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The Incoherence of the TSSI: A Reply to Kliman and  
Freeman

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### **Abstract**

We examine the substantive arguments proposed by Kliman and Freeman (2006) in their reply to Mohun (2003). We find the temporal single-system interpretation (TSSI) seriously deficient.

## 1 Introduction

In recent years, considerable attention has been paid to a ‘temporal single-system interpretation’ (TSSI) of Marx’s *Capital*. Its adherents claim that the TSSI ‘refutes’ what they see as false allegations that Marx made logical mistakes, false allegations based on a ‘simultaneist’ interpretation of Marx which the TSSI ‘shows’ is untenable. They do not claim that Marx was necessarily correct. But they claim that the TSSI has an explanatory power which surpasses that of any other interpretation of *Capital*, and that only the TSSI is consistent with the method and the results of Marx. (Kliman (2001) and Kliman and Freeman (2006) - hereafter KF - are prominent examples.) These are large claims.

Many have disagreed. Part of the problem is that TSSI methods of argumentation are controversial. A trivial example: Kliman and Freeman (2006, p. 117) assert that Mohun accepts the ‘criterion of replication’ as the ‘criterion of decidability’ between rival exegetical interpretations. But Mohun actually wrote: “This, for Kliman, is the criterion of decidability between rival interpretations” (Mohun 2003, p. 97). In what follows, we ignore the trivial distortions and inaccuracies in order to concentrate on issues of substance. We show that TSSI arguments are just confused.

## 2 Reprise of a debate

Marxism holds that profits exist because labour is exploited. Exploitation has a precise meaning: the worker is paid the full value of the labour-power she supplies, but property relations entail that the capitalist appropriates what the worker produces, whose value is greater than the value of labour-power. This theoretical proposition is part of the core of Marxism, however else that core is understood.

In contemporary Marxian economics, this theoretical proposition is called the Fundamental Marxian Theorem (FMT). Loosely, it states that the existence of surplus labour is necessary and sufficient for the existence of profits. Roemer (1981) has a precise statement and proves the FMT for a reproducible economy; the proof requires seven assumptions plus four conditions underlying a ‘reproducible solution’. If any of these are violated, then the FMT does not necessarily hold. Roemer himself discusses the role of the assumptions and provides some counterexamples to the FMT (*ibid.*, pp. 48, 50).

Kliman (2001, p. 99) wrote

... general versions of the FMT ... prove that the theorem holds for any set of positive market prices ... Yet these versions of the FMT rely on an equally restrictive condition:

in every period, a positive physical surplus of each good must be produced.

This is misleading. Roemer's FMT does not hold for any set of positive market prices. It holds for prices that support a reproducible solution (Roemer 1981, Theorem 2.11, p. 48), and reproducibility requires a strictly positive vector of net products (*ibid.*, Definition 2.5(a), p. 41). Hence Kliman's numerical example (Kliman 2001, p. 100), which demonstrates that if one of the conditions for the FMT does not hold, the FMT does not hold, is quite beside the point. Nobody could disagree.

What Kliman tried to do was to show that

1. negative net products of some goods exist in the real world;
2. hence theorems that assume they do not, do not apply to the real world; this includes Roemer's FMT and all other variants of Marxism in which inputs and outputs are valued simultaneously;
3. only the TSSI escapes this stricture, because in the TSSI, the FMT holds "*under completely general conditions*" with "absolutely *no* restrictive postulates" (Kliman 2001, p. 106, emphasis in original). Hence only the TSSI "vindicates the logical coherence of the exploitation theory of profit" (*ibid.* p. 110).

As regards point 2: can an 'unrealistic' theory have explanatory power? No theory is entirely realistic. Because they do more than describe, all theories make assumptions; all abstract from empirical reality, and a theory is a good one if it has explanatory power. But all of these terms are loaded, and carry a variety of interpretations. Issues concerning precisely what a theory is, how its adequacy should be assessed, what are necessary and what sufficient conditions for propositions within a theory, and what is required to falsify a particular proposition, are always delicate issues. The degree of the lack of realism of the assumptions required for particular propositions, and the extent to which the explanatory power of the theory is thereby affected, are matters of judgement, and we leave it to the interested reader to judge the empirical plausibility of Kliman's constructed numerical examples.

As regards point 3, Mohun (2003) showed that it was just not true that the TSSI FMT held 'under completely general conditions'. It required a particular theoretical concept of temporality, a particular understanding of the measurement of value, and some particular sign restrictions (*ibid.*, pp. 98-9; see also Veneziani 2004). These are not 'completely general conditions'. Unwittingly perhaps, KF illustrate clearly the difficulties with the TSSI. We offer three examples.

## 2.1 Example 1 (KF 2006, p. 121)

A single good is produced. Its price  $p$  is constant, as are gross output  $x$ , the non-labour input  $a$ , and labour input  $L$ . Assume that  $p = x = L = 1$ , and that  $a > 1$ . The aggregate money price of the net product is  $p(x - a)$ , and the simultaneous MELT is  $p(x - a)/L$ . Both are  $(1 - a)$  and are negative. The TSSI aggregate value equation is<sup>1</sup>

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

On substituting the assumed values, this becomes

$$1 - \frac{\tau(t + 1)}{\tau(t)}a = \tau(t + 1) \quad (2)$$

or

$$\tau(t + 1) = \frac{\tau(t)}{\tau(t) + a} \quad (3)$$

KF conclude that equation (3) “shows clearly that if the initial condition  $\tau(0)$  is positive, then all subsequent values of  $\tau$  must also be positive. Surplus labour and profit have the same sign”.

But if we are interested in ‘completely general conditions’, then consider a steady state in which the temporalist MELT  $\tau$  does not change from period  $t$  to period  $t + 1$ . (And, after all, *all* variables are assumed constant in this example.) Equation (2) then becomes

$$1 - a = \tau$$

and  $\tau$  is *negative* by the assumption that  $a > 1$ . This is supposed to illustrate that “ $\tau$  must always be positive” (*ibid.*, emphasis in original). Clearly, as Mohun (2003) emphasized, quite a lot hinges on the definition of the temporalist MELT and its associated ‘sign restrictions’.

KF are concerned to “prove that the challenged ‘sign restrictions’ must hold true”; their ‘proofs’ are the subject of the next two examples.

## 2.2 Example 2: ‘Proof’ that $P > 0$ , $C \geq 0$ (KF 2006, p. 122)

The KF argument is that under commodity production, no prices are negative and some are positive; inputs and gross outputs cannot be negative and some outputs must be positive. Therefore  $P > 0$ ,  $C \geq 0$ .

The conclusion does not follow. That  $p$  and  $x$  are semipositive vectors does not imply that their product  $P$  is strictly positive.

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<sup>1</sup>The symbols are defined in Kliman (2001) and repeated in Mohun (2003).

### 2.3 Example 3: ‘Proof’ that the temporalist MELT is initially positive and finite (KF 2006, pp. 122-3)

KF are emphatic that the temporalist MELT  $\tau$  is not undefined because it is the ratio of total price to total value. Using equation (1)

$$\tau(t+1) = \frac{\tau(t)P(t+1)}{C(t) + \tau(t)L(t)} \quad (4)$$

which serves to define the MELT of one period in terms of the MELT of the preceding period. For this to be a definition of the MELT, an independent definition of  $\tau(0)$  must be given. KF conspicuously fail to do this. They have no explanation of why  $\tau(0)$  is independent of  $\tau(-1)$ . If it is not, there is an infinite regress; if it is, then there must be some explanation of why  $\tau(1)$  is not independent of  $\tau(0)$ . None is forthcoming, and hence the TSSI MELT is undefined.

Nevertheless, it is clear from equation (4) why it is so important for KF to be able to prove that  $\tau(0)$  is positive and finite. Consider then their ‘proof’, which we spell out, step by step.

1. Define the price of any commodity as  $\tau$  times the amount of labour the commodity commands in exchange.

$$p_i(t) = \tau(t)l_i(t) \quad (5)$$

2. Define the price of a unit of money to be unity.

$$p_m = 1 \quad (6)$$

3. Select an arbitrary date (period 0). Then

$$p_m(0) = \tau(0)l_m(0) = 1 \quad (7)$$

4. Suppose that a unit of money in period 0 commands a positive and finite amount of labour.

5. Then since

$$\tau(0) = \frac{1}{l_m(0)} \quad (8)$$

the temporalist MELT is initially positive and finite.

It is obvious that there is no logical deduction here, just a series of assumptions, with no explanation of what is meant by “the amount of labour the commodity commands in exchange”. Why does this reasoning hold at  $t = 0$  but not at any other  $t$ ? If this argument is valid for “any date arbitrarily selected as the ‘initial’ one”, then at any specified date  $t$  it is possible to consider  $\tau(t)$  as determined

by variables at  $t$  only (and not at previous dates); but this contradicts equation (4). There is also some confusion in determination, for equation (5) uses  $\tau$  to define price and equation (8) uses the labour commanded price of money to determine  $\tau$ . In sum, this ‘proof’ by assumption merely confirms that the temporalist MELT is undefined.

### 3 Time and the MELT

Production takes time; inputs are temporarily prior to outputs. How should inputs be valued? The answer given by almost all schools of economics is that they should be valued at current or replacement cost. When prices are changing, we want to know whether the firm is viable and can reproduce itself. With a labour theory of value there is another reason: we want to be able unambiguously to attribute the value of net output to the labour that produced it.

For KF, equation (1) shows that the value created by labour is equal to total sales revenue less the monetary expenditure on used-up constant capital, each deflated by the appropriate MELT. But

$$\begin{aligned} C(t) &= p(t)c(t) \\ &= p(t+1)c(t) - \{p(t+1) - p(t)\}c(t) \end{aligned}$$

so that

$$\frac{P(t+1)}{\tau(t+1)} - \frac{p(t+1)c(t)}{\tau(t)} + \frac{\{p(t+1) - p(t)\}c(t)}{\tau(t)} = L(t) \quad (9)$$

The third term on the left hand side is an inventory revaluation because of price changes. Should its (positive or negative) effects be included as part of the value created by living labour? We say ‘No’ whereas KF say ‘Yes’.

Because KF include inventory revaluation effects as part of the new value created by labour, value is dissociated from labour performed. Instead, value is determined from observed prices and quantities for some value of the MELT. But the TSSI MELT is undefined, and hence there is no determination of the new value created.

### 4 Conclusion

In their use of logic, their reporting of the views of those with whom they disagree, and their elaboration of their own fundamental categories, KF leave a great deal to be desired.



## References

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