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Replicating Marx: A reply to Mohun*

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Abstract

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Kliman (2001) showed that "simultaneist" interpretations – those which hold that Marx valued inputs and outputs simultaneously – contradict his exploitation theory of profit, while the temporal single-system interpretation (TSSI) conforms to it. Mohun, S. 2003. "On the TSSI and the Exploitation Theory of Profit," *Capital and Class* 81, Autumn 2003, pp85-102. calls these demonstrations into question. This note defends them.

* We have benefited greatly from discussions with Aldo Fabian Balardini, Andy Brown, and Simon Mohun.

Replicating Marx: A reply to Mohun

“Arbitrary” stands in opposition to “Natural” only if one is attempting to designate the manner in which signs have been established.
– Michel Foucault, *The Order of Things*, p. 69

Introduction

Kliman (2001) showed that “simultaneist” interpretations – those which hold that Marx valued inputs and outputs simultaneously – contradict his exploitation theory of profit, while the temporal single-system interpretation (TSSI) conforms to it. Mohun (2003) calls these demonstrations into question. This note defends them.¹

Mohun’s is the first critique of the TSSI to address the interpretive controversy in a serious, methodical way. He accepts that the relative adequacy of exegetical interpretations, such as the temporalist and simultaneist accounts, can be evaluated only on the basis of a clear “criterion of decidability.”² He employs what he calls the “criterion of replication”: “An accurate textual interpretation is one which can, on the basis of (an interpretation of) the text’s premises, derive (and hence replicate) its theoretical conclusions” (pp. 96-97).

This clear, rigorous test of interpretive adequacy follows from the standard hermeneutic tenet that interpretations need to understand the text as a coherent whole. Proposed by George Stigler, the test has been embraced by other leading historians of economic thought and proponents of the TSSI (see Kliman 2002). Yet the value theory controversy has remained unresolved for decades because the TSSI’s critics refuse to embrace the test. Mohun’s contribution shows that there is a way out of this impasse.

Mohun’s Defence of Simultaneist Interpretations

Kliman (2001) proved that Marx’s profit theory is contradicted by all simultaneist interpretations, namely the standard (Bortkiewiczian) interpretation, the New Interpretation (NI), and the simultaneous single-system interpretations (SSSI). Employing their definitions of surplus labour and profit, he exhibited logically possible cases in which

- (1) profit is positive though surplus labour is not, which shows that surplus labour is not *necessary* for profit
- (2) surplus labour is positive though profit is not, which shows that surplus labour is not *sufficient* for profit

These results directly contradict three decades of claims that the so-called Fundamental Marxian Theorem (FMT) proved that the standard interpretation implies that surplus labour is both necessary and sufficient for profit.

Mohun’s challenge to Kliman’s results is fatally incomplete. He merely questions whether the aggregate money price of the net product (PNP) can be negative. This has nothing to do with the question of necessity. Kliman proved – *without assuming a negative PNP* – that all simultaneist interpretations imply that surplus labour is unnecessary for profit. By failing to address these proofs, Mohun concedes point (1): surplus labour is unnecessary for profit under *all* simultaneist interpretations.

¹ Space limitations prevent us from responding to all of Mohun’s errors, especially his misunderstandings of the TSSI.

² Mohun (2003: 97). Hereafter, we reference this paper by page number only.

Kliman also proved, again without assuming a negative PNP, that surplus labour is insufficient for profit under the standard interpretation. The negativity of the PNP is therefore relevant only to point (2) – sufficiency – and only with respect to the NI and SSSI. The only thing that Mohun actually defends, then, is the claim that surplus labour is sufficient for profit under the NI and SSSI. We now turn to that claim.³

The NI and SSSI imply that surplus labour and profit must have the same sign when the PNP is positive. Assume for the moment that it is indeed always positive. Does this make surplus labour sufficient for profit? No. It is insufficient, because positive profit requires something *more* than surplus labour, namely a positive PNP.

If net products of all goods were always positive, as most versions of the FMT assume, then the PNP, too, would always be positive. Crucially, Mohun concedes that this assumption is false: “That there are some negative net products is undeniable” (p. 98). But whenever some net products are negative, there always exist logically possible sets of prices that result in a negative PNP, and thus negative profit despite positive surplus labour. Hence, *Mohun implicitly concedes that surplus labour is insufficient for profit.*

Since negative net products exist, as we all agree, the sign of the PNP depends upon the sizes of material input-output coefficients and the extent to which prices deviate from a hypothetical equilibrium. If *either* the input-output coefficients *or* the deviations were sufficiently large, then the PNP would be negative. This could occur even if the Hawkins-Simon conditions are satisfied, i.e. even if continual physical reproduction and growth of the economy is possible (see Kliman 2001: 103-05). Given sufficiently small input-output coefficients, however, the PNP will remain positive even in the face of sizeable deviations from equilibrium.⁴

Seizing upon this last fact, Mohun rejects Kliman’s refutation of the insufficiency theorem. It was not “shown conclusively,” he claims, that a negative PNP is “economically possible in the sense of arising out of economic behaviour” (p. 98). *This objection is utterly irrelevant. We repeat: surplus labour would be insufficient for profit even if the PNP were always positive, because positive profit requires something more than surplus labour.* It requires small input-output coefficients and relatively modest deviations from a hypothetical equilibrium – the factors that make the PNP positive. If the coefficients and deviations were large enough, then profit would be negative despite the existence of surplus labour. Hence the NI and SSSI clearly contradict Marx’s (1981: 270, emphasis added) conclusion that surplus labour is “the *exclusive* source of profit.”

Certain economic behaviours can perhaps ensure that the PNP is positive, but they cannot make surplus labour sufficient for profit. The very fact that profit depends upon something more than surplus labour – “proper” economic behaviour – means that surplus labour is insufficient. Mohun’s appeal to behaviour therefore proves exactly the opposite of what he intended. It is a tacit admission of insufficiency.

He seems to suggest, however, that Kliman’s proof of insufficiency was an illegitimate trick, since it employed “arbitrary” prices (p. 98). But those prices were perfectly legitimate. The FMT of Okishio and Morishima considered the relationship between surplus labour and profit under all positive prices. Kliman did the same thing. He found cases in which surplus labour is positive whilst profit is negative. This disproved sufficiency – full stop.

³ In the remainder of this section, “surplus labour” and “profit” refer exclusively to the NI-SSSI definitions of these terms unless otherwise indicated.

⁴ It is far less likely that the aggregate price of the physical surplus – the PNP minus wages – will be positive. If it is negative, then so is profit as defined by the *standard* interpretation, even when surplus labour is positive.

A crucial matter of logic is at stake here: a sufficiency theorem is true only if it holds universally, i.e., only if no *logically possible* exceptions exist. (Whether the exceptions are “economically possible” is irrelevant. After all, most sufficiency theorems have nothing to do with economics.) A single counterexample refutes a theorem that is said to hold universally. The ball is therefore in Mohun’s court, not ours. He must either show that Kliman’s counterexample is logically impossible, or concede that the sufficiency theorem has been disproved. To suggest that the theorem does hold true once one ignores the inconvenient (“arbitrary”) exceptions is to commit a grave offence against logic.⁵

A properly formulated mathematical theorem is not a pair of designer punk jeans. It is not a ragbag of random exceptions and restrictions assembled for display. It is a coherent sequence of deductions from a definite set of premises, stated *before*, not *after*, exceptions have been identified. If Mohun wants to restrict the FMT to “non-arbitrary” and “economically possible” cases, there is a proper way to do so. He first needs to concede that the theorem as currently stated is false. Then he can formulate a revised theorem, beginning with a clear definition of “non-arbitrary” and “economically possible” circumstances, and ending with a proof that the PNP must be positive under those circumstances.

There are strong reasons to doubt that such a theorem is possible. Two examples in Kliman (2003) derive a negative PNP in precisely the manner that Mohun (p. 98) insists upon, and thereby demonstrate that a negative PNP is indeed “economically possible” in his sense. But even if such a theorem were possible, it would not prove sufficiency nor negate that fact that the NI and SSSI contradict Marx’s theory. It would simply clarify their implications.

Mohun’s Critique of the TSSI

Mohun (pp 98-99) claims that the TSSI fails to replicate Marx’s profit theory (and for precisely the same reason that the NI and SSSI fail). This claim is founded on a mathematical error.

Whenever the PNP is negative, he contends, the temporalist monetary expression of labour-time (MELT) must also be negative and, consequently, surplus labour and real profit must have opposite signs. This is incorrect. Mohun has simply misinterpreted the left-hand side (LHS) of his own equation (26):

$$P(t+1) - \frac{\tau(t+1)}{\tau(t)}C(t) = \tau(t+1) \cdot L(t) \quad (26)$$

where P is the aggregate price of output, τ is the temporalist MELT, C denotes monetary expenditures on used-up constant capital, and L is living labour.

Now Mohun claims that the LHS is the PNP. If that were true, then $\tau(t+1)$ would indeed be negative whenever the PNP is negative (since L is positive). However, the LHS and the PNP are not the same. The LHS equals the *temporalist* MELT times L , whilst the PNP is equals the *simultaneist* MELT times L .

The following example shows that the two MELTs differ and, more importantly, disproves Mohun’s claim that the temporalist MELT must be negative whenever the PNP is negative. A single good is produced. Its price p is constant, as are gross output x , the non-labour input a , and L . Assume that $p = x = L = 1$, and that $a > 1$. The PNP is

$$p(x - a)$$

and the simultaneist MELT is

$$p(x - a)/L.$$

⁵ The TSSI’s critics used the same tactic when attempting to dismiss our refutations of the Okishio theorem (see Freeman and Kliman 2000: 245-47).

Both equal $1 - a$; they are always negative. Yet since $P = px = 1$ and $C = pa = a$, for all t , (26) becomes

$$1 - \left(\frac{\tau(t+1)}{\tau(t)} \right) a = \tau(t+1) \quad (26')$$

Isolating $\tau(t+1)$ on the LHS, we obtain

$$\tau(t+1) = \left(\frac{\tau(t)}{\tau(t) + a} \right) \quad (26'')$$

which shows clearly that if the initial condition $\tau(0)$ is positive, then all subsequent values of τ must also be positive. Surplus labour and real profit consequently have the same sign.

This conclusion holds generally. Kliman (2001: 106-08) proved the following theorem: if P , C , L , and $\tau(0)$ are positive and finite, then τ *must always* be positive.⁶ It follows that surplus labour and real profit, as understood by the TSSI, *must always* have the same sign. Mohun (p.99) acknowledges that this theorem is true. Because he misinterprets equation (26), however, he denies that the theorem applies to negative-PNP cases. The above example showed that it does apply.

Yet Kliman's theorem has also been challenged for another reason. Veneziani (2003: 6, 15) forcefully objects to its premises, claiming that the MELT is "undefined" and therefore that the positivity of $\tau(0)$ is an "arbitrary assumption." He even objects to the "assumption" (without which P and C might be negative) that some prices are positive and none are negative. Mohun, too, calls the premises "sign restrictions" and "assumptions" (p.99) and claims that the MELT is "undefined" (p.101)

To dispose of these objections once and for all, we now prove that the challenged "sign restrictions" must hold true. Note first that the temporalist MELT is *not* "undefined." As Mohun (p. 94) acknowledges (before contradicting himself), it is "the ratio of total price to total value." Thus the MELT exists only when value is produced, i.e., only under commodity production. Our first proof therefore presupposes the existence of commodity production.

Proof that $P > 0$, $C \geq 0$ under commodity production. Commodity production is incompatible with cases in which all prices are zero. Negative prices "exist" in economic theory only by virtue of a definitional quirk. The statement that trash has a negative price, for example, really means that its "buyer" is the seller of a positively priced trash collection service. Thus any price that has wrongly been designated "negative" can be made positive by reinstating the buyer and seller in their correct positions. Hence, no prices are negative, and some are positive under commodity production. And since inputs and gross outputs cannot be negative, and some outputs must be positive under commodity production, it follows that $P > 0$ and $C \geq 0$.

Proof that the temporalist MELT is initially positive and finite. By definition, the price of any item – commodity or other asset – equals τ times the amount of labour the item commands in exchange. Also by definition, the "price" of a unit of money equals 1. On any date arbitrarily selected as the "initial" one, a unit of money commanded a positive and finite amount of labour – one could buy a finite amount of products of labour with it. Hence τ was initially positive and finite as well.

It might be argued that money did not initially command any labour that *counted as value*, since the products in existence at the start of commodity production were not produced as commodities. Under this interpretation of Marx's theory, the inputs employed at the start

⁶ The proof also goes through when $C = 0$. Note also that any time can be chosen as time 0. Thus if the MELT is positive at *any* time, it must be positive forever after.

of commodity production did not transfer value to the products produced. Hence the total value of commodities (in terms of labour-time) was at first just the living labour extracted, a positive quantity. As demonstrated above, total price was also positive. Hence the initial MELT, the ratio of total price to total value, was positive as well.

Conclusion: Once Again on Replication

In his conclusion, Mohun states that the TSSI is no better than simultaneist interpretations at replicating Marx's theoretical conclusions (p.100). This note has demonstrated, on the contrary, that the TSSI succeeds in replicating Marx's profit theory whilst the simultaneist interpretations fail. There are many other cases like this, and none in which a simultaneist interpretation replicates Marx whilst the TSSI fails.

Two points remain to be addressed, both of which pertain to Mohun's inconsistent application of the criterion of replication. His embrace of the criterion is a crucial step that opens the way to a constructive dialogue. Consistent application of the criterion would clear still more debris from the path thus opened.

First, Mohun seems to suggest that one may legitimately reject the TSSI in favour of other exegetical interpretations, *even though* it replicates Marx's conclusions but they do not. He implies that the TSSI is unacceptable because it understands Marx's concept of value "*differently from how it is conventionally understood*" (p. 93, emphasis in original) – as if conformance to conventional wisdom, not an interpretation's ability to deduce the author's theoretical conclusions, were the test of its adequacy. For instance, when Mohun notes that the TSSI's critics will not be convinced by the proof that it conforms to Marx's profit theory, because they would not accept its "definition of value" (p. 98), he seems to see nothing wrong with that attitude.⁷ But what would he think of Einstein's critics, who refused to be convinced by the general theory of relativity because they rejected its "definition of time"? Did this constitute a refutation of his theory?

It is unscientific and dogmatic to demand that an interpretation or theory convince its critics. All new interpretations and theories challenge received definitions. The only way to prevent those who control the journals – and, behind them, those who fund the graduate schools – from dictating what is "true" and "false," "natural" and "arbitrary," is to accept *and consistently apply* a clear, evidence-based, criterion of decidability.

Secondly, having incorrectly concluded that the criterion of replication yields indecisive results, Mohun argues that the decisive issue is which of the different "variants of Marxism" offer a "coherent theory for today's world" (pp. 15-16). The TSSI is not among them, since "it is only an interpretation," not a theory in its own right (p.100). But this comparison ignores the most important variant of Marxism – the Marxism of Marx. When interpreted in accordance with the TSSI, Marx's own theory is logically coherent, and an *alternative* to the simultaneist revisions of his theory. Consequently, "[o]ne may now in good conscience turn directly to *Capital*, unencumbered by others' 'corrections' of its alleged errors, in order to help analyze and understand the world in which we live" (Kliman 2001: 110).

This is not, we repeat for the n^{th} time, a claim that Marx is necessarily right. It is, however, a disproof of the false allegation that has stymied progress throughout economics for most of the last century – that Marx is necessarily wrong. The real issue, which Mohun

⁷ Mohun also complains that Kliman succeeded in proving that the TSSI replicates Marx's profit theory only because he made use of two "assumptions" (p. 2). Yet the "assumptions" – that values and prices are determined temporally and as a single system – *are* the TSSI. The complaint is therefore tautological: Kliman proved that the TSSI replicates Marx's profit theory only because he made use of the TSSI!

simply ignores, is whether the explanatory power of *Capital* is surpassed or even rivalled by any variant of simultaneist Marxism. Dozens of simultaneist authors have incorrectly claimed that their models replicate Marx's profit theory, and that they have proved his work to be internally inconsistent in other respects. The TSSI has shown that they are simply wrong. The inconsistencies lie not in Marx, but in their own work. Thus the real issue is, and remains, that economics, including above all Marxist economics, will never evolve a "coherent theory for today's world" as long as it persistently, wilfully and theologically rules out of court, against all the evidence, the most coherent theory so far available to it – that of Karl Marx.

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