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Artículo Completo

**The indispensability of quantifying the rate of profit in a
standardized way for the analysis of capitalism:**

**Application of the History of Economic Thought to the
analysis of the contemporary world**

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The indispensability of quantifying the rate of profit in a standardized way for the analysis of capitalism:
Application of the History of Economic Thought to the analysis of the contemporary world*

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PREFACE

Our intention in the present work is to propose a standardized method for measuring the profit rate (p) compatible with the measurement that Farina (2017)³ makes of the exploitation rate (sv) in his doctoral thesis. Statistics from national accounts standardized in international terms will be used, as in the aforementioned thesis.

To calculate sv , we started from the functional distribution of income. A ratio between its components was made with some corrections to its numerator and denominator, thusly, reaching a proxy rate of exploitation (or surplus value).

The contribution of the rate of profit to the analysis of the capitalist crisis is ignored by the orthodoxy and, at the same time, criticized and avoided by post-Keynesians and even by Marxists: "Marx's law of the tendency of the rate of profit to fall has been heavily criticized or ignored as an irrelevant explanation of crises in capitalism, both theoretically and empirically. The criticisms do not come from mainstream economic theory, which often completely ignores the role of profits in crises. They come in part from post-Keynesian economists who see «aggregate demand» as the engine of capitalist economies, not profit. But the biggest skeptics are in the ranks of the Marxist economists." (Roberts 01/23/2022)⁴.

THE DISCUSSION WITHIN MARXISM

The development achieved by Quantitative Marxism has rendered the demand for quantification unnecessary for Marxist analysis. Quantitative Marxism does not constitute a branch of Marxism but rather a theoretical framework so as to analyze society from different fields of study.

In order to analyze the capitalist society, its structure, configuration and dynamics, it is necessary to operationalize the marxist concept of theory of value. The quantification of phenomena is an indispensable methodological resource.

When implementing it, we must proceed with the identification of the structural components of the object of study, the critical evaluation of its conceptual implications and its degrees of validity, its transformation, and finally, its integration into a data matrix that enables an interpretation of the empirical evidence. (Farina-Brito Sabatini 2017: 2 and Farina 2017: 12)

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Some Marxist positions reject quantification. However, this is in stark contrast with the theoretical structure of Marx's work, which not only has a materialist, empirical root, but at the same time it is the precursor of several advances in applied mathematics in the 19th century. There, we encounter the reproduction schemes and the analysis of dynamic instability issues.

The relevance of this work must be evaluated on at least three fronts: first, within the historical-mathematical context, as a contribution to the debate that took place in the field of mathematics around the fundamental concepts of differential calculus throughout the 17th, 18th and 19th centuries, and in which Marx directly confronted the ideas of some of the main actors in the field, such as Isaac Newton, Gottfried Wilhelm Leibnitz, Leonhard Euler or Joseph Louis Lagrange; secondly, as an effort to understand and reinterpret the method of differential calculus in terms of the dialectical conception of the sciences, of history and of the entire universe, a purpose that runs through the entire author's work as a common thread; and thirdly, as an example of the extraordinary rigor with which Marx faced the tasks of research and production of knowledge, and as a reminder of his strict method of scientific work, without which all his work would have been reduced to mere philosophical speculation. On each of these fronts, Marx had independent, original and, for the time, novel contributions that went unnoticed by all but his closest friends and collaborators. [...] The rigorous mathematical treatment of factual data is dismissed as a mere technicality that supposedly neglects the "political" aspect of political economy; Instead, research is required to start from the so-called «principles», that is, general formulations (which, according to Marx, should be the end of the investigative process and not its «beginning»); and it is even possible to reject and condemn as "anti-Marxist" anyone who tries to do precisely what Marx himself indicated as correct: "begin with the real and concrete." These flawed procedures inevitably lead to a confrontation between, on the one hand, the formulations, the slogans, the speeches, and, on the other, the real facts, which, as has been stated more than once, are stubborn. and stubborn, thus refusing to toe the "party line." It goes without saying that, in this clash, it is not the facts that are harmed, since they have and will always have an objective and concrete existence regardless of whether or not they are taken into account. It is the speeches, the slogans and those who issue them, who, sooner or later, are impoverished, discredited and invalidated. And it is ultimately Marxism, in the name of which such speeches and slogans are made, the last and main victim. (Arribas García 2018: v Presentation and xxxvi Prologue to "Mathematical Manuscripts" by Marx)⁵.

In pursuing the optimal marxist variable, devised in the 19th century, we may lose the opportunity to empirically analyze the data which was gathered during the mid-20th century by the use of proxy variables. To avoid reducing Marx's work to mere philosophical speculation, we can use these proxy variables as they undoubtedly evolve in the same way as the original variables.

I have been telling Moore about a problem with which I have been racking my brains for some time now. However, he thinks it is insoluble, at least pro tempore, because of the many factors involved, factors which for the most part have yet to be discovered. The problem is this: you know about those graphs in which the movements of prices, discount rates, etc., etc., over the year, etc., are shown in rising and falling zigzags. I have variously attempted to analyse crises by calculating these UPS AND DOWNS as irregular curves and I believed (and still believe it would be possible if the material were sufficiently studied) that I might be able to determine mathematically the principal laws governing crises. As I said, Moore thinks it cannot be done at present and I have resolved to give it up FOR THE TIME BEING. (Marx 1873: Letter to Engels, Manchester, 31th May of 1873)

There are debates about the relevance of using existing data so as to be able to confront orthodox economists with the same tools.

Within this revival there was a strand which proclaimed anti- quantitative views with great vigour, in terms of both subject matter and methodology. This led to a tendency for marxist economists to develop an inward looking attitude, ignoring developments in the orthodoxy, although there were some influential theoretical critiques of orthodox economics and empirical analyses of the failure of the post-war boom.[...]The tools and data of orthodox analysis were not considered of any value or interest, since many Marxists would argue that the very attempt to capture the dynamics of capital

accumulation with statistical analysis and the available data was useless. [...] We believe that such anti-quantitative ideas are misplaced and indeed have been damaging to the development of Marxist economics, limiting its contribution to policy debate and to the Left in general. The increasing supply of empirical research techniques should be seen as an opportunity, rather than as something to ignore. They can be used to attack the orthodoxy in a positive manner in presenting alternatives and in influencing students and academics who only know the orthodoxy but are unhappy with its failure to explain most economic phenomena. (Dunne, 1991a: 2-3)

Quantification in Marxist terms should not face more difficulties than any other conceptual framework.

In any investigation, a transition develops between the theoretical and the empirical. This is how concepts are adjusted to reality.

Quantitative tools correct the way doctrine falls behind as a result of the delay in the publication of mathematical writings.

Thus, the data validates the doctrine and not the other way around, otherwise doctrine is imposed on reality, as if it were a Procrustean bed. The class analysis of society must be a consequence or conclusion and not an axiom or a priori postulate on which Marxist research is based.

THE INTERRELATIONS BETWEEN THE MARXIST VARIABLES: ORGANIC COMPOSITION OF CAPITAL, RATE OF PROFIT AND RATE OF SURPLUS VALUE

Competition leads capitalists (in search of extraordinary profits, even if they are only provisional) to invest in machinery, causing, ultimately, a drop in the value of the merchandise they themselves produce.

The need Capital has to sell at a lower price than its competitors, and cover a greater market share, implies a growing expenditure on constant fixed capital -machinery and infrastructure- that allows productivity to be increased and the individual value of merchandise to be reduced, including that of the labor force. The relative growth of constant capital occurs to the detriment of variable capital, intended for the reproduction of the workforce, the latter being the only source of profit. Capital thus finds its own internal limit. (Maito 2014: 252)⁶

Machinism increases to constant capital (K_c). This is unlimited. On the one hand, there are the technological improvements and once the available technological ceiling has been reached, more machines can always be acquired.

The increase in constant capital raises the organic composition of capital (OCK). The organic composition of capital represents the share of constant capital in total capital (K_c). Constant capital is past work crystallized in the value of machinery (or durable structures) and raw materials (or inputs) that are involved in production, resulting in merchandise⁷.

Let's start the analysis on the rate of profit:

$$p = \frac{SV}{K_c + K_v}$$

(1)

Multiplying the denominator and the numerator by the variable capital (K_v). Add and subtract the same term $SV \cdot K_c$ in the numerator.

$$\begin{aligned}
p &= \frac{SV}{K_c + K_v} = \frac{SV \cdot K_v}{K_v(K_c + K_v)} = \frac{SV \cdot K_c + SV \cdot K_v - SV \cdot K_c}{K_v(K_c + K_v)} = \frac{SV \cdot (K_c + K_v) - SV \cdot K_c}{K_v(K_c + K_v)} = \\
&= \frac{SV \cdot (K_c + K_v)}{K_v(K_c + K_v)} - \frac{SV \cdot K_c}{K_v(K_c + K_v)} = \frac{SV}{K_v} - \frac{SV}{K_v} \cdot \frac{K_c}{K_c + K_v} = \frac{SV}{K_v} \cdot \left(1 - \frac{K_c}{K_c + K_v}\right) = sv \cdot (1 - OCK)
\end{aligned}$$

SV is taken out as a common factor. Keeping the same denominator, it is separated in terms. In the first term, $K_c + K_v$ cancels out and in the second term, we separate the multiplication.

The common factor SV/K_v is taken out. We replace SV/K_v and $[K_c/(K_c + K_v)]$ by their equivalents sv and OCK respectively.

$$\begin{aligned}
p &= sv \cdot (1 - OCK) \\
(2)
\end{aligned}$$

The profit rate tends to fall. With oscillations but finally it is imposed by the actions of the so-called counteracting causes (Marx 1963):

- i) Increase in the degree of exploitation. The appropriation of surplus labor is increased by a raise in both absolute and relative terms of surplus value.
- ii) Low wages below the value of the workforce, that is, its level of reproduction.
- iii) Fall in the price of constant capital.
- iv) Relative overpopulation. Going to case "ii".
- v) Through foreign trade. Either by lowering the price of constant capital (case "iii") or by lowering the price of salary goods (case "ii", but without deteriorating the living conditions of wage earners).
- vi) The increase in share capital. In this way, they offset the low operating profits due to profits of financial or speculative origin from holding assets.

There are six limited counteracting causes, all, on one side, and the unlimited machinism -root cause of the fall- on the other. That is why the fall in the rate of profit prevails.

PROPOSAL FOR THE MEASUREMENT OF THE PROFIT RATE

Taking as a starting point the concept of functional distribution of income in national accounts, the theory of value should be capable of reconstructing data to account for —together with other elements— the rate of profit just as it would the aforementioned thesis with respect to the rate of exploitation.

While in principle there is no reason why Marxist national accounts could not be constructed, the large resource costs mean that the construction of direct statistical measures of Marxist categories

for capitalist countries is not a practical possibility. Thus the emphasis of Marxists researching in this area is more on the adjustment of orthodox data to represent Marxist categories [...]. While the ideal would be to have the resources to collect and process the data directly related to the Marxist categories, this is not practical. The best that can be done is to try to work with the available data, but to adjust it to try to obtain measures which are consistent. (Dunne 1991a: 8, 19).

In equation (3), we have the rate of profit where total capital was initially disaggregated into variable capital and constant capital. Now, constant capital breaks down into its fixed part (K_{cf}) and its circulating fragment (K_{cc}).

$$p = \frac{SV}{K_v + K_{cf} + K_{cc}} \quad (3)$$

Some variables of that equation were already estimated for the calculation of the rate of surplus value in Farina's thesis (2017 and 2019). The total mass of profit is considered equivalent to the total mass of surplus value, that is, to unpaid work.

$$\text{If } P = SV = 1 - Y_w - Y_M - D,$$

SV being the proxy variable estimated in Farina (2019). Considering the totality of the economy, we deduct compensation to employees (Y_w) minus mixed income (Y_M) and depreciation (D) is also deducted as total unpaid work. Thus, it is intended to find " ϕ " proxy variable of the Profit Rate " p "⁸.

$$p = \frac{SV}{K_v + K_{cf} + K_{cc}} \quad (4)$$

$$\phi = \frac{1 - Y_w - Y_M - D}{K_v + K_{cf} + K_{cc}} \quad (5)$$

Considering variable capital as the remunerated work $K_v = Y_w - Y_{PubAdm}$ (as part of the GDP) that is paid to the workers without taking into account the remuneration of the workers of the public administration⁹.

$$\phi = \frac{1 - Y_w - Y_M - D}{Y_w - Y_{PubAdm} + K_{cf} + K_{cc}} \quad (6)$$

On the other hand, K_{cc} is an approximate of intermediate consumption (C_i) always as proportions of GDP, the formula of the profit rate will be the following¹⁰.

$$\phi = \frac{1 - Y_w - Y_M - D}{Y_w - Y_{PubAdm} + SK_n + C_i} \quad (7)$$

Consequently, with respect to the rate of surplus value, it remains for us to consider the parts into which the constant capital is divided.

K_{cf} , as taken by Maito (2013), is the net reproductive *capital stock* (SK_n). The difficulty lies in how to arrive at that capital stock¹¹ that additionally requires the chronological profile of prices (INDEC 2003: 17), which makes its global standardization extremely difficult. We will revisit this topic later.

Regarding K_{cf} , it was established that an alternative was to use the Net Capital Stock of Depreciation or Productive Capital Stock (SK_n)¹², from which the difficulties of standardizing were exposed. Consequently, for homogeneity's sake the use of the Capital Stock calculations of the FED based in St. Louis was chosen¹³.

$$\phi = \frac{1 - Y_w - Y_M - D}{Y_w - Y_{PubAdm} + SK_n + C_i} \quad (8)$$

COROLLARY

Not only is it possible to measure from the Marxist perspective but it is also fundamental. Regardless of how the statistics are used under different hypothetical structures, this can be done without any major setbacks as in any other conceptual framework.

If we want to speak authoritatively about the course of capitalist society, it is not useful to talk about capitalist laws forged during the 19th century, if we cannot verify their present validity.

Quantification will reinvigorate action upon consciousness and reality. Therefore, Marxist concepts will serve as conclusions and not as immovable axioms or postulates.

Notes

1- * The collaborations of Alan Chokler and Martín Barrionuevo are appreciated. The translations of the texts in Spanish are the result of a collective effort between A. Chokler, M. Barrionuevo and the author of this text.

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3- The book resulting from this thesis can be downloaded free of charge from:
<https://t.co/fs9bwqRIE6>

4- Translation from the Spanish of the Author and Alan Chokler.

5- Translation from the Spanish of the Author and Alan Chokler.

6- Translation from the Spanish of the Author.

7- On this controversial point, as in Farina (2019: 125-148), Ernest Mandel's definition will be followed in his Spanish version of his "An Introduction to Marxist Economic Theory" (1967): "the volume of constant capital in relation to the whole of the capital" -Translation from the Spanish of the Author- y la de Paul Sweezy (1942: 66): "[...] is a measure of the relation of constant to variable capital in the total capital used in produvtn. [...]. Several ratios would serve to indicate this relation, but the one which seems most convenient is the ratio of constant capital to total capital" $K_c/(K_c + K_v)$.

There are definitions such as that of Salama-Valier (1973: 110) or another of Mandel (1969: 143), where based on volume III of "The Capital" of Marx they define it as the relationship between constant capital and variable capital.

The known incompleteness and a profound lack of correction of volume III is the source of the controversy. "The proposals of Sweezy (1942) and Mandel (1967) offer the advantage of giving us a variable that moves asymptotically between zero and one ($0 \leq OCK < 1$) instead of a variable that moves between zero and infinity" (Farina 2019: 139). -Translation from the Spanish of the Author-

On the other hand, the relationship between the rate of profit with the rate of surplus value and the organic composition of capital is not lost (Sweezy 1942: 91-93).

8- All variants are used in relation to the total GDP.

9- Can see the discussion on productive and unproductive work in Farina (2019: 77-84).

10- The components of constant capital could exceed the total output of the economy.

11- "[...] the capital stock is an aggregate measurement [...] in that it represents the total value of a heterogeneous set of use values, in this case durable production goods." (Müller 1998: 84) - Translation from the Spanish of the Author and Alan Chokler-

12- "Productive Capital Stock: to obtain this concept, the goods that remain in the gross stock must be depreciated (after netting the withdrawals from the accumulation of the investment series), according to the expected reduction in their efficiency over time. assuming normal use of the capital good or efficiency age profile." (INDEC 2003: 9). - Translation from the Spanish of the Author and Alan Chokler-

13- This brings us a minor problem related to the heterogeneity of the sources - the rest of the data comes from the United Nations.

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