Here, it is $\frac{4}{6}$, so 66.6%.

Under the assumption of subsistence wages, the surplus value goes to the capitalists in the form of profits. Thus, Marx solves the problem how profits can exist even if commodities are exchanged at their value. The answer lies in the difference between the exchange-value of labour power and the exchange-value of the products of labour. This brings us to the ethical considerations, which this line of thought provokes.

2.5 The normative interpretation of the LTV

According to the normative interpretation, the LTV is an account of how value should ideally be distributed. On this view, the problem to be dealt with is that labourers do not receive all the value they create – that is what the labour theory of surplus value shows. This can be considered to be an injustice. The solution is as simple as the problem: Wages must increase so that labourers do not only receive the value of their labour power but on top of that also the surplus value which they produce. For instance, this could be facilitated by handing out timesheets which entitle to receive commodities whose value corresponds to the time worked, instead of paying monetary wages.

Of all the interpretations covered in this thesis, the normative understanding of the LTV is probably the one which is the least rooted in Marx' writings. On the contrary, he criticises it quite explicitly. In *The Poverty of Philosophy* (MEW 4) he attacks Pierre-Joseph Proudhon's normative interpretation of the LTV and in *Critique of the Gotha Programme* (MEW 19), he points towards the detrimental effect which Ferdinand Lassalle's normative approach had on the theoretical basis of the constituting document of the German Socialist Party. Both Proudhon and Lassalle could – following Marx – be classified as representatives of vulgar socialism, who merely focus on the distribution and lose sight of the underlying processes happening in production. (MEW 19, 22)

Contrary to the normative interpretation, Marx uses the LTV to show that the appropriation of surplus value by capitalists does *not* constitute an injustice – at least not according to the principle that only exchanges of commodities of equal value are just. Consider, for instance, a capitalist who employs a labourer for a day. The commodities which are exchanged are the labour power of a day – a commodity with the value of six hours of labour – and a wage – also corresponding to a value of six hours of labour. In terms of value, that is an exchange of equivalents. The capitalist is now entitled to use the labour-power which she bought. If she manages to make the labourer work for ten hours and therefore receive the value of ten hours of labour, that is her luck, but no injustice against the worker. (MEW 23, 208) Paying subsistence wages and appropriating the surplus value is perfectly in line with the principle of only exchanging commodities with equal value. Of course, Marx does not argue that there is no injustice between the capitalist and the labour, but the LTV shows that the *exchange* which happens between them is fair. This is Marx' main theoretical argument against the normative interpretation. He also has practical concerns about a labour movement whose main demand is higher wages, while accepting commodity exchange as such.

Even if the LTV should not be seen as a normative template for constructing an ideal society, it *does* point out ethical questions within capitalism. Assuming one accepts the principle that exchanges of commodities of equal value are fair and that capitalists are therefore entitled to the surplus value, its amount is still to be determined. Marx identifies two crucial factors: The length and the intensity of the working day. (MEW 23, 534) By increasing either of it, the amount of surplus value can be increased as well – at the expense of the well-being of the labourers. Both capitalists and labourers are somewhat justified in their claims because of their respective roles of buyers and sellers of a commodity. When equal rights collide, Marx writes, only force can decide. (MEW 23, 249) In the Marxist understanding, the degree of exploitation is decided by class struggle.

To sum up: I reject both the historical and the normative interpretation.[7] However, they can be regarded as radical versions of two larger strands of interpretations which I now turn to. The historical interpretation is a special case of the price-theoretical one, which deals with the problem of explaining exchange ratios. The normative interpretation is a special case of the exploitation-centred one, which deals with the problem of explaining the distribution among classes.

3 The Price-Theoretical Interpretation

In this section, I discuss the LTV under the assumption that it is a theory about prices. Since prices determine which exchanges take place and therefore, how products are distributed in

[7] See Nutzinger and Wolfstetter (2008, 11-13) for a similar assessment.

society, the price-theoretical interpretation is a distributional one. For the application of the LTV as a price theory, an account of how its values relate to market prices is required. This task is known as the transformation problem, and I introduce it in section 3.1. Section 3.2 describes Marx' attempt at solving it. In section 3.3, I turn to an influential debate between Eugen von Böhm-Bawerk and Rudolf Hilferding. Böhm-Bawerk, in his critique of the Marxian system, explicitly subscribes to the price-theoretical interpretation. (Böhm-Bawerk 2008 [1896], 103) He adds that this is also how Marx himself saw it. Rudolf Hilferding calls this into question. In his reply to Böhm-Bawerk, he hints at other explanatory purposes of the LTV. However, Hilferding also defends the price-theoretical positions of Marx against Böhm-Bawerk's criticism. Therefore, I treat Hilferding as Böhm-Bawerk's counterpart in the debate on price-theory. The third protagonist in my discussion of the price-theoretical debate on the LTV is Ladislaus von Bortkiewicz. He is an early commentator of the Böhm-Bawerk/Hilferding controversy and his own contributions to the debate are of compelling clarity. In contrast to Böhm-Bawerk's uncharitable criticism and Hilferding's apologetic defence, Bortkiewicz strikes the insightful middle-ground of criticising many of Marx' positions while also correcting some of his mistakes and acknowledging the points where his theory leads to valuable new insights. Section 3.4 is devoted to his contribution. The upshot of the discussion is that the LTV is not an appropriate tool for the purposes of price theory. In section 3.5, somewhat as an addendum, I return to Hilferding and another attempt of his to save the price-theoretical interpretation. I also discuss some methodological issues.

This section is devoted to *theoretical* arguments about the price-theoretical interpretation. However, there is also a considerable amount of empirical literature on the matter. (e.g. Shaikh (1998), Işıkara and Mokre (2022)) Its aim is to estimate the correlation between prices and labour requirements. It turns out that the LTV provides a decent first approximation of price variation, especially if the rate of profit is small. Measuring the empirical correlation between two economic variables can of course be interesting. However, without establishing its theoretical significance, it is hardly helpful for understanding the world. Therefore, it is the theoretical connection between values and prices which I am interested in.

3.1 The transformation problem

The central point of Böhm-Bawerk's critique, which he wrote shortly after the publication of the third volume of *Capital*, is the apparent contradiction between its price theory and the LTV as it is presented in volume 1. As described in section 2.1, Marx introduces the LTV with the metaphysical argument that commodity exchange requires the commodities to contain some equal substance which makes them commensurable. This substance is value, defined by socially necessary labour time. (MEW 23, 52; 53) From this, Böhm-Bawerk draws the somewhat radical conclusion that it is Marx' position that exchange is only possible if the commodities in question contain equal amounts of socially necessary labour. (Böhm-Bawerk 2008 [1896], 98-99)[8] Consequently, prices are determined by values.

This stands in contrast with the theory of prices of production which Marx offers in volume 3. Here, Marx argues that instead of labour values, prices of production regulate market prices. The first component of a commodity's production price is its cost price[9]. The cost price is the amount of capital which is expended in production. That includes constant capital and variable capital. The expended constant capital consists of the prices of products that fully enter the final commodity (raw materials and intermediate products) and the price that accounts for the wear and tear of machinery. (MEW 25, 34) Variable capital corresponds to wages. The second component of the production price is the average rate of profit, which is added to the cost price. Take a numerical example in which a capital of 100 is used to produce one commodity. It is divided in constant capital of 80 and variable capital of 20. In the production, 50c are expended and enter the final commodity. In that case, the cost price is c+v=50+20=70. Assume that the average rate of profit is 22%. Since the rate of profit is calculated with respect to the total capital invested (100), the price of production is 70+22=92. (MEW 25, 166-167) Expressed differently: production price=costprice+profit=(50+20)+(100*0.22)=92.

The rationale why production prices instead of values regulate prices is that capitalists will make sure to maximise their profits. If their capital is invested in industries which yield profits below average, they will move it to more profitable ones. In that sense, it is the competition among capitalists that ensures a tendency towards a uniform rate of profit[10]. At the same time, this prevents that commodities are sold at their values.

The numerical difference between values and production prices becomes apparent when considering that Marx introduces the cost price as a component of a commodity's *value*. (MEW 25, 34) While the production price is the sum of cost price and average profit, the value is the

[8] I agree with Hilferding that in that passage in volume 1, Marx did not want to proclaim a general law which is valid by metaphysical necessity, but merely set the stage for the following analysis. (Hilferding 2008, [1904], 168-169) However, Böhm-Bawerk's interpretation is legitimate and hence a further illustration that Marx' resort to Aristotelean metaphysics is – charitably interpreted – an unfortunate didactical choice.
[9] Here, I follow Marx' terminology.
[10] This tendency only prevails when abstracting from the fact that investments in different industries vary in risk. For an accurate description of the (no longer) uniform rate of profit, risk and the risk aversion of capitalists must be taken into account. For the argument in this section, however, this is irrelevant.

sum of cost price and surplus value. The surplus value, in turn, depends on the amount of variable capital and the rate of surplus value. (see section 2.4) Even under the assumption of a constant rate of surplus value, the amount of variable capital or, more precisely, the organic composition of capital, varies from industry to industry. Since the *average* rate of profit is calculated over all industries, it does not vary. Consequently, a commodity's value and its production price will differ, unless it is produced in an industry with average organic composition of capital.

Now this is the problem which Marx has at his hands: Is it the law of value which regulates prices – as he suggests in volume 1 – or is it the law of the uniform rate of profit – as he suggests in volume 3? Marx is aware that it cannot be both. In volume 3, he points out that the *assumption* of volume 1 that commodities are exchanged according to their values contradicts reality. If the assumption held, it would imply constantly diverse profit rates which would undermine the very principles of capitalist production. (MEW 25, 162; 184) Thus, in volume 3, Marx clearly submits to the thesis that it is production prices which regulate market prices.[11] This leaves him with the task of arguing why the LTV is not rendered obsolete by these insights. He attempts to do so by trying to show how value can be *transformed* into production prices. This would allow to interpret the production price theory as a modification of the LTV, instead of outright contradicting it. In the next section, I present Marx' solution to the transformation problem and discuss it in the subsequent two.

3.2 Marx' solution to the transformation problem

Marx demonstrates the transformation of values into prices with a numerical example. The following tables represent an economy with five sectors. They are taken from Bortkiewicz' paper (1907a, 14) but closely resemble the original ones from Marx (MEW 25, 166) which are also used by Hilferding (2008, [1904], 140). The slight alterations Bortkiewicz implements do not change anything of substance but make it easier to illustrate his criticism, which I turn to in the next section.[12]

[11] Crucially, production prices do not equal market prices, because the latter are subject to more or less random fluctuations. Instead, production prices correspond to equilibrium prices under perfect competition. There will be more to say about the relation of production price theories and marginalist equilibrium analysis in section 3.5 on Hilferding's subjective/objective distinction.

[12] Bortkiewicz' tables differ from Marx' in two aspects. Firstly, he constructs two tables, one exclusively for value calculation, the other one for price calculation, in order to demonstrate that Marx mixes up the two. Secondly, he makes some slight numerical changes whose convenience will become apparent in the next section.

Table 1: Value Calculation

Sector	Constant capital (c)	Variable capital (v)	Expended constant capital (ac)	Surplus value (m)	Value (W)	Rate of profit ($\frac{m}{c+v}$)
I	80	20	50	20	90	20%
II	70	30	50	30	110	30%
III	60	40	52	40	132	40%
IV	85	15	40	15	70	15%
V	95	5	10	5	20	5%
I-V	**390**	**110**	**202**	**110**	**422**	**22%**

Table 2: Price Calculation

Sector	Constant capital (c)	Variable capital (v)	Expended Constant Capital (ac)	Cost Price (ac+v)	Profit (m')	Production Price (P)	Divergence Production Price from Value	Rate of Profit ($\frac{m'}{c+v}$)
I	80	20	50	70	22	92	+2	22%
II	70	30	50	80	22	102	-8	22%
II	60	40	52	92	22	114	-18	22%
IV	85	15	40	55	22	77	+7	22%
V	95	5	10	15	22	37	+17	22%
I-V	**390**	**110**	**202**	**312**	**110**	**422**	**0**	**22%**

The first thing to note it that the economy described is the same in both tables. Furthermore, the amount of capital invested in each sector (c+v) is 100. There is, however, variation in the organic composition of capital, which is crucial for the argument. The percentage of c which is expended during the production process also varies but that is only assumed to illustrate that it does not affect the rate of profit. (MEW 25, 165-167)[13]

[13] An additional assumption implicit in the tables is that the turnover rates are equal in all industries. For the questions at hand in this this thesis, abstracting from differences in production periods is an unproblematic simplification. Marx discusses it in depth in volume 2 of *Capital (MEW 24),* see also Bortkiewicz (1907a, 27-29).

Let us first consider table 1. The rate of surplus value is assumed to be 100% in all sectors, which is why v=m. If the commodities were to be exchanged according to their values, this would lead to the diverse rates of profit given in the last column. This is not sustainable, since the capitalists of all sectors have the same amount of capital invested, so none of them will accept a rate of profit below the average of 22%. That the average rate of profit will only prevail in each sector, if commodities are exchanged according to their production prices. This is illustrated in table 2. The second to last column in table 2 shows the divergence of value and production price; again demonstrating the difference between the two.

Three further points are crucial. Firstly, the sum of all values is the same as the sum of all production prices. Secondly, the sum of all surplus values is the same as the sum of all profits. And thirdly, the divergence of values and prices balances out to 0. This creates the impression that there is not much happening when moving from table 1 to table 2. The transformation of values to prices appears as a straightforward modification according to the simple rule that equal capitals have to yield equal profits. All that the production price theory adds is an account of how the capitalists – as a class – split the total profit among themselves. In the spirit of the price-theoretical interpretation, it seems to be a fair assessment that value calculation is the decisive basis for the analysis of prices and the requirement for a uniform rate of profit only leads to slight alterations.

3.3 The Böhm-Bawerk/Hilferding controversy

Böhm-Bawerk is not at all impressed by that treatment of the transformation problem. He argues that instead of offering a solution, Marx' tables merely illustrate the contradiction without resolving it. (Böhm-Bawerk 2008 [1896], 99) Production prices are the price-theoretical solution we are looking for, so quantifying their divergence from values does not add anything to our understanding of prices. In order to maintain that values still ultimately regulate prices, further arguments are required. Böhm-Bawerk identifies four distinct approaches by Marx to save the LTV by pre-empting potential criticism of his transformation procedure. I briefly revisit them, partly because they themselves, Böhm-Bawek's assessment of them and Hilferding's response are of historical interest, partly because they are sometimes still relevant in the current debate on the LTV and, most importantly, because they lead to a better understanding of the transformation problem. Especially the last approach leads the way to Bortkiewicz' analysis.

The first argument in defence of the price-theoretical interpretation of the LTV which Böhm-Bawerk addresses starts by admitting that values do not determine the exchange ratios between individual commodities. However, since the sum of all values equals the sum of all production prices, the law of value remains valid on the socially aggregated level. Böhm-Bawerk's assessment is that whatever the relevance of this equality may be, it is of no significance for price-theory. After all, price theory is concerned with the exchange ratios of individual commodities, and they are inevitably lost out of sight when resorting to the aggregate level. (Böhm-Bawerk 2008 [1896], 101-103) What is at issue here are not two opposing arguments but Böhm-Bawerk merely states a clash with respect to explanatory aims. Hilferding sees that as well and he maintains that this is a clear sign that Marx is not primarily concerned with an explanation of prices. (Hilferding 2008 [1904], 146-147) However, Hilferding does not consistently draw the conclusion that price-theory and value-theory are fundamentally distinct, for instance when he claims that production prices – like values – are an expression of reified labour. (148) By presenting it as a result of Marx' theory that the sum of values and the sum of production prices are both an expression of the amount of labour time which is necessary for their production, Hilferding apparently neglects the point that the equality is not an empirical finding but a result of definitions. (149) Hilferding's formulation is a bit ambiguous here, so it might be possible to interpret it more charitably. Either way, argument one does not solve the contradiction, nor does it establish the fundamental relevance of values for the explanation of prices.

The debate between Böhm-Bawerk and Hilferding about the second argument also rests on different perceptions of Marx intentions. Böhm-Bawerk points to Marx' assertion that changes in the values of commodities lead to changes in their prices. (MEW 25, 186; 189) He rightly argues that this is obviously true since no one denies that necessary labour time is *a* determinant of prices. (Böhm-Bawerk 2008 [1896], 107)[14] Hilferding maintains that Marx was aware of that and does not claim that values are the *only* determinant of prices. (Hilferding 2008 [1904], 149) This is true – Marx does introduce a ceteris paribus clause. (MEW 25, 186; 189) In the realm of the price-theoretical interpretation of the LTV, however, this amounts to a point for Böhm-Bawerk. Values do not fully determine prices and arguing that variations of values lead to variations of prices does not affect that insight. Therefore, argument two also does not solve the contradiction nor does it establish the fundamental relevance of values for the explanation of prices.

The third argument amounts to the historical interpretation already discussed in section 2.3. Marx and, even more explicitly, Engels hold that the law of value has determined exchange

[14] It might be interesting to note that Böhm-Bawerk thus departs from a strictly subjectivist position concerning price theory. For a more detailed discussion about subjectivist and objectivist price theories, I refer to section 3.5.

ratios in pre-capitalist stages of society. The tables of Marx' solution of the transformation problem are thus to be understood as depicting the historical process in which the originally prevalent values have been transformed into production prices. This is the more detailed account of the modification which could not yet be given in section 2.3. Evaluating the historical interpretation in the context of price-theory requires two steps. The first question is whether the law of value actually *ever* fully determined prices. Even if that is the case, the second question is whether this implies that the LTV is *still* necessary for the explanation of prices. Böhm-Bawerk and Hilferding focus almost exclusively on the first step. (Böhm-Bawerk 2008 [1896], 108-118; Hilferding 2008 [1904], 149-157) I do not want to comment on their respective accounts of the actual historical development. Without addressing the crucial second step, the historical interpretation can only increase the intuitive plausibility of the LTV. In that respect, the discussion between Böhm-Bawerk and Hilferding does not add much to the accounts of Smith and Engels. Since it also does not illuminate the link between the pre-capitalist and the contemporary society, we can turn to the fourth argument.

The last argument which Böhm-Bawerk addresses is the most promising attempt to establish a connection between values and prices. Unlike the other three, it illustrates the full significance which the tables in the last section have for Marx' solution of the transformation problem. The central result of table 1, which is in line with the LTV as it appears in volume one of *Capital*, is the average rate of profit in the last column of 22%. The rate of profit is determined by value calculation. In table 2, it is taken as given in order to calculate production prices. Crucially, no additional information enters in table 2, so the transformation procedure seems to be possible, just based on table 1. This leads to the Marxist conclusion that ultimately, production prices are determined by the law of value. (MEW 25, 189) Instead of reconstructing the somewhat convoluted debate between Böhm-Bawerk and Hilferding on this argument, I turn to Bortkiewicz, who addresses the same argument with much greater clarity.

3.4 Bortkiewicz on the transformation problem

Bortkiewicz takes the reasoning that values determine production prices via the rate of profit – this is what Böhm-Bawerk identifies as Marx' fourth argument – to be the core of Marx' solution to the transformation problem. However, instead of submitting to it, he takes it as a starting point for his demonstration that Marx' transformation procedure is flawed. Consider the following properties of table 1: The value of the commodities produced in sectors I and V is 110. That is the same as the value of the total variable capital. Therefore, sectors I and V can be thought of as the wage-good sectors in which the commodities are produced which the labourers need for the reproduction of their labour power. Analogously, the value of the commodities produced in sectors III and IV can be observed to correspond to the value of expended constant capital. They can therefore be interpreted as producing the means of production. Finally, the value of the commodities produced in sector II equals the amount of surplus value. [15] Consider now table 2. It is supposed to depict the same economy, so the same commodities must be produced in the same sectors. However, while the wages are again assumed to be 110, the production price of the commodities produced in sectors I and V are 129. Consequently, in table 2, the labourers cannot afford the same commodities which they can buy according to table 1. The same applies to profits and the monetary expression of expended constant capital – they do not match the prices of the commodities assigned to them in table 1. Apparently, the two tables do *not* depict the same economy. Thus, Bortkiewicz concludes, Marx' transformation procedure is internally inconsistent. (Bortkiewicz 1907a, 14-16)

Marx himself was aware that there is something wrong with his account of the transformation. There are at least two passages where he acknowledges the complications which Bortkiewicz describes. (MEW 25, 170-171; 217) However, unlike the latter, Marx does not think that there is a serious problem. Instead, he resorts to the following statement which, in its vagueness, is worth quoting directly:

> "Under capitalist production, the general law acts as the prevailing tendency only in a very complicated and approximate manner, as a never ascertainable average of ceaseless fluctuations." (MEW 25, 171)[16]

Böhm-Bawerk's polemic metaphor comes to mind, that Marx' general law suffers a homoeopathic dilution before even Marx himself commits to it. (Böhm-Bawerk 2008 [1896], 125) Bortkiewicz identifies this statement as the characteristically Marxian response to arising contradictions. Instead of revisiting his own theory, Marx is content with ascribing a "contradictory nature" to the object of investigation itself: the capitalist mode of production. (Bortkiewicz 1907, 22)

Subsequently, Bortkiewicz takes up the task of scrutinising Marx' transformation procedure himself. Key to Bortkiewicz' understanding of the issue is the strict distinction between value calculation and price calculation. While in the former, exchange ratios are regulated by the law of value, in the latter they are regulated by the law of the general rate of profit. According to

[15] Ensuring this neat correspondence is the purpose of Bortkiewicz's numerical changes. This simplifies the following illustration but, crucially, it does not change anything substantially. After all, Marx original numbers are arbitrary.
[16] The English translation is taken from (Marx 1971, 161).

Bortkiewicz, the cause of Marx' mistakes is the confusion of the two. This already starts at the beginning of the third volume of *Capital* when, as mentioned, Marx introduces the cost *price* as a component of *value*. (MEW 25, 34) However, the numerical expression of the amount of expended capital – the cost price – is different with respect to values and prices. In the one case, it, too, is determined by the law of value, in the other by the general rate of profit. (Bortkiewicz 1907a, 16, footnote) Marx fails to make this distinction up to the point where, in his tables, he sets both total value equal to total price *and* total surplus value equal to total profit. It is legitimate to arbitrarily choose the numerical value of one variable in each system. Doing so for two at a time is the cause of the inconsistency. Both equations only hold simultaneously in special cases with very restrictive assumptions, which, in Marx' own example, are clearly violated – that is why the numbers in the two tables do not add up.

A more general treatment of Bortkiewicz' results is offered by Francis Seton (1957). He points out that when transforming values into prices, it is possible to choose among a few potential invariance postulates. Each of them determines one variable of the value systems whose numerical value remains invariant to the transformation. Bortkiewicz, for instance, suggests defining invariance for gold, in order to be able to express all prices with respect to the value of gold. (Bortkiewicz 1907c, 321). Alternatively, one could *either* postulate invariance for total value *or* for total surplus value. Seton shows that postulating both – as Marx himself suggests – is only possible with the additional assumption of *simple reproduction*. (Seton 1957, 156) This implies that Marx' transformation procedure is indeed consistent, but only when assuming a stationary economy without growth. Given that the dynamic character of capitalism is central to Marx' analysis, this seems to be too great a departure from the rest of Marxist theory. Alternatively, one could simply give up problematic invariance assumptions in order to retain the internal consistency of Marx' transformation without making prohibitively unrealistic assumptions. However, both of Marx' invariance postulates are required in order to argue that ultimately, values determine prices via the rate of profit. Dropping one of them thus implies that the transformation loses its (price theoretical) raison d'être. (Seton 1957, 160)

This result by Bortkiewicz and Seton is relatively widely accepted. (Blaug 1985, 232; Samuelson 1971) It refutes the fourth and most promising attempt by Marx at saving the LTV by establishing a connection between values and prices. Therefore, I consider it to be the decisive argument against the LTV, understood as a theory of prices. At least Bortkiewicz, however, does not submit to a price-theoretical interpretation. Instead, he emphasises Marx' account of the origin of capitalist profit. This account is based on the labour theory of surplus value as described in section 2.4 and I return to it in section 5.2. Before moving to the exploitation-centred interpretation, I want to discuss another attempt by Hilferding to argue for the LTV's relevance in the realm of price theory.

3.5 Hilferding's objective/subjective distinction

So far, the discussion on price-theory has taken place on Böhm-Bawerk's terms. Hilferding classifies it as a subjectivist approach to price theory and argues that it is fundamentally mistaken and completely foreign to Marxist thinking. Instead, he proposes to understand Marx' value theory as *objective*. I will argue that this distinction is unfortunate because Hilferding's arguments against the subjectivist account are not convincing and, more importantly, because subjectivist and objectivist approaches are not fundamentally incompatible. While I agree with some of Hilferding's remarks on the specific explanatory purpose of LTV, I argue that this can only be appreciated if one consistently sticks to the conclusion that the LTV does not constitute a good theory of prices or, more generally of distribution.

The central proposition of subjectivist value theories, as Hilferding understands them, is that value is based on psychological evaluations of individuals. A prime example of this is Smith's remark that labour is the measure of value because it represents the toil and hardship which is required for its production. (Smith 1977 [1776], 50) Consequently, value can be measured by labour time if and only if people have a psychological aversion against performing it. Hilferding strongly disagrees with this position, but the two arguments he initially offers against it are not convincing. Firstly, he refers to the authority of Marx and holds that in *A Contribution to the Critique of Political Economy*, Marx argues against Smith's subjectivist account. In the passage which he quotes, however, Marx primarily accuses Smith of confusing the value of labour – according to Marx, a nonsensical expression – with the value of labour-power. (MEW 13, 45)[17] I cannot claim that Marx did not at all sympathise with Hilferding's objectivism, but the passage which Hilferding quotes does not seem to be suitable for making that case. (Hilferding 2008 [1904], 166-167) Secondly, Hilferding argues that it would be absurd to consider toil to be the measure of value because in capitalism, the owners of the commodities did not have to endure it but only those who produced them. (167) Hilferding presents this as the final nail in the coffin of subjectivist value theories. However, Smith, Böhm-Bawerk etc. can be entirely unimpressed by this. After all, it is precisely the possibility of acquiring products without producing them

[17] Furthermore, Smith typically isn't classified as a subjectivist concerning value. His criterion of labour time is an objectivist criterion – despite his remarks which can be interpreted as subjectivist foundations of this objective criterion.

oneself which makes exchange appealing. Without referring to the psychological principle that people want to enjoy commodities while enduring as little as possible of the toil of production, the LTV loses its (subjectivist) foundation and Hilferding faces the question why labour time should have anything to do with exchange ratios at all.

Hilferding's understanding of the role of competition sheds some light on his position concerning the LTV's need for a subjectivist foundation. He distinguishes two forms of competition: Pre-capitalist competition ensures that commodities' individual values are balanced out to a general market value. Capitalist competition leads to a transformation of values into production prices. Pre-capitalist competition is connected to the law of value and capitalist competition ensures the emergence of a universal rate of profit. (Hilferding 2008 [1904], 152) Hilferding is not entirely clear in how far he considers the motivations of individual capitalists to be relevant for capitalist competition. However, he explicitly argues that pre-capitalist competition – and therefore the law of value – does not depend on individual psychological estimations of value. On the contrary, it is the competition among commodities (not among people) which objectively corrects subjective mistakes. (171) Hilferding considers value to be an objective characteristic of commodities which is merely *realised* in pre-capitalist competition. (168)

Thus, Hilferding attempts to turn around the debate on the need for foundation. Instead of the LTV requiring a subjectivist underpinning, he argues that it is the subjectivist account which lacks an objective foundation. Here, Hilferding draws on Marx' criticism of supply and demand analysis – the centrepiece of subjectivist price theory. Marx maintains that fluctuations in supply and demand account for fluctuations in prices, but if supply and demand match, they cease to explain. Therefore, the task remains to explain the price which emerges if supply and demand are in equilibrium. (MEW 23, 560) Hilferding rightly holds that a commodity's equilibrium price corresponds to its production price but, as was established in the previous section, the LTV does not provide a sufficient basis for understanding production prices. Thus, the Marxist alternative to subjectivist price-theory is unsatisfactory.

On a methodological level, Bortkiewicz argues that "subjectivist" supply and demand analysis and "objectivist" production price theory are not as incompatible as Marx and Hilferding take them to be. This can be established with what Bortkiewicz calls the "mathematical method". In the Marxist tradition, causal relations are often understood unilaterally: Labour time determines value; value determines price. In contrast, conceptualising causal relations as a system of equations allows to grasp the interdependencies between variables. While Marx and Hilferding appear to be sceptical towards the idea that supply and demand determine each other (Hilferding 2008 [1904], 172), Bortkiewicz argues that this can be effortlessly represented by an equation. The marginalist analysis of Walras, he claims, allows to align subjectivist evaluations with production prices. (Bortkiewicz 1907b, 478) Consequently, Hilferding has a point when he argues – following Marx – against taking supply and demand as given. He argues that this is problematic because demand crucially depends on the distribution of surplus value among classes.[18] (Hilferding 2008 [1904], 173) However, that does not imply that supply and demand are unilaterally determined by production prices. When Hilferding insists on that (173), he commits the mistake which Bortkiewicz points out of reducing complex interdependencies to simplistic causal chains.

Supply and demand as well as psychological motivations are factors which are relevant for an *objective* theory of prices. They are in complex, interdependent relations with each other as well as with other phenomena of capitalist markets, (advertising etc.). It is of course unsatisfactory to take psychological motivations as a given, but analogously, it is merely part of the story to only treat them as epiphenomena which are to be explained. Depending on the specific explanatory purposes at hand, it might be a legitimate methodological choice to treat psychological motivations either as explanandum or as explanans, but on an ontological level, it is clear that they are not exclusively either or. Therefore, subjectivist and objectivist price theories are not as fundamentally distinct as Hilferding takes them to be and the objectivist understanding of the LTV does not lead to theory of prices which is outright superior to the accounts which Hilferding classifies as subjectivist. Consequently, I propose to strictly stick to the conclusion that price theory is not a promising explanatory purpose of the LTV.[19] While Hilferding frequently hints at that, he does not consistently reject the price-theoretical interpretation, for instance when he insists on both of Marx invariance postulates that total value

[18] I argue in the next section, especially in 4.4., that the LTV alone does not provide an account of that distribution either.

[19] In a recent paper, Kurz, Salvadori and Signorino (forthcoming) present an alternative view on the subjective/objective distinction. They follow Piero Sraffa in distinguishing two types of price-theoretical questions which – supposedly – are fundamentally different from each other. Firstly, there is the question of what determines the price of a commodity at a given moment. Secondly, what determines the development of prices over time? According to Sraffa, at least the first question has to be settled by objectivist value theory. In the context of my thesis, this amounts to a criticism of my conclusion that the LTV cannot usefully be invoked for the purposes of price-theory. Without being able to go into an in-depth discussion, I want to briefly sketch a defence of my position. Firstly, I am sceptical whether Sraffa's distinction makes sense. In my view, the first question could be interpreted as a special case of the second question, Kurz et al. briefly hint at this option but do not address it properly. Secondly, even when accepting the distinction, I do not see why one should insist on addressing it in a purely objectivist manner. The Smithian reference to the disutility of labour might – for some purposes – still be an important foundation. Thirdly, Sraffa's own views on how this distinction affects Marxist argumentation are quite unclear. He writes that failing to distinguish the two question is cause of much confusion in *all* value theories, but he explicitly excludes Marx from this accusation. (Kurz, Salvadori and Signorino forthcoming, 17)

equals total price *and* total surplus value equals total profit. (147) One alternative explanatory purpose which I now turn to is the explication of capitalist profit.

4 The Exploitation-Centered Interpretation

The exploitation-centred interpretation of the LTV is in line with the dogma which Ricardo advances in the preface to his *Principles*: The primary aim of political economy is to determine the laws which regulate the distribution of goods among the different classes of society. (Ricardo 2001 [1821], 5) According to the exploitation-centred interpretation, the LTV and the analysis of surplus value reveal that even though surplus value is created by labourers, it is appropriated by capitalists. This is supposed to provide the basis for an ethical argument against capitalism as an inherently exploitative system. Because of the negative normative judgement which is implicit in this understanding of exploitation[20], the exploitation-centred interpretation is related to the normative interpretation (section 2.5). However, it is weaker than the normative interpretation since it does not claim that the LTV is a template of how distribution *should* be – it only raises the critical point that the way in which distribution takes place in capitalism is exploitative.

In this section, I first elaborate on the supposed connection between the LTV and the charge that capitalism as a fundamentally exploitative system. This, as well as a critical evaluation of this connection heavily relies on G.A. Cohen's (1979) argumentation. Section 4.2 is devoted to Cohen's own proposal of how to justify the charge of exploitation against capitalism. It is quite weak, as the explicit criticisms by Nancy Holmstrom and Nicholas Vrousalis show. The analysis by Samuelson and Weizsäcker – discussed in section 4.3 – supports the conclusion that neither the LTV nor Cohen's argument provide convincing criticisms of capitalist distribution. In section 4.4, I turn to the foundational assumption of subsistence wages and argue that its violation in the "real world" is a further reason why distributional interpretations of the LTV fail.

4.1. Cohen on the LTV and its connection to the charge of exploitation

In his paper from 1979, Cohen argues that the relationship between the LTV and the concept of exploitation is one of mutual irrelevance. (338) That is because according to Cohen, two incompatible versions of the LTV are used simultaneously in order to justify the charge of exploitation; he calls them the popular and the strict doctrine. The popular doctrine rests on the

[20] There is also the attempt – by some Marxists – to establish "exploitation" as a technical term without any normative connotation. In what I call the exploitation-centred interpretation, however, the normative judgment is always present.

premise that labour and labour alone *creates* value. (Cohen 1979, 342) Value, congealed in the products of labour, is then distributed among the classes of society. While labourers are per definition the only ones who create value, the capitalists appropriate some of the value and thereby exploit labourers. Note that the notion of exploitation which Cohen invokes here is a purely distributional one: For labourers to be exploited, it is sufficient that they do not receive all the value they create – this is a point I return to in section 4.2.

The popular doctrine's metaphysical understanding of value differs from how I have introduced the LTV. Understanding value as some kind of substance which is created by labour is incompatible with the view that it is determined by socially necessary labour-time. This becomes apparent when considering the case of implementation of a new production technology: Assume an averagely skilled labourer who is able to produce a certain number of commodities within one hour. The value of one hour of work is then *congealed* within those commodities. If the same labourer starts to use a new production technology which enables her to produce twice as much in one hour, the individual commodity will only *contain* half as much labour. However, if the old and the new commodities are of equal quality, they are also equally valuable and can be exchanged at the same price, regardless of how much labour actually went into their production. Therefore, Cohen concludes, the popular doctrine is to be rejected.

In contrast, the strict doctrine holds that a commodity's value is determined by the time which is *currently* socially necessary for production. Since this allows to avoid the problems of the popular doctrine, the strict doctrine is a much better candidate for a useful interpretation of the LTV. However, the strict doctrine does not provide a good basis for the charge of exploitation. Without the notion of value as a substance which is created by one class of society and (partly) consumed by another, it is unclear in how far labourers are exploited. If value is understood as a merely theoretical magnitude, it cannot be taken from anyone. This is in line with the argumentation in section 2.5.: If labourers receive the value of their labour-power, this is to be considered as a non-exploitative exchange of commodities of equal value.

The situation, as Cohen perceives it, is the following: While the popular doctrine seems to support the charge of exploitation, it is clearly wrong. The strict doctrine might be invoked to save the LTV, but it does not support the charge of exploitation. Consequently, the LTV cannot be used to argue for the exploitative nature of capitalism. I consider this critical part of Cohen's paper to be a valuable refutation of the exploitation-centred interpretation of the LTV. However, Cohen maintains that capitalism is indeed exploitative. In order to demonstrate that, he drops the LTV in favour of what he calls the *plain argument*. Before addressing it in the next section, a few remarks on Cohen's understanding of the LTV are in order.

Somewhat independently from his point about the relationship between the LTV and exploitation, Cohen argues that the LTV – even the strict doctrine – is wrong. This is because he subscribes to a price-theoretical interpretation of the LTV, but in a slightly different version than the one described in section 3. There, I have taken the LTV to *define* value as socially necessary labour time and to *assert* that value determines *production* price. In contrast, Cohen holds that the LTV defines that value equals *equilibrium* price while its controversial assertion is that value is determined by socially necessary labour time. Cohen claims that the difference between the two versions is of minor importance. (Cohen 1979, 340) I disagree. Two points are crucial. Firstly, Cohen's reference to equilibrium price instead of production price leads him to reject the LTV – interpreted price-theoretically – for the wrong reasons. A commodity's production price corresponds to its equilibrium price *under perfect competition*. Because Cohen ignores this qualification, he claims that monopolies – which are situations of imperfect competition – are a counterexample to the LTV. This is only true for his version because, while ownership structures affect the equilibrium price, they do not affect the production price.[21] With his version, Cohen also differs from Marx, who clearly states that monopolies cause a divergence between values and prices. (MEW 25, 187; for a similar assessment, see also Bortkiewicz 1906, 26) According to Cohen's definition, such a divergence is impossible. Rejecting the transformation problem as incoherent (Cohen 1979, 352, footnote 18) is therefore consistent, but implies that Cohen ignores the real reason why the LTV fails as a theory of prices – at least if there is any merit in the discussion of section 3.[22]

The second problem of Cohen's version might be even more serious. By taking the equality of value and equilibrium price (with or without the qualification of perfect competition) to be true by definition, Cohen, from the outset, dismisses any non-distributional interpretations of the LTV. He makes this explicit by discussing the alternative of simply dropping the claim that socially necessary labour time determines price. Doing that, he argues, would deprive the LTV of all substance. (Cohen 1979, 351) By suggesting alternative explanatory aims – alternative "substances" – of the LTV in section 5, I implicitly argue against this accusation.

[21] There are of course long-term effects of ownership structures on production technologies and therefore on production prices. Here, however, Cohen refers to the capitalist's ability to set monopoly prices and this is a short-term effect.

[22] Cohen mentions cases of divergence in organic composition of capital (Cohen 1979, 351) – which are at the core of the transformation problem – as examples against the LTV. However, he does not seem to connect those cases *to* the transformation problem.

4.2. Cohen's plain argument and its weaknesses

In this section, I discuss Cohen's claim that the charge of exploitation against capitalism can be made without referring to the LTV. This is supposed to be possible with what Cohen calls the *plain argument*. It will turn out to be a good illustration for why an exclusive focus on distribution fails to provide a strong argument against capitalism. This is the *plain argument*:

> (P1) The labourer is the only person who creates the product, that which has value.
>
> (P2) The capitalist receives some of the value of the product.
>
> (C1) The labourer receives less value than the value of what he creates, and
>
> (P3) The capitalist receives some of the value of what the labourer creates.
>
> (C2) The labourer is exploited by the capitalist. (Cohen 1979, 356)

Cohen has high hopes for his plain argument. Not only does he claim that it is this plain argument which "really animates Marxists, whatever they may think and say" (Cohen 1979, 353), he also argues that it is totally different from the arguments which rely on the LTV. (356) The crucial difference is that in (P1), the labourer is not said to create value itself but the products which have value. Therefore, the argument is supposed to be valid, regardless of the underlying theory of value. If, for instance, value is thought to be "created" by desire, labourers are still the only people who create the products which are desired[23], and the charge of exploitation remains relevant.

There are multiple remarks to be made about the plain argument. Firstly, in the version presented by Cohen, it is in fact *not* independent from a theory of value. Here, I follow Holmstrom (1983, 294) who argues that without something like the LTV, there is nothing to link the value of the products created by the labourer to the value received by the capitalist. Given, for instance, an understanding of value which is only concerned with use-value, it would be possible to argue that the value which the capitalists receive has nothing to do with the value of the products created by the labourers – after all, individual capitalists and labourers might value a particular commodity for totally different reasons. There might be other ways to solve this problem than referring to the LTV. However, it requires *a* theory of value. Without providing one, Cohen leaves his *plain argument* hanging in thin air.

[23] Cohen carefully specifies that not everything that is desired must be produced, but if it is produced, it is produced by labourers. (Cohen 1979, 354)

The second remark about the *plain argument* concerns the notion of exploitation on which its normative claim relies. To begin with, the argument is only valid with an additional premise which states the conditions under which a situation is exploitative. Cohen is aware of that lacuna in his argument, but he claims that “[a] rough idea of exploitation, as a certain kind of lack of reciprocity, is all that we require.“ (Cohen 1979, 343) However, Cohen does not consider the specific dynamics or the reasons for a lack of reciprocity in the relationship between labourers and capitalists. All that matters is who ultimately receives what. This distributional notion of exploitation does not suffice, neither in its own right, as a satisfactory account of the phenomenon of exploitation, nor with respect to Cohen’s aim: a critique of capitalism.

The point that Cohen’s distributional definition does not capture what is intuitively crucial for exploitation is made by Vrousalis (2014). First, he gives a more refined statement of Cohen’s notion of exploitation, which is based on a later version of Cohen’s article. (Cohen 1988, 209-238) Here, Cohen claims that the moral status of exploitation does not depend on the final distribution of products but on the initial distribution of means of production. Exploitation happens if the distribution of means of production is unjust and enables the capitalists to appropriate some of the products created by labourers. (234) Even with this restatement, however, Cohen remains within what Vrousalis call the distributive paradigm of exploitation – the position which links exploitation to distributive injustice. (Vrousalis 2014, 153)

Vrousalis argues that the distributive paradigm is to be rejected.[24] He considers distributional injustice to be neither necessary nor sufficient for exploitation. It is not sufficient because further specifications about the nature of the relationship between labourers and capitalists are required. This, Cohen is willing to admit. (1979, 343) Vrousalis goes on to argue that it is not necessary by constructing a case for which there is a strong intuition that exploitation takes place, even though there is no unjust distribution of initial endowments. Instead of Cohen’s distributional paradigm, Vrousalis proposes what he calls the vulnerability paradigm. Here, the defining criterion for exploitation is that the exploiter instrumentalises the exploitee by making use of the exploitee’s vulnerability. Essentially, Vrousalis proposes to understand exploitation as a kind of *domination*, and thus as a moral complaint which is entirely distinct from (distributive) expropriation.[25] (Vrousalis 2014, 158) Holmstrom makes the related argument

[24] To be precise, Vrousalis’ claims that the distributive paradigm is *false*. (Vrousalis 2014, 156) I am quite committed to the position that with respect to definitions and normative statements, talk of truth and falsity is misleading. However, that has no bearing on my assessment of Vrousalis’ argument.

[25] I would argue that there are some parallels between this and Marx’ distinction between “ordinary” exploitation of labourers which is based on the rules of commodity exchange (exploitation) and primitive accumulation, which

that the aspect of *coercion in production* is missing in Cohen's notion of exploitation. (Holmstrom 1983, 292)

Neither the details of Vrousalis argumentation against the distributive paradigm, nor of his and Holmstrom's own attempts at describing the phenomenon of exploitation (in capitalism) are of great relevance for the core of my thesis – especially because Cohen himself might not be fundamentally opposed, given his awareness of the insufficiencies of his account. (Cohen 1979, 343) All I have aimed at in the last two paragraphs is to hint at potential intrinsic deficiencies of Cohen's concept of exploitation and how those deficiencies are linked to it being distributional. The decisive litmus test for Cohen's plain argument, however, is whether its moral complaint amounts to the powerful criticism of capitalism which he intends it to be. Some initial doubts about this might be raised by the position of Ricardo. He agreed with the premise that labour is the source of value and the distributional conclusion that what capitalists receive as profits, labourers cannot receive as wages. (Ricardo 2001 [1817], 84) However, that did not turn him into a critic of capitalism. A more modern version of this position is discussed in the next section.

4.3 Samuelson and Weizsäcker' neoclassical assessment of the LTV

This section heavily relies on two papers, one by Paul Samuelson (1971) and the other one by Samuelson and C.C. Weizsäcker (1971). They were published before Cohen (1979) and belong to a quite different academic discussion: While Cohen engages with the philosophical side of the debate, Samuelson and Weizsäcker belong to the economic one. However, despite coming from different disciplines, they are interested in closely related problems. I aim to show that Samuelson (1971) argues in a similar vein as Cohen that the LTV is superfluous for the charge of exploitation. Samuelson and Weizsäcker (1971), however, go a step further and demonstrate that the existence of exploitation – understood distributionally – is not a necessary feature of capitalism. Furthermore, even if it was a feature, it could be outweighed by its positive consequences.

In the first part of his paper, Samuelson (1971) revisits the transformation problem and reaches conclusions which are in line with the ones in section 3. In the second part, he turns to the implications for the Marxist charge of exploitation. He evaluates the (price-theoretical) Marxist claim that the rate of surplus value, obtained via value-calculation, is a necessary step in

creates the differences in private ownership which are the precondition for the establishment of capitalism (expropriation). See MEW 23, chapter 7, where he talks about the exploitation of labour power and chapter 24, where he describes primitive accumulation.

calculating the rate of profit. In doing so, he foreshadows a mode of analysis which is explicitly introduced by Wolfstetter (1973, 788) and which I take up again in section 5. To assess the merits of the LTV, it is useful to distinguish three systems: The quantity system; the value system; and the price system. The quantity system is concerned with the physical relations of production and reproduction, the value system is concerned with value analysis and the price system is concerned with exchange relationships. While the relevance of the quantity and the price system is largely undisputed, the necessity of value analysis is up for debate. Samuelson's strategy is to show that the quantity system alone is sufficient to determine which products go to capitalists, and this allows to determine the rate of profit for the price-system. If that is true, the degree of exploitation can be determined without the value system and therefore, the LTV is superfluous for the Marxist charge of exploitation.

I now reconstruct Samuelson's argumentation, starting with the quantity system. I make use of his numerical example – for the general mathematical proof, I refer to his original paper. (Samuelson 1971, 419, footnote 30) Consider the following as given: A static, two department economy which produces corn (department I) and coal (department II). The society has 100 units of labour available. The production of 100 units of corn requires 80 units of labour, 10 units of corn and 10 units of coal. The production of 100 units of coal requires 20 units of labour and 40 of both corn and coal. Consequently, the production of 100 units each requires all of the labour, as well as 50 units of corn and 50 units of coal. If we assume simple reproduction (no growth) the rest of the products – 50 units of corn and 50 units of coal – can be consumed. Further assume that for subsistence, a labour unit requires ¼ unit of corn and ¼ unit of coal. In total, labourers must therefore receive at least 25 units of each. If labourers get only what they need for subsistence, the remaining 25 units each are available for consumption by non-labourers – in this case, the exploiting capitalists. (Samuelson 1971, 419) So far, the example remains fully within the quantity system. Neither values nor prices play a role. All that is required to determine the magnitude of (distributional) exploitation is knowledge about production technologies, subsistence requirements and the assumption of subsistence "wages". Therefore, the example is an illustration of Cohen's plain argument: Labourers are the ones who produce, and the only role of capitalists is exploiting the labourers by consuming what they do not need for subsistence.

From the quantity system, Samuelson turns to the price system. As established in section 3, the characteristic assumption here is a uniform rate of profit. Consequently, it can be determined by looking at the whole economy: We know that capitalists must advance 75 units of corn and

75 units of coal in order to produce 100 units of each. 75 units of each are reinvested, 25 units of each are profit. The rate of profit is therefore 25/75=1/3. Again, this was established without any reference to values. [26]

It is also possible to use Marxist terminology to describe the case: 75 units of labour are required to reproduce the means of production (50 units of corn and 50 units of coal) and what the labourers require for subsistence (25 unit of corn and 25 units of coal). Therefore, 75 units of labour constitute necessary labour. The remaining 25 units are surplus labour, which are only used to produce the capitalists' surplus value. The rate of surplus value, defined in in section 2.4 as $\frac{surplus\ labur}{necessary\ labour}$, is 25/75=1/3, which equals the rate of profit. The introduction of the value system, however, is entirely post hoc and does not provide any additional information. Thus, Samuelson concludes, the LTV is superfluous to establish the charge of exploitation. (Samuelson 1971, 421) This concludes the part of Samuelsons argumentation which is in line with Cohen.

To demonstrate that this kind of exploitation is not a necessary feature of capitalist systems, Samuelson and Weizsäcker (1971) introduce economic growth. Their argumentation is quite formal, so for the mathematical proofs, I again refer to the original paper. Here, I focus on the underlying intuitions. S and W start by comparing a static economy without profits – in which labour values and production prices are therefore equal – with an economy with a positive rate of profit/interest. This second economy resembles the corn-coal-example from before. Here, labourers are no longer able to buy all the products they produce, and labour values and production prices diverge. That is because a positive rate of profit also means that the time at which labour is performed becomes relevant: Products which require labour at an earlier stage will be more expensive than the ones which require it later. S and W's example is that wine is more expensive than grape juice, even though they require the same amount of labour. That is because the labour expended earlier to produce wine must – in order to be spent efficiently – realise the economy's interest rate. It can only do that via a higher price for wine.

In a second step, S and W argue that the time at which labour is performed would be equally relevant in a rationally-planned, socialist society with exponential economic growth. As in the

[26] As I understand it, Cohen leaves a gap in his argumentation. He is only able to effortlessly obtain the rate of profit from the quantity system because the amounts of corn and coal are equal. Because of that, the difficulty of determining the relative prices of corn and coal does not arise. Even more surprisingly, when Samuelson actually calculates the rate of profit, he *does* use surplus value. (Samuelson 1971, 420, table 2) I am neither able to offer an explanation of this apparent inconsistency nor can I represent the general method of how to obtain the rate of profit without resorting to the value system. Even though I *think* that Samuelson's lack of rigour does not affect those of his arguments which I present in the rest of this section, it would definitely require a more careful analysis.

case of simple reproduction, labour which must be performed at an earlier point would have to be valued higher. If the planners want to achieve the maximum of economic growth while at the same time keeping the exchange ratios at such a level that they express the relative availability of goods, labour performed earlier is more precious. S and W demonstrate that dated labour must be marked-up according to the economy's growth rate. Consequently, a positive rate of profit and a positive rate of economic growth have exactly the same effect on the amount of products which are available for the consumption of labourers. If a capitalist economy in its golden-rule state – i.e. the capitalists reinvest all their profits, and the rate of profit equals the growth rate – "workers get all there is to get". (Weizsäcker and Samuelson 1971, 1192)

Even though S and W admit that empirically, such a golden-rule state is rare, the conclusion is highly relevant for Cohen's plain argument against capitalism. It undermines the normative intuition that exploitation, in the distributional sense of workers not receiving everything they produce because some of it is appropriated by capitalists, is necessarily a problem, since it can be the source of economic growth. Two arguments might be brought forward in defence of Cohen. Firstly, it might be argued that *actually*, capitalists do not invest all their profits, so *actually*, capitalism is exploitative in an ethically reprehensible way. This is of course true, but then the plain argument does no longer constitute a critique of capitalism. Its only implication is that capitalists should invest a larger percentage of their profits. This does not seem to be Cohen's intention.[27] Secondly, one could argue that capitalists *cannot* reinvest all their profits because they require some of it for their own subsistence. This is true as well, but there is no form of social, democratic planning which does not involve any costs. Consequently, what capitalists consume can be interpreted as remuneration for the social task they fulfil in finding and making use of beneficial investment opportunities. Advocates of capitalism would argue that the competition among individual capitalists is the best way of achieving that. This can, of course, be questioned but neither Cohen's plain argument nor a distributional interpretation of the LTV are helpful in doing so.

In sum, I consider Samuelson and Weizsäcker's argument to be quite destructive for Cohen's *plain argument*. If my claim is correct that Samuelson's numerical example is an accurate representation of the *plain argument*, then Samuelson and Weizsäcker demonstrate the insufficiency of a critique of capitalism which is based on a distributive understanding of capitalism. Interestingly however, Samuelson's judgment of the LTV itself is less harsh than

[27] Then again, Cohen admits that according to his account, the exploitation of the wage-labourer is similar to the exploitation of the feudal serf. (Cohen 1979, 359) Regardless of Cohen's intention, I would again maintain that we should approach the LTV with the expectation that its explanatory aim is specifically about capitalism.

Cohen's. They agree that ultimately, the LTV is superfluous for the charge of exploitation. On top of that, Cohen considers it to be wrong. Samuelson does not fully agree. There are the inconsistencies of Marx' solution of the transformation problem but they can be taken into account by, for instance, assuming equal organic composition of capital in all industries. Then, the LTV can function as a didactical tool as well as a searchlight for the dynamics of labour exploitation. (Samuelson 1971, 422)

4.4 The subsistence wage assumption and the distribution of surplus value

Before concluding the critical part of my thesis, I want to direct attention to an assumption which is crucial for any quantitative application of the LTV: the assumption of subsistence wages. Whether it is for the purposes of price theory or in order to quantify the degree of exploitation, the anchor point is always that wages correspond to the value of labour power, which, in turn, is determined by what is necessary for its reproduction. The subsistence wage assumption, however, provides only a shaky foundation – for two reasons. Firstly, because the definition of the value of labour power is not trivial and secondly, because under almost any definition, it is violated in reality.

First, consider the value of labour power. The components mentioned in section 2.4. are relatively unproblematic. Food, shelter and clothing are without any doubt materially necessary for the reproduction of labour power. The same must be provided for the labourers' children in order to ensure continuous reproduction. The requirement of appropriate education and training already introduces a variable component. In a quickly developing economy in which the demands for labourers change constantly, who is to say which kind and amount of training will turn out to be appropriate? Further complications arise because of a somewhat mysterious remark by Marx. He writes that the value of labour power also depends on the culture and customs of the working class and on the standard of living it is used to. Therefore, the value of labour power contains a historical and a moral element. (MEW 23, 185) Here, Marx seems to give up the idea of materially defined subsistence. Methodologically, this is problematic, since it is possible to argue for *any* wage that it corresponds to the value of labour power, simply by referring to the historical and moral elements.

When ignoring this remark by Marx and sticking to a concept of subsistence as material necessity, the second problem arises: Empirically observable wages are clearly above subsistence, at least in most wealthy countries. This might have been different at the times of Marx, but as established in the discussion of the historical interpretation, the LTV promises an analysis of capitalism, not just of a specific historical period, either before or within capitalism.

Furthermore, it is precisely the LTV which provides the tools to demonstrate that wages could easily rise *above* subsistence level. As soon as a society reaches the point at which it is able to produce a surplus, the distribution of that surplus becomes as matter of political debate, or, in Marxist terms, a matter of class struggle.

The results of class struggle depend on the relative (negotiating) power of the classes. To describe the specific dynamics in capitalism, Marx introduces the concept of the industrial reserve army of labourers. Because of capital accumulation and the increase of the organic composition of capital, Marx predicts that the population will grow faster than the demand for labourers. The resulting over-supply of labour would shift the bargaining power to capitalists, thus keeping wages at subsistence level. (MEW 23, 657-670) I do not want to discuss the merits of this analysis here, but clearly, the tendency towards a reserve army could be counteracted by labourers finding other ways of strengthening their position – unionising being of course the primary example.[28] In the context of my thesis, it is more important to note that the reasoning about the reserve army is somewhat independent from the LTV. The distributional interpretations on their own provide no support for the assumption of subsistence wages but take it as given. Therefore – and this is the conclusion I am aiming at – the LTV cannot tell us anything about the actual distribution of surplus value.

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I have discussed two interpretations of the LTV which take it to provide insights about distribution; either by explaining prices and therefore the distribution of products via market exchanges or by explicating exploitation and the distribution of surplus products among classes. The LTV did not turn out to be particularly useful for either of those purposes. With respect to prices, it mainly was Marx' problematic treatment of the transformation problem which created the impression of the LTV as an indispensable foundation of price theory. For the moral charge of exploitation, the consistent, strict understanding of the LTV does not provide any support. Furthermore, a complete account of the distribution among classes relies on the questionable assumption of subsistence wages. This concludes the main part of my thesis, in which I offer a critique of the distributional interpretations of the LTV. In the final section, I explore the possibilities of potential non-distributional interpretations.

[28] Interesting here is a letter by Engels in which he criticises Lasalle's iron law of wages by claiming that Marx clearly showed that wage determination is complex issue which cannot be resolved by assuming wages to be at their material minimum (MEW 26.1, 5)

5 Non-distributional Interpretations

In this section, I suggest alternative explanatory aims of the LTV which turn out to trigger non-distributional interpretations. I start with a rather narrative section about the theoretical context in which Marx wrote and how he himself perceived it. This is primarily supposed to set the stage for the following three sections, in each of which I present the LTV as a theory about something distinct from distribution. In section 5.2, I focus on Marx' concept of surplus value and argue that it fulfils the function of shifting the focus *away* from distribution towards production. Here, Marx insists, the origin of profit lies. Section 5.3. is devoted to Marx' notion of fetishisation. He argues that in capitalism, the social relations between capitalists and labourers are obscured. In turn, the LTV can be interpreted as a tool for revealing them. In section 5.4, I take up Marx' occasional characterisation of capital as a mysterious power – mysterious, I argue, because it is impersonal and structural. Marx' distinction between productive and unproductive labour allows to interpret value as measure of the power of capital.

As I see it, the three suggestions are not mutually exclusive. Admittedly, however, they become increasingly vague. While the interpretation of the LTV as an explication of the origin of profit is well established, understanding value as a measure of capitals' mysterious power is a rather explorative approach. Apart from preliminarily evaluating the three suggestions on more general grounds, in the context of my thesis, it is particularly interesting to assess which role the LTV really plays in each of them. To do so, I take up Wolfstetter's (1973, 788) framework of the quantity, the value and the price system, which I introduced in section 4.3. It turns out that only for the last interpretation of value as a measure of power, the LTV is really indispensable.

5.1. The historical context

Naturally, Marx wrote in the theoretical context of his time. Understanding his position therefore benefits from contrasting it with the rivalrous accounts he engaged with. As noted in the introduction, Marx' beliefs and intentions are not something I am much interested in for their own sake. However, finding out why Marx himself thought the LTV to be important might be a good guide towards a useful interpretation. A valuable source for that is the posthumously (also after Engels' death) published fourth volume of *Capital*, in which Marx engages with various theories of surplus value. He prefaces it with the remark that all economists (until himself, of course) have made the mistake of not analysing surplus value as such, but only its specific forms: profit and rent. (MEW 26.1, 6) This section aims at providing the context for understanding the significance which Marx ascribes to his analysis of surplus value.

As mentioned in section 2.4. Marx explicitly uses the theory of surplus value to argue against the view that profit arises in the sphere of circulation. First, he criticises the attempt of explaining profit by pointing towards a distribution of use-values according to individual needs. Mutually beneficial exchanges of goods do indeed increase individual well-being, but this account does not grasp the phenomenon of capitalist profits. This is also true for the second idea, which is that profits arise by selling commodities above their exchange-value. This cannot account for net profits either, because one person's gain must be the other person's loss. Consequently, a notion of genuine surplus value which is based on exchange-value is required to understand how capitalists make constant profits.

However, Marx' understanding of surplus value as consisting of the difference between the exchange value of labour power and the exchange value of the products of labour is not the only one possible. The physiocrats, for instance, claimed that the origin of surplus value lies in the fertility of land. As a consequence, they put their focus on ground rent and land ownership. Marx dismisses this idea as again being rooted in use-value. While fertility of land is an indispensable source of material wealth, a commodity's exchange-value is a social phenomenon. Therefore, Marx insists on a social explanation of surplus value, not one which understands value as mere matter. (MEW 26.1, 22; 30)

It was Smith who, with his version of a LTV finally directed the focus of political economists towards labour. However, he was not consistent in that, as Marx points out. Smith writes: "Wages, profit, and rent, are the three original sources of all revenue as well as of all exchangeable value." (Smith 1977 [1776], 97) Firstly, only labour, capital and land can be thought of as the *sources* of revenue. Wage, profit and rent are the names given to the respective revenues themselves. More importantly, while they are indeed the sources of revenue, simply because they help labourers, capitalists and landowners to their respective share of products, they are not the source of exchange value and consequently neither the source of surplus value. Analogously to land, the means of production which function as capital are a source of wealth, because they facilitate more efficient production. However, the explanation of exchange-value must be distinct from the considerations concerning material production. (MEW 26.1, 65)

This is the theoretical backdrop against which Marx develops his theory of surplus value. The analysis of surplus value as such is supposed to avoid confusions which arise because of the different forms it can take. Whether it appears as profit or ground rent, as interest or dividends, it remains surplus value, created by surplus labour, extracted from labourers in the sphere of production. Marx is also quite explicit about his intentions, when, in volume one of *Capital*, he prefaces the chapters on surplus value with a vivid characterisation of the spheres of circulation and production. The sphere of circulation, he writes, is a paradise of freedom, equality and private property. Buyers and sellers of commodities of all sorts interact as equals and – because of competition – receive what they deserve according to the law of value. It is in the less transparent realms of the sphere of production, where the "consumption" of labour power by the capitalists takes place. Here, the hierarchy between capitalists and labourers becomes apparent and here – not in the public sphere of circulation – the secret of surplus and accumulation is hidden. (MEW 23, 189-191) Instead of analytical precision, this passage is written with literary pathos. Because of that, it might be a good indicator for Marx' aims. Gaining a better understanding of profits as well as of the social hierarchies within capitalism are goals which I take up in the next sections.

5.2 The theory of deduction

As mentioned in section 3.4, Bortkiewicz also maintains that the primary function of the LTV is its explication of capitalist profits. (see also Baumol 1974; and Blaug 1985, 227, who argue in a similar vein) I follow him in calling Marx' account the "theory of deduction"[29] (Bortkiewicz 1907b, 447): All commodities are created by labourers in the sphere of production and capitalists *deduct* a certain percentage of that produce – their profits. By reconstructing the role of the LTV in volume one, Bortkiewicz simultaneously makes the case for the truth of the theory of deduction and for the view that it is indeed the part that matters most to Marx.

Bortkiewicz's strategy is to point towards the particular use which Marx makes of value calculation. To illustrate that, he combines the difference between value and price calculation with the existence/non-existence of capital gains. The result is a scheme with four cases:

1. Value calculation with capital gains.
2. Value calculation without capital gains.
3. Price calculation with capital gains.
4. Price calculation without capital gains.

[29] In the English translation of Bortkiewicz's paper, the term "theory of withholding" is used. (Bortkiewicz 1907d, 51) "Theory of deduction" is closer to the German original "Abzugstheorie". "Theory of deduction" indicates that capitalists take something which, after production, is literally in the hands of the labourers, while "theory of withholding" suggests that they merely keep what is already theirs. I see no reason for thus changing the emphasis of Bortkiewicz's term. Furthermore, "theory of deduction" is a good alternative to "theory of exploitation", which would overemphasise the normative aspect.

Ricardo, for instance, moves straight from case 1 to case 4 and thus remains ambiguous about whether it might be prices and exchange relations which are the root of capital gains.[30] In contrast, Marx devotes considerable space to the discussion of case 2. By showing how capital gains can arise even under the quite restrictive assumption that commodities are exchanged at their value, Marx renders the search for other explanations obsolete. (Bortkiewicz 1907b, 474) Marx himself makes this strategy explicit. (MEW 23, 180, footnote 37)

There is a further argument by Bortkiewicz in favour of the theory of deduction which I want to mention here. It relies on Ricardo's thesis that the rate of profit is unaffected by changes in the productivity for non-wage goods. The idea is the following: If the productivity in wage-good sectors increases, the subsistence requirements for labourers can be met by investing less capital. Consequently, more capital can be invested in those sectors which produce luxury goods which are only consumed by capitalists. The relative price of luxury goods compared to subsistence goods will increase, which also increases the rate of profit, defined as $\frac{total\ profit}{total\ capital}$. In contrast, consider a rise in the productivity of luxury goods. It will lead to more luxury goods being available, which of course benefits the capitalists. However, capital will not be reallocated because, given the subsistence wage assumption, the amount of wage-goods to be produced is fixed. Therefore, the rate of profit will remain the same. For the formal argumentation, I refer to the relevant papers by Bortkiewicz (1907a, 1907b, especially 445-448)[31]

Interestingly, Marx disagrees with Ricardo on this point. He claims that it is true for the rate of surplus value that it is only affected by changes of productivity in the wage-good industries[32], but not for the rate of profit. This is a mistake, Bortkiewicz argues, not only because Marx' argumentation is wrong and relies on his faulty solution of the transformation problem, but also because Ricardo's thesis provides further support for the theory of deduction: If the rate of profit actually only depends on the productivity in the wage-good sectors then this shows clearly that the origin of profit is in the wage-system, not in the technical productivity of capital. (Bortkiewicz 1907b, 446-447)

Note that this argument can be made without invoking the value system – quantity and price system suffice. This leads Bortkiewicz to the conclusion that the LTV is a *possible* tool for

[30] On the discussion about Ricardo's exact stance on capital gains, see for instance Bortkiewicz (1907b, 472-473).
[31] It should also be noted that, in principle, Ricardo's thesis about the rate of profit is up for empirical evaluation.
[32] In value terms, the argumentation is the following. A rise of productivity in the wage-good sector will decrease the amount of necessary labour compared to surplus labour. Increasing productivity for non-wage-gods does not. Therefore, the rate of surplus value, defined as $\frac{surplus\ labur}{necessary\ labour}$ (see section 2.4.) only depends on the productivity for wage-goods.

discovering the origin of profit. If it is applied correctly, i.e. if one avoids Marx' mistakes regarding the transformation problem, nothing wrong can come from it. However, it is not *necessary* to resort to the LTV: The theory of deduction, which Bortkiewicz takes to be the core of Marx' theory, can be defended without it. (Bortkiewicz1907b, 475-476) However, the LTV and especially the notion of surplus value might be more useful than Bortkiewicz acknowledges. That is because the theory of deduction can be understood as part of wider project, which, following Marx' terminology, I call de-fetishisation.

5.3 De-fetishisation

According to Marx, the capitalist mode of production leads to a system in which social relations do not appear as they are. To demonstrate this, he contrasts capitalism with feudalism. In the latter, the power-relations between the classes of society are clearly visible. Peasant serfs belong to the land they cultivate and their relationship to the nobility owning the land is one of personal dependence. Part of the serf's harvest goes to the respective aristocrat, not because of some fair exchange but simply because one is a serf and the other one an aristocrat. The justification of this state – whether it is divine power or pure force – is secondary here; what matters is that the hierarchy is transparent and its existence undisputed. (MEW 23, 91)

This is different in capitalism. Here, the labourer is free. Free, however, in the double sense, as Marx remarks somewhat cynically. Firstly, the labourer is a free person, owner of her labour power and equipped with the same legal rights as capitalists. Secondly, the labourer is free of all the means of production. (MEW 23, 183) Therefore, in order to be able to work efficiently, the labourer must sell her labour power to the capitalist. In exchange, she receives a wage which corresponds to the value (or the production costs) of her labouring power and which might therefore be considered to be fair. On the surface – in the sphere of circulation – the hierarchy between labourers and capitalists does not appear. They relate to each other only via impersonal commodity exchange. The social relations between people appear as reified relations between commodities. For this phenomenon and its ramifications, Marx introduces the term *commodity fetishism*. (MEW 23, 86)

Instead of going further into the intricacies of commodity fetishism, I turn to the fetishisation of capital. In developed capitalism, capital appears to have a life of its own. Most clearly, this is the case for interest bearing capital (MEW 25, 404). From the perspective of capitalists, capital, once invested, yields interest without requiring any further action. Hence, it seems to be capital itself which creates the surplus. What actually is the result of the social relation between capitalists and labourers appears as a natural characteristic of the material object which functions as capital.

Revealing the underlying social structure is Marx' intention. He emphasises that an analysis on the level of prices does not only help for that purpose – on the contrary, the fact that in capitalism, labour power *is* a commodity with a price and the ownership of capital *yields* a monetary income on its own, are manifestations of the fetishes. Instead, Marx turns to the analysis of value. Especially the analysis of surplus value as the common source of all non-wage income is a powerful tool to expose the capital fetish: Capital and Rent are not independent sources of value which entitle their owners to revenues because of their technical productivity. It is because of the specific social arrangement of capitalism that rentiers receive their share. Marginalist analyses which suggest that capital and labour receive what they deserve according to their marginal productivity are an obvious contemporary target of this theory.[33] While it is true that the resulting *distribution* is in line with the principle of commodity exchange according to production prices, it neglects the underlying mode of production.

I argue that it is this interpretation of the role of the LTV which allows to understand Marx' contribution as the *critique* of political economy which he explicitly intended it to be – as subtitle to *Capital* this statement of intention is not overly subtle. Classical economists were concerned about price theory and the determination of wages, profits and rents – in one word: distribution – and Marx has a fair number of comments on their accounts. His critical project, however, also concerns the more fundamental topic of what it even is that economists are interested in and which questions they ask. I argue that Marx uses the LTV to demonstrate that economists tend to confine their investigations to the distributional phenomena which are immediately apparent. Marx' plea to also consider the social structure which underlies the *production* of the goods to be distributed is of lasting importance.

Finally, I want to raise two critical points concerning the project. Firstly, the LTV might not be necessary to make Marx' points about fetishism. Its terminology is helpful but, as established in sections 3 and 4, there is a lot of theoretical baggage that comes with it. However, neither the quantity nor the (common) price system are concerned with social power-relations, so if one assigns any importance to the Marxian notion of fetishism, the LTV cannot be dropped without a substitute theory. Secondly, Marx himself was sceptical concerning the fruitfulness of just

[33] I want to emphasise that marginalism in itself does not *imply* any normative conclusions. To arrive there, an auxiliary normative postulate is necessary. That this is frequently not made explicit in (more or less) popular discourse can probably most often be ascribed to carelessness. However, sometimes it is perhaps the result of intentional deception.

analysing the fetishisation in capitalism. The discovery of labour as the source of exchange value does not automatically get rid of the reified, fetishised appearance of social labour. (MEW 23, 88) After all, Marx is the author of the materialist dogma according to which it is not enough to interpret the world – what matters is to change it. (MEW 3, 7) This rather pessimistic outlook on the potency of theory is somewhat counteracted by the thousands of pages of *Capital*. However, my proposal in the next section and the interpretation of fetishism it entails might explain Marx' worries further.

5.4 Value as a measure of power

As mentioned in section 2.3, the idea to understand value as a measure of power already appears in Smith's *Wealth of Nations*. Being able to buy a commodity means not having to endure the toil and hardship of producing it. Therefore, he argues, a commodity's value depends on the time which is required for its production. In that sense, value is a measure of the command that is exerted over people's labour time – it is a measure of power. (Smith 1977 [1776], 50-51) This approach seems to be promising for addressing the problem of fetishism, since it draws attention to the social relations implicit in commodity exchange. However, Smith does not develop the idea much further. Nevertheless, it serves well as a starting point for my proposal of a Marxian understanding of value as a measure of power.

Smith's notion of power is an individualistic one: It expresses the buyers' command over the producer's labour. In contrast, I want to suggest that Marx' notion of value leads to a structural concept of power. Crucially, Marx argues that it is *capital* which employs labour and forces surplus labour – the capitalist is merely its personification. (MEW 26.1, 365) This is in line with numerous other occasions where Marx characterises capital as a "mysterious power" with which labourers are confronted. (e.g. MEW 23, 95) He even seems to take it to be the decisive characteristic which distinguishes capital from mere means of production that it appears as an independent force. (MEW 26.1, 384) This seems to indicate a more substantial understanding of fetishism than the one described in the last section. It is not only about the obscurity of individual power-relations but about the emergence of a new form of power.

Marx illustrates the idea that it is about *impersonal* power-relations with the example of individual craftspeople and farmers who possess their own means of production. If they live in a capitalist society, however, their means of production function as capital and as such, they *must* yield a profit according to the average rate of profit. Consequently, the individual craftspeople and farmers are *forced* to perform surplus labour in order to realise those profits, even though there is no capitalist involved. Or, more precisely, the craftspeople and farmers function as their own capitalists (and potentially landlords). (MEW 26.1, 383-384) In this example, it is of course not physical coercion which forces surplus labour. Instead, the self-employed labourers might be compelled by some kind of economic rationality to perform surplus labour. After all, they could sell their concrete means of production and invest their capital in a way that *does* yield average profits.

This is of course only a first rough sketch of an understanding of the impersonal, structural way in which capital exerts its power. There are alternative Marxist approaches to link the LTV with power which do not entertain a mystical, fetishised notion of capital. Wolfstetter (1973, 800) and less explicitly Holmstrom (1983) suggest *surplus* value as a measure of the power of capitalists. Since this idea is closely related to the exploitation-centred interpretation of the LTV, there are a few things to be criticised. Firstly, it neglects that part of the surplus value can also go to labourers, which would raise the question why this portion should also be indicative of the capitalists' power. Secondly, it implies an exclusive focus on the amount of labour. Capital, however, also changes the *kind* of labour which is performed – this is a central argument of Marx' earlier writings on the alienation of labour. Arguing, like Holmstrom (1983, 292), that only surplus labour is forced while necessary labour is free neglects that even if it is necessary in any economic or social system, in capitalism, labourers do not have control about it.

Furthermore, Wolfstetter and Holmstrom do not take the distinction between productive and unproductive labour into account. For Marx, productive labour is a technical term which expresses whether labour is productive *from the perspective of capital*. This is only the case, Marx claims, when it produces surplus value. (MEW 26.1, 375) According to this definition, the same type of labour can be productive or unproductive (377), depending on whether it is performed as wage labour for capital. Even unproductive labour, i.e. labour which is not performed under the dominion of capital, is not necessarily free. Other forms of power might come into play. Consider for instance patriarchal power which shapes the division of labour within the family. Even though it might be necessary and unproductive (from the perspective of capital) it is by no means free. Holmstrom's (1983, 302) again somewhat independent suggestion to understand value as a measure of real social cost further illustrates the problems of neglecting the distinction between productive and unproductive labour. Unpaid house and care work induces social costs which are not captured by the value system.

In contrast, my notion of value as power seems to be a way to measure the dominance of the characteristic influence of capital. Provided that this kind of power exists, the value system appears to be an indispensable theoretical tool for its analysis. However, an argument for its existence has to meet at least three challenges. Firstly, neoclassical economists might argue that what happens in market economies is not determined by some mysterious power of capital but simply by demand. Even if one accepts that the aim of capital is the generation of surplus value, this can only happen if the commodities' which are produced realise their value by being sold. This only happens if they are useful. Marx acknowledges this to some degree, but his remark that use-value is the obvious precondition for commodity production (MEW 26.1, 376), is not sufficient to meet the challenge.

The second challenge is to spell out how this mysterious power actually functions. One approach might be to take up Smith's metaphor of the invisible hand, which leads individuals "to promote an end which was no part of [their] intention." (Smith 1977 [1776], 593) Thus contrasting market economies and capitalist societies with economies under conscious (democratic) control might be a promising start.

This, however, leads to the third challenge, which might be posed by Austrian economists. Hayek, for instance, might accept the talk of capital's somewhat mysterious powers but he would classify them as a force for good. Markets and capital, he argues, are institutions which are the result of a process of social evolution. As such, they are more promising solutions to society's problems than any form of collective planning. (Hayek 1978 [1960], 23; 28) I do not want to go further into the discussion of Hayek's arguments – they are only meant to illustrate that establishing the *existence* of a mechanism which transcends individual's intentions can merely be the first steps in Marx' critical project.

Leaving those serious challenges unanswered is of course unsatisfying. However, at this point I am not able to do more than pointing out *what would have to be done* in order to establish value as an indispensable measure of the power of capital.

6 Conclusion

The main aim of my thesis was to argue that the LTV cannot explain the distribution of goods in capitalist societies. This is the case because it neither constitutes an adequate theory of prices nor a self-sufficient account of the distribution among the classes of society. However, there are good reasons to think that the LTV was never (primarily) intended as a theory of distribution. I suggested that there are alternative explanatory aims which give rise to non-distributional interpretations. However, a considerable amount of work remains to be done to establish the LTV as an indispensable, useful and contemporary theory about some aspects of the capitalist society we live in.

Obviously, my thesis was concerned with theory. Not only in the general sense of trying to understand something about the world but in the narrower sense of investigating the various interpretations of a specific theory. However, it would be a grave misinterpretation of all to treat a part of Marxist thought as nothing but a sterile piece of theory without any political implications whatsoever. Consequently, I want to end on a brief note on politics.

I consider my arguments against the focus on distribution not only to be relevant for an understanding of Marxist theory but also of Marxist politics. I argue that Marx *was not*, and Marxists *should not* primarily be concerned about redistributing commodities by fighting for higher wages and minimising capitalist profit. Without any doubt, this can be a necessary first step to fight poverty and thus create the possibility for political thought and political action. However, Marx is very clear that in principle, he considers a focus on distribution to be mistaken. (MEW 19, 22) What ultimately matters is not to fight for higher wages but to abolish the wage system altogether. (Marx 1969 [1865], 31) I would go so far to classify a certain disregard for distribution as a mere surface phenomenon as a characteristic feature of Marxist thought compared to, for instance, social-democratic positions. Of course, this does not constitute an argument for Marxist political strategies over social democratic ones. However, I argue that both Marxist theory and Marxist politics are better understood when the focus is shifted from distribution towards the underlying dynamics of production.

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Appendix

Abstract

In this thesis, I the defend the claim that Marx' labour theory of value (LTV) is not a useful tool to explain distribution. Two distributive interpretations of the LTV are criticised. Firstly, there is the price-theoretical interpretation according to which the prices of commodities are determined by their labour values. While labour time is an important factor of price determination, an exclusive focus on labour is insufficient. Secondly, there is the interpretation according to which the LTV should be mainly regarded as an explication of capitalist exploitation. While Marxist theory in general and the LTV specifically do provide insights into the phenomenon of exploitation, the LTV cannot fully account for the distribution of commodities among the classes of society. However, there are promising alternative, non-distributional interpretations of the LTV. In particular, it allowed Marx to clearly present his theory of capitalist profit. Furthermore, the LTV sheds light on the intricate dynamics of capitalist societies.

Abstract – German

In dieser Arbeit wird These verteidigt, dass sich die Arbeitswerttheorie von Marx nicht zur Erklärung von Verteilung eignet. Zwei verteilungstheoretische Interpretationen der Arbeitswerttheorie werden kritisiert. Die preistheoretische Interpretation besagt, dass die Preise von Waren durch ihre jeweiligen Arbeitswerte determiniert werden. Notwendige Arbeitszeit ist zwar ein wichtiger Faktor der Preisbestimmung, ein ausschließlicher Fokus auf Arbeit reicht allerdings nicht aus. Der zweiten Interpretation zufolge dient die Arbeitswerttheorie primär zur Darstellung kapitalistischer Ausbeutung. Während marxistische Theorie im Allgemeinen und die Arbeitswerttheorie im Besonderen durchaus dabei helfen, das Phänomen der Ausbeutung zu verstehen, kann sie die Verteilung von Waren zwischen den gesellschaftlichen Klassen nicht vollständig erklären. Alternative Interpretationsansätze rücken die nicht-distributiven Aspekte der Arbeitswerttheorie in den Vordergrund: Einerseits half die Arbeitswerttheorie Marx dabei, seine Profittheorie darzulegen und anderseits bringt sie Licht in die verwickelten Dynamiken kapitalistischer Gesellschaften.