

VALUES AND VALUE TRANSFERS: A COMMENT ON ITOH

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Itoh's essay provides a valuable retrospective on recent debates concerning the Marxian theory of value. He points out that the economic crisis enveloping both capitalist and socialist worlds from the 1970s onward challenged economists to rethink and refine their basic approaches. Among other things, this sparked a resurgence of interest in fundamental issues such as the theory of value. Thus, what appears as an abstract discussion is actually rooted in historical events, with political and economic implications for the current period (above, 53–54).

Itoh also emphasizes the importance of Sraffa's work in revitalizing the Marxist discussion of value theory. Sraffa's pathbreaking work provided a new platform for a critique of neoclassical economics, even as it "rehabilitated the objective theory of value" which is characteristic of the classical and Marxian traditions. But his narrow focus and elliptical style left open the question of the relation between his approach and that of more general economic frameworks. Not surprisingly, many of his followers set out to incorporate his unconventional approach into a more orthodox "neo-Ricardian" framework, in which the emphasis was on mathematical and functional analyses of equilibrium prices. Inevitably, this gave rise to a divergence between neo-Ricardian and Marxian writers (54–60). Two issues are highlighted by Itoh: the problems which arise with Marx's procedure for linking labor value and money price magnitudes (the transformation problem), problems which appear to undermine the Marxian claim that value magnitudes are the foundation of price magnitudes; and the claim that value categories are in any case redundant, since market prices actually gravitate around prices of production, not labor values (60).

In his survey of the debates around these two axes, Itoh makes many insightful comments and criticisms. He also presents his own solutions to certain key problems raised in the debates, such as those involved in joint production and heterogeneous labor. Here, though, I focus on the most basic issue: the transformation problem and its implications.

One difficulty with Itoh's presentation is that his survey focuses principally on works written before 1980.¹ This is problematic for two reasons: first, the literature on the subject burgeoned in the 1970s and 1980s; second, his pre-1980 focus presents some difficulties for my own commentary, since most of the arguments upon which I rely were advanced after that date, and are therefore not addressed by Itoh.² In what follows, I will begin with points of agreement, move on to the general nature of Itoh's proposed solution to the transformation problem, and then contrast it with my own alternative approach.³

One crucial point of agreement is that the transformation problem is an analytical issue, not a historical one. The real process of capitalist competition operates on actual market prices, not on prices proportional to labor values nor even on prices of production. A market price embodying a higher than average profit rate attracts a correspondingly more rapid influx of capital into the industry, until supply expands more rapidly than demand, pushing down the market price and hence the profit rate. As this occurs, the influx of capital begins to slow down until eventually supply grows more slowly than demand, and the price and hence the profit rate begin to rise. The overall process is one of perpetual oscillation, in which the industry's average rate of profit fluctuates around the social average, in what Marx calls "an anarchical movement in which rise is compensated by fall and fall by rise" (Marx 1972, 174-75; Shaikh 1984, 48-49). *There is never any state of equilibrium in which market prices "converge" to prices of production.* Thus prices of production never exist as such.

A second important point of agreement is that labor values are dimensionally distinct from prices of any sort, since the former are in hours of socially necessary labor time, while the latter are the forms of value expressed in money terms. Of course, this merely implies that in order to compare the "sum of values" (hours) with the "sum of prices" (\$), or "total surplus value" with "total profit," one must convert one set into the units of the other (Shaikh 1977, secs. IV-V; 1984, 43-44; Itoh 1980, 70-71; above, 61-62). This point is at the heart of our alternative approaches to the transformation problem. I will return to it shortly.

Prices of production function as the inner regulators of market prices. It is Marx's contention that labor values in turn regulate prices of production, just as surplus value regulates normal profit.⁴ To demonstrate this, Marx proposes to show that one can analytically derive prices of production by beginning from a situation in which prices are proportional to labor values and profits proportional to surplus value, and then redistributing profits among industries so as to achieve equal rates of profit. But Marx's procedure involves a well-known incompleteness, in that the prices of production he derives are themselves based on input costs still expressed in (prices proportional to) labor values. This deficiency was eventually remedied by showing that Marx's procedure may be thought of as the first step in an *iterative* process of calculation whose end result is exactly the "fully transformed" prices of production of Bortkiewicz or Sraffa (Itoh above, 60). Thus, in the end, prices of

production (and any other prices as well) are simply the expression of some redistribution of values and surplus values.

Completing Marx's transformation procedure demonstrates the link between his initial derivation of prices of production and the subsequent Bortkiewicz "simultaneous solution" method (Sweezy 1964, ch. V). But this does not directly address an apparently more intractable problem: in any full transformation procedure, one cannot maintain both the sum of prices and the sum of profits at their initial levels (i.e., at levels proportional to the sum of values and the sum of surplus values, respectively). Note that the transformation problem involves the comparison of two different sets of relative prices for a given set of products produced with a given set of material inputs, labor hours and consumption bundles for workers. Thus the surplus product is also given. As long as the system is in a self-reproducing state, i.e., in simple or expanded reproduction, the sum of prices represents the purchase price of the total product. Thus keeping the sum of prices constant when considering different sets of relative prices is tantamount to keeping the general purchasing power of money constant. But different sets of relative prices will yield different measures of (constant \$) money profit, even though the surplus product and hence the total amount of surplus value is unchanged. It therefore appears as if the amount of (constant \$) profit is in general independent of both the surplus product and surplus value. This is the central problem raised by the transformation question.

The same result obtains if we keep the general value of money constant instead. A given sum of money prices purchases the total output, in which the sum of labor values is materialized. The general purchasing power of money over labor value is defined by the ratio of the sum of the money prices of total output (\$) to the corresponding sum of labor values (hours). The reciprocal of this is what Marx defines as the value of money. Multiplying any sum of money by the value of money allows us to translate it into the general labor-value-commanded by this quantity of money. In this sense, the "sum of (translated) prices" of the whole product will always equal the sum of values of that product, regardless of what happens across any transformation procedure (i.e., whether or not the sum of money prices or money profits or any other sum is kept constant). But here too, as in the earlier case of a constant use-value purchasing power of money, the "sum of (translated) profits" will vary independently of surplus value, as relative prices change.

Tables 1A-2A in Appendix 1 illustrate the basic problem. Table 1A is identical to Itoh's Table 1 of produced labor values in a schema of simple reproduction (Itoh 1980, 75), while Table 2A is his Table 2 of money price of production translated into general labor-value-commanded by the value of money m .⁵ Although both tables have the same sum of prices, the sum of profits in Table 2 (175 hours) differs from the sum of surplus values (200 hours) in Table 1. This is solely the effect of different sets of relative prices applied to the same set of inputs and outputs. The question is: what is the import of this result?

On the surface, the above result seems to suggest that circulation can create or

destroy value, which contradicts the Marxist claim that value and surplus value are created only in production. For this reason, many Marxists have wrestled with this problem, coming up with a variety of answers (some of which are surveyed by Itoh). Itoh himself claims to have a new solution, which he lays out in his books (1980, 74-76; 1988, 220-26) and summarizes in his survey above.

In effect, Itoh switches the focus of attention away from the discrepancy between produced values and realized values (i.e., between Tables 1A-1B) to the identity of aggregate physical flows which is implicit in any self-reproducing state. In simple reproduction, for instance, every department must allocate particular physical quantities of materials and labor-power in order to produce particular physical quantities of products. The required quantities of materials lay claim to one portion of the total product. Given the consumption requirements of workers, the required quantities of labor-power determine a claim to yet another portion of the total product. What remains is by definition the total surplus product, and in simple reproduction this must be absorbed by the aggregate personal consumption of capitalists.⁶

As long as we are holding input-output and labor consumption coefficients constant (which is usually the case in the transformation problem), the structurally determined physical flows outlined above underlie both the value schema and also any corresponding price counterpart. This point is brought out in Tables 1B-2B, which depict the invariant aggregate uses of production under different valuation schemes. From what we have noted about the identity of central physical quantities across the two sets of tables, it follows that any (translated) money expenditure for materials $c_i x$ in Table 2B acquires commodities whose values are c_i in Table 1B; any money expenditure for labor-power $v_i y$ and hence for worker consumption (C_w^*), acquires quantities of consumption goods and hence labor-power whose values are v_i ; and the aggregate money expenditures for capitalist consumption C_c^* in Table 2B acquires goods whose value is C_c in Table 1B (which in simple reproduction is also the value of the surplus product, i.e., surplus value s).

Table 3 presents the "acquired" value quantities in more detail. The first two columns represent the labor values c_i and v_i of commodities purchased by money expenditures $c_i x$ and $v_i y$ respectively, as discussed above. The column for investment expenditures is blank because there is no investment in simple reproduction. So far this is merely a detailed representation of the mapping between Tables 2B and 1B. But the column for capitalists has a new element in it. As already noted, the physical quantity of capitalist consumption goods is the same regardless of the valuation scheme. Thus total capitalist consumption expenditures of 175 hours in Table 2B purchases goods whose value is 200 hours in Table 1B (which in simple reproduction is also total surplus value s). This is reflected in the column sum of the fourth column of Table 3. But the structural pattern of physical flows tells us nothing about the inter-departmental distribution of capitalist consumption. To derive this, we have (like Itoh) assumed that capitalist consumption in each department is derived from the department's profits. On this basis, each row in Table 3 represents the values of the

commodities purchased (acquired) out of the money revenues realized earlier by each department in Table 2A. The correspondence between aggregate sums in Tables 3 and 1 is a consequence of the assumption that the system is in a self-reproducing state.

Since in simple reproduction the whole surplus product is absorbed in capitalist consumption, the total value of capitalist consumption goods C_c = the value of the surplus product = surplus value = s . Then, and only then, the formula for value acquired through individual capitalist consumption $(p_i/p)C_c$ can also be written as $(p_i/p)s$. With this change, Table 3 immediately becomes Table 4—which is Itoh's table of acquired values in simple reproduction (Itoh 1980, 75: Table 3).

Itoh's focus on acquired values provides a valuable reminder that, as long as the system is in a self-reproducing state, different exchange-ratios attach different valuations to a largely unchanged set of physical flows (only the inter-departmental distribution of individual capitalist consumption is affected by relative price changes). However, some of the charm of his presentation fades when one notes, as he himself does (Itoh 1980, 76–77, and above, 62), that his particular mode of deriving the acquired values as the proportion of surplus value represented by each department's profits ($s_i' = (p_i/p)s$) is only generally valid in simple reproduction (see the discussion above and in the notes to Table 3).

Tables 7–9 illustrate this latter problem in the case of expanding reproduction. Tables 7A–B shows the production and the corresponding dispositions of the total product in value terms (scaled to make the mass of surplus value the same as before), while Tables 8A–B show the same physical flows in (translated) prices of production. It will be noted that in each case the use of department I-II's product now encompasses both replacement expenditures and expansion expenditures for constant and variable capital, while the portion of profit devoted to capitalist consumption expenditures is correspondingly restricted. Table 9 puts together all the relevant information to derive the values acquired through the expenditures of the money revenues of each department. As is evident from a comparison of column five (values acquired through the expenditure of profit) and column six (the proportion of surplus value represented by each department's profit, as in Itoh's procedure in Table 4 earlier), the procedure which Itoh uses to construct his simple reproduction tables does not carry over to expanded reproduction. The reason for this is fairly simple. In simple reproduction, each department's capitalist consumption, and thus its share of the value of surplus product acquired, is proportional to its profit. In expanded reproduction, capitalist consumption is still proportional to departmental profit, but now investment expenditures are proportional to the department's (circulating) capital advanced,⁷ so that a department's portion of the value of surplus product acquired is not proportional to its profit (except in the very special case in which each department has the same organic composition so that $c_i + v_i$ is proportional to s_i for each i —in which case there is no transformation problem in the first place!).

But the issue of the general formula for acquired values is not the important one.

In his own approach to the problem, Itoh is motivated by Marx's notion that since prices and profits are the money forms taken by value and surplus value materialized in production, "the true meaning and consistency of Marx's propositions" requires us to demonstrate "the equality between total value and total price, and [also] between total surplus value and total profit" (Itoh 1980, 73-74).

It is always correct to say that the money spent to purchase any commodity will purchase the value materialized in that commodity, so that the the money spent to purchase the surplus product (profit) will purchase the value materialized in this surplus product (surplus value). But, however illuminating this focus on acquired values may be, it does not really address the central issue raised by the transformation problem (or by comparison of any two schema with differing relative prices), as illustrated in Tables 1A-2A. Table 1A represents the production of value and surplus value. It also represents the realized value and profit flows when prices are proportional to values. Table 2A represents realized value flows when prices conform to prices of production. We may imagine yet other Tables 2A', 2A'', etc. in which prices reflect monopoly prices or market prices, etc. All of these tables will reflect the same surplus value, all will command the same physical product and surplus product, yet in each case the realized profit will be different, even though the underlying surplus value is the same. Itoh would be content to say that the varying amounts of aggregate realized profit in Tables 2A, 2A', 2A'', etc. would all purchase the surplus product and hence acquire an amount of value equal to surplus value. *But this would tell us nothing whatsoever about the determination of the magnitude of aggregate profit, which would be different in each case!*

Marx's claim is that profit is *derived* from surplus value. The analysis of acquired values tells us that (in a self-reproducing state) profit *purchases* the surplus product. These two statements are not the same. The central puzzle remains: given that surplus value is only transferred during circulation, how is it that aggregate profit can vary independently from aggregate surplus value merely because the mode of circulation varies?

In contradistinction to Itoh, I have long argued that it is precisely because prices and profits are the money forms of values and surplus values, respectively, that aggregate profit must generally deviate from surplus value when prices are not proportional to values. This is because Marx's claim that value is conserved in exchange⁸ necessarily implies that price-value deviations (with both prices and values expressed in common units) will bring about transfers of value which will cause profits to deviate from surplus value. Indeed, Marx himself remarks on this problem, during his analysis of price-value deviations arising within the theory of rent⁹:

This phenomenon of the conversion of capital into revenue should be noted, because it creates the *illusion* that the amount of profit grows independently of the amount of surplus-value. (Marx 1971, 347)

Let us first consider the general issue of transfers of value. Suppose region A

exports commodities having a value of 600 million hours for money having a value of 800 million hours.¹⁰ Region A then gains 200 million hours of value on its exports. If it also pays a quantity of money having a value of 1 billion hours (trade does not have to be balanced) for imports having a produced value of 700 million hours, then it loses 300 million hours of value on its imports. The overall effect is a net loss (negative net transfer) of value of 100 million hours for region A. To this there of course corresponds an equal net gain for the region's trading partners, taken as a whole. Note that, in calculating the net transfer of value, we must take into account transfers on both exports *and* imports.

Transfers of value are fundamental to Marxian analyses of intersectoral, interregional and international trade.¹¹ For our present purposes, they carry the important implication that the surplus value *realized* in a region is the sum of the surplus value produced there *and* the net (positive or negative) transfer of value brought about by price/value deviations of commodities traded. For region A, this means that its realized surplus value (the labor value of its aggregate profits, other things being equal) will be 100 less than its produced surplus value.

Marxists have generally failed to appreciate that this very same mechanism is the source of the famous discrepancy between produced and realized surplus value (if the sum of prices is held constant) or between produced and realized total value (if the sum of profits is held constant) within the confines of the transformation problem. To see how this works, it is useful to imagine that all sellers and buyers of commodities conduct their business through the mediation of a fictitious trading company which incurs no costs in the performance of its function. All flows will be in value or realized value terms, with the sum of prices held constant, as in the tables analyzed above. We will initially discuss simple reproduction, as in Itoh's own examples (Itoh 1980, 75).

Each department produces commodities worth a_i hours which it sells to the fictitious trading company for P_i dollars. Note that the exports of each productive department consist of its total output. The realized value received by any department will be P_i , the total price of production of its product. For each department, the net transfer of value on exports is therefore $(P_i - a_i)$. For all departments taken together, the net transfer on exports is zero (since $P = a = 875$).

But this does *not* imply that the net transfer of value between the productive sector and its customers (since the trading sector is only a go-between) will be zero. On the side of imports, each productive department imports constant capital of value c_i for which it pays $c_i x$ in value of money. It also imports labor-power of value v_i for which it pays $v_i y$ to workers. Note that in this latter case the transfer is between productive capitalists and workers (who in turn pay $v_i y$ to the trading sector for consumption goods (C_w^*) , having value v_i , effecting a parallel and opposite transfer between themselves and the trading sector). In simple reproduction, this exhausts the imports of the productive sector. The net transfer of value on each productive sector's imports is therefore $[(c_i + v_i) - (c_i x + v_i y)]$.

The overall net transfer of value to/from each department's circuit of productive capital $M_i-C_i-M_i'$ is simply the transfer on exports $(P_i - a_i)$ plus the net transfer on imports $[(c_i + v_i) - (c_i x + v_i y)]$. Since price $P_i = c_i x + v_i y + p_i$ and value $a_i = c_i + v_i + s_i$, it follows that each sector's overall transfer of value accounts for the difference between its profit and its surplus value, and that the same principle applies to productive capital as a whole:

Net transfer to/from the i^{th} circuit of productive capital

= Transfer on exports + transfer on imports

$$= [P_i - a_i] + [(c_i + v_i) - (c_i x + v_i y)] = p_i - s_i$$

Net transfer to/from the overall circuit of productive capital

= Total transfer on exports + total transfer on imports

$$= [P - a] + [(c + v) - (cx + vy)] = p - s$$

The above result tells us that the apparently mysterious difference between the labor value commanded by aggregate profit p and the corresponding produced surplus value s is *none other than the value transferred in/out of the circuit of capital during the circulation process*. The circuit of capital $M-C-M'$ is only one "region" in the overall circulation process, and as in all such cases, any transfers of value in or out of this "region" will make its realized surplus value deviate from its produced surplus value. Instead of being mysterious or damning, this result is a perfectly necessary and normal consequence of the fact that value is preserved during circulation under the conditions in question. Table 5 details this process for simple reproduction.

If the circuit of capital is only one "region" in circulation, what are the others? As Marx notes in his analysis of the schemes of reproduction, the overall circulation consists of entwined circuits of capital and circuits of revenue. Outside of the circuit of productive capital, we have the circuit of trading capital, and the circuit of revenue (personal consumption) of workers and of capitalists. We can exclude the trading sector from any net transfers of value, because as long as the whole product is sold (which is the condition of the present problem), its total exports exactly its total imports. We can also exclude the total circuit of revenue of workers, since the value of money $v_i y$ which workers receive as wages is then paid out to the trading sector for consumption goods $(C_w)_i$, whose value is $(C_w)_i = v_i$. Workers export their labor-power v_i for value of money $v_i y$, but then import commodities of value v_i for value of money $v_i y$. The net transfer for the class as whole is zero.

This leaves only the circuit of revenue of capitalists themselves. In simple reproduction, each department's capitalists expend funds p_i to purchase capitalist consumption goods $(C_c)_i$, whose value is $(C_c)_i$. For capitalist-consumers as a whole the total value of consumption goods C_c = the value of the surplus product = surplus value s . Unlike workers, who must sell their labor-power in order to consume, capitalists can consume by virtue of their ownership of the means of production. They import without having to export, because they draw upon the profits of the production sector for their consumption fund.¹² In this case the net transfer of value = value transferred on exports + value transferred on imports = $0 + (C_c - p) = (s - p) = -(p - s)$.

This amount is simply the dual of the previously discovered transfer of value of the circuit of productive capital. For the system as a whole, the net transfer is zero. *The deviation of aggregate profit from aggregate surplus value is explained by this transfer between the circuit of productive capital and the revenue circuit of capitalists-as-consumers.* Table 6 illustrates the transfers involving revenue circuits, and Appendix 2 diagrams the overall transfers in simple reproduction.

The above results can easily be extended to the case of expanding reproduction. Table 10 shows that the net transfers to/from the circuit of productive capital account for the differences between profits and surplus value in each department. Table 11 looks at the circuits which are not encompassed by the profit/loss circuit of productive capital. There are now three: two circuits of personal revenue, for workers and capitalists-as-consumers respectively, and the circuit of investment purchases, which in business accounting would show up in *capital* (balance sheet) accounts but not in the profit/loss (income statement) account upon which discussions of the transformation problem are normally predicated. As is evident, the overall sum of the net transfers in the revenue and capital accounts of Table 11 (16.44 hours) is equal but opposite to that in the profit/loss account of Table 10 (-16.44 hours).

The analysis can even be generalized to cover situations in which the economy is not in a self-reproducing state (in which case we must also account for stocks and flows of commodities and money). Moreover, it should be evident from the mode of analysis that the results apply to any type of prices, not just prices of production. The deviation between labor values and (the labor commanded by) market prices gives rise to exactly the same phenomena that have bedeviled the transformation debate, ones resolvable in the same manner. But the issue is even more general than that. If one were to compare prices of production with market prices or monopoly prices, then one would quickly discover that the latter would yield profit rates and masses which were different from those of the former, even when the sum of prices is held constant. Neo-Ricardian or neoclassical critics who insist that Marxian value analysis be abandoned because it yields magnitudes which differ from those associated with prices of production generally "forget" to follow through on this aspect of their own argument, for to do so would hoist them on their own petard (Shaikh 1981, n. 38).

Having established that price-value deviations pose no intractable theoretical difficulty for Marxian value theory, it is useful to inquire into their empirical significance. In comparing Sraffa-Bortkiewicz prices of production with labor values, it can be shown on theoretical grounds that the deviation between profit and surplus value, and between the uniform rate of profit and the value rate of profit, will be strictly limited in scope. When the system is in balanced reproduction, then the size of the deviation is inversely related to the system's rate of growth. A similar argument can even be made for individual price-value deviations (Shaikh 1984, sec. IV). But the empirical evidence is even more striking. Input-output estimates for the U.S. indicate that labor values account for about 85 percent of the structure of prices of production (as measured by the percentage average absolute deviation), that Marx's

own procedure for calculating prices of production (which can be viewed as a linear approximation) captures about 95 percent of the structure of fully transformed prices of production, that the overlap between aggregates such as the Marxian value rate of profit and the uniform rate of profit is greater than 96 percent, and that all empirically estimated aggregate wage-profit curves are virtually linear even when wage shares are relatively low and actual output proportions in the economy are very different from those of Sraffa's standard commodity (Shaikh 1984; Ochoa 1988). Comparisons to *market* prices reveal that labor values account for 88 percent, Marx's prices of production account for 87 percent, and fully transformed (Bortkiewicz-Sraffa) prices account for 86 percent. Recent theoretical and empirical investigations provide even more support for such a Ricardian-Marxian structural approach to the determination of prices (Petrovic 1987; Bienenfeld 1988).

The theoretical and empirical results outlined above cast an entirely different light on the long-standing debate about the determinants of prices of production and of price-value deviations. If our task is to understand how capitalist economies actually function, to show how their characteristic structure regulates their outcomes, and to analyze their real historical, technological, and inter-industrial patterns, then one could ask for no more powerful a foundation than Marx's theory of value.

APPENDIX 1: ACQUIRED VALUES IN SIMPLE AND EXPANDED REPRODUCTION

Simple Reproduction

Table 1A: Production of Value (hours)^a

Dept.	c_i	v_i	s_i	a_i
I	225	90	60	375
II	100	120	80	300
III	50	90	60	200
	375	300	200	875

Table 1B: Value of Total Use^b

Total Materials (c) = $\Sigma c_i = 375 = a_1$
Total Worker Consumption (C_w) = $\Sigma v_i = 300 = a_2$
Total Capitalist Consumption (C_c) = $\Sigma s_i = 200 = a_3$

a. Table 1A corresponds to Itoh's Table 1 (Itoh 1980, 75).

b. Table 1B shows the values of the structurally-determined uses of the total product implied by the physical flows in simple reproduction: each department purchases materials to replace those used up in production, with value c ; workers expend their wages on consumption goods, with value C_w (assuming workers do not save); and the capitalist class as a whole purchases, for personal consumption, the remaining product, of value C_c (this is the surplus product, whose total value is surplus value s).

Table 2A: Value Commanded by Production Prices (hours)^a

Dept.	$c_i x$	$v_i y$	p_i	P_i
I	252	84	84	420
II	112	112	56	280
III	56	84	35	175
	420	280	175	875

Table 2B: Value Commanded by Money Expenditures on Total Use^b

Total Materials (c^*) = $(\Sigma c_i)x = 420 = P_1$
Total Worker Consumption (C_w^*) = $(\Sigma v_i)y = 280 = P_2$
Total Capitalist Consumption (C_c^*) = $\Sigma p_i = 175 = P_3$

a. x and y are respectively the price-value coefficients for materials and worker consumption goods. Table 2A corresponds to Itoh's Table 2, with all money values translated into value commanded-in-exchange by multiplying them by the value of money, defined as the ratio of the sum of values (875 billion hours) in Itoh's Table 1 to the sum of prices (\$500 billion) in his Table 2 (Itoh 1980, 75). Itoh's notation has been retained, since rescaling does not alter any basic properties.

b. Table 2B is structurally analogous to Table 1B above; the only difference between them is the valuation attached to the physical flows.

Table 3: Values of Goods Acquired by Expenditure of Departmental Revenues (hours)^a

Dept.	Value of replacement materials (c_i)	Value of replacement labor-power (v_i)	Value of net investment	Value of capitalist consumption goods ($(p/p)C_e$)	Total value of goods acquired out of department profits ($(p/p)s$)
I	225	90	-	96	96
II	100	120	-	64	64
III	50	90	-	40	40
	375	300	-	200	200

a. Departmental total revenue P_i is spent on materials, labor-power, and capitalist consumption goods. We can always divide the first two into replacement expenditure and net investment (a positive or negative residual which is zero in simple reproduction). For structural reasons discussed in the text, the first two columns of Table 3 are identical to those of Table 1. Moreover, in simple reproduction capitalist consumption absorbs the whole surplus product, so the sum of elements in column 4 above [$\Sigma(C_e)$] will always equal total surplus value (the sum of column 5). The individual elements of column 4 are derived on the assumption that individual capitalist consumption expenditures (C_e^*), are equal to individual departmental profits p_i ; thus $(C_e^*)_i = (p/p)C_e^*$, while $(C_e)_i = (p/p)C_e$.

Table 4: Acquired Values (Itoh)^a

Dept.	c_i	v_i	s_i'	a_i'	$[s_i' = (p/p)s]$
I	225	90	96	411	
II	100	120	64	284	
III	50	90	40	180	
	375	300	200	875	

a. Table 4 reproduces Itoh's Table 3 (Itoh 1980, 75), which is numerically identical to Table 3 above only in simple reproduction, because only then does aggregate capitalist consumption absorb the whole surplus product, so that $C_e = s$ and thus $s_i' = (p/p)s = (p/p)C_e$.

Table 5: Simple Reproduction Transfers of Value within the Circuit of Productive Capital^a

Dept.	Transfer on exports ($p_i - a_i$)	Transfer on imports $[(c_i + v_i) - (c_x + v_y)]$	Net transfer (col. 1 + col. 2)	Profit - surplus value ($p_i - s_i$)
I	45	-21	24	24
II	-20	-4	-24	-24
III	-25	0	-25	-25
	0	-25	-25	-25

a. The numbers in this table are derived from Tables 1A and 2A above.

Table 6: Simple Reproduction Transfers of Value within Circuits of Personal Revenue^a

Dept.	Workers			Capitalists	
	Transfer on exports ($v_i y - v_i$)	Transfer on imports [[C_w] _i - $v_i y$]]	Net worker transfer (col. 1 + col. 2)	Transfer on imports [[C_c] _i - p_i]	Net capitalist transfer (-col. 4)
I	-6	6	0	12	12
II	-8	8	0	8	8
III	-6	6	0	5	5
	-20	20	0	25	25

a. Workers' transfers derived from Tables 1A-2B; capitalists' transfers derived from 2A-3.

Expanded Reproduction

Table 7A: Production of Value (hours)^a

Dept.	c_i	v_i	s_i	a_i
I	275.75	110.30	73.53	459.59
II	110.00	132.00	88.00	330.00
III	32.05	57.70	88.47	128.22
	417.81	300	200	917.81

Table 7B: Value of Total Use^b
($g = \text{growth rate} = 10\%$)

$$c' = (\Sigma c_i)(1 + g) = 459.59 = a_1$$

$$C_w = (\Sigma v_i)(1 + g) = 330.00 = a_2$$

$$C_c = s - (\Sigma c_i + \Sigma v_i)g = 128.22 = a_3$$

a. Table 7A corresponds to Itoh's (1980, 75) Table 1 for simple reproduction, modified for expanded reproduction at growth rate $g = 10\%$, and scaled so that s is the same (200 hours).

b. Table 7B parallels Table 1B above, for the case of expanded reproduction: in each period, each department purchases 10% more materials and labor-power than the previous period, while capitalist consumption absorbs the remainder of the surplus product.

Table 8A: Value Commanded by Production Prices (hours)^a

Dept.	$c_i x$	$v_i y$	p_i	P_i
I	303.18	101.07	101.07	505.31
II	120.94	120.94	60.47	302.36
III	35.24	52.86	22.03	110.14
	459.38	274.87	183.57	917.84

Table 8B: Value Commanded by Money Expenditures on Total Use^b

$$c'' = (\Sigma c_i x)(1 + g) = 505.31 = P_1$$

$$C_w'' = (\Sigma v_i y)(1 + g) = 302.36 = P_2$$

$$C_c'' = p - (\Sigma c_i x + \Sigma v_i y)g = 110.14 = P_3$$

a. Table 8A is the price of production equivalent of Table 7A (and the expanded reproduction equivalent of 2A above).

b. Table 8B is the price of production equivalent of Table 7B.

Table 9: Two Measures of Acquired Values (hours)^a

Dept.	Value of replacement materials (c_i)	Value of replacement labor-power (v_i)	Value of net investment $g(c_i + v_i)$	Value of capitalist consumption $(p_i/p)C_c$	Total value of goods acquired out of department profits (col. 3 + col. 4)	s'_i (Itoh) $(p_i/p)s$
I	275.75	110.30	38.61	70.59	109.20	110.11
II	110.00	132.00	24.20	42.24	66.44	65.89
III	32.05	57.7	8.98	15.39	24.36	24.00
	417.81	300.00	71.78	128.22	200	200

a. The principles behind the calculation of the elements of this table are described in Table 3 above.

Table 10: Expanded Reproduction Transfers of Value within the Circuit of Productive Capital^a

Dept.	Transfer on exports ($p_i - a_i$)	Transfer on imports [[$(c_i + v_i) - (c_i x + v_i y)$]]	Net transfer (col. 1 + col. 2)	Profit - surplus value ($p_i - s_i$)
I	45.72	-18.2	27.52	27.54
II	-27.64	0.12	-27.52	-27.53
III	-18.08	1.65	-16.43	-16.44
	0	-16.43	-16.43	-16.43

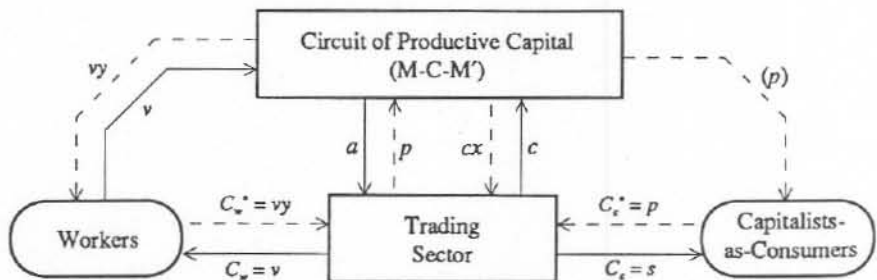
a. The numbers in this table are derived from Tables 7A and 8A above.

Table 11: Expanded Reproduction Transfers of Value within the Circuits of Personal Revenue^a

Dept.	Workers			Capitalists-as-Consumers		Investment	Net Transfers on Personal and Capital Accounts
	Transfer on exports	Transfer on imports	Net worker transfer	Transfer on imports	Net capitalist transfer	Net investment transfer	
I	-10.15	10.15	0	9.955	9.955	-1.820	8.135
II	-12.17	12.17	0	5.958	5.958	0.012	5.97
III	-5.32	5.32	0	2.17	2.17	0.165	2.335
	-27.64	27.64	0	18.083	18.083	-1.643	16.44

a. Workers' consumption occurs at the end of the production period, since we focus on transfers on the circulation of the product (the corresponding transfers on the acquisition of labor-power show up on the input side of the next round of production). There are no exports for capitalists-as-consumers, who consume out of "unearned income." Capitalists are assumed to consume out of individual departmental profits at the same rate as the class as a whole. The elements of each column are calculated as follows: col. 1: $(v_i y - v_i)(1 + g)$; col. 2: $[(C_w)_i - v_i y](1 + g)$; col. 3: col. 1 + col. 2; col. 4: $[(C_p)_i - (C_s^*)_i]$; col. 5: col. 4; col. 6: $[(c_i + v_i) - (c_i x + v_i y)]g$; col. 7: col. 3 + col. 5 + col. 6.

APPENDIX 2: AGGREGATE VALUE FLOWS IN SIMPLE REPRODUCTION



(Capitalists' personal revenue accounts are replenished by withdrawals from industrial sector profits.)

NOTES

1. Itoh lists some works written as late as 1984, but does not comment on them. This pre-1980 focus is most probably due to the fact that his essay here draws heavily on his own earlier work (Itoh 1980), as he acknowledges in n. 4.

2. In my case, his commentary is restricted to my very earliest writing on the subject (Shaikh 1977), and there only to the quantitative aspect of my iteration procedure.

3. I wish to thank Bruce Roberts for his illuminating and extremely helpful comments on an earlier draft of this note.

4. Prices of production regulate market prices by acting as their centers of gravity. But labor values regulate prices of production in a different sense: they form the foundation of production prices (which is the point of the transformation procedure) and also determine their dominant component (see Shaikh 1984, sec. IV).

5. As the universal equivalent, the value of money m is the *general* value commanded by money. Thus $m = (\text{sum of values})/(\text{sum of prices}) = (875 \text{ billion hours})/(\$500 \text{ billion}) = 1.75 \text{ hours}/\$$ from Itoh's Tables 1-2 (1980, 75). Multiplying all money quantities in Itoh's Table 2 by m gives our Table 2.

6. As we shall see shortly, individual capitalist consumption is not independent of pricing, because it depends on departmental profits which vary with relative prices.

7. We abstract from fixed capital throughout, since the issue here is independent of it.

8. Value is only conserved in exchange if demand and supply match (no realization problems), and if there are no changes in unit values. These are exactly the conditions of the transformation problem, where the issue is the impact of different modes of circulation on the relation between value and its money forms.

9. Ground-rent gives rise to its own form of price-value deviations, because even if we abstract from the difference between value and production price, in ground-rent the price (in value-commanded units) equals the value of output produced on marginal land, whereas value represents the average unit value of all the producers. Thus price differs from (average) value.

10. For example, it exports commodities for \$1.6 billion when the value of one dollar is 1/2 hour.

11. The recent debate over the concept of unequal exchange is an area in which the notion of transfers of value has played a crucial role (see Shaikh 1980).

12. Withdrawal of funds by capitalists for personal consumption does not show up in the income statement of the production sector, since that only tallies costs and profits, not the disbursement of profits. It would show up in a sources and uses account. But the discussion of production prices has always utilized input-output and cost-profit types of accounts.

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