Debunking Steve Keen on Marx

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1. Steve Keen's intervention in economics involves an attempt to refute Marx's concept of value. He produced a 100-page Masters Thesis on Marx's concept, in the early 1990s, that he later condensed into a series of academic journal articles and a chapter of his well-received book, *Debunking Economics: The Naked Emporer of the Social Sciences* (Keen 2001). Keen reproduces Ian Steedman's allegation of internal inconsistency in Marx's transformation of values into prices of production in Chapter 9 of *Capital III* (Steedman 1977: 29-49; Keen 2001: 281-86). Steedman's argument was widely taken to have put an end to Marx's concept of value in the 1970s.

Steedman directly follows Ladislaus von Bortkeiwicz's argument that Chapter Nine of *Capital III* is internally inconsistent because the prices of commodities leaving production are greater than the values of commodities entering production. He argued that, if inputs and outputs did not share the same prices, sales would not equal purchases and reproduction would breakdown. Steedman begins his representation of this argument by emphasising a "physical quantities approach" to his analysis. He provides the following representation of a three-department economy producing iron, gold and corn; iron and corn are measured in tons, gold in kilograms and labour in hours. For simplicity, $1 the equivalent of one hour of labour.

Table 1: Physical quantities

Dept.	Iron	Labour	Iron	Gold	Corn
Iron	28	56	56	—	—
Gold	16	16	—	48	—
Corn	12	8	—	—	8
Total	56	80	56	48	8

See: Steedman 1977:38.

Steedman derives the ratios of labour to iron, corn and gold and calls these ratios 'labour values'; denoted l_i, l_c and l_g. For instance, in the first row 56 hours of labour use 28 tons of iron to produce 56 tons of iron. Thus the 'labour value' of iron is: $28l_i + 56 = 56l_i$, or $l_i = 2$.

The 'labour values' of gold and corn are 1 and 4. The 'labour-value' of labour-power is derived by multiplying the means of subsistence, assumed to be 5 tons of corn, by its 'labour value': $v = 5l_c = 5(4) = 20$.

The total living labour is 80 hours, so surplus labour over the value of means of subsistence is: 80–20=60 hours. The rate of surplus-value can then be derived: $s / v = 60 / 20 = 3$, or 300%.

Steedman transforms Table 1 into 'labour values' by multiplying these values through the physical quantities columns. For instance, variable capital in each department is derived from the real wage. If the total real wage is 5 tons of corn, and this produces 80 hours of living labour, each hour is the equivalent of: $5/80 = 0.0625$ tons.

56, 16 and 8 hours are worked in the three departments, so real wages for each department are: 56(0.0625) = 3.5 tons   16(0.0625) = 1 ton   8(0.0625) = 0.5 tons.

'Labour values' are then derived by multiplying these real wages by the 'labour value' of corn: 3.5(4) = 14   1(4) = 4   0.5(4) = 2.

The total variable capital, or the value of labour-power, is 20.

2. Table 2 shows Steedman's physical quantities transformed into 'labour values': *c* is constant capital, *v* is variable capital, *s* is surplus-value = v(s/v) and *w* is the total value output = c + v + s. *Taking these as data*, we can derive further information: π is the average profit on investment = s([c + v] / [total c + total v]), *p* is the output's price of production = c + v + π, *s/(c + v)* is the value rate of profit and *π/(c + v)* is the average rate of profit.

Table 2: 'Labour values'.

Dept.	c	v	s	w	π	p	s/(c+v)	π/(c+v)
Iron	56	14	42	112	31.82	101.82	60.0%	45.5%
Gold	32	4	12	48	16.36	52.36	33.3%	45.4%
Corn	24	2	6	32	11.82	37.82	23.1%	45.5%
Total	$112	$20	$60	$192	$60	$192	45.5%	45.5%

Derived from: Steedman 1977:42 and Kliman 2007:150.

Table 2 is supposed to contain the internal inconsistency produced by Marx's concept of value. The clue for Steedman is that, "both iron and corn appear to have different exchange values when sold as output from when they are purchased as inputs". He continues: "This is nonsensical since sale and purchase are two aspects of the same transaction" (Steedman 1977:43-4). He concludes that inputs must also be given at prices of production so that both "aspects of the same transaction" are equal.

Keen elaborates this point by showing that when the iron industry buys means of production and labour-power to reproduce itself its cost-price will be: $28(101.82/56) + 3.5(37.82/8) = \$67.46$ in the next period. This leaves a *revenue* of \$34.36, which is \$2.54 greater than its *profit* of \$31.82 in this first period. "Clearly there is an inconsistency," Keen concludes from this difference. "What is supposed to be an equilibrium (and therefore stationary) turns out not to be stationary at all" (Keen 2001:285). To amend Marx's inconsistency, 'labour values' are discarded and Keen reproduces Steedman's equilibrium prices for iron, gold and corn, derived as ratios of physical quantities, which allow one set of prices to regulate the inputs and outputs of each department (Steedman 1977:45-7; Keen 2001:285-6).

3. Table 3 follows Andrew Kliman's refutation of Bortkiewicz, by introducing non-reversible, chronological time (Kliman 2007:149-52):

Table 3. Values.

Period	Dept	r	c	v	s	w	π	p	s/(c+v)	π/(c+v)
1.	Iron		56	14	42	112	31.82	101.82	60.0%	45.5%
	Gold		32	4	12	48	16.36	52.36	33.3%	45.4%
	Corn		24	2	6	32	11.82	37.82	23.1%	45.5%
	Total		$112	$20	$60	$192	$60	$192	45.5%	45.5%
2.	Iron	34.36	50.91	16.55	39.46	106.92	30.31	97.76	58.5%	44.9%
	Gold	18.54	29.09	4.73	11.28	45.10	15.19	49.01	33.4%	44.9%
	Corn	13.64	21.82	2.36	5.63	29.81	10.86	35.05	23.3%	44.9%
	Total	$66.54	$101.82	$23.64	$56.36	$181.82	$56.36	$181.82	44.9%	44.9%

Derived from: Steedman 1977:42 and Kliman 2007:150.

Inputs to Period 2 are the production prices determined in Period 1. The physical quantities of Table 1 haven't changed. The same quanties are consumed and produced, and the same hours are worked. But the value of iron has decreased to \$101.82 and corn has increased to \$23.64 (five tons of corn are required to reproduce labour-power and the remaining three tons are consumed by capitalists). Revenues, r, totalling \$66.54 remain after both constant and variable capital is advanced.

We saw, above, that Keen collapsed (or confused) revenue and profit and saw this as disrupting reproduction. But revenues are not profits; revenue is an entirely distinct concept. Revenues fund capitalists' consumption of total gold output and three tons of corn: they do not enter reproduction (Marx 1990:738). Profits are determined on the basis of the new value composition of capital and *not* the organic composition of the previous period, as Keen suggests. The increased value of corn necessarily changes the ratio of surplus-value to variable capital.

Keeping in mind that we're calling \$1 the equivalent of one hour of labour, surplus labour in Period 2 is $80 – 23.64 = 56.36$ hours.

The rate of surplus-value for Period 2 can then be derived: $s / v = 56.36 / 23.64 = 238.41\%$.

Both surplus labour and the rate of surplus-value have declined in Period 2 and less surplus-value is generated as a result. The average profit for the iron industry is derived by dividing its composition ($c + v$) by the total social capital (total c + total v) and expressing this ratio as a part of the total surplus value (total s): $56.36([50.91 + 16.55] / [101.82 + 23.64]) = \$30.31$.

The difference between profit in Period 2 and Period 1 is: $30.31 – 31.82 = –\$1.51$.

This doesn't indicate any inconsistency, but is consistent with the increased value of means of subsistence and, thus, the value of labour-power. The difference of \$1.51 simply expresses a decreased rate of surplus-value and, against Keen, has nothing to do with revenue.

Once capital has been advanced and revenue spent, the total social product has been reproduced. Total purchases in Period 2 are the total social capital (total c + total v) plus total revenue (r): $125.46 + 66.54 = \$192$.

This equals the total production price for Period 1: the total social capital invested plus the total profit (π): $132 + 60 = \$192$.

Finally, in Period 2 all sales equal their purchases:

Iron: (corn c + gold c) – (iron v + iron r) = (21.82 + 29.09) – (16.55 + 34.36) = $0

Gold: (iron r + corn r) – (gold c + gold v + 3 tons of corn) = (34.36 + 13.64) – (29.09 + 4.73 + 14.19) = $0

Corn: (iron v + gold v + 3 tons of corn) – (corn c + corn r) = (16.55 + 4.73 + 14.19) – (21.82 + 13.64) = $0

In other words, demand meets supply exactly. There is no excess value and, thus, reproduction cannot expand. The total social product has been bought and sold at production prices that diverge from input values. The model is stationary. There is no demonstrable inconsistency.

4. The transformation of values into prices is only a problem on the assumption that the prices of commodities entering production and prices of commodities leaving production, "are two aspects of the same transaction". But input and output prices inform two separate transactions made at separate points in time. The point of the production process is the augmentation of value. Marx notes that it would be nonsensical to invest capital if that capital value did not expand. Thus, the value that issues from the circuit of a capital is not equal to the capital value invested (c + v), but to the total value output (w); viz. the value that constant capital represents plus a new value that both replaces the variable capital and produces a surplus-value beyond this (c + v + s). Any *individual* capital is always under the condition of the total *social* capital. Competition among capitals distributes the total surplus value across individual capitals to give the average profit on investment (π). For instance, the iron industry produced a surplus-value of $39.45 in Period 2, but only realised a profit of $31.82. Competition with other capitals forced it to forfeit a value of $7.63. The addition of the average profit to the capital invested finally gives the prices of production paid for inputs in *the next period* (c + v + π).

Simultaneity suggests that inputs are bought at prices that their consumption and circulation have yet to generate. Prices are simultaneously generated for inputs and outputs. But this means that inputs are constrained to prices of production that logically cannot yet exist, *if we allow non-reversible time*. This renders a key aspect Keen's intervention into economics inconsistent. He both rejects simultaneity *and* follows Steedman in using this method in his attempt to refute Marx. "If economics is to have any relevance to the real world—if economics is even to be internally consistent—then it must be formulated in ways that do not assume equilibrium," Keen says. "Time, and dynamic analysis, must finally make an appearance in economic analysis" (Keen 2001:175). The exclusion of time and disequilibrium is a question of scientific method for Keen: "A theory may well draw power from 'unrealistic' assumptions if those assumptions assert, rightly, that some factors are unimportant in determining the phenomena under investigation," he says. "But it will be hobbled if those assumptions specify a domain of the theory and real world phenomena are outside that domain" (Keen 2001:153). Time is a "real world phenomena" that is outside the theory-domain given in the transformation problem. In its place, constant physical quantities and equilibrium prices are assumed.

Keen goes further. He scolds those interpreters of Marx that insist that time "make an appearance" and equilibrium be discarded. "The latest attempts [to refute the charge of internal inconsistency] argue that, since Marx's theory was actually dynamic rather than static, the transformation problem should be solvable in a dynamic model," Keen says, then immediately adds, "Nice try guys, but you really shouldn't bother" (Keen 2001:288). Is this not a classic example of moving outside an argument, if not into *ad-hominem*, when your opponent nulifies your claims? And yet Keen argues that temporal interpretations of Marx must have greater "relevance to the real world", given that they allows time to exist, than his own static interpretation. In other words, Keen must reject the first part of his own refutation of Marx.

Bibliography

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