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INEQUALITY, FINANCIALISATION AND ECONOMIC DECLINE

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Inequality, financialisation and economic decline

Riccardo Pariboni[1] *and Pasquale Tridico*[2]

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Abstract

The objective of this paper is to argue that the labour productivity decline experienced in recent years by several advanced countries can be explained, following a Kaldorian-Classical approach, by a weak GDP performance and by a decline in the wage share. Moreover, drawing inspiration from recent Post- Keynesian literature, we identify the ongoing worsening in income equality and the increase in the degree of financialisation as other major explanatory factors of sluggish productivity.

The paper will provide a brief literature review concerning non-mainstream attempts to endogenise labour productivity. We will then discuss how labour flexibility and shareholder value orientation, one of the main aspects of financialisation, can negatively affect equality and labour productivity.

Finally, we will propose and test an extended version of Sylos Labini's productivity equation, where productivity is claimed to depend positively on GDP rate of growth and the wage share, and negatively on income inequality and financialisation.

Keywords: Labour productivity, Inequality, Financialisation.
JEL Classifications: E020, E120, E240, E440.

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1. Introduction

The last decades have witnessed a pronounced increase in income inequality and a prolonged and generalized stagnation of real incomes for workers and wage earners in the lowest deciles of population, across a vast majority of OECD countries (see Christen and Morgan, 2005; Fitoussi and Saraceno, 2010; Atkinson et al., 2011; Tridico, 2012; Kumhof et al., 2015; Hein, 2015 and Kapeller and Schütz, 2015 for a detailed account of these trends in different countries).

These phenomena prompted an intense debate on the macroeconomic consequences of inequality, in particular in connection with the specular diffusion of household debt which, according to several authors (see for example Barba and Pivetti, 2009; Rajan, 2010 and Stockhammer, 2015), has acted as a substitute for wages in financing private consumption. However, in this article we will not focus our attention on the increase in financial instability experienced in many developed countries, nor we will try to assess the feasibility and sustainability of a debt-led growth process, issues which have been extensively analysed elsewhere (see for example Dutt, 2006; Hein, 2012; Cynamon and Fazzari, 2016). Indeed, the ongoing worsening in income equality poses a further, perhaps less discussed threat. In a recent contribution, Storm and Naastepad (2015, p. 973) identify as a main problem for the Eurozone "*the wide differentials in labour productivity and technological capabilities*" among its members. Similar supply-side aspects are often neglected or only marginally treated in the critical Keynesian literature, leaving the field open for the recipes proposed by the international institutions,[3] according to which the simple remedy to lack of external competitiveness is internal devaluation and wage compression.

In this article, we will try to provide a comprehensive, alternative explanation of the productivity slowdown experienced in recent years by several developed countries. Relying on a Classical-Kaldorian approach, we identify a weak GDP performance and a decline in the wage share as major explanatory factors of sluggish productivity. Moreover, drawing inspiration from recent Post-Keynesian literature, we will argue that also the increases of income inequality and of the degree of financialisation of economies have hindered the dynamics of labour productivity.

The paper proceeds as follows: in section 2 we discuss the paradigm shift occurred since the end of the 1970s in coincidence with Thatcher and Reagan administrations, in order to put our argument in a broader context and to locate our contribution within the debate on the economic implications of neoliberalism and financial capitalism. In sections 3 and 4 we provide some theoretical background for our model: section 3 recalls the mecha-

[3] See Storm and Naastepad (2015) for an overview.

nism of transmission between productivity, aggregate demand and economic growth proposed by Kaldor and his 'technical progress function'; section 4 offers a brief literature review concerning non-mainstream attempts to endogenise labour productivity, including Sylos Labini's productivity equation (Sylos Labini, 1984; 1999). In section 5 we discuss the interaction between financialisation, labour flexibility and labour productivity. In section 6 we propose and test with an econometric model an extended version of the Sylos Labini's equation, where productivity is claimed to depend positively on the GDP rate of growth and the wage share, and negatively on income inequality and financialisation. Section 7 concludes the paper.

2. The shift towards a new paradigm

After the Second World War economic growth in most of advanced economies occurred under the Keynesian compromise or paradigm of economic policy, which allowed not only for the construction of an important welfare state able to provide indirect wage and consumption capability to nearly everybody; it allowed also to distribute fairly equally productivity gains between workers and firms. Therefore, wage earners increased their income steadily at least until the mid-1970s. The wage share increased and consumption fuelled the positive dynamics of aggregate demand. At the same time productive investments, both public and private, accompanied this positive trend and supported demand. Economic growth occurred and demand management policies guaranteed a steady development. Labour productivity was driven, following the Kaldor-Verdoorn approach, by the expansion of aggregate demand which created positive spill-overs and economies of scales.

Since the end of 1970s, and in particular since the Thatcher and Reagan administrations in UK and in US, a new paradigm of economic policy, which we will call financial capitalism emerged or better to say was shaped, in policy and institutional terms. Firstly in UK and in US and later in other advanced economies, a set of neoliberal policies boosting financialisation and globalization were implemented, such as deregulation of the financial sector, liberalization of trade, capital mobility, wage flexibility, privatization, structural adjustments, retrenchments of welfare states, the creation of a second pillar in the pension system, i.e., the pension funds with the clear aim to collect easily saving etc.

The main objective of this new paradigm was to restore the profit rate which did not increase between 1945-1975. Financialisation and globalization were identified as two pillars through which (global) capitalism could return to its original idea, freed from the strings imposed by the Keynesian compromise. Financial expansion and globalisation shaped the model of financial capitalism in which states and governments are obliged to fit, to create institutions, to implement policies to compete with each other through tax competition, at-

traction of capitals, social dumping, and to deregulate labour market and compress labour through labour flexibility.

Finance allows for both speculation and indebtedness. Financial investments look more lucrative for investors. Corporate managers in advanced economies started to abandon the pursuit of "*new ways to generate productivity gains on the basis of retain and reinvest*" and capitulated "*to the new competitive environment through corporate downsizing*" (Lazonick and O'Sullivan, 2000). The dramatic increase of labour flexibility occurring in the age of financial capitalism is functional to the idea of 'downsize and distribute', which allows for an expansion of financialisation and the implementation of remuneration schemes for managers based on the firm's short term performance and on shareholders' objectives, interested uniquely in the maximization of dividends.

Globalisation, and global finance, induced aggressive practices of outsourcing and FDI outflows, improving in this way the bargaining position of capital relative to labour in higher-income countries. Trade unions lost power, and labour market regulations such as labour protection against firing, unemployment benefits, minimum wage, etc., weakened. The increase of the bargaining power of capital against labour had as a consequence that it became easier for capital to obtain tax reductions and welfare retrenchments. States are willing to embark on tax competition among them in order to keep investments and production at home. This may have direct, negative impacts on unskilled labour and income distribution, which worsen without welfare support and social institutions.

Consequences are negative not only in terms of income distribution, but also in terms of labour productivity. In the framework of financial capitalism, the virtuous mechanisms of the Keynesian compromise concerning the distribution of productivity gains (through indirect wage and direct increases of the wage bill) and the positive spill over effects on aggregate demand created by the Kaldor-Verdoorn law are no longer stimulated. As we will try to argue, the consequent wage share reduction leads to labour productivity decline. These processes are schematically synthesised by figure 1 below, in which labour productivity decline comes as a result of the paradigm.

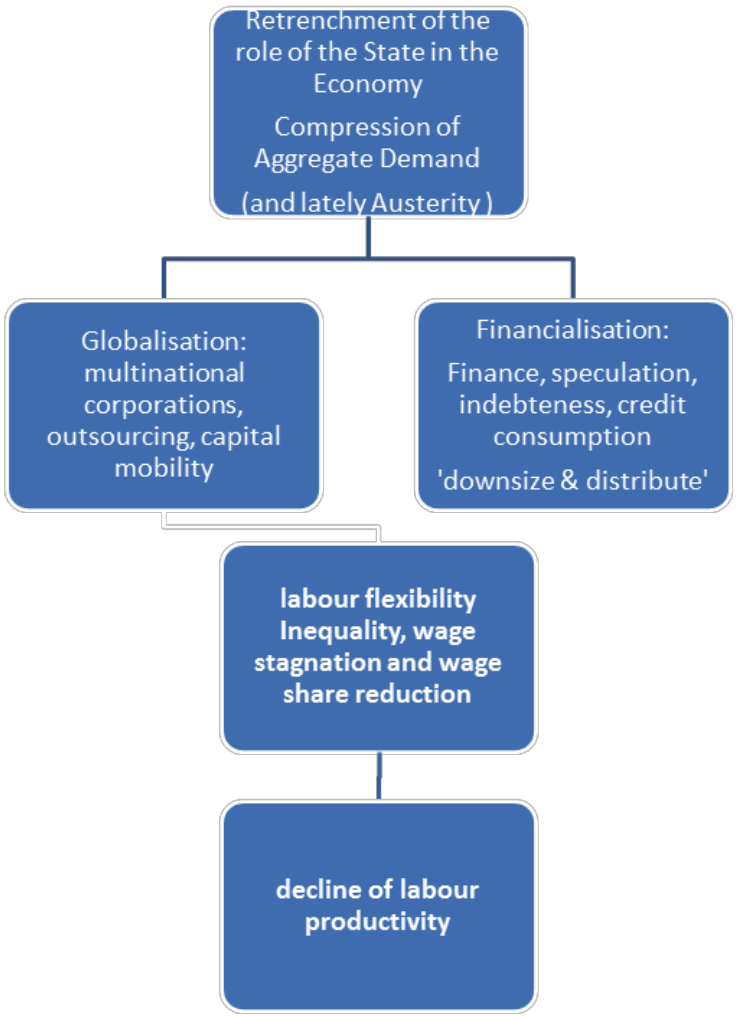


Figure 1: From financial capitalism to economic decline

The decline of labour productivity growth, which occurred since the end of 1970s in most advanced economies and among G7 members, is represented in figure 2 below.

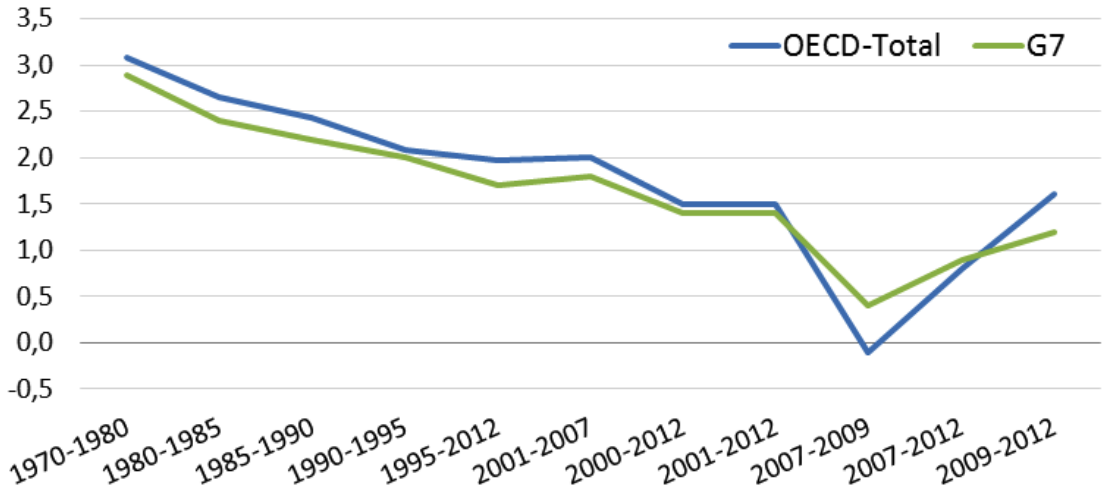


Figure 2: Labour productivity per hour (US $ per periods)
Source: OECD

3. Productivity, aggregate demand and economic growth: some ideas from Kaldor

Post-Keynesian economy has a long tradition in attempting to meaningfully endogenise labour productivity, beginning from the famous Kaldor-Verdoorn law (Verdoorn, 1949; Dixon and Thirlwall, 1975).[4] According to the latter, the evolution of output per worker - i.e. labour productivity - is driven by the output growth rate, mainly due to the operating of increasing returns to scale.

The other cornerstone of the Post-Keynesian approach to the investigation of labour productivity dynamics is Kaldor's 'technical progress function'. In his 1961 article, Kaldor discusses the main weaknesses of the orthodox treatment of technical progress, characterized as a continuous, exogenous process of improvement in the state of knowledge, which translates itself in a homogenous linear production function continuously shifting upwards and outwards. As Kaldor notices, since "*improved knowledge is, largely if not entirely, infused into the economy through the introduction of new equipment*" (Kaldor, 1961, p. 207), the rate of shift of the production function cannot be treated as exclusively dependent on chronological time but has to be studied in connection with the rate of accumulation. In a Neoclassical, aggregate production function-based framework, this leads to an unsolvable problem, being impossible to isolate the shifts of the production function curve - due to improved knowledge - from the movements along the curve itself, which represents the increase in the speed of accumulation (ibid., p. 207).

After having presented his criticisms, Kaldor proposes an alternative interpretative tool, which can be summarized by the following 'technical progress function':

$$g^{\lambda} = \alpha + \beta g^{k} \qquad (1)$$

Equation (1), determining the rate of growth of labour productivity ($\lambda = Y/L$), has two components: the first has an exogenous nature and is given by the parameter α, which defines the height of the function and expresses "*society's 'dynamism', meaning by this both inventiveness and readiness to change and to experiment*" (ibid., p. 208). The second part of the equation states that the evolution of labour productivity is a positive function of the rate of growth of capital per head k ($k = K/L$).[5] The rationale is the following: given that most of

[4] See Bagnai (2016) for an analysis of the decline of Italian labour productivity, grounded on the works of Kaldor and Dixon and Thirlwall. As the article maintains, the appreciation of the real exchange rate implied by the introduction of Euro and the increased dependence on goods and services imported from the core Eurozone countries represents the main explanatory factors for the tightening of Italy's external constraint.

[5] It has to be recalled that Kaldor's treatment of capital in the context of the 'technical progress function' is subject to serious criticisms, related to the aggregation problem and to the utilization of "a measure of capital as a homogeneous physical quantity" (McCombie and Spreafico, 2016, p. 1124), in spite of the results of the

technical innovations and improvements are incorporated into machineries and equipment, for any given level of society's dynamism and inventiveness, the economy can absorb only a bounded amount of technical change, which is an increasing function of the speed with which capital is accumulated.[6] Equation (1) can be reported in figure 3.

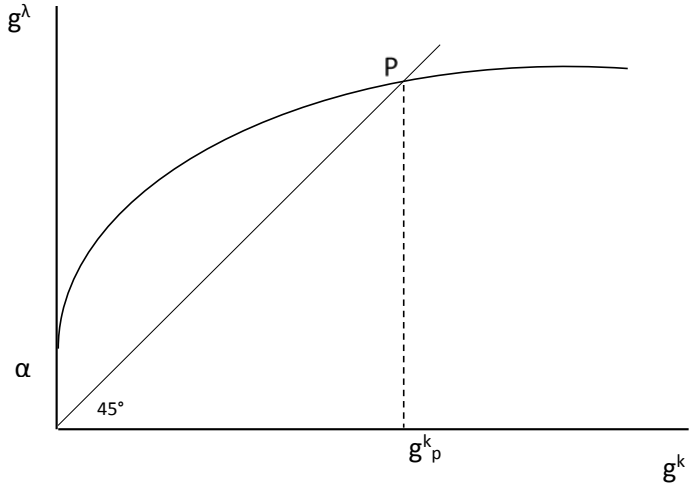


Figure 3: Kaldor's 'technical progress function'

As it is possible to notice from the figure, the technical progress function is convex upwards: the speed of capital accumulation brings forth diminishing returns, mainly because the ideas able to generate the greatest improvements in productivity are exploited first (ibid., p. 208); hence for high rates of investment (i.e. $g^{k} > g^{k}_{p}$) productivity growth is less than proportional than capital accumulation.

To close his model, Kaldor provides also arguments in favour of the convergence of the economy towards the point of intersection of the technical progress curve and the 45° line: on the left of point P,[7] output grows faster than capital; the related decrease in the amount of capital required to produce a unit of output is likely to induce expectations of a prospective rate of profit higher than the actual one. This will cause an acceleration in capital accumulation and a movement to the right on the curve, until the system approaches point P, where output and capital grow in step. In correspondence of this equilibrium point, technical progress is Harrod-neutral (the capital-output coefficient is constant) and the economy ex-

Cambridge controversy on capital. See McCombie and Spreafico (2016) for a detailed discussion of these issues and for a restatement of Kaldor's insights on growth and productivity.

[6] In the book's paragraph devoted to technical progress, Lavoie (2014) mentions also the 'augmented technical progress function' proposed in Michl (1985), where the output growth rate and the rate of capital accumulation are independent arguments of the productivity function.

[7] On the right of point P, an analogous, opposite process is at work.

periences continuous increases in the amount of capital per worker, two events considered by Kaldor as 'stylized facts' of the growth process in capitalist economies (ibid., p. 178).

4. From the decline of the wage share to the decline of labour productivity: a theoretical background

More recently, the work of Paolo Sylos Labini (see for example Sylos Labini 1984, 1999) has stressed the connections among labour productivity, the dynamics of demand, the relative convenience of production factors and income distribution. It is possible to synthetically convey Sylos Labini's insights by means of the following productivity equation (Sylos Labini, 1999, p. 259):

$$\lambda = Y/L = f(\Delta Y, W/P_{ma}, 1 - \Pi), \text{ with } f'_{Y}, f'_{W/Pma}, f'_{1-\Pi} > 0 \qquad (2)$$

Labour productivity λ, equals to the ratio between output (Y) and the level of employment (L), is a positive function of output expansion, the relative cheapness of labour over capital (W is an index of the real wage, P_{ma} is the price index of machinery) and the wage share (1 –Π).

The first argument of the equation captures what the author calls the 'Smith effect' ("*the division of labour depends on the extent of the market; and the division of labour is at the origin of those* – Sylos Labini is referring here to labour productivity – *increases*", Sylos Labini, 1999, p. 258) and describes a mechanism similar to the already introduced Kaldor-Verdoorn effect. The second argument – the price of labour relative to the price of investment – is labelled as the 'Ricardo effect' and finds its rationale "*in the classical notion of induced, factor-biased technical change*" (Tronti, 2010, p. 784).[8]

Sylos Labini, however, focuses its attention on the productivity-enhancing role of the wage share: from the entrepreneur's perspective, the pressure exerted by the increasing cost of labour provides a stimulus to reorganize the production process in a more efficient way; moreover, it also incentives, by making the necessary investment relatively convenient, the adoption of technologically advanced equipment and machinery, which allow to raise production without having to increase the number of employees.[9]

[8] As reported in Gehrke (2003), the term 'Ricardo effect' has been used for the first time in Hayek (1939) as shorthand for the 'machinery substitution effect' described in the *Principles*. However, as Gehrke (2003) makes clear, Ricardo effect's validity is restricted to an "extremely special case" (Gehrke, 2003, p. 152), requiring very specific assumptions about "the available set of production methods from which producers can choose (ibid., p. 155).

[9] This makes clear that the technological progress under discussion is of the Harrod-neutral (constant normal capital-output ratio), labour saving (falling labour-output ratio) kind.

As reported in Lavoie (2014), traces of this intuition date back to Webb (1912), a seminal contribution whose main purpose was to support a proposal for the establishment of a legal minimum wage. The basic idea is that, as long as wage compression is prevented, entrepreneurs have to find other ways to lower the production costs with respect to their competitors. Indeed, they are induced to hunt for productivity gains,[10] to be generated by means of improvements in the productive process. Furthermore, the institution of a minimum wage is plausibly followed by an increase in the real wage, which can be troublesome and push out of the market firms which do not keep pace with technological innovations. As a consequence, the average productivity and efficiency of productive units which remain active are higher (Webb, 1912, p. 984).

A similar line of reasoning is developed in Altman (1998), where the effect of higher wages on labour productivity is decomposed into several components. In particular: a) the so-called *x-inefficiencies* are reduced. Low retributions and more in general a conflictual working environment are detrimental for the firm's work culture and negatively affect workers' effort. The improvement of workers' conditions, on the other hand, contributes to the establishment of more cooperative industrial relations and elicits employees' commitment;[11] b) given that "*low wages can serve as a substitute for technological change*" (ibid., p. 101), firms which experience rising labour costs may be compelled to adopt already existing innovative techniques or to develop new ones.[12]

The idea of a positive influence of the wage share on the economy's productivity has been picked up also by authors such Cassetti (2003) and Hein and Tarassow (2010), who include the Webb-Sylos Labini effect into a Neo-Kaleckian growth and distribution model. In these formalizations, as a response to an exogenous increase in workers' bargaining power, capitalists try to defend their income share by means of an improvement in productivity and the consequent reduction in labour unit costs.

On the basis of the brief discussion above, it is possible to conclude that wage compression and a worsening in income distribution not only do not necessarily enhance the ex-

[10] As Webb vividly puts it, "the enforcement of the Common Rule (*i.e. a legal minimum wage*) concentrates the pressure of competition on the brains of the employers and keeps them always on the stretch" (Webb, 1912, p. 983).

[11] In mainstream literature, this is known as the 'wage-efficiency effect' (see for example Shapiro and Stiglitz, 1984 and Akerlof and Yellen, 1986). See also Lavoie (2014, pp. 304-306) for a discussion of Marxist and radical approaches which share with the efficiency wage literature the emphasis on workers' morale and motivation as a main explanatory factor for productivity.

[12] Altman (1998) identifies also a third channel of influence, labelled as the 'savings effect', which postulates that high-wage firms are pushed to raise their propensity to save. The resulting increase in the economy's propensity to save is claimed to have a positive effect on the level of aggregate investment. Given that this argument reverses standard Keynesian logical causality, which posits that an independent level of investment generates the corresponding savings through output variations, we do not discuss further the 'savings effect'.

ternal competitiveness and dynamism of a country. On the contrary, they might create a drag on productivity and inhibit technical change. In this regard, the case of the Southern European countries described in Storm and Naastepad (2015) is paradigmatic: low wages countries tend to remain stuck in low-tech production segments, specialised in "*commodities and destination markets where demand growth is above average*" (ibid., p. 968) and exposed to the competition of countries with a permanent advantage in terms of labour cheapness.

We have discussed so far mainly contributions belonging to non-mainstream schools of thought. Indeed, our paper aims to enrich the Post-Keynesian literature concerned with the study of the endogenous dynamics of labour productivity. For a more orthodox account of similar issues, a useful reference is Cette et al. (2016), where the authors summarize some Neoclassical explanations for the pre-Great Recession decline in productivity. For what concerns Continental Europe, a main problem seems to be represented (not surprisingly) by structural rigidities in the labour and product markets, which prevented these countries from benefitting "*as much from reorganizations associated with ICT as the US and UK*" (Cette et al., 2016, p. 7). Southern Europe, apparently, suffers from a further disease, represented by the fall in interest rates that followed the introduction of Euro. According to Cette and co-authors, and also to the literature mentioned in the article, low interest rates – and abundant credit - can affect negatively total factor productivity through three channels: a) capital inflows tend to be misallocated towards low-productivity sectors like services or construction instead of manufacturing; b) within a sector, low-productivity firms may get their investment project funded while the more efficient ones, for some reasons, may not; c) low interest rates can damage the quality of a country's institutions. Within the mainstream, another recent, relevant contribution is Thimann (2015): competitiveness issues in the Eurozone are due to "*high labor costs relative to underlying productivity*" (p. 142), with labour productivity problems not being addressed, given the lack of appropriate structural reforms (p. 155).

We will not discuss, in the remaining of the paper, these ideas and we leave to future research a critical assessment of them.

5. Financialisation, labour flexibility and inequality

The political and economic roots of the financialisation process, that brought about a new financial-led growth regime, along with the process of globalisation, can be found in the 1970s. However, they were manifested openly politically in the 1980s. The financial sector has been an early and eager promoter of deregulation in the 1980s in the UK and in USA under the Thatcher and Reagan administrations (Petit, 2009; Boyer, 2000), respectively, which Jessop (2002) identifies as transition phases to the post-Fordist financial-led regime.

Jessop (2002) argues that new accumulation strategies emerged during that period. They involved multinational firms, international financial discipline, a more authoritarian state, and a form of popular capitalism. The previous Fordist strategy was replaced by an internationally oriented and financially aggressive strategy, deregulated and concentrated dually on Wall Street and in the City of London. Reaganomics and Thatcherism were strategies that aimed to restructure the accumulation system through the deregulation of the financial system (Peck and Tickell, 1992) at the expense of the social compromise realised after the Second World War. Moreover, after the fall of the Soviet Union, Alan Greenspan, who rose to oversee the US Federal Reserve during the Reagan administration, believed that the world economy could expand greatly through the globalisation of the financial sector (Greenspan, 2007; Semmler and Young, 2010).

We will use here as a proxy for financialisation - which refers to the rise of financial claims and incomes with respect to the real sector - the “Market capitalisation” (also known as market value), which is the share price multiplied by the number of outstanding shares of listed companies in the stock exchange. Listed domestic companies are the domestically incorporated companies listed on the country's stock exchanges at the end of the year. Listed companies do not include investment companies, mutual funds, or other collective investment vehicles. A similar definition of financialisation is used also in Nölke and Vliegenthart, (2009); in Engelen et al. (2010) and in van der Zwan (2014). Stock market capitalization (SMK) is one of the major sources of business finance in most of advanced economies. Hence it makes sense to refer to it as a proxy for financialisation. Obviously also inward FDI are sources of business finance, but of less magnitude than SMK.

Figure 4 below describes the increase of financialisation in advanced countries between the 1980s and the eve of the financial crash in 2006. The only exception here (which however confirms our expectations) is Japan, which in fact experienced stagnation, a feature that can be observed today in most of advanced economies, already before, since the end of 1980s. Japan had its main financial crash in the middle of 1980s, the bubble burst and then financialisation, which had reached high level, started to decline. A similar path can be observed two decades later in the rest of advanced economies. Financialisation increased along with instability. After the burst of the financial bubble, financialisation declined. In this context of financial bubbles and bursts, the effects on advanced economies is dramatic, in terms of economic recession and stagnation. Interesting enough, as the figure below shows, is the reduction of market capitalization after the financial crash of 2007-08.

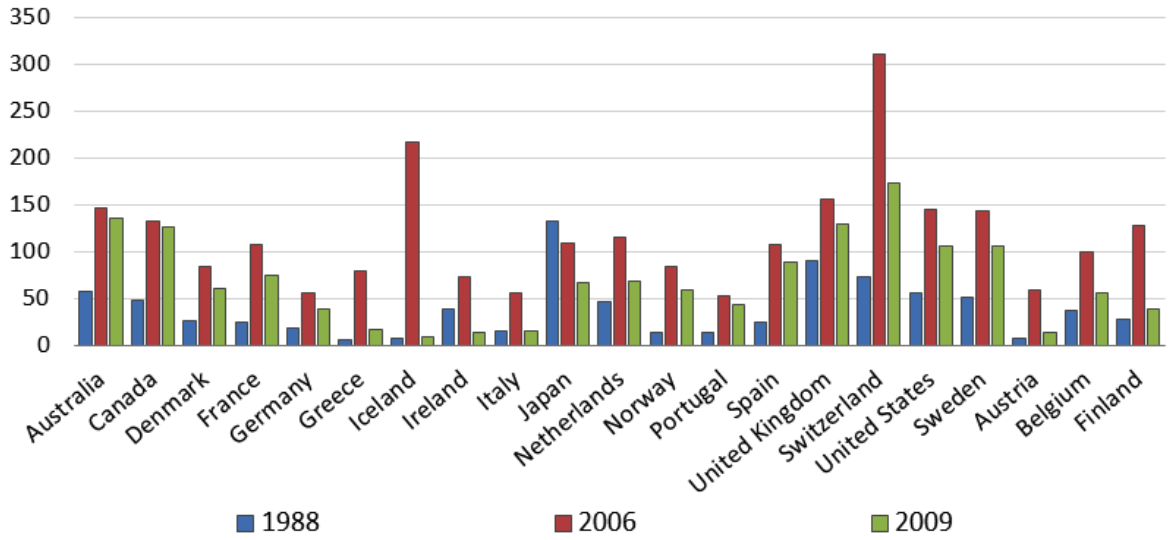


Figure 4: Market capitalization, OECD countries, % of GDP, 1988-2006-2009
Source: own elaboration, IMF data

Financialisation is connected with both inequality and labour productivity decline. This is an important point that finds empirical evidences and theoretical foundations. In short, financialisation worsens income distribution through two channels and in turn this affects labour productivity:

1. It favours the aggressive implementation of the principle 'downsize and distribute' so that corporations' managers have as the only objective to maximize and distribute dividends for the shareholders at the cost of squeezing production and cutting wages.
2. It favours an aggressive short terms strategy of corporations' managers interested mainly in the maximization of bonuses and profits in the short term at the expenses of the wage bill.

Financialisation (a process which involves a set of institutions and financial tools) and labour flexibility (a set of labour market institutions which increase freedom of entrepreneurs to fire and hire workers and to cut wages) are two general categories of institutional forms that have been going hand in hand in particular during the last two decades, although not everywhere, and that were introduced across the world by countries in different degrees in order to guarantee the expansion of the globalisation process which is believed by most of policy makers and governments, to boost the national economy (see Tridico, 2014).

We are interested here in assessing if and to what extent financialisation has affected directly the recent trends in productivity. There are several theoretical reasons to expect a negative relationship between these two variables. It seems possible, in particular, to identify a causal link that goes from the prominence attributed to shareholder value orientation - one of the main features of financialisation (see Stockahammer 2005; Lazonick and

O'Sullivan, 2000) - to a decline in aggregate investment. The spectacular increase in interest and dividend payments to rentiers not only implies a loss in firms' internal means of finance; it also makes the recourse to external sources to finance capital accumulation more expensive and complicated, as highlighted by the Kaleckian principle of increasing risk. Moreover, the implementation of remuneration schemes for managers based on the firm's short term performance on the financial markets is supposed to cause a slowdown in investment in capital stock, replaced by financial operations as a major concern for management.

As a natural consequence of an unsatisfactory investment dynamics, productivity lags behind. This is one of the most relevant conclusions of Lazonick and O'Sullivan's analysis, where it is noticed that US corporate managers – but the same holds true for most of the OECD countries – in recent years have faced the new challenges posed by international competitors mainly by downsizing firms and compressing labour costs. At the same time, they renounced attaining productivity gains through the reinvestment of profits and chose to pursue short-term profitability.

Financialisation diverts assets and resources towards speculative rather than productive investments with negative consequences on technological progress, which directly influences labour productivity. Labour flexibility influences negatively labour productivity because allows for size reduction and employment squeezing: it reduces income opportunities and the wage share, increases precarious jobs and de-stabilizes aggregate demand. At the same time a flexible labour market with compressed and low wages needs to be supplemented by credit consumption and developed financial tools to sustain consumption, reinforcing a vicious circle.

Deregulation of labour markets, labour flexibility, capital mobility and global finance allow easily for labour pressure, cost compression and wage stagnation. Consecutively, households are more and more pushed towards private indebtedness and credit consumption since their income constraints increase consistently in a period of wage stagnation. In this context, income inequality increases because labour, which is the most important production factor for income, is seen by the supply-side approach as a cost to be compressed rather than as a fundamental part of aggregate demand to be expanded.

The negative relation between labour productivity and labour flexibility can also be identified in the perspective of the models of the New Keynesian Economics (NEK) which describes, at margin, work effort to be positively correlated with wages, so that unstable jobs, flexibility, scarce incentives and low paid jobs push workers to put little effort into their work (see also Kleinknecht et al., 2013; Stormand Naastepad, 2012). Moreover, this does not guarantee that firms and workers invest in training and education in order to improve the

quality of human capital, with lower results in terms of productivity, *ceteris paribus*, by the economic system (Salop, 1979; Shapiro and Stiglitz, 1984).

The Employment Protection Legislation (the EPL 2013 is the index we will refer to) is the indicator of the OECD, which measures the level of worker protection in the labour market and consequently the level of labour flexibility (it varies between 0, very low protection, and 6, very high protection).[13] This indicator shows the level of protection offered by national legislation with respect to regular employment, temporary employment and collective dismissal – in other words, regulation that allows employers the freedom to fire and hire workers at will (OECD 2004).

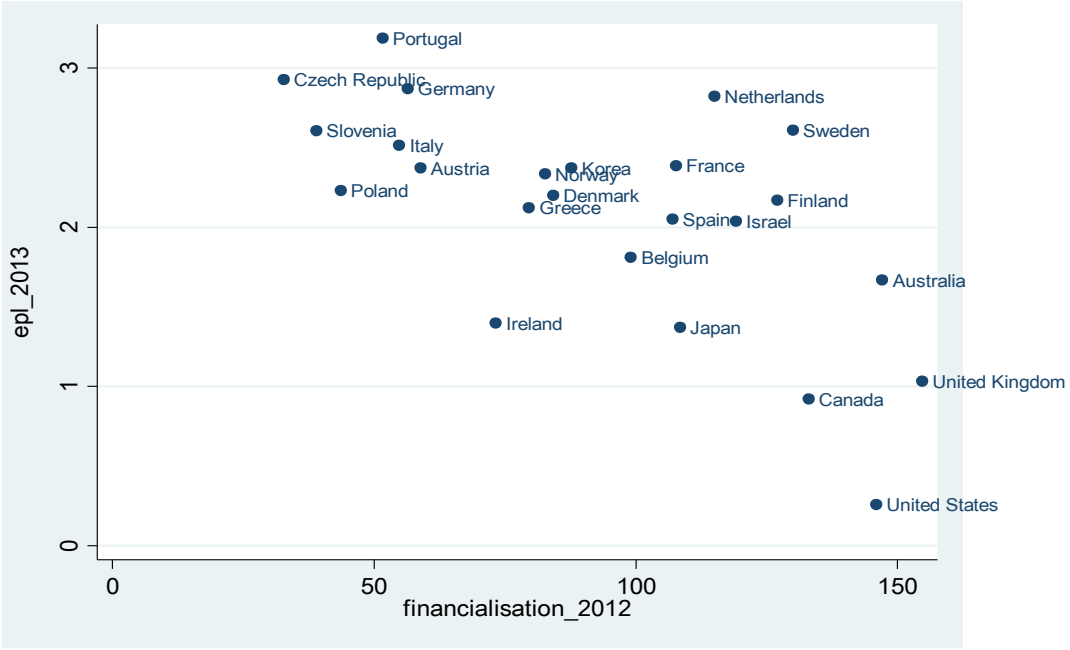


Figure 5: Correlation scatter between financialisation and labour flexibility (EPL)
Source: Own elaboration on World Bank and OECD data.

A flexible labour market with compressed wages needs to be supplemented by available financialisation, credit and developed financial tools to sustain consumption, which otherwise were compressed by low and unstable wages (Brancaccio and Fontana, 2011). In this context, a large number of financial tools were invented to finance consumption, postpone payments, extend credit, and create extra-consumption (Tridico, 2012). That said, it is difficult to establish a causal relation: we cannot be certain whether financialisation required labour flexibility or if increased labour flexibility brought about hyper-financialisation. A simple correlation (figure 5) between these two complementary institutional forms of neoliberalism seems more likely.

[13] However, no country has a value higher than 3.5 (OECD, 2013).

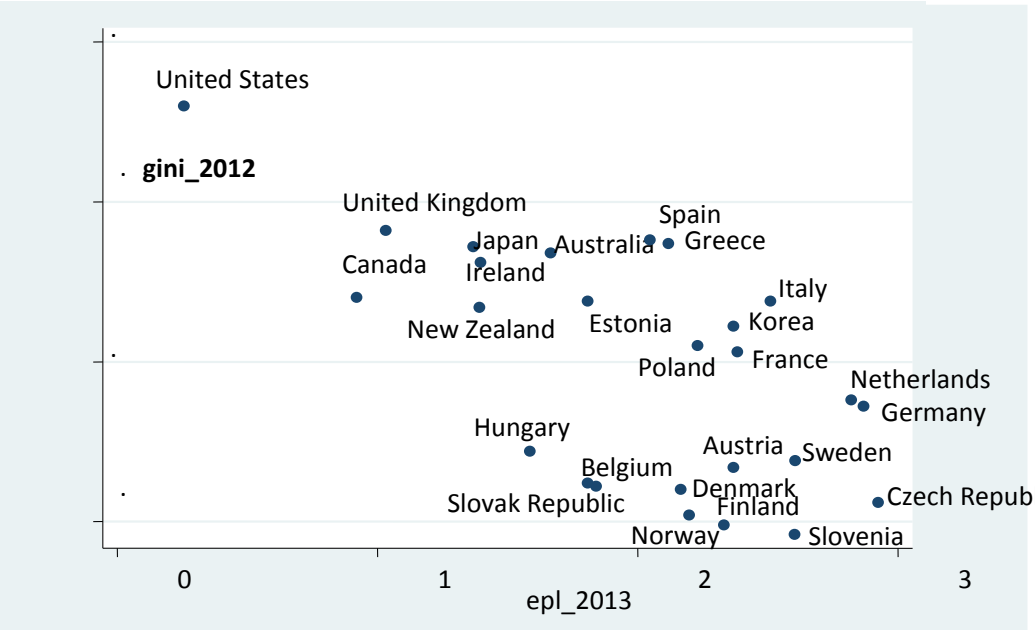


Figure 6: correlation scatter between EPL and inequality
Source: own elaboration on World Bank and OECD data

Labour flexibility allows for the reduction of the labour costs and thus wage saving at the expense of wage earners, i.e., consumers.[14] In such a situation, inequality increases and the aggregate demand could be restricted because consumption decreases. It is very interesting to notice an inverse relationship between inequality and the EPL index (labour flexibility): the lower the EPL (higher flexibility), the higher the inequality. Continental and Scandinavian European countries have a higher EPL (lower flexibility) and lower inequality, while Anglo-Saxon and Mediterranean generally show the opposite values of higher inequality and lower EPL (higher flexibility) (see also Tridico 2013).

In the following section we will try to test the impact of the variable discussed (labour flexibility, financialisation, inequality and wage share on labour productivity) using an econometric model on a sample of 26 OECD countries.

[14] In a recent work, Kleinknecht et al. (2016) provide a further argument to support the view that labour flexibility might be damaging for labour productivity. Based on Dutch firm-level data, the authors show that firms which employ a higher share of 'flexible' workers tend to have higher shares of non-productive, managerial personnel: in order to compensate for the lack of trust engendered by higher labour turnover and easy firings, more control is needed.

6. The model

In this section, we estimate an extended version of the Sylos Labini productivity function, given by:

$$\lambda = Y/Lh = f(\Delta Y, 1 - \Pi, Ineq, Fin) \quad (3)$$

where Y/Lh is hourly labour productivity, ΔY is the expansion of GDP which is the Smith effect or the Kaldor effect, 1 –Π is the wage share, Ineq is the inequality level identified by the Gini coefficient, Fin is the level of Financialisation (market capitalisation in % of GDP).

Coherently with our previous arguments, we propose an integration of the original Sylos Labini insight. In particular, we want to assess if it is possible to find some empirical confirmation for the negative impact of financialisation on labour productivity we postulated in the previous sections. Given the theoretical weaknesses mentioned above, we neglect in our analysis the Ricardo effect, and the results are illustrated in the following table.

Dep Var: Labour Productivity Random-effects GLS regression obs = 594; groups = 26; Panel = 1990-2013	
	Model I
Var.	Coeff (Standard error in brackets)
Financialization (F) P>|z|	-.0044956 (.0016295) 0.006
Ineq P>|z|	-4.247308 (1.793765) 0.018
Wage share (WS) P>|z|	.0445975 (.0145888) 0.002
Kaldor effect (KE) P>|z|	.3685415 (.0275374) 0.000
Constant P>|z|	-.1256192 (1.082406) 0.908
	R-sq = wtn: 0.2009; btw: 0.6964; overall: **0.2864** Wald chi2(4)=191.45 Prob > chi2 = 0.0000

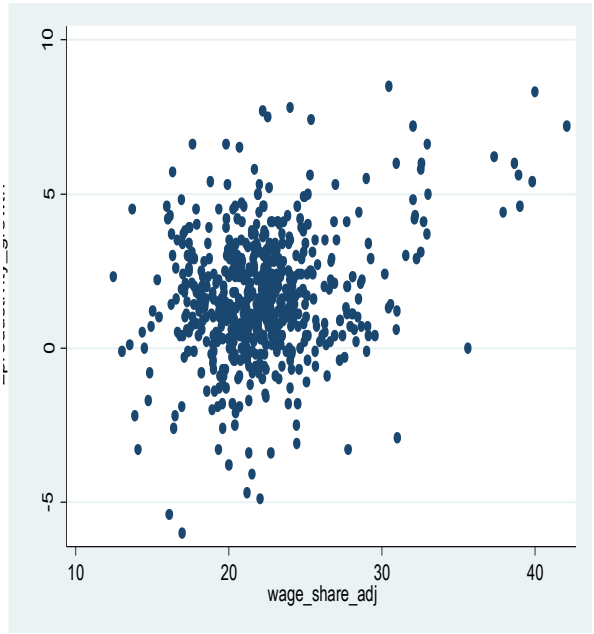
Table 1: Regression results
Source: own elaboration

$$Labour\ productivity = -1.256 - 0.004 * F_{ij} - 4.247 * Ineq_{ij} + 0.044 * WS_{ij} + 0.368 * KE_{ij},$$

with i = country, and j = year

The regression results are the expected ones. Labour productivity is a function of the independent variables discussed. We use a GLS model with a random effect to establish the relation, verified through the Hausman test against the fixed effect. All coefficients are statistically significant at least within 5% level. The period considered is 1990-2013 with 26 OECD countries, for a total of 594 observations.

The GLS Model (I) produces very robust results, according to which labour productivity increases when 1) financialisation decreases (i.e. the level of market capitalization as defined previously); when 2) inequality decreases (the Gini coefficient); when 3) the wage share increases (i.e., the Webb-Sylos Labini effect); and when 4) the GDP increases (i.e., the Smith-Kaldor effect). These two last effects (wage share effect and Kaldor effect) are showed in the two figures (7a and 7b) below.



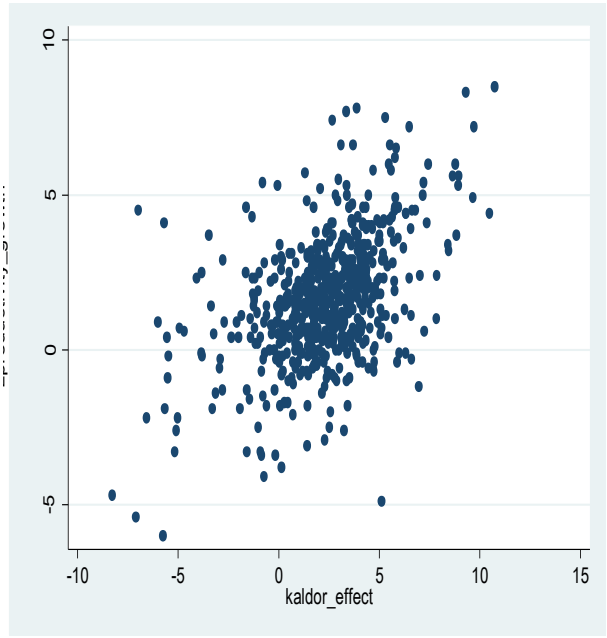


Figure 7a: wage share effect

Figure 7b: Kaldor effect

Source: own elaboration

The random effect was tested against the fixed effect with the Hausman test: the results of the fixed effect regression are not consistent against the random effect and therefore are not advised by the Hausman test performed. Economically this has an important meaning: fixed effect is usually preferred when, it is assumed, variations of the dependent variables are due to structural (fixed) policies/institutions/factors which do not change much in short time. However, in our model, the time span of the panel (1990-2013) is long enough to allow for changes in policies/institutions/factors which in shorter time could be more or less fixed. Hence, random effect is a favoured option not only because is consistent against

the fixed effect according to Hausman test, but also because is a more reasonable option from an economic point of view.

As for other diagnostic issues, the correlation matrix in appendix (table A1) shows that there is a relatively small (imperfect) multi-collinearity between some variables. However, the multicollinearity test carried out in table A4 in appendix, the VIF test (*variance inflation factor)* excludes systematic multicollinearity among the explanatory variables: all the VIF values are much below 10, and the tolerance level (1/VIF=0.1) under which multicollinearity may take place, is well overcame by all the independent variables used in the regressions (Drukker, 2003). Hence, multi-collinearity is not biasing the estimated coefficients.

In the table A3 in appendix the Levin–Lin–Chu test was used to verify whether the panel data contain unit roots or it is stationary. The null hypothesis tested, which I rejected with a level of significance below 1%, is that the series contains a unit root, and the alternative hypothesis is that the series is stationary (Levin–Lin–Chu, 2002). Last but not least the residual normality test (see Kernel test in figure A1) confirms a symmetric and unimodal distribution.

7. Conclusions

In this paper, we attempted to provide an explanation for the labour productivity decline experienced by many advanced economies in recent years. Indeed, we consider extremely plausible Storm and Naastepad's (Storm and Naastepad, 2015) claim that differences in productivity and technological capabilities are of major importance in order to explain diverging economic performances across countries. However, we find extremely unconvincing the mainstream received wisdom according to which external competitiveness and labour productivity have to be enhanced through labour costs compression and labour flexibilization. Hence, we sketched an alternative interpretative framework for the analysis of endogenous labour productivity: following a Classical-Kaldorian approach, we have argued that a weak GDP performance and a decrease in the wage share contribute to explain a decline in labour productivity. Drawing inspiration from recent Post-Keynesian literature, we have also identified financialisation and income inequality as factors with a negative influence on labour productivity.

After a selected literature review, which provides the theoretical bases for our tests, we submitted to empirical scrutiny an extended Sylos Labini productivity function. The results are promising and seem to confirm that weak GDP growth, a fall in the wage share, increases in financialisation and inequality negatively affect labour productivity.

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Appendix

Table A1– Correlation matrix

	Labour Productivity	Financialisation	Inequality	Wage share	Kaldor effect
Labour Productivity	1.0000				
Financialisation	0.0088	1.0000			
Inequality	-0.1218	-0.0928	1.0000		
Wage share	0.1335	0.2336	-0.2008	1.0000	
Kaldor effect	0.4850	0.1812	0.0015	-0.0617	1.0000

Source: Own elaboration

Table A2 – Multicollinearity test

Variable	VIF	1/VIF
wage_share~j	1.11	0.902598
Financiali~n	1.10	0.905032
growth	1.05	0.955716
GINI_ok	1.04	0.957461
Mean VIF	1.08	

Source: Own elaboration

Table A3 – Unit roots test (stationarity of the panel)

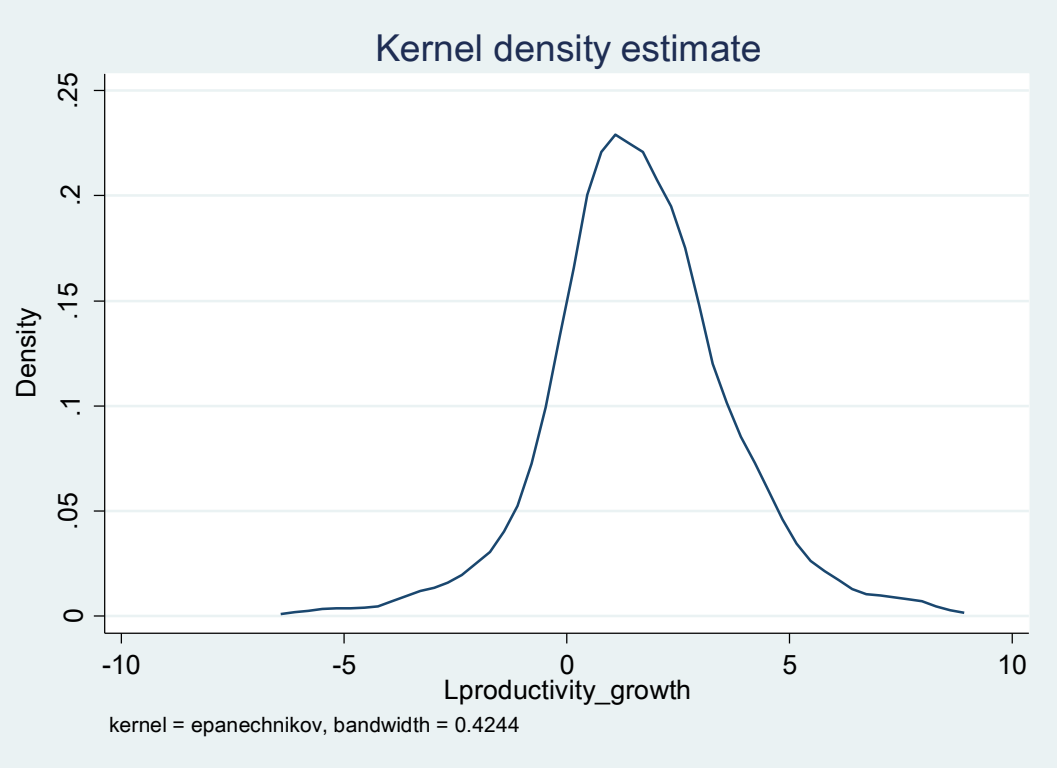
```
Levin-Lin-Chu unit-root test for Labour productivity
---------------------------------------
Ho: Panels contain unit roots               Number of panels  =     26
Ha: Panels are stationary                   Number of periods =     24

AR parameter: Common                        Asymptotics: N/T -> 0
Panel means:  Included
Time trend:   Not included

ADF regressions: 1 lag
LR variance:     Bartlett kernel, 9.00 lags average (chosen by LLC)
------------------------------------------------------------------------------
                     Statistic      p-value
------------------------------------------------------------------------------
 Unadjusted t        -8.0045
 Adjusted t*         -2.9023        0.0019
------------------------------------------------------------------------------
```

Source: Own elaboration

Figure A1 –Normality test



Source: own elaboration