KEYNES AND THE MONETARY THEORY OF PRODUCTION

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AIM OF THE PAPER

- **The aim of this paper is threefold. First, it sets out to provide a critical reconstruction of the basic MTP schema as formulated by Graziani (2003), emphasising the existence of 'open issues' relating to internal and external inconsistencies. Second, it seeks to verify the elements of affinity of this schema with Keynes's thought. Third, it aims at expanding the basic schema of the MTP by explicitly considering Keynesian elements, mainly deriving from the *General Theory*.**

THE BASIC SCHEMA OF THE MTP (Graziani, 2003) - I

- The MTP describes the functioning of a sequential economy which 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 advance the money wage bill 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 pay workers and to start production. For a given bargained money wage, they advance the money wage bill. After the production process has taken place, the price level is determined, so that real wages are known ex-post. Income distribution among banks, firms and workers does not reflect the marginalist rules, depending on the relative market and socio-political power of the agents. The monetary circuit closes with the repayment of the initial finance to banks (see Graziani, 2003).

THE BASIC SCHEMA OF THE MTP (Graziani, 2003) - II

- The symbols used here are listed below. X is output, a is labour productivity, N is employment, C is the demand for consumption goods, c is workers' propensity to consume, w is the unitary money wage, I is investment, F is firms' initial finance, b is the fraction of aggregate product that firms acquire for their own use (i.e. real investments), s is the propensity to save, p is the market price, i is the interest rate.
- aggregate supply. $X=paN$ [A.1]
- aggregate demand. $AD=cwN+pbaN$ [A.2]
- Equilibrium price level.
- $p=(w/a)[(1-s)/(1-b)]$ [A.3]
- Net profits. $P=paN-cwN-iwN$ [A.4]

THE PARADOX OF PROFITS

In the absence of external influxes of liquidity (such as public expenditure), equation [4] suggests that aggregate net money profits are lower than zero. This occurs for the following reason. The money wage bill is, at the same time, a source of revenue for firms and a monetary cost, and there are no other costs deriving from the use of other inputs. In this situation, the amount of money firms spend on paying workers equals the amount of money they receive when workers spend their money incomes, provided that workers' propensity to consume is unitary. Therefore, in the most favourable condition for firms (i.e. $c=1$), they are in a position to gain zero gross money profits. Moreover, since the money interest rate is higher than zero, aggregate net money profits are lower than zero. Thus, equation [A.4] can be re-written as:

- $paN=wN \text{ and } i>0 \mapsto P=paN-wN-iwN<0$ [A.4']

THE KEYNESIAN FEATURES OF THE BASIC SCHEMA OF THE MPT (I)

- 1. The MTP and the TM.
- a) The level of production is autonomously decided by firms, as is the aggregate level of employment and its distribution between the sector producing wage goods and that producing investment goods. Real wages increase as firms decide to employ more workers in the sector producing consumer goods, reducing the number of workers employed in the sector producing investment goods. This conclusion can be interpreted as an extension of Keynes's argument – as stated in the TM - that *producer's sovereignty* is a typical feature of a capitalist economy: "the entrepreneurs have been deciding quite independently in what proportions they shall produce the two categories of output [consumption goods or investment goods]" (Keynes, 1971, p.123).
- b) The conclusion reached in Graziani's price equation is similar to that reached by Keynes in the TM. In line with Keynes (1971), profits are nil in the event of savings equals investments (Graziani, 2003, p.105).
- c) According to Graziani (2003, p.21) – in the MTP – "the theorem of the neutrality of money is clearly rejected in point of principle, since any creation of money increases the spending ability of a well-defined group of agents, which means that the effects it exerts on the price level cannot be neutral".

THE KEYNESIAN FEATURES OF THE BASIC SCHEMA OF THE MPT (II)

- 2. The MTP and the GT.
- a) Uncertainty. "In a hypothetical world free from uncertainty and from frictions, […] money is created, passed on from one agent to the next, and destroyed in the same instant. If this is the case, money is no longer an observable magnitude and the paradoxical result emerges of a monetary economy being defined as an economy in which money […] escapes any observation and any possible measurement" (Graziani, 2003, p. 11-12). Moreover, if wage earners decide to keep a portion of their savings in the form of liquid balances, the circuit does not close and the firms are unable to repay their bank debt. This is the *normal* conclusion of the production cycle (Graziani, 1994, pp. 126-127).
- b) Keynes's monetary theory. Graziani maintains that *i)* Keynes was fully persuaded that money has a nature of credit and that money is created by banks, which grant loans, without any previous collection of deposits (Keynes, 1930, I, ch. 2 (i), p. 25; Graziani, 1996, p. 145) and that *ii)* Keynes considered the banking sector as clearly distinct from the firms sector, in the *Treatise on Money* and in some later essays. Even though in the *General Theory* this distinction is missing, the problem of the presence of the banking sector in Keynes's analysis coincides with the role to attribute to the *Treatise* in Keynesian thought (Graziani, 1988, p. 99).
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THE KEYNESIAN FEATURES OF THE BASIC SCHEMA OF THE MTP (III)

- The basic schema of the MTP reflects some basic ideas presented by Keynes in his TM. Some assumptions put forward in the GT (namely the existence of uncertainty) are also considered, although the basic element of the GT (namely, the role played by aggregate demand) does not explicitly enter the model. As a general observation, it can be said that the basic schema of the MTP mainly contains Marxian features. This conclusion appears to be confirmed by Graziani's comment on Keynes's paper on the "Monetary Theory of Production", where Graziani (1984, pp.4-5) finds a strong theoretical link existing between Marx's and Keynes's analyses, establishing that for Keynes, too, the condition for capitalist reproduction in monetary terms is encapsulated in the Marxian sequence *M-C-M'*.
- Otherwise, the main policy prescription derived from the basic schema of the MTP concerns the fact that workers can obtain a rise in real wages only by means of conflict in the socio-political arena, by modifying the scale and composition of output, insofar as money wage rises are nullified by the firm's price rises (Graziani, 2003).

SOME UNSETTLED QUESTIONS

The "paradox of profits" derives from the fact that the basic schema of the MTP sets out to describe the working of a credit economy starting solely with credit creation, in the absence of initial (monetary or real) endowments. Note that this does not only pertain to the lack of realism of the basic schema, but also to its internal consistency. *i)* In the basic schema of the MTP, it is assumed that firms advance money wages without knowing labour productivity and that workers obtain their real wages once the production process has finished. These assumptions are very questionable both on the factual and logical plane. First, one can question why firms advance the money wage bill in a situation where they will know labour productivity only *ex-post*. A possible answer lies in the fact that firms employ workers whose productivity is known, because, for instance, they were employed in the previous production process. Moreover, since the production process involves time, this implies that, in the period between the payment of money wages and the end of the production process, workers cannot consume. In order to avoid this counterfactual assumption, one must assume that workers have *already* consumed when the current production process starts. In both cases, it cannot be admitted that the monetary circuit starts *ex-nihilo. ii)* As Graziani emphasises, banks finance capitalists, not workers. Quite evidently, this presupposes that – at the beginning of the monetary circuit – some individuals are capitalists in the sense that they are owners of the means of production. It follows that a given stock of capital (or monetary wealth) must exist in order to justify Graziani's assumption on bank behaviour. Accordingly, *the monetary circuit can start only if past variables are taken into account*

TOWARDS A KEYNESIAN VERSION OF THE MTP

- The current developments of the MTP are seeking a closer link between this approach and Keynes's work, with particular reference to the consideration of the role played by aggregate demand and expectations (cf. Arena and Salvadori, ed. 2004). In particular, it is stressed that *i)* the so-called paradox of profits holds only on condition that the economic process starts with money creation in the absence of an accumulated stock of wealth; *ii)* a monetary economy with a deregulated labour market does not automatically generate a full employment equilibrium; *iii)* expansionary fiscal policies are required in order to increase the employment rate and to stop deflationary processes. These questions will be addressed by considering two key issues of the Keynesian theoretical framework as stated in the GT (i.e. the idea that the level of employment depends on aggregate demand and the crucial role played by expectations), preserving the fundamental assumptions of the MTP, namely that money supply is endogenous and credit serves above all to finance production.

ENDOGENOUS MONEY, AGGREGATE DEMAND AND UNEMPLOYMENT

- Assumptions.
- a. The economy is formed by two sectors, one producing consumer goods (sector 1), the other producing investment goods (sector 2). For the sake of simplicity, it is assumed that a single consumer good is produced, and it is acquired by both workers and capitalists. The economy considered is a closed economy, without external trade;
- b. At the beginning of the production process, capitalists own a disposable income deriving from the net profits made in the previous production process. Capitalists can use this stock of wealth either to consume or save, and, as regards savings, it can be used to finance production and investments. This occurs in every production period (cf. Trezza, in Arena and Salvadori eds. 2003, pp.75-86).
- c. It is assumed that firms finance the production of consumer and investment goods both by means of their internal funds and of bank finance. The order of the financing channels is given, based on their cost for firms: firms *first* finance production and investments via their internal retention and *after* that they contract debts. Firms' indebtedness is assumed to depend on the expected rate of profits and on the interest rate. The level of employment is determined by the expected aggregate demand. Public expenditure has a positive effect on firms' aggregate money profits (cf. Parguez, 2007; Forges Davanzati, Pacella and Realfonzo, 2009)

SOLVING THE PARADOX OF PROFITS

- The symbols used are listed below. π are aggregate profits, W_k is capitalists' disposable income, C_w is workers' consumption, C_k is capitalists' consumption, A_k is firms' expenditure deriving from their internal retention, w is the unitary money wage, N is the level of employment, i is the interest rate, F_T is firms' total expenditure for production, including their internal finance, F_d is the amount of finance demanded by firms to banks in order to produce consumption goods and investments goods, F_C is the amount of monetary resources devoted to finance the production of consumption goods, F_I is the amount of monetary resources devoted to finance the production of investment goods, r^e is the expected rate of profits, I are investments, G is public expenditure, p is the unitary price of consumption goods, a is average labour productivity, α is the degree of banks' accommodation.
- At the beginning of the production process, firms decide the amount of finance demanded to the banking system. In view of assumption b), this is:
- $FT=Fd+Ak=Fd+(Wk-Ck)$, and $FT=Fc+F_I=f(D^e_c)+f(D^e_I)$ [B.1]

AGGREGATE MONEY PROFITS

- Equation [B.1] establishes that the 'initial finance' depends on firms' expectations on the demand for consumer goods and on the demand for investment goods. The amount of credit applied for by firms producing consumer goods will rise in line with their expectations on workers' consumption (and, hence, on the wage bill paid in the sector producing investment goods, for a given propensity to consume), and the demand for credit by firms producing investment goods will increase with the growing optimism of their expectations on the demand for investment goods expressed by firms producing consumer goods. On the assumption of initial given expectations implying that the expected rate of profits is higher than the interest rate, firms' demand for credit is a given: i.e. $r^e>i->FT>0$. On the macroeconomic plane, firms' indebtedness towards the banking system will be higher *i)* the lower their internal retentions; *ii)* the more optimistic their expectations and *iii)* the lower the interest rate.
- $AD=Ck+Cw+I$ [B.2]
- $P=Ck+Cw+I-F(1+i)$ [B.3]
- With $P>0$, because: *i)* the payment of wages and the demand for investment goods are not entirely financed via bank credit. Abstracting, at the moment, from the interest rate and capitalists' consumption, $Cw+I>Fd$; *ii)* capitalists' consumption is not financed via bank credit, but via accumulated wealth, so that capitalists' consumption does not involve financial costs.

UNEMPLOYMENT

- The level of employment is proportional to: *i)* capitalists' consumption, *ii)* the propensity to invest, *iii)* the money wage bill *iv)* workers' propensity to consume. Labour market deregulation increases uncertainty, because of higher job insecurity, and this reduces the present propensity to consume.
- *Importantly, and in line with the basic principles of the MTP, the level of employment ultimately depends on firms' demand for credit, both for production and investment purpose.* This is because high levels of firms' indebtedness imply high levels of the money wage bill (in both sectors), and high levels of the money wage bill, in turn, imply high profits in sector 1 and high demand for investment deriving from firms operating in that sector. Moreover, insofar as firms' indebtedness, for a given interest rate, crucially depends on their expectations, employment grows as firms' expectations become more optimistic. Furthermore, for a given level of firms' indebtedness, employment grows as capitalists' expenditure (both on production and consumption) increases, which, in turn, depends on their accumulated wealth (*Wk*).

THE DEMAND FOR CREDIT

- 1. The necessity to go indebt. "The reduction in the wages-bill, accompanied by some reduction in prices and in money-incomes generally, will reduce the *need for cash* for income and business purpose" (Keynes, 1973 [1936], pp.262-263, italics added). And: "the reduction in money-wages will have no lasting tendency to increase employment expect by virtue of its repercussion either on the propensity to consume for the community as a whole, or on the schedule of marginal efficiency of capital, or on the rate of interest".
- 2. The convenience to go indebt. In line with the basic schema of the MTP (and with assumption b), Keynes's argument can be expanded, by considering that – under given circumstances (i.e. high intensity of competition; inability to compete via increases of productivity) - firms can find it profitable to minimize their indebtedness towards banks (cf. Nell, 2002; Chapman and Keen, 2006). It can happen that, if the burden of debt is considered too high by firms, they find it profitable to reduce their demand for credit, even when the banking system is fully accommodating. The minimization of indebtedness can be conceived as a competitive strategy. The reduction of *F* (which presupposes policies of wage cutting), in fact, allows the individual firm to lower production costs, and, insofar as firms are in competition with each other, each of them has to reduce prices to stay competitive. This, in turn, produces a reduction of total costs and prices thus giving rise to increased *expected* profits. On the macroeconomic plane, a decrease of indebtedness reduces aggregate demand and, hence, the level of employment.

CREDIT SUPPLY

- a. *Banks' decisions are affected by fundamental uncertainty*, so that – in economies populated by heterogeneous firms – banks tend to finance big firms, insofar as they consider them less likely to go bankrupt (cf. Rasmkogler, 2007). This is the case of *credit rationing.*
- b. Assuming that firms are homogeneous so they offer the same amount of collateral to banks, credit restriction can arise in the event banks' expected profits are lower than firms' expected profits, and, importantly, there is no endogenous mechanism guaranteeing equality between banks' and firms' expectations. Moreover, in view of assumption *c)*, both current and expected profits also depend positively on fiscal policy. It follows that an increase (reduction) in public expenditure – for a given taxation level - increases (reduces) current and expected profits. This is likely to occur due to the following effect. A reduction of public expenditure reduces the money wage bill, thus aggregate money profits, making it more difficult for firms to reimburse their debt to banks. Banks are expected to react by reducing their credit supply ($\alpha<1$). In this case, it follows that *restrictive fiscal policies are likely to produce credit restriction*

FISCAL POLICY

- Assume now that public expenditure falls. This generates two effects. First, it means a decline of net profits, because of *i)* the direct effect of *G* on *P* , *ii)* the reduction of capitalists' consumption and, for a given financing, of investments. Second, it increases the interest rate. This occurs because – given capitalists' expectations – in order to finance their planned investments they have to increase their demand for credit. This, in turn, reinforces banks' bargaining power, allowing banks to increase the interest rate. Note that this is likely to occur independently of the behaviour of the Central Bank, since the Central Bank in fact does not fully control the interest rates of commercial banks. Higher interest rates pushes capitalists to devote an increasing share of their internal retention to the payment of debt, with negative effects on subsequent capitalists' expenditures.

  The fact that firms get into debt when interest rates are high is justified on two grounds: *i)* their expectations on future profits are optimistic and/or *ii)* they expect further increases in the interest rate.
- Note that this effect (the decrease of public expenditure generating an increase in the interest rate) contrasts the standard "crowding out" effect as derived from the IS-LM model. This depends on the fact that, in the Keynesian version of the MTP, public expenditure is complementary to capitalists' expenditure.

  - $\downarrow G \rightarrow \uparrow i$ (or $\downarrow \alpha$) $\rightarrow \uparrow iF$ (given r^e) $\rightarrow \downarrow$ Net P $\rightarrow \downarrow I \rightarrow \downarrow N$

- Accordingly, *restrictive fiscal policies redistribute income from wages and profits to financial rents.*
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CONCLUDING REMARKS

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- It has been shown that the basic schema of the MTP – as established by Graziani (2003) – mainly focuses on the problem of the monetary reproduction of a capitalist system, in a situation where firms as a whole are unable to realize money profits. It has been stressed that this conclusion – the so-called paradox of profits – holds on some restrictive assumptions and, particularly, on the assumption that every production process starts without pre-existing stock of wealth. It has been shown that Graziani's formulation is close to Keynes's *Treatise on Money* and can also be interpreted as a 'rationalization' of the Marxian sequence M-C-M'. A simple macroeconomic model has been provided in order to show that the basic assumptions of the MTP are consistent with the fundamental Keynesian thesis, as stated both in the TM and in the GT, with particular regard to the role of aggregate demand and uncertainty.

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