Alternative uses of functional finance: Lerner, MMT and the Sraffians

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Abstract

In the present paper, we will construct three comparable 'toy models' to evaluate the alternative uses of functional finance from Lerner, MMT, and the Sraffians. First, we will argue that the general functional finance framework can be separated from the specific views of Lerner on how the private sector and the economy works and its policy recommendations. Then, we use this separation to provide an alternative comparison between Lerner and the MMT to that proposed by Wray (2018), arguing that both agree with the general functional finance framework but disagree on how the private sector and the economy works, the policy objectives and the policy toolkit and recommendations. We argue that Lerner never abandoned his functional finance framework or his theoretical principles towards Monetarism. Finally, we will extend the same scheme to evaluate the functional finance framework from the Sraffian standpoint, motivated by recent attempts to check the compatibility of a specific Sraffian model - the supermultiplier - with functional finance (Skott et al, 2022, Fiebiger, 2021). The presentation of the three comparable 'toy models', by stressing the shared principles and specific disagreements between Lerner, MMT and the Sraffians allows us to discuss different policies and consequences of government's active role in promoting expansionary policies.

Keywords: Functional finance; Abba Lerner; MMT; Sraffians; Macroeconomic policies.

JEL-code:E11;E12;E52;E62.

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1. Introduction

The functional finance framework proposed by Abba Lerner has been widely disseminated in the heterodox economic community in the last two decades, with the broad diffusion of the Modern Monetary Theory (or MMT)[1]. This framework in general is based on the idea that in a monetary economy of production the government has no financial impediments to engage in macroeconomic policies in order to adjust effective demand to the level of potential output. Functional finance thus has influenced many heterodox economists who advocate expansionary macroeconomic policies.

Although functional finance was mentioned as a great inspiration of MMT (Wray, 1998), more recently there has been an attempt to differentiate both views (Wray, 2018). In a recent paper, Wray (2018) argued that MMT is more inspired by Minsky than by Lerner, both because of the views on the way the private sector and the economy works – 'stability is destabilizing' – and the preferred policy set and recommendations to deal with this intrinsic instability and achieve the policy objectives – to engage in employment-of-last-resort type policies. Wray (2018) also states that Lerner abandoned functional finance in favor of a version of Monetarism at the end of his career (Wray, 2018, p.18) while Minsky never abandoned his principles.

In the present paper, we will provide an alternative comparison between Lerner and MMT to that proposed by Wray (2018). We will argue that the general functional finance framework can be separated from the specific views of Lerner on how the private sector and the economy work and his policy recommendations. Moreover, to evaluate the alternative uses of functional finance, we will construct three comparable 'toy models'[2] from Lerner, MMT, and the Sraffian standpoint. The inclusion of this third model is motivated by recent attempts to check how compatible is a specific Sraffian model - the supermultiplier - with functional finance (Skott et al, 2022, Fiebiger, 2021). The three models will be focused on the determination of output and some remarks on macroeconomic policies and open economy issues based on these models will be provided.

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[1] For example, Lerner (1943) seminal work on functional finance has about 900 citations on google scholar, and about 90% of these are from articles published after mid-90s, which is the time that MMT ideas start to spread.

[2] Here we use the term "toy model" as proposed by Blanchard (2018, p.49), which "*present the essence of the answer from a more complicated model or from a class of models*" (p.53) with "*transparency and simplicity*".

The paper presents five further sections, besides this introduction. In section 2 we will present the functional finance framework. In section 3 we will present the specific theory, policy objectives and recommendations by Abba Lerner. In section 4, we will present the specific theory, policy objectives and recommendations of MMT. Section 5 will be devoted to present the specific theory, policy objectives and recommendations of theory and policy by Sraffians. In section 6 we will make our final remarks.

2. The functional finance framework

According to Lerner (1951, p. 135), functional finance is *"a **framework [emphasis added]** within which all sort of different policies may be applied"*, indicating *"how the government, in addition to doing whatever it may want to do on all other matters, can also prevent inflation and deflation and thus give us full employment"*. On general grounds, the functional finance framework encompasses the fundamental theoretical foundations that in a monetary economy of production the government has no monetary impediments to engage in macroeconomic policies to control the level of effective demand and attain its policy objectives. In this sense, functional finance presupposes both the principle of effective demand - aggregate spending measured in terms of the supply prices determines the level of actual output – and the state theory of money, which states that the sovereign government cannot be forced to default on its obligations denominated in its own currency.

Following the functional finance framework, the management of macroeconomic policies must be judged *"by the way they work or function in the economy"* (Lerner, 1943, p.39), in the sense that they must be functional to attain the policy objectives. According to this framework, seeking other fiscal or monetary targets can (and probably will) be dysfunctional to attain the main objectives. Moreover, "*Functional Finance rejects completely the traditional doctrines of sound finance*" (Lerner, 1943, p.41) and the principle of trying to balance the budget. The creation of money and the size of the national debt are completely "*subsidiary to functional finance*" (Lerner, 1951, p. 132-133) and should not be a serious consideration.

As functional finance was proposed by Lerner, who has contributed extensively to various branches of economics, we must be careful to separate what is the general framework of functional finance from the other specific theoretical contributions of Lerner on how the economy works and his specific policy objectives and recommendations. We will argue

that the general functional finance framework can be combined with different views on how the private sector and the economy works, different policy objectives and different policy instruments to achieve these objectives.

Besides Lerner, both the MMTers and the Sraffians use this framework to conduct economic analysis and policy recommendations. On the one hand, Lerner combines the general functional finance framework with a Keynesian view on how the economy works. It considers the full employment level of output with price stability as policy objectives and proposes Keynesian macroeconomic and market-based microeconomic income policies to achieve them. On the other, MMTers combine the same general framework with a post-Keynesian/Minskyan theoretical basis and have as policy objectives the full employment of labor with price stability and advocate an employment-of-last-resort type of policy ('the job guarantee') to achieve these objectives. Alternatively, Sraffians combine the same general framework with the surplus approach, but have no clear a priori pre-established policy objectives. Instead, they propose a general orientation towards expanding productive capacity and influencing the trend rate of growth and believe that the policy toolkit can be pragmatically used for achieving this purpose.

In the next section we will construct three comparable 'toy models' to discuss the determination of output in the approaches by Lerner, MMT and the Sraffians.[3] We will also include some remarks on macroeconomic policies and open economy issues based on these models.

3. Lerner: model and policy recommendations

3.1 The model of Lerner

Lerner was trained in the neoclassical general equilibrium tradition and was always concerned with welfare economics and the possibility of inefficiencies in this kind of model due to imperfect competition (Forstater, 2006)[4]. He follows a neoclassical view for the supply-side determination of full employment output, depending on the evolution

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[3] We will not include a Phillips curve in the three toy models both because Lerner, MMT and Sraffians, as we will show, do not differ on the acceptance of cost-push inflation but also because it helps to simplify the models. We will thus consider cost-push inflation as exogenous.

[4] Another economist trained in the neoclassical microeconomic tradition who later also developed a Keynesian approach with the policy target to drive an economy to full employment with price stability was William Vickrey. See Vickrey (1997) and Forstater (2000) for an asset-based Keynesian approach which leads to similar conclusions as the functional finance approach proposed by Lerner.

of the endowments of factors of production (capital and labor) and technology, in which there is a lot of factor substitution. For him, potential or full employment output refers to full employment of all the production factors - capital and labor – and is not influenced by aggregate demand. Demand-pull inflation occurs when effective demand (and thus actual output) is higher than full employment output, leading to a scarcity of productive resources and a rise in the price level to balance aggregate demand and the full employment output level again.

The Keynesian part of Lerner regards the acceptance of (i) the principle of effective demand; (ii) cost-push inflation, that is, a situation in which wages and prices can rise before the achievement of a full employment output position with scarcity of labor and goods.

Regarding (i), for Lerner, effective demand has a role in influencing current output both because of price and wage rigidity and because consumption and investment can be insensitive to changes in the price level and the nominal wage (Lerner, 1960). In this sense, Lerner never abandoned the neoclassical view of the determination of full employment output, although he was skeptical about the existence of automatic market forces capable to make aggregate spending equal to this position[5].

Regarding (ii), Lerner (1951) believes that inflation would appear when the levels of production and employment are lower than full employment, i.e., wages can start growing more than productivity before a situation of labor scarcity due to increased workers' bargaining power. The level of output which could trigger a cost-push inflation was called 'low full employment' as opposed to the 'high full employment' situation of real scarcity of labor and demand-pull inflation (Lerner, 1951). This range from low to high full employment could be re-interpreted as something like an old Phillips curve, in the sense that lower unemployment is related with a higher (but not accelerating) level of inflation. Thus, for Lerner there is a (long run) menu of policy choices between unemployment and inflation (Lerner, 1967)[6].

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[5] This view is similar to Keynes, who also never abandoned the marginalist background. For Keynes, *"[i]f we suppose the volume of output to be given, i.e., to be determined by forces out of the classical scheme of thought, then there is no objection to be raised against classical analysis in which private self-interest will determine what in particular is produced, in what proportions the factors of production will be combined to produce it, and how the value of the final product will be distributed between them (1936, p.378-89)."*

[6] Notice that Lerner (1951) was written before the seminal paper of Phillips (1958). The reinterpretation of his own theory in Lerner (1967) considers the development and incorporation of the Phillips curve into the neoclassical synthesis (Solow and Samuelson, 1960).

We can construct a simple toy model to discuss the determination of output in Lerner. We will denote the actual and full employment output by Y and Y^*, nominal interest rate under control of monetary authority by i, and inflation by π.

In a closed economy, the output is determined by aggregate demand, and the latter is composed of consumption and investment of both the private and the public sector. Private consumption depends on the disposable income of the private household sector. Productive investment I depends negatively on the real interest rate, following the neoclassical idea that the marginal efficiency of investment is decreasing with increased levels of investment. I_0 is autonomous investment and b is a parameter denoting the real interest rate sensitivity of investment. For Lerner, there can be some difficulties to stimulate the economy by reducing the real interest rate below some low level, as "*investment may be unresponsive to the rate of interest*" (Lerner, 1944, p.xix). In Equation 1 this is represented by a range in which the parameter $b = 0$:

$$(1)\ I = I_0 - b(i - \pi)\,,\ \ b = 0\ \text{if}\ (i - \pi) < (i - \pi)^*$$

The equilibrium level of actual output will be determined in the goods market by:

$$(2)\ Y = \frac{(I_0 + G + cTr)}{(1 - c(1-t))} - \frac{b(i-\pi)}{(1 - c(1-t))},\ b = 0\ \text{if}\ (i - \pi) < (i - \pi)^*$$

where I_0 is autonomous investment, G is government spending on consumption and investment goods, Tr are transfers to households, c is the propensity to consume and t is the tax rate, and b is a parameter denoting the real interest rate sensitivity of investment. The acceptance of both neoclassical exogenously given full-employment output and investment function implies the existence of a single natural interest rate. In Equation 2 this natural rate is the real interest rate compatible with full employment output (or the equilibrium between the negative sloped investment function with the full-employment savings function if we subtract consumption from both sides of the Equation 1)[7].

The nominal interest rate is determined in the money market. It is a result of the equilibrium between money demand - the public desire to hold money which depends on the interest rate as a cost of opportunity of holding money - and exogenous money supply

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[7] See Lerner (1953).

determined by the monetary authority. High-powered money is under control of the central bank and there is a stable money multiplier, that is, given the desired and/or required ratio of bank reserves to deposits, a change in the level of reserves will change the loans made by banks and its deposits. The central bank can face *"difficulties for institutional or psychological reasons in reducing the rate of interest to a sufficiently low level"* (Lerner, 1936, p.45) due to *'elasticity of liquidity preference'* and/or *"a lower limit to the rate of interest"* (Lerner, 1944, p.xix). We will denote this lower limit of the nominal interest rate as i_{min}, reflecting the liquidity trap situation. Thus, the nominal interest rate will be determined by the usual LM money market equilibrium:

$$(3)\ i = \frac{aY}{d} - \frac{\left(\frac{\bar{M}}{P}\right)}{d},\ \text{with}\ i = i_{min}\ \text{ when } d \rightarrow \infty$$

Where $\bar{M}$ is the exogenous money stock, P is the price level, a and d are parameters of the money demand function regarding income and the interest rate respectively.

We have thus a model with two endogenous variables, Y and i, and some exogenous variables and parameters. We can draw figure 1 to show these relations. We will represent our model in the Y x i (output and nominal interest rate) plane. Thus, inflation will be a shifting parameter in the IS curve, and the logic for this is that, for a given nominal interest rate, higher inflation will reduce the real interest rate and increase investment spending. The horizontal LM curve reflects the liquidity trap situation. The IS will have a vertical part for low levels of the nominal interest rate (for given inflation).

Figure 1 – Lerner Model
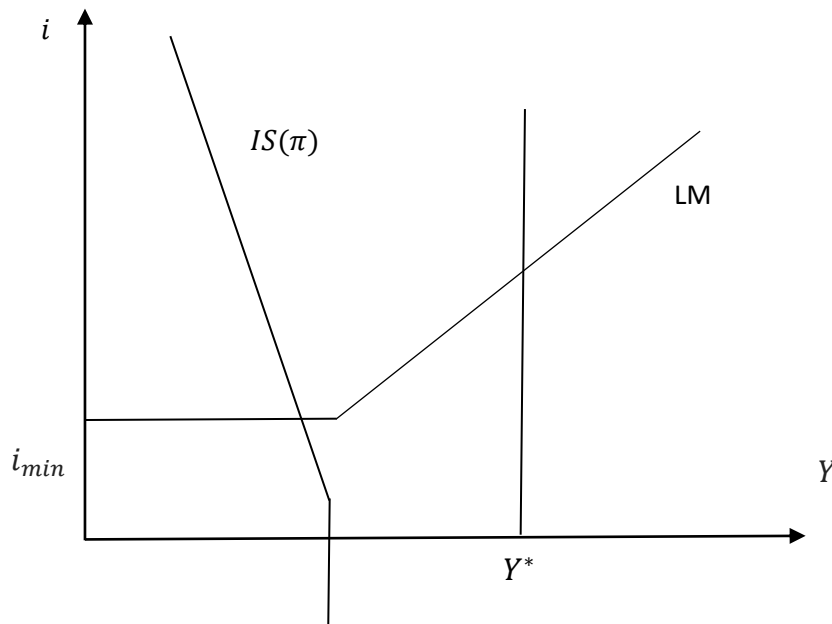
In Figure 1 we can see that, given these assumptions, there is no natural rate of interest for this IS curve and for this given low inflation (or deflation) rate, in the sense that there is no possibility to achieve full employment through monetary policy alone, because both the nominal interest rate cannot be reduced, and the aggregate demand is insensitive to interest rate reductions for lower levels of interest rate.

3.2 Policy objectives and recommendations in Lerner

For Lerner, the relevant policy target which the government must seek is maintenance of the economy in its full employment output position with price stability. Maintaining the economy in its full employment output position is important to avoid both demand-pull inflation and inefficient underutilization of productive resources.

Given the model of Lerner described in the section 3.1, we can easily understand his idea to achieve the objectives of full employment output. The macroeconomic toolkit comprises Keynesian fiscal and monetary policies, by directly managing public sector spending or by influencing private sector spending - changing households' disposable income with taxes and transfers and changing interest rates by shifting exogenous money supply. In the simple model presented above, the fiscal policy comprises changes in government spending G, transfers to households Tr and the tax rate t. The monetary policy is under control of the central bank, since it in general can set the interest rate by

controlling the exogenous money supply (for a given quite stable money demand schedule).

These policies can influence aggregate consumption and investment, both from the public and the private sector. Since the government faces no scarcity of monetary resources to finance these Keynesian policies, effective demand can be set at a level compatible with full employment output.

Lerner also believes in cost-push inflation and was concerned with it as a source of allocative inefficiencies which can arise when relative wages do not reflect relative sectoral scarcity. He proposes that the policies to control cost-push inflation must be separated from the set of policies to manage aggregate demand targeting for full employment output. Instead, the policies to control cost-push inflation should be microeconomic policies – or market-based income policies – focused on keeping the general level of wages growing according to overall productivity but adjusting relative wages with relative scarcity (Lerner, 1951, 1977).

Given this set of overall policy instruments considered by Lerner, the government must pragmatically choose a policy mix to achieve full employment and price stability. In this sense, the recommended policy mix derived from functional finance is quite open and should be pragmatically adjusted for each overall economic situation and specific policy objectives, i.e., "*what government want to do on all other matters*" (Lerner 1951, p. 135)). We should notice that in principle Lerner has no preference between fiscal and monetary policy. According to him, "*there has been much debate (...) between those who stress fiscal policy (...) and those who stress monetary policy (...). But this noisy debate is not really relevant. For our present purpose it does not matter which instruments are used to bring about the changes in total spending required (...) of preventing both too much and too little total spending*" (Lerner, 1973, p.43).

The emphasis on discretionary fiscal policy in the 1930s to the 1950s seems to be related with the fear of deflation. Using our model, this situation can be expressed in Figure 2. In a context of deflation, the IS curve will intersect the LM curve in the liquidity trap region, denoted by position 1 in the figure. Thus, the skepticism of Lerner in stimulating the economy with monetary policy in a context of deflation was due to the pessimism on the elasticity of investment to interest rates and the capacity of the central bank to reduce the nominal rate to achieve full employment. This led him to advocate discretionary fiscal policy - "*public works are necessary*" (Lerner, 1936, p.45). In Figure 2, expansionary

fiscal policy is represented by a shift in the IS curve due to increasing G and/or Tr[8] (for a given rate of inflation), leading the economy to full employment in position 2.

**Figure 2 – Deflation and fiscal policy**
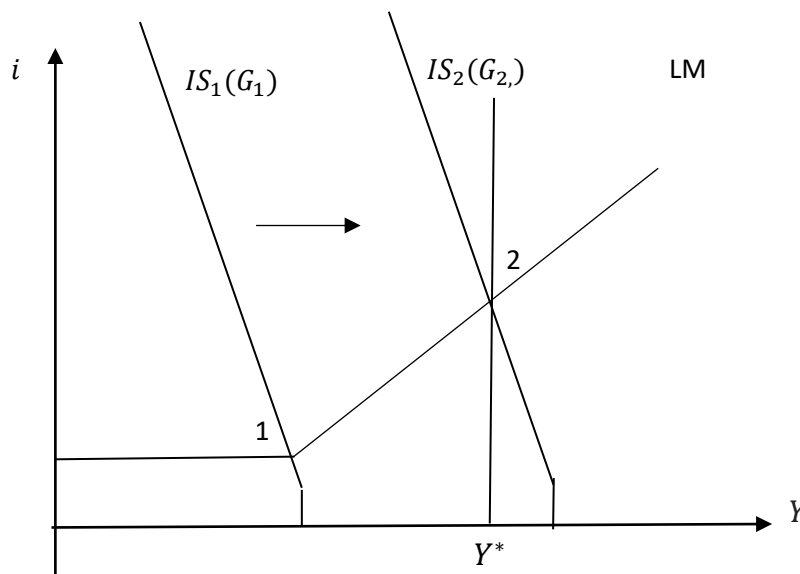
3.3 The change in position of Lerner regarding policy recommendations

The shift of Lerner's policy recommendations towards a preference for monetary policy to keep the economy in the full employment position in the seventies can be understood using the same model but now in a different context of higher inflation. In this higher inflation context, the IS curve shifts towards the right (because higher inflation – with a given nominal interest rate – will reduce the real interest rate and increase investment). This can be seen in the Figure 3. If this shift in the IS curve is big enough, then this can lead to the emergence of a natural (or full employment) rate of interest. And this natural rate is achievable by the central bank using monetary policy alone. Lerner assumes that this situation depicted in Figure 3 represented the new economic reality of the seventies. In this situation, fiscal policy should be more structural, avoiding discretionary movements and focusing on social, allocative, and distributive efficiency (Lerner, 1977, p.410). This stability in the fiscal variables defines the slope and the position of the IS curve, leaving the role of managing effective demand around the full employment output

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[8] We are not representing graphically the case in which changes in the tax burden t also shift and changed the slope of the IS curve.

position to monetary policy – "*a regular growth of the money stock equal to the rate of increase in output, with minor adjustment for secular changes in liquidity preference.*" (Lerner, 1977, 409).

Figure 3 – Inflation and monetary policy
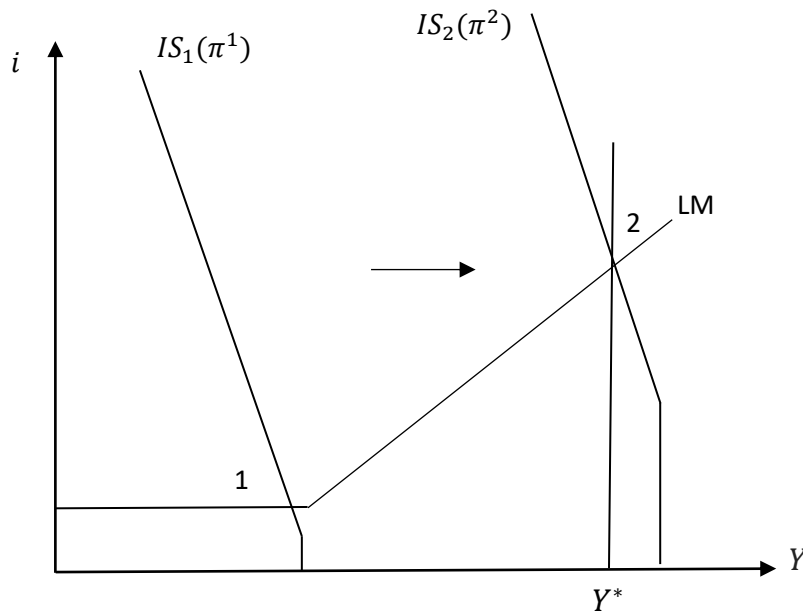
Thus, we see that the shift in Lerner's view about the appropriate macroeconomic policy mix to achieve the objective of full employment can be explained with the same theoretical apparatus. Thus, we don't think that this change in policy recommendations is evidence of embracement of monetarism by Lerner, as proposed by Wray (2018).

A possible second interpretation of Lerner's acceptance of monetarist-like ideas relates to how he evaluated the higher inflation of the end of the seventies, in a context of widely spreading acceptance of the monetarist 'accelerationist Phillips curve' (Friedman, 1968). Inflation according to Friedman is always a 'monetary phenomenon' in the sense that inflation increases with an aggregate demand shock (or in his terms, with the unemployment rate lower than the natural unemployment rate). Consequently, according to this view a higher level of inflation would be a result of the sum of past excess aggregate demand situations. The appropriate way to deal with it is to operate the economy in the reverse sense, i.e., to compensate the past demand inflationary shocks by

maintaining the economy temporarily below full employment, and thus at an unemployment rate higher than natural rate of unemployment.

But, also on this point, Lerner's view was very different from Friedman's. For Lerner, "*inflation in stagflation is not excess demand inflation*" (1978b, p.119), and thus must be cost-push inflation. Moreover, because of this nature of inflation, Lerner was explicitly against the monetarist proposition to control inflation with unemployment – or "*hunger*" – which he considered "*socially and politically impossible.*" (Lerner and Colander, 1982, p.44).

Lerner (1977) was very clear that stagflation could be decomposed by a "*stagnation component (inadequate total spending at the current wage and price level to yield full employment)*" and the cost-push "*inflation component, which cannot be excess-demand inflation*" and required separated policies – "*macroeconomic governmental measures for increasing total spending*" and "*microeconomic market adjustments of wages and prices, with the government only internalizing an externality*" (Lerner, 1977, p.409).

This belief that inflation was cost-push and could be tamed with market-based income policies is further evidence against the embracement of monetarist ideas by Lerner. In fact, Lerner dedicated his research to the design of this kind of microeconomic income policy to control inflation (Lerner, 1951, 1977, 1978a, Lerner and Colander, 1982).[9]

Therefore, contrary to Wray (2018), we believe that Lerner never renounced functional finance as a general framework. He also didn't abandon the principle of effective demand and the State Theory of Money as well as the pragmatism of economic policies to achieve the policy objectives. In Lerner (1977) he was still not concerned with sound finance and balancing the budget (Lerner, 1977, p. 411) nor with any limits to the size of public debt[10]. We should also remember that monetary policy was one of the policy options within "*functional finance's three pairs of instruments – borrowing and lending, buying and*

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[9] Lerner first was in favor of *"publishing the indices of relative attractiveness and letting them influence the collective wage bargainers"* (1951, p.241). Then, he suggests creating a '*Wage-Increase Permit Plan',* by considering inflation as an externality and creating a market for permits to wage increase, which *"would be freely tradable in a perfectly competitive market"* (Lerner, 1978a, p.496), inspired by the discussion of carbon emission trading. Finally, he proposes a market anti-inflation plan "*by applying the incentive directly neither to wages nor to prices but only to the value added per unit input of the firm*" (Lerner and Colander, 1982, p.). The change in the proposals reflects the difficulties faced by income policies in the real world and the dissatisfaction of Lerner with the income policies that happened in practice – '*the income policies implemented by Kennedy and Nixon were unsuccessful*' (Lerner, 1977, p.395).

[10] On the contrary, it was Minsky (1992) who was concerned with the "validation" of the public debt by government tax receipts (Wray, 2018, p.25). Wray argues that Minsky was not worried about default on public debt but of 'the danger of the 'inflation tax''', but such 'danger' is hardly consistent with the principles of functional finance.

selling, and taxing and subsidizing" (Lerner, 1977,p.410). And for him "*borrowing and lending can usefully be segregated and put in charge of the monetary authority – the Federal Reserve System's open-market operation*" (Lerner, 1977, p.410).

Summing up, we think that Lerner did not abandon both the theoretical model and the functional finance framework in favour of monetarism. Lerner however combined his functional finance framework with a model with marginalist elements such as the supply-determined full employment output and the neoclassical investment function, the idea of exogenous money supply and determination of the interest rate as an equilibrium in the money market. This marginalist basis in Lerner also can be seen in all his work by his discomfort with inefficiencies such as underutilization of productive resources due to lack of effective demand and relative wages not reflecting sectoral scarcity as consequence of cost-push inflation. This inquietude with the inefficient situation of underutilized productive resources leads Lerner to be in favor of active fiscal policy in a context of fear of deflation and ineffectiveness of monetary policy in the 1930s – 1950s. But as soon as the natural interest rate was achievable by the central bank due to higher inflation in the 1970s, he preferred a stable fiscal policy enhancing the allocative and distributive efficiency of the full employment position, while monetary policy could do the passive work of maintaining the interest rate equal to the natural rate.

We think however that the functional finance framework can be combined with other explanations of how the private sector works, and we will explore in a comparable way both MMT and Sraffian approaches in the next sections.

3.4 Open economy

The inclusion of open economy issues in Lerner's model does not change the policy recommendations. Lerner (1951) stresses the interdependence between countries due to international trade under a fixed exchange rate regime but is optimistic that one country alone can achieve the objective of full employment with macroeconomic policies even if the other countries are in depression. This situation could lead to an imbalance in the trade account which could be corrected by changes in the real exchange rate or trade tariffs and the consequent changes in imports and exports[11]. Lerner (1951) was also optimistic about

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[11] In fact, Lerner wrote about international themes between the 1930s to beginning of the 1950s. We should notice that the world in the 1940s - 1950s operated inspired by the Bretton Woods System, where short-run capital flows were controlled, and exchange rates were kept relatively stable. We should also remember

the idea of avoiding sudden exchange rate fluctuations as a result of international capital movements between countries with the help of the International Monetary Fund. In the end, open economy issues in Lerner's model do not bring much instability and do not remove the capacity of a single country to engage in macroeconomic policies to achieve full employment, although cooperation between countries (or mediated by international institutions) are welcome.[12]

4. MMT

4.1. MMT and functional finance

As we did with Lerner, we can disentangle MMT into a general framework, a specific model and related policy objectives and recommendations. The general framework of MMT share the same principles of functional finance, which is, the theoretical principles of Effective demand and the State Theory of Money, and a pragmatic policy perspective to attain the policy objectives which rejects the ideas of sound finance and the concerns with the size of the public debt and the high-powered money stock.

In fact, MMT advanced on various fronts to give support to the idea of State Money Theory. For example, they made an impressive research effort on the analysis of the State Theory of Money in different historical episodes (Wray, 1998) and on the documentation of authors who believe in the idea of State Theory of Money in the History of Economic Thought (Nell and Forstater, 2003, Wray, 2004, and Tcherneva, 2006).

Also, they researched in detail the interrelations between the Treasury and the central bank (Mosler, 1997, Bell, 2000, Fullwiler, 2009, Rezende, 2009, Tymoigne, 2014) and the institutional framework of central banking to set interest rates and its importance for the payment system (Fullwiler, 2003, 2006, 2008, 2013)[13].

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that the Keynesians models for open economy started to be developed much later than that, around the 60s, being the Mundell-Fleming model the most important reference.

[12] But Lerner (1951) prefers the adjustment in trade balance with the depressed countries expanding aggregate demand with macroeconomic policies.

[13] Lavoie (2013) who was more critical to some versions of the MMT which consolidate Central bank and the Treasury lowered the tone of such criticism in Lavoie (2019), understanding that both the 'consolidation' device can be somehow important to stress the idea that government is not financially constrained like a household while recognizing that analyses with separated Central bank and Treasury has often been tackled by MMT authors. For a comparison between MMT and Lerner on public financing, see Fiebiger (2016).

Finally, they integrated this institutional enriched view of the State Money Theory with the post-Keynesian idea of money endogeneity – commercial banks cannot be forced to lend and provide loans by creating deposits for clients who wants to borrow and are considered creditworthy by them –to "*explaining how sovereign currency "works*" (Wray, 2020, p.1). In this way, MMT has helped to complete the theory of endogenous money, while Lerner assumed exogenous money and the literature on endogenous money developed before Wray (1998) didn't explicitly explore the connections between fiscal policy, money creation and the determination of the interest rate[14].

This MMT-updated version of the functional finance framework, however, is combined with a different model of how the private sector and the economy work, which as a consequence will determine a different set of policy recommendations, as we will see in the next sub-sections.

4.2 MMT and the post-Keynesian/Minskyan model

MMT follows a post-Keynesian view inspired by Minsky[15]. Potential output is determined by given factors of capital and labor with fixed coefficients, and there is no market mechanism based on factor substitution which could lead the economy to its full employment of labor and capital[16]. The post-Keynesian tradition thus abandons the marginalist elements in the determination of full employment output in Lerner. However, in agreement with Lerner, the MMT considers the possibility of cost-push inflation, as inflationary pressures can arise much before the economy reaches full employment of productive resources (Mitchell et al., 2019, ch. 17)[17].

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[14] And according to Lavoie (2019), right after that these interconnections were also incorporated by other post-Keynesians scholars, including himself.

[15] In fact, Lerner inspired the MMT (see for example Wray,1998) although more recently Wray (2018) has made clearer his divergences with Lerner.

[16] According to Mitchell et al. (2019, p. 247) "*The capacity of firms to substitute one input (say, labour) for another (say, capital) in the production process is limited. In the real world, a typical firm employs a number of machines and types of equipment, which have more or less fixed labour requirements. Then idle machines typically accompany idle workers when the economy goes into a downturn*". In spite of the lack of substitution between factors of production, it is assumed (at least in advanced countries) that the stock of capital is big enough to employ the whole of the labor force.

[17] Mitchell et al. (2019) seem to suggest a Phillips curve of the old type with a trade-off between unemployment and inflation. But they use the terms NAIRU and NAIBER (Non-accelerating inflation buffer employment ratio) to refer to the equilibrium level of unemployment associated with stable inflation (respectively, without or with the ELR program), which point to an accelerationist type Phillips curve, turning not so clear which kind of relation between aggregate demand and inflation they are supposing. See also Mitchell (1998, 2020).

In the closed economy, effective demand determines the level of output. Aggregate spending can occur "*on a sufficient scale to push the economy toward full employment of its labour and capital resources*" (Mitchell et al., 2019 p.554). Consumption depends on the disposable income and the propensity to consume, leading to a simple multiplier effect. Effective demand, however, can be quite unstable, due mainly to the behavior of business investment spending, which depends on financial conditions, asset prices as well as expectations and margins of safety regarding the evolution of these variables which can affect demand and supply prices of investment, a la Minsky (Wray and Tymoigne 2009, Wray, 2020).

Following Minsky (1975), business investment is determined by the relation between the demand price of investment (the "*price one is willing to pay for capital goods based on expectations of returns to ownership*" plus the borrower's risk (Mitchell et al., 2019, p. 407)) and the supply price of investment (the "*price at which producers will supply new capital goods*" plus lender´s risk (Mitchell et al., 2019, p. 408)). Minsky used to explain the cycles by of waves of optimism and pessimism driving business investment, both by bankers, the financial system and firms (diminishing margins of safety and the perceptions of the lenders' and borrowers' risks and by changes in expected returns on investment, shifting demand and supply investment schedule).

We can simply incorporate this idea in an aggregate investment function, with the factor σ denoting expected returns on investment, τ the borrower's risk and the spread ρ is related to the lender's risk and liquidity preference.

$$(4) \ I = \ I_0 + f((\sigma - \tau) - (i + \rho - \pi))$$

According to Minsky, all these determinants of investment are subject to shifts, and so we can expect that aggregate demand in a market economy should oscillate with no tendency to attain the level of effective demand compatible with full employment of the productive resources. Moreover, aggregate demand has a very low (or no) systematic relation with the real interest rate, as followers of the MMT believe the interest elasticity of aggregate spending is weak and possibly unstable, as interest rate hikes can lead to financial instability but lower rates do not stimulate aggregate demand very much (Wray, 2020, p.33).

The base interest rate is directly and exogenously set by the central bank and not determined by equilibrium in the money market, as money is endogenous. The central

bank can also influence other public rates, but private rates depend also on the lenders' risk and liquidity preference (Wray, 2006).

We can define Equations (5) and (6) as the determination of output and nominal policy interest rate in MMT:

(5) $Y = \dfrac{I_0 + f((\sigma - \tau) - (i + \rho - \pi)) + G + c(Tr)}{(1 - c(1-t))}$

(6) $i = \bar{\iota}$

Compared to Lerner's model, there are two important changes. First, in the 'IS type' Equation 5, business investment now depends on both the expectational, risks and liquidity preference factors. Second, there is no more 'LM' type curve as the policy rate is directly set by the central bank (Equation 6).

Figure 4 shows the MMT 'toy model' in the plane Y x i. The instability of aggregate demand due to shifts in risk, expectations, and liquidity preference factors is represented by shifts in the very inelastic 'IS type' curve. The economy will only move to and remain in the potential output position by a fluke.

Figure 4 – MMT and instability of aggregate demand and output
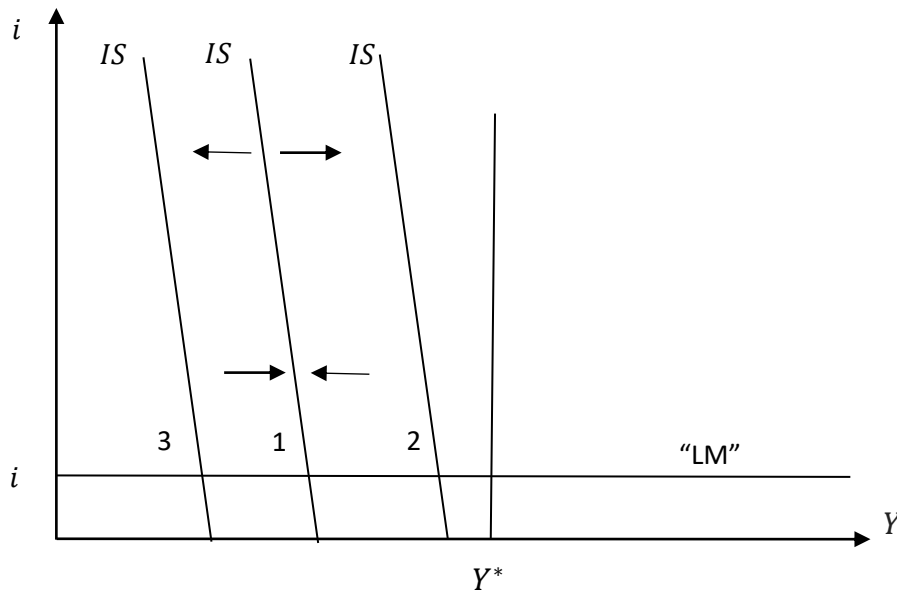
4.3 MMT: Policy objectives and recommendations

From the MMT policy perspective, the main target for the government is to achieve and maintain an economy in full employment with price stability. The policy recommendations to achieve these objectives must consider this potential instability of the economy as discussed in the theoretical model.

In this sense, fiscal policy should be focused on providing a structural level of government spending and transfers, constituting a floor to aggregate demand - a Minskyan 'big government' (Wray, 2020, p.23). One example of structural fiscal policy which can also benefit society, besides its effect on aggregate demand, is the Green New Deal (Nersisyan and Wray, 2021). But the government should avoid making discretionary fiscal policy to target the full employment position as this "*would unleash inflation and financial instability so that full employment could not be maintained*" (Wray, p.2020, p.25). This happens because "*the "stabilizing" looser fiscal stance of government is "destabilizing" because it creates conditions in which euphoria generates a self-reinforcing investment and profits boom*" (Wray, 2018, p.12).

In the model discussed above, we can introduce the feedback of discretionary fiscal policy on expectational risks and liquidity preference factors. In this sense, a discretionary fiscal policy is reinforced by the impact on business investment spending in the same direction. If this leads to an output level above full employment, an inflationary process may be triggered, shifting the IS curve again. So, in this view, discretionary fiscal policy destabilizes investment and aggregate demand and should be avoided.

Thus, the problem according to MMT is not only elasticity pessimism with regard to the interest rate in the IS curve, but endogenous pro-cyclical changes in expectational, risk and liquidity preference factors which make Keynesian policies as proposed by Lerner problematic.

According to the MMT the central bank also should avoid making discretionary monetary policy, since the lack of interest rate sensitivity of aggregate demand can turn monetary policy ineffective for expansions, while sudden interest rate hikes can lead to financial instability. Moreover, high interest rates lead to income and wealth inequality, which can also diminish the multiplier and reduce output. In this view, monetary policy should set a low and stable interest rate target (Wray, 2020, p.33), if possible, a zero overnight interest rate target (Wray, 2007, p.20).

Summing up, discretionary macroeconomic policies can enhance the intrinsic instability of the system. So according to MMT, the appropriate kind of policy to lead the economy to full employment position is the job guarantee - a deliberate policy of employer of last resort (Wray, 2020, p.31). The idea of this kind of policy is to provide an automatic response to the instability of aggregate demand and the level of employment. From the supply-side point of view, it is easily seen that, by definition, labor unemployed in the private sector will be employed in the job guarantee program, and labor will be fully employed, even with instability in investment and private spending. From the aggregate demand and output perspective, the wage bill paid by the ELR program can be understood as transfers from the public sector to households, which generate consumption according to the propensity to spend of these employees. This will stabilize aggregate demand as changes in private spending in consumption and business investment will be compensated by changes in consumption out of the job guarantee wage bill, determined by the wage paid on this program w^{JG} multiplied by the number of workers employed in this program N^{JG} and the propensity to consume (and the multiplier effect of this spending), as demonstrated in Equation 5. According to Mitchell (2020), the job guarantee is an 'automatic stabilizer':

(7) $Y^* = \dfrac{I_0 + f((\sigma - \tau) - (\bar{\imath} + \rho - \pi)) + G + c(Tr)}{(1 - c(1-t))} + \left[\dfrac{c(w^{JG} N^{JG})}{(1 - c(1-t))}\right]$

Figure 5 – MMT and the job guarantee
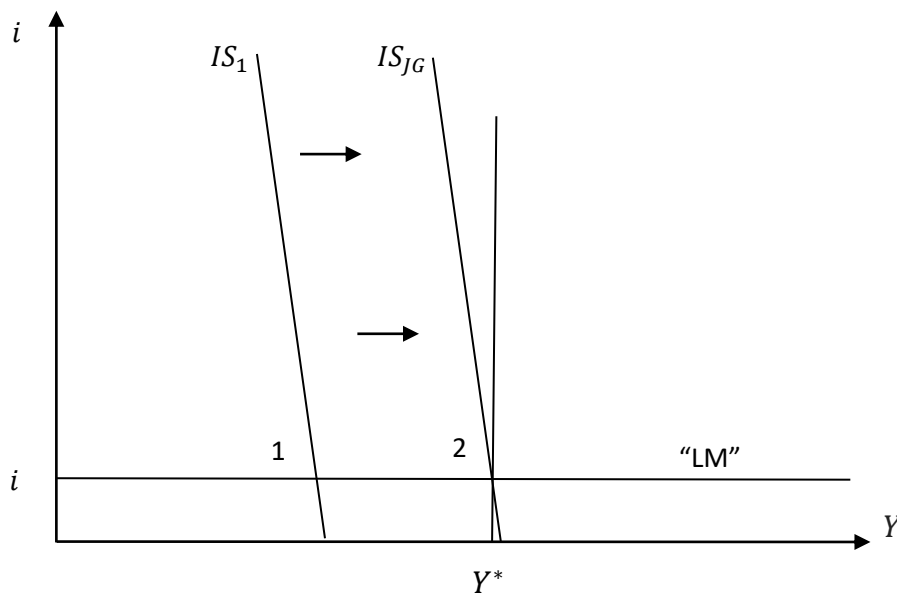
According to MMT, a second advantage of the job guarantee regards the idea that it also achieves price stability, as introducing this policy, by constituting a buffer stock of labor with the wage paid on this program acting as a 'lighthouse effect', helps to stabilize and control nominal wage growth in the private sector, and thus inflation. (Mitchell et al. 2019, ch. 19)[18].

Summing up, in the MMT framework, a job guarantee can tackle both objectives of full employment and price stability[19] and must be preferred over discretionary Keynesian macroeconomic policies given the intrinsic instability of the economy and the additional potential instability it can cause.

4.4. Open Economy

In the MMT model, the external sector is incorporated in a quite standard way, with net exports depending on the real exchange rate, meaning that devaluations are expansionary to aggregate demand and output. Imports depends also on the level of output.

Thus, a problem to achieve full employment with the job guarantee can arise depending on the exchange rate regime. With fixed exchange rates, a full employment position can lead to external deficits and the country may not be able to keep the fixed exchange rate since it can run short of international reserves. Thus, MMT proposes that the government must follow a flexible exchange rates regime (Wray, 2020, p.31). In this perspective, this gives policy space for countries with sovereign currencies to engage in job guarantee program[20,21]. With flexible exchange rate, a potential output position with current account deficit would be associated with a once and for all exchange rate devaluation. This single devaluation could also both help to boost aggregate demand through net exports and

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[18] Mitchell et al. (2019, ch. 19) propose that the Job guarantee program eliminates the trade-off between inflation and unemployment turning the Phillips Curve horizontal when unemployment is lower than full employment.

[19] Contrary from Lerner who was in favor of separated policies for quantity – macroeconomic policies - and prices – microeconomic policies.

[20] Prates (2020) believes that the policy space of a country with sovereign money depends also on the position of this country in the international currency hierarchy.

[21] Some critics to the MMT propose that countries in open economies lose sovereignty and can be forced to default in its own currency. For example, Vergnhanini and De Conti (2017, p.27) believe that high fiscal deficits denominated in domestic sovereign currencies will somehow lead to perceptions that the country will be forced to default on its own currency and the international market will charge a higher spread for this. This mechanism is incompatible with the State Theory of Money and functional finance and resembles the orthodox argument of 'fiscal dominance'.

would require less effort from the job guarantee program, and the expansion of exports can also reduce the external deficit.

Exchange rate devaluations affect inflation, but as the effect of external deficits on devaluations are considered 'once and for all', they have transitory effects on inflation. This temporary inflation could be mitigated by the stability of the nominal wage obtained by the introduction of the job guarantee program (Mitchell et al., 2019, Wray, 2020).

5. Sraffians: the surplus approach and some policy recommendations

5.1 Sraffians and Functional finance

On general grounds, Sraffians also agree with the functional finance framework, both the general theoretical principles of effective demand and state theory of money and that the public finance must be used pragmatically to achieve expansionary and progressive objectives, avoiding concerns with sound finance and other fiscal policy rules. The principle of effective demand was endorsed by Garegnani (1962[2015], 1979, 2007), who proposed to integrate it into the modern surplus approach developed by Sraffa (1960). The idea that whatever the central bank buys becomes liquid – with the example of the Central bank acting as the market-maker creating liquidity and setting the price in the gold market to maintain the arrangements of the gold standard - can be found in early writings of Sraffa on continental banking (De Cecco, 2005, p. 353). Sraffa himself also believed in the endogeneity of money and the interest rate as an institutional policy variable (Ranchetti, 2000, Panico, 2000, Kurz, 2014). Some developments to advance the idea of the exogenous interest rate as a policy variable is present in Pivetti (1991,2001) and an extension of the influence of monetary policy on long-term interest rates can be found in Deleidi and Levrero (2021). A more explicit investigation of the State Theory of Money with integration of endogenous money with the interrelations between the Central bank and the Treasury can be found in Cesaratto (2016, 2017), while Cesaratto and Di Bucchianico (2020) integrate endogenous money theory with effective demand.

Most Sraffians also think that public finance must be pragmatically used to do whatever it may want to do, such as the maintenance and improvement of the welfare state (Cesaratto, 2008, 2012, Pivetti, 2013), the active role of the state in engaging in policies and institutional building which can enhance technological progress and promote structural changes (Medeiros, 2003, Deleidi and Mazzucato, 2019) and to expand

effective demand in the long run (Serrano, 2017). Some of the researchers within this group are also more explicit against sound finance such as rules for fiscal deficits (Pivetti, 1998, 2019) or limits to public debt (Ciccone, 2021)[22].

This agreement about the functional finance general framework, however, can be combined with a different (than Lerner and the MMT) simple model on how the private sector works, leading to different policy recommendations, as we will see in the next sub-sections.

5.2 Surplus approach, long period effective demand and the Sraffian model

In the Sraffian view, following the surplus approach tradition, potential output is in general not constrained by labor scarcity and the level of capacity output of the economy depends on the level of the capital stock and on the technical capital/output ratio (Freitas and Serrano, 2015). Following the classical idea of separations of quantities and prices, i.e., output and distribution, and given that situations of structural unemployment is the rule not the exception, Sraffians believe that wages are determined by institutional aspects which determine the relative bargaining power of the workers. Thus, Sraffians also share the idea of cost-push and conflict inflation (Serrano, 1993, Stirati, 2001)[23].

In this perspective, effective demand is not only important to determine current output, but also productive capacity, following the project of Garegnani to extend the principle of effective demand to the long period (2015 [1962]). Labor productivity (through for example incorporated technical progress) and the labor force (by changes in hours worked, participation rate, immigration, etc) also adjust endogenously (and slowly) to this level of productive capacity. In this sense, given the endogeneity of both productive capacity and the labor force, the level of full employment output is not easy to determine. We will thus use productive capacity output Y^K as the potential output that can be produced with the capital stock operated at the normal rate of capacity utilization[24].

In a closed economy, effective demand determines the level of output. Induced consumption and the multiplier effect will be a little bit different as Sraffians stress the

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[22] An exception is Aspromourgos et al. (2010) who show some concerns with the sustainability of the public debt to GDP relation.

[23] A schematic way to include inflation determination in our simple model is the conflict-augmented Phillips curve (Serrano, 2019, Summa and Braga, 2020), which relates inflation with the unemployment rate (but depends also on other political and institutional parameters which affect the situation of bargaining power of workers).

[24] The normal utilization is determined to meet peaks in demand (Ciccone, 1986).

monetary explanation of distribution as influenced by monetary policy, and functional income distribution affects the aggregate propensity to consume. Assuming that all consumption of capitalists is autonomous, and workers consume a fraction, c_W, of their wages, the marginal propensity to consume can be rewritten as:

(8) $c(1 - t) = c_W \omega (1 - t)$

The wage share is denoted by ω. Following Pivetti (1991), the wage share will depend on the normal profit rate (here determined by the real policy rate of interest and a spread ρ, denoting both the long term riskless financial assets and the 'profit of enterprise') and on the normal capital–output ratio, v. The wage share will thus be (Serrano, Summa and Garrido, 2020):

(9) $\omega = 1 - v(i - \pi + \rho)$

The mechanism that makes the adjustment of productive capacity to effective demand is the mechanism of capital stock adjustment.[25] We suppose that productive investment which creates capacity to the private sector is seen as totally induced by the expected trend of aggregate demand. Contrary to Lerner's Neoclassical investment function and Minskyan-type investment function by the MMT, we propose a simple induced investment function in which the investment share depends on the expected growth of demand g^e, the capital replacement coefficient d and the normal capital–output ratio[26]:

(10) $\qquad I = v(g^e + d)Y$

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[25] Notice that autonomous investment can occur, but they are corrected by the mechanism of the capital stock adjustment. Some Sraffians believe however that some sources of autonomus investment (such as those devoted to technical progress) are more long-lasting (Trezzini and Palumbo, 2020) while others believe that this mechanism of adjustment prevails in a shorter period (Cesaratto et al, 2003). Another disagreement regards the idea of modelling (or not) this mechanism, as some follow the Sraffian Supermultiplier model (Serrano, 1995) while others prefer not to model mechanically this relation (Trezzini and Palumbo, 2020). Others as Haluska, Summa and Serrano (2021b) shows that even in an economy that suffers important and successive shocks in the trend growth rate as the US (and does not reach fully adjusted positions), the normal utilization seems to be an important reference as an attractor.

[26] From the principle of capital adjustment perspective, both the interest rate (according to the functional finance) and financial variables (according to the MMT) do not play a role in determining the level of productive investment in a longer run. Even if these factors associated with the cost and financing conditions of investment can impact on short-run investment spending, in a longer period they only determine who will invest, but not the level of aggregate investment, which because of competition cannot deviate indefinitely from the expected levels of demand (Cesaratto, Serrano and Stirati, 2003).

The Sraffians highlight the importance of the autonomous components of demand. In a closed economy, they are composed of residential investment, durable goods consumption financed by credit and government spending. Denoting the first two components as private autonomous spending A, we suppose that some part of this component can be exogenous A_0 (and dependent on the institutional setup, for example) and the other can be inversely influenced by real interest rates, including the private spreads ρ (Serrano, Summa and Garrido, 2020)[27].

(11) $A = A_0 - a(i + \rho - \pi)$

Substituting the propensity to consume (Equations 8 and 9), productive investment function (Equation 10) and private autonomous demand (Equation 11) in the aggregate demand function, we have a negatively sloped IS-type curve, as part of autonomous spending (but not productive private investment) depends on the real interest rate (Equation 12). The real interest rate also affects the wage share and the multiplier through the propensity to consume. The nominal policy interest rate is exogenously set by the central bank (Equation 13).

(12) $Y = \dfrac{(A_0 + G + c_W Tr)}{(1 - c_W(1 - v(i - \pi + \rho)(1 - t) - v(g^e + d)))} - \dfrac{a(i + \rho - \pi)}{(1 - c_W(1 - v(i - \pi + \rho)(1 - t) - v(g^e + d)))}$

(13) $i = \bar{\imath}$

Assuming a flexible accelerator mechanism[28], capacity will converge to the actual level of output and effective demand over a longer run, z being the growth rate of autonomous spending[29,30]:

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[27] Residential investment can also depend on other factors, see Wray (2008) for the importance of this variable to explain the boom and bust of the subprime crisis in the US economy from a Minskyan perspective. The importance of residential investment for the cycle and the trend is analyzed in Perez and Pariboni (2021).

[28] Palumbo and Trezzini (2020, p.185) argue that only '*average long-period different-from-normal utilization would affect the decision to invest, since temporary deviations are regarded as absolutely normal*". This seems compatible with the flexible accelerator mechanism.

[29] The flexible accelerator mechanism implies firms revising gradually expected trend demand growth (Serrano, Freitas and Bhering, 2019), and the capacity will converge to the trend effective demand if this adjustment is slow. For the system to be stable also the growth rate of autonomous spending must be lower than a maximum rate to keep the growth model as demand-led. Haluska et al (2021a) shows that this maximum rate is quite high for estimated empirical parameters for the US.

[30] Here we are also supposing that this adjustment does not affect inflation - or at least the feedbacks from inflation are not enough to counterbalance the expansionary effect of effective demand - since the increase

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$$(14) \qquad Y^K = Y = \frac{(A_0 + G + cTr)}{(1 - c_W(1 - v(i - \pi + \rho)(1-t) - v(z+d))} - \frac{a(i + \rho - \pi)}{(1 - c_W(1 - v(i - \pi + \rho)(1-t) - v(z+d))}$$

In this sense, contrary to Lerner and the MMT which focus more on the business **cycle** around a given potential output, Sraffians place more emphasis on the **trend** growth of effective demand and its effects on potential output.

5.3 Policy objectives and recommendations from the Sraffian perspective

Contrary to both Lerner and MMT who have clear policy objectives and dedicated great parts of their research to advise in more details which kind of recommended policy mix should be conducted to achieve it, there is no systematic research agenda regarding the specific policy objectives and recommendations from the Sraffian perspective.

Regarding policy objectives, we must remember that in this perspective it is not easy to define full employment, as the labor force is supposed to slowly adjust to the level of effective demand and productive capacity. Thus, in general the policy objectives are more generic focused on progressive issues regarding social and technological policies, aiming also to expand trend effective demand and productive capacity. The policy recommendations are thus opened to achieve these not closely defined objectives.

In this sense, contrary to Lerner (and neoclassicals) who prefer to use discretionary fiscal policy only in specific situations (such as deflation), the Sraffian perspective sees this kind of policy as an important instrument both to the improvement of the welfare state (Cesaratto, 2008, 2012, Pivetti, 2013) and the active role of the state in engaging in policies, institutional building and public investment which can enhance technological progress and promote structural changes (Medeiros, 2003, Deleidi and Mazzucato, 2019) but also to influence the trend (or average) pace of effective demand.[31]

One example of this view can be found in Pivetti (2006), who believes that "*generous public pensions (...) tends, by itself, to exert a positive impact on **growth [emphasis added]**—both directly, by strengthening the propensity to consume and the demand for*

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in productive capacity occurs with structural labor unemployment. For a more detailed relation between inflation and output and unemployment gaps, see Serrano (2019).

[31] The result of this complex institutional and political arrangement, considering public transfers, taxation, government consumption and investment, at both municipal, state, and federal levels, obviously is unlikely to grow at a constant rate (Skott et all, 2022), but the idea is that the average or trend growth rate should be targeted as fiscal policy.

capital, and by tending to compel policy-makers to adopt an expansionary policy stance to check the burden of pensions on their constituency. Generous defined-benefit public pension schemes, therefore, might correctly be regarded as a relevant built-in **growth factor [emphasis added]**, *if one could only assume that, once introduced, they were little capable of undergoing downsizing or substitution by other less generous schemes*" (Pivetti, 2006, p.387).

The expansionary discretionary fiscal policy from the Sraffian perspective, contrary to generating instability as proposed by the MMT (and Minsky), can improve the financial conditions of the private sector, as the higher growth rate of public sector and the consequent higher investment share increase the aggregate disposable income of the private sector, reducing the private debt to income ratio, helping to stabilize the growth rate of autonomous private demand by improving the financial fragility situation of the households (Pariboni, 2016, Freitas and Christianes, 2020).

Monetary policy from the Sraffian perspective can stimulate aggregate demand by its effect on autonomous demand spending, such as residential investment and durable goods consumption. Although these relations between real interest rate and aggregate demand may not be so systematic and stable (Serrano, Summa and Garrido, 2020), we expect that a lower real interest rate (and, preferably, if it can be managed together with expansionary fiscal policies, as we saw in the paragraph above, and other institutional policies to diminish potential financial instability) can have a positive impact over aggregate demand[32]. In figure 6 we show how macroeconomic policies can stimulate output and capacity[33]:

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[32] Although more empirical research should be made to check if it changes in the real interest rate has a level or a growth rate effect over aggregate demand and output.

[33] Notice that the IS curve becomes non-linear as interest rate also affects the multiplier by its effects on the wage share. This point was not noticed in Serrano, Summa, Garrido (2020), although the results did not change as the interest rate impacts aggregate demand in the same direction on both autonomous demand and distribution channels.

Figure 6 – Fiscal (a) and Monetary policy (b) in the Sraffian model

(a)

(b)
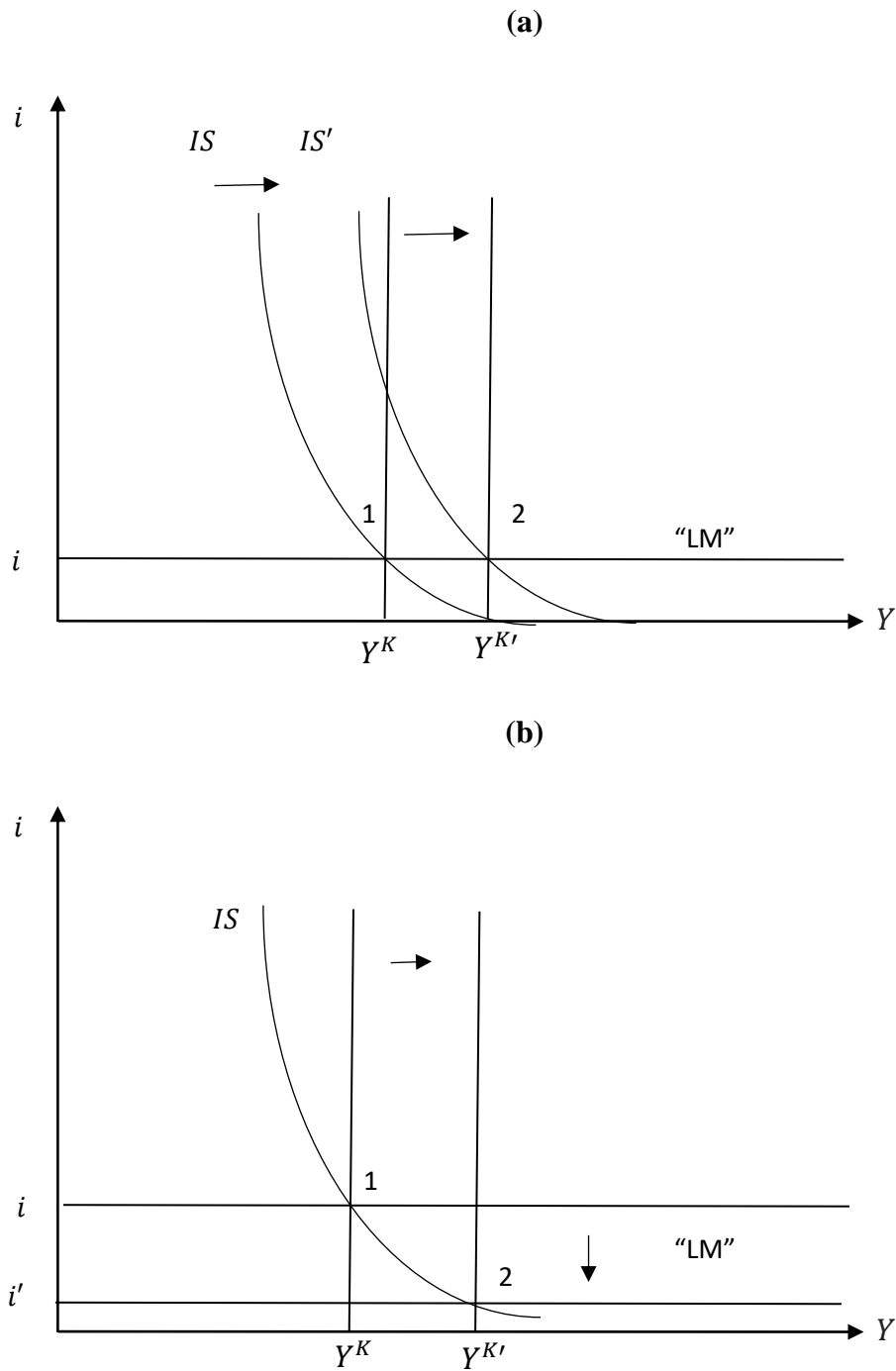
Summing up, we notice that contrary to Lerner and MMT authors, who focus on avoiding cyclical fluctuations around a given exogenous potential output, Sraffians believe that macroeconomic policies – both monetary and fiscal – can affect potential output itself. Regarding policies to control inflation, Sraffians are quite skeptical that strengthened distributive conflict can be resolved by market-based income policies a la Lerner or by a

job guarantee program as suggested by the MMT (Aspromourgos, 2000, Levrero, 2019)[34]. The introduction of job guarantee program does not resolve the conflict over income distribution because it cannot determine the premia to be paid in the private sector on top of this base salary. In fact, part of the conflict ends up being channeled also into the determination of the base salary of this program. We can thus understand this program as an institutional attempt to obtain some sort of distributive compromise between workers' and employers' organizations mediated by the government[35].

We think that recognizing the existence of this kind of potential conflict inflation is important to discuss this kind of income policy, and some other policies to help should be considered, such as those directed to increase productivity growth; as well as other kinds of income policies to increase the provision of public goods (such as health and education) and ease the price of public services to make workers not so dependent on their wages to maintain their living standards (Medeiros, 2017).

5.4 Open economy

In an open economy, the country is still sovereign in the sense that it cannot be forced to default in its own currency[36]. The Central bank still can set the base interest rate, regardless of what kind of exchange regime it adopts. The country, however, can be forced to default in the international currency, and so problems of balance-of-payments can arise. In this sense, we agree with the objection of MMT authors to fixed exchange rate regimes, as international reserves are finite (Serrano and Summa, 2015).

However, some Sraffians are critical to the proposition of pure floating exchange rate by MMT authors since nominal exchange rate dynamics can be quite unstable in this regime, if exchange rate expectations are elastic (Serrano, Summa and Aidar, 2021). They also stress some open economy asymmetries to set the interest rate by the central bank, as it must consider the international rate, the sovereign spread and the long run capital flows

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[34] This skepticism is shared with post-Keynesians like Sawyer (2003) and Palley (2020).

[35] We have the historical episode of the Scandinavian centralized wage bargaining system as reference (Morlin and Bastos, 2019).

[36] Here we disagree with the definition of sovereignty in open economies by the MMT, which include besides the capacity of issuing and spending in its own currency, the inexistence of "*any promise to convert the monetary base to any other currency (...) at any fixed exchange rate*" (Mitchell et al.,2019,p.517). We prefer to follow Lerner and define sovereignty as the (unconstrained) capacity of the State to spend in its own currency.

and the current account situation (Serrano, Summa and Aidar, 2021) to avoid unstable nominal exchange rate dynamics.

Regarding output determination, real exchange rate devaluations can be contractionary to aggregate demand and output (and capacity) by lowering the real wage and diminishing consumption, or even leading to financial instability of firms or households indebted in international currency (Serrano and Summa, 2015, Vernengo and Caldentey, 2020). Also, a process of continuous exchange rate devaluation can lead also to higher inflation (Carnevale and Deleidi, 2020, Morlin, 2021). This can lead to incompatibilities with other policy objectives, for example, some given inflation target (Summa, 2016).

Considering the potential unstable behavior of the nominal exchange rate and the inflationary and contractionary consequences of processes of exchange rate devaluations, it is important for the Central bank to set the interest rate considering the external variables and to engage in other kinds of exchange rate policies, e.g. a systematic managed floating regime (Serrano, Summa and Aidar, 2021).

6. Final Remarks

In the paper we argued that the general functional finance framework can be separated from the specific views of Lerner on how the private sector and the economy works and its policy recommendations. We thus show that both Lerner, MMT and Sraffians share the same general theoretical principles of Effective Demand and cost-push inflation and that the government does not have financial constraints to promote expansionary macroeconomic policies, in line with the functional finance framework. We use this separation to provide an alternative comparison between Lerner and the MMT proposed by Wray (2018), arguing that both agree with the general functional finance framework but disagree on how the private sector and the economy works, the policy objectives and the policy toolkit and recommendations.

We constructed three comparable 'toy models' based on these approaches to show that the general functional finance framework can be combined with different theoretical views, leading to different policy objectives and recommendations. Using this simple scheme, we argued that Lerner never abandoned neither his functional finance framework nor his theoretical principles towards Monetarism, as claimed by Wray (2018). We also show that the MMT advanced to complete the theory of endogenous money integrating the connection between fiscal policy and money creation, but the different policy

recommendations with focus on the Job guarantee program is derived from the Minskyan view that 'stability is destabilizing'.

Curiously, it seems that it was Lerner who presented "*Minsky with the catch phrase 'Stability is destabilizing'*", but he felt "*a little guilty*" about it, as he seems to think that the "*intractable instability*" of capitalism advocated by Minsky was quite exaggerated and believed that Keynesian policies could help to stabilize the economy (Lerner, 1978, p.119).

Sraffians seem to agree with Lerner that business investment is not so unstable in a longer period but prefer to get rid of all the marginalist elements presented in Lerner, following a flexible accelerator mechanism[37]. Sraffians agree with MMTers that financial conditions must be considered, but they prefer to stress mainly their impacts on the autonomous demand components and income distribution, instead of on business investment. Sraffians believe that macroeconomic policies should not be restricted to counter-cyclical responses but to influence the trend (or average) growth rate of effective demand – what we could call a 'super-big government'. This kind of policy also can help to stabilize autonomous demand. **But although** Sraffians are more optimistic about the capacity of macroeconomic policies in taming instability, they seem to be more concerned with exchange rate dynamics in economies with free mobility of capital flows and the impacts of strengthened distributive conflict as sources of asymmetries and limitations to expansionary macroeconomic policies.

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