Why the labour theory of value holds

Evidence and statistical laws

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Online talk to be given 22 May 2019
Outline

● What is the labour theory of value
● Why it is important in understanding exploitation
● How was it attacked
  ○ Subjective theory
  ○ Transformation problem
● What is the evidence for it
● What is the causal mechanism
● Answering new objections
What it says

1. The average *price* of a good will be proportional to the average amount of *labour* used to make it.

2. The *value added* in an industry will thus be roughly proportional to the *labour* it uses.

3. *Price* quantities are thus the indirect representation of underlying quantities of human *time*.
Lines of conservative attack

1. Prices represent different subjective valuations
2. Supply and demand curves determine prices
3. Labour theory of value inconsistent due to the ‘transformation problem’
   ○ This attack was pushed by Samuelson whose textbook was the most widely used introductory economics book in the US

Objections 1 and 2 I deal with in my video Epicycles in Economics
Scientific principles

A scientific theory must make predictions that can be put to observational test.

If it makes no predictions it is meaningless. If it can not be tested it is not scientific.

If it is testable, and if its predictions are born out by observation, then it should be accepted.

What about the Labour theory of Value?
How we test it

To verify it you need information on the money value of output of lots of industries and the labour content of the outputs of these industries.

If the money value is closely correlated with the labour content then the predictions of the labour theory of value are confirmed.
IO tables

We can obtain the necessary information from what are called Input Output tables for the economy.

All governments in the developed world publish such tables for their country.

Using these you can compute the direct and indirect labour use
Output money value is closely correlated to labour input

Chart shows the direct and indirect labour input of 40 UK industries as against the money value of their outputs.

The exceptions to the trend are the oil industry which earns super profits explained by the Ricardian theory of rent.

Results obtained from UK io table using the program labourValuation available from https://drive.google.com/drive/folders/1CBkWwqdO1OT0y2kcZ04JI45oulgt-Pn6?usp=sharing
## Results for other countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Number of Industries</th>
<th>Price/Labour Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>1995</td>
<td>85</td>
<td>98.6%</td>
</tr>
<tr>
<td>Sweden</td>
<td>2000</td>
<td>48</td>
<td>96.0%</td>
</tr>
<tr>
<td>USA</td>
<td>1987</td>
<td>47</td>
<td>97.1%</td>
</tr>
<tr>
<td>Greece</td>
<td>1970</td>
<td>35</td>
<td>94.2%</td>
</tr>
<tr>
<td>UK</td>
<td>1984</td>
<td>101</td>
<td>95.5%</td>
</tr>
<tr>
<td>Germany</td>
<td>1995</td>
<td>33</td>
<td>96.5%</td>
</tr>
<tr>
<td>France</td>
<td>1995</td>
<td>37</td>
<td>97.6%</td>
</tr>
</tbody>
</table>


Transformation Problem

Ricardo had not only assumed that labour content determined prices, but also claimed that the rate of profit in all industries will tend to equalise.

But if profit comes from labour, then labour intensive industries should have a higher rate of profit, contradicting Ricardo’s second assumption.

By the mid 19th century this was seen as a serious flaw of Ricardo’s theory and helped to discredit it.
Transformation problem

Marx claimed to have arrived at a procedure to transform labour values into profit rate equalising prices.

Marx’s procedure had, prima facie, a logical flaw which led to it being ridiculed by orthodox economists.

Samuelson went so far as to say that in order to transform labour values to prices all you needed to do was take an eraser and rub out all reference to labour from Marx’s argument.
Empirical test

Until the 1990s nobody tested to see whether profit equalising prices or labour values were closer to real world prices.

Once people started looking at the figures it became clear that profit equalising prices (Ricardo’s Natural Prices, Marx’s Production Prices) are not better than labour values in predicting real prices.

Zachariah’s multi-country multi-year study shows that sometimes labour values and sometimes production prices are better.
The key evidence

We think that there are three key pieces of empirical evidence that a verifiable theory of value needs to account for:

1. The strong correlation between the money value and labour content of industries’ outputs
2. Other inputs – oil, electricity, etc – show much weaker correlations
3. Rates of profit are lower in capital-intensive industries
1. Strong correlations

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Money value to labour correlation</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>2000</td>
<td>98%</td>
<td>Zachariah</td>
</tr>
<tr>
<td>Sweden</td>
<td>2000</td>
<td>96%</td>
<td>Zachariah</td>
</tr>
<tr>
<td>USA</td>
<td>1987</td>
<td>97%</td>
<td>Cottrell &amp; Cockshott</td>
</tr>
<tr>
<td>UK</td>
<td>1984</td>
<td>95%</td>
<td>Cottrell &amp; Cockshott</td>
</tr>
<tr>
<td>Greece</td>
<td>1970</td>
<td>94%</td>
<td>Tsoulfidis &amp; Maniatis</td>
</tr>
</tbody>
</table>

Many other studies by Shaikh, Petrovic, Frölich, etc
2. Other value bases do not work well

<table>
<thead>
<tr>
<th>Input</th>
<th>Money value vs Input content correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>19%</td>
</tr>
<tr>
<td>Chemical</td>
<td>47%</td>
</tr>
<tr>
<td>Fuel</td>
<td>54%</td>
</tr>
<tr>
<td>Energy</td>
<td>72%</td>
</tr>
<tr>
<td>Labour</td>
<td>96%</td>
</tr>
</tbody>
</table>

What this looks like

Note how the other inputs only produce a weak scatter not a linear relationship

This is even clearer on a linear plot
3. Profit rates low in capital intensive industries

Industries with a high capital to labour ratio have a low rate of profit.

If the rate of surplus value $s/v$ were constant, then the rate of profit will be small when $v/K$ is small.

Line $r_1$ is profit rate line under equal rate of surplus value.

Line $r_2$ is the equal profit rate line.

3. Profit rates low in capital intensive industries

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Line r1 is profit rate line under equal rate of surplus value.

Line r2 is the equal profit rate line.

Profit rate does not equalise

We expect profit rates to have some random dispersion, but the transformation problem assumes tendency for profit rates to equalise

- A strong assumption of all transformation problem attacks is that profits are uncorrelated with capital composition
- *In fact the reverse is the case!*
The cause

Econometric studies have shown that the labour theory of value is empirically true.

There remains the problem of explaining *why* it is true.

The answer came from applying the methods of statistical mechanics to the problem. (Laws of Chaos, Farjoun and Machover)
Farjoun and Machover’s theory
Their theory is probability based
Price to integrated wage ratio \( \Psi \) will be normally distributed as it is the sum of many independent causes. The mean of 1.5 is about what we found for the UK.
Bankruptcy zone

Any firm whose price/wage ratio is less than 1 will be trading at a loss and cease to exist.
Only a small % of firms are going bankrupt

In the pen and ink diagram I assume 2 standard deviations between 1 and the mean, Farjoun and Machover assume 3 standard deviations between 1 and the mean.
From this we can deduce the correlation

Assume less than 5% are operating in this region

Thus we can deduce that the standard deviation of the W must be low

→ Price highly correlated to labour content
Real data for Japan

Real data for Japan, computed by Zachariah, shows almost exactly the pattern predicted by Farjoun and Machover.

Similar patterns have been shown for all the OECD economies.
Example of modern Marxist Science

- Uses methods derived from physics and statistics
- Makes prior quantitative predictions
- Allows empirical testing
- Verified by the tests
Lessons

The basic hypothesis of the labour theory of value is strongly born out.

The value of output of an industry is >95% determined by the direct and indirect labour used to produce that output.

Thus the old argument of socialist economists from Gray to Marx, that profit is based on exploitation is justified.

Labour theory of value should be the basis of all socialist economics.