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Abstract: Nicholas Kaldor's contribution to economic theory covers a wide range of topics, elaborated in different historical contexts, such as theories of economic growth and the balance of payments, studies on interregional divergences and monetary theory. In most cases, historians of economic thought have devoted their attention to single aspects of his contributions. This paper aims at integrating Kaldor's monetary theory and his view of the relevance of increasing returns. His theory of endogenous money is very similar to the view proposed in the contemporary monetary theory of production, and, in this respect, Kaldor's contribution can certainly be considered an "antecedent" of this line of thought.

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1 - Introduction

Nicholas Kaldor's contribution to economic theory covers a wide range of topics, elaborated in different historical contexts, such as theories of economic growth and the balance of payments, studies on interregional divergences and monetary theory. Relatively little attention has been devoted to his contribution, and, in most cases, historians of economic thought have dealt with single aspects of his thinking¹. This paper suggests that Kaldor's monetary theory and his belief that economic growth is driven by increasing returns can be integrated in a unified theory of capital reproduction. This theory is based on the following features: *i*) the banking sector can create credit-money *ex-nihilo*, i.e. without a previous collection of savings; *ii*) credit creation on the part of the banking sector allows firms to advance money wages and to invest, and the dynamics of wages and that of investment affect labour productivity, via the increase in the size of firms and the operation of increasing returns. Accordingly, the rate of economic growth basically depends on the path of aggregate demand, mainly via the 'supply-side' effects deriving from its expansion. Importantly, the path of aggregate demand itself depends on the operation of the credit market.

As regards the first aspect, Kaldor's approach, as will be shown below, is very similar to the contemporary theory of the monetary circuit – also labelled monetary theory of production (hereafter MTP). Surprisingly, while contemporary circuit scholars consider Marx, Wicksell, Schumpeter and Keynes their “antecedents”, they rarely mention Kaldor, who provided a more organic and consistent treatment of the endogenous money theory than the authors quoted above – Keynes included. Two reasons appear to be sufficient to explain why Kaldor's contribution to the endogenous money theory was more organic and internally consistent than that of Keynes². First, Kaldor wrote on monetary issues in the period when Monetarism tended to become the dominant paradigm in economics, and – from the standpoint of the post-Keynesian approach – he put considerable effort into opposing it³; second, he benefited from Keynes's reflections on the nature of money and its functions, as stated, in particular, in his *Treatise on money*.

The aim of this paper is twofold. First, it aims at assessing Kaldor's monetary theory in order to find its affinities and divergences with that proposed by the contemporary MTP. Second, it aims at enriching the basic schema of the MTP by integrating Kaldor's theory of endogenous money with his theory of economic growth. This exercise will show that:

¹ For instance, in his influential book on the history of post-Keynesian economics, Harcourt (2006) deals with Kaldor's macroeconomics in relatively few pages, with particular reference to his theory of income distribution and economic growth and with relatively little attention to his monetary theory. Harcourt (2006, p. 6) observes that Kaldor's theory of distribution is “a good reference point [for the reconstruction of the post-Keynesian theory] because it has idiosyncratic features, not least that in a long-period, full-employment model, seemingly a most strange work to come from the pen of such an eminent Keynesian economist as Kaldor. This even led Paul Samuelson to dub him ‘Jean Baptiste Kaldor’”. A comprehensive, detailed reconstruction of Kaldor's work has been provided by Targetti (1992).

² On the conceptual problems deriving from inserting Keynes's monetary theory in the logic of the MTP, see, among others, Seccareccia (2004) and Forges Davanzati, Pacella and Patalano (2013).

³ This is not to say that Kaldor elaborated his theory of endogenous money in the 1970s. Musella and Panico (eds., 1995, pp.37 ff.) convincingly show that this theory was also present in his early writings.

a) The basic assumption of the MTP that the production process starts with credit creation on the part of the banking sector holds only in a very specific condition where public intervention is absent, where the monetary circuit develops in static terms and external trade is not taken into consideration. Moreover, it is to be stressed that the basic model of the MTP produces the same results independently of firms' technology and their size.

b) Kaldor's contribution cannot be confined to a theoretical development of the Keynesian theory, and many aspects of his work can be interpreted as radically different from Keynes's theory (in particular, from Keynes's *General Theory*). In particular, as will be shown, Kaldor shows that variations of aggregate demand produce their most important effects on the supply-side, and that the formation of an aggregate demand function is not independent from the functioning of the credit market⁴. In this sense, Targetti's (1992) interpretation that Kaldor's contribution falls within the sphere of "radical Keynesism" is convincing⁵.

The exposition is organized as follows. In section 2 the affinities and the divergences between Kaldor's monetary theory and the MTP are discussed. Section 3 proposes a general schema where the theory of endogenous money is connected with the Kaldorian idea that firms' technology (and firm size) is a crucial variable for generating economic growth. Section 4 concludes.

2 – Kaldor and the MTP

The MTP describes the functioning of a sequential economy which involves three macro-agents: banks, firms and workers. The banking sector 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 real wages are known *ex-post*. Income distribution among banks, firms and workers does not reflect the marginalist rules, depending on the relative market power and socio-political clout of the agents. The monetary circuit closes with the repayment of the initial finance to banks – the so-called "destruction of money" (see Graziani, 1990; 2003). 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 failure to attain 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 by firms towards 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. In this context, 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; Parguez 2004 and 2007; Poulon 1982; Deleplace and Nell, 1996) and, importantly,

⁴ The idea that the operation of the credit market affects the dynamics of aggregate demand and of productivity (via variations of capital turnover) is also to be found in so-called old Institutionalism – in Thorstein Veblen above all (cf. Forges Davanzati and Pacella, 2014).

⁵ Targetti and Thirwall (1989, pp.1-2) point out that "Kaldor identifies four major limitations of the aggregate Keynesian model: first, the competitive assumptions on which the model is based; secondly, the assumption of a closed economy; thirdly, the static nature of the model; and fourthly, the treatment of money as exogenously determined".

expansionary fiscal policies are conceived as a fundamental device allowing capitalist monetary reproduction (and hence positive money profits for firms as a whole). This occurs both because public expenditure is an ‘external’ injection of liquidity which increases firms’ money revenues and because fiscal policies act as an “anchor” for profits insofar as they modify entrepreneurs’ expectations (cf. Parguez, 2004; 2007).

Kaldor’s monetary theory is similar to that of the MTP on two grounds.

1) In opposition to the Monetarist view that money supply is exogenous, Kaldor stressed that the banking sector is not technically constrained in the creation of credit money (so that money supply is endogenous), and that the banking sector cannot manage money supply, being merely able to manipulate the interest rate. He emphasised that:

“A given stance of monetary policy is best expressed by a chosen interest rate, and not by a chosen quantity of credit money in existence; and, whether the elasticity of the demand for money be large or small, the elasticity of supply of money given the chosen interest rate, is infinite” (Kaldor, 1989 [1981], p.109) and “the elasticity of supply of money, given the chosen interest rate, is infinite” (ibid.)

And even more clearly:

“Credit money has no ‘supply function’ in the production sense (since its costs of production are insignificant if not actually zero); it comes into existence as a result of bank lending and is extinguished through the repayment of bank loans. At any one time the volume of bank lending or its rate of expansion is limited only by the availability of credit-worthy borrowers” (Kaldor, 1989, p.179).

Kaldor (1989, p.109, italics added) also clarifies that credit supply is demand-driven:

“If a business decides to spend more whether on building up its stock of raw materials or components, or hiring more labour, or paying higher wages to its existing employees ... there will be an *automatic* increase in the money supply for the simple reason that the additional expenditure will swell the bank deposits of the recipients”

It should be pointed out that the view that the demand for credit is automatically satisfied by an equal supply of credit presupposes that banks are not reserve-constrained in their response to the demand for credit. In other words, it seems that Kaldor accepts an “accommodationist” view, so that the central bank responds passively to individual banks’ demand for reserves by supplying the exact amount of the required reserves. Palley (2013, p.12), among others, provides a clear description of this approach: “The supply of monetary base ... is horizontal at the policy determined money-market interest rate. The loans supply schedule ... is horizontal at the loan rate which is a mark-up over the policy rate. Banks satisfy all loan demand forthcoming at this rate. Bank lending determines deposit creation and thereby determines the money supply. The central bank then adjusts the supply of reserves to back deposits created”. In such a schema, *loans create deposits*. By contrast, Musella and Panico (in Musella and Panico, eds, 1995, p.56) argue that “the content of Kaldor’s later writings makes it difficult to argue that for him the supply of loans is a *non-discretionary* variable for the individual bank”. This is because of his reference to “variations in the creditworthiness of potential borrowers”, which led him – according to the authors – to conclude that “The reserve ratios ... tend to vary

over the trade cycle and to be unstable with respect to the interest rate". Musella and Panico (eds. 1995, p.57) maintain that "a horizontal money supply represents ... the simplest (and probably the most convenient) hypothesis". These interpretations may not be considered radically divergent if one considers that Kaldor maintained a horizontalist view in the description of the functioning of a credit economy *at its highest level of abstraction*, while considering the cases of credit restriction and the procyclicality of credit supply in dealing with the interpretation of current macroeconomic dynamics.

Such questions are relevant in this context because even if one attributes an accommodationist view to Kaldor, his theory of money supply departs from the conventional circuitist approach insofar as (at least in its basic schema) it supposes that credit creation can occur even in the absence of a central bank. More generally, the question of the logical necessity of the existence of a central bank in the logic of the monetary circuit is still open to debate (cf. Fontana, 2009).

2) In line with the circuitist view that expansionary fiscal policy affects money profits positively (cf. Parguez, 2002; 2007), Kaldor maintained that increases in net public expenditure stimulate private investment, i.e. what one can define 'a monetary crowding out effect' (see also below – section 3):

"Increased government loan expenditure raises private investment through the accelerator mechanism" (Kaldor, 1989, p.114).

However, Kaldor's approach departs from the conventional schema of the MTP on the following grounds.

First, contrary to the conventional circuitist view that the demand for credit expressed by firms only serves to advance money wages to workers (Graziani, 2003), Kaldor argues that credit is also used for investment⁶:

"Credit money comes into existence, not as a result of mining but of the granting of bank credit to borrowers, who use it (in the majority of the cases) to finance expenditures of a non-recurrent kind – such as those involved in the enlargement of stocks carried by manufacturers or traders, or their replacement of higher prices, or the purchase of plants and machinery" (Kaldor, 1989, p.184)⁷.

Second, the basic schema of the MTP describes the functioning of a capitalist monetary economy in static terms, and apart from a few contributions (cf. Keen, 2009), circuitist scholars have devoted little attention to the dynamics of the monetary circuit. As Targetti and Thirlwall ("Introduction" in Kaldor, 1989, p.3) clarified:

"[Kaldor] combines the territorial extension of the Keynesian model with the assumption of increasing returns to produce a model of disequilibrium growth analogous to Myrdal's model of 'circular and cumulative' causation which

⁶ In more sophisticated models of the monetary circuit, it is admitted that firms demand credit also for investment purposes. Cf., among others, Seccareccia (2003).

⁷ He also clarifies that "this means that *in the sense required by monetarist theory*, an excess in the supply of money cannot come into existence; and if it did, would automatically be extinguished through the repayment of bank indebtedness (or its equivalent), either by the original borrowers or by others" (Kaldor, 1989, p. 185).

predicts the growing concentration of increasing returns in activities in certain localities which obtain an initial advantage, and the polarization in the levels of development between countries and between regions”.

Third, circuitist scholars devoted very little attention to the structure of the industrial sector (cf. Messori and Zazzaro, 2005), so that the basic model generates the same results if applied to economies populated by small or by big firms, quite independently of the technology they use. No doubt, this is a limit of the MTP: big firms can exploit scale economies, can pay higher wages and can easily bypass the credit market, driving resources from the financial markets, so that the structure of the industrial sector can no longer be considered as irrelevant for the functioning of a credit economy.

The schema presented in the next section also aims at integrating the Kaldor effect into a theory of endogenous money, keeping in mind that Kaldor wrote about his theory of economic growth and his theory of endogenous money separately. As will be shown, a systematic interaction between the path of aggregate demand and that of supply occurs in a theoretical context where the path of aggregate demand crucially depends on the operation of the credit market. More generally, while in the basic schema of the MTP, firms’ technology is assumed to show constant returns, Kaldor stressed that, as a norm, firms (particularly big firms located in more industrialized countries) operate with increasing returns (cf. Watanabe, 1997). As Kaldor wrote:

“business men could never ignore the existence of diminishing costs. It is on account of the economies of large-scale production that a rising market share means success and a falling market share spells trouble. And it is on that account that in a growing market a business *cannot* stand still: it must grow if it wishes to survive” (Kaldor, 1989 [1981], p.204).

Kaldor’s theory of increasing returns reflects both the heritage of Allyn Young and that of Gunnar Myrdal. It is interesting to observe that Kaldor considered Young his “first real teacher in economics” (Kaldor, 1989, p.14). Young (1928) – expanding Adam Smith’s theorem of the division of labour – argued that it is the growth of the *size of the market* which ultimately determines the adoption of more productive methods of production, via increased division of labour and specialization. He also considered the effects of the growth of the “size of the market” on the size and the number of productive units (cf. Colacchio, 2005). Myrdal focused on the role of technology (and hence of increasing returns) in amplifying interregional divergences (cf. Myrdal, 1957). This is a crucial issue also in Kaldor’s work. He clarifies that “It is as a result of this that free trade in manufactured goods led to the concentration of manufacturing production in certain areas – to a *‘polarization process’* which inhibits the growth of certain activities in some areas and concentrates them in others” (Kaldor, 1989, p.228, italics in the text). Combining the views of Young and Myrdal, Kaldor considers that increasing returns applies to *manufacturing industries in developed countries*, and that they are connected with an “accelerator effect”: the more the output of the manufacturer sector grows the greater is the increase of productivity for the economic system as a whole.

To Kaldor, the operation of increasing returns mainly depends on the following factors:

- firm size: “*Plan costs* per unit of output necessarily decrease with size in any integrated process of operation” (Kaldor, 1972, p.1242);

- specialization of workers, consequent to “the break-up of complex processes into a series of simple processes” (Kaldor, 1972, p.1242);
- learning by doing effects or dynamic economies of scale: “There are the inventions and innovation induced by experience to which Adam Smith paid the main emphasis” (Kaldor, 1972, p.1243).

Note that this latter factor can be regarded as operating in an historical context where innovations are produced by workers, which is clearly a very specific institutional condition and, above all, is not the normal mode of generating inventions in contemporary capitalism. Accordingly, it is the nexus between firm size and increasing returns which can be regarded as the *more general argument* supporting the operation of increasing returns.

3 – Endogenous money, aggregate demand and labour productivity

The arguments presented in this section are based on the following general assumptions: *i*) net public expenditure positively affects money profits (cf. Parguez, 2004; 2007) and *ii*) the path of aggregate demand influences that of labour productivity, via variations of firm size, increasing returns and innovations. The rationale for the first assumption is that in a closed economy (or in an economy mainly populated by firms which sell in domestic markets), an increase in demand increases money revenues and, for given production costs, money profits. In a very similar vein, Kaldor (1972, p.1250) points out that investments are “induced” by increases in demand, and that this occurs both because “the producers ... adjust the rate of their production in response to changes in their sales (or in the state of their ‘order book’)” and because “the rise in current sales causes a revision of expectations of future sales”. The rationale for the second assumption lies in the Kaldorian effect that as aggregate demand increases, firms react by increasing production, which implies an entails in their size and increasing returns⁸.

These assumptions are inserted into a theoretical schema where money supply is endogenous. The dynamics of aggregate demand will be treated as basically dependent on that of public expenditure, and some considerations will be put forward on the links existing between expansionary fiscal policies and the external balance.

The following specific assumptions are put forward:

- 1) A two-sector closed economy is considered, where type-A firms produce consumer goods and type-B firms produce investment goods. The employment level is determined on the basis of expected demand. Firms fix the price level with the mark-up rule, which is assumed to be constant⁹.
- 2) Capitalists advance money wages, on the assumption that the unitary money wage is a given. Workers’ propensity to consume is equal to one. 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 *then* they contract debts. For the sake of simplicity, the operation of

⁸ Current empirical evidence supports this effect. OECD (2013) finds that “Enterprise size matters for productivity. In most countries there is evidence of increasing returns to scale. Larger firms are on average more productive than smaller ones and this generally holds for all industries”.

⁹ As Kaldor (1989, p.259) maintains “everybody practises mark-up pricing”, and “the market operates via changes in quantities rather than in prices”.

financial markets is not considered here. Firms' demand for credit is assumed to depend on the expected rate of profits and on the interest rate¹⁰

On these assumptions, two scenarios are in order.

1. *The statics of the monetary circuit.* In the basic schema of the MTP, the banking sector supplies firms with an amount of credit money designed to advance workers their money wage bill. The production process takes place. On the assumption that workers' propensity to consume is equal to one, in the absence of external intervention, firms as a whole recoup an amount of money equal to their monetary costs of production, so that they are unable to obtain positive money profits. This is a case where the economy reproduces itself in static terms. Firms are in the position to realize their profits in kind, but are not able to obtain them in monetary terms. Note that this occurs on the condition that banks require the reimbursement of the entire initial finance (including interest) at the end of the production period. However, in actual fact, banks claim the reimbursement of the whole financing only if they foresee a firm's bankruptcy. In this respect, the "destruction of money" (i.e. the "closure" of the monetary circuit) occurs through an autonomous decision of the banking sector and, in this sense, it is not a purely technical issue. Accordingly, there is nothing to ensure that the length of the production period, which is determined by the technology used by firms, is equal to the length of the time lag existing between credit creation and "credit destruction". As a result, *money capital rotation does not necessarily coincide with fixed capital rotation*. Note also 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, for this main reason.

As Graziani emphasises, banks finance capitalist firms' capitalists, not their workers¹¹. 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. This idea is even more important if one considers the Kaldorian features of this schema, insofar as Kaldor did not conceive that the credit market functions in a state of business democracy¹².

Accordingly, in this theoretical context, economic growth can occur only via external intervention, i.e. only via expansionary fiscal policy or, for a single country, via the increase of net exports. In this sense, the basic picture of the MTP contradicts Kaldor's view that the economy always moves dynamically and in disequilibrium. As has been observed, the statics of the MTP can be seen as the contemporary description of the flows of resources between macro-agents similar to Quesnay's *Tableau économique* (cf. Lunghini and Bianchi, in Arena

¹⁰ The idea that an order of financing channels is given – which contrasts with the standard Modigliani-Miller theorem - reflects the so-called "pecking order theory" (cf. Myers and Majluf, 1984).

¹¹ "Credit [...] is not granted to anyone presumably able to repay his debt, but only to selected agents, usually being productive firms [...]. A similar assumption clearly echoes the Marxian distinction between a class of property owners and a class of propertyless workers" (Graziani, 2003, pp.20-21).

¹² In his *A model of economic growth*, in particular, Kaldor (1957, p.605) explicitly maintains that "we can regard the existing capital stock, K_1 as a datum, an heritage of the past".

and Salvadori, eds. 2004). Nevertheless, it is the main tenet of the MTP, i.e. the endogenous money view, that is relevant for a re-reading of Kaldor's theory of economic growth, where credit money plays a crucial role in affecting the path of labour productivity.

2. *Aggregate demand and the dynamics of the monetary circuit.* In the event of an increase in aggregate demand (which, in this theoretical context, derives from the increase in net public expenditure¹³), aggregate money profits rise. In particular, if public expenditure directly increases money incomes – for instance, in the form of payment of unemployment benefits or pensions – this generate *first* an increase in the number of firms producing consumer goods. In a second step, they are expected to react by increasing their demand for investment goods, insofar as – following Kaldor – prices are fixed. This produces an increase in the supply of investment goods (and, hence, an increase in employment in this sector) and an increase in the stock of fixed capital available for firms producing consumer goods. The consequent increase in firm size is associated with higher labour productivity and a higher level of employment. Accordingly, *fiscal policy affects firms' technology*, with positive effects on the rate of growth of labour productivity, so that expansionary fiscal policy drives economic growth via its supply-side effects, in line with Kaldor's view that "economic growth is ... always *demand-induced* and not resource-constrained" (Kaldor, 1989, p.211). This argument can be summarized in the following logical steps:

- an increase in aggregate demand generates higher money profits, with the consequent growth of investment and firm size;
- due to the postulated relation between firm size and increasing returns, this leads to an increase in the rate of growth of labour productivity.

One should observe that this mechanism is fully in operation only when the growth of aggregate demand does not produce inflationary pressures. This is Kaldor's view. The author does not clearly state the rationale for this assumption. One can interpret it considering that – according to Kaldor – the growth of firm size resulting from an increase in demand is not a spontaneous outcome, in the sense that this effect crucially depends on the fact that entrepreneurs are interested in the growth of firms, not in maximizing profits. Otherwise, firms tend to respond to an increase in demand by increasing their size for the purpose of staying competitive, thus expanding their market share.

In this picture, the credit market plays a crucial role in setting the path of both consumption and investment. This occurs because both consumption and investment depend on the demand for credit on the part of firms, and on the credit supply on the part of the banking sector. In particular, consumption derives from the payment of the money wage bill to workers, while firms' investment plans are carried out only if banks do not restrict their credit supply. It is worth noting that, in a theoretical context where it is assumed that the production process starts with money creation on the part of the banking sector, the generation of aggregate demand crucially depends on the operation of the credit market. In particular, the demand for credit (and hence the money wage bill, which is converted into consumption, and investment) on the part of firms depends on the difference between the expected rate of profits and the interest rate. As a result, for given expectations, the higher the interest rate and the lower the demand for credit, the lower the consumption and investment, with a consequent lower aggregate demand, smaller firm size and lower rate of growth of labour productivity.

¹³ By assumption, the path of the balance of payments will be treated here as a result of fiscal policy path.

Accordingly, *the dynamics of labour productivity crucially depends on the operation of the credit market, and, in particular, on the interest rate.* Moreover, since the interest rate depends on the relative bargaining power of banks and firms, in a situation where firms' bargaining power grows in proportion to their internal funds, it follows that firms' bargaining power depends on their past profits. This is a case where the operation of the credit market is path-dependent: *the current interest rate tends to be lower in economies where firms earned high profits in the previous production processes.*

Based on Kaldor's view, a further effect is in operation. The increase in firm size is associated with higher wages, better labour conditions and higher labour productivity. Kaldor (1989, p. 123) points out that:

“Successful oligopolies are likely to experience a faster than average rate of increase in productivity which, owing to their position of dominance in their particular markets, they are not compelled by competition to pass on to their customers in the form of lower prices”.

He adds:

“They are keen to pay their workers more than they can obtain elsewhere and to raise their wages in line with the increase in the value of output. Indeed, they are anxious that everyone should share in the prosperity of the enterprise and they reap the reward in terms of good labour relations ... Under conditions of a high degree of unionization, the wages increases granted by successful oligopolies will set the standard to which the average enterprise will be under pressure to conform” (Kaldor, 1989, p.123).

In other words, both because of their higher internal funds and the easier access to bank credit, big firms *can* pay higher wages than small firms. Moreover, they could also find a high wage policy *profitable*, insofar as they produce “good labour relations”. More generally, Kaldor (1989, p.124) argues that. “the question of the determination of money wages can no longer be analysed in narrowly economic terms: it has become very much a *political* problem”. The existing relation between firm size and wages reinforces the cumulative effect that links aggregate demand and labour productivity, insofar as the increase in wages, deriving from the growth of firm size, in turn, has a positive effect on the path of aggregate demand, via the increase in consumption. This generates *a cumulative process of systematic interactions between aggregate demand and supply.*

The following remarks are in order.

a) Due to the fact that they have internal funds, firms have a higher bargaining power in the credit market, which may produce a decrease of the interest rate. As a result, and *contrary to the standard IS-LM model, an increase in net public expenditure generates a decrease in interest rates.* As regards the functioning of firm-bank relationships, it is worth noticing that the timing of the reimbursement of debt is not a purely technical datum, but it is likely to depend on the relative bargaining power of firms and banks. Arguably, firms' bargaining power is higher: *i)* the bigger their size, due to the “too big to fail” conjecture; *ii)* the higher their past profits, which can be a signal of their solvency; *iii)* the higher their collateral, measured by the stock of capital available. Moreover, for the individual firm, its credit history with the individual bank also matters. Furthermore, it is worth noticing that on the assumption

that money supply is endogenous and demand-driven, the path of investment crucially depends on the banking sector's degree of accommodation. As shown by Forges Davanzati (2014), in the theoretical context of the MTP, *the degree to which banks are accommodating ultimately depends on the dynamics of aggregate demand*. It is argued that a reduction of net public expenditure implies a decline of aggregate money profits (of firms operating on domestic markets). This, in turn, entails a reduction of credit supply, for the following processes to be in operation. A reduction of net public expenditure generates an immediate decrease of monetary profits in firms producing for domestic markets. This, in turn, produces a drop in investment. The consequent reduction of firms' solvency pushes banks to reduce their credit supply, entailing a further decline of profits, generating a vicious circle which cannot be stopped in the absence of external intervention. Note also that big firms do not suffer from credit restriction, for two main reasons: *i)* their size allows them to provide banks with sufficient collateral; *ii)* they can easily bypass the credit market by collecting resources in the financial markets.

b) Contrary to the standard Keynesian function, consumption is not a direct function of income, but mainly depends on the interest rate, workers' bargaining power and firm size. This occurs because, in the logic of endogenous money theory and according to Kaldor's theory of increasing returns, as the money interest rate rises this will lead *coeteris paribus* to a decrease in firms' demand for credit. This, in turn, produces a reduction of the money wage bill and, for a given propensity to consume, the consequent reduction of consumption. Moreover, an increase in the money interest rate also discourages investment, involving the reduction of firm size and, due to Kaldor's argument, less relevance of increasing returns, and fewer funds internally available for firms to respond to union wage claims.

c) As seen above, Kaldor attributes higher labour productivity to increased returns generated by the expansion of the size of the market, in an oligopolistic environment. A very similar result derives from the so-called high wage theory (cf. Petridis, 1996; Forges Davanzati and Pacella, 2008), which can be regarded as a variant of the basic Kaldorian theory of the functioning of the labour market. It is argued that wage rises combined with legislation against the use of flexible labour contracts is likely to force firms to compete by raising productivity and hence introducing innovation. Furthermore, as Dutt (2010, p.54) emphasises: "Firms increase labour productivity growth when the labour market becomes tighter, or the employment rate rises: necessity is the mother of invention". Parguez (2008) remarks that: "a full employment policy automatically pushes for increased investment and therefore for the embodiment of more and more technology-innovations in the stock of equipment. It is tantamount to the proposition that a full employment policy sustains the growth of productivity in the long run". As Faejio and Lamonica (2013, p.117) point out, the high wage theory is fully consistent with Kaldor's view on the links between the path of wages and that of labour productivity: "When wages grow faster than productivity, profits will decrease and entrepreneurs will be stimulated to invest in new machinery in order to increase productivity and the share of profits". Based on Kaldor, they show that less productive machines are replaced (thus giving rise to technical advancement and structural change) as a result of wage rises: "The entrepreneur must replace the machine to recover its profitability, as the investment in new and ... more advanced machinery will increase labour productivity above the average wage" (p.112).

These theoretical arguments proved to be relevant in Kaldor's theoretical battle against Monetarism in the 1970s. In opposition to the Monetarist claim that policies of labour market

deregulation are needed, one can argue – following Kaldor – that in the event that firms compete via the use of “flexible” labour contracts, this produces a slower rate of growth. As Forges Davanzati and Realfonzo (2004), among others, have shown, labour market deregulation increases uncertainty (because of higher job insecurity), and this reduces the present propensity to consume, thus generating a reduction in aggregate demand and employment¹⁴. According to this view, money is held as a reserve of value in a condition of high uncertainty on the part of workers, which can derive from high job insecurity¹⁵. More generally, based on Kaldor, labour market deregulation reduces the rate of growth. This is because labour market deregulation negatively affects workers’ bargaining power. This, in turn, generates a reduction of wages which, due to the drop of consumption, negatively affects domestic aggregate demand, the level of employment and the rate of growth of labour productivity. Note that the fall of aggregate demand is entirely imputed to the drop of consumption, since there is no reason to expect a variation of private investment. Moreover, since wages are paid (also) via bank credit, wage moderation reduces firms’ indebtedness to banks. This is a case of lack of coordination: while the individual firm finds it convenient to use flexible labour contracts (because this reduces their costs, including their financial costs), firms as a whole experience a decline in their money profits, as a result of the drop in demand. Note also that *i*) a significant reduction of aggregate demand, insofar as it generates a drop in money profits, may make it more difficult for firms to repay their debt to banks, even if their total indebtedness is lower in the case of wage moderation: if this occurs, *labour market deregulation may reduce firms’ solvency* and, in view of the argument above, may produce a consequent reduction of credit supply; *ii*) depending on the elasticity of productivity to wage, wage moderation may *increase* the unit cost of labour, discouraging innovation, thus *reducing* the competitiveness of firms.

These results can be applied in an open economy, considering the effects of an expansionary fiscal policy on the external balance¹⁶. Since, for Kaldor, exports mainly depend on non-price competitiveness, an increase in net public expenditure, and the consequent increase in the rate of growth of labour productivity, proves to be an effective way of increasing exports, via the improvement of the *quality* of the goods exported. If this mechanism is in operation, a further cumulative effect derives. The increase in public expenditure increases money profits; the increase in money profits allows firms to invest and to produce technological advancement; this increases exports with the consequent further increase in profits, innovation, growth and employment. In such a context, firms tend to progressively become less dependent on the banking sector for financing production and investment, and, due to the argument above, a decline of the money interest rate is expected. This conclusion is important for the purpose of linking Kaldor’s monetary theory to that of contemporary MTP. The fact that firms’ production and investment are solely financed via bank credit, which is the main assumption of the basic schema of the MTP, should not be conceived as an institutional datum, but it basically depends on the path of fiscal policies and external trade. One can conclude that *bank credit tends to be more important for the financing of production and investment in contexts where restrictive fiscal policies are in operation and net exports are negative*. This is because

¹⁴ Following Lavoie et al. (2004), it can be argued that uncertainty can also affect firms’ reserve capacity, in an attempt to anticipate unexpected increases in demand.

¹⁵ Stockhammer and Ramskogler (2007) stress that *i*) in a capitalist economy, uncertainty is not evenly distributed among social classes and that *ii*) workers, in particular, suffer from higher levels of uncertainty, due to job insecurity.

¹⁶ On these topics, see also Thirlwall (1979).

in both cases firms' internal retentions decline and so does their size, with the consequent increasing difficulty in obtaining resources on the financial markets.

Concluding remarks

This paper dealt with Kaldor's monetary theory and his view that economic growth basically depends on the interaction between the path of aggregate demand and that of labour productivity, via the expansion of firm size and increasing returns. It has been shown that *i*) Kaldor's theory of endogenous money is very similar to that of the so-called monetary theory of production; *ii*) the integration of Kaldor's assumption on firms technology in the basic schema of the MTP makes it possible to enrich it and to formulate a general macroeconomic schema where a systematic interaction between bank credit, aggregate demand and labour productivity is in operation, in a cumulative causation process.

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