UNEMPLOYMENT BENEFITS, THE 'ADDED WORKER EFFECT' AND INCOME DISTRIBUTION IN A MONETARY ECONOMY

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Abstract: This paper focuses on the effects of public expenditure for unemployment benefits on the path of income distribution, within the theoretical framework of the monetary theory of production. By contrast to the standard view that unemployment benefits produce bad macroeconomic performances, it will be argued that – by increasing total demand – they boost the level of employment. The increase in the level of employment contributes to generate an 'added worker effect', which, in turn, pushes the Government to pay further unemployment benefits. At the same time, once firms' fixed capital has been completely exploited, firms' money profits at the aggregate level grow. This, in turn, generates inflationary pressures which reduces real wages. Moreover, following the Smithian argument that increase in demand fosters division of labour within firms, this policy can increase labour productivity, thus eventually counterbalancing the inflationary pressures associated to profits increases. A different policy option has been suggested, where – for the sake of allowing more 'security' to workers - the State directly supplies them with goods and services.

Keywords: monetary theory of production, wage bargaining, unemployment benefits
JEL classifications: E12, H53, J50, J65

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1 - Introduction

The mainstream view supports the idea that public expenditure devoted to paying unemployment benefits produces inefficient outcomes, because it reduces the level of employment. This occurs for two basic reasons. On the supply side, it is argued that unemployment benefits discourage job search, lengthen its duration, and put upward pressure on wages, because of the increase in workers' bargaining power. On the demand side, it is maintained that the financing of unemployment benefits by means of labour taxation disincentivates labour demand (see, for example, Snower, 1995)[1].

This paper focuses on the effects of unemployment benefits payment on income distribution, arguing – within the theoretical framework of the monetary theory of production (hereafter MTP) – that, for the sake of ensuring a higher real income to unemployed workers (as well as to the employed), a public policy that pays *monetary* unemployment benefits may be less effective than intervention aimed at directly supplying workers with goods and services. This occurs for the following reason. Insofar as unemployment benefits boost total demand, they can generate both higher levels of employment and positive money profits on the macroeconomic plane (cf. Graziani, 2003). The increase in the level of employment helps to generate an 'added worker effect', which, in turn, pushes the Government to pay further unemployment benefits. At the same time, once firms' fixed capital has been completely exploited, firms' money profits at the aggregate level grow, generating an increase in the price level. As a result, public expenditure devoted to paying unemployment benefits redistributes income to the benefit of firms, and – in given circumstances – also at the expense of workers. Accordingly, this view contrasts both with the neoclassical and the standard Keynesian approach on two grounds: first, it is argued that the links between unemployment benefits and the level of employment can be understood better by focusing on their *macroeconomic* effect on total demand, taking the *monetary variables* into consideration, with particular reference to the dynamics of the credit market and to the contrasting interests of firms; second, it is maintained that the payment of insurance to unemployed workers gives rise to a *distributive conflict* involving firms and workers. Moreover, a Smithian effect is taken into consideration, assuming that increases in public expenditure, by expanding demand, imply an increase in the degree of technical division of labour and, hence, of productivity. The increase in productivity, in turn, may counterbalance the inflationary pressures produced by the payment of unemployment benefits. Of course, the overall effect of the payment of unemployment benefits crucially depends on the level of employment and on the amount of the unitary money unemployment benefit.

The exposition is organized as follows. Section 2 provides a description of the functioning of a monetary economy within the theoretical framework of the MTP. In section 3 a model is proposed where public expenditure for unemployment benefits gives rise to distributive conflict and section 4 concludes.

2 – The monetary theory of production and the "paradox of profits"

The MTP describes the economic process as "a circular sequence of monetary flows" (Realfonzo, 2003, p.105). The MTP comes out of a methodological approach based on a continuist reading of Keynes's major works, in particular of the *Treatise on Money* (TM) and the *General Theory* (GT) (see e.g. Fontana, 2003, Seccareccia, 2003 and more recently Forges Davanzati and Realfonzo,

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[1] Note that there is no strong evidence on the negative relation between unemployment benefits and the employment rate. See Layard et al. (1991) and Atkinson (1999).

2009)[2]. The MTP general schema involves three macro-agents: banks, firms and workers. The banking system creates money *ex nihilo* (in accordance with the idea that loans make deposits); firms buy inputs and produce commodities; workers supply labour power. The circular process of the monetary economy starts with bargaining in the money market between banks and firms. Banks supply firms with initial finance; firms need money in order to buy labour power and to start production. Firms use bank finance to purchase labour power, paying workers the previously negotiated money wages. After the production process has taken place, firms fix the price level, so that real wages are known ex-post. If workers' propensity to consume is less than one, firms can recuperate the unspent money by selling securities in the financial market. However, the financial market can begin operation only after banks have produced money. It could be shown that the assumption that firms set prices under the mark-up rule leads to the same results as when – as in the case considered by some circuitists – firms autonomously decide to divide the social product between consumer goods and investment goods. This is because investment goods are conceived as the share of social product that the firms take as their own. In this sense, a high level of production of investment goods is equivalent to a high rate of profit. The MTP emphasises that income distribution is primarily determined by firms' decisions that are reflected in the value of the mark-up. This means that within the MTP approach income distribution among banks, firms and workers depends on the relative market and social power of the agents. Note that according to this theory the distribution of power is structurally unequal since banks and firms control monetary variables (see Rossi 2001; Bellofiore, Forges Davanzati and Realfonzo 2000). The monetary circuit closes with the repayment of the initial finance to banks, i.e. the 'destruction' of the money originally created. Various points of convergence link MTP scholars: *a)* money is a pure symbol (a bank liability) and money supply is endogenous and demand-driven; *b)* the unitary money wage is assumed to be exogenous, depending on the relative bargaining power of firms and workers; *c)* the level of employment depends on firms' decisions about how much and what to produce, and these in turn depend on firms' expectations about aggregate demand and profits (the capitalist economy does not assure full employment); *d)* the consumer sovreignty principle is not in operation; *e)* income distribution is not based on the marginalist distribution rules but on power relationships; *f)* state intervention, mainly through fiscal policy, is required in order to increase aggregate demand and employment, both in the short and in the long run (see Graziani, 1990 and 2003; Realfonzo, 1998 and 2008; Fontana and Realfonzo, 2005; Parguez 1975; Poulon 1982; Deleplace and Nell, 1996). It is worth noting that – in this schema – *the interest rate is a "tax on profits"*. Moreover, inflation is not a monetary phenomenon, it is not caused by an excess of money supply, but it mainly depends on distribution conflicts.

In this schema, since firms can only recoup the total amount of the initial finance (in the best case of unitary propensity to consume on the part of workers), there is the problem of how they can make sufficient revenue not only to pay interest, but also to make a profit. The lack of realization of a monetary surplus can be seen as a theoretical problem if one rejects the conviction – supported, among others, by Graziani (2003) – that a "normal" level of indebtedness on the part of firms toward the banking system is a key feature of contemporary capitalist economies, or that firms reimburse their debt in kind, since profits are obtained in real terms (see Bellofiore and Realfonzo,1997). It is worth noting that the paradox of profits is not something which pertains to the logical structure of the MTP and, hence, it should not be conceived as a puzzle of pure logic. On the contrary, it focuses on a key problem of the capitalist system, namely the problem of the realization of a monetary surplus (see Bellofiore, Forges Davanzati and Realfonzo, 2000). One can argue that – depending on historical and social conditions – capitalism solves the problem in different ways, and these ways – not being a mere 'outside factor' used as an *ad hoc* assumption in circuitist models – are, as a matter

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[2] MTP scholars read the TM as the theory of reproduction of the capitalistic economy in equilibrium, where money is used as a means of payment; while they regard the GT as the explanation of economic crises, generated by lack of aggregate demand and where the role of money is reversed to become a store of value.

of fact, social devices serving for the reproduction of the system. Accordingly, the MTP approach provides an 'open' model, where the closure of the circuit depends on 'outside factors' which are historically, institutionally and socially determined, as well as empirically/factually significant. It should be added that – by its very nature - the problem of the realization of a monetary surplus is a macroeconomic problem[3]. Schematically, two solutions are in order, which refer to an 'endogenous' solution and to some different 'exogenous' solutions. In what follows, they will be discussed separately.

a) *The realization of a monetary surplus without external influx of money*. Messori and Zazzaro (2004) show that monetary profits can be generated by the bankruptcy of the less efficient firms, and Zazzaro (in Rochon and Rossi, eds., 2003) emphasises that this solution leads to abandoning "any concept of subjective and/or objective *equilibrium* … in favour of a systemic concept of *order*". Zezza (2004) argues that – since in the MTP theoretical framework banks aim at obtaining interest payments in order to pay for their costs of production (namely, their employees' wages) plus profits to distribute to bank owners, firms' money profits ultimately derive from undistributed profits obtained by the banking sector as well as from wages of workers in the banking sector. Rochon (2005, p.125) finds that monetary profits may be made in cases where the bank is divided between short term and long term contracts. Chapman and Keen (2006) show that aggregate money profits can arise in a dynamic context where a continuous time function is considered in overlapping circuits. Febrero (2008) maintains that firms as a whole can obtain money profits – within one single circuit - by means of long-term debt with the banking system. Others introduce variants of the standard structure using multi-sectorial models (see Parguez, 1980, Seccareccia, 2003), including profits in the same wage bill (see Rossi, 2002) or additional demands expressed by the State and/or by the external sector or by the banks themselves (see De Vroy, 1988, Renaud, 2000). These are endogenous solutions, insofar as they do not require an external influx of money in order to allow (some) firms to obtain money profits (see Dupont and Reus, 1989; Parguez, 2004). Moreover, if the external sector is taken into consideration, the increase in net exports entails an increase in domestic profits (see De Vroy, 1988, Renaud, 2000).

b) *The case for positive aggregate money profits in a liberal and in a Keynesian regime*. Two basic sources of profits are considered in a liberal regime within the theoretical framework of the circuit approach, namely financialisation and private indebtedness. By inserting Veblenian elements into the basic schema of the MTP, Forges Davanzati and Realfonzo (2009) provide a theoretical model where the economy is regarded as being formed by two sectors: one producing wage goods, the other producing luxury goods. Financial rents have a double nature. They are both a cost for firms, in the form of the interest bill, and an item of demand (for luxury goods). Consumption on the part of the "leisure class" increases the demand, and thus profits, of firms operating in the sector producing luxury goods. Palley (in Hein *et al*, 2008) maintains that financialization allows firms to obtain profits by means of transactions in the financial markets, according to a mode of regulation based on the imperative of "profits without investments" (see also Hein in Hein *et al*, 2008). Bellofiore and Halevi (2008) refer to a 'privatised Keynesism' in order to describe the pre-crisis mode of reproduction, based on the massive increase in household debt, and Forges Davanzati and Pacella (2009a), expanding this argument, show that emulative behaviours – connected with a decrease of wages - play a crucial role in generating increasing worker indebtedness. In both cases, by increasing total demand, the flux of credit which goes from banks to workers allows firms as a whole to obtain extra-profits in money terms. In a Keynesian regime, where deficit spending policies are in operation, a 'crowding in effect' results, i.e., as Parguez (2007, p.8) has recently argued, expansionary fiscal policy can be regarded as an "anchor" for profit expectations. He stresses that expansionary fiscal policy allows employment to increase thanks the additional flow of money that the State produces. In short, the higher the deficit spending, the higher the employment

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[3] Smithin (2009, p.127), among others, maintains that the 'paradox of profits' has exactly the meaning of the Marxian sequence *M-C-M'*, "fundamental to the operation of a profit-making capitalist economy".

in the public sector and, since firms' expectations of profits grow, the higher the additional employment in the private sector. Following this line of thought, Parguez (2007) remarks that the reproduction of the capitalist system – as represented in the MTP – can be guaranteed above all by expansionary fiscal policies[4]. Forges Davanzati and Pacella (2009b) consider the case where the Government sets a minimum wage, showing that a rise in wages via external intervention and particularly by means of a minimum wage law, induces firms to accumulate more capital and that this has a positive effect on the level of employment, thus going counter to the mainstream view that labour market deregulation generates positive outcomes. They also point out that the 'high-wage effect' can solve the paradox of profits in the MTP owing to bankruptcies of firms facing credit rationing.

In this context, it is important to stress that it is profitable for firms to oppose deficit spending policies, not because of the standard mainstream argument that public expenditure 'crowds out' private investments, but due to the consideration that public expenditure, by increasing employment, produces an increase in wages, which reduces firms' profits on the microeconomic plane. More specifically, and in line with Kalecki (1971), while it is profitable for firms – on the microeconomic plane – to cut wages and to oppose public intervention, for firms as a whole policies designed to expand total demand allow the realization of money profits. Accordingly, *capitalist reproduction needs low wages with high consumption*.

This question will be addressed below, based on the idea that public intervention for the payment of unemployment benefits can be a social device to expand demand and increase profits, and the effects of this policy on income distribution will be analysed.

3 – The model: assumptions

The following assumptions are made:

1) For the sake of simplicity, a closed economy is analysed in a short-run context with a given number of homogeneous firms producing a homogeneous consumption good.

2) At the beginning of the production process Government pays unemployment benefits bUN, given a level of unemployment UN and given a unitary money (w) unemployment benefit b. The value of b depends on the fact that the decisions on the part of the Government are assumed to be profoundly affected by firms' and workers' interests, according to the Institutional view that capitalist reproduction is generated under a 'capital strike' regime (see below). Moreover, it is assumed – for the reasons described below – that as employment increases so does labour supply, due to the 'added worker effect' (cf. Lundberg, 1985 and see below).

3) Following Steindl (1952), it is assumed that the degree of capital utilization depends on the degree of uncertainty. Therefore, $K^*>K$, where K^* is the available fixed capital, while K is the capital actually used. K^* is a increasing function of investments made in the previous production processes (I_{t-1}). Employment is set on the basis of expected aggregate demand, given the technical coefficient λ, assumed as a given. Moreover, at the beginning of the production process, a given level of unemployment exists.

4) The price level is $p = \dfrac{w}{a}(1+r)(1+i)$, where p is the unitary price, w is the unitary money wage, a is labour productivity, r is the normal rate of profits and i is the money interest rate[5]. The 'normal'

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[4] See also Bliek and Parguez (2006; 2007) who also focus – within an MTP schema - on the role of consumer spending in increasing total demand and money profits. Nell (2002) points out that a basic if neglected step in monetary theory is to show that a given amount of money will enable all transactions to take place in money, in contexts where the money advanced equals the current costs. He proposes to solve the problem by considering the interdependences existing between different sectors and the different sequences of transaction among sectors, also by considering that financing involves a sequential process, within a Kaleckian theoretical framework (see also Renaud, 2000).

[5] The interest rate enters the price equation because it is a cost for firms. The rationale for this argument lies in the idea that the interest rate is a "tax on profits", so that – for a given market structure, unitary wage and productivity – if it

level of the profit rate is set on the basis on the rate in the previous production processes. The analysis involves a two-step process, where firms advance the money wage bill and the price level is determined at the end of the circuit.

In order to analyse the effects of the payment of money bUN on income distribution, there will be an expansion of the view – supported, among others, by Crotty, Epstein and Kelly (1995) that no Government finds it profitable to implement pro-worker policies. This argument has been put forward, in particular, by Bowles and Gintis (1986), in a theoretical schema where *i)* firms' bargaining power over the Government crucially depends on their threat to postpone investments, *ii)* every single government is interested in electoral consensus, *iii)* consensus for the existing Government increases as domestic investments increase. In their schema, the credible threat of postponing investments – the so called 'capital strike' – is enough to force the Government to implement pro-firm policies, mainly in the form of low taxation[6] and labour flexibility. The determination of the unitary unemployment benefits (*b*) is subject to a triangular bargaining involving workers, firms and the Government. Workers as a group are, as a norm, interested in increasing *b*, both because this is to the advantage of the unemployed and because *b* 'protects' the employed in the event of firing. Firms *may* be interested in obtaining a high value of *b* if aggregate demand on the global scale is low and/or if they cannot sell abroad. At the same time, particularly in a context of high unemployment, the Government have to respect a "legitimation function" (cf. O' Connor, 2007 [1973]), which mainly operates in the short-run, by redistributing income thus increasing *b*, for the sake of increasing (or not losing) electoral support. As a result, the value of *b* is settled in the socio-political arena and, for the sake of the case put forward in this paper, it is:

$$b < w \tag{1}$$

which imposes the reasonable condition that the unitary unemployment benefit cannot be higher than the unitary wage, whatever the relative bargaining powers of workers, firms and the Government may be.

3.1 – Unemployment benefits, aggregate demand and employment

In view of the assumptions above, the effects of the payment of unemployment benefits on aggregate demand can be schematically described in the following sequence.

$$\text{given } UN \rightarrow bUN \rightarrow^\uparrow AD \rightarrow^\downarrow e \rightarrow^\uparrow K \rightarrow^\uparrow Nd(\text{given } \lambda) \rightarrow^\uparrow Ns \rightarrow^\uparrow (Ns - Nd) \rightarrow^\uparrow UN \rightarrow^\uparrow bUN$$

Sequence 1: unemployment benefits and aggregate demand

Sequence 1 establishes the following chain of events. Due to the existence of unemployment, the Government pays unemployment benefits, which – by stabilizing demand - reduce the degree of

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increases, the profit rate must fall. This effect applies particularly when investments are insensitive to changes in interest rates, so that – being exogenously determined by entrepreneurs' "animal spirits" – monetary policy affects the price level not through variation of the aggregate demand, but via firms' pricing. A similar view is shared, among others, by Docherty (2005). In a similar vein, Setterfield (2007, p.627) maintains that the "interest rate enters into firms' pricing", by assuming that *r* is the "gross profit" including the money interest rate. Moreover, Angeriz and Arestis (2009, pp.570), in criticising the "new consensus" approach, emphasise that – in that theoretical context – "The possibility that the interest rates are regarded as a cost (by firms) leading to higher prices is ignored", while it is contemplated in the Post Keynesian approach. In a similar vein, Graziani (2003, p.119) points out that "[a] high level of interest rates could … induce firms to protect their own profits by setting a higher price level. High interest rates might therefore be a source of inflation".

[6] In a PostKeynesian theoretical framework, this issue has been recently addressed by Courvisanon *et al.* (2009).

uncertainty (*e*). As a result, by assumption, firms employ more fixed capital, thus increasing employment (Bougrine, 1999). The available fixed capital derives from investments in the previous production process, so that the higher I_{t-1} has been, the higher K_t* is. Even in the event that the payment of unemployment benefits pushes firms to expand *K* to its maximum level, *there is no endogenous mechanism to ensure that full employment occurs.* For full employment to occur, it must happen that: *i)* investments in the previous production process lead to a value of $K*$ such as to generate $K*/\lambda=Ns$, which mainly depends on the motive for accumulation; *ii)* the increase in labour supply deriving from the 'added worker effect' is lower than the increase in labour demand. The increase in labour supply crucially depends on the 'quality' of the work offered, according to two variables. First, it is reasonable to consider that workers tend to prefer leisure in the event the skills demanded by firms are not consistent with their own skills. Second, workers may not apply if the job is extremely precarious, because of high job insecurity. In both cases, a mismatch between labour demand and labour supply may emerge, and the labour supply curve tends to become rigid. Note also that the path of the average money profit rate is ambiguous, since – in view of assumption 4) – the payment of unemployment benefits, as a further source of liquidity, increases it, while the expansion of employment - and, thus, of the money wage bill - reduces it (see below – equation 3). However, it should be considered that the existence of unemployment, at the beginning of the production process, can push the Central Bank to reduce the interest rate, which has a positive effect on net *r*[7].

The 'added worker effect' can be explained by the fact that:

a) As employment increases, the likelihood of being hired also increases and this stimulates job search activity by previously inactive individuals.

b) The payment of unemployment benefits is an incentive for workers to improve the quality of their job search, by enabling them to refuse the early jobs firms offer them in the event these jobs are not in line with their skills or expectations[8].

c) Being unemployed causes, among other consequences, a loss of psychological well-being due to the loss of self esteem and esteem in society as a whole. Being employed is therefore supposedly preferable to the state of unemployment. This means that – in contrast to the mainstream view – labour is not a pure disutility (see Spencer, 2004).

By contrast to the neoclassical view, this is a case of interdependence between labour demand and labour supply.

3.2 – Unemployment benefits, profits and the price level

Once the full utilization of fixed capital has been reached, the further increases in unemployment benefits cannot produce increases in employment and only affect profits and prices. This gives rise to the following aggregate money profits function:

$$\Pi = pC - wN + bUN - iF \qquad\qquad [2]$$

where *p* is the unitary price, *C* the quantity of consumer goods sold, *w* is the unitary money wage, *N* is the level of employment, *i* is the rate of interest and *F* is the initial finance equal to the wage bill *wN*. Since it is assumed that workers have a unitary propensity to consume, *pC* (i.e. the monetary value of the goods purchased by workers) equals the money wage bill *wN*.

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[7] Moreover, the reduction of the interest rate, insofar as it reduces the cost of finance for firms, is an incentive for them to increase employment.

[8] On the empirical plane, and with particular reference to Germany, Caliendo, Tatsimoros and Uhlendorff (2009) find that generous unemployment benefits tend to increase job match quality by allowing individuals to wait for a better job offer.

Equation [2] shows that – for a given interest rate – aggregate money profits are positive if unemployment exists, so it could be argued that the existence of unemployment is a key instrument for allowing firms to gain money profits, not because of the Marxian 'reserve army effect', but because – insofar as the unemployed have to obtain benefits from the State (for its 'legitimation function') – this allows the realization of a monetary surplus on the aggregate plane. Note that, in view of equation [2], *the higher the unitary unemployment benefit, the higher the aggregate money profits.* Of course, the condition for positive aggregate money profits is $bUN > iF$ so Π is proportionate to public expenditure, which in turn depends on the level of unemployment and on the level of b, and is inversely proportional to the interest rate and the initial finance. This means that since $F = wN$, at the beginning of the circuit unitary money wages are low and/or the level of employment is low[9]. As regards the interest rate, the higher the firms' bargaining power in the credit market, the lower the i and the higher the aggregate money profits. As a result, insofar as a low money wage bill – for a given interest rate – allows firms as a whole to reduce the reimbursement of debt to banks, *a low wage policy, combined with low employment and a high volume of unemployment benefits, allows firms to obtain high money profits.*

In view of equation [2], the rate of profits become

$$r = \frac{bUN - iwN}{wN} = \frac{bUN}{wN} - i \qquad\qquad [3]$$

that is aggregate money profits, as resulting from equation [3] divided by the costs advanced. As a result, at the end of the monetary circuit ($t+1$) the price level becomes:

$$p = \frac{w}{a}\left(1 - i + \frac{bUN}{wN}\right)(1+i) \qquad\qquad [4]$$

Equation [4] establishes that the payment of unemployment benefits increases the price level[10]. Given the unitary money wage set through bargaining at the beginning of the monetary circuit, the real wage becomes:

$$\frac{w}{p} = \frac{a}{(1+r)(1+i)} = \frac{a_t}{\left(1 - i + \dfrac{bUN}{wN}\right)(1+i)} \qquad\qquad [5]$$

The higher is the amount of unemployment and the higher the unitary unemployment benefits, the greater the increase in *p,* for given values of the unitary money wage, labour productivity and interest rate. Note that when inflationary pressures occur, the Central bank tends to react by increasing the base interest rate. In view of assumption 4), where the interest rate directly enters the price level, this produces the opposite effect to that expected by the Central bank, namely a further increase in inflation[11].

Equations [3] and [5] establish that *policies devoted to paying money unemployment benefits increase aggregate money profits and reduce real wages.* Of course, this is a macroeconomic outcome. On the microeconomic plane, both the employed individual and the unemployed individual find it profitable for the Government to pay unemployment benefits: in the first case for the obvious

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[9] On the effects of reduction of wages on the profits in the monetary circuit see among others Pacella (2008)

[10] Smithin (2009) refers to the notion of "tolerable inflation" in order to explain the necessity, on the part of Government or the Central Bank, to oppose price increases that society (or specific groups) consider excessive. In the theoretical context of the MTP, insofar as firms are interested in money profits, there are no grounds for them to demand price control, while it is in the interest of workers (and of banks).

[11] On empirical grounds, Tadeu Lima and Setterfield (2010) find that a cost-push channel of monetary policy has been in operation in the 2000s in most OECD countries.

reason that this policy ensures an income which s/he cannot alternatively obtain; in the second case because the existence of unemployment benefits allows an income in the event of firing[12]. Moreover, this result derives from the assumption that the unitary money wage is a given. By relaxing this assumption, one reaches the result that, as unemployment benefits increase, so does the unitary money wage, due to the fact that workers enjoy a higher bargaining power. Accordingly, the reduction of the real wage consequent to the increase in *bUN* may be mitigated by the positive relation between *b* and *w*.

Moreover following the Smithian theory of economic development (Smith, 1977 [1776]), one can argue that the increase in demand increases the degree of division of labour within the firm, thus generating increase in labour productivity. This argument is expanded here on the basis of the following remarks. First, while Smith considers the increase in demand as the *spontaneous* outcome of the industrialization process, in the theoretical context of the MTP there is no reason to expect this outcome, and the increase in demand is totally imputed to the increase in public expenditure in a deficit spending context. Second, in the theoretical context of the MTP variations of labour productivity cannot be seen as purely technical issues, since they also depend on the relative bargaining power of firms and workers. The rationale for this consideration lies in the conviction that eventual increases in labour productivity involve more labour intensity and that workers tend to oppose firms' strategies designed to impose more intense, more rapid and/or harder working conditions on them[13] (see Bellofiore, Forges Davanzati and Realfonzo, 2000). In view of equation [5], other things being equal, the increase in labour productivity may counterbalance the increase in public expenditure on the price level (see Forges Davanzati and Pacella 2010). However, it is important to stress that the possibility of increasing the division of labour is associated with firm size and, in general terms, this effect does not apply to small firms. Therefore, *the larger the firms operating in the economy, the lower the redistributive effects – at the expense of workers – of policies devoted to paying unemployment benefits.*

3.3 – Public supply and real wage

In order to give 'security' to unemployed workers, without generating perverse distributive effects, a different strategy should be taken into consideration, namely *direct State intervention in supplying goods and services*. This policy will be analyzed under the conditions that *i)* public expenditure (*G*) equals that alternatively used for paying unemployment benefits (*bUN*), *ii)* public firms do not aim at gaining profits (i.e. *r=0*). It should be noted that, as a matter of fact, the quality of public goods and services depends significantly on the bargaining power of workers and firms in the socio-political arena. Schematically, one can argue that the supplying of public goods are of the nature of *pro*-firm or *pro*-worker economic policies. At the extreme, the Government can implement pro-firm policies by not producing goods which private firms can produce and obtaining profits from. By contrast, a

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[12] Note also that the more firms are in the position to credibly 'threaten' the Government with postponing investments, or investing abroad, the higher are the redistributive effects of policies devoted to paying unemployment benefits. As is been largely shown both on theoretical and empirical grounds (see, among others, Crotty, Epstein and Kelly, 1995), the labour share tends to decrease as international capital mobility increases, due to the use of 'hit and run' strategies (cf. Bellofiore, Forges Davanzati and Realfonzo, 2000). Moreover, even in the (extreme) case where workers have rational expectations, so that they foresee the decline of real wages consequent to the payment of unemployment benefits, they are not in the position to oppose this policy, insofar – in this theoretical context – they can only bargain on money wages (cf. Graziani, 2003).

[13] It is well-known that Smith remarks that division of labour also tends to produce negative psychological effects. In the *Wealth of Nations,* he writes: "In the progress of the division of labour, the employment of the far greater part of those who live by labour, that is, of the great body of the people, comes to be confined to a few very simple operations, frequently only one or two. ...The man whose whole life is spent in performing a few simple operations, of which the effects too are, perhaps, always the same, or very nearly the same, has no occasion to exert his understanding, or to exercise his invention in finding out expedients for removing difficulties which never occur. He naturally loses, therefore, the habit of such exertion, and generally becomes as stupid and ignorant as it is possible for a human creature to become" (Smith (1776 [1977]) book V, ch.I).

pro-worker policy consists of providing workers with public goods and services, which directly improve their welfare. In this context, the Government pays workers in order to produce goods and services, so that:

$$G = w_p N_p \qquad [6]$$

where the pedix p indicates wages and employment in the public sector. Assuming that labour productivity in the public sector equals labour productivity in the private sector, the level of output in the public sector is:

$$Q_p = aN_p \qquad [7]$$

Of course, with respect to the previous policy option, the level of employment increases, becoming $N+Np$. On the other hand *Figure I* shows the closure of the monetary circuit when the Government directly supplies goods. Workers spend a part of their income on the consumption of goods produced by the State. As a consequence the more workers demand goods produced by the State, the lower the profit for private firms and the higher the probability of not reimbursing their debt. The aggregate money profits for private firms are:

$$\Pi = (1-c)wN - wN + (1-c)w_p N_p - iwN \qquad [8]$$

Equation [8] can be simplified as:

$$\Pi = (1-c)w_p N_p - wN(c+i) \qquad [9]$$

where c is the slice of public expenditure G spent on the consumption of goods produced in the public sector, so *1-c* is the remaining slice devoted to the consumption of goods produced in the private sector. And – since *(1-c)G<bUN* – the rate of profits is higher in the case of the payment of unemployment benefits than in the case of direct State intervention. Of course, the greater the substitutability of private goods with public goods, the lower firms' profits are. *Figure I* shows the genesis of monetary profits when *pro*-worker goods are produced by the State. Since goods produced in the public sector are *pro*-workers the slice of worker income c devoted to the consumption of private goods is particularly limited. More specifically, firms obtain monetary profits when $0 \leq c < \dfrac{w_p N_p - iwN}{w_p N_p + wN}$ and can reimburse debt if $1-c \geq \dfrac{wN}{wN + w_p N_p}$.
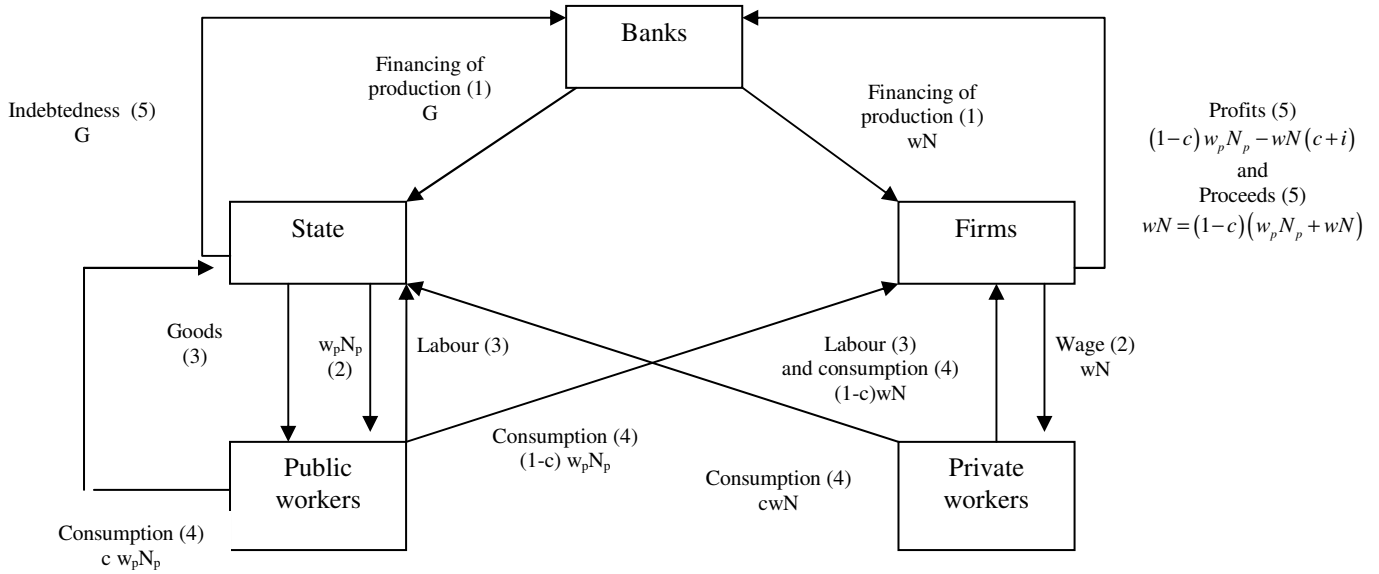
Figure I: Pro-worker goods and profits

In order to determine the level of real wage deriving from a direct State intervention in the production of goods, the average price weighted by the relative quantity produced by both the sectors will be calculated. In detail, given Q the quantity produced by the private sector and Q_p the quantity produced by the public sector, we obtain:

$$Q = aN \qquad [10]$$

and

$$Q_p = aN_p = a\gamma UN \qquad [11]$$

Where γ is the relative number of unemployed finding work in the public sector. The total amount of goods supply becomes:

$$\sum Q = a(N + \gamma UN) \qquad [12]$$

The relative weight of sectors in the economy is:

$$\frac{Q}{\sum Q} = \frac{N}{N + \gamma UN} \quad \text{for the private sector} \qquad [13]$$

$$\frac{Q_p}{\sum Q} = \frac{\gamma UN}{N + \gamma UN} \quad \text{for the public sector} \qquad [14]$$

Given [13] and [14] equation [4] can be reformulated in terms of average prices. In detail

$$\bar{p} = \frac{w}{a}(1+i)\left(\frac{(1-c)(wN + w_p N_p)}{wN} - i\right)\left(\frac{N}{N + \gamma UN}\right) + \frac{w}{a}(1+i)\left(\frac{\gamma UN}{N + \gamma UN}\right) \qquad [15]$$

Equation [15] can be simplified as

$$\bar{p} = \frac{w(1+i)}{a(N+\gamma UN)}\left[\left(\frac{(1-c)(wN+w_pN_p)}{wN}-i\right)N+\gamma UN\right] \qquad [16]$$

and then as

$$\bar{p} = \frac{w(1+i)}{\sum Q}\left[\left(\frac{(1-c)(wN+w_pN_p)}{wN}-i\right)N+\gamma UN\right] \qquad [17]$$

Given [17] equation [5] of the real wage can be reformulated

$$\frac{w}{\bar{p}} = \frac{\sum Q}{\left[\left(\frac{(1-c)(wN+w_pN_p)}{wN}-i\right)N+\gamma UN\right](1+i)} \qquad [18]$$

Note the higher the level of income spent in the consumption of public goods c, the higher the real wage because of the reduction of the rate of profits in the private sector. In addition the higher the unemployment and the lower the number of workers in the public sector, the lower the real wage. In fact given the aggregate supply, the private sector profit rate increases since the total amount of unemployed benefit rises. However, comparing equation [18] with equation [5] it can be seen that a higher real wage results in the case of direct intervention of the State in the production of goods since competition, even if limited, of goods produced by the State with goods produced by firms reduces the private sector profit rate. Finally the higher the quantity produced in the public sector – so the higher the public employment – the higher the real wage. Equations [17] and [18] describe a situation where *public intervention in supplying goods and services is to the advantage of workers (who, as a social group, obtain higher direct and indirect wages and more employment) and reduce firms' money profits.* Notice also that – by contrast to the case dealt with above, where (at the extreme) individuals may enter the labour market only for the sake of obtaining unemployment benefits (which, due to the inflationary pressures, reduces real wages), when the 'added worker effect' is in operation under the direct State control of production, it is the State which hires 'added workers', thus increasing productive employment and production.

4 – Concluding remarks

This paper dealt with the effect that policies devoted to paying unemployment benefits have on income distribution, within the theoretical framework of the MTP, under the assumption that the unitary unemployment benefit is set by workers, firms and the Government, where the Government is interested in restraining social conflict (the so-called legitimation function). Two opposite effects have been taken into consideration. First, insofar as unemployment benefits enter total demand, expansionary fiscal policy allows both an expansion of employment and the realization of monetary surplus for firms as a whole. The increase in the level of employment contributes to generating an 'added worker effect', which, in turn, pushes the Government to pay further unemployment benefits. At the same time, once firms' fixed capital has been completely exploited, firms' money profits at the aggregate level grow, generating an increase in the price level. Accordingly, the payment of unemployment benefits reduces real wages, while increasing money profits. Second, following the Smithian argument that increase in demand fosters the division of labour within firms, this policy can increase labour productivity, thus eventually counterbalancing the inflationary pressures associated to rising profits. Insofar as the overall effect on the price level is ambiguous, crucially

dependent on the size of firms (and, hence, on their possibility of increasing the degree of division of labour), a different policy option has been suggested, where the State directly supplies goods showing that the higher the proportion of *pro*-worker goods, the higher the real wage and employment, as long as 'capital strike' is not fully in operation.

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