

# Value and Crisis: Bichler and Nitzan versus Marx

Andrew Kliman

*Editors' Note: In this article, Andrew Kliman responds to Bichler and Nitzan's recent paper on 'Systemic Fear, Modern Finance and the Future of Capitalism' (2010). He then goes on to raise a series of issues concerning the critique of Marxian value theory which these authors put forward in their book Capital as Power (Nitzan and Bichler, 2009). It is followed by a rejoinder from Bichler and Nitzan.*

## Introduction

Shimshon Bichler and Jonathan Nitzan's (B&N) 'Systemic Fear, Modern Finance and the Future of Capitalism' (Bichler and Nitzan, 2010) argues that 'systemic fear' – fear of the death of the capitalism – has gripped capitalists during the last decade, as it did during the Great Depression. Their evidence for this claim consists of the alleged fact that these two periods of crisis were the *only* periods since World War I in which equity (stock) prices and current profits were strongly correlated.<sup>1</sup>

Employing the same methods and data as B&N, Part I of this response shows that equity prices and current profits were *also* strongly correlated during the so-called golden age of capitalism! This should cause us to doubt B&N's claim that systemic fear has prevailed in recent years. I then argue that flaws in their reasoning should also cause us to doubt their claim that capitalists are normally convinced that capitalism is eternal, as well as their claim that this conviction is crucial to its continued existence. But if the future of capitalism doesn't hinge on the conviction that the system is eternal, it also doesn't much matter whether capitalists have recently been gripped by systemic fear in B&N's sense.

Good old regular fear, "the dread and apprehension that regularly puncture [capitalists'] habitual greed" (Bichler and Nitzan, 2010, p. 18), is another matter. There can be little doubt that good old regular fear was intense at the start of the last decade, and even more intense at the end.

I believe that this good old regular fear was justified and that it remains so. The underlying long-run economic problems that led to the recent Great Recession, and to the weakness of the subsequent recovery, have *not* been resolved. Slow growth of employment relative to investment during the last six decades has led to a persistent fall in the rate of profit; the fall in the rate of profit has caused capital accumulation and economic growth to be sluggish for decades; and this sluggishness has led to mounting debt burdens (see Kliman, 2011). I doubt that the fall in the rate of profit can be reversed or that the debt problem can be solved without much more destruction of capital value – i.e. falling prices of real estate, securities, and means of production, as well as physical destruction – than has taken place to date. And if these problems remain unresolved, the economy will continue to be relatively stagnant and prone to crisis.

But it is difficult to discuss these ideas with B&N, or at all, because they and others like them contend that the theory on which the ideas are based, Marx's value theory, is internally inconsistent and circular. An internally inconsistent theory cannot possibly be correct.<sup>2</sup> All ideas resting upon such a foundation can thus be disqualified at the starting gate, without further ado. In order to clear the ground for a *genuine* discussion – one in which B&N's approach to questions of crisis and the future of capitalism is compared with and contrasted to something rather than nothing – Part II of this paper responds to the main criticisms of Marx's value theory contained in their recent book, *Capital as Power* (Nitzan and Bichler, 2009). In the course of that response, I will discuss *inter alia* how Marx's value theory helps to illuminate the long-term difficulties that led to the Great Recession and its "new normal" aftermath. Part III concludes.

## **I. 'Systemic Fear' and Capitalists' Convictions**

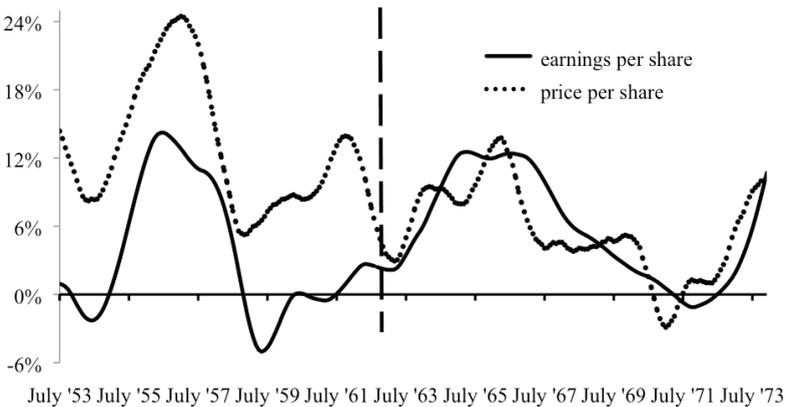
B&N (2010, p. 17) argue that "if we adhere to the scriptures of modern finance, we should expect to see *no* systematic association between equity prices and current profits." And they claim that equity prices have indeed become decoupled from current profits since 1917, except during two brief and exceptional periods. "Figure 2 and Table 2 show *two* clear exceptions to the rule: the first occurred during the 1930s, the second during the 2000s. In both periods ... equity prices moved together—and tightly so—with current earnings" (Bichler and Nitzan 2010, p. 17) [emphasis altered].

However, their Figure 2 actually shows *four* clear exceptions to the alleged rule. Equity prices also moved together with current earnings – and tightly so – from the early 1950s to the early 1960s, and from the early 1960s to the early 1970s (see my Figure 1). During the first of these additional "exceptional" periods, period 4 of my Table 1, the correlation between equity prices and current earnings was stronger than during the Great Depression (period 2). During the other "exceptional" period that B&N fail to

bring to our attention, period 5, the correlation was lower, but still considerably stronger than during the 2000s (period 7).<sup>3</sup> The percentage of the variation in one variable that is “explained” by, or attributable to, the variation in the other is the square of the correlation coefficient,  $r^2$ . Thus, as Table 1 shows, only about two-fifths of the variation in share prices during period 7 is attributable to variations in current profits; the explained variation during period 4 is almost twice as great, while the explained variation during period 5 is more than 50% greater.<sup>4</sup>

Table 1 also shows that share prices have been strongly and positively correlated with current profits more than 40% of the time since 1917, and almost half the time since 1929. So the “exceptions” are not exceptional; the “rule” that share prices and current profits have become decoupled is no rule at all.

**Figure 1. S&P 500: Price and Earnings per Share, 1953–1962 & 1962–1973 (3-year moving averages of annual rates of change)**



**Table 1. S&P 500: Pearson Correlation Coefficient between the Annual Rates of Growth of Price and Earnings per Share**  
(Monthly data expressed as 3-year moving averages)

Period	Number of months			Correlation ( <i>r</i> )	Share-price variation explained ( <i>r</i> <sup>2</sup> )	
1	Oct. 1917	–	Dec. 1929	146	0.29	8%
2	Dec. 1929	–	Feb. 1939	110	0.89	79%
3	Feb. 1939	–	June 1953	172	–0.34	12%
4	June 1953	–	Aug. 1962	110	0.90	81%
5	Aug. 1962	–	Dec. 1973	136	0.80	65%
6	Dec. 1973	–	Sept. 2000	321	–0.20	4%
7	Sept. 2000	–	Mar. 2010	114	0.65	42%

Strongly positive-correlation periods: 2, 4, 5, and 7

42% of total months since Oct. 1917; 49% of total months since Dec. 1929

But B&N haven't merely gotten their facts wrong. *Because their facts are wrong, so is their paper's key claim that we can infer that investors are gripped by "systemic fear" when the relationship between current profits and equity prices is strong and positive.* They tell us that the two periods in which systemic fear prevailed were two periods of acute crisis, the Great Depression and the 2000s. If a strongly positive correlation between current profits and share prices were another exceptional feature of these periods of crisis, then the notion that we can infer the existence of systemic fear from the positive correlation might be plausible. But the 1930s and 2000s were *not* exceptional in that respect, as we have seen. And the other two strongly positive-correlation periods, which run from the early 1950s through the early 1970s, *cannot* plausibly be characterized as a time of systemic fear. On the contrary, that era was the so-called golden age of capitalism.<sup>5</sup> So a strongly positive correlation between current profits and equity prices does not allow us to infer the existence of systemic fear.

But the correlation data are B&N's *only* evidence that capitalists were gripped by systemic fear in the 1930s and 2000s. (The statements by the *Financial Times*, Alan Greenspan, Bernie Sucher, Gillian Tett, and Mervyn King quoted in their paper discuss a highly uncertain environment, economic crisis, and discredited economic theory and ideology, not fear of the death of capitalism.) So they have not given us a good reason to accept that claim.

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Nor do they give us a good reason to accept that the opposite of systemic fear – the conviction that capitalism is eternal – is the norm. Their ‘demonstration’ that capitalists are almost always guided by this conviction is fatally flawed. And since the same demonstration is the basis upon which B&N (2010, p. 3) claim that “[t]his ... conviction is necessary for the existence of modern capitalism, at least in its present form,” they also fail to give us a good reason to accept this latter claim.

The most glaring flaw in their ‘demonstration’ comes at the end, when they write, “*the fact that capitalists invest shows that they expect ... that the value of their assets will grow*, not contract – and that expectation means that, consciously or not, they also think that the ritual that values their assets will never end” (Bichler and Nitzan, 2010, pp. 3-4) [emphasis added]. The italicised clause is simply false. Just as some people buy lottery tickets even if they don’t *expect* to hit the jackpot, some people buy shares of stock even if they don’t *expect* their prices to rise. A large enough jackpot or a large enough potential capital gain more than makes up for a low probability of success. Hence, the fact that people invest does not mean that they normally *expect* capitalism to last forever.

Imagine, for instance, that you think that there’s only a 50-50 chance that capitalism will exist a year from now, and that you are considering buying shares of stock for \$10,000 today. If capitalism doesn’t survive, you’ll lose the whole \$10,000, so it would be better to spend the \$10,000 now, not invest it. You believe that this outcome is as likely as not, but you also believe that if capitalism does survive, the shares will be worth \$500,000 a year from now. If you are like most people, you’ll go ahead and invest.

Secondly, dozens upon dozens of experiments conducted by Nobel laureate Vernon Smith and colleagues (e.g. Smith, Suchanek, and Williams, 1988; Porter and Smith, 2003) during the past quarter century have demonstrated conclusively that people frequently invest in assets even when know that “capitalism” (i.e., its experimental equivalent) will soon perish. Participants in the experiments are given some cash and some shares of an imaginary equity. They are told that the shares will pay dividends for a fixed length of time, such as fifteen periods, and that the experiment will then end, at which point the shares will be worthless. The current fundamental value of a share – the sum of the average per-period dividends throughout the remainder of the experiment – is announced at the start of each period.<sup>6</sup> Participants can buy additional shares from other participants, sell their shares, or hold onto them and collect their dividends. At the end of the experiment, they get to keep their initial cash endowments, dividends, and any net capital gains they have obtained.

Now, B&N (2010, p. 3) claim to demonstrate that if capitalists believed that the system “would cease to exist at some future point,” then share prices “would have nowhere to trend but down,” and capitalists would therefore be unwilling to buy additional

shares. But even though participants in the experiments are *absolutely certain* that the system (i.e., the experiment) will soon cease to exist and that the asset's fundamental value is continually falling, share prices typically *rise* throughout much or most of the experiment – big bubbles are formed – and the volume of investment in additional shares is typically heavy. This has been the routine outcome even when the participants in the experiments are over-the-counter stock dealers, businesspeople, or students at the California Institute of Technology or the Wharton School.

Research into why this 'perverse' behavior occurs is still ongoing, but the basic reason why people buy shares that *eventually* become worthless, and whose prices must therefore *eventually* fall, is obvious. People think that they may well make a substantial profit in the *meantime*, by reselling the shares at prices higher than those they paid.

Finally, even if the rest of B&N's 'demonstration' were sound, it would not prove that capitalists are normally guided by the conviction that capitalism is eternal. At least it wouldn't prove this if we use the word "conviction" in the normal way. B&N are undoubtedly aware that it would not, since they write that "*consciously or not*, [capitalists] also think that the ritual that values their assets will never end" [emphasis added]. I doubt that "unconscious conviction" is a coherent concept, but even if it is, B&N's appeal to it turns what started out as a provocative and straightforward claim into a piece of unfalsifiable Freudian speculation.<sup>7</sup>

## II. Nitzan and Bichler's Critique of Marx

Marx's supposed logical errors are a major theme of Nitzan and Bichler's (N&B's) recent book.<sup>8</sup> They put forward what they call an "alternative" to both "mainstream and Marxist political economy" (p. xxv), and their main justification for doing so is technical and logical: Marx's value theory and mainstream economics are riddled with "circularities and contradictions" (p. 144). And since these theories are logically unsound, N&B argue, their alternative is not merely something they prefer; it and its further development are *needed*, objectively (p. 144). Because N&B focus on the logical issues at stake, my commentary shall do so as well, though I shall also discuss how Marx's value theory can help us understand the long-term problems that resulted in the Great Recession.

This part of the paper begins with a discussion of how N&B critique Marx for alleged methodological sins that they themselves commit. I then consider their critique of Marx's theory that real-world prices and profit are determined by the production of value and surplus-value. I will respond to their allegation—or, rather, their repetition of a hoary allegation—that Marx's theory of the value-price relationship is internally inconsistent. I will also respond to their critique of the temporal single-system interpretation (TSSI) of Marx's value theory, an interpretation that refutes this and other allegations that the theory is inconsistent.<sup>9</sup> Finally, I discuss their criticisms of Marx's distinction between

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productive and unproductive labour, his concept of abstract labour, and the manner in which he “reduced” complex (skilled) labour to simple (unskilled) labour.

### A. Stone-Throwing

N&B complain that “Marx nowhere explains why the additional value-creating capacity of skilled labour should bear any particular relationship to the labour cost of acquiring the skill. The fact that an engineer trains 10 per cent longer does not mean she will create 10 per cent more value; it could also be 1 per cent, 20 per cent or any other number” (p. 142). Yet when they come to their own theory, they tell us that if one company’s market capitalization is a thousand times as great as the average capitalization, its owners are a thousand times as powerful as the owners of an average company (p. 313). Why 1000 times as powerful, and not 100 times or 2000 times or any other number?

They wish this problem away by *defining* power in terms of market capitalization: a market cap that is 1000 times as great as the average doesn’t *give* the owners 1000 times as much power; it simply *is* 1000 times as much power. This identification of capital and power—capital *as* power—is certainly not correct in a literal sense. As N&B (p. 312) cheerfully admit, it is a “figurative identity.” This means that *Capital as Power* is a work of fiction, or what they call a “scientific story” (p. 313).<sup>10</sup> Although they throw stones at Marx for quantifying the unquantifiable, they themselves live in a glass house.

In other words, if we were to assume for the sake of argument that *all* of their many technical objections to Marx’s value theory are valid, he would then be guilty of exactly what N&B are guilty of – measuring what cannot be measured, creating a “figurative identity” between things that are not identical, and using these fictional measures and identities to tell a “scientific story.” So what entitles them to *criticize* (what they take to be) his method, given that it is their method as well? Their apparent answer to this question is that

... we have seen what happened to liberal and Marxist analyses when they tried to imitate th[e] rigour [of natural science]. They pretended that there is a strict quantitative correspondence between prices, production and accumulation on the one hand and utility and labour values on the other, and then fell flat on their faces when they tried to demonstrate this correspondence. (p. 313)

Now, N&B themselves pretend that there is a strict quantitative correspondence between power and market capitalization. In that respect, then, there is no difference between their method and the method that Marx allegedly employed. Thus the only difference is that

they refrain from trying to *demonstrate* their pretend correspondence; they simply assert it as a “figurative identity.” But a glass house is no more shatterproof when one admits that it is made of glass than when one tries to demonstrate that it is made of brick. So N&B are still not entitled to throw stones.

### **B. Marx’s Alleged Inconsistency**

N&B’s allegation that Marx’s value theory is internally inconsistent focuses mainly on his account of the relationship between commodities’ values and their average prices (price of production). Marx claimed to show that the “law of value” on which *Capital* is based holds true at the level of the economy as a whole, even though the prices that individual companies and industries receive for their products deviate from the products’ actual values.<sup>11</sup> He argued that these price-value deviations merely cause value and surplus-value (profit) to be distributed differently; they do not alter the economy-wide aggregate value of output, aggregate surplus-value, or the economy-wide rate of profit. As N&B (pp. 99-100) recognize,

These aggregate equalities are crucial. ... [T]he rate of profit in price terms is equal to the rate of profit in value terms. It is through this determination of the rate of profit that the value system *anchors* the price system. ... Marx claimed his theory to be superior to the bourgeois alternatives, partly because it did something they couldn’t: it *objectively* derived the rate of profit from the material conditions of the labour process.

But they claim that Marx has been proven wrong. “Bortkiewicz ... demonstrated that Marx’s solution of pulling and redistributing is logically inconsistent” and that “it could be fixed only by making the rate of profit independent of the value system” (p. 99-100).

Yet N&B’s discussion of Marx’s alleged inconsistency is itself internally inconsistent. A few pages later, when discussing the TSSI, they implicitly shift to an agnostic position on the internal inconsistency question. In their discussion of the temporal aspect of the TSSI, they write, “There is really no way to decide which of these two methods [temporal valuation or simultaneous valuation] is ‘valid’. ... there is *no objective yardstick* ... to tell us which method to use” (p. 107). And when they discuss the single-system aspect of the TSSI, they write, “Proponents of the TSSI argue that this is what Marx had in mind. And maybe they are right” (p. 109). But if one aspect of the TSSI is not invalid, and its only other aspect is possibly what Marx had in mind, then the TSSI is possibly a correct exegetical interpretation of Marx’s theory.<sup>12</sup> And since this possibly correct interpretation eliminates the apparent internal inconsistencies in his theory, *a fact that N&B accept*,<sup>13</sup> it follows that the charge of inconsistency is possibly false. So while

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they wish to convict Marx of inconsistency, their own arguments imply that he is possibly not guilty.

*Price vs. Money, Value vs. Labour-time*

N&B's critiques of Marx and the TSSI are marred by a great many inaccuracies, most of which seem to stem from their apparent belief that Marx measured commodities' values exclusively in terms of labour-time, and not also in terms of money. For instance, they refer to "the issue of 'transforming the resulting *labour* values into *money* prices," and they assert that, "according to Marx, the value of a commodity *denotes* the abstract labour time necessary for its production" (p. 89, p. 96, emphases added). This belief is entirely unwarranted.

It is true that, in recent decades, many 'Marxian economists' have measured prices exclusively in money terms but values exclusively in labour-time terms – perhaps as a way of justifying their dual-system interpretations and revisions of Marx's theory –but Marx himself did not do so. In chapter 1 of *Capital*, vol. 1, he analyzed the "money form" of value, and he noted at the start of chapter 3 that "Money as a measure of value is the necessary form of appearance of the measure of value that is immanent in commodities, namely labour-time" (Marx 1990a, p. 188). And *Capital* is chock-full of examples in which values are measured in money terms. Here are a few, from chapters 7, 8, and 9:

... the sum of the values of the commodities thrown into the process [of yarn production] amounts to 27 shillings. The value of the yarn is 30 shillings. Therefore the value of the product is one-ninth greater than the value advanced to produce it; 27 shillings have turned into 30 shillings; a surplus-value of 3 shillings has been precipitated.

However useful a given ... means of production may be, even if it cost £150 or, say, 500 hours of labour, it cannot under any circumstances add more than £150 to the value of the product.

[During] six hours of labour he [the worker] has added a value of three shillings. This value is the excess of the total value of the product over the portion of its value contributed by the means of production.

[T]he value of this commodity is (£410 constant [capital] + £90 variable [capital]) + £90 surplus[-value]. The original capital has now changed from ... £500 to £590. The difference is *s*, or a surplus-value of £90. [Marx 1990a, p.

301, p. 314, p. 316, p. 320]

Because they are apparently unfamiliar with the fact that Marx measured value in terms of money as well as labour-time, N&B think that labour-time values need to be “transformed” or “converted” into money prices.<sup>14</sup> *They thus seriously misunderstand the issue that Marx addressed in his account of the transformation of values into prices of production, and Bortkiewicz’s critique of that account, and the single-system aspect of the TSSI.* They tell us that the “transformation problem” controversy is about Marx having supposedly mixed and matched variables measured in terms of labour time and variables measured in terms of money:

According to Bortkiewicz, the inconsistency occurs because Marx’s transformation is incomplete. It converts surplus value counted in labour time into profits counted in [money] prices, but it does not do the same for constant and variable capital. The resulting price system therefore is half-baked—partly [money] price denominated, partly [labour-time] value denominated. (p. 99)

This is simply not the case. The controversy pertains exclusively to alleged *quantitative* discrepancies between values and prices, and between surplus-value and profit. It has nothing to do with the units in which the variables are *measured*. (At least it *had* nothing to do with units of measurement before poorly informed commentators on the controversy got their hands on it a few decades ago). In other words, the controversy deals with the following kind of question: If the value of output and surplus-value in the economy as a whole are \$120 trillion and \$15 trillion, must the price of output and profit also be \$120 trillion and \$15 trillion, or can they be, say, \$105 trillion and \$25 trillion? It has nothing to do with whether a total price of \$105 trillion is equal or unequal to a total value of 1.2 trillion labour-hours; the very question is meaningless.

Bortkiewicz understood perfectly well that Marx measured value in terms of money:

the theory of the equality of total value and total price—a theorem to which Marx and the Marxists attach so great an importance—is generally wrong. ... This situation is in no way altered by the fact that *Marx thought of values and prices in terms of money*: (Bortkiewicz, 1952, pp. 10–11) [emphasis added]

*Bortkiewicz's Proof*

Thus, when he claimed to prove that Marx's account of the transformation was internally inconsistent, Bortkiewicz did not allege that Marx mixed and matched labour-time and money variables. He argued that Marx's account led to spurious *quantitative* discrepancies between, for instance, the amount of  $G$  (gold) spent to purchase machines and the amount of  $G$  charged by the producers of replacement machines. And he claimed to prove that this discrepancy implied a spurious "break[...] down" of the economy (Bortkiewicz, 1952, pp. 8–10), because the amount of  $G$  spent to purchase machines may well fall far short of what is needed to replace used-up machines.

But this 'proof' has itself been disproved (see, e.g., Kliman, 2007, ch. 8). The crux of the refutation is the recognition of a very simple fact: the amount of gold (or accounting money, etc.) received by the producers of *replacement* machines and the amount of gold spent on the *original* machines can and generally do differ, because the original machines are bought before the replacement machines are sold. Consequently, the difference between these two amounts does not mean that the amount of gold received by the producers of the replacement machines differs from the amount of gold spent *on replacement machines*, and it therefore does not imply any spurious breakdown of the economy. Notice that just as the "proof" does not involve any issue of units of measurement, neither does the refutation.

More than two decades have passed since the refutation of Bortkiewicz's "proof" was first published, and it has yet to be disproved itself. Laibman (2004, p.10), the only critic of Marx to have addressed it in print, has acknowledged that the refutation demonstrates that "Reproduction equilibrium exists between periods." In other words, Marx's account does not imply a spurious breakdown of the economy.

N&B (p. 99 and p. 99 n12) endorse Bortkiewicz's proof, but fail to explain why. They do not demonstrate that the refutation contains any error. They do not even acknowledge its existence, even though they certainly should be aware of it, since they cite three works (Kliman and McGlone, 1999; Kliman, 2004; Kliman, 2007) in which the refutation prominently appears.

Their silence on this matter is quite important, since what is at stake is the logical validity of Marx's theory that the "price" rate of profit of the real world is equal to and determined by the "value" rate of profit, i.e., the ratio of the amount of surplus-value pumped out of the workforce to the sum of value invested. Having supposedly proved that Marx's account was internally inconsistent, Bortkiewicz (1984) went on to produce a "correction" that fails to preserve this crucial aggregate equality. Yet if his proof is false, there is nothing to correct. Marx's theory of how the real-world rate of profit is

determined cannot properly be rejected by appealing to Bortkiewicz's results. But that is what N&B do.

### *Single-System Valuation*

Their apparent failure to understand that Marx measured values in terms of both labour-time and money also causes them to misunderstand the single-system aspect of the TSSI, and to allege that Marx's value theory becomes a "tautology" and a "dogma" when it is understood as a single-system theory (p. 109).<sup>15</sup> Once values and prices are no longer conceived as being determined in two separate systems, they argue, there is "nothing to transform in the first place":

The conventional Marxist approach argues that labour values are the *cause* of prices. This causal link is meaningful because the definitions of the two magnitudes are different. Prices are counted in money, whereas values are counted in labour time. ...

The setup of the TSSI is completely different. Here, there is no point in asking whether or not prices are equal to values, simply because values are *defined* by market prices. ... Labour is still held responsible, by definition, for the creation of all value in the aggregate. But it is no longer necessary for any of the underlying computations. ...

And since value is made proportionate to *both* price and labour time, it follows that prices are proportionate to labour time and that the labour theory of value is true before we even begin. ...

[The result] is not a scientific theory in the sense of cause  $X$ (value) explaining consequence  $Y$ (price). (pp. 108–109) [emphases in original]

These objections are based on N&B's mistaken belief that Marx measured values exclusively in labour-time terms and their consequent mistaken belief he tried to explain how labour-time magnitudes are transformed into monetary ones in his account of the transformation of values into prices of production. If these beliefs were correct, then the fact that the TSSI understands both the values and the prices of Marx's transformation account as *monetary* magnitudes would indeed imply what N&B think it implies, namely that the TSSI construes the values as well as the prices as *price* magnitudes rather than as value magnitudes. Hence, there would be "nothing to transform in the first place," and "the labour theory of value [would be] true before we even begin." It would also be an

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empty tautology and a dogma. But since N&B's beliefs are not correct, none of these conclusions follow from the fact that values and prices are both measured in terms of money.

First of all, when the total value and total price of output are both understood as monetary sums, there still remains a "point in asking whether or not prices are equal to values" because it is conceivable that they differ *quantitatively*. For instance, if the capitalist class were able to create profit, in the aggregate, by selling commodities for more than they are actually worth – i.e., if monopolies and other firms that reap extra profit in this way were able to do so *without* reducing other firms' profits to the same degree – then total price (the aggregate monetary value received) would exceed total value (the aggregate monetary value produced). But Marx demonstrated in chapter 5 of *Capital*, volume 1 that extra value cannot originate in this way in the economy as a whole, and his account of the transformation of values into prices of production in chapter 9 of volume 3 is based on the same principle. Indeed, the overriding purpose of that account is to show that the existence of quantitative price-value deviations in individual industries does not contradict the notion that total price and profit are determined by and equal (quantitatively) to total value and surplus-value.

And contrary to what N&B claim, "cause  $X$  (value) explain[s] consequence  $Y$  (price)" is affirmed by the TSSI as well. In the first paragraph of the passage I quoted at the start of this section, they seem to suggest that causal links are meaningful only when the cause and the effect are measured in different units. This is simply not the case. The \$10 million in retirement taxes that a government collects is the "cause" (source) of the \$10 million in benefits that retirees receive, because the collection precedes the receipt and the prior collection of \$10 million fully accounts for the receipt of \$10 million. The fact that the tax revenue collected is measured in dollars rather than in labour-hours does not make the causal connection meaningless. By the same token, in Marx's theory and in the temporal single-system interpretation of that theory, the production of value and surplus-value precedes the receipt of value and profit by means of sale, and the prior production of value and surplus-value fully accounts for the amounts of sales revenue and profit received.

B&N's claim that "Labour ... is no longer necessary for any of the underlying [TSSI] computations" is also incorrect. As Table 2 illustrates, labour is a crucial determinant.<sup>16</sup> The total price of output is \$100 because the total value of output is \$100, and the total value of output is \$100 because workers' labour added \$60 of new value (and \$40 of existing value was preserved and transferred to the products during production). And workers' labour added \$60 of new value because, only because, value-creating workers performed 60 minutes of work and each minute of their work created \$1 of new value. The example simply stipulates the amount of new value that was created by

a minute of work, but this magnitude is in fact determined by actual data, prior to the start of production, and it can be estimated using available national account data (though N&B will surely say that the estimates are just as “meaningless” as official inflation estimates, which they also dismiss (p. 135). In sum, causation proceeds from left to right, following the arrow of time, so the total price of output, and thus total profit and the average real-world rate of profit, are determined by, but not determinants of, the other variables.<sup>17</sup>

**Table 2**

Branch	Pre-production	During production	Post-production	
	Value transferred from used-up means of production (a)	Value added by living labour (b)	Total value of output (a + b)	Total price of output
1	\$30	20 labour-minutes → \$20	\$50	\$65
2	\$10	40 labour-minutes → \$40	\$50	\$35
Total	\$40	60 labour-minutes → \$60	\$100	\$100

*Temporal Valuation*

I turn now to N&B’s discussion of the other aspect of the TSSI, temporal valuation. As I noted above (see note 12), their discussion of whether it is the right “method to use” and their agnostic position on this matter are not germane to the issue of the logical consistency of Marx’s theory. When the theory is construed as temporal (and single-system), it is consistent. If temporal valuation is not the right method to use, then the theory is consistent but wrong, which has no bearing on whether the TSSI is a correct exegetical interpretation.

However, N&B seem to suggest that it might not be a correct interpretation for a different reason. “According to Michael Perelman (1990), Marx himself left the issue open. He used antecedent (past) labour at the micro level of the firm and coexisting (current) labour at the macro level of capitalism as a whole” (p. 107). But Perelman’s argument *supports* the TSSI, because the production of commodities and their values takes place at the “micro level.” As he noted, “Marx held to the notion that the production of an individual commodity should be framed in the context of antecedent labour, as a

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*succession* of isolated labour processes... Co-existing labour is more appropriate for a discussion of ‘the production process in its continuous motion and in the entirety of its conditions, and not merely as an isolated action or a limited part of it’” (Perelman, 1990, p. 68). [Emphasis added; the interior quote is from Marx].

Although N&B say that temporal valuation is not invalid, they also write that:

the TSSI allows each barrel of oil to have its own value – depending on its particular temporal position in the production process. This difference allows the TSSI to appear more theoretically ‘robust’ than its conventional alternative – but that appearance is misleading. Obviously, if the same commodity can have multiple values, the likelihood of the valuation system as a whole being logically inconsistent is much reduced. (2009, p. 107)

It is very hard to make sense of this statement. Isn’t logical consistency a crucial part of what makes a theory or interpretation robust? Doesn’t the fact that the TSSI eliminates the apparent inconsistencies in Marx’s theory therefore make it a more robust exegetical interpretation? N&B make it seem as though logical inconsistency is a *good* thing.

Perhaps they meant to argue that it is easier to achieve consistency when one relaxes the restrictions imposed on a problem. That is certainly true, but robustness and difficulty are two different things. Kepler’s theory of planetary motion is more robust than Copernicus’ because it is more consistent with the facts, and it is more consistent with the facts because he relaxed the restrictions imposed on the problem – he did not try to force planets to move in circles. Or perhaps N&B meant to argue that although Marx’s theory is internally consistent when it is understood as a temporal theory, it becomes less robust in some other respect. But if this is what they meant, it is hardly an argument, since they fail to identify any other respect in which it becomes less robust.

### *Monopoly Prices and Limits to Monopoly Power*

N&B argue that “the labour theory of value requires perfect competition” and that the “existence of ... power institutions and processes” such as monopolies, oligopolies, and government intervention “makes labour values ... practically useless for the study of actual prices and accumulation” (p. 91). For this and other reasons, “the development of capitalism [has] undermined [his] logic” (p. 84).

But Marx’s value theory simply does not require perfect competition. He devoted *two hundred pages of Capital* to an analysis of land rent and agricultural prices that include rent as a component. As Marx (1991, p. 897) noted, “agricultural products are always sold at a monopoly price.” This is because a condition that is needed for

perfect competition to exist is absent in this case; the scarcity of arable land makes it difficult for new suppliers of land to enter the market.

So the emergence of monopolies and oligopolies as a dominant presence throughout the economy has not undermined Marx's logic. His analysis of monopoly price predates this new phenomenon, and monopoly prices (as well as market prices that differ from average prices and other prices besides perfectly-competitive ones) can be understood in a manner consistent with his value theory. N&B seem to think that prices can be "set 'arbitrarily' without any necessary link to production prices" if perfect competition does not exist (p. 91). Marx was either aware of or anticipated this objection, and he responded to it, once again, by making use of his demonstration that capitalists cannot create additional profit *at the level of the economy as a whole* by selling commodities for more than they are actually worth:

[If] a monopoly price becomes possible ..., this does not mean that the limits fixed by commodity value are abolished. *A monopoly price for certain products simply transfers a portion of the profit made by other commodity producers to the commodities with the monopoly price.* ... [it] leaves unaffected the limit of surplus-value itself. (Marx 1991, p. 1001) [emphasis added]

The prices of individual products depend and have always depended on a great many factors, not only the amount of labour needed to reproduce them. But this does not imply that their values are "practically useless for the study of actual prices." I do not see how struggles over intellectual property rights can be fruitfully understood without appealing to the principle that commodities' values are determined by the amount of labour needed to reproduce them. This principle certainly does not account for the current prices of things like software, but it does account for software owners' fierce struggle to protect their monopoly rights. If the law permitted software to be reproduced freely, its price would plummet to almost nothing, because almost no labour is needed to reproduce it and thus the cost of reproducing it is negligible.<sup>18</sup>

For another example, one of the most significant economic phenomena of our time is the dramatic fall in computer prices. The average price of 'computers and peripheral equipment' declined by 99.99% during the 50 years between 1959 and 2009.<sup>19</sup> Can there be any doubt that this decline is due predominantly to a massive increase in productivity, i.e., a massive reduction in the amount of labour needed to reproduce a unit of computing power?

*Falling Rates of Profit and Accumulation Underlying the Great Recession*

Computers are an extreme example, but not an isolated one. A decade ago, the orthodox Marxist who headed the Federal Reserve noted that

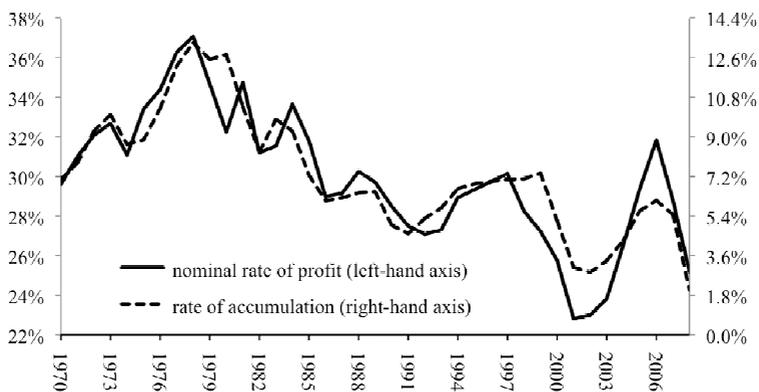
[F]aster productivity growth keeps a lid on unit costs and prices. Firms hesitate to raise prices for fear that their competitors will be able, with lower costs from new investments, to wrest market share from them.

Indeed, the increased availability of labour-displacing equipment and software, at declining prices and improving delivery times, is arguably at the root of the loss of business pricing power in recent years. (Greenspan, 2000)

The “loss of business pricing power” due to “labour-displacing equipment and software” is the crux of Marx’s law of the tendential fall in the rate of profit. This law, a crucial pillar of his theory of economic crisis, is a direct consequence of his value theory, particularly its key propositions that a commodity’s value is determined by the amount of labour needed to reproduce it and that aggregate price and profit are equal to aggregate value and surplus-value.

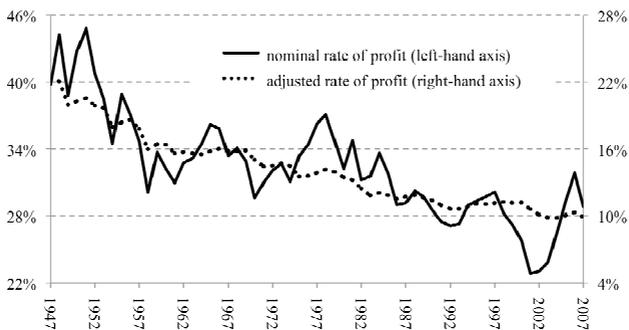
At least in the case of the U.S. (I have not studied other countries), the law of the tendential fall in the rate of profit possesses remarkable explanatory power, and it is tremendously significant for an understanding of the long-run conditions that set the stage for the Great Recession. The chain of causation runs as follows: (1) As I will show presently, the law accounts for almost all of the fall in the rate of profit of U.S. corporations during the six decades preceding the latest crisis, and (2) the fall in the rate of profit fully accounts for the sharp fall in corporations’ rate of accumulation since the late 1970s. (3) The fall in the rate of accumulation is in turn the principal cause of the chronic slowdown in economic growth. (4) The slowdown in growth, the falling rate of profit, and governmental policies intended to ameliorate the effects of, and perhaps reverse, the declines in growth and profitability have led to ever-rising debt burdens.<sup>20</sup> And (5) the massive burden of unpaid debt seems to be a crucial determinant of the length, severity, and persistent effects of the Great Recession.<sup>21</sup>

**Figure 2. The Rate of Profit and the Rate of Accumulation One-Year Later, U.S. Corporations**



I cannot document all of these claims here, but points (3) through (5) are not very controversial. As for points (1) and (2), let us first look at the relationship between corporations' rate of profit and their rate of accumulation of fixed assets.<sup>22</sup> Figure 2 shows that the relationship has been a remarkably tight one for four decades. And since movements in the rate of profit precede movements in the rate of accumulation by one or more years, the fall in the former fully explains the fall in the latter.

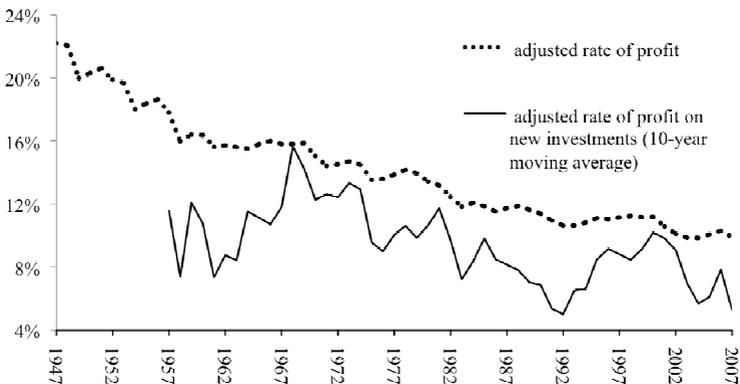
**Figure 3. Nominal and Adjusted Rates of Profit, U.S. Corporations**



But why did the rate of profit fall? Well, one factor that can cause it to change is a change in income distribution between profits and compensation of employees. Another is a change in the relationship between the money and labour-time measures of value. For example, when money prices rise in relationship to the amount of labour that is needed to reproduce commodities, this will raise the nominal (money) rate of profit. To ascertain the impact of these factors, I computed an adjusted rate of profit that holds them constant, thereby eliminating them as sources of variation in the rate of profit. As Figure 3 shows, they had very little effect on its trend in the long run. (Increases in money prices relative to labour-time values boosted the *level* of the nominal rate of profit substantially, but they had almost no effect on its long-run *trend*). Between 1947 and 2007, the nominal rate of profit fell by 11.0 percentage points while the adjusted rate fell by 12.3 points.

Thus, in order to understand why the rate of profit, the rate of accumulation, and the rate of economic growth fell, we have to understand why the adjusted rate of profit fell. To understand the mathematical reason why it fell, note that the average age of the people in a room has to fall whenever a new person enters the room whose age is less than the average age. In the same way, the overall rate of profit has to fall whenever the rate of profit on new investments is less than the overall rate. (The rate of profit on new investments is the extra profit that results from an extra dollar invested.) Now, as Figure 4 shows, the adjusted rate of profit on new investments was indeed consistently less than the overall adjusted rate of profit. So the overall rate had to fall.

**Figure 4. Adjusted Rates of Profit, Overall and on New Investments, U.S. Corporations**



The *economic* reason why the adjusted rate of profit fell has to do with the fact that the adjusted rate on new investments, toward which it tends, is an extremely close proxy for the ratio of (a) the growth rate of employment to (b) the share of profit that is accumulated, i.e., spent on productive investments (see Kliman, 2011, pp. 132–34 for the derivation of this result). Thus, the overall adjusted rate of profit fell because the ratio of (a) to (b) was consistently below the current overall adjusted rate. In other words, the adjusted rate of profit, and thus the nominal rate of profit, experienced a persistent fall because, *throughout the entire six decades, employment increased too slowly in relationship to the accumulation of capital to allow the existing rate of profit to be maintained. This is exactly how Marx's law explains the tendency of the rate of profit to fall* (Marx, 1991, ch. 15).

### *Additional Criticisms*

N&B make several other criticisms of Marx in their discussion of his theory of the relationship between values and prices. First, while Marx claimed to demonstrate, at the start of *Capital*, that the sole property that commodities have in common is that they are products of labour in the abstract, N&B endorse Eugen von Böhm-Bawerk's famous counterargument that Marx arbitrarily ignored some other possible common properties – utility, scarcity, and the commodities' existence as appropriated things. But Böhm-Bawerk's criticism is based on a misunderstanding of the object under investigation. At this point in *Capital*, Marx's aim was to identify a common property, not to identify the factors that enable things to exchange as commodities. "It is quite true that the things could not exchange as commodities unless they were scarce, owned, and useful. But none of these is a property of the things *themselves*; all are *relations between* the things and people. (Although the usefulness of things is dependent on their physical properties, usefulness itself is not such a property)" (Kliman, 2000, p. 105).

Second, N&B argue that it is not possible to "explain the trajectory of financial markets with Marxist tools" (p. 92). It is true, and Marx stressed at length, that there is no law of value underlying variations in interest rates. And for this and other reasons, there is only a tenuous relationship between commodities' values and the prices of debt instruments. But if the tools that Marx employed count as "Marxist tools," there is indeed a Marxist tool to explain interest-rate variations: the theory (which is not uniquely his) that they are determined by changes in the relationship between the supply of and the demand for loanable funds (see, e.g., Marx, 1991, p. 488). And the law of value can help explain equity-market phenomena such as the relationship between equity prices and companies' profits. As I discussed above, Marx's theory largely accounts for variations in U.S. corporations' rate of profit, and between 1946 and 2008, the correlation between the (before- and after-tax) rates of profit and S&P 500 corporations' earnings-to-price ratio

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of the following year was a far-from-negligible 0.595 (see Kliman, 2011, pp. 102–03). And Potts (2009, 2011) has employed Marx's concept of 'surplus capital' in order to argue that asset bubbles form partly because investment in financial instruments may tend to increase when a fall in the rate of profit depresses productive investment.

In any case, I do not see that the relative absence of 'Marxist tools' to explain financial phenomena is due to any inherent defect in his theories. If there are few such tools today, it is because Marx died before he could develop them – he noted in *Capital* that thorough analyses of credit markets and competition in the world market were "outside the scope of this work ... they belong to a possible continuation" (Marx, 1991, p. 205) – and because mainstream "Marxian economists," who are staunch opponents of his work, have not wanted to develop them.

Third, N&B claim that Paul Samuelson 'demonstrated' that the transformation of values into prices of production is 'pointless.' Prices of production can be deduced directly from "real" data – physical input and outputs and real wages – "without any intermediate resort to labour values" (p. 100). But Samuelson demonstrated no such thing about *Marx's* transformation of values into prices of production. He showed that values are not needed in order to deduce the 'prices of production' of the simultaneous dual-system revisions ('corrections') of Marx. The "redundancy" of value is purely a consequence of simultaneous valuation. If prices and values are determined temporally, physical data are not the only proximate determinants of relative prices or values (see Kliman, 2007, ch. 5, esp. pp. 79–81).

Finally, N&B argue that Michio Morishima and Ian Steedman demonstrated that "there is nothing inherent in joint production to guarantee" that commodities' values are positive rather than negative, a result that is "potentially devastating for the labour theory of value" (p. 101). But if wool and mutton are only produced jointly, neither of them has a value on its own. The value of a commodity is determined by the amount of labour needed to reproduce it, and in this case we cannot say how much labour is needed to reproduce either wool or mutton on its own. The very notion is meaningless. What has a value is the joint product. Kliman and McGlone (1999, pp. 45–48) provide a temporal single-system account of the determination of joint products' values and prices. Their values cannot be negative, and all of Marx's aggregate value-price equalities are preserved.

## **C. Labour**

### *Productive and Unproductive Labour*

A whole chapter of *Capital as Power* is devoted to a critique of "the Marxist" distinction between productive and unproductive labour. But almost all of it is a critique of various

post-Marx Marxists' writings on the topic. N&B have extremely little to say about Marx's own distinction between productive and unproductive labour – which is quite surprising, given that hundreds of pages of his economic writings are devoted to it.

Marx is of course not responsible for what post-Marx Marxists have said, and I have no desire to take responsibility either. My response will therefore be limited to a discussion of the few things N&B say that have a bearing on Marx's own distinction between productive and unproductive labour.

Their *only* critique of Marx's distinction is the critical remark they make about his statement that an act of labour is productive only if it is "directly consumed in the course of production for the valorization of capital" (p. 120; from Marx, 1990b, p. 1038) [emphasis omitted]. On their interpretation, this means that the act of labour must be "tied to capital through the wage contract." And the problem with Marx's statement, they write, is that "even if we accept that capitalist control is a prerequisite for the creation of value, it is not clear why the only gauge for such control is the wage contract" (p. 120).

But "tied to capital through the wage contract" – which is not even an adequate rendering of "directly exchanged with capital," another condition that must be satisfied in order for labour to be productive – has little, if anything, to do with "directly consumed in the course of production for the valorization of capital." Marx uses the phrase "directly consumed in the course of production" to distinguish between (a) human activity that is part of a particular act of production and (b) human activity that – no matter how much it facilitates that act of production and no matter how necessary it may be for that act of production to take place – is not part of it. Activity (a) is productive if it also valorizes capital, i.e., creates surplus-value, while activity (b) is necessarily unproductive.

To understand this more clearly, consider the objection of Pellegrino Rossi to Adam Smith's distinction between productive and unproductive labour. Smith held that the labour of a magistrate is unproductive. Rossi argued against this that the magistrate's labour is *indirectly* productive. Other acts of production are almost impossible without it. His labour therefore "contributes to [other acts of production], if not by direct and material co-operation, at least by an indirect action which cannot be left out of account" (quoted in Marx, 1989, p. 190). Marx did not dispute the fact that it contributes in this manner, but he nonetheless rejected Rossi's attempt to efface the distinction between productive and unproductive labour: "It is precisely this labour which participates indirectly in production (and it forms only a part of unproductive labour) that we call unproductive labour. Otherwise we would have to say that since the magistrate is absolutely unable to live without the peasant, therefore the peasant is an indirect producer of justice. And so on. Utter nonsense!" (Marx, 1989, p. 190).

The following example will help to illustrate why the distinction between direct and indirect participation in production is crucial. Every workday, workers in some company directly create \$1000 of surplus-value. The manager puts the \$1000 in a box in

his office. But every day, one worker breaks into the office, takes the \$1000, and pockets it. So the company hires a guard to prevent her from doing so. Because it has to pay the guard \$100, the profit it keeps for itself is \$900, which is less than the total surplus-value, but much more than the \$0 profit it wound up with when the thefts were occurring. So the guard indirectly contributes to the company's profit; indeed, if the company is to wind up with any profit at all, his labour is absolutely necessary. But the \$1000 exists whether or not he shows up to work, so he does not directly create the surplus-value. To the contrary, the \$100 he receives deprives the company of one-tenth of it.

The reason why I have belaboured the distinction between direct production and indirect participation in production is that N&B are either unfamiliar with it or, for some reason they do not explain, choose not to respect it. They repeatedly try to efface the distinction between productive and unproductive labour on the grounds that some activity that has been classified as unproductive contributes indirectly to the production of surplus-value. For instance, they try to complicate the issue by noting that, although financial intermediation is often classified as unproductive activity, it "help[s] guide reproduction" (p. 112). Employees of insurance companies do work that "serve[s] to provide stability for production" (p. 113). And don't "government taxation, expenditures and subsidies, the legal code and the organized use of violence" "affect exchange values and surplus-values?" (p. 119). Yes; but they don't directly create them.

The point of these efforts to complicate matters is to argue, first, that the distinction between productive and unproductive labour is irredeemably fuzzy. And second, since Marx's value theory cannot do without the distinction, it is likewise irredeemably fuzzy and must be abandoned.<sup>23</sup> But it is N&B who are making them fuzzy, by ignoring the clear distinction between the direct creation of surplus-value and indirect contributions to its creation.

### *Abstract and Concrete Labour, Simple and Complex Labour*

The term *abstract labour* refers to homogeneous labour, labour as such, in contrast to the variety of heterogenous *concrete labours* (waiting tables, truck-driving, etc.). In Marx's theory, abstract labour creates value, wealth in the abstract, while concrete labour produces use-values, useful material products and effects. But, N&B charge, "No one, from Marx onward, has been able to measure the unit of abstract labour," so "Marxists do not even know what abstract labour looks like" (p. 143, p. 107). Consequently, the theory that the amount of abstract labour needed to reproduce commodities determines their values and aggregate prices is rubbish.

Actually, it was quite clear to Marx what abstract labour "looks like," because it is *real work*. And because it is real work, it is "measured in terms of time":

The work is not done twice over, once to produce a suitable product, a use-value, to *transform* the means of production into products, and a second time to generate *value* and *surplus-value*, to *valorize value*. ... All that is contributed is the labour of spinning, and so on, and through this contribution more yarn is continually produced. This *real* work creates value only if it is performed at a normally defined rate of intensity ... and if this *real work* of given intensity and of given quantity as measured in terms of time actually materializes as a product. (Marx, 1990b, pp. 991–992)

So Marx resolved the problem that N&B pose by noting that “the work is not done twice over.” Their claim that “Marxist political economy lack[s] a basic unit” (p. 7) is simply incorrect.

But N&B, who are evidently unaware of the manner in which Marx actually specified the unit of abstract labour, write that “Marx resolves this problem, almost in passing, by resorting to another distinction – one that he makes between skilled labour and unskilled, or simple, labour” (p. 139). (An hour of skilled (or complex) labour counts as a multiple of an hour of unskilled labour; if it counts as double, it creates twice as much value.) N&B say that this latter way of specifying the unit of abstract labour is “difficult to accept” because “[t]he very parity between abstract and unskilled labour seems to contradict Marx’s most basic assumption. For Marx, skilled and unskilled labour are two types of *concrete* labour whose characteristics belong to the *qualitative* realm of use value” (p. 139).

But Marx did not specify the unit of abstract labour in this way, and it cannot properly be specified in this way. That is because, contrary to what N&B assert, skilled and unskilled labour are both abstract labour. Hence, the unit of abstract labour *must already be identified before* an hour of skilled labour can be counted as a multiple of unskilled labour.

When we refer to simple and complex labour, we do not refer to simple weaving-labour or complex tailoring-labour, and so on, but to simple and complex labour-as-such. The commensuration of labours that produce different use-values is already *presupposed*. ...

Complex labour can be compared to, and thus reduced to a multiple of, simple labour, *only* because they lack any qualitative difference, i.e., only because both are abstract labour. As Marx [1990a, pp. 140–41] noted, ‘the magnitudes of different things only become comparable in quantitative terms when they have been reduced to the same unit’.

... When ... we consider doctoring-*labour* and janitoring-*labour* as labours of different kinds, it is meaningless to ask whether one is more skilled or complex than the other. Like can only be compared with like.

To compare the relative complexity of these two labours, their qualitative differences must thus be set aside. (McGlone and Kliman 2004, pp. 138–39)

*The upshot of all this is that, even if it were impossible to reduce complex labour to a multiple of simple labour, Marxist political economy would still not lack a basic unit, because the basic unit—a unit of real work, measured in terms of time—is specified independently of and prior to the reduction of complex labour to simple labour.*

Not surprisingly, N&B doubt whether complex labour can be reduced to a multiple of simple labour:

Now, skilled labour supposedly creates more value than unskilled labour, and the question is how much more? ...

Marx answered the question from the output side, by pointing to the greater ‘physical productivity’ of skilled labour. His solution, though, is both circular and incomplete. It is circular insofar as physical productivity can be compared across different commodities only by resorting to prices and wages. (p. 142)

I simply do not know what they are referring to here, and they provide no citation. Marx’s actual answer was completely different:

All labour of a higher, or more complicated, character than average labour is expenditure of labour-power of a more costly kind, labour-power whose production has cost more time and labour than unskilled or simple labour-power, and which therefore has a higher value. This power being of a higher value, it expresses itself in labour of a higher sort, and therefore becomes objectified, during an equal amount of time, in proportionately higher values. (Marx, 1990a, p. 305)

Thus, if the cost of reproducing the ability to do engineering work, when divided by the average number of hours an engineer works during his life, is \$40, while the hourly cost of reproducing the ability to perform simple tasks is \$10, then \$40 and \$10 are the hourly values of these two different kinds of labour-power, and the amount of value created during an hour of engineering work is likewise four times the amount of value created

during an hour spent performing simple tasks. If, for instance, an hour of simple labour creates \$20 of new value, then an hour of engineering work creates \$80 of new value. Notice that nothing in this answer appeals to the wages of the engineer or the regular worker.

The answer does appeal implicitly to prices, such as tuition at engineering schools, since the tuition forms part of the cost of reproducing the ability to do engineering work. But the answer is not circular because, in Marx's theory and in the temporal single-system interpretation of the theory, causation follows the arrow of time. The price paid *for the output*, the product or service that the engineer provides, is determined by, but not a determinant of, the amount of value an hour of his work creates.

But why does an hour of his work create four times as much value as an hour of simple labour? Why not twice as much, or 50% more, or any other number? As I discussed earlier in this paper, N&B claim that "Marx nowhere explains why the additional value-creating capacity of skilled labour should bear any particular relationship to the labour cost of acquiring the skill" (p. 142). And this is why they regard his answer as incomplete. But he does explain why, in the final sentence of the passage I just quoted.

It can be explained in another way as well: self-interested behavior by companies and workers will induce changes in the cost of reproducing engineering labour-power that tend to bring about the proportionality to which Marx referred. Assume that an hour of the engineer's work creates only 50% more value than an hour of simple labour, i.e., \$30. Firms would not hire engineers unless they could pay them less than \$30 an hour. But if they did so, engineers wouldn't recoup the cost of going to engineering school, since \$30 is much less than the \$40 needed to reproduce engineering labour-power. So the supply of engineers would quickly evaporate.<sup>24</sup> If that doesn't occur, we can infer that an hour of engineering work creates more than 50% additional value.

But what if an hour of engineering work creates, say, 3.5 times as much value as an hour of simple labour, \$70? Well, if we assume that people who perform simple labour are paid the value of their labour-power, \$10, then, unless engineers' hourly pay is \$35 an hour or less, firms still get a bigger bang for the buck by hiring people to do simple labour. The ratio of the value created by simple labour to the hourly wage of a simple labourer is  $\$20/\$10 = 2$ , while the ratio of the value created by an hour of engineering work to the hourly pay of an engineer is less than 2 if they are paid more than \$35 an hour. What would tend to happen, then, is that the demand for engineers would decline, and thus the supply of engineering students would decline. More costly engineering schools would shut down. Since those that continued to operate would be cheaper, the cost of reproducing engineering labour-power would fall. If it fell from \$40 to \$35, the result would be that the cost of reproducing engineering labour-power would be 3.5 times the cost of reproducing simple labour-power, \$10, and the amount of new value created by an hour of engineering labour, \$70, would be 3.5 times the amount of new value created

by an hour of simple labour. Marx's proportionality would hold true exactly.

Of course, the real world does not function in such a neat and frictionless manner, but it seems likely that Marx's proportionality is a serviceable approximation to what occurs in the world of appearances, and the best one available. It is certainly not the arbitrary stipulation that N&B suggest it is.

### III. Conclusion

This paper has shown that Bichler and Nitzan have not provided us with good reasons to accept that belief in capitalism's eternality is crucial to its continued existence, or that capitalists do normally believe that the system is eternal, or that they have come to fear its demise. The paper has also sketched out an alternative approach to questions of economic crisis and the future of capitalism rooted in Marx's value theory, in the course of defending that theory against their charges that it is logically unsound and that the development of capitalism since Marx's death has undermined his logic. By showing that none of Bichler and Nitzan's charges holds water, it has eliminated their main justifications for their claim that their "capital as power" theory is needed as an alternative to Marx's theory.

Charges that his value theory is logically unsound serve to disqualify it at the starting gate, depriving it of the opportunity to demonstrate its explanatory power empirically. In contrast, my response to Bichler and Nitzan's work, while quite critical, has not tried to disqualify their theory at the starting gate, on a *a priori* logical grounds, irrespective of empirical evidence. They are entitled to their theory. Marx is also entitled to his.

### Notes

- <sup>1</sup> They interpret a strong influence of *current* profits on share prices as evidence that investors are acting on the basis of the *current* situation, having abandoned their supposedly normal "conviction" that the shares will yield returns *ad infinitum* because capitalism is eternal.
- <sup>2</sup> An internally inconsistent theory may happen by accident to hit upon correct *conclusions*, but the *arguments* it provides in support of these conclusions are always invalid.
- <sup>3</sup> The correlation was negative between February 1961 and May 1964. If we count this as a distinct period and shorten periods 4 and 5 accordingly, the correlations during these periods increase to 0.92 and 0.82.

- <sup>4</sup> I computed a correlation of 0.65 for period 7, while B&N report a correlation of 0.64. My other results match theirs, so this slight discrepancy may be due to a recent revision of the data set.
- <sup>5</sup> Since I, like B&N, computed the correlations between 3-year average values, periods 4 and 5 use data from August 1950 through December 1973, which is almost exactly coextensive with the golden age as defined by Skidelsky (2010, p. 24) – the period “from 1951 to 1973.”
- <sup>6</sup> In some experiments, shares pay a fixed dividend. In others, participants are told what the possible dividends are and the probabilities that each will be paid.
- <sup>7</sup> As William James (1890, p. 163, emphasis omitted) noted, “the distinction ... between the unconscious and the conscious being of the mental state ... is the sovereign means for believing what one likes in psychology and of turning what might become a science into a tumbling ground for whimsies.”
- <sup>8</sup> When I cite page numbers below, but no authors or dates, I am referring to this book.
- <sup>9</sup> The TSSI differs from the standard (simultaneous dual-system) interpretation, which creates the inconsistencies that are attributed to Marx, in two simple respects. First, it holds that Marx understood values and prices to be determined temporally, which means that the values and prices of inputs can differ from the values and prices of outputs. Second, it holds that he understood value and price magnitudes to be determined interdependently. For instance, the sum of capital value invested depends on the prices of the means of production that are purchased, while the total price of output depends on the amount of new value created by living labour. See Kliman (2007) for further discussion.
- <sup>10</sup> They thus veer dangerously close to the postmodernism that they excoriate elsewhere (see, e.g, p. 2 n1).
- <sup>11</sup> In Marx’s theory, a commodity’s value is determined exclusively by the average amount of labour needed to reproduce it.
- <sup>12</sup> Since the TSSI does not try to show that Marx’s theory is true, it is actually irrelevant whether temporal valuation is the right “method to use.” The only relevant issues are whether he himself employed temporal valuation and whether his theory becomes internally consistent when it is interpreted as a temporal (and single-system) theory.
- <sup>13</sup> They write that TSSI authors’ “purpose is to show that [Marx’s] framework is logically consistent and fully in agreement with his analytical claims. But in the process of *achieving this purpose*, they seem to have shifted into reverse” (p. 109, emphasis added).
- <sup>14</sup> In a certain sense, this is so; they are “converted” by means of the quotidian procedure, which Marx analyzed in chapter 1 of *Capital*, of expressing how much a product of

labour is worth in terms of ounces of gold, dollars, etc., instead of in terms of labour-hours. But N&B are referring to a distinct, analytical operation.

- <sup>15</sup> They and I agree that it is “logically inconsistent and plagued by insoluble problems” (p. 106) if it is *not* understood as a single-system theory.
- <sup>16</sup> The value of each branch’s output is the sum of the value transferred from used-up means of production and the new value added by living labour. Because the example is too simple to illustrate the determination of the value transferred from used-up means of production, the relationship between the labour-time and money measures of value added, or output prices, I selected the magnitudes of these variables (and the amounts of value-creating living labour that are performed) arbitrarily. Thus the output prices could be prices of production, competitive market prices, monopoly prices, etc. The values and prices of output are in real rather than nominal terms—i.e., they are adjusted for any changes in the relationship between labour-time and money magnitudes that take place during the period—though Marx’s aggregate equalities hold true under the TSSI for nominal value and price variables as well. For further discussion of the temporal single-system interpretation of Marx’s account of the transformation of value into prices of production, see chs. 8 and 9 of Kliman 2007, esp. pp. 164–66. For further discussion of how the relationship between the labour-time and money measures of value is determined, see esp. pp. 185–89 of that work.
- <sup>17</sup> I am referring here to the real magnitudes of these variables (see note 16 above). Their nominal levels are determined in a more complex manner.
- <sup>18</sup> Potts (2007) explains that research and development expenditures do not augment commodities’ values, and he argues that this is why capitalists seek patents.
- <sup>19</sup> My source is National Income and Product Accounts table 1.5.4, line 32, available from the U.S. Bureau of Economic Analysis at [bea.gov/national/nipaweb/Index.asp](http://bea.gov/national/nipaweb/Index.asp).
- <sup>20</sup> For example, the ratio of U.S. Treasury debt to GDP increased by 71% between 1970 and 2007, but it would have *declined* by 19% if corporate income taxes had not fallen as a share of GDP. These taxes fell as a share of GDP partly because the rate of profit fell—there was relatively less corporate income to tax—and partly because the government shifted much of the effect of falling profitability from corporations to the public at large by lowering corporate income tax rates. For further discussion of this issue, see Kliman 2011, pp. 55–57.
- <sup>21</sup> “These broader problems of debt and deleveraging arguably explain why the successful stabilization of the financial industry has done no more than pull the economy back from the brink, without producing a strong recovery. The economy is hamstrung—still crippled by a debt overhang” (Krugman and Wells, 2010).

- <sup>22</sup> Accumulation of fixed assets means investment in equipment and software, and spending to construct factories, office buildings, and other “structures.” The numerator of the rate of profit shown in Figure 2 is corporations’ net output (net value added) minus compensation (wages, salaries, and benefits) of employees. The numerator of the rate of accumulation is corporations’ net investment in fixed assets. The denominator of both rates is the net stock of fixed assets. All variables are valued at historical cost, and all data used to compute these variables and the derivative variables shown in Figures 3 and 4 come from the U.S. government. For further discussion of my data sources and computations, see Kliman 2011, chs. 5 and 7.
- <sup>23</sup> See, e.g., their remarks about the distinction between capitalist production and other forms of social reproduction on p. 121.
- <sup>24</sup> I am assuming here that the government does not subsidize their education. All else being equal, the subsidy is a wasted expenditure from the vantage point of a government interested in augmenting value, since engineering work doesn’t “pay for itself” (i.e., create more value than the engineers receive once the subsidy is factored in).

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**Andrew Kliman** is a Professor of Economics at Pace University in New York. He is the author of *Reclaiming Marx's "Capital": A Refutation of the Myth of Inconsistency*, and a forthcoming book on the underlying causes of the Great Recession. He has published in the *Cambridge Journal of Economics*, *Capital and Class*, *Historical Materialism*, and in other journals and edited collections. Many of his writings on the crisis and recession, value theory, and other topics are available at <http://akliman.squarespace.com>.