Greenwich Political Economy Research Centre

PhD Lecture Series in Selected Topics

Post-Keynesian, Institutionalist, Feminist and Marxian Political Economy

Value and Price in Marxian Economics

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The Fundamental Question

- Consider a class society in which a surplus is produced
- Suppose this society is also a market economy in which the voluntary buying and selling of commodities is the norm
- Can we construct a theoretical account that at the same time
  1. demonstrates and explains exploitation?

  and

  2. understands competition and long run prices?
- The same issue put differently:
  – are Marxian theories of exploitation and competition compatible?

Adam Smith and the LTV

- "Early and rude state of society"
  - "precedes both the accumulation of stock [Smith's technical term for non-labour inputs] and the appropriation of land"
- Natural prices determined primarily by labour hours required for production of each commodity
  - implies mobility of producers
- An embodied labour theory of value
  - ratios of labour-times

    = corresponding ratios of natural prices

  - a primitive **"commodity law of exchange"**

Adam Smith and Price

- Long run level of price
  - determined through competition among producers
  - equalizes rate of return across all activities
  - called the ‘natural price’, a long run equilibrium price
  - different from ‘market price’
    - day-to-day fluctuations caused by all sorts of ephemeral and contingent factors
  - essentially postulate of **‘capitalist law of exchange’**

- What does the theory of value have to do?
  - determine the natural prices of commodities

Smith and Capitalism

- Suppose organization of hunting process takes capitalist form; capitalists
  - hire hunters
  - supply hunters with hunting implements
  - arrange for hunting on private land

- Then Smith's simple LTV became problematic
  - revenues from production have to cover more than wages
    - landlord requires a return on ownership of land: rent
    - capitalist requires a return on capital (invested in both labour and non-labour inputs): profit
      - mobility of capital in search of higher profit rates will also affect determination of natural prices

Smith's Second Theory of Price

- Faced with need to include rent, wages, and profit in his account, Smith abandoned his labour embodied theory

- Instead, proposed an adding-up theory
  - natural price of commodities explained by adding up labour costs, land costs, and capital costs
    - these costs evaluated at natural wage, rent, and profit levels

- Requires an independent determination of natural wage, rent and profit levels
  - but no such independent theory in Smith
  - hence enmeshed in circularity

Prices and Invisible Hand

- So Smith did not manage to work out a natural price interpretation of rent, wages and profit
- But very clear that differences between market price and natural price entailed quantity adjustments
  - account of market price fluctuations around levels determined by natural prices
- Invisible hand process was one of
  - continual adjustment towards an equalized rate of profit
  - continual displacement as technology and demand evolved
- Hence endless arbitrage process
- Natural price in effect the value substance underpinning market price
  - but once Smith had abandoned his embodied labour theory of value, he had no satisfactory theory of natural price levels

Genealogies of Price

- Smith's two theories of price were the ancestral foundations of all subsequent theories of price
  - contemporary neoclassical economics traces its genealogy back to Smith's adding-up theory
  - Smith's immediate successors focused on developing his embodied labour theory of value
- Both theories presume labour and capital mobility

Smith: A Balance-Sheet

- Smith's successes
  – a primitive commodity law of exchange
    - crude labour theory of value (ltv)
  – a more or less explicit capitalist law of exchange
    - definition of natural price
    - distinction of natural price from market price
    - arbitrage process (invisible hand)

- Smith's failure
  – couldn't apply ltv to a capitalist economy with means of production
  – couldn't reconcile
    - commodity law of exchange
    - capitalist law of exchange

Ricardo's Generalisation

- Ricardo generalised Smith's ltv to an economy in which 'stock' had been accumulated
  - prices were determined by

    labour actually performed (direct or living labour)

    \+ labour embodied in nonlabour inputs (indirect or dead labour)
  - assumed that different types of labour (different skills and intensities of work) could all be reduced to common standard unit
    - paid little attention to how this might be done
- Then, measuring in this common standard, we have "commodity law of exchange" applied to capitalist economy
  - relative prices determined by embodied labour ratios
  - for individual commodity:

    price = value (embodied labour) ÷ value of money

Ricardo's Problem

- Ricardo's prices were Smith's natural prices
- However, Ricardo soon discovered that
  - determining prices by embodied labour

  and

  - considering these prices as the 'natural prices' at which profit rates were competitively equalized

was not logically possible

Example

- Technology (in terms of per unit of output):
  - direct labour L_1 working with means of production
  - these means of production were produced one period previously, and only with direct labour L_2

- For capitalist
  - advance wL_2 at beginning of previous period
  - earning $wL_2(1+r)$ at end of that period
  - advance $wL_1 + wL_2(1 + r)$ at beginning of current period
  - earning $[wL_1 + wL_2(1 + r)](1 + r)$ at end of current period

Example (cont.)

- Consider 2 competing production processes, producing commodities *A* and B respectively
  - competition equalises rate of profit between the 2 processes
- Given the technology, price equations are

$$p_A = (1+r)[wL_{A1} + (1+r)wL_{A2}]$$

$$p_B = (1+r)[wL_{B1} + (1+r)wL_{B2}]$$

- Suppose A and B
  - are each produced by identical quantities of embodied labour:

    $L_A = L_B$ where $L_A = L_{A1} + L_{A2}$ and $L_B = L_{B1} + L_{B2}$

    $\Rightarrow$ identical values and hence natural prices
  - have production processes differently divided as between direct and indirect labour:

    $L_{A1} \neq L_{B1}$ eg $L_{A1} > L_{B1}$

Example (cont.)

- Then rate of profit accruing to each capitalist cannot be the same
  - rate of profit on capital invested in the production of B will be higher
  - this contradicts definition of natural price as supporting an equalized rate of profit

- Conversely, if the rates of profit *are* equalized, then prices that bring this about cannot reflect total labour embodied in production of each commodity
  - natural price of commodity A must be higher
    - because capital tied up for longer
  - this contradicts the embodied labour theory of value

Example (cont.)

- Prices:

$$p_A = (1+r)[wL_{A1} + (1+r)wL_{A2}]$$
$$p_B = (1+r)[wL_{B1} + (1+r)wL_{B2}]$$

- Ricardo's ltv:

$$\frac{L_A}{L_B} = \frac{p_A}{p_B}, \quad \text{or} \quad \frac{L_{A1}+L_{A2}}{L_{B1}+L_{B2}} = \frac{L_{A1}+(1+r)L_{A2}}{L_{B1}+(1+r)L_{B2}}$$

- Under what conditions does ltv hold? LHS has to equal RHS.
- How so?
  - $r = 0$

    not a capitalist society
  - time structure of labour embodied identical for A and B

$$\frac{L_{A2}}{L_{A1}} = \frac{L_{B2}}{L_{B1}}$$

in general this will not be true: ratios of means of production to labour (whether in use-value or value terms) will be different

$$\text{RHS} = \frac{L_{A1}+(1+r)L_{A2}}{L_{B1}+(1+r)L_{B2}} = \frac{L_{A1}\left[1+(1+r)\frac{L_{A2}}{L_{A1}}\right]}{L_{B1}\left[1+(1+r)\frac{L_{B2}}{L_{B1}}\right]}$$

$$\text{LHS} = \frac{L_{A1}+L_{A2}}{L_{B1}+L_{B2}} = \frac{L_{A1}\left[1+\frac{L_{A2}}{L_{A1}}\right]}{L_{B1}\left[1+\frac{L_{B2}}{L_{B1}}\right]}$$

Did Ricardo Find a Way Out?

$$p_A = (1+r)[wL_{A1} + (1+r)wL_{A2}]$$
$$p_B = (1+r)[wL_{B1} + (1+r)wL_{B2}]$$
$$\Rightarrow p_A/p_B = [L_{A1} + (1+ rL_{A2})]) \div [L_{B1} + (1+ rL_{B2})]$$

- Since problem was generated by different structures of production, maybe there is some commodity that has an 'average' structure of production
  - then its value determined only by total labour directly and indirectly embodied
  - so could be used as 'invariable standard of value'
    - invariable to changes in *w* and *r*
    - distributional relations could be analysed independently of prices
- Otherwise changes in *w* and *r* change relative prices
  - altering magnitude of net product and hence magnitudes of total wages and profits

Ricardo and Sraffa

- Ricardo never found what he was looking for
- Turns out to be rather complicated problem
  - for a given technique of production, Sraffa's 'standard commodity' generally considered to have solved Ricardo's analytical problem
  - but across different techniques no such invariable standard of value has been discovered
- Much contemporary empirical work in political economy supports Ricardo's conjecture (ltv 93% correct) that differences between natural prices and embodied labour ratios are not very large (Shaikh)
  - all such investigations rest on some particular measure of deviations of one relative price system from another
  - no agreement on any one method to measure these differences
  - result creates acute problem for notion of unproductive labour

Ricardo: A Balance-Sheet

- Ricardo’s successes
  - applied LTV to means of production
    - so a commodity law of exchange for capitalism
  - held on to both commodity law of exchange and capitalist law of exchange

- Ricardo’s failures
  - never considered the nature of the labour underlying LTV
  - had no notion of class other than as recipient of type of income
  - couldn’t resolve logical difficulties entailed in applying both commodity law of exchange and capitalist law of exchange

Marx's Corrections of Ricardo: How do We Understand a Commodity Theory of Exchange?

- Ricardo's LTV: source of value of a commodity produced is the labour expended in producing it
- Marx refines concept of labour
  - labour that produces value is
    - abstract rather than concrete
    - simple rather than compound
    - social rather than private
    - necessary rather than wasted
  - homogeneity of commodities as exchange-values reflects fact that production of any commodity requires a certain fraction of the total (abstract, simple, social, necessary) labour-time of society
    - exchange-value represents an amount of homogeneous social labour-time (abstract labour)
    - abstract labour appears as exchange-value (form of value)
- Since prices are expressed in monetary units, money expresses abstract labour
  - theory of value, theory of price, theory of money inseparable

Marx’s Corrections of Ricardo: Aggregation

- Marx often not explicit about level of aggregation
  - frequently explains aggregate behaviour of a system by discussing a typical or average element of it
    - when he writes about individual commodity, means typical, average commodity
    - whole of CI: written in terms of a typical or average capital, meaning aggregate capital (or scale model of aggregate capital)
- Marx alters location of LTV
  - reference is level of aggregate production of commodities (or the average commodity), and not in each particular commodity
  - to arrive at this, his exposition seemingly begins with an individual commodity
- Fundamental determinations thereby derived represent aggregate or average behaviour

Marx's Corrections of Ricardo: Conservation of Value

- Fundamental conservation principle of LTV:
  - in whole system of commodity production, value added is produced by labour and conserved in exchange
    - $\Rightarrow$ factors governing production of value added are quite different from those governing its distribution
- Marx represents this for the individual commodity as an assumption of equivalent or equal exchange
  - usual justification: to show capitalism is an exploitative system even if each commodity owner receives the full value of the commodity she sells
  - in the aggregate it is a conservation principle: value added is neither gained nor lost in the process of exchange
- At the individual level, equal or equivalent exchange poses the possibility of unequal or non-equivalent exchange
  - not in Smith and Ricardo
  - lies at the heart of Marx's resolution of the logical difficulties of combining commodity law of exchange with capitalist law of exchange

Fundamental Relation

- Marx begins with a commodity theory of exchange
  - simple labour theory of value
  - assumptions
    - labour mobility
    - equivalent exchange

p_i = unit price of commodity i

λ_i = unit value of commodity i

λ_m = unit value of unit of money

Then

$$p_i = \frac{\lambda_i}{\lambda_m}$$

Implications of the Fundamental Relation

$$p_i = \frac{\lambda_i}{\lambda_m}$$

- Conservation principle (value conserved in exchange) enables answers to 2 questions:
  - how much labour time does a £ represent? Equivalently, what is the value of money?

    value of money = labour value added ÷ money value added

    [dimension is hours per £]

$$\lambda_m = \frac{\lambda_i}{p_i}$$

  - how much value in £ does an hour of labour time create?

    monetary expression of labour-time (*melt*) = 1/value of money

    [dimension is £ per hour]

$$\frac{1}{\lambda_m} = \frac{p_i}{\lambda_i} = melt$$

Application to the Value of Labour Power

- Capitalist buys labour power for its price in £, called the wage (*w*)

$$w\,(\text{per hour}) = \frac{vlp\,(\text{per hour of labour hired})}{\lambda_{\mathrm{m}}}$$

so that

$$vlp = w\lambda_m$$

- If value conservation applies to all commodities individually, prices of commodities bought with *w* (wage-bundle of commodities) are determined in same way. Per hour:

$$\mathrm{w} = £\,(\text{wage-bundle}) = \frac{\text{value of wage-bundle}}{\lambda_{\mathrm{m}}}$$

- Assume workers do not save. Then substituting for *w* in $vlp = w\lambda_m$

$$vlp\,(\text{per hour}) = \text{value of wage-bundle (per hour)}$$

  - So *vlp* is value of consumption goods (‘wage bundle’) necessary to (re)produce LP; ie the value of the real wage

Application to Total Value Added

- Now apply basic formula to total net product *y*
  - price is **py**
  - value added is $\boldsymbol{\lambda}\mathbf{y}$
    - but total value produced = total number of (paid) hours worked *H*
  - so

$$\mathbf{py} = \frac{\boldsymbol{\lambda}\mathbf{y}}{\lambda_m} = \frac{H}{\lambda_m}$$

  - assumption of value conservation is here innocuous
    - in the aggregate actual losses and gains of value in exchange must sum to zero, because all losses are exactly matched by gains

- Social abstract labour is distributed across different production processes that together produce net outputs
  - prices are means by which this distribution is effected
  - prices are bearers of social labour time

Marx’s Macroeconomics

- On basis of equivalent exchange (conservation of value across exchange), Marx [in *Capital* I] analysed
  - how capital (any sum of money invested in order to make more money) creates surplus-value in the production process
  - how surplus-value creates capital as an accumulation process

- In modern terminology, a macroeconomic approach: all individual capitals
  - treated qualitatively as identical
  - differ only in quantity
    - any individual capital is representative of all capitals
    - ‘capital in general’

Capitalist Law of Exchange I

- Analysis of ‘capital in general’ sufficient to expose and analyse the most fundamental determinations
  – enables sharp focus on economic categories representing class
- But freedom of markets entails competition
  – individual capitals pursue highest profit on their investments
  – entails mobility of capital
    - in addition to previously presumed mobility of labour
- If capitals are perfectly mobile, competition must ensure an equalized rate of profit on average over repeated production periods

Capitalist Law of Exchange II

- Assume commodity law of exchange applies
  - labour mobility enforces uniform rate of surplus-value
- Assuming capital mobility means individuating capital-in-general into competing capitals
- Each will have a production process that typically differs in technology (ratios of non-labour to labour inputs)
  - some will be highly mechanized, employing very little labour
    - so producing very little new value
  - some will be very labour-intensive, employing a lot of labour
    - so producing a lot of new value
  - for the same investment, rates of profit must differ if the commodity law of exchange applies
- Therefore prices at which each capital would earn same *r* cannot be prices-proportional-to-values

Capitalist Law of Exchange III

- No reason to presume equalization of *r* is actually achieved
  - rather a tendency, continually disrupted by empirical contingency
- Prices at which *r* is equalized called *prices of production*
  - same as Smith's natural prices
- Determination of prices of production is the *capitalist law of exchange*

Consequences of Capitalist Law of Exchange

- Prices at which each capital would earn the same *r* (prices of production) ≠ prices-proportional-to-values
  - ⇒ exchange cannot be equivalent exchange; must be non-equivalent exchange
  - ⇒ value realized at prices of production in different sectors from where it was produced
    - competition among capitalist firms effectively (re)distributes surplus-value among the sectors of commodity production
- In the aggregate, value is conserved
  - same amount of labour in the aggregate is performed, whether or not there is equal exchange
- For each individual commodity exchange: unequal exchange
- Clear and meaningful framework that Ricardo (and Smith) never achieved
  - that said, we need to explore the detail

Does Capitalist Law of Exchange Apply Everywhere? I

- In the aggregate, value added is conserved
  - ∑[gains and losses of value added in exchange] = 0
  - value added is invariant to where it is produced: total number of hours of labour remains the same
  - this is the fundamental conservation principle of ltv
  - so capitalist law of exchange makes no modification to commodity law of exchange

- What does this mean for our understanding of prices?

Does Capitalist Law of Exchange Apply Everywhere? II

- Implications of conservation principle for prices:
  - prices distribute social labour across net output
  - they do differ in that distribution according to whether commodity exchange or capitalist exchange is considered
  - but what matters is only that there *is* a distribution

- Social division of labour allocates portions of social labour to production processes, through decentralized price mechanism
  - qualitatively, prices are always the bearers of social labour
  - quantitatively, total net output (evaluated at whatever prices are) must always = total hours worked at prevailing value of money
    - but what is the value of money?

Total Value Added and the Value of Money

- World has moved on since Marx's gold standard day
  - commodity theory of money is no longer applicable
- Use formula relating price and value of net product to redefine the value of money

$$\text{Since } \mathbf{py} = \frac{H}{\lambda_m^*},$$

$$\text{value of money} = \lambda_m^* = \frac{H}{\mathbf{py}} \text{ and } \text{melt} = \frac{1}{\lambda_m^*} = \frac{\mathbf{py}}{H}$$

- If **py** interpreted as *NNP,* and *H* is total hours worked, value of money (so redefined) is an operationalisable category

Does Capitalist Law of Exchange Apply Everywhere? III

- For each individual commodity, price of production (supporting an equalised rate of profit) must differ from money value
  - because of time-structure of embodied labour (Ricardo)
  - because of composition of capital (Marx)
- Now consider commodity labour-power
  - no capitalist production process for labour-power
    - no rate of profit earned on its production
    - no technology of production to consider
- So commodity law of exchange applies without modification

  wage rate = [*vlp* (per hour) ÷ value of money]

  - since value of money and the wage rate are both operationalisable categories, then so too is the *vlp* (per hour)

Does Capitalist Law of Exchange Apply Everywhere? IV

$$vlp = w\lambda_m^*, \text{ and since } \lambda_m^* = \frac{H}{\mathbf{py}}$$

$$vlp = \frac{wH}{\mathbf{py}} = \frac{W}{Y}$$

- So *vlp* measures
  - wage share of net output
  - proportion of total money value added that the working class receives in exchange for an hour of collective labour-power
    - share of social labour produced in an hour that goes to working class

- Net output that is not wages is profit, produced by working class but accruing to capitalist class; hence called surplus-value
  - proportion of net value that working class does not receive is due to exploitation

Does Capitalist Law of Exchange Apply Everywhere? V

- But for each individual commodity [except labour-power], price of production (supporting an equalised rate of profit) must differ from money value because of
  - time-structure of embodied labour (Ricardo)
  - composition of capital (Marx)
- Logical implication

  $\Rightarrow$ value of wage-bundle of commodities does not determine *vlp* and indeed *cannot* determine it

- But surely Marx says the opposite (*Capital* I ch.6)
  - much misunderstanding here

Value of Labour-Power I

- Consider the C-M-C circuit of the commodity labour-power (LP)
  - assume equal or equivalent exchange
  - no savings out of wages

$$\text{then in values: } vlp = w\lambda_m^* = \text{value of wage-bundle of commodities}$$

$$\text{and in prices: } \frac{vlp}{\lambda_m^*} = w = \frac{\text{value of wage-bundle of commodities}}{\lambda_m^*}$$

- What happens if assumption of equal or equivalent exchange *at level of individual commodity* is relaxed?
  - 1st equality remains true
    - LP *not* produced in a capitalist production process, so *unequal exchange does not apply*
  - 2nd equality is false
    - commodities purchased with wage *are* produced in capitalist production processes, so *unequal exchange does apply* and *vlp* ≠ value of wage-bundle of commodities

What Determines Wages?

- What then determines wages, if not the subsistence bundle of commodities?
  - subsistence floor
  - ‘moral and historical element’
    - class struggle over
      - construction of social norms
      - implementation of such norms
- All sorts of short-run fluctuations

- In long-run, *vlp* is cost of maintaining some socially determined standard of living, as a proportion of each hour of labour

  [multiply by the number of hours worked to calculate the labour-time equivalent of the whole wage (per day/week/month/year)]

Capitalist Laws: A Summary I

- Assume an economy where
  - capitalists as employers allocate social labour
  - labour and capital are perfectly mobile

- Principle of equalization of advantages of production tends to equalise wages, or more generally rates of exploitation (ratios of unpaid to paid labour)

  labour mobility $\Rightarrow$ Commodity Law of Exchange

- Principle of equalisation of *r* determines natural prices

  capital mobility $\Rightarrow$ Capitalist Law of Exchange

Capitalist Laws: A Summary II

- Commodity exchange combined with labour mobility entails an exact LTV for each individual exchange

  price = value ÷ value of money

- Capitalist exchange combined with capital mobility entails
  - LTV no longer exact for any individual produced commodity
  - LTV remains exact
    - for total value added (conservation principle)
    - in labour market (LP not a produced commodity)
- This is sufficient to explain (theoretically and empirically)
  - existence of exploitation
  - rate of exploitation
  - overall level of profits as unpaid labour
- Individual prices
  - remain qualitatively bearers of social labour
  - quantitatively diverge from labour values in all commodity markets (except market for LP)
    - capitalist exchange entails systemic non-equivalent exchange

Elaboration of Implications

- Non-equivalent or unequal exchange has implications for understanding competitive strategy
  - very large capitalist firms are small relative to
    - world economy
    - pool of world surplus-value
  - each makes negligible contribution to this pool through exploitation of its own workers
  - profitability of any firm rests on its ability to secure share of pool of surplus-value through its competitive strategy
    - extreme cases (land rents, intellectual property royalties, finance etc): appropriators of surplus-value may make no contribution at all to pool of surplus-value through production and direct exploitation of workers

Summary: LTV From Smith to Marx

- Smith
  - develops capitalist law of exchange
  - could only develop commodity law of exchange for simple noncapitalist economy, and so abandons it
- Ricardo
  - retains Smith’s capitalist law of exchange
  - develops commodity law of exchange for a capitalist economy
  - couldn’t reconcile simultaneous application of both laws
- Marx
  - retains Smith’s capitalist law of exchange
  - retains Ricardo’s commodity law of exchange
    - exactly for total value added and in market for labour power
  - shows how in all other markets unequal exchange of values is necessary for the simultaneous application of both laws
    - precisely how is what ‘transformation problem’ is about

From the 1890s to the 1970s

- So Marx shows how
  - in all markets, except the market for labour power, unequal exchange of values is necessary for the simultaneous application of commodity and capitalist laws of exchange
  - for aggregate value added these unequal exchanges sum to zero
- These issues were represented from 1890s to 1970s as
  - 2 coexisting systems (dualism):
    - underlying and invisible system of 'values' proportional to embodied labour coefficients
      - categories such as vlp and e (= s/v) interpreted in terms of this underlying system of values
    - phenomenal system of money prices
  - what is relation between value system and price system?
    - study of this relation constituted the 'problem of the transformation of values into prices of production' or 'the transformation problem'

Marx's Tableau I

- Mechanics of Marx's procedure

$$c_i + v_i + s_i = w_i$$

$$e = \sum s_i / \sum v_i$$

$$c_i/v_i \neq c_j/v_j \qquad \text{all } i, j$$

$$R = \sum s_i / (\sum c_i + \sum v_i)$$

$$p_i = (c_i + v_i)(1 + R)$$

- Properties of procedure

$p_i > \mathrm{w_i}$ if and only if $c_i/v_i > \sum c_i / \sum v_i$ and conversely

$$\sum w_i = \sum p_i$$

$$\sum s_i = R\,(\sum c_i + \sum v_i)$$

Marx’s Tableau II

- What are the constants applying across both the ‘value system’ and the ‘price system’?

1. total value added
   total surplus value
   total variable capital
   economy-wide rate of surplus value

2. total constant capital
   total price

3. average rate of profit for the economy

Is Marx's Procedure Correct? The Dualist Approach
Treatment of Constant Capital

- Procedure is incomplete
  - means of production sold at (unequal exchange) prices of production but bought at (equal exchange) prices
    - easy to correct, but cannot just apply the relevant output price of production to the relevant inputs, because all the invariances of the procedure will breakdown

- Procedure is inconsistent
  - Marx's formula for the general rate of profit is wrong

Is Marx's Procedure Correct? The Dualist Approach

Treatment of Variable Capital

- Variable capital =

  {*vlp* per hour * number of hours} ÷ value of money
- Hold value of money constant; number of hours is constant, so focus on *vlp*
- Assume *vlp* = value of the real wage, or wage-bundle of commodities (justification: *Capital* I ch. 6)
  - if output price of means of subsistence is transformed, then prices of wage-bundle of commodities must be transformed
  - consistency and completeness argument applies to all inputs
  - but then real wage will change
    - no reason for this; hence further correction needed
  - each correction causes feedback corrections; cannot proceed in this sequential manner

The Dualist Correction of Marx

- Procedure: solution of set of simultaneous equations

$$\mathbf{p} = (1 + r)\mathbf{pA} + w\mathbf{l}$$

$$w = \mathbf{pb}/H \quad (\text{where } H = \mathbf{lx})$$

- $\Rightarrow$ solutions for *r* and price ratios

- To move from price ratios to prices, need a 'normalization condition', but only one
  - possibilities:

total value = total price

or

total surplus value = total profit

or

something else

Implications of the Dualist Correction of Marx

- If total value = total price
  - then redistribution of surplus value does not work
  - notion of exploitation breaks down
- If total surplus value = total profit
  - then ltv holds neither for the individual commodity, nor for aggregate value added and total value
- But whatever normalisation is chosen, ltv redundant

  $\mathbf{p} = (1 + r)\mathbf{pA} + w\mathbf{l}$ $\qquad\qquad$ $w = \mathbf{pb}/H$

  - technology and the real wage solve for **p** and *r*
  - values are irrelevant, an unnecessary detour
- Only point of ltv: Fundamental Marxian Theorem

  $e > 0$ if and only if $r > 0$

  few if any implications for theory, empirical work, and practice

Summary: Dual-System Approach

- Mathematical investigation of relation between

  $\lambda = \lambda\mathbf{A} + \mathbf{l}$ and $\mathbf{p} = (1 + r)\mathbf{pA} + w\mathbf{l}$; $w = \mathbf{p}[\mathbf{b}/H]$

- Turns out to be impossible to reproduce invariances of total value of production, variable capital, surplus-value, rate of surplus-value and profit rate between the 2 systems

- Consequences
  - assert a meaning to value and its significance
    - (eg Sweezy) but arbitrary because of detachment from prices
  - abandon LTV and concentrate on analysis of prices
    - (eg Steedman, following Sraffa) critique of mainstream economics, but little to put in its place

What's Wrong with the Dualist Approach?

- Variable capital =

  {*vlp* per hour * number of hours} ÷ value of money
- Hold value of money and number of hours constant; focus on *vlp*
- Dualist argument was:
  vlp is the value of real wage (value of wage-bundle of commodities)
  - its value is vlp; its price is money wage
  - therefore real wage is held constant across transformation, and money wage changes
- This argument is wrong
  - *vlp* = value of real wage-bundle only when prices are proportional to values
  - whole point of transformation is to show that individual prices cannot be proportional to values
  - so real wage bundle **b** is irrelevant
  - confuses labour theory of value with assumption of equal exchange

Emphasising the Point Yet Again!

- When capitals have different structures of production/different compositions of capital, and the rate of profit is equalised, we must have unequal/non-equivalent exchange
- Then the following must be true (per hour)

1. w = price of wage-bundle (budget constraint, no saving)
2. price of wage-bundle ≠ $(1/\lambda^*_m)$(value of wage-bundle)
3. $w\lambda^*_{\mathrm{m}}$ ≠ value of wage-bundle

- How does unequal/non-equivalent exchange affect $vlp = w\lambda^*_m$?
  - labour-power is not a produced commodity
    - has no structure of production/composition of capital
    - is not produced for profit
  - hence no reason for unequal/non-equivalent exchange in exchange of labour-power for a wage. Hence

4. $vlp = w\lambda^*_m$

Marx Corrected I

- Marx was wrong not to transform the c_i
- *vlp* is
  - wage share of net output
  - proportion of total money value added that the working class receives in exchange for an hour of collective labour-power

- Marx holds *vlp* constant, and was right to do so

- Hence relevant equations are:

price equations: $\mathbf{p} = (1 + r)\mathbf{pA} + w\mathbf{l}$

vlp: $1/\{\text{vlp}\} = 1/\ \{w\lambda_m^*\} = \mathbf{py}/w\mathbf{lx}$

Marx Corrected II

- price equations: $\mathbf{p} = (1 + r)\mathbf{pA} + w\mathbf{l}$
- vlp: $1/\{vlp\} = 1/\ \{w\lambda_m{}^*\} = \mathbf{py}/w\mathbf{lx}$

- Procedure:
  - from price equations: $\mathbf{p} = w\mathbf{l}\ [\mathbf{I} - \mathbf{A}(1 + r)]^{-1}$
  - substitute in *vlp* equation, to derive scalar equation relating *vlp* to *r* for given **x**
  - show that $r = 0 \Rightarrow vlp = 1$
  - since RHS of scalar equation is an increasing function of r, then there is a unique *r* corresponding to any $vlp \leq 1$
  - with *r* determined, use price equations to determine **p**

Marx Corrected III

- What are the constants applying across both the ‘value system’ and the ‘price system’?

1. total value added
   total surplus value
   total variable capital
   economy-wide rate of surplus value
   all continue to be true, and
   surplus value redistributed by unequal exchange

2. total constant capital
   total price
   not true

3. average rate of profit for the economy
   not true

- By virtue of (1):
  ltv is a consistent and exact theoretical framework for empirical analysis, both operational and practical

Single-System Approach Taken Here

- What if you want to calculate values? (although why would you?)
- Better to pose these issues in terms of an 'inverse transformation problem'
  - take observed prices, output, and productive labour inputs as given
  - seek to recover abstract labour time embodied in commodities produced in each line of production
- Rates of exploitation of productive labour equalized across different sectors by mobility of labour. This
  - determines abstract labour time imputed to each sector of production
  - identifies the redistribution of surplus value between sectors in pattern consistent with economy-wide rate of surplus-value
    - but severe complications because of unproductive labour

Marx: A Summary I

- Combined commodity and capitalist laws of exchange
  - capitalist law of exchange has no effects on
    - relation between total hours worked and the price-form of total net value added
    - sale of labour-power for a wage
  - hence both laws together an expression of a class theory of exploitation
    - value of labour-power as fraction of social labour-time accruing to working class
    - aggregate profit as unpaid labour
    - rate of surplus-value as ratio of aggregates:
      - unpaid to paid labour
      - surplus-value to variable capital
      - profits to wages of productive labour

Marx: A Summary II

- More developed account of commodity law of exchange than Ricardo
  - paid considerable attention to labour in ltv
    - abstract and concrete labour; social and private labour
    - distinction between labour and labour-power
      - clear notions of class and exploitation
  - treated labour and capital in generic sense, as typical
    - hence, in effect, a macroeconomics of their relations
- More developed account of capitalist law of exchange than Ricardo
  - competition as systematic process of nonequivalent exchange
    - prices as bearers of social labour
    - realisation of surplus-value in locations different from locations of its production
    - space for development of productive and unproductive labour

- Distinction between value and price is window through which to understand inner nature of capitalist economy