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Elements for a Radical Inflation Targeting

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1. Introduction

The European Central Bank's primary objective is to maintain price stability, that is, "to preserve the purchasing power of the euro", and its quantitative target is a rate of inflation of two per cent over the medium term. Something almost identical is declared by Central Banks of the countries all around the world, with their target being a similar growth rate of the consumer price index (CPI) or, in the case of USA, of the personal consumption expenditures price index (PCE).

At the beginning of this century, the International Monetary Fund (Carson, Enoch and Dziobek 2002) published a book with a suggestive title, *Statistical Implications of Inflation Targeting: Getting the Right Numbers and Getting the Numbers Right*. Chapter 10, entitled *Price indices for inflation targeting* (Bloem, Armknecht and Zieschang 2002), discusses the need for a "second-generation approach" which proposes to replace the inflation target defined as the growth rate of the CPI with either the producer price index or the implicit GDP deflator.

The objectives of this document are as follows.

- Initially, to add arguments both from economic theory −which underpins the theory and practice of central banks− and from theory of index numbers, regarding the apparent convenience of adopting a second-generation approach as already suggested by Bloem, Armknecht and Zieschang (2002: 173).
- Moving away from orthodoxy and heterodoxy, highlighting the weaknesses of the notion of "price level" −and, as a consequence, of the theory and practice of Central Banks' inflation targeting. For the moment, suffice it to point out that in the corresponding entry of *The New Palgrave Dictionary of Economics* (2018: 10,698), it is concluded: "... a proper theory of the price level remains yet to be written."
- Making use of all of the above, propose a radical inflation targeting policy to improve the performance of Central Banks.

At the end of the document we present some critical notes emphasizing the ideological role of the current inflation targeting and its lack of theoretical sense.

2. The CPI from the perspective of measurement in economics

At least initially, data may be considered scientific objects if their accounting definition corresponds, weakly or strongly, to a theoretical definition −be it true or false−; because measuring instruments were used for their construction and to the extent that it is recognized they contain errors and biases

(Haavelmo 1944).[1] That said, Koopmans (1947) added an out-of-the-box case, synthesized in the title of his publication, *Measurement without theory*. The Nobel laureate exemplified his extreme case using the National Bureau of Economic Research's (NBER) business cycle dating. From any point of view, this case reflects a basic methodological flaw or, in other words, mere empiricism.

One hundred and fifty years ago Alfred Marshall (1886: 10-1) wrote the following:

> "A perfectly exact measure of purchasing power is not only unattainable, but even unthinkable. The same change of prices affects the purchasing power of money to different persons in different ways. For to him who can seldom afford to have meat, a fall of one−fourth in the price of meat accompanied by a rise of one−fourth in that of bread means a fall in the purchasing power of money; his wages will not go so far as before. While to his richer neighbour, who spends twice as much on meat as on bread, the change acts the other way."

The theoretical notion at stake is the unequal effect of price changes on the purchasing power of consumers with different incomes. From the point of view of neoclassical theory, the problem faced by any consumer −be she poor, very poor, rich or super rich, relatively speaking− is the substitution of goods and services as an attempt to remain on the same indifference curve, that is, to grasp the same level of utility at different prices. In the case of two or more consumers, the father of modern economics not only stated that an unbiased measurement of the change in their purchasing power is unattainable but unthinkable, that is, lacking theoretical sense. The background lies in the impossibility of comparing and aggregating the utility levels of two or more consumers (Persky 1998: 203). In the same vein, for Angus Deaton (1998: 44), Nobel Prize winner, the assumption of identical preferences among consumers, that is, the creation of the fictional character named representative consumer, constitutes a mere *artefact* in order to avoid the key question: "It is all very well to suggest that the CPI should move closer to a true cost-of-living index, but it would be wise to discuss whose cost of living we are talking about."[2]

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[1] For Boumans (2007: 4): "The reliability of measurement results can so be characterized by three features: 'invariance', 'accuracy' and 'precision'. 'Invariance' refers to the stability of the relationship between measurand, measuring system and environment. 'Accuracy' is defined as the 'closeness of the agreement between the result of a measurement and a true value of the measurand' (VIM, 1993, p. 24), and 'precision' is defined as 'closeness of agreement between quantity values obtained by replicate measurements of a quantity, under specified conditions' (VIM, 2004, p. 23). The difference between invariance, accuracy and precision can be illustrated by an analogy of measurement with rifle shooting, where the bull's eye represents the true value x. A group of shots is precise when the shots lie close together. A group of shots is accurate when it has its mean in the bull's eye. When during the shooting the target remains stable this is a matter of invariance."

[2] For Lavoie (2008: 9): "The word artefact carries several definitions. The most common definition, relevant to science, says that an artefact, or artifact, is a spurious finding caused by faulty procedures. It is a finding that does not really exist but that was created inadvertently by the researcher." And Boumans (2005: 121) warns us (*italics* and **bold** ours): "In order to evaluate economic policy, models are built and used to produce numbers to inform us about economic phenomena. Although phenomena are investigated by using observed data, they themselves are in general not directly observable. To 'see' them we need instruments, and to obtain numerical facts about the phenomena in particular we need measuring instruments… Woodward characterises the contrast between data and phenomena in three ways. In the first place, the difference between data and phenomena can be indicated in terms of the notions of error applicable to each. In the case of data the notion of error involves observational mistakes, ***while in the case of phenomena one worries whether one is detecting a real fact rather than an artifact produced by the peculiarities of one's instruments or detection procedures***. A second contrast between data and phenomena is that phenomena are more 'widespread' and less idiosyncratic, less closely tied to the details of a particular instrument or detection procedure. A third way of thinking about the contrast between

Typically the CPI is a price index *à la Laspeyres*. In the case of the Mexican CPI, for example, it is divided into 299 categories called item strata or "generic" (INEGI 2018: 7):

$$P_L^t = \frac{\sum_{n=1}^{N299} q_n^0 p_n^t}{\sum_{n=1}^{N299} q_n^0 p_n^0} = \frac{q^0 * p^t}{q^0 * p^0} \tag{1}$$

Using the relative price definition, we rewrite (1) like this:

$$r_N^t = \frac{p_n^t}{p_n^0} \tag{2}$$

$$P_L^t = \frac{\sum_{n=1}^{299} q_n^0 p_n^0 r_n^t}{\sum_{n=1}^{299} q_n^0 p_n^0} = \sum_{n=1}^{299} \frac{q_n^0 p_n^0}{x^0} r_n^t = \sum_{n=1}^{299} s_n^0 r_n^t \tag{3}$$

Equation (3) shows why a CPI can be understood as a weighted sum of relative prices, with the weights (s_n^0) being the share in the base period of households' spending, in plural, destined to the purchase of each good and service. Consequently, Prais (1959) called the aggregation method based on spending averages *plutocratic*, and, more recently, Mary Kokoski (2013) −a Bureau of Labor Statistics (BLS) researcher− summarized this characteristic as follows: "one dollar, one vote".[3]

The fact that the CPI is an index number *à la Laspeyres* implies that the weights correspond to the base or reference period. Thus, the delay in updating it causes a variety of biases. For example, consumers stop buying expensive goods and services that are replaced by others that are relatively cheaper −and the same with respect to points of purchase. In this case, the gap between the true value and the estimated value of the price index causes the substitution bias.

While the BLS recognizes that the theoretical foundation of its CPI is orthodox consumer theory, the Mexican Statistical Institute (INEGI 2018: XV) asserts that the CPI is "merely" the monitoring of the prices of a basket of goods and services representative of households. By the way, the same narrative can be found on the Eurostat web portal. In contrast, Groshen et al. (2017: 188) −attached to the U.S. compilation agency− point out that the COLI approach serves "as the unifying framework and is the standard by which the BLS defines any bias."

Theoretically speaking (National Research Council 2002), the BLS approach represents an economic perspective −which assumes a constant level of utility− called COLI (cost-of-living-index), and the INEGI approach an "empirical" one known as COGI (cost-of-goods-index). Noticeably, deliberately ignoring the microeconomic foundations −as many statistical institutes do− represent a modern case of measurement without theory. Its purpose is a futile attempt to refuse the existence of measurement errors and biases.

To document the "indifference" of the statistical makers, it is enough to quote the International Labor Organization of the United Nations, the agency responsible for the international manual at stake (ILO et al. 2004: chapter 11 point 11.66):

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data and phenomena is that scientific investigation is typically carried on in a noisy environment, an environment in which the observations reflect the operation of many different causal factors."

[3] In a footnote, Prais (1959: 127) wrote the following: "The reader is advised to banish from his mind, if he can, the equations: democracy=good, plutocracy=bad."

> "Statistical agencies have been reluctant to provide their own estimates of CPI bias. In some cases, they have accepted the existence of substitution bias, recognizing that the use of a Laspeyres formula implies that the CPI usually will overstate price change relative to a cost-of-living index. Statistical agencies have, however, been reluctant to draw even qualitative conclusions from the fragmentary and speculative evidence on quality change, new products and new outlet bias."

Oddly enough, the Mexican Statistical Institute (INEGI) pointed out −using information from more than ten years ago due to the disappearance of the survey that serves to establish the weights (the ENGASTO survey in Spanish) in the Mexican CPI− that its most recent "update" removed the substitution biases (2018: 8 and 23, *italics* ours):

> "Representativeness in economic terms is achieved with a basket of goods and services that reflects the consumption patterns of an *average household* in the country; comparability over time requires that the measurement of the evolution of prices be carried out with respect to a base period of comparison. To guarantee the two qualities and generate a price index *without bias*, the content of the basket of goods and services was updated based on the consumption pattern of Mexican households that was obtained from the latest available expenditure surveys: ENGASTO 2012 and 2013, and ENIGH 2014… With the update of the expenditure weights, not only are international recommendations met, but it is also guaranteed to maintain the representativeness of the basket and *the bias due to the oldness of the weights and the bias due to the substitution effect are avoided*."

As detailed by the ILO et al. (2004), biases are varied −due to the substitution of goods and services and points of purchase, quality changes, the introduction of new products, etc. The interesting thing here is that, leaving aside the negative bias due to deteriorations in the quality of goods and services, in the rest of the cases these are "upward" biases, which typically cause an overestimation of "inflation". This has led central banks −out of self-interest− and non-public agencies to carry out research to estimate biases and call, with evidence in hand, for statistical institutes to improve their statistical work −among others, Moulton (2018), Feldstein (2017), and Sabourin (2012).

3. A phantasmagorical notion called the "price level"

We reviewed a good number of orthodox and heterodox articles and textbooks in order to find a theory or, at least, a definition of "price level". Our search was fruitless −it constitutes, in other words, a phantasmagoria of vulgar economics.[4] For example, only six times did Keynes (1939) write the words "price level" in his magnum opus. On page 3 of the preface to the French edition, we read the first mention:

> "I have called this book the General Theory of Employment, Interest and Money; and the third feature to which I may call attention is the treatment of money and prices. The following analysis registers my final escape from the confusions of the Quantity

[4] For Benjamin ([1982], 2002: 669): "The property appertaining to the commodity as its fetish character attaches as well to the commodity-producing society−not as it is in itself, to be sure, but more as it represents itself and thinks to understand itself whenever it abstracts from the fact that it produces precisely commodities. The image that it produces of itself in this way, and that is customarily labels as its culture, corresponds to the concept of phantasmagoria." For Marx ([1872], 2011: 99, 372 and 657-8), vulgar economics is superficial and plagiaristic, ignorant, and mystifying and apologetic.

> Theory, which once entangled me. I regard the price level as a whole as being determined in precisely the same way as individual prices; that is to say, under the influence of supply and demand. Technical conditions, the level of wages, the extent of unused capacity of plant and labour, and the state of markets and competition determine the supply conditions of individual products and of products as a whole. The decisions of entrepreneurs, which provide the incomes of individual producers and the decisions of those individuals as to the disposition of such incomes determine the demand conditions. And prices, both individual prices and the price level, emerge as the resultant of these two factors."

Neither in the previous paragraph nor in the other five mentions of the "price level" do we find an explicit definition, let alone a theory. We chose Romer (2001) and Walsh (2003) as orthodox macroeconomics textbooks. In Romer (2001), from chapter 5 and extensively in chapter 10 −dedicated to monetary policy− the aggregate supply and demand model is discussed; the letter *P* relative to the "price level" is made explicit, but it is not defined either. In Walsh (2003) −the bedside book of central bankers− the "price level" is repeatedly brought up without making its theoretical content explicit.

A horrible example is the following. Milton Friedman −the former advisor to the dictator Pinochet (Klein, 2007), who received the Nobel Prize just three years after the coup d'état in Chile− wrote (1956: 3):

> "The quantity theory of money is a term evocative of a general approach rather than a label for a well-defined theory. The exact content of the approach varies from a truism defining the term 'velocity' to an allegedly rigid and unchanging ratio between the quantity of money −defined in one way or another− and the price level −also defined in one way or another."

We must point out, in the first place, that the Nobel laureate's assertion that the quantity theory of money does not refer to a correctly defined theory but evokes a general perspective contradicts the title of the book itself (*Studies in the Quantity Theory of Money*). In short, the ambiguous tone does not fit into a theoretical discussion. Secondly, and all the worse, the quote talks about different definitions of the "price level", but throughout the book we do not find a single one.

Last example. For Fisher ([1911], 1922: 18-9 and 15, *italics* ours):

> "The purchasing power of money is indicated by the quantities of other goods which a given quantity of money will buy. The lower we find the prices of goods, the larger the quantities that can be bought by a given amount of money, and therefore the higher the purchasing power of money. The higher we find the prices of goods, the smaller the quantities that can be bought by a given amount of money, and therefore the lower the purchasing power of money. In short, the purchasing power of money is the reciprocal of the level of prices; so that the study of the purchasing power of money is identical with the study of price levels… We have found that the general level of prices is determined by the other magnitudes in the equation of exchange. But we have not hitherto defined exactly what a 'general level' may mean. There was no need for such a definition so long as we assumed, as we have usually done hitherto, that all prices move in perfect unison. But practically prices never do move in perfect unison. Their dispersion would render impossible the statistical study of general price movements were there no practical method of indicating the general movement. A simple figure indicating the general trend of thousands of prices is a great statistical convenience.

> It also simplifies our equation of exchange by converting the right side, which now consists of thousands of terms, into a single simple term… *Such an indication is called an 'index number' of the price level. Its reciprocal indicates, of course, the purchasing power of money*."

It seems that Fisher ([1911], 1922) hit the nail on the head but did not do so since he confused a theoretical definition (the price level) with the measuring instrument −an index number. By the way, Irving Fisher is also co-responsible for another imprecise expression, namely "purchasing power of money".[5] In the following sections we will delve into these two mistakes.

4. A complex social phenomenon

According to Deaton (2005: xvii), Sydney Afriat is the "guru" of the price index literature. The sincerity of the Nobel laureate's words will guide the development of this section: "As a young mathematician, he arrived at Richard Stone's Department of Applied Economics in Cambridge in the early 1950s, then the great center of research on theoretical and applied consumer behavior. He soon realized that neither he nor anyone else knew very much about was meant by 'the price index', in spite of being part of the everyday discourse of economics. In the half century since then, he has been exploring the foundations of the topic."

Afriat's book published in 2005 is entitled *The Price Index and its Extension*. It has two explicit motivations. The following quotation shows how even Joan Robinson −a critical mind− looked down on our discussion:

> "An early motive of the work had been to elaborate a concept of what really is a price index. Despite some notion of 'price-level' having a presence everywhere in economics, in both theory and practice, a deliberate concept had been hard to find… I submitted to Joan Robinson, giving a lecture that gave prominence to the price-level, 'There are many prices and so many levels, so what could be the significance of a single level?', and get an angry answer."

The heart of the matter is the following. We are faced with a complex social phenomenon in the sense that, while the impact of price changes are, primarily, an "individual" issue, it is inappropriately resized as a macroeconomic one. Similar to the Marshall's lines, Afriat exemplifies (2005: xxiv):

> "It is imaginable that prices may rise for basic necessities and fall for luxuries so cost of living may rise for the poor and fall for the rich while the 'price level' remains unchanged. Thus in spite of the implication of a price index that the impact−understood as proportional adjustment of income to offset the effect on purchasing power of the

[5] Early on, Marx ([1867], 1887: 82) advanced the critique of the quantitative equation of money: "The law, that the quantity of the circulating medium is determined by the sum of the prices of the commodities circulating, and the average velocity of currency may also be stated as follows: given the sum of the values of commodities, and the average rapidity of their metamorphoses, the quantity of precious metal current as money depends on the value of that precious metal. The erroneous opinion that it is, on the contrary, prices that are determined by the quantity of the circulating medium, and that the latter depends on the quantity of the precious metals in a country; this opinion was based by those who first held it, on the absurd hypothesis that commodities are without a price, and money without a value, when they first enter into circulation, and that, once in the circulation, an aliquot part of the medley of commodities is exchanged for an aliquot part of the heap of precious metals."

> price change−is the same everywhere, it is in principle, and in reality, different where income and equally anything else is different."

As a result of price changes, there is a social need to have some kind of yardstick, to some extent accepted by all of us, in order to roughly assess what happened to our purchasing power. Afriat's final messages are complex (2005: 29, xxiii and xxv):

> "The 'index' language comes in economics from compulsion to give numbers even when the meaning is not and perhaps cannot be known… All the same, it is very hard to envisage an actual abandonment of that single number and much respected social institution, the price index, to represent an official view for the community of how prices have changed… It should be no longer plausible, even to convinced 'price level' believers, that the whole situation can be effectively summarized by a single number. It has been never plausible even though prodigious theories have depended on the idea…".

I think that the notion of price level is still in our heads because, first of all, neoclassical economists know that they are in a dead end, so they simply do not address the issue at stake either theoretically or in terms of the implications for the making of economic policies, including monetary policy.

Secondly, because heterodox economists have not bothered to critically review either its micro-foundations or their "macroeconomic meaning". The false impression about the existence of a price level −and consequently of "a rate of inflation"− is shared by both orthodox and heterodox economists. For example, in their *A New Guide to Post Keynesian Economics*, Holt and Pressman wrote (2001: 2-3):

> "Much ink has been split about what Keynes meant in *The General Theory* and what his challenge to orthodoxy actually was. Although these questions remain a matter of debate, it is generally accepted that the *General Theory* began the serious study of macroeconomics (sic)… For Keynes, as well as for Post Keynesians, it is demand that drives the overall economy… It determines the levels of unemployment and inflation…".

And last but not least, because we are all infected by the same neoclassical virus whose contagion occurred during our ECON 101, specifically when reviewing *ad nauseam* the "analytical" graph of a market −with price and quantity on its axes and its demand and supply curves− expanded without any theoretical or methodological consideration to characterize an economy as a whole. Using Afrait's insight (2005: 41-2):

> "The so-called 'Index Number Problem' is an area of perplexity which comes from the use of terms whose meaning is not altogether known. From the insecure position that prices should have a 'level', that level, whatever it should be, can be denoted *P*. Then *P*, thus called into existence, joins the furniture of economic discussion. It is available to become a part in some edifice, and even in many since there is no habit to distinguish whether each appearance of *P* is really the same *P* or something entirely different. A problem arises because there could be a pause to examine how *P* should be determined, granted it exists."

5. Radical inflation targeting

Let us return to the theoretical foundations. Trying to define the price level "as a whole" (as Keynes did) constitutes a tautology (in fact, a "banal tautology") similar to that referred to by the Nobel Arrow (1958: 78): "national income is that which is measured by national income statisticians."

We are forced then to leave the theoretical universe and jump into the empirical one. In our review of the seminal literature, only Walsh and Taylor (within the Council of Economic Advisers) do not confuse the implicit GDP deflator with the CPI. Let's go into detail. To show empirical evidence on money, prices, and production, the cited bedside book (Walsh 2003: 13-4) used the GDP deflator and not the CPI. And in his famous article on the rules of monetary policy, Taylor (1993: 210-1) associated the price level with the GDP price index: "The Council of Economic Advisers published a consensus estimate that a one-year temporary increase in oil prices of 50 percent could temporarily raise the overall price level (GDP deflator) by about 1 percent and with a longer lag, cause real output to fall by about the same amount."

In the above quote, as Fisher ([1911], 1922) did, a phantasmagorical theoretical notion is identified −the price level−, with a measurement −"needless" to say empirical, specifically a Fisher-style price index. Here are our proposals to improve the work of Central Banks.

Step #1. Neither orthodox nor heterodox macroeconomists have proposed a minimum definition of the "price level". Theoretically speaking, from orthodoxy itself, it is an unthinkable concept. Thus, the broadest price index available in the System of National Accounts, the implicit GDP deflator, is a measure without theory. A corollary is that an economy's inflation rate is also a mere empiricism of non-Marxist economics. In short, Central Banks must put their theory of the "price level" on the public table, the measurement instruments at play to recreate it empirically, and point out its potential errors and measurement biases.

About all this, a former member of the General Council of the Banque de France wrote the following (Maris 2014: 14):

> "Diabolical and sinister, economics is the ash with which our age covers its sad face. In a few decades, a century from now, before perhaps, it will seem implausible that a civilization could have attached so much importance to a discipline that is not only empty, but also utterly boring... A discipline that had only its own contradictions as a science and only its contradictions as a matter of rationality, economics would end up revealing itself as an incredible ideological quackery (*charlatanerie idéologique*) that was also the morality of an epoch."

Step #2. There is no purchasing power of money, or as Marx explains ([1867], 1887: 67), money has no price:

> "We have only to read the quotations of a price-list backwards, to find the magnitude of the value of money expressed in all sorts of commodities. But money itself has no price. In order to put it on an equal footing with all other commodities in this respect, we should be obliged to equate it to itself as its own equivalent."

By the way, Afrait (2005: 59) endorses our point of view:

> "The distinction made between exchange value and use-value for goods produces the idea that money, or−what is more specific and understandable−any income, has a purchasing power which is variable depending on prices. The distinction is recognized, but at the same time there is need to avoid the awkwardness of maintaining it fully. The need must be understood, because otherwise there can be bewilderment at consequences of it."

What exists is the purchasing power of a person's expenditure or the purchasing power of the expenditure of a subgroup of the population. During a hearing, Arrow (1958) proposed that the BLS compile ten consumer price indices corresponding to the ten deciles of the distribution at stake. Plutocratic aggregation implies that, in fact, the Mexican Central Bank (MXCB) currently uses one of the ten price indices proposed by Arrow (1958), namely, the one corresponding to decile 9 (Guerrero 2010).[6] Our proposal would be for the MXCB to use the price index corresponding to the first decile using a democratic aggregation approach (Prais, 1959). Expressed in blunt words, its priority should be another, namely, to take care of the purchasing power of the poorest in the country, which would contribute to a more equitable distribution of income with the passage of time −and not, as it does now, to prioritize the richest.

6. Final remarks

Data are, no more and no less, a form of recreation of our objects of study and are not, in any sense, the result of controlled experiments carried out in a laboratory (Guerrero 2024). In the same direction, as producers and consumers of data, caution must be exercised because measuring instruments shape our subject matter (Guerrero 2021: 36) and are not neutral (Muellbauer 1976: 32). The case analyzed here is absolutely bizarre. In the absence of a theoretical definition regarding the "price level", non-Marxist economics identifies a measurement, be it the CPI or any other price index, with the "price level" of the economy.

The central banks' dictum that they protect the purchasing power of money has no theoretical sense, and their targeting of the CPI growth rate has an ideological function. No central bank has ever made explicit, nor will it ever do so, that the current CPI is a plutocratic measurement. *Das Kapital* and its institutions have ignored their own orthodox and award-winning economists, and will continue to do so. In this sense, our radical proposal will be implemented until genuine left-wing governments take power in our countries.

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[6] According to Deaton (1998: 43), the household for which the American CPI weights are correct lies at the 75th percentile of the expenditure distribution. In the case of Spain, the applicable percentile is the 61st (Izquierdo, Ley, and Ruiz-Castillo 2003: 149).

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