A Counterexample that becomes example and viceversa: or a sad history of prices unusefull to explain labor values

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Introduction

The article written by W. Parys (1982) that we will discuss here is a critique to Marxist theory that could be interpreted to the contrary: as an argument in favor of Marx. Parys criticizes the main Marxist explanation for the systematic discrepancies between labor values and production prices based on technical composition of capital in value terms. Instead Parys predicts discrepancies between labor values and production prices using technical compositions of capital vertically integrated in **production-price terms.** Pary's two main arguments are:

a) A mathematical demonstration that technical composition of capital vertically integrated always predicts correctly the sign of deviations between labor values and production prices.

b) A counterexample probing that the value composition of capital, the variable used by Marx, fails in at least one case to predict sign of deviations between labor values and production prices.

Then this is a critique that seems be both irrefutable and very well argued that way inaugurated by Ian Steedman of considering redundant and contradictory the Marxian theory of value. In this article I refute Pary's critique by showing that it exists at least other criterion than used by him to measuring value price discrepancies. According to my criterion, one side of Pary's critique to Marx is a numerical counterexample against himself and an example in favor of Marx. In the first section of the article I will outline the problem discussed by Parys and in the second part I will criticize his results.

Outline of the problem.

Both David Ricardo and Karl Marx were conscious of the fact that the prices of the commodities would **systematically** deviate from values by effects from what the conventional theory calls the different intensity of use of the capital in different industries. Marx (1981) argued that those branches with a technical composition of capital[1] superior to the average of the economy should sell their products "above their values" and the contrary should occur with branches whose technical composition of capital is below the average of the whole economy. An other source for systematic discrepancy between values and prices would be the private ownership of the nonproducibles means of production, such as oil wells or land for agricultural use: this is the problem discussed by Marx as land property rent. Piero Sraffa (1961)

[1] I use the technical composition of capital as the quotient of value of means of production divided by living labor.

analyzing the variations of relative prices of any two industries, caused by changes in the distribution of income, concluded that it was necessary to consider the integration of each branch with the whole economy. Parys proved that if the branch j has a technical composition of capital measured in production prices and vertically integrated θj is greater (smaller or equal) than of branch i; then the quotient price of production-value of the branch j will be greater than suchquotient in branch i. According to Parys, the technical composition θ_j, vertically integrated, in production prices, is sufficient to know the direction of the value price deviations.

Equation 1

$$\frac{p_j}{m_j} \overset{<}{\underset{>}{=}} \frac{p_i}{m_i} \Leftrightarrow \theta_j \overset{<}{\underset{>}{=}} \theta_i$$

The labor value **M** is defined as:

Equation 2

$$\mathbf{M} = \mathbf{MA} + \mathbf{L}$$

A is a square matrix (nxn) of which elements a_{ij} are the physical quantity of the merchandise i necessary to produce a unit of the merchandise j.

L is a row vector line with elements lj that are the quantity of simple labor needed to produce a unit of the merchandise j.

Production prices **P** are defined by:

Equation 3

$$\mathbf{P} = (1 + r)(\mathbf{PA} + w\mathbf{L})$$

P is a row vector of production prices,

r is the profit rate,

w is the wage rate.

θ_j is the vertically integrated technical composition and is defined below:

Defining the necessary gross production for the production of a unit of final demand in branch j by zj:

Equation 4

$$z_j = (\mathbf{I} - \mathbf{A})^{-1}\mathbf{u}_j$$

$\mathbf{u}_j$ it is a zero column vector except the term j that is equal to one, then:

Equation 5

$$\theta_j = \frac{\mathbf{PA}z_j}{\mathbf{L}z_j}$$

From an analysis of the previous expression, the vertically integrated technical composition of the branch j is the average technical composition of the economy that would produce one unit of final demand of the merchandise j. Besides proving the former statement, Parys presents to us a counterexample to prove that the technical composition of capital does not predict, always, the direction of value-price deviations.

Pary's counterexample

Consider that three commodities are produced. With previous definitions for **A**, **L**, **P**, and **M** in hand let see Pary's data and results:

$$\mathbf{A} = \begin{matrix} 0.5 & 0 & 0.4 \\ 0 & 0 & 0 \\ 0.5 & 0.6 & 0.4 \end{matrix}$$

$$L = 0.5 \quad 0.4 \quad 1.6$$

Parys adopts the merchandise 1 as the *numeraire* and supposes that the wage rate is 0.6 units of the merchandise 1. With the previous data we have the results in table 1:

Table 1 Merchandise			
	1	2	3
p_j	1	1.575	1.7
m_j	1	1.6	2
o_j	1	3	0.25
θ_j	1	0.9375	0.5

o_j is the technical composition of capital in labor value terms, θ_j is the technical composition vertically integrated in production price terms, p_j is the price of production of the merchandise j and m_j the corresponding labor value.

The technical composition of capital in value o_j is defined by:

$$o_j = \mathbf{MA}_j / l_j \qquad (6)$$

A_j is the column j of matrix **A**.

It can be seen from table 1 that, in branch 2, the price of production seems be under its value; while p_1 is on a par with m1 in spite of the fact that o_2 the technical composition in value of branch 2 (o_2 =3), is far greater than that of branch 1. However, the technical composition vertically integrated of 1 ($\theta_1 = 1$) is greater than that of branch 2 (θ_2 =0.9375). Parys's counterexample seems very conclusive: it proves that technical composition in value terms is not useful to predict the direction of value price deviations and illustrates that goal is achieved by using technical composition vertically integrated in production price terms. This could be an undisputable Pary's affirmation, logically impeccable, as well as a counterexample to Marx's assertion on value price deviation causes. Nothing more would be needed than to substitute Marx's own concept for Pary's vertically integrated technical composition of capital to understand value price deviations. We will see below that a very different reading of Pary's counterexample is possible.

II A Critique of W. Pary's Argument

There is an issue that leads to us to question the conclusiveness of Pary's results: The increases in prices in capitalism are made to increase, or at least to maintain, the profits of the industrial branches or of the companies. If prices were proportional to the values of commodities, considering that there are solely simple labor and a uniform wage rate; then the share of each branch in the total profits would be equal to its share in total employment. I will call the share of surplus of branch i in the total surplus s^*_i. It seems reasonable that if the branch i sells above its value its share in the total profit g^*_i should be greater than its share in the total surplus s^*_i. The contrary will occur when the branch i sells under its value. It is also reasonable to think that if the price of branch j is more distant from its value than the price of branch k

then $$g^*_j - s^*_j > g^*_k - s^*_k$$

In table 2 the shares of each branch in the surplus s^*_i and in the total profit g^*_i are presented in the example and with the prices calculated by Parys:

Table 2

	Surplus s^*_i	Share Profit g^*_i
1	20	23.4
2	16	36.8
3	64	39.8

where s^*_i is the share in total surplus if we consider a uniform surplus rate, defined by:

$$s^*_i = l_i x_i / \mathbf{LX} \quad (7)$$

X is a column vector of gross production in physical units. The share in the profit is defined by:

$$g^*_i = r(\mathbf{PA}_j + l_i w) x_i / r(\mathbf{PA} + wL) X \qquad (8)$$

Obviously branch 2 obtains much more surplus than branch 1; therefore it seems that its price of production is further away from its value than the price of production of branch 1. But according to Parys things occur in the very opposite way because $p_1/m_1 > p_2/m_2$. **Then we have two criteria for measuring distance between values and prices (or distance between different sets of prices).** If the criterion of increasing in profit sharing were the correct one and not that used by the Belgian economist, **then Pary's counterexample would be returned against his creator and it would serve as an example that Marx was right on this point**. It would correspond to what "Marx might have said" and would contradict Parys. Why do things turn out to be this way?

An analysis of the two criteria and the problem of exchange.

We have reduced the problem apparently to an arbitrary choice of a proximity value-price criterion: if the quotient price value, Pary's criterion, is chosen he would be right and not Marx. On the other hand by choosing our criterion, Parys would be wrong and, at least in the example, Marx would be right.

What is disconcerting in the result obtained from Pary's counterexample is that both criteria shuld not be different: if an industrial branch increases its price, it does so to seek greater profit. When there is only one branch which increases price both criteria are suitable; but when the prices of various branches change; because the different cost variations both criteria could diverge. Parys did not analyze this aspect of the problem, but Marx did it implicitly when considered that an industry with a high technical composition of capital had to obtain extra surplus value to reach the average rate of profit. Any branch that needs to appropriate surplus value must obtain more value than it delivers in the obligatory exchanges that it makes: the replacement of all its means of production. On the other hand Pary's criterion shows the result of the appropriating or losing value considering only pairs of commodities. So Parys deals, most of the cases, with logical operations but not with necessary exchanges. This helps us to understand the paradox of the two criteria in Pary's counterexample. When Parys concludes that the price of branch one is more distant from its value than that of branch two; strictly speaking this means that branch 1 would obtain extra surplus when exchanges with branch 2. In the analyzed case that could only occur when capitalist revenue is spent but this is beyond the perspective considered by Parys. In fact, for capital to reproduce the exchange between branch 1 and branch 2 is not necessary. On the other hand exchange between branches 2 and 3, is indispensable and in the said exchange branch 2 would benefit. This is reflected in the share of branch two in the profits with respect to its share in the surplus value. Branch 1 only replaces its means of production with its own production; this does not yield extra surplus value.

The share of any industry in profits is a good criterion for evaluating price movement success but the contrary is not true. The rising of prices is a mean for increasing profits; then the criterion I proposed, inspired by Marx, is better than Pary's criterion.

It can be said that Parys did not criticize Marx adequately since the criterion chosen by him is not unique nor the best. The previous reflection poses us with tree problems: a) That a mathematical demonstration such as that of Parys is limited by its economic correctness. b) The redundancy of the concepts in labor value is far from being sufficiently discussed. c) It is indispensable to analyze the demand side from another perspective than that of orthodox economics. Analyzing the spending of monetary income by capitalists is necessary to understand the paradox showed by the counterexample of Parys. In effect Pary's demonstration that relates the discrepancy value price to the vertically integrated technical composition is useless if the proximity criterion between values and prices chosen by him is not the best, economically speaking. Therefore, the analysis of Parys does not reinforce Steedman's position about the redundancy of value. That follows from our treatment of the problem inspired by Marx who basing his reasoning in terms of value proposed a criterion that seems be more useful than Pary's criterion to analyze the correspondence between labor values and prices. It seems to us that with this the issue of the redundancy of the value loses a battle.

References

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