Veneziani's Critique of Marx and the TSSI

Andrew Kliman
Professor, Department of Economics
Pace University
Pleasantville, NY 10570 USA

phone: (914) 773-3968
akliman@pace.edu
Andrew_Kliman@msn.com

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1. Introduction: The Stratagem of Marx's Critics

The suppression of Marx's critique of political economy is typically justified on the ground that his value theory has been proved internally inconsistent. Yet proponents of the temporal single-system interpretation (TSSI) of Marx's value theory have disproved these alleged proofs. Roberto Veneziani's (2004) essay, "The Temporal Single-System Interpretation of Marx's Economics: A critical evaluation," is part of an effort by Marx's critics to avoid having to concede that the alleged proofs of inconsistency have been refuted. This paper is a response to Veneziani's essay.

In the philosophy of science, the works of Duhem, Quine, and others have made clear that it is always possible to avoid having to concede that a theory is false. One can always challenge empirical tests on this or that ground, or make *ad hoc* modifications to the theory in order to cover over problems – and one can do so *ad infinitum*. Essentially the same process is now taking place in "Marxian economics," with respect to the *interpretation* of Marx. In an effort to avoid conceding that their interpretations of his theories of value, profit and the falling rate of profit are incorrect, Marx's Marxian and Sraffian critics again and again put forth false, baseless, irrelevant and other diversionary critiques of the TSSI. As soon as one set of false allegations and "proofs" by one author is refuted, another critic comes out with another set, etc., etc. And thus the suppression of Marx's critique of political economy, in its original form, continues.

There seems to be no sign that the critics have any intention of stopping this stratagem. Indeed, they have no *interest* in stopping it as long as the benefits of the stratagem outweigh the costs. And at the moment, the stratagem carries no costs at all because, after proponents of the TSSI refute a set of false allegations, there is nothing that compels Marx's critics to concede

error, much less to set the record straight regarding their claims of inconsistency, though these claims serve to suppress Marx's critique of political economy. The critics can (and do) put forth new false claims, and/or divert the discussion, and/or simply remain silent and wait for the next prize-fighter to step in the ring against Marx.

It is therefore with some trepidation that I undertake this response to Veneziani. Why answer false and diversionary critiques one more time, if doing so is a pointless, Sisyphean task? It takes up time and energy and wears one out, especially because one knows that this set of false and diversionary critiques will be followed by yet another set, or by silence – not by forthright concessions that the critic has erred, much less by a renunciation of false allegations of internal inconsistency, much less by any proactive effort by Marx's critics to help set the record straight.

I'm not sure that there *is* anything to be gained by answering. But something can be lost. If we fail to answer the critics, observers might think that we have no answer, so that the allegations of inconsistency might be correct after all.

The only way to negotiate this situation, it seems to me, is to take the offensive. The main thing that is needed is an organized campaign to establish new rules, rules that punish people for making false and baseless allegations, either knowingly or because of reckless disregard. In other words, something analogous to laws against defamation is needed.

And, to the extent possible, responses to the critics must try to impose costs on them for pursuing the above and similar stratagems. For instance, one can try to expose the stratagem, ridicule and embarrass those who pursue it, and call on them to *do the right things*. That is what this paper seeks to do.

2. The TSSI's "Unsurprising" Vindication of Marx's Conclusions

Veneziani (p. 98) grudgingly concedes that the TSSI undoes the appearance of internal inconsistency in Marx's theory: "the TSS approach … 'corresponds to the original [theory of Marx's] in a way that others do not.'"[1] I have purposely quoted Veneziani out of context in order to highlight the fact that he acknowledges here. If one does not his paper with extreme care, it is easy to overlook this very brief acknowledgement, tucked away within a text that diverts the discussion from the question of internal inconsistency, even to the point of making it seem that this is not what the debate is about.

Veneziani diverts attention from the question of internal inconsistency by making the value theory controversy seem to be about whether Marx's value theory is *true*. Although he admits that the TSSI succeeds in deducing Marx's conclusions, Veneziani says that this is "unsurprising[ ]"; the conclusions are deduced only because "all [of] Marx's propositions [i.e. premises] are *assumed* to be correct" in TSSI works (p. 98, emphasis in original).

If proponents of the TSSI claimed to prove that Marx's conclusions are true, as Veneziani asserts, his complaint would be legitimate. One cannot prove that conclusions are true simply by showing that they follow from the premises. Yet we have continually stressed that our demonstrations are not efforts to prove that Marx's theory is true, but efforts to prove that the theory can be interpreted in a manner that renders it logically consistent. For instance, in a paper that *Veneziani cites in his text and references*, Alan Freeman and I stated:

> We have never said that Marx's contested insights are necessarily true …. We simply say the claims that his value theory is *necessarily wrong*, because it is logically invalid, are false" (Freeman and Kliman 2000: 260, emphasis in original).

And the way in which one proves that Marx's theory can ber understood to be logically valid is *precisely* by showing that his conclusions follow from his premises (as we interpret them). Once this is understood, Veneziani's revelation that the TSSI arrives at Marx's conclusions by deducing them from (our interpretation of) his premises no longer reads like an exposé of trickery or failure. His statement now seems to be what it actually is—an admission that the TSSI demonstrations have succeeded in refuting the century-old "proofs" of Marx's logical inconsistency.

3. Veneziani's False Claim that TSSI Values = Prices

According to Veneziani (p. 102, emphasis in original), the TSSI assumes that

> *in a steady state equilibrium, values are equal to observed market prices, and goods exchange at embodied labour values.* In other words, the TSS approach solves the transformation problem by constructing a 'money costs theory of value', where *by assumption* $\lambda = \mathbf{p}$ [i.e., the vector of unit values equal the vector of unit prices], apart possibly from short-run deviations.

This assertion is completely false.

By "steady state equilibrium," Veneziani means that the temporalist monetary expression of labor-time (MELT), all values, and all *market* prices — whether equal to production prices or not — are stationary. In Veneziani's steady state equilibrium, Marx's theory as understood by the TSSI holds that unit prices can be expressed as

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$$\frac{\mathbf{p}}{\varepsilon} = \frac{\mathbf{pA}}{\varepsilon} + \mathbf{l} + \mathbf{g}, \tag{1}$$

where $\mathbf{p}$ is a vector of unit prices, $\mathbf{A}$ is the input-output matrix, $\mathbf{l}$ is a vector of living labor

requirements per unit of output, $\mathbf{g}$ is a vector of per-unit deviations of prices from values, and ε

is the temporalist MELT, a scalar.

Also, in Veneziani's steady state equilibrium, unit values (in terms of labor-time), $\boldsymbol{\lambda}$, can be

written as:

$$\boldsymbol{\lambda} = \frac{\mathbf{pA}}{\varepsilon} + \mathbf{l}. \tag{2}$$

Now *if* vector $\mathbf{p}$ were determined ahistorically, within equation system (1), the system

would be underdetermined. Even if one stipulates that $\varepsilon = 1$, as Veneziani does, (1) contains *2n*

unknowns (*n* prices plus *n* elements of $\mathbf{g}$) but only *n* independent equations.

In order to avoid this indeterminacy, Veneziani claims, it is necessary to impose the

"equilibrium condition" $\boldsymbol{\lambda} = \mathbf{p}$. Therefore, he immediately concludes, the TSSI's proponents

"construct[ ] a 'money costs theory of value,' where *by assumption* $\boldsymbol{\lambda} = \mathbf{p}$." This inference

makes no sense at all. Even if it were true (which it is not) that Veneziani's equilibrium

condition is needed for a determinate solution, this would imply only that TSSI authors leave

equations (1) and (2) underdetermined — because we *do not*, in fact, construct any "money costs

theory of value." The $\boldsymbol{\lambda} = \mathbf{p}$ condition is his invention, not ours.

This objection is not a mere quibble over words. By falsely alleging that proponents of

the TSSI construct and assume something that is both ridiculous and at variance with Marx's

value theory, Veneziani creates the impression that we are fools and that we either know nothing

about Marx's theory or purposely misinterpret it. Each time he claims that we fail to distinguish

between values and prices, this impression is reinforced, and the claim is one of his paper's

dominant themes. It is featured in his Abstract as well as in his Conclusion, and it appears also

on pages 98, 102, and 103-04.

Veneziani (p. 102) claims that his $\lambda = \mathbf{p}$ condition is needed, not only in order to obtain a

determinate solution, but also "as a matter of logical … consistency." This is simply not true.

*Over*determined systems are inconsistent. *Under*determined systems of linearly independent

equations never are.

In any case, system (1) is neither inconsistent nor underdetermined. It is exactly

determined — historically. By assuming that prices are stationary, *Veneziani is tacitly assuming*

that the input prices that existed at the start of the steady state have prevailed since that time:

$$\mathbf{p}_0 = ... = \mathbf{p}_t = \mathbf{p}_{t+1} = \mathbf{p} \cdot \qquad (1')$$

It is crucial to recognize that the elements of $\mathbf{p}_0$ are *data*, not unknowns. They are the

input prices of Period 0, i.e. the output prices of Period –1, the period immediately prior to the

steady state. These prices are *already determined*, through the socioeconomic processes that

occurred before and during Period –1.

Thus system (1) contains *n* equations in *n* + 1 unknowns (the *n* elements of $\mathbf{g}$, plus $\mathcal{E}$).

And since the economy-wide sum of price-value deviations, $\mathbf{gx}$ (where $\mathbf{x}$ is a vector of gross

outputs), equals zero in Marx's theory (see Kliman and McGlone 1999: xxx-xxx), adoption of

the $\mathbf{gx} = 0$ condition together with (1), (2), and (1') enables us to solve for all of the unknowns:

$$\varepsilon = \frac{\mathbf{p}_0(\mathbf{I} - \mathbf{A})\mathbf{x}}{\mathbf{lx}},$$

$$\mathbf{g} = \left(\frac{\mathbf{lx}}{\mathbf{p}_0(\mathbf{I} - \mathbf{A})\mathbf{x}}\right)\mathbf{p}_0(\mathbf{I} - \mathbf{A}) - 1$$

Three important properties of this solution should be noted. First, it demonstrates that, contrary to what Veneziani asserts, the TSSI neither assumes nor requires the assumption that values equal prices in a steady state. Values and prices are unequal whenever $g_j \neq 0$. Secondly, Veneziani is wrong when he states, as he repeatedly does, that the value of ε is fixed in an arbitrary, *ad hoc* way. Its value is determined by the *data*. Finally, the solution makes clear that Veneziani (p. 102) is wrong when he suggests proponents of the TSSI would have to "assume that the steady state is never reached" in order to avoid indeterminacy without assuming that $\lambda = \mathbf{p}$.

To explain why the price vector is $\mathbf{p}_0$, rather than something else, the above solution appeals to the historical circumstances that gave rise to $\mathbf{p}_0$. Veneziani evidently dislikes this kind of explanation, and prefers appeals to optimizing behavior and physical data.[2] His preference ordering is irrelevant, however, since the task of the TSSI is not to please Sraffians and other physicalists, but to interpret Marx correctly. *In any case, I challenge Veneziani and others who dislike the TSSI solution to produce a different solution for* **p***, using only the information that he has provided — the input-output data and the stationarity assumption.* They

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will not succeed.[3]

Veneziani also tries to prove that the TSSI requires the $\lambda = p$ condition when profit rates are equal, i.e. when commodities sell at their production prices. "[T]he transformation between [sic] values and production prices is also trivially solved in the TSS framework by *assuming* that they are ... equal, apart from short-run deviations" (pp. 103-04, emphasis in original). His attempted proof is, if anything, even more feeble than the one above. Veneziani (p. 103) makes use of the TSSI value, price, and profit-rate equations (his equations (1)-(7)), as well as the following equality:

$$\mathbf{s}_t^* = r_t \mathbf{p}_t (\mathbf{A} + \mathbf{b_w l}) \qquad (3)$$

which states that, when production prices prevail, the vector of surplus-values equals the vector of profits (both per unit of output).[4]

Now if it were true that surplus-value equalled profit in every industry, then *of course* every commodity's production price would equal its value. Yet no proponent of the TSSI has ever invoked (3). It is a ludicrous condition, and entirely Veneziani's own invention. He simply pulls it out of thin air.

It would be simple to prove that values and production prices as understood by the TSSI are generally unequal, but a proof is not worth the effort. Instead, I refer readers to the numerical examples contained in Kliman and McGlone (1988, pp. 72-76) — *which Veneziani cites* — and McGlone and Kliman (1996, pp. 40-44). The examples show how production prices are determined under a variety of assumptions regarding the constancy or variability of prices and the MELT. *Individual industries' values and production prices are unequal in all cases.*

4. **The Origin of Profit Under Simultaneism**

In Kliman (2001), I proved that all simultaneist interpretations of Marx's value theory (those in which outputs' and inputs are priced or valued simultaneously) are incompatible with Marx's theory of the origin of profit. They all contradict his claim that surplus labor is necessary and sufficient, under commodity production, for the existence of profit. Veneziani takes issue with my proof, and makes it seem incorrect. Yet his objections have nothing to do with the issue – i.e. with whether surplus labor is necessary and sufficient for profit under simultaneism.

Moreover, if one reads Veneziani's critique very carefully, cutting through a good deal of disparaging rhetoric, it is possible to see that *he concedes that surplus labor is neither necessary nor sufficient for profit under simultaneism.* "Kliman's critiques," he writes, "reduce to the trivially true, and rather uninteresting, algebraic statement that there are arbitrary combinations of the variables such that $\Pi_t > 0$ while $S_t < 0$, and vice[-]versa" (pp. 105-06). But "$\Pi_t > 0$ while $S_t < 0$, and vice[-]versa" means precisely that profit is positive ($\Pi_t > 0$) while surplus labor is negative ($S_t < 0$), and vice-versa. Veneziani is thus *tacitly* admitting that I proved exactly what I claimed to prove. But why is it left as a tacit admission? Why is there no forthright acknowledgement that "Kliman proved that, contrary to what simultaneist authors have alleged for more than three decades, their interpretations contradict Marx's theory by implying that surplus labor is neither necessary nor sufficient for positive profit"?

No, instead of that forthright acknowledgement, we get words like "trivially true," "uninteresting," and "arbitrary." *There is no surer proof that Marx's critics are engaged, not in a disinterested quest for truth and knowledge, but in an ideological attack on Marx's body of ideas, than the manner in which they respond when their false claims are exposed.*

Although he tacitly and grudgingly admits that I proved what I claimed to prove, Veneziani nonetheless holds that my critique of the Fundamental Marxian Theorem (FMT) "seem[s] rather unconvincing" (p. 105) because, in order to show that surplus labor is neither necessary nor sufficient for profit under simultaneism, I relaxed the restrictions that had heretofore been imposed on the problem by simultaneists – restrictions that cleverly made it *seem* that their interpretations imply that surplus labor is necessary and sufficient for profit. According to Veneziani, "all [of] Kliman's (2001) 'results' are unwarranted" (p. 105, n7) because I did not assume that profit rates are equal. My examples were "arbitrary" (p. 105). My economies were not in a "reproducible solution" (p. 105). These objections seem compelling — until one recalls that my critique of the FMT was precisely that it "rel[ies] crucially on restrictive and implausible conditions" (Kliman 2001, p. 97 [Abstract]). Then Veneziani's objections make no sense at all. He is complaining that I had to relax the FMT's restrictions in order to prove that it relies crucially upon those restrictions! How else could I prove this? Can he please tell us?

If I had claimed that the FMT was *false*, then Veneziani's complaints would have made sense. One cannot disprove a theorem if one violates its premises. But what I claimed, correctly, was something different: *the FMT fails to demonstrate that surplus labor is necessary and sufficient for profit*. Veneziani is well aware of the difference. He writes, "Although this [demonstration that surplus labor and profit can have opposite signs under simultaneism] does not refute the FMT, according to Kliman, it shows that the FMT is theoretically unsatisfactory because it holds only under Roemer's restrictive and unrealistic definition of reproducibility" (pp. 104-05). Since he understands what I claimed and did not claim, and tacitly concedes that what I did claim is correct, why has Veneziani responded with "objections" that fail to address the issue?

5. The Negative MELT issue

Although Veneziani tacitly and grudgingly concedes that all simultaneist interpretations are incompatible with Marx's theory that surplus labor is the exclusive source of profit, he contends that the TSSI is in no better shape. "[T]he TSS approach does not offer a 'superior' interpretation of Marx's theory of exploitation" (p. 107) because it, too, fails to imply that surplus labor is necessary and sufficient for positive profit. "[T]he desired result can only be obtained by arbitrarily assuming" that the monetary expression of labor-time (MELT) is never negative (p. 106).

It is true that *if* the temporalist MELT could be negative, *then* surplus labor would not be necessary or sufficient for positive profit under the TSSI. Given a negative MELT, profit would be negative when surplus labor is positive, and vice versa.

However, note that although Veneziani *alleges* that it is arbitrary to assume that the MELT is non-negative, he gives us absolutely no reason to believe that the temporalist MELT can ever be negative. A negative MELT would imply that a quantum of labor-time is represented by a negative amount of money. In the absence of any reason why we should believe in such an absurd situation, it is hardly arbitrary to assume that the MELT is positive.

Moreover, Alan Freeman and I (Kliman and Freeman 2006) have proved that the temporalist MELT must always be positive. Thus, Veneziani's charge that it is "arbitrary" to assume a positive temporalist MELT is false. And since this false charge is the sole basis for his rejection of the claim that the TSSI succeeds in deducing the conclusions of Marx's exploitation theory of profit, Veneziani's rejection of the claim is unwarranted. Given the importance of this issue, it will be useful to state the proof of the positivity of the temporalist MELT here.

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A. Kliman (2001: 106-08) proved the following theorem: if P (the total price of output, in money terms), C (total expenditures on used-up means of production, in money terms), L (the total amount of living labor expended in production, in labor-time terms), and $\tau(0)$ (the temporalist MELT of time (0)) are all positive and finite, then τ (the temporalist MELT) *must always* be positive.[5] (Veneziani accepts that this result is "algebraically correct" (p. 106).) It follows that surplus labour and real profit, as understood by the TSSI, *must always* have the same sign.

B. The temporalist MELT is the ratio of total price, P, to total value in labor-time terms. Thus the MELT exists only when value is produced, i.e., only under commodity production. The subsequent steps of the proof thus presuppose the existence of commodity production.

C. L is always positive under commodity production (as the latter is defined by Marx).

D. *Proof that $P > 0$, $C > 0$ 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 $C > 0$.

E. *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:

$$\text{price} = \tau \times (\text{labor commanded})$$

Also by definition, the "price" of a unit of money equals 1. Thus, on any date arbitrarily selected as "time 0,"

$$1 = \tau(0) \times (\text{labor commanded by a unit of money at time 0})$$

And since a unit of money commanded a positive and finite amount of labor on any such date – since, i.e., one could buy a positive and finite amount of products of labor with it – it follows that 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 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.

F. It follows from paragraphs C, D, and E that the conditions given in paragraph A for the temporalist MELT to always be positive, are satisfied. Hence the temporalist MELT has always been and will always be positive. Hence surplus labor is necessary and sufficient for positive real profit, according to the TSSI. This conclusion replicates Marx's.

6. **TSSI Disproofs of the Okishio Theorem**

From a logical point of view, Veneziani's critique of temporalist disproofs of the Okishio (1961) theorem is an advance over earlier ones. Laibman (1999a, 1999b, 2000), Foley (1999), and others (in unpublished works) had put forward examples which showed, on the basis of the theorem's premises, that labor-saving technological changes *need not always* cause the rate of profit to fall. Yet since the theorem states that such technological changes *cannot ever* cause the rate of profit to fall, the exhibition of even a single falling-rate-of-profit example is sufficient to refute it. Subsequent rising-rate-of-profit examples are irrelevant, as Veneziani (p. 109) recognizes. Thus, instead of offering such an example, he tries to demonstrate that the temporalist refutations of the Okishio theorem are not "robust[ ]", that they depend crucially upon scenarios that are impossible, or almost impossible.

6.1 The Constant-Melt Critique

Two of Veneziani's objections (numbers 3 and 4, pp. 110-11) are criticisms of the assumption in Kliman (1996) that the MELT remains constant. Veneziani suggests that this assumption plays a critical role in the temporalist refutation of the Okishio theorem. Without the assumption of a constant MELT, the temporally determined rate of profit moves in the manner stated in the theorem. I shall now show that this is not correct.

Let us examine the simplest case possible: a one-sector ("corn") economy, without fixed capital, in which all of the year's output is plowed back—literally—into production, as seed corn planted at the start of the next year. Since all output is invested as seed, the farmworkers and farm owners consume none of it.

Because fixed capital and wages are assumed away in this example, the seed corn (SC) is the whole of the capital advanced in physical terms, and the physical surplus (PS) equals the net product (NP)—corn output (CO) minus seed corn. Thus the physical rate of profit (ROP) equals the net product divided by the seed corn.

Let us also assume that, between Years 1 and 2, the seed corn, the output, and the amount of living labor (LL) performed by the farmworkers all increase by 25%. The economy is growing, but there is no productivity growth. Output per unit of living labor and output per unit of corn input both remain unchanged. Given the physical quantities of Year 1 presented in Table 1, the figures for Year 2 follow from the assumption of 25% growth.

Table 1. Physical Quantities

Year	SC	$NP = PS$	$CO =$ $SC + NP$	$ROP =$ PS/SC	LL
1	64	16	80	**25.0%**	80
2	80	20	100	**25.0%**	100
3	100	30	130	**30.0%**	100
4	130	45	175	**34.6%**	100

In Years 3 and 4, technological progress commences. The net product now increases by 50% per year, while employment no longer increases—100 hours of living labor are performed each year. Both output per unit of living labor ("labor productivity") and output per unit of seed corn ("capital productivity") rise in Years 3 and 4. Another important feature of the example is that the technological changes are labor-saving in Marx's sense; the ratio of means of production (seed corn) to workers, which he called the technical composition of capital, increases in both years. (The seed corn figures for Years 3 and 4 are based on our assumption that all output is invested as seed; for instance, $CO = 100$ in Year 2, so $SC = 100$ in Year 3.)

Of course, this is an extremely unrealistic set of assumptions. I do not pretend to be modeling the process of accumulation in any actual economy here. I employ these assumptions only for the sake of simplicity: because all output becomes input, we can easily track the flows of corn and labor without getting bogged down in the complications that arise when the output is divvied up in different ways. Since there is only one industry, there are no inter-industry differences in profitability to worry about; the rate of profit is continually equalized. And because of our extreme growth-rate assumptions, we have mostly "easy" numbers to work with.

Let us begin with the constant-MELT case. If we assume that the MELT is $1/hr, the new value added by living labor (NV) is always equal to the living labor (LL) figures of Table 1, and the nominal price of corn, p, equals its value, v. The resulting flow of value is given in Table 2.

The value/price rate of profit is initially equal to the physical rate, and the two rates remain equal as long as productivity is not growing. Once technological progress occurs, however, the value/price rate of profit falls, even though the physical rate rises.

Table 2. Temporalist Value/Price Rate of Profit,
Given the Law of Value & Constant MELT

Year	$p_{in} =$ $v_{in}*$	$C = c = VT$ $= p_{in} \times SC$	$NV =$ $LL = s$	$TV =$ $VT + NV$	ROP $= s/C$	$p_{out} = v_{out}$ $= TV/CO$
1	5.000	320	80	400	25.0%	5.000
2	5.000	400	100	500	25.0%	5.000
3	5.000	500	100	600	20.0%	4.615
4	4.615	600	100	700	16.7%	4.000

* The input price equals the prior year's output price. Year 1's input price is given.

In the real world, of course, we have experienced an almost continual rise in prices for many decades, despite the fact that increasing productivity has caused commodities' values (measured in terms of labor-time or a constant MELT) to decline. In other words, the MELT does not remain constant, but rises systematically. It is tempting to assume along with Veneziani that this phenomenon negates the LTFRP, at least in the sense that the *nominal* price rate of profit must rise, not fall, when prices are continually increasing. Yet this is not the case.

Imagine that in our corn economy, the price of corn rises by 10% year after year. This year's output sells for 10% more than it would have sold for last year, but the seed corn advanced at the start of the year also costs 10% more than it would have cost last year. The rate of profit—the ratio of sales to costs, minus 1—is consequently the same whether we use this year's or last year's prices to value the seed corn and output. In other words, a constant rate of inflation leaves the rate of profit unchanged.

What affects the rate of profit is therefore not inflation per se, but *changes* in the rate of inflation. A rising rate of inflation causes sales revenue to increase by a greater percentage than costs increase, and thus the nominal rate of profit rises. Conversely, when the rate of inflation is falling, sales revenue increases by a smaller percentage than costs, causing the nominal rate of profit to fall. *What matters is not whether prices are rising or falling—i.e., whether the rate of inflation is positive or negative—but whether the rate of inflation is rising or falling.*

Hence, productivity growth need not lead to deflation, falling prices, in order to cause the nominal rate of profit to fall. It needs to lead to disinflation, a falling rate of inflation. If this

occurs, then the nominal rate of profit, just like the real value rate, must fall in relationship to the physical rate of profit, regardless of whether prices are rising or falling. Unless the physical rate rises by an amount sufficient to offset this effect, both the nominal and the real value rates of profit will decline in absolute terms as well.

The point can also be expressed in the following way. A rising MELT does not cancel out the tendency of the rate of profit to fall. It is easy to show that the rate of inflation is approximately equal to the growth rate of the MELT plus the growth rate of values.[6] Thus if the MELT grows at a constant rate, but values fall at an increasing rate as a result of a rising rate of productivity growth, the rate of inflation must decline, and the nominal rate of profit will tend to fall. Assume, for example, that the MELT increases by 6% per year while values decline by 1%. The rate of inflation is approximately equal to 5% (= 6% + (–1%)). If faster productivity growth now causes values to decline by 4% per year, the rate of inflation falls to about 2% (= 6% + (–4%)) and, all else being equal, both the nominal and real rates of profit will fall.

It is of course possible, in principle, that that the growth rate of the MELT will accelerate, canceling out or more than canceling out this effect. However, there is no inherent reason that it should do so.[7] A rising MELT reflects built-in or exogenous inflation, inflation that arises because of factors other than productivity growth.

To see all of this more clearly, let us introduce one change into our example: the MELT increases by 20% per year. Since the MELT equals 1 at the start of Year 1, for instance, it equals 1.2 at the end. Instead of the constant-MELT prices of Table 2, now have the new prices of Table 3 that reflect this 20% growth. (The nominal prices equal the values of Table 2 times the MELT. To obtain the total value figures, we multiply the corn output figures of Table 1 by the output

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price and, to obtain the nominal value added, we subtract the sum of value transferred from the

total value.)

Table 3. Temporalist Value/Price Rate of Profit, Given the Law of Value & 20% Annual Growth of MELT

Year	p_{in}*	$C = c = VT = p_{in} \times SC$	$NV = s = TV - VT$	$TV = p_{out} \times CO$	**ROP = s/C**	$MELT_{out}$	$p_{out} = MELT_{out} \times v_{out}$	Rate of Inflation $(p_{out} - p_{in})/p_{in}$
1	5.000	320	160	480	**50.0%**	1.200	6.000	20.0%
2	6.000	480	240	720	**50.0%**	1.440	7.200	20.0%
3	7.200	720	317	1037	**44.0%**	1.728	7.975	10.8%
4	7.975	1037	415	1452	**40.0%**	2.074	8.294	4.0%

* The input price equals the prior year's output price. Year 1's input price is given.

Through Year 2, there is no productivity growth, so the value of corn remains constant. Thus the nominal price of corn increases at the same rate as the MELT, 20%. This is exogenous inflation, unrelated to productivity growth. Once productivity growth commences in Year 3, the exogenous 20% inflation persists, but the falling value of corn partially offsets this effect, causing the overall rate of inflation to decline. However, the MELT rises more rapidly than the value of corn falls, so the nominal price of corn rises continually; the overall rate of inflation remains positive.

Although the *level* of the nominal rate of profit is significantly greater than the level of the real value rate of profit given in Table 2, its *trend* is essentially the same. Both rates are constant through Year 2, and both fall once productivity growth begins. The reason why both rates of profit fall is that, as I stressed above, the rate of inflation falls both when the MELT is constant and when it increases at a constant percentage rate. That the price of corn falls in one case and rises in the other is irrelevant.

The exact relationship between the nominal and real rates is

$$1 + r_{nom} = (1 + g_m)(1 + r_{real})$$

where r_{nom} and r_{real} are the nominal and real rates of profit and g_m is the growth rate of the MELT. In Year 1, for instance, we have $1.50 = (1.2)(1.25)$, while in Year 4 we have $1.40 = (1.2)(1.167)$. This relationship holds true in all cases in which there is no fixed capital, and a similar relationship obtains when fixed capital is present. Thus, if the MELT increases at a more or less constant rate, the nominal price rate of profit will closely track the real value rate. Whether the *level* of the MELT is constant or not makes no difference.

6.2 An Implausible, Singular Case?

Veneziani (2004: 109, emphasis in original) also contends that "Kliman's (1996) conclusions may have some analytical support *only* in the implausible, singular case" assumed in my paper: the case in which the amount of living labor needed to produce a unit of output approaches zero over time. Although Veneziani calls this case implausible, *any other assumption implies that labor productivity cannot increase beyond a certain point*. If, for example, the amount of labor needed to produce a unit of output continually falls over time from 1000 hours to 1 hour, but cannot decline any further, then an hour of labor can never yield more than 1 unit of output—not now, and not at any time in the future.

This is precisely what Veneziani (p. 110) assumes in an attempt to prove that the temporally determined rate of profit approaches the physical "rate of profit" of the Okishio theorem. Labor productivity begins at $1/(l_1 + l_2)$, and asymptotically approaches $1/(l_1)$ over time. But it is never, ever allowed to exceed $1/(l_1)$. Putting the same point differently, Veneziani

assumes that the rate of growth of labor productivity declines continually over time and asymptotically approaches zero! It seems to me that this is the implausible, singular case. There is certainly no evidence that the level of aggregate productivity has ever run up against such an insurmountable barrier.

6.3 Capitalist Investment Criteria

Veneziani's (2004: 109) remaining objection (number 1) is that my 1996 paper assumed that capitalists are "compelled to invest according to a fixed rule, regardless of what happens to the price of output and to the profitability of investment." He does not elaborate further, and his point is unclear. If he is claiming that I assumed that capitalists introduce new technologies regardless of profitability considerations, he is incorrect. I employed the Okishio theorem's own decision rule: they introduce those new technologies that will boost their rates of profit if prices and the real wage rate remain constant (Kliman 1996: 219).

Yet Veneziani may be suggesting that if the rate of profit falls, capital accumulation will slow down, which in turn will cause the rate of profit to rise. This is quite possible, but it is difficult to see how it affects "the robustness of TSS results" (Veneziani 2004: 109). Slower accumulation causes a slowdown in productivity growth, and the latter slowdown is what leads to the subsequent rise in the rate of profit. There is nothing here to support the notion that the rate of profit is physically determined; once again, the rate of productivity growth and the rate of profit tend to move in *opposite* directions, contrary to what the physicalist critics of Marx claim to have proved. Moreover, the cyclical behavior of the rate of profit accords with Marx's law of the tendential fall in the rate of profit. As I discuss in a forthcoming book (Kliman 2006), Marx did not predict a falling long-run trend in the rate of profit. He argued that the falling tendency of

the rate of profit leads to economic crises, which in turn create conditions that cause the rate of profit to rise (see Marx 1991 , Ch. 15, esp. pp. 362-64).

7. Conclusion

Veneziani and Marx's other critics should do the right thing. That is, they should help set the record straight, by acknowledging, publicly and prominently, that the TSSI has disproved all of the "proofs" of internal inconsistency in Marx's value theory.

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Notes

[1] The interior quote is from Kliman and McGlone (1999: 43).

[2] Veneziani (p. 102) suggests that explanations which appeal to "observed, unexplained market prices" possess "little, if any, explanatory power."

[3] Recall that **p** is a vector of *market prices*, not prices of production. Hence uniform profitability cannot be assumed. It is indeed peculiar to assume that a steady state exists even though profit rates may be very unequal, but it is not my assumption. Veneziani is the one who has imposed it, in a failed attempt to discredit Marx's value theory by discrediting the TSSI.

[4] Since the profit rate, *r,* is the ratio of profit to capital advanced and $\mathbf{p}_t (\mathbf{A} + \mathbf{b_w l})$ is the vector of capital advances per unit of output, the right-hand-side of (3) is the vector of profits per unit of output.

[5] 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.

[6] If $A = B \times C$, the growth rate of A is approximately equal to the growth rate of B plus the growth rate of C. Since the level of prices equals the MELT times the level of real values, it follows that the growth rate of prices, i.e. the inflation rate, is approximately equal to the growth rate of the MELT plus the growth rate of real values.

[7] Even if the growth rate of the MELT does increase enough to cancel out the tendency of the nominal rate of profit to fall, it does not follow that the law of the tendential fall in the rate of

profit has been negated. It is possible, even likely, that some combination of rising government debt burdens and easy credit conditions is what is causing the accelerating growth of the MELT. In that case, I have suggested, the crisis tendencies that result from productivity growth have not been negated, but only displaced. Instead of crises in which goods cannot sell, or can sell only at reduced prices, we are likely to experience debt crises and fiscal crises of the state (Kliman 2003: 127-28).