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An introduction to the distributional role of bank credit to workers in a surplus approach framework

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Abstract: The Classics and Marx, but also more recent contributions inspired by them, assume that the interest rate is a part of the profit rate. Over time, however, credit towards consumption and for the purchase of housing by workers has taken on greater and greater economic weight. This paper therefore aims to study this issue from a theoretical point of view, analysing its premises and implications. After investigating the necessary conditions on both the demand side (workers) and the supply side (banks), an attempt is made to analyse the distributional effects of a change in the interest rate. The results appear rather complex and difficult to interpret, suggesting a certain difficulty in identifying a simple dynamic that can be generalised to any economic context.

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1. Introduction

In the classical theory the interest rate is considered a part of the profit rate (Smith, [1776] 1904; Ricardo, [1821] 1951; Mill, [1844] 1967) and so the former has to be minor than the latter. Marx, [1857-1858] 1997, [1894] 1959, also shares this idea and the modern reappraisal of the surplus approach continues this line of thought, central in the contributions of Panico, 1988; Pivetti, 1991; Shaikh, 2016; Zolea, 2022a.

According to Smith, [1776] 1904, and Ricardo, [1821] 1951, the rate of profit governs the rate of interest, and the latter is part of the first. Tooke, 1826, and J. S. Mill, [1844] 1967, have a different opinion as they believe the two rates to be unrelated. For Marx [1857-1858] 1997, [1894] 1959, the link between the two rates is complex, as it is influenced by the struggle between subclasses of capitalists, competition and the general conditions of finance. Panico, 1988, and Pivetti, 1991, develop theories that lead to results which run contrary to those of the classical economists: the interest rate determines the profit rate as well as the price of goods and therefore the real wage. Shaikh, 2016, instead develops a theory of the relationship between profit and interest rate based on the bank profitability: the tendency for profit rates to be uniform even in the banking sector determines the interest rate as the price of the banking output. Zolea, 2022a, takes a causal direction similar to Shaikh, 2016, but with substantial differences, such as the role of deposits in the banking sector and the criticism of the use of financial ratios in the pricing equations of the banking sector. Furthermore, Zolea, 2022a, picks up on Marx's analysis and explores the possibility of a higher than normal bank profit rate.

It is clear that the various authors have different opinions on the relationship between the two variables. A complete discussion of their ideas is beyond the scope of this paper (see about that Panico, 1988; Shaikh, 2016; more recently Zolea, 2022b). However, all these contributions share the idea of the interest rate as a part of the profit rate. In marginalist theory, on the contrary, the interest rate essentially coincides with the return on capital.

The economic world has changed considerably over the decades and the role that credit plays in relation to workers, consumption and the housing market is quite relevant today (Barba and Pivetti, 2009). While credit towards workers was of little relevance at the time when the Classics and Marx were writing, and while, even in recent times, it is reasonable not to consider it at a more general and abstract level of analysis (Panico, 1988; Pivetti, 1991; Shaikh, 2016; Zolea, 2022a), going down to a lesser level of abstraction, it is quite interesting to analyse and reflect on how the market for credit to workers can fit into the surplus approach and what implications this has on the relations between interest rate, profit rate and real wages: the aim of this article is to try to fit mortgage and consumer credit into the set of relations and links between interest rate and distribution within the theoretical

surplus approach.

For the avoidance of any doubt, it should be pointed out that obviously countless contributions have studied workers' credit (e.g. recently Deleidi, 2018; Levrero and Deleidi, 2019; Cucciniello, Deleidi and Levrero, 2022) within the Marxian, Sraffian and post-Keynesian schools or the relation between interest rate and distribution (e.g. recently, Lofaro, Matamoros and Rochon, 2023). What we want to investigate and analyse in this paper is a more subtle question, namely how to theoretically conceive of the link between interest rates and wages without taking productive activity into account, at least directly.

The paper is organised as follows. Section Two analyses the possibility of credit to workers, which implies the possibility of savings for workers. Section Three analyses the conditions that must be incurred for credit to workers, both on the supply side (banks) and on the demand side (workers). Section Four examines the distributional implications of the assumptions made in the other sections, while the Fifth concludes.

2. Workers credit and workers saving

The great part of the theoretical contributions about interest rate discuss the production credit (Smith, [1776] 1904; Ricardo, [1821] 1951; Mill, [1844] 1967; Marx, [1857-1858] 1997, [1894] 1959; Panico, 1988; Franke, 1988; Pivetti, 1991; Ciccarone, 1998; Shaikh, 2016; Dvoskin and Feldman, 2021; Zolea, 2022a). However, in addition to the loans that banks make to the production sector, a large proportion of bank loans consists of consumer credit or home loans to workers. The proportions in which loans are divided between consumer credit, mortgage financing, and business financing differ from bank to bank and country to country.

If we assume the most common hypothesis¹ that only capitalists can save while workers consume all their income - which is equivalent to saying that workers' wages are at subsistence level - it would not be easy to discuss credit to workers, because they could not in any way repay it. Indeed, the workers' future consumption would be equal to their present consumption and always at the subsistence level. If there is no time in the worker's life when she earns more than subsistence, since she can never save, it is hard to see how she could repay the debt incurred.

The level of abstraction of the analysis affects the basic assumptions of any theoretical structure. One can make various assumptions about credit to workers, depending on the context and theoretical necessity, but these assumptions must never contradict each other. Thus, there is a logical problem in all models that assume that workers consume more than their wages, but do not save, and the

¹ For example, Graziani, 2003, makes a similar assumption when analysing the functioning of the credit market within the *circuitist approach*.

capitalists' savings finance workers expenditures greater than the workers' wages (Panico, Pinto and Puchet 2012; Panico and Pinto 2018). The contradiction lies in the fact that workers can never repay their debts.

We can also hypothesise that not all the surplus goes to capitalists and that therefore a part goes to workers who earn a wage higher than the level of mere subsistence. In this second case, workers can also save and therefore take out loans to be repaid over time with their savings. As seen before, in classical and Marxian theory interest is a part of profit and the interest rate a part of the profit rate. If consumer credit is included in the picture, it turns out that interest is nevertheless a part of surplus, although not of profit, since not all surplus takes the form of profit, as workers manage to appropriate a fraction of it. Basically, however, the concept is the same: the bank does not produce surplus but appropriates part of the surplus produced in other real productive sectors: in one case bank appropriates surplus from capitalists, in the other by both capitalists and workers who manage to achieve more than subsistence.

An alternative consists in considering within the *historical subsistence* the possibility of taking on debts by workers, which implies that workers do not consume all their income and save a part of it. It might be difficult for a wage earner to buy a house in one lump sum, but buying the house through a mortgage and paying off the debt in instalments could be within the subsistence wage. On the other hand, something similar already happens in advanced countries where there is a pension system: part of the worker's wage goes to constitute - in a more or less complex and mediated way - a fund to be used during retirement. And the possibility of having a pension seems to be part of what today can be considered a socially recognized subsistence wage. Something similar can be hypothesised for indebtedness for the purchase of a property house.

It must also be considered that collaterals are usually required to obtain the credit. These guarantees have to be more and more substantial as the amount lent increases, as in the case of real estate loans. This system disadvantages and often excludes the poorest and most fragile workers from the credit market. Thus, only workers with better wages and contractual conditions are able to access credit. However, the financialization of recent years has always encouraged a model of consumption linked to indebtedness, often without the necessary guarantees (Palley, 2012).

Thus, without going too much into the particularities of each case, the hypothesis that workers get into debt can be accepted by assuming a stratification within workers themselves, where one part has access to credit and the other does not, or by assuming that access to credit is guaranteed within certain limits by the historically determined real subsistence wage (in the context of advanced capitalist countries).

3. Necessary conditions

Implicit in the idea of the interest rate as part of the profit rate is that the former cannot be greater than the latter (hypothesis present in literature since Marx [1894] 1959). Thus, considering i = interest rate, r = profit rate:

$$[1] i < r$$

This condition, i.e. that the bank lending rate is strictly lower than the profit rate, is actually particularly 'loose'. In fact, just as an interest rate equal to the profit rate would be problematic, so would a rate practically identical but slightly lower. And so would one in turn slightly less than this. In other words, the portion remaining to the productive capitalist, that we call π , must have a 'consistency' of its own. According to Smith, [1776] 1904; Ricardo, [1821] 1951, and more recently for Pivetti, 1991, π is in fact exogenously given. More complex is the issue in the Marxian view, in which π is determined residually. However, precisely because of its residual nature, one cannot say a priori what the natural value of π is; it will ultimately depend on the contrast between subgroups of capitalists (following the analysis of Marx, [1857-1858] 1997, [1894] 1959; Shaikh, 2016; Zolea, 2022a). It can be assumed that at a given time and in a given context a certain 'normal' value can be identified historically in a relatively stable manner, and that an interest rate higher than that which guarantees that particular value of the residual is not acceptable. Obviously, a change in economic and financial conditions would lead to changes in the balance of power and thus in the acceptable level of π , risk being equal.

It should also be noted that these assumptions are true in the case where all capital is debt (bank) capital. Otherwise, a particularly high interest rate for low amounts of debt capital relative to the total invested capital (which also includes equity) also becomes acceptable. Moreover, this discussion disregards assumptions about risk premiums that could cause the interest rate to vary depending on who actually is taking the risk.

3.1

Returning to consumer loans, what relationship can be identified between wages and interest rate?

We could say that the interest burden iL must be less than the wage W , considering both the interest rate and salary in real terms (where L = loan to workers):

$$[2] iL < W$$

However, this condition is not sufficient, as the worker must also repay the capital initially lent. In the case of production, this idea is immediate since the reintegration of capital is one of the basic notions of the productive cycle. Thus, for workers, it must be assumed that the sum of the capital lent and the interest accrued in n years must be less than the wage accumulated in those years. This can be expressed in formulas as follows:

$$[3] L + \sum_{t=1}^n ai < \sum_{t=1}^n W$$

Where ai = accrued interest, n = number of years needed to repay the loan. Note that the sum of the loan and interest charge has to be strictly less than the sum of the wages, as the worker has to use part of her wage to survive (eating, dressing, moving, paying utility bills, etc.). If we assume a certain level of minimum material subsistence (consumption) that the wage must guarantee to the worker before allowing for savings, we have:

$$[4] L + \sum_{t=1}^n ai < \left(\sum_{t=1}^n W - \sum_{t=1}^n Wc \right)$$

Where Wc = wage necessary for a minimum level of consumption. Furthermore, if the loan is considered to be repaid in an equal amount each year and using $W - Wc = Ws$ (= wage that can be saved):

$$[5] \frac{L+il}{n} \leq Ws$$

Thus, from a demand point of view, each repayment portion of the loan and its interest must be less than or equal to the salary the worker can afford to save, subtracting it from consumption. This condition can also be formulated in other equivalent terms, i.e. that the total amount of the loan and the total interest on it must be less than or equal to the wage that the worker can afford to save in the time within which he has committed to repay the debt.

3.2

From the supply-side perspective, on the other hand, the loan must guarantee to the bank at least the general rate of profit on investment. Among the various formulations of a price equation for the

banking sector, we take the model we consider most accurate - Zolea, 2022a - with some modifications:

$$[6] i_w L = \mathbf{p} \mathbf{K}_b (1 + r) + \tau D + w l_b$$

Where i_w = interest rate on workers loans; w = monetary wage, \mathbf{p} = vector of prices, \mathbf{K}_b = vector of material inputs of the banking sector, τ = interest rate on deposits more or less determined by the central bank, D = deposits (taken as an input of the banking sector, see Zolea, 2023a), l_b = amount of labour employed in the banking sector.² Note that [6] could be a *inequation* and not an equation (\geq), assuming that the banking sector is *particularly concentrated* (see the in-depth analysis in Hilferding, [1910] 1981, and the integration of this assumption into the banking sector pricing equation in Zolea, 2022a). In any case, the condition we are interested in emphasising is that at *least* the normal profitability of bank capital is respected.

This price equation of the banking sector only shows the aspect of lending to workers, whereas in reality banks obviously also lend to firms. Moreover, banks often engage in a variety of other financial transactions that are usually quite profitable, albeit risky. The best representation of the banking sector would probably be given by a joint output price equation, however, this is beyond the scope of the analysis of the relationship between credit to labour and distribution. Furthermore, even from a theoretical point of view, it can be noted that the activity of lending to workers must be somehow profitable in the long run in any formulation of the banking sector, otherwise the bank would gradually divest itself of this branch.

Furthermore, there is another peculiarity of the banking sector to be taken into account: the possibility of joint production, together with economies of scale in the banking sector, makes it possible to considerably reduce the capital needed to carry out credit, but this only concerns the capital needed from a physical point of view. In fact, international banking regulation imposes minimum risk-weighted capital requirements on each asset, so much so as to suggest the idea of a *normative banking production technique* (Zolea, 2023b). If, therefore, each type of activity is linked to a particular capital ratio required from a legal point of view, it is theoretically possible to identify how much bank capital

² [6] is to be inserted into a system of real sector price equations *a la* Sraffa (Sraffa, 1960), where the real wage is taken as given: [A] $\mathbf{p} \mathbf{Q} = \mathbf{p} \mathbf{A} (1 + r) + w \mathbf{l}$; [B] $w = w^*$; [C] $w = \mathbf{p} \boldsymbol{\omega}$; where \mathbf{Q} = output matrix of the production sector, \mathbf{A} = matrix of industry inputs, \mathbf{l} = vector of labour inputs in the industrial sector, w = monetary wage (given), $\boldsymbol{\omega}$ = vector representing the basket of commodities that constitute the real wage.

is required for each type of activity. The result is that the choice of representing only the branch of credit to workers by means of a price equation is not so imprecise.³

Another aspect to consider is that of deposits. Deposits are in fact made by firms and households and by capitalists and workers - since workers are supposed to be able to save. One could therefore imagine that the interest on deposits that banks pay to depositors could be included in [5] by increasing the wages saved Ws . Something similar is hypothesised by Ciccarone, 1998, albeit in a very different context. However, this is open to criticism for some reasons. First of all, the rate on deposits is usually very low: while for the bank the interest expense on the sum of deposits is a significant cost, for the individual depositor the gains from a deposit are usually very small and therefore negligible.⁴ Moreover, it seems rather difficult to identify a kind of 'normal' deposit coefficient per worker. We therefore prefer not to consider deposits in [5], although there is indeed a funding flow - only relevant in aggregate - from banks to workers via deposit rates.

The tendency towards uniformity of the profit rate, other things being equal, should push the interest rate aimed at workers and that aimed at capitalists to the same level. While in fact the constraints on the demand side are different, the constraints on the supply side seem to converge. We may therefore hypothesise:

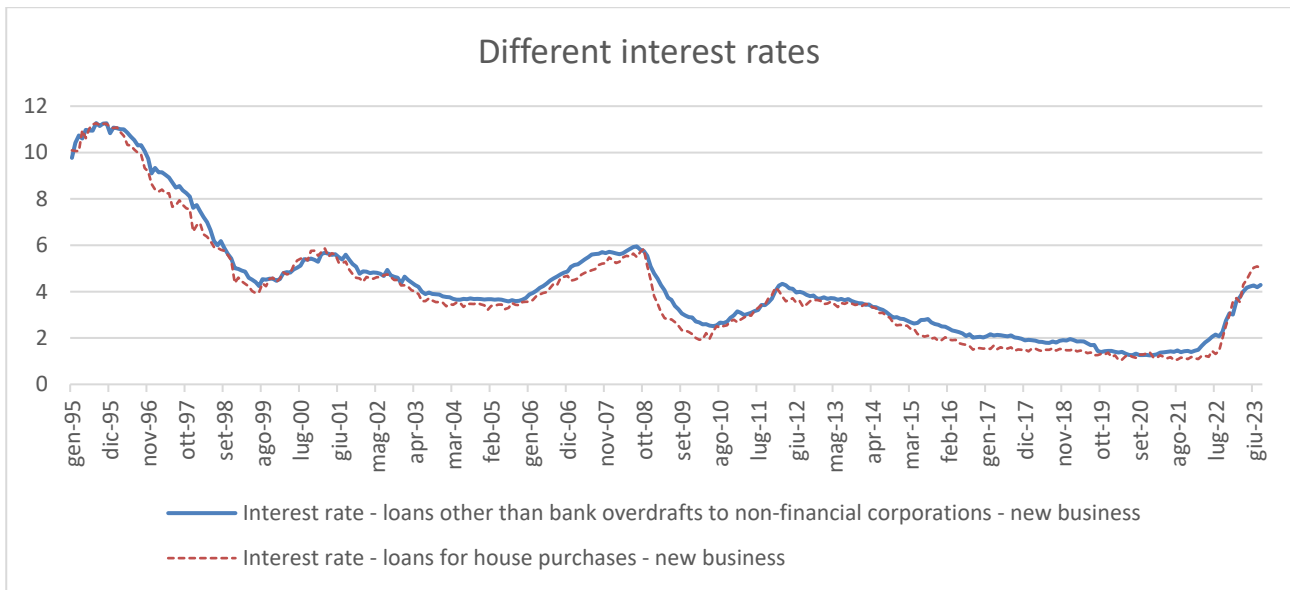
$$[7] i = i_w$$

It can also be assumed that banks know the limits of their customers and can therefore adjust interest rates to the type of customers, especially in the case of bank concentration and limited competition. However, it is difficult to imagine large deviations except in particular periods, such as economic crises. Figure 1 confirms the proximity of the various rates.

³ Perhaps assuming for simplicity's sake that in banks there are some employees who specialise more in household credit and others in firm credit.

⁴ Although it is assumed that workers can save money, it is assumed that these savings are not of too considerable a volume. Furthermore, above a certain level it is not worth holding deposits in the bank, but worth *investing*. This, however, implies that the worker takes on characteristics of a capitalist.

Figure 1



Source: own elaboration on Bank of Italy - Statistical database. Values in percentage.

It must also be acknowledged that many capitalists (or similar income in the broad sense) might borrow money to buy a house to live in and not to invest in production. Thus, in this analysis, the words 'households' and 'enterprises' may be misleading, as capitalist households will repay debt through accumulated, non-invested profits. The same applies to rentiers of agricultural annuities or financial interest (imagining income from bond interest). This complicates the analysis framework considerably when turning to empirical data (as in Figure 1, which distinguishes between enterprises and households). In addition, it is likely that most lending to households is directed towards the better-off and hence those with mixed incomes derived not only from labour but also from capital. For the purposes of the theoretical analysis, however, it does not seem a major problem to distinguish between loans aimed at workers and loans aimed at capitalists for investment, leaving aside for the moment other types of loans.

It is now of interest to try to understand whether [5] and [6] can conflict. However, this issue concerns distributional aspects and will be discussed in the next section.

4. Some reflections on distributional implications

In this section we discuss the distributional implications of the previous reasoning. A first element to consider is whether the loan can be considered a basic commodity. In the context of production it seems reasonable to assume that the loan never enters into production because only the commodities purchased with that loan enter into it. It follows that credit to production activities should not be

regarded as a basic commodity (Zolea, 2022a). Similar argument for credit to workers: it may be assumed that the basket of goods contained in the real wage includes housing, but there is nothing to imply that this must be purchased with the help of a loan.

Let us now look at the effects of an increase in the interest rate on distribution. It seems we can detect an inverse relationship between interest rate and real wage. In fact, an increase in i , given the nominal wage, reduces the real wage: if the interest rate increases, buying real estate, or other goods via finance, will be more expensive. This inverse relationship has some points in common with the analysis of Pivetti, 1991, but also some differences.

The approach of Pivetti, 1991, is that the central bank can determine the distribution by changing the interest rate. According to Pivetti, 1991, in fact, the profit rate is the sum of the interest rate and the business risk premium (exogenously given): by the central bank changing the former, we arrive at a change in the entire profit rate, to which corresponds a change in prices and a change in the real wage in the opposite direction. In this respect, the relationship just identified between real wage and interest rate confirms the analysis of Pivetti, 1991. However, Pivetti, 1991, discusses the interest rate aimed at firms and investment and not that aimed at workers. The inverse relationship between real wage and interest rate outlined here therefore follows an entirely different line of reasoning, which does not expose itself to the various criticisms of Pivetti's theory over the years (Wray, 1988; Nell, 1988; Ciccone, 1990; Serrano, 1993; Mongiovi and Rühl, 1993; Argitis, 2001; Hein, 2006, 2019; for a review see Zolea, 2023c).

Unlike the increase in the price of any commodity, the increase in interest rates only affects new loans or loans previously contracted at variable rates. Workers who buy a property without a mortgage or who have a fixed-rate mortgage contracted in the past are not affected. The effect on wages is therefore more mediated than the increase in the price of a consumer good. However, rising interest rates may also push some workers out of the credit market, making access to some goods very difficult.

It is important to emphasise that an empirical relationship between interest rates and house prices seems to be verified. While Garegnani, 2015, focuses on the links that the housing market has with interest rate movements,⁵ Barbieri Góes, 2023, finds empirical evidence of a direct relationship between interest rate and house rents (see also Dias and Duarte, 2019) and an indirect one between interest rate and house price, but the second relationship is more significant than the first. Thus, when the interest rate increases, the value of houses seems to decrease, while rents increase. Note that both Dias and Duarte, 2019, and Barbieri Góes, 2023, pose the direct relationship between interest rate

⁵ Garegnani, 2015, p. 122, footnote 22: "We have in fact seen that the interest rate can have a noticeable effect only in areas like homebuilding."

and house rent as an explanation of the so-called *price puzzle*.⁶ While, therefore, the interest rate on mortgages cannot be considered as a commodity that is systematically included in the basket of goods within the real wage, housing can. It can also be considered that the price of a house for a worker is comparable to rent. If the price of this commodity (the use of the house) rises, for the same nominal wage the real wage decreases.

In addition, it is important to point out significant difficulties in the attempt to extrapolate a distributional 'rule' from this relationship between i and W . An increase in the interest rate undoubtedly leads to a redistribution of income from the debtor to the creditor. Assuming that the bank gets the normal rate of profit on invested capital (thus excluding bank monopolies and extra-profits)⁷, an increase in policy rates by the central bank will lead to an increase in bank rates, but not to an increase in the bank profit rate: in addition to an increase in lending rates, there will also be an increase in deposit rates. Thus, the increase in borrowing costs for capitalists and workers is not matched by an increase in bank profits, nor in the productive sector.⁸ Given the assumption that workers can save, the increase in interest should be passed on to depositors, capitalists and workers. Many assumptions can be made about which subjects have more savings, but here an inverse relationship between interest rate and real wages appears much more complex and difficult to untangle.

It must also be acknowledged that the worker may take on more debt than she can repay and end up with a wage net of debt that is less than the (historical) subsistence wage: $W - W_s (ex-post) < Wc (ex-ante)$.⁹ In theory, banks themselves should not lend to individuals with little collateral or difficulty in honouring loans. Yet, there are many examples where the pursuit of profit has prevailed over good risk management (Minsky, [1986] 2008), e.g. subprime mortgages (Palley, 2010, 2012).¹⁰

Thus, it is possible that the basket of consumption commodities the worker can actually purchase will shrink, even though the wage has remained the same. Such an eventuality, if widespread among workers, could have effects on the level of real subsistence itself, lowering it, once it is deemed

⁶ A positive correlation between the general price level and the rate of interest (Tooke, 1838; Gibson, 1923, 1926; Keynes, [1930] 2013a, vol. VI, pp. 177-186), considered paradoxical because it contradicts the assumptions of 'orthodox' marginalist theory.

⁷ On the other hand, if one assumes that banks have particular market power, perhaps due to a cartel, it is easy to consider that an increase in lending rates does not translate into an increase in deposit rates. The banks thus increase their profits at the expense of workers and productive capitalists.

⁸ To be precise, it should be noted that rising interest rates increase the central bank's profit margins. These profit margins, however, are usually transferred to the states, essentially joining general tax revenues. It is therefore difficult to find a clear distribution effect by this way.

⁹ Obviously, *ex-post* the condition $W - W_s = Wc$ must hold. What is meant by the equation in the text is that $W - W_s$ *ex post* gives a result less than Wc *ex-ante*.

¹⁰ In the case of sub-prime mortgages, there was the idea of being able to transfer the risk to other entities through securitisation and, through manipulation, make it practically 'disappear'. As we have seen, this system led to a very serious worldwide financial and economic crisis.

acceptable that the average standard of living of a worker includes a lower basket of commodities. Excessive financialization of consumption can therefore lead to a decrease in real wages in many indirect ways (Pariboni and Tridico, 2019; Di Bucchianico, 2021).

As we have seen, the relationship between consumer credit and mortgages and workers' subsistence has multiple interpretations and implications.

5. Concluding remarks

A number of salient features can be identified from what has been discussed. First of all, the ever-increasing weight of credit towards workers prompts the economist to ask questions on this issue, modifying ideas and models thought up in different socio-historical periods. Let it be clear, however, that the approaches developed in past periods are still quite useful in explaining the economy, what is needed is an updating and deepening of some specific issues that have not yet been fully analysed and discussed.

The logical premise for talking about credit to workers is that they can save part of their income to repay the loan over time. One can assume that some workers get a higher wage than others at the subsistence level. Or one can assume that subsistence includes the possibility of buying certain goods on instalments, for example a car or an apartment.

These considerations lead us to investigate the conditions necessary for credit to be possible to workers, both on the side of credit supply by the banks and on the side of credit demand by the workers. Workers must have a salary that allows them to repay by the due date the sum of the loan received and the interest accrued on the loan over the various years. On the other hand, not all of the workers' wages can be used for this purpose, only the wages saved. This makes the condition more stringent. From the banks' point of view, however, the necessary condition is that a profit rate at least equal to the normal profit rate on invested capital can be obtained from lending to workers. Let it be clear that the invested capital is not the amount lent, but the equity capital necessary to carry on the lending business (to workers).

Since the rules provide for capital requirements equal to a certain percentage of risk-weighted assets, it is theoretically possible, within certain limits, to identify the necessary capital for corporate and household lending. Since banks then have to obtain at least the normal profit rate on both lending activities, interest rates should converge, unless there are particular cost differences in the two activities or the ability to discriminate the interest rate (price) according to customers. The data seem to confirm the trend of rates towards a very similar level.

Rather complex is the analysis of the distributional effects of a change in the interest rate to workers on the distribution. On the one hand, an increase in the interest rate to workers worsens their conditions, on the other hand, it is difficult to clarify unambiguously who benefits. An increase in the interest rate implies an increase in the price of consumer credit or mortgages. This pushes workers to have to spend more on interest, reducing 'free' savings or even consumption. Many workers may also change their demand towards goods of lower value (e.g. a smaller house) or they may exit the credit market, thus losing the opportunity to buy certain goods (such as a house or a car). It must be recognised, however, that this effect only affects credits issued after the rise in rates or credits with variable rates. The effect is therefore more spurious and less immediate. Moreover, not all workers will use mortgages or consumer credit. It seems, however, that the house rents also depend on the interest rate: this would make it possible to find a clearer and more generalisable inverse relationship between the interest rate and real wages.

If one assumes, however, a fall in the real wage rate against a rise in interest rates, for the same nominal wage, it is not obvious who benefits. In fact, if one maintains the assumption that banks do not have any particular market power, competition should cause both lending and borrowing rates to rise, causing banks to keep their profit rates around a normal level. In other words, banks earn from the difference between lending and deposit rates and an increase in the policy rate does not automatically imply a change in this difference. It could therefore be assumed that depositors benefit, but once it has been assumed that workers save, workers themselves are depositors. Several assumptions can be made about depositors at this point. It seems likely that workers have small deposits, but it is also reasonable to imagine that capitalists invest their wealth and do not keep idle funds in the bank. However, it can be concluded that an increase in interest rates leads to a transfer of resources from deficit to surplus subjects. It is more difficult to identify workers or capitalists in the surplus and deficit subjects.

However, the interest rate increase seems to weaken the working class in any case, increasing the cost of access to essential goods such as housing, increasing the degree of indebtedness and cutting off the weakest workers from access to the credit market.

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References

- Argitis, G. 2001. 'Intra-capitalist Conflicts, Monetary Policy and Income Distribution.' *Review of Political Economy* 13 (4): 453-470.
- Barba, A. and Pivetti, M. 2009. 'Rising household debt: Its causes and macroeconomic implications—a long-period analysis'. *Cambridge Journal of Economics*. 33 (1): 113-137. DOI: <https://doi.org/10.1093/cje/ben030> .
- Barbieri Góes, M. C. (2023) 'A tale of three prices: Monetary policy and autonomous consumption in the US'. *Structural Change and Economic Dynamics*. 67: 115-127. DOI: <https://doi.org/10.1016/j.strueco.2023.07.003> .
- Ciccarone, G. 1998. 'Prices and distribution in a Sraffian Credit Economy.' *Review of Political Economy*, 10 (4): 399 - 413. DOI: <https://doi.org/10.1080/09538259800000060> .
- Ciccone, R. 1990. 'Comment (on Pivetti)', in Bharadwaj K. and B. Schefold. *Essays on Piero Sraffa*: 454 – 456. London: Routledge.
- Cucciniello, M. C., Deleidi, M. and Levrero, E. S. 2022. 'The cost channel of monetary policy: The case of the United States in the period 1959–2018'. *Structural Change and Economic Dynamics*. 61: 409-433. DOI: <https://doi.org/10.1016/j.strueco.2022.02.019> .
- Deleidi, M. 2018 'Post Keynesian endogenous money theory: A theoretical and empirical investigation of the credit demand schedule'. *Journal of Post Keynesian Economics*. 41 (2): 185-209. DOI: <https://doi.org/10.1080/01603477.2017.1338967> .
- Deleidi, M. and Levrero, E. S. 2019. 'The money creation process: A theoretical and empirical analysis for the United States'. *Metroeconomica*. 70 (4): 552-586. DOI: <https://doi.org/10.1111/meca.12238> .
- Dias, A. D. and Duarte, J. B. 2019. 'Monetary policy, housing rents, and inflation dynamics.' *Journal of Applied Econometrics*, 34 (5): 673 -687. DOI: <https://doi.org/10.1002/jae.2679> .
- Di Bucchianico, S. 2021. 'The Impact of Financialization on the Rate of Profit. ' *Review of Political Economy*, 33 (2): 303-326. DOI: <https://doi.org/10.1080/09538259.2020.1835109> .
- Dvoskin, A. and Feldman, G. D. 2021. 'On the role of finance in the Sraffian System.' *Review of*

Political Economy. 33 (2): 261-277. DOI: <https://doi.org/10.1080/09538259.2020.1819013> .

Franke, R. 1988. 'Integrating the Financing of Production and a Rate of Interest into Production Price Models.' *Cambridge Journal of Economics*. 12 (2): 257–272. DOI: <https://doi.org/10.1093/oxfordjournals.cje.a035058> .

Garegnani, P. 2015. 'The Problem of Effective Demand in Italian Economic Development: On the Factors that Determine the Volume of Investment'. *Review of Political Economy*. 27 (2): 111 – 133. DOI: <http://dx.doi.org/10.1080/09538259.2015.1026096> .

Gibson, A. H. 1923. 'The Future of High Class Investment Values. *Bankers', Insurance Managers' and Agents' Magazine*. 115 (1): 15-23.

Gibson, A. H. 1926. 'The Road to Economic Recovery: Some Reflections.' *Bankers', Insurance Managers' and Agents' Magazine*. 122 (1): 595-612.

Graziani, A. (2003). *The Monetary Theory of Production*. Cambridge: Cambridge University Press.

Hein, E. 2006. 'Money, interest and capital accumulation in Karl Marx's economics: a monetary interpretation and some similarities to post-Keynesian approaches.' *The European Journal of the History of Economic Thought* 13 (1): 113-140. DOI: <https://doi.org/10.1080/09672560500522868> .

Hein, E. 2019. 'Karl Marx: an early post-Keynesian? A comparison of Marx's economics with the contributions by Sraffa, Keynes, Kalecki and Minsky.' *European Journal of Economics and Economic Policies* 16 (2): 238-259. DOI: <https://doi.org/10.4337/ejeep.2019.02.08> .

Hilferding, R. [1910] 1981. *Finance capital A study of the latest phase of capitalist development*. London: Routledge & Kegan Paul.

Keynes, J. M. [1930] 2013. *A Treatise on money*. in Johnson E. and Moggridge D., *The Collected Writings of John Maynard Keynes (vol. V, vol. VI)*. Cambridge: Cambridge University Press.

Lofaro, A., Matamoros, G. and Rochon, L.P. 2023. 'Monetary Policy and Income Distribution: The Post-Keynesian and Sraffian Perspectives.' *Review of Political Economy*, latest articles: 1-27. DOI: <https://doi.org/10.1080/09538259.2023.2272139> .

Marx, K. [1857-1858] 1997. *Foundations of the Critique of Political Economy*. Marxist Internet Archive (MIA), <https://www.marxists.org/archive/marx/works/1857/grundrisse/> .

Marx, K. [1894] 1959. *Capital. A critique of political economy*. vol. III. Moscow: Foreign Languages

Publishing House.

Mill, J. S. (1844) [1967]. *Essays on Some Unsettled Questions of Political Economy*, in *The Collected Works of John Stuart Mill - Essays on Economics and Society Part I*. vol. IV, 229-340, Toronto: University of Toronto Press - Routledge & Kegan Paul.

Minsky, H. [1986] 2008. *Stabilizing an Unstable Economy*. New Haven: Yale University Press.

Mongiovi, G. and C. Rühl. 1993. 'Monetary theory after Sraffa.' in Mongiovi G. and C. Rühl. *Macroeconomic Theory: Diversity and convergence*. Cheltenham: Edward Elgar Publishing.

Nell, E. 1988. 'Does the Rate of Interest Determine the Rate of Profit?.' *Political Economy* 4 (2): 263 - 267. <http://www.centrosraffa.org/pe/4,2/4,2.11.%20Nell.pdf> .

Palley, T. I. 2010. 'The Limits of Minsky's Financial Instability Hypothesis as an Explanation of the Crisis.' *Monthly Review*. 61 (11). <https://monthlyreview.org/2010/04/01/the-limits-of-minskys-financial-instability-hypothesis-as-an-explanation-of-the-crisis/> .

Palley, T. I. 2012. *From Financial Crisis to Stagnation. The Destruction of Shared Prosperity and the Role of Economics*. Cambridge: Cambridge University Press.

Panico, C. 1988. *Interest and Profit in the Theories of Value and Distribution*. London: Macmillan: London.

Panico C., Pinto A. and Puchet M.A. (2012). 'Income distribution and the size of the financial sector: a Sraffian analysis'. *Cambridge Journal of Economics*. 36 (6): 1455 – 1477. DOI: <https://doi.org/10.1093/cje/ber022> .

Panico C. and Pinto A. (2018). 'Income Inequality and the Financial Industry'. *Metroeconomica*. 69 (1): 39-59. DOI: <https://doi.org/10.1111/meca.12165> .

Pariboni, R. and Tridico, P. (2019), 'Labour share decline, financialisation and structural change'. *Cambridge Journal of Economics*, 43 (4): 1073–1102. DOI: <https://doi.org/10.1093/cje/bez025> .

Pivetti, M. 1991. *An Essay on Money and Distribution*. London: Macmillan Academic and Professional LTD.

Ricardo, D. [1821] 1951. *On the Principles of Political Economy and Taxation*. In *The Works and Correspondence of David Ricardo: Vol. I, On the Principles of Political Economy and Taxation*, edited by P. Sraffa and M. H. Dobb Cambridge: Cambridge University Press.

- Serrano, F. 1993. 'Book reviews.' *Contributions to Political Economy* 12 (1): 117–124.
- Shaikh, A. 2016. *Capitalism, competition, conflict, crisis*. Oxford University Press: New York.
- Smith, A. [1776] 1904. *An inquiry into the nature and causes of the wealth of nations*. vol. I-II. London: Methuen & Co.
- Sraffa, P. 1960. *Production of commodities by Means of Commodities*. London: Cambridge University Press.
- Tooke, T. 1826. *Considerations on the State of the Currency*. London: John Murray.
- Tooke, T. 1838. *A History of Prices and of the State of the Circulation from 1793 to 1837*. London: Longman.
- Wray, L. R. 1988. 'The Monetary Explanation of Distribution: A Critique of Pivetti.' *Political Economy* 4 (2): 269 - 273. <http://www.centrosraffa.org/pe/4,2/4,2.12.%20Wray.pdf> .
- Zolea, R. 2022a. 'A Model of the Relationship Between the Interest Rate and the Profit Rate'. *Centro Sraffa Working Paper* (55). http://www.centrosraffa.org/cswp_details.aspx?id=61 .
- Zolea, R. 2022b. 'A History of the Relationship Between Interest Rate and Profit Rate in Heterodox Approaches.' *International Journal of Political Economy*. 51 (2): 121-136. DOI: <https://doi.org/10.1080/08911916.2022.2072386> .
- Zolea, R. 2023a. 'A Functional Analysis of the Role of Deposits in the Traditional Banking Industry.' *Review of Political Economy*. 35 (4): 933-952. DOI: <https://doi.org/10.1080/09538259.2023.2233870> .
- Zolea, R. 2023b. 'A Note on Capital in a Functional Analysis of the Traditional Banking Industry.' *Review of Political Economy*. latest articles. DOI: <https://doi.org/10.1080/09538259.2023.2272472> .
- Zolea, R. 2023c. 'Banking Sector, Distributive Conflict, and Monetary Theory of Distribution', *Levy Economics Institute of Bard College Working Paper*, n. 1025. <https://www.levyinstitute.org/publications/banking-sector-distributive-conflict-and-monetary-theory-of-distribution> .