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Structural labour market reforms, GDP growth and the functional distribution of income☆

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ABSTRACT

The view that "structural reforms" designed to deregulate the labour market would be able to increase employment and income is questioned by controversial empirical results, while the likelihood that these reforms accentuate inequalities seems to be supported by recent evidence. The wide literature on this issue, however, lacks studies on the specific implications of "structural labour-market reforms" on growth and functional distribution of income. The purpose of this study is to fill this gap by proposing two new empirical analyses aimed at verifying the existence of statistical relationships between changes in the Employment protection legislation index (EPL) on one side and variations of real GDP growth and wage share on the other side. Results indicate that EPL reductions have no significant links with real GDP growth whereas they are significantly correlated with wage share reductions. These results contradict some features of the neoclassical theories of growth and distribution.

1. Introduction

In the last quarter of a century, in many OECD countries and especially in Europe the prevailing economic policies have been characterised by a marked tendency to implement "structural labour-market reforms". This widespread expression in the political debate does not have classical origins: it is not derived from the Marxian concept of "structure" (Marx, 1867, 1885, 1894) or inspired by the more recent definitions of "structural dynamics" (Pasinetti, 1993; Brian et al., 1991; Andreoni and Scazzieri, 2014), nor it has connections with the "structural reforms as a way to socialism", an expression that pervaded the political debate in some European countries in the sixties (Togliatti, 1964). From a theoretical point of view, the modern concept of "structural labour-market reforms" is neoclassical. In his definition of the "natural rate of unemployment", Friedman (1968) refers to "structural characteristics" of the labour market as the features that hinder efficiency: market imperfections, stochastic variability in demands and supplies, the cost of gathering information about job vacancies and labour availabilities, the costs of mobility, and so on. Therefore, the term "structural labour-market reforms",is usually used to indicate all measures aimed at removing the restrictions that interfere with the spontaneous operation of market forces in order to generate a more efficient allocation of scarce resources and a consequent growth of potential output (IMF, 2015; Canton et al., 2014; Turrini et al., 2015). In this sense, the so-called "structural labour-market reforms" consist in policies that reduce the amount of unemployment benefits, remove the constraints to hiring and firing, decrease the power of the trade unions, and so on, all in order to make the operation of the labour market equivalent to a "spot market for a perishable commodity", in the presumption that without con-

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straints such a market can ensure full and efficient employment of labour and other production factors (Solow, 2004). Nowadays, the meaning attributed to "structural reforms" seems to refer to the views inspired by the neoclassical competitive general equilibrium, which under given assumptions concludes that all policies which favour the "spontaneous" play of market forces should lead to more efficient equilibrium levels of relative prices and of income distribution corresponding to a full and better use of labour and other scarce resources. According to this interpretation, a high degree of labour market rigidity increase the bargaining power of workers, and this would lead to a stickiness of wages and in general of the price system, which would be an impediment to the spontaneous balance of demand and supply of labour (Blanchard and Giavazzi, 2003). Removal of such structural impediments, this theory contends, would allow the achievement of the production frontier and promote the economic growth. For example, in the context of the well-known Solow (1956) growth model, it can be assumed that at a certain level of worker protection correspond a real wage higher than the one that guarantees the full utilization of the factors of production. For a given stock of available capital, a limited number of workers will be assumed, corresponding to the point where marginal productivity of labour coincides with the real wage fixed exogenously by labour protections. This leads to a high capital labour ratio, which results in a low overall volume of savings and therefore in a low capital accumulation and low income growth. Substantially similar conclusions also come to the other variants of neoclassical growth theory: from the overlapping-generations models, to the intertemporal optimisation models, to models with the classic hypothesis of saving, to the neoclassical versions of the *new growth theory*, for all these models, an economy characterised by rigid contracts and sticky wages grows at a lower rate than a flexible economy (Schivardi, 1999). In particular, lack of labour flexibility implies that the economy produces below its potential and slows convergence of the economy toward its steady state (Alonso et al., 2004); generates a redistribution of the product in favour of the workers that compromises the process of capital accumulation (Bertola, 1994); and ultimately compresses profits and disincentives investment (Daveri and Tabellini, 2000).

The view that structural reforms would increase the efficiency of the labour market, improve the competitiveness of the economy and favour an increase in employment, production and income has in the last twenty years prevailed among policymakers. According to this interpretation, such reforms would even help to reduce internal inequalities in the labour market, between insiders and outsiders. After the Great Recession, the support in favour of the deregulation of the labour market has been enhanced by additional elements, including the need to increase the flexibility of wages and prices in less competitive countries and contribute, in this way, to the absorption of the global macroeconomic imbalances. Important contributions to the achievement of this "deregulatory" vision of the labour market have been made by leaders of main governments and by the most influential international institutions (ECB, 2011; EC, 2013; for a critical survey, see ILO, 2015).

These guidelines in favour of "structural reforms" of the labour market have had a significant impact on policies implemented by national governments. Quantitative evidence of these reforms can be drawn from the "Employment protection legislation" overall index (EPL) calculated by the OECD. The EPL is an index of the degree of regulation of the labour market: a decrease in EPL is usually interpreted as a "deregulation" which reduces the "rigidities" and increases the "flexibility" of the labour market (on this point, see Howell et al., 2007; Skedinger, 2010; Adascalitei and Pignatti Morano, 2015). The OECD reports historical series of EPL for 26 countries. Between 1990 and 2013, 62 negative changes of EPL occurred in 16 of the 26 countries examined. Over the same period the average of the EPL index decreased by 0.47 points (from 2.27 to 1.80) and the variance decreased by 0.82 points (from 1.38 to 0.56). This path is in some ways even more accentuated in the aftermath of the so-called international "Great Recession" (IMF, 2012): the number of labour market reforms has increased during the international economic crisis as these interventions have been viewed as important policy tools to address growing unemployment (Adascalitei and Pignatti Morano, 2015). This decrease of the EPL was even more pronounced in the European Union, reflecting the political will to adapt to pursue the greater flexibility of the Anglo-American labour market (Berg, 2015). Between 1990 and 2013, within the first 11 countries of the Euro Area – with the exception of Luxembourg because of lack of data – there were 40 negative changes of EPL, with a reduction of the average EPL index by 0.64 points (from 2.55 to 1.91) and a decrease of its variance by 0.89 (from 1.19 to 0.3).

Nevertheless, what were the real effects of "structural labour-market reforms"? In contrast to the political sphere, nowadays within the field of economic research there is no consensus on the alleged macroeconomic benefits of deregulation policies. While in the 90′s literature was inclined to be in favour of the flexibility of the labour market, with the accumulation of empirical evidence growing doubts emerged. Skeptical positions increased about the actual capacity of labour deregulations to reduce unemployment and increase employment and income. As we shall see later, even institutions such as the World Bank, the International Monetary Fund and the OECD, which have repeatedly supported labour deregulation policies, today recognize that the empirical evidence available does not confirm that such recipes can boost employment. The same uncertainties about the effectiveness of deregulation in stimulating employment have fueled concerns about the effectiveness of these policies in reducing inequalities between so-called insiders and outsiders in the labour market. Moreover, in recent years, a series of studies have highlighted that labour deregulation policies can be related with inequality: Richard Freeman, among others, suggested that the reforms aimed at deregulating labour market and making contracts more flexible generate tangible effects not so much on employment and GDP, but rather on income inequalities. In this sense, as we shall see, some scholars are trying to provide empirical evidence of what they call the 'Freeman conjecture'.

In the literature, however, the analyses of the impact of labour deregulation on employment and GDP growth are generally separated from the studies on the link between deregulation and income distribution. In addition, existing analyses only look at the distribution between percentiles of population while not considering the classic problem of the functional distribution of income. There is therefore a gap in literature: there are no joint studies devoted to the relationship between structural reforms of the labour market on the one hand and growth and distribution of income on the other.

This research represents an attempt to fill this gap in the available literature. In this sense, we propose two novel analyses: a first test based on a balanced panel that investigates on whether or not a long-term relationship between deregulation on the one hand, and growth and functional distribution of income on the other, exists; and a second test based on an unbalanced panel which examines the possible relation between "shocks" in labour market regulation and trends of growth and functional distribution of income in subsequent years. Both tests, as we shall see, appear consistent with the view that deregulation policies are associated with changes in the functional income distribution in favour of profits while seem not to be related with changes vin GDP growth.The choice of analysing the inequality in terms of functional distribution will allow us to discuss the empirical results also in the light of the classical debate between alternative theories of growth and distribution. We will see that the results of the empirical tests contrast with the theoretical view, typically neoclassical, that relative prices and functional distribution on the one hand and income growth on the other are closely interlinked, so a policy shock that impacts on a

variable group should also have repercussions on the other. More in line with the empirical results of this study appear, instead, those alternative theoretical approaches that exclude the possibility of identifying univocal logical relationships between the functional income distribution and GDP dynamics.

The work is organized as follows. Section 2 is devoted to a review of the literature on the relationship between "structural reforms" of the labour market on the one hand and employment, GDP growth, wages and income distribution, on the other. Section 3 introduces the two empirical tests that we carried out in this paper. Section 4 describes the test based on a balanced panel, which analyses the long-running relationship between deregulation policies, on the one hand, and growth and functional distribution, on the other. Section 5 describes the test based on an unbalanced panel built in order to analyse the possible nexus with growth and functional income distribution of any "shock" in labour regulation. Section 6 examines the consistency of the empirical results obtained with the neoclassical theory of growth and distribution of income and with some alternative theories. Section 7 concludes.

2. Structural reforms, employment, GDP growth and income distribution: a short survey

The consensus concerning the view that employment protection regulations have a negative impact on macroeconomic outcomes, causing an increase in unemployment, a decrease in productivity and GDP growth and, moreover, generally worsening the efficiency and competitiveness of the labour market, has represented for long time the so-called "OECD-IMF orthodoxy" (Howell et al., 2007), also known as "Transatlantic Consensus" (rephrased as "Berlin-Washington Consensus" in Fitoussi and Saraceno, 2013). This view, established in the 90′s, took the flexibility of labour contracts in the United States as a benchmark and explained the increased unemployment in Europe as a result of excessive labour protections (Siebert, 1997; on this point see also Berg, 2015). According to the above interpretation, the 2003 IMF WEO (p. 129) states: "The persistence of high unemployment in a number of industrial countries – notably in continental Europe – is arguably one of the most striking economic policy failures of the last two decades. A wide range of analysts and international organizations – including the European Commission, the OECD, and the IMF – have argued that the causes of high unemployment can be found in labour market institutions. Accordingly, countries with high unemployment have been repeatedly urged to undertake comprehensive structural reforms to reduce 'labour market rigidities' such as generous unemployment insurance schemes; high employment protection, such as high firing costs; high minimum wages; noncompetitive wage-setting mechanisms; and severe tax distortions".

In fact, looking at the empirical literature, in the 90′s the analysis seem to suggest a convergence showing a positive relationship between EPL and unemployment. One of the first studies on the impact of EPL on aggregate employment and unemployment is Lazear (1990), which concludes by arguing that employment is lower and unemployment is higher in countries with more stringent EPL. The same conclusions are in the OECD's Jobs Study (1994, p. 28), that suggests: "An efficient and flexible supply side of the economy is crucial in ensuring that practices and policies operate in ways that create new jobs and help people fill them". The OECD remarks have had influence on the literature of the time (see Howell et al., 2007 and Berg, 2015). Indeed, in the late 90′s, three OECD economists found a significant and positive effect of EPL on unemployment (see Scarpetta, 1996 and Elmeskov et al., 1998).

However, over the last years some doubts emerged about the reliability of the first analyses on the relationship between EPL and employment. In particular, a view has emerged in the literature that the empirical works of the 90′s and early 2000′s were largely biased by a methodological approach defined "theory-driven" (Howell et al., 2007): "While there are solid theoretical arguments underpinning the call for such (labour) reforms, the empirical evidence is somewhat less developed and, in some cases, unsupportive" (IMF, 2003 p. 129). In fact, most recent analyses reveal the absence of a clear relation between EPL and labour market performance. According to Olivier Blanchard, the IMF's former chief economist: "differences in employment protection seem largely unrelated to differences in unemployment rates across countries" (Blanchard, 2006, p. 30). Others influential economists have faced this issue with same results, for instance Baker et al. (2005, p. 109) states: "the empirical case has not been made that could justify the sweeping and unconditional prescriptions for labour market deregulation that pervade much of the policy discussion", and Heckman (2007, p. 4) commenting the evidence on the effects of regulation on European labour markets, admits: "the evidence currently in play in this literature is weak" (similar findings are in Belot and van Ours, 2004; Garibaldi and Violante, 2005; Baker et al., 2005; Bassanini and Duval, 2006; Allard and Lindert, 2007; Amable et al., 2007; Baccaro and Rei, 2007; Cazes and Nesporova, 2007; Griffith et al., 2007; Rovelli and Bruno, 2008; Howell and Rehm, 2009; Armingeon and Baccaro, 2012; Storm and Naastepad, 2012; Vergeer and Kleinknecht, 2012; Avdagic and Salardi, 2013; World Bank, 2013; ILO, 2015; Adascalitei and Pignatti Morano, 2015).

The new findings are confirmed in the recent statements of international organizations. According to a recent World Bank's Development Report: "New data and more rigorous methodologies have spurred a wave of empirical studies over the past two decades on the effects of labour regulation. [...] Based on this wave of new research, the overall impact of EPL and minimum wages is smaller than the intensity of the debate would suggest. Most estimates of the impacts on employment levels tend to be insignificant or modest" (World Bank, 2013, p. 261). In a recent IMF World Economic Outlook we can read: "The analysis shows that reforms that ease dismissal regulations with respect to regular workers do not have, on average, statistically significant effects on employment and other macroeconomic variables" (IMF, 2016, p. 115). Similar conclusions can be found in the OECD Employment Outlook: "Most empirical studies investigating medium/long-term effects of flexibility-enhancing EPL reforms suggests that they have, at worst, no or a limited positive impact on employment levels in the long run" (OECD, 2016, p. 126).

The economic research of the last few years comes to controversial results also with regard to the possible links between structural reforms in the labour market and the performances of GDP. Belot et al. (2007) studied the welfare effects of employment protection, concluding that there is a hump shaped relationship between EPL and growth, in the sense that an increase in EPL from a low level leads to increased GDP per capita, but this positive effect turns negative above a certain threshold. Similarly, Allard and Lindert (2007) assumed the existence of a threshold presenting two sets of results on EPL, one for countries with little or no wage coordination, and one for countries with closely coordinated wage setting. In the first group, increased job protection did not seem to reduce productivity and GDP growth, while, in contexts of strong wage coordination, extra EPL lowers productivity and growth significantly. With different models Lingens (2003) and Mortensen (2005) found not conclusive results on the effects of labour deregulation on economic growth. Lingens (2003) treats the impact of unions on GDP growth in a model with two kind of skills, showing ambiguous results. The same ambiguous results are shown in the matching model of schumpeterian growth built by Mortensen (2005). Adjemian et al. (2010) estimate a regression in which the endogenous variable is the average growth rate of GDP per capita of each European Region and show a positive but not significant rela-

Table 1
Descriptive statistics, balanced panel.

Wage Share (WS)						GDP growth (GDP g)					EPL				
Country	Min	Median	Mean	Max	SD	Min	Median	Mean	Max	SD	Min	Median	Mean	Max	SD
All	43.2	57.0	56.6	72.9	5.3	−9.6	2.4	2.1	10.7	2.6	0.3	1.9	1.9	4.1	0.9
AUS	53.2	56.1	56.2	59.1	2.0	0.4	3.7	3.2	4.9	1.0	1.0	1.1	1.1	1.3	0.1
AUT	52.8	55.5	56.3	60.5	2.4	−3.9	2.2	1.9	3.6	1.6	1.8	2.0	1.9	2.0	0.1
BEL	58.4	61.0	60.8	62.9	1.2	−2.3	1.8	1.7	3.6	1.5	2.1	2.1	2.5	3.2	0.5
CAN	54.4	55.8	56.6	60.8	1.9	−2.7	2.6	2.3	5.0	1.9	0.6	0.6	0.6	0.6	0.0
CHE	62.7	65.3	65.1	67.6	1.3	−2.2	1.6	1.5	4.1	1.6	1.4	1.4	1.4	1.4	0.0
DEU	53.7	57.7	57.5	60.4	1.8	−5.8	1.7	1.3	4.0	2.1	1.8	2.3	2.3	3.0	0.5
DNK	54.0	55.7	55.9	59.3	1.3	−5.2	1.6	1.5	5.2	2.1	1.8	1.8	1.8	2.7	0.2
ESP	54.9	58.2	58.4	62.9	2.2	−3.6	2.7	1.9	5.2	2.5	2.3	2.8	2.9	3.6	0.4
FIN	52.2	55.2	55.9	65.5	3.7	−8.6	2.7	1.7	6.1	3.8	1.8	1.9	1.9	2.0	0.1
FRA	55.3	56.5	56.7	58.1	1.0	−3.0	1.9	1.6	3.8	1.5	2.7	3.0	3.0	3.0	0.1
GBR	55.1	58.6	58.3	60.4	1.5	−4.3	2.6	2.0	3.9	1.9	0.7	0.8	0.7	0.8	0.1
GRC	48.2	50.4	50.8	54.8	2.1	−9.6	2.8	0.9	5.6	4.3	2.2	3.8	3.3	3.8	0.6
IRL	44.7	49.3	50.7	59.3	4.9	−5.8	5.4	4.5	10.6	4.1	0.8	0.8	0.9	1.0	0.1
ITA	51.0	53.4	53.7	58.7	2.3	−5.6	1.5	0.7	3.6	2.0	2.3	2.8	3.0	3.8	0.6
JPN	58.7	63.0	63.0	67.3	3.1	−5.7	1.6	0.9	4.6	2.0	1.1	1.3	1.4	1.7	0.2
KOR	59.5	65.6	66.4	72.9	4.3	−5.6	5.3	5.2	10.7	3.5	2.3	2.3	2.5	3.1	0.4
NLD	56.1	59.8	60.0	64.3	2.3	−3.8	2.1	2.0	4.9	2.0	1.9	1.9	2.0	2.2	0.1
NOR	43.2	48.8	48.6	53.1	3.0	−1.6	2.6	2.4	5.1	1.6	2.5	2.7	2.7	2.8	0.1
NZL	47.7	51.3	51.0	54.1	1.7	−1.9	3.2	2.7	6.2	2.0	0.8	1.2	1.1	1.3	0.2
POL	47.6	54.9	53.8	63.0	5.1	−7.3	3.8	3.6	7.0	2.9	1.2	1.5	1.7	2.0	0.3
PRT	53.7	58.6	58.2	60.6	2.1	−4.1	1.8	1.3	4.7	2.4	2.5	3.7	3.6	4.1	0.4
SWE	46.5	48.9	48.8	51.8	1.4	−5.3	2.6	2.0	5.8	2.7	1.7	2.0	2.2	3.4	0.5
USA	56.8	59.7	59.5	61.5	1.5	−2.8	2.7	2.4	4.6	1.8	0.3	0.3	0.3	0.3	0.0

tion with the employment protection. Summarizing, in agreement with the results regarding employment and unemployment, the empirical literature seems to question the possible impact of labour market policy on the performances of GDP (for a wide review on EPL and its effects which confirms these conclusions, see Skedinger, 2010).

In the years in which the capacity of the structural reforms of labour market to stimulate employment and economic growth was questioned, there was also a growing interest in studies devoted to the possible nexus between these reforms and inequality. According to Richard Freeman, more rigid labour regulations "reduce the dispersion of earnings and income inequality", while they have "equivocal effects on other aggregate outcomes, such as employment and unemployment"; therefore, "institutions alter the distribution of income but not the efficiency of production" (Freeman, 2008 p. 15). This view has been named as the 'Freeman conjecture' and tested in a comparative econometric analysis by Campos and Nugent (2015). According to their results, more employment protections decrease inequality but have no significant effect on GDP growth: then, institutional rigidities in labour market do not affect the aggregate income but can have an impact on its distribution. This conclusion is supported by other contributions which show a negative relationship between the strictness of employment law and income inequality: "Our results indicate that labour market institutions exhibit significant correlations with the distribution of income across countries and over time. Stronger institutions are correlated with lower inequality. [. . .] A central element of the so-called 'flur result' agreements that the EU proposes is a reduction in employment protection legislation. A consequence of such policy is likely to be a substantial increase in income inequality" (Checchi and Garcia-Peñalosa, 2008, p. 633). On closer inspection, these results have also the endorsement of some of the most influential international organizations: "Many studies find that weakening labour market institutions can adversely impact distribution of labour income shares at the bottom and middle of the distribution, through a variety of channels including by reducing workers' bargaining power" (ILO-IMF-OECD-World Bank, 2015, p. 21). Others studies point out that the emergence of non-regular contracts (part-time, temporary, etc) have also been associated with an increase in income inequality (Berg, 2015; ILO, 2015). With respect to the direct effect of employment protection laws on income inequality a research published by the IMF states: "there is some evidence that lower employment protection is associated with a higher Gini of gross income and that weaker employment protection on temporary contracts is related to increased top income shares—although the coefficient is small" (Jaumotte and Osorio-Buitron, 2015 p. 21). Similarly, De et al. (2011), Darcillon (2015), Calderón et al. (2005), Dosi et al. (2016), conclude that stringent EPL is negatively associated with income inequality.

It is important to notice that the most of the studies on this subject analyse the impact of labour deregulation on income inequality looking only at the Gini coefficient and the personal income distribution. To the best of our knowledge, only a few recent studies have analysed the inequality in terms of the functional distribution of aggregate income between profits and wages (Daudey and Garcia-Peñalosa, 2007; Atkinson, 2009; Stockhammer et al., 2008; Stockhammer, 2013; Jaumotte and Osorio-Buitron, 2015). According to a recent IMF study: "Stronger labour market institutions could increase the wage share" (Dabla-Norris et al., 2015, p. 21). The empirical analysis in Guerriero and Sen (2012) supports this view. These authors attempt to identify the driving force behind the decline of the labour share around the world. After an extensive econometric analysis focused primarily on the relationships between the labour share and measures of international trade and technological change, they conclude that regulations in the labour market also matter. On the relationship between EPL and wage share, the OECD argues that: "Employment protection regulations can affect the labour share. Indeed, stringent dismissal regulations might worsen the employer's bargaining position", so "(labour) reform might have a negative impact on the labour share. However, there is little research on this issue" (OECD, 2012, p. 146).

Existing analyses, then, look at the income distribution between percentiles of population while rarely considering the classic problem of the functional distribution of income between profits and wages. Furthermore, as we have seen, the analyses of the impact of labour deregulation on employment and GDP growth are usually separated from the studies on the link between deregulation and income distribution. There is therefore a gap in literature: there

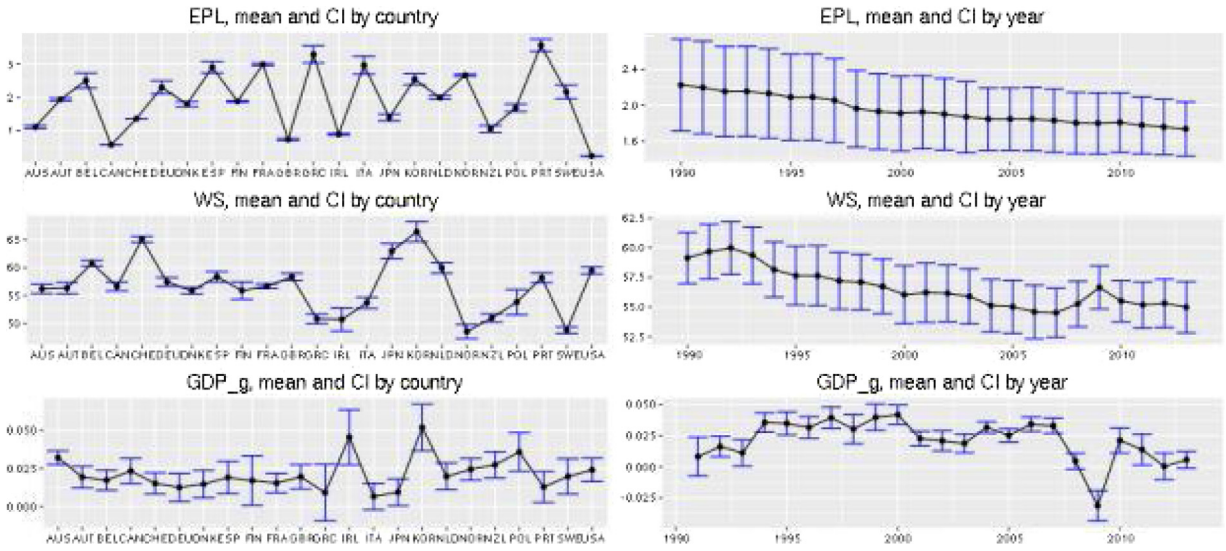

Fig. 1. Means and Confidence Intervals (95%), by country and year (1991–2013).

are no joint studies devoted to the relationship between structural reforms of the labour market on the one hand and growth and functional distribution of income on the other. Aiming to fill this gap, in the next section we will present two empirical analyses aimed at verifying the existence of statistical relationships between variations of the Employment protection legislation index (EPL) on the one hand and variations of the real GDP growth and the wage share on the other hand.

3. Two empirical exercises

In what follows, we are going to perform two different kinds of empirical exercises in order to assess the effects of changes in the degree of labour protection on the rate of growth of GDP and on functional income distribution. Campos and Nugent (2015) provide a pioneering empirical support to the so-called 'Freeman conjecture', according to which labour market reforms do not affect growth, but rather income distribution. We intend to test the same conjecture by using a different methodological approach and alternative data.

The most relevant difference between the approach adopted here and Campos and Nugent's concerns the concept of income distribution: whereas they look at personal income distribution – described by the evolution of GINI coefficient – we are interested in functional income distribution, and hence we focus on the wage share. Secondly, Campos and Nugent decided to compute themselves an index of Labour Market Legislation Rigidity (LAMRIG) based on ILO's database of national labour, social security and related human rights legislation. On the contrary, we made the choice here to stick to the more commonly used Employment Protection Legislation (EPL) index compiled by the OECD. LAMRIG covers the years from 1960s and a wider set of developing countries, while EPL starts from 1985 and mainly concerns developed countries. Our choice, then, reduces the number of countries included in our dataset and the time span covered. However, it still permits constructing a panel with 23 countries and 24 years. Considering the availability of data on wage shares – which are not published by the great majority of developing countries – using LAMRIG instead of EPL would not have widened the extent of the present analysis. Thirdly, we adopted an alternative approach to overcome the main problem emerging from using both EPL and LAMRIG for this kind of analysis, i.e. the fact that these indexes exhibit a very low variability which can hardly explain spurious effects captured by regression coefficients.

Then, we propose here two different approaches. The first one is in line with Campos and Nugent and is based on a set of OLS regressions with fixed effects using a balanced panel. The second approach, instead, is based on an additional set of estimates based on an unbalanced panel which focuses on the years before and after the presence of relevant "shocks" in the level of EPL; this second analysis represents an adaptation to labour market deregulations of an original analysis of currency crises suggested by Maarek and Orgiazzi (2013) and further developed by Brancaccio and Garbellini (2015). In what follows are descriptive statistics, methodological details and a description of the corresponding estimates which will be given separately for the two different exercises.

4. Balanced panel

Table 1 provides some descriptive statistics of the balanced panel, which includes data for wage share, EPL, and the rate of growth of GDP for 23 countries, for the period 1991–2013. As we can see, overall the wage share ranges from a minimum of 43.2 to a maximum of 72.9, the standard deviation being 5.3. This wide variability is mainly due to inter-country differences rather than to a high variability of wage shares through time. However, there are some countries in the dataset which show a relevant variability through time as well: Poland (from a minimum of 47.6 to a maximum of 63.0), Ireland (44.7–59.3), Finland (52.2–65.5), Japan (58.7–67.3) and Norway (43.2–53.1).

The rate of growth of GDP shows a wider gap between minimum and maximum levels, ranging from a minimum of −9.6% to a maximum of 10.7%, the standard deviation being 2.6. Also in this case, of course, country-level data are characterised by a smaller gap between minima and maxima, with the exception of some countries: Greece (minimum −9.6%, maximum 5.6%); Ireland (−5.8% to 10.6%); Poland (−7.3% to 7.0%); Finland (-8.6% to 6.1%).

As stated above, EPL shows basically no variability. Overall, it ranges from a minimum of 0.3 to a maximum of 4.1, but at each single country level the gap between minima and maxima are much smaller, and standard deviation close to zero – showing that such a gap is generated by a few once-and-for-all variations. Also in this case, there are some countries which show an above-average range of EPL levels: Germany (from 1.8 to 3, the standard devia-

Table 2
Wage share, balanced panel.

	Dependent variable:		
	WS		
	(1) (1991–2013)	(2) (1991–2007)	(3) (2008–2013)
WS lag1	0.889***	0.882***	0.432***
	(0.019)	(0.023)	(0.082)
epl	0.449***	0.496**	3.827***
	(0.162)	(0.203)	(1.116)
d089	1.235***		
	(0.170)		
Observations	525	387	138
R2	0.820	0.820	0.276
Adjusted R2	0.780	0.767	0.226
F Statistic	759.528*** (df = 3; 499)	821.979*** (df = 2; 362)	21.524*** (df = 2; 113)

Note: *p < 0.1; **p < 0.05; ***p < 0.01.
Equation: $WS_{i,t} = a_i + \beta_1 WS\_lag1_{i,t} + \beta_2 epli,t + \beta_3 d089 + \varepsilon_{i,t.}$

Table 3
Rate of growth of GDP, balanced panel.

	Dependent variable:		
	GDP g		
	(1) (1991–2013)	(2) (1991–2007)	(3) (2008–2013)
GDP g lag1	0.374***	0.306***	−0.123
	(0.035)	(0.043)	(0.084)
epl	0.004	−0.005	0.047*
	(0.003)	(0.003)	(0.025)
d089	−0.037***		
	(0.003)		
Observations	505	367	138
R2	0.396	0.134	0.038
Adjusted R2	0.376	0.124	0.031
F Statistic	104.713*** (df = 3; 479)	26.368*** (df = 2; 342)	2.219 (df = 2; 113)

Note: *p < 0.1; **p < 0.05; ***p < 0.01.
Equation: $GDPgi,t = a_i + \gamma_1 GDP\_g\_lag1i,t + \gamma_2 epli,t + \gamma_3 d089 + \eta_{i,t.}$

tion being 0.5); Spain (2.3–3.7); Greece (2.2–3.8); Italy (2.3–3.8); Portugal (from 2.5 to 4.1).

Fig. 1 depicts means and 95% confidence intervals, by country and year, for EPL, WS and GDP_g. As already emerging from Table 1, EPL shows high inter-country variability, but is quite stable, though decreasing, through time. Moreover, inter-country variability is itself decreasing through time, showing a tendency to convergence.

Wage share is also characterised by a huge heterogeneity among countries, but shows a tendency to decrease, with the exception of 2009 where average WS sharply increased due to the corresponding drop of GDP growth induced by the crisis.

The descriptive analysis has shown that, over the period considered, on average both wage shares and EPL have been decreasing, while GDP growth does not show any clear tendency. This suggests, in line with 'Freeman conjecture', the presence of some kind of correlation between EPL reductions – i.e., reductions of employment protection – and redistribution of income from wages to profits. On the contrary, GDP growth shows no clear correlation with changes in employment protection.

In order to assess the relation between EPL and both the wage share and the rate of growth of GDP, we estimated two OLS models with country-fixed effects, namely:

$$WS_{i,t} = a_i + \beta_1 WS\_lag1_{i,t} + \beta_2 epl_{i,t} + \beta_3 d089 + \varepsilon_{i,t} \quad (1)$$

$$GDP_{g_{i,t}} = a_i + \gamma_1 GDP\_g\_lag1_{i,t} + \gamma_2 epl_{i,t} + \gamma_3 d089 + \eta_{i,t} \quad (2)$$

where a_i are country dummies and d089 is a dummy taking value 1 for the years 2008 and 2009 – capturing the effect of the 2008 crisis.

Tables 2 and 3 show the results of the estimation of Eqs. (1) and (2) for the whole period – column (1) – and for the two sub-periods 1991–2007 and 2008–2013 – columns (2) and (3), respectively.

Looking at column (1) of Table 2, we can see a significant and positive effect of the lagged level of the wage share, the level of EPL, and the crisis dummy. This means that higher EPL levels are significantly correlated to higher levels of the wage share. The positive and significant effect of the crisis dummy indicates that, as we have already stressed in the descriptive analysis, wage shares were significantly higher in 2008 and 2009 with respect to the rest of the period considered here. In order to check for robustness of the results, we performed a separate estimation for the two sub-periods before (1991–2007) and after (2008–2013) the crisis itself. Results are shown in columns (2) and (3). The structural break is apparent. While estimates in column (2) are almost the same as those in column (1), column (3) shows that after the crisis the effect of the lagged level of the wage share is half as it was before the crisis – which signals the response of income distribution to the sudden drop in GDP – while the effect of the level of EPL is more than 8 times the pre-crisis one. This means that during the crisis and the following recession, countries with a higher employment protection also kept a higher level of the wage share as against countries with a more flexible labour market.

As to goodness of fit, the value of adjusted R squared shows that estimates in columns (1) and (2) explain almost 80% of wage share variability between countries, while estimates in column (3) only 22.6% – in other words, after the financial crisis a number of variables have been influencing the level of the wage share other than its historical trend and EPL.

Table 3 shows the results of estimating Eq. (2). Also in this case, column (1) refers to the whole period, while columns (2) and (3) to the pre- and post-crisis sub-periods, respectively. Looking at column (1), we can see that the level of employment protection had no influence on GDP growth. Only the lagged value of the rate of growth of GDP itself and the crisis dummy had a significant effect, positive in the first case, negative in the latter. Again, estimates in column (2) are qualitatively and quantitatively similar to those in column (1), while column (3) shows a different picture. More specifically, also in this case the coefficient associated to the lagged value of the dependent variable becomes insignificant – showing the structural break induced by the crisis – while the level of EPL becomes slightly positive and significant, showing that, during the crisis and the following recession, countries with tighter employment protection could limit the drop in GDP growth rates better than countries with a more flexible labour market.

In this case, however, goodness of fit is definitely lower than in the previous one. Our estimates explain the 37.6% of GDP growth rates variability for the whole period, 12.4% for the pre-crisis sub-period, and 0.31% only in the post-crisis sub-period. This means that the determinants of GDP growth are much more complex, and that such a complexity significantly increased after the 2008 crisis.

The conclusions which can be drawn from the empirical exercise performed in this section, therefore, are the following: (i) countries with higher employment protection were on average characterised by higher levels of the wage share, both before and after the financial crisis; (ii) the insurgence of the crisis reinforced this relation, making EPL an important element of wage share protection; (iii) growth rates were, on average and over the period considered, uncorrelated to the level of EPL; (iv) this relations appears as being slightly significant after the crisis only, suggesting that during recessions employment protection can be an important element in moderating GDP falls.

5. Unbalanced panel

Before describing the empirical strategy adopted here and the corresponding results, a methodological note is at place. Also in this case, as in Brancaccio and Garbellini (2015), no attempt is made at providing a causal interpretation to the statistical relations emerging among the variables of interest. By adopting the distinction put forward by Moneta and Russo (2014), we are working here with associational rather than causal models, the former being "statistical models in which associations among random variables are analysed", and the latter "augmented statistical models in which some of the associations can be interpreted as causal relations" (Moneta and Russo, 2014, p. 55).

As stated in the introduction, the estimates presented in the previous section might be subject to some criticism. First and foremost, EPL is almost stable through time, with just a few positive or negative leaps. Moreover, the effects of a change in EPL may show up with some delay. In order to confirm the results described above, we estimated an alternative specification, aimed at overcoming these specific drawbacks.

More specifically, we picked the most significant leaps in the level of EPL, considering them as "shocks", and concentrating attention on the five years before and the five years after the shock itself. After singling out all the "shocks", estimates aim at checking whether in any of $t+i$ ($i=0,\ldots,5$) there are significant differences, in the levels of wage share and rate of growth of GDP, with respect to pre-shock average.

Before providing descriptive statistics of the unbalanced panel and describing the specification of the estimated equations and describing the corresponding results, it is worth spending a few lines to describe the way in which we defined shocks. As stated before, the methodology we are adopting here is based on Maarek and Orgiazzi (2013), further developed by Brancaccio and Garbellini (2015). In those cases, however, the definition of "shocks" – or exchange rate crises – could take advantage of a well-established literature and be based on the IMF currency regimes classification. In this context, we do not have any supporting evidence or literature, and it is therefore necessary to look for a different solution.

A threshold can be defined either in an endogenous or exogenous, i.e. somehow arbitrary, way. Since both methods may be subject to criticisms, we decided to take both, and hence to repeat estimates based on different definitions of shocks – a procedure which also provides a check as to whether results are robust to changes in the definition of shock itself.

An endogenous definition relates the average value of the variable of interest, where an above-average value can be classified as abnormal. In this case, given the extremely heterogeneous character of EPL percentage variations among different countries an endogenous threshold should take this heterogeneity into account, and therefore be different from country to country. Looking at Fig. 2, we can see that there are countries, such as Belgium, where the EPL index is almost stable with only one single leap over the whole period. On the contrary, there are some countries, such as Portugal, where the index shows much more variability, the single changes being less pronounced. The starting levels are also very different from country to country, so that the same absolute change may translate into quite different percentage changes. A single threshold, identifying the presence of a shock in Belgium, might fail to consider any of Portuguese changes in EPL as abnormal, if too high, or define almost all such changes as shocks, if too low. The more countries are present showing extreme changes in EPL, the more simple average of negative shocks is inappropriate to represent an endogenous threshold.

Therefore, the average value of negative percentage changes in EPL (epl_g) has been corrected by a country-specific factor given by its coefficient of variation relative to that of the whole sample:

$$\alpha_i = \mu\left(epl_{g,i}\right)\frac{CV\left(epl_{g,i}\right)}{CV\left(epl_g\right)},\ CV\left(epl_g\right)=\frac{\sigma\left(epl_g\right)}{\mu\left(epl_g\right)} \tag{3}$$

where i is a country-specific index. In other words, the threshold is going to be higher for countries with above-average coefficient of variation, and lower for countries with below-average coefficient of variation. Table 4 reports the values of the thresholds computed for each country on the basis of Eq. (3).

Finally, we picked two values for exogenous thresholds: 2% and 10%. Table 5 reports all the shocks which can be identified with the three alternative thresholds listed above. As can be seen, applying the endogenous threshold leads to the identification of 29 shocks, 46 for the case of 2% and 23 for the case of 10% threshold. Table 6 provides some descriptive statistics for the unbalanced panels resulting from identifying EPL shocks by adopting the three above-mentioned thresholds – the endogenous one, 2% and 10%, respectively – for the percentage change of EPL.

Looking at the wage share, we can see that in all three cases the minimum value increased from the pre-shock average to t+5, while the maximum value decreased, showing a polarisation towards average values. Moreover, in all three cases both the median and the mean have been decreasing over the time period considered. In particular, looking at the mean, we observe a reduction in the wage share in the year of the shock, followed by a slight recovery in t + 1 and t + 2 – with the exception of the 2% case, where recovery took place in t + 1 only – and then by a further reduction. Overall, with respect to the pre-shock average, the wage share decreased by 0.9 p.p. in the first case (endogenous threshold), by 1.1 p.p. in the second case (2%) and by 0.3 p.p. in the third case (shock corresponding to an EPL reduction of at least 10%).

Turning to the rate of growth of GDP, Table 6 confirms the absence of any well-defined trend, in all three cases, with minimum, maximum, median and mean values oscillating over the period considered.

Finally, the rate of change of EPL also shows a similar pattern in all three cases: with some exceptions, it is non-zero in the year of the shock only. However, the minimum and maximum values show that in some cases, the initial drop in EPL was followed by further drops, or by increases, of the index in the following years.

The descriptive analysis has shown that the wage share, in all three cases, underwent a reduction in the five years after the shock with respect to the pre-shock average. Also here, as in the case of the balanced panel, the rate of growth of GDP does not seem to be affected by the EPL shock.

In order to further investigate the relation between EPL shocks and the wage share on the one side, and the rate of growth of GDP on the other side, we estimate two OLS models with country fixed effects and a set of temporal dummies which allow to assess the time path followed by the variables of interest over the five years after the shock. More specifically, the estimated equations are:

$$WS_{i,t} = a_i + \zeta_1 WS\_lag1_{i,t} + \zeta_2 d089 + \sum_{j=0}^{5}\theta_j cr_{t+j} + \sum_{J=0}^{5}\vartheta_j cr_{t+j} flex \tag{4}$$

$$GDP\_g_{i,t} = a_i + \phi_1 GDP\_g\_lag1_{i,t} + \phi_2 d089 + \sum_{j=0}^{5}\delta_j cr_{t+j} + \sum_{J=0}^{5}\varphi_j cr_{t+j} flex \tag{5}$$

where a_i are country dummies, d089 is a dummy taking value 1 for the years 2008 and 2009, cr_{t+j} are the temporal dummies taking value 1 j ($j=0,\ldots,5$) years after the shock, and flex is a dummy taking value 1 when the rate of growth of EPL is negative, in order to

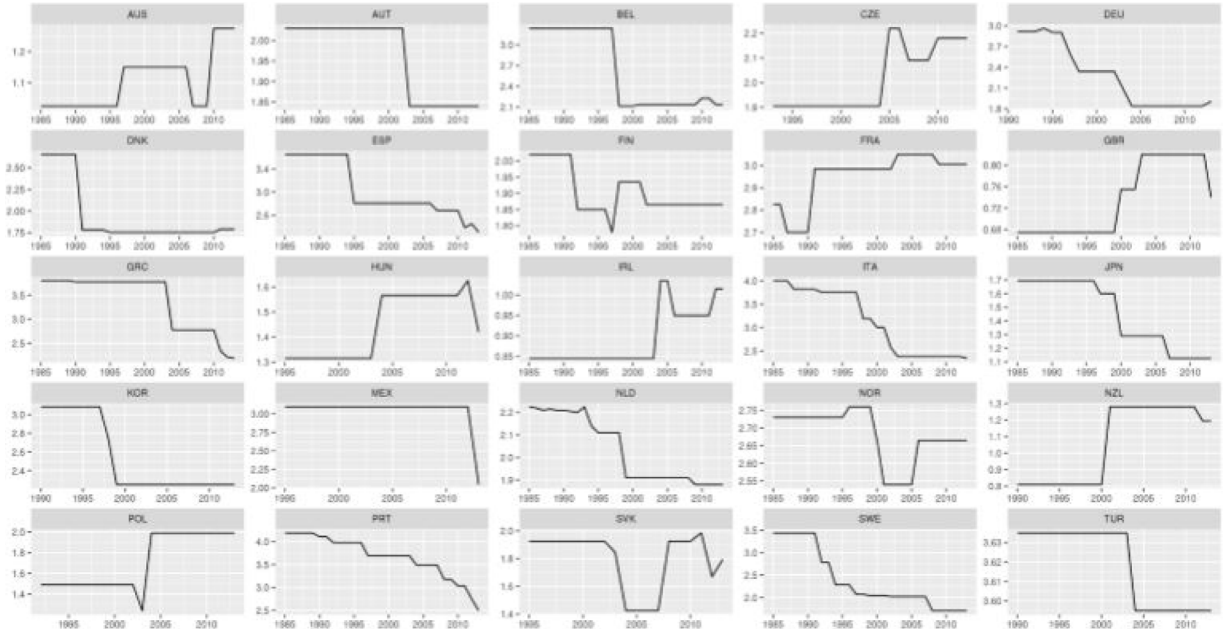

Fig. 2. EPL by country (1985–2013).

Table 4
Endogenous thresholds (αi).

i	Mean	SD	CV	αi	*i*	Mean	SD	CV	αi
All	−9.7	0.06	−0.59		IRL	−8.6	0.04	−0.51	−8.5
AUS	−11.5	0.05	−0.45	−7.5	ITA	−7.7	0.04	−0.58	−9.6
AUT	−9.8	0.02	−0.19	−3.1	JPN	−13.7	0.05	−0.35	−5.9
BEL	−23.5	0.08	−0.35	−5.8	KOR	−15.8	0.05	−0.30	−5.0
CZE	−6.0	0.04	−0.64	−10.6	MEX	−41.4	0.10	−0.24	−3.9
DEU	−9.5	0.05	−0.49	−8.2	NLD	−2.0	0.02	−1.00	−16.6
DNK	−20.7	0.08	−0.37	−6.1	NOR	−4.2	0.01	−0.36	−5.9
ESP	−12.2	0.06	−0.45	−7.5	NZL	−6.9	0.10	−1.41	−23.5
FIN	−5.4	0.03	−0.47	−7.7	POL	−18.4	0.11	−0.61	−10.2
FRA	−3.0	0.02	−0.72	−12.0	PRT	−6.5	0.03	−0.52	−8.6
GBR	−10.3	0.03	−0.32	−5.4	SVK	−15.8	0.11	−0.68	−11.3
GRC	−11.1	0.07	−0.59	−9.9	SWE	−11.6	0.06	−0.54	−8.9
HUN	−13.5	0.05	−0.40	−6.7	TUR	−1.1	0.00	−0.21	−3.5

capture the effects of further reductions in EPL after the one taking place in time t.

As anticipated above, we adopted the same estimation strategy as in Brancaccio and Garbellini (2015), i.e. we first estimated the complete specification, and then we removed the regressor characterised by the lowest significance, up to the point where a further removal would reduce the value of adjusted R squared. Results are shown in Tables 7 and 8.

Table 7 shows the results of estimating Eq. (4) in correspondence between the three thresholds. In all three cases, the coefficient associated to the lagged value of the wage share is positive and significant, with almost the same magnitude – the highest value is the one associated to the 10% threshold, followed by the one associated to the endogenous threshold, and finally by that corresponding to a 2% threshold.

In the same way, the crisis dummy (*d089*) has a positive and significant effect in all three cases – the highest value being that reported in column (1), followed by (2) and (3) – showing that in 2008 and 2009 the wage share on average increased with respect to the previous periods due to the sudden drop in GDP induced by the crisis.

The estimates of the coefficients associated to the temporal dummies, though being qualitatively the same in terms of sign and significance in all three cases, show some quantitative difference according to the adopted threshold.

Looking first at column (1), showing the estimates corresponding to the endogenous threshold, we can see that the initial shock brought about a significant reduction of the wage share. The same happens in all the five years after the shock, with the negative effectincreasing in size up to t+2, and then decreasing in the following years, with the coefficient associated to cr_{t+5} being only slightly smaller than that associated to cr_t (-0.482 versus −0.497).

Looking at column (2), we can see that the significant and negative reduction brought about by the shock is smaller than in the previous case (-0.444 versus −0.497), but is gradually increasing from t to t+5, with the only exception of a decrease in t+3 immediately followed by a further increase.

Looking at column (3), we can see that the time profile is similar to the one characterising the case of the endogenous threshold: a negative and significant effect in time t is followed by increasingly negative effects up to t+2, and then by decreasingly negative effects in the following year. The difference with respect to column (1) is that in time t+5 there is no significant change in the level of the wage share, showing that the effects of the shock were confined to the first 4 years after the shock itself.

In all three cases, the coefficients associated to the flex dummy interacting with cr_{t+j} are not significant – and in almost all cases

Table 5
Availability, unbalanced panel.

Country	Year	Availability	% Change	Absolute Change	Threshold		
					Endogenous	2%	10%
AUS	2007	2002–2012	−11.5	1.15 → 1.02	X	X	X
AUT	2003	1998–2008	−9.8	2.03 → 1.84	X	X	
BEL	1998	1993–2003	−42.7	3.24 → 2.12	X	X	X
BEL	2012	2007–2013	−4.4	2.23 → 2.13		X	
CZE	2007	2002–2012	−6.0	2.22 → 2.09		X	
DEU	1995	1991–2000	−2.0	2.96 → 2.90		X	
DEU	1997	1992–2002	−11.5	2.90 → 2.59	X	X	X
DEU	2003	1998–2008	−11.3	2.34 → 2.09	X	X	X
DNK	1991	1986–1996	−40.0	2.65 → 1.78	X	X	X
ESP	1995	1990–2000	−26.3	3.65 → 2.81	X	X	X
ESP	2007	2002–2012	−4.6	2.81 → 2.68		X	
ESP	2011	2006–2013	−11.7	2.68 → 2.38	X	X	X
FIN	1992	1987–1997	−8.8	2.02 → 1.85	X	X	
FIN	1997	1992–2002	−3.9	1.85 → 1.78		X	
FIN	2002	1997–2007	−3.7	1.94 → 1.86		X	
FRA	1987	1985–1992	−4.5	2.83 → 2.70		X	
GBR	2013	2008–2013	−10.3	0.82 → 0.74	X	X	X
GRC	2004	1999–2009	−30.8	3.77 → 2.77	X	X	X
GRC	2011	2006–2013	−17.3	2.77 → 2.34	X	X	X
HUN	2013	2008–2013	−13.5	1.62 → 1.42	X	X	X
IRL	2006	2001–2011	−8.6	1.03 → 0.95	X	X	
ITA	1988	1985–1993	−4.7	4.00 → 3.82		X	
ITA	1998	1993–2003	−16.2	3.75 → 3.19	X	X	X
ITA	2000	1995–2005	−6.1	3.19 → 3.00		X	
ITA	2002	1997–2007	−15.6	3.00 → 2.57	X	X	X
JPN	1997	1992–2002	−5.8	1.70 → 1.60		X	
JPN	2000	1995–2005	−21.5	1.60 → 1.29	X	X	X
JPN	2007	2002–2012	−13.7	1.29 → 1.12	X	X	X
KOR	1998	1993–2003	−11.5	3.08 → 2.75	X	X	X
MEX	2013	2008–2013	−41.4	3.10 → 2.04	X	X	X
NLD	1994	1989–1999	−3.9	2.23 → 2.14		X	
NLD	1999	1994–2004	−10.0	2.11 → 1.91		X	
NOR	2000	1995–2005	−3.5	2.76 → 2.66		X	
POL	2003	1998–2008	−18.4	1.49 → 1.24	X	X	X
PRT	1990	1985–1995	−2.0	4.19 → 4.11		X	
PRT	1992	1987–1997	−3.1	4.11 → 3.98		X	
PRT	1997	1992–2002	−7.4	3.98 → 3.69		X	
PRT	2004	1999–2009	−5.7	3.69 → 3.49		X	
PRT	2008	2003–2013	−9.3	3.49 → 3.18	X	X	
PRT	2010	2005–2013	−4.7	3.18 → 3.04		X	
PRT	2012	2007–2013	−9.9	3.04 → 2.75	X		

Table 6
Descriptive statistics, unbalanced panel

	Wage Share					Rate of growth of GDP					Rate of growth of EPL				
Period	Min	Median	Mean	Max	SD	Min	Median	Mean.	Max.	SD	Min	Median	Mean	Max	SD
Endogenous Threshold															
Before	37.2	56.0	54.7	72.9	7.2	−6.8	2.0	1.9	10.3	2.8	−21.1	0.0	−0.5	30.1	4.7
t	37.1	54.0	53.8	69.1	7.0	−9.6	1.6	0.9	6.1	3.3	−42.7	−15.6	−18.0	−8.6	9.9
t+1	42.3	53.8	54.0	66.0	5.9	−7.6	1.5	1.2	10.7	3.8	−20.1	0.0	−0.3	47.3	11.2
t+2	41.8	53.6	54.0	65.0	5.5	−5.7	2.0	2.2	8.5	3.3	−19.8	0.0	−1.6	0.0	4.3
t+3	41.4	53.5	53.8	65.6	5.6	−5.8	3.3	3.0	10.3	3.0	−9.9	0.0	0.6	21.8	5.2
t+4	41.9	53.2	53.6	64.7	5.5	−4.1	2.2	2.3	7.2	2.6	−15.6	0.0	0.1	30.1	7.7
t+5	45.1	53.9	53.8	65.1	5.1	−5.6	1.6	1.5	6.1	2.7	−9.9	0.0	−1.5	0.0	3.2
Threshold 2%															
Before	37.2	56.8	55.8	72.9	6.6	−6.8	2.5	2.3	10.3	2.6	−21.1	0.0	−0.3	30.1	4.2
t	37.1	56.2	55.0	69.1	6.5	−9.6	2.0	2.0	7.6	3.0	−42.7	−9.9	−12.5	−2.0	10.1
t+1	41.6	56.7	55.3	66.0	5.8	−7.6	1.8	1.5	10.7	3.2	−25.8	0.0	−0.5	47.3	9.5
t+2	42.3	56.1	55.1	65.3	5.2	−5.7	2.0	1.8	8.5	3.1	−19.8	0.0	−1.9	0.0	4.5
t+3	41.8	55.0	55.0	65.6	5.2	−5.8	2.6	2.4	8.1	2.4	−21.5	0.0	−0.8	21.8	5.8
t+4	41.4	54.4	54.8	64.7	5.3	−4.1	1.9	2.2	10.3	2.5	−15.6	0.0	−1.0	10.0	4.1
t+5	41.9	54.5	54.7	65.1	5.2	−4.4	1.7	1.7	6.1	2.4	−10.0	0.0	−0.6	30.1	6.0
Threshold 10%															
Before	37.2	55.5	54.7	72.9	7.6	−6.8	2.0	1.9	10.3	2.8	−21.1	0.0	−0.3	30.1	4.0
t	37.1	53.9	53.7	69.1	7.3	−9.6	1.8	1.0	5.1	3.3	−42.7	−17.3	−20.3	−10.3	9.9
t+1	42.3	53.5	54.2	66.0	6.2	−7.6	1.5	1.2	10.7	4.0	−20.1	0.0	0.1	47.3	12.7
t+2	41.8	53.7	54.2	65.0	5.9	−5.7	2.0	2.3	8.5	3.6	−19.8	0.0	−1.7	0.0	4.8
t+3	41.4	53.7	54.0	65.6	6.2	0.8	3.2	3.6	10.3	2.3	−9.9	0.0	0.8	21.8	5.9
t+4	41.9	53.7	53.9	64.7	6.1	−0.5	2.3	2.7	7.2	2.4	−15.6	0.0	0.8	30.1	8.4
t+5	45.1	54.2	54.4	65.1	5.4	−5.6	1.5	1.3	5.2	2.8	−9.9	0.0	−1.1	0.0	2.9

Table 7
Wage share, unbalanced panel.

	Dependent variable:		
	WS		
	(1)	(2)	(3)
Threshold	Endogenous	2%	10%
WS lag1	0.775***	0.753***	0.789***
	(0.039)	(0.030)	(0.041)
d089	1.542***	1.325***	1.270***
	(0.211)	(0.191)	(0.225)
crt	−0.497**	−0.444***	−0.515**
	(0.207)	(0.166)	(0.214)
crt+1	−0.741***	−0.491***	−0.624***
	(0.222)	(0.174)	(0.230)
crt+2	−0.747***	−0.494***	−0.803***
	(0.235)	(0.183)	(0.239)
crt+3	−0.648***	−0.404**	−0.641**
	(0.248)	(0.186)	(0.258)
crt+4	−0.662***	−0.533***	−0.499*
	(0.253)	(0.190)	(0.262)
crt+5	−0.482*	−0.570***	
	(0.258)	(0.194)	
crt+2cont		−1.792	
		(1.104)	
Observations	290	465	228
R^2	0.732	0.697	0.740
Adjusted R^2	0.639	0.614	0.642
F Statistic	86.518*** (8;253)	104.742***	80.309***
	df = 8; 253	df = 9; 410	df = 7; 198

Note: *p < 0.1; **p < 0.05; ***p < 0.01.

Equation: $WS_{i,t} = a_i + \zeta_1 WS\_lag1_{i,t} + \zeta_2 d089 + \sum_{j=0}^{5} \theta_j cr_{t+j} + \sum_{J=0}^{5} \vartheta_j cr_{t+j} flex.$

Table 8
Rate of growth of GDP, unbalanced panel.

	Dependent variable:		
	GDP g		
	(1)	(2)	(3)
Threshold	Endogenous	2%	10%
GDP g lag1	0.367***	0.406***	0.307***
	(0.058)	(0.043)	(0.069)
d089	−0.039***	−0.036***	−0.039***
	(0.005)	(0.004)	(0.006)
crt	−0.008*	−0.002	−0.010*
	(0.005)	(0.003)	(0.005)
crt+1	−0.002	−0.006	−0.005
	(0.006)	(0.004)	(0.007)
crt+2	0.008		0.007
	(0.005)		(0.006)
crt+3	0.006		0.009
	(0.005)		(0.006)
crt+4		−0.003	
		(0.004)	
crt+5	−0.0004	−0.003	−0.004
	(0.005)	(0.004)	(0.006)
crt+2cont	0.013	0.012	0.015
	(0.012)	(0.009)	(0.013)
Observations	288	459	226
R^2	0.290	0.293	0.269
Adjusted R^2	0.253	0.259	0.232
F Statistic	12.835*** (8;253)	24.031***	8.966***
	df = 8; 251	df = 7; 406	df = 8; 195

Note: *p < 0.1; **p < 0.05; ***p < 0.01.

Equation: $GDP\_g_{i,t} = a_i + \phi_1 GDP\_g\_lag1_{i,t} + \phi_2 d089 + \sum_{j=0}^{5} \delta_j cr_{t+j} + \sum_{J=0}^{5} \varphi_j cr_{t+j} flex.$

were even dropped by the estimated equations due to their very low significance – showing that the fact of having further EPL reductions or not after the initial shock did not change the overall performance of the wage share in the following five years.

As to the goodness of fit, the highest value of adjusted R squared is the one in column (3) – which is of course associated to the highest number of observations – followed by columns (1) and (2).

Table 8 shows the results of estimating Eq. (5). In all three cases, there is a positive and significant effect of the lagged value of the rate of growth of GDP, the strongest being associated to the 2% threshold, the weakest to the 10% one. The crisis dummy is associated to a significant and negative coefficient, with no relevant difference between the three cases. We observe a significant and negative coefficient associated to cr_t in columns (1) and (3), though significance is at 95% only, and the value of the coefficient is close to zero (-0.008 and −0.010, respectively). All the remaining estimated coefficients are statistically non significant.

Even in this case, as for the balanced panel, goodness of fit is lower for GDP growth than for the wage share.

6. A theoretical interpretation of the empirical findings

The empirical findings of this study raise a theoretical problem. Not all existing paradigms can admit that a particular economic policy strategy has implications for functional income distribution but not on income growth. The fact that "structural labour-market reforms" present significant statistical relationships with wage shares but not with real GDP growth rates is a difficult problem to solve in the context of those analytical approaches that consider these variables irreducibly interconnected. Let us consider the various versions of the neoclassical theory. In the basic concepts of the temporary or intertemporal general competitive equilibrium (Hicks, 1939; Arrow and Debreu, 1954), as well as in the standard growth models (Solow, 1956; Koopmans, 1965 and others), an exogenous shock that affects the relative prices and the distribution of income between wages and profits must have an impact on the level and growth of production, and vice versa. This also holds for modern "imperfectionist" versions of the neoclassical theory. Even if market imperfections, asymmetries of information, strategic interactions and social institutions are admitted, these models preserve in terms more or less explicit the idea of a strict interconnection between functional distribution and growth of aggregate income (see Diamond, 1984; Williamson, 1986; Boyd and Prescott, 1986; Azariadis and Smith, 1996, among many others; for discussion on the term "imperfectionist", see Eatwell and Milgate, 2011). The reason is that neoclassical theory interprets the relative prices and the distribution variables as indicators of the relative scarcity of factors of production, which ensure the equilibrium of their supply with the respective demand. Therefore, in all variants of neoclassical general equilibrium analysis any shock that changes the efficient proportions of factor endowments will inevitably involve changes in both the functional income distribution and the income growth achieved with those factors proportions. In particular, a "structural labour-market reform" that leads to a new efficient allocation of labour endowment compared to other existing factors, will result in a corresponding change in both the wage share and the level and growth of real GDP. When analysing the whole economic system by a neoclassical point of view, the determination of the social product and its growth must be simultaneous and symmetrical with respect to the determination of the real wage and other distributive variables. The likelihood that an exogenous policy change only affects one of the two groups of variables leaving unchanged the other, in general, must be excluded. This aspect makes the neoclassical theory and its modern variants unlikely compatible with the empirical analysis presented in this paper (among many other examples of

contrast between modern variants of neoclassical theory and data, see Stirati 2016).

The empirical results of this study, as well as the lack of empirical evidence about the neoclassical claim that labour-market reforms reduce unemployment, seem to find an easier interpretation in light of those alternative approaches that, rejecting the neoclassical view of prices and distributive variables such as indicators of the relative scarcity of factors, do not contemplate strict logical relationships between growth and functional income distribution. A basic reference for this different approach can be drawn from the Ricardo's method of analysis (Ricardo, 1817), then developed by Sraffa (1960) and his successors. This methodology can be explained in terms of analysis that includes two different phases: the first stage is dedicated to the determination of relative prices and income distribution by assuming that the quantities produced, its technology and a distributive variable can be considered exogenous, while a second stage is dedicated to the analysis of the various, possible determinants of those exogenous and to the eventual links existing between them (Garegnani, 1984; Roncaglia, 1978; Palumbo, 2015). The first stage relates to some general and fundamental characteristics of the economic system, whereas the second stage is dedicated to the investigation of those elements of the system dependent on the institutional framework and, at the limit, easily influenced by contingent factors. This separation of the analysis in two logical stages contrasts with the methodology of neoclassical theory. These theory, in fact, relies on the spontaneous demand-supply mechanism to simultaneously determine the distribution variables and the volume and composition of the product. On the contrary, within the classical analysis, the division of the product between capital and labour does not depend on the interaction between supply and demand. The distribution is governed by historical and social factors. In light of this approach, the empirical results that show absence of relationships between EPL and unemployment and EPL and growth, are not surprising. In fact, within the classicalframework, the employment protection legislation index is one of the elements of the historical and social factors which determine relative prices and income distribution between social classes, in preliminary theoretical phase compared to that which determines the level and growth of product and income. Against the neoclassical method of simultaneous determinations, we can therefore speak of a Ricardian approach of "causal" or "decomposable" type, that defines the prices and distribution outside the production system and before it, and which finds similarities even with some Keynes's logical arguments (Pasinetti, 1974). An application of this approach is to be found in those studies that have suggested a compatibility between the Ricardian determination of prices and functional distribution, on the one side, and the determination of the level and growth of income based on the Keynesian principle of effective demand, on the other side (Garegnani, 1992; Eatwell and Milgate, 2011). Under this alternative view, the possibility of finding linkages between the functional distribution of income and the growth of income and employment is by no means excluded (see, for example, Kurose, 2013). However, the existence of rigid and unequivocal connections between these variables is not an indispensable element of this approach. Therefore, within this alternative paradigm, the existence of a statistically significant relationship between the so-called "structural reforms" aimed at the deregulation of the labour market on the one side, and the reduction of the wage share on the other side, can be regarded as an empirical result that relates to the determination of the system of relative prices and income distribution among social classes. The fact that this result is joined with the absence of a significant statistical relationship between the "structural labour-market reforms" and the growth of GDP can instead be regarded as an empirical result relating to the second stage of the analysis, not necessarily general, that must be subjected to further investigation in order to verify whether and to what extent it could be conditioned by elements not covered in the first instance.

7. Conclusions

The two empirical analyses presented in this study indicate that the so-called "structural reforms" of the labour market implemented in many OECD countries between 1990 and 2013 are statistically associated with divergences in functional income distribution rather than GDP growth. From the balanced panel we find that a reduction in the level of labour protection (EPL) has no statistically significant positive impact on the growth of GDP whereas it is on average associated with a wage share about 0.5 percentage points lower. Moreover, the unbalanced panel shows that shocks in the labour protections corresponding to a decrease in EPL index between 0.4 and 0.5 points are associated, in the five years following, with a cumulative reduction of the wage share between 3 and 4 percentage points. These results seem to be hardly conceivable in the framework of neoclassical theory and its more recent variants, where any "structural reform" which influences functional income distribution should also have a simultaneous impact on income growth, and viceversa.

References

Adascalitei, D., Pignatti Morano, C., 2015. Labour Market Reforms Since the Crisis: Drivers and Consequences. Research Department Working Paper 5. International Labour Organization, Geneva.

Adjemian, S., Langor, F., Quintero-Rojas, C., 2010. How do labor market institutions affect the link between growth and unemployment: the case of the European countries. Eur. J. Comp. Econ. 7 (2), 347–371.

Allard, G.J., Lindert, P.H., 2007. EuroProductivity and Euro-Jobs since the 1960: which institutions really mattered? In: Hatton, T.J., O'Rourke, K.H., Taylor, A.M. (Eds.), The New Comparative Economic History: Essays in Honor of Jeffrey G. Williamson. MIT Press, Cambridge, MA, US, and London, UK.

Alonso, A., Echeverria, C., Tran, K.C., 2004. Long-run economic performance and the labor market. South. Econ. J. 70 (4), 905–919.

Amable, B., Demmou, L., Gatti, D., 2007. Employment Performance and Institutions: New Answers to an Old Question. Discussion Paper No 2731 IZA, Bonn, Germany.

Andreoni, A., Scazzieri, R., 2014. Triggers of change: structural trajectories and production dynamics. Camb. J. Econ. vol. 38 (6), 1391–1408, Oxford University Press.

Armingeon, K., Baccaro, L., 2012. Do Labor Market Liberalization Reforms Pay Off? University of Geneva, Mimeo.

Arrow, K.J., Debreu, G., 1954. Existence of an equilibrium for a competitive economy. Econometrica 22 (3), 265–290.

Atkinson, A.B., 2009. Factor shares: the principal problem of political economy? Oxf. Rev. Econ. Policy 25, 3–16.

Avdagic, S., Salardi, P., 2013. Tenuous link: labour market institutions and unemployment in advanced and new market economies. Soc. Econ. Rev. 11 (4), 739–769.

Azariadis, C., Smith, B.D., 1996. Private information, money, and growth indeterminacy, fluctuations, and the mundell-tobin effect. J. Econ. Growth 1, 309–332.

Baccaro, L., Rei, D., 2007. Institutional determinants of unemployment in OECD countries: does the deregulatory view hold water? Int. Organ. 61, 527–569.

Baker, D., Glyn, A., Howell, D., Schmitt, J., 2005. Labor market institutions and unemployment: a critical assessment of the cross- country evidence. In: Howell, D. (Ed.), Questioning Liberalization: Unemployment, Labor Markets and the Welfare State. Oxford University Press, Oxford, pp. 72–118.

Bassanini, A., Duval, R., 2006. The determinants of unemployment across OECD countries: reassessing the role of policies and institutions. OECD Econ. Stud. 42, 7–86.

Belot, M., van Ours, J., 2004. Does the recent success of some OECD countries in lowering their unemployment rates lie in the clever design of their labor market reforms? Oxf. Econ. Pap. 56, 621–642.

Belot, M., Boone, J., van Ours, J., 2007. Welfare-Improving employment protection. Economica 74, 381–396.

Berg, J. 2015. Labour markets, institutions, and inequality, ed. Edward Elgar and ILO, Cheltenham and Geneva.

Bertola, G., 1994. Flexibility, investment and growth. J. Monetary Econ. 34 (2), 215–238.

Blanchard, O., Giavazzi, F., 2003. Macroeconomic effects of regulation and deregulation In goods and labor markets. Q. J. Econ. 118 (August (3)), 879–907 (MIT Press).

Blanchard, O., 2006. European unemployment: the evolution of facts and ideas. Econ. Policy 45, 5–47.

Boyd, J., Prescott, E., 1986. Financial intermediary-coalitions. J. Econ. Theory 38 (2), 221–232.
Brancaccio, E., Garbellini, N., 2015. Currency regime crises, real wages, functional income distribution and production. Eur. J. Econ. Econ. Policies 12 (3), 255–276.
Brian, A.W., Landesmann, M., Scazzieri, R., 1991. Dynamics and Structures. Structural Change and Economic Dynamics, vol. 2., June (1) Elsevier, pp. 1–7.
Calderón, C., Chong, A., Váldes, R., 2005. Labor market regulations and income inequality: evidence for a panel of countries. In: Restrepo, J.E., Tokman, A.R. (Eds.), Labor Markets and Institutions. Central Bank of Chile, Santiago, Chile.
Campos, N.F., Nugent, J.B., 2015. The Freeman Conjecture. IZA/World Bank Conference on Employment and Development: Technological Change and Jobs, Bonn.
Canton, E., Grilo, I., Monteagudo, J., Pierini, F., Turrini, A., 2014. The Role of Structural Reform for Adjustment and Growth. DG ECFIN Economic Brief, Brussels.
Cazes, S., Nesporova, A., 2007. Labour markets in central and south-Eastern europe: from transition to stabilization. In: Cazes, S., Nesporova, A. (Eds.), Flexicurity: A Relevant Approach in Central and Eastern Europe. ILO, Geneva, Switzerland.
Checchi, D., García-Peñalosa, C., 2008. Labour market institutions and income inequality. Econ. Policy 56, 601–649.
Dabla-Norris, E., Kochhar, K., Suphaphiphat, N., Ricka, F., Tsounta, E., 2015. Causes and Consequences of Income Inequality: A Global Perspective. IMF Staff Discussion Note. IMF, Washington, DC.
Darcillon, T., 2015. How does finance affect labor market institutions? An empirical analysis in 16 OECD countries. Soc. Econ. Rev. 13 (3), 477–504.
Daudey, E., Garcia-Peñalosa, C., 2007. The personal and the factor distribution of income in a cross-section of countries. J. Dev. Stud. 43, 812–829.
Daveri, F., Tabellini, G., 2000. Unemployment, growth and taxation in industrial countries. Econ. Policy Eur. Forum 30, 47–88.
De, S., Singh, M., Subramanian, K., 2011. Income inequality and employment protection laws: evidence from OECD countries. In: 7th Annual Conference on Economic Growth and Development, ISI Delhi, December, 2011.
Diamond, D., 1984. Financial intermediation and delegated monitoring. Rev. Econ. Stud. 51, 393–414.
Dosi, G., Pereira, M.C., Roventini, A., Virgillito, M.E., 2016. The Effects of Labour Market Reforms upon Unemployment and Income Inequalities: an Agent Based Model. LEM Papers Series 2016/27. Laboratory of Economics and Management (LEM), Sant'Anna School of Advanced Studies, Pisa, Italy.
EC, 2013. Statement by president barroso on the country-specific recommendations package 2013. In: European Commision Press Conference, Brussels, 29 May 2013 http://europa.eu/rapid/press-release_SPEECH-13-473_en.htm/.
ECB, 2011. Introductory statement to the press conference. In: Mario Draghi President of the ECB, European Central Bank, Frankfurt am Main, 8 December 2011 https://www.ecb.europa.eu/press/pressconf/2016/html/is161208.en.html/.
Eatwell, J., Milgate, M., 2011. The Fall and Rise of Keynesian Economics. Oxford University Press.
Elmeskov, J., Martin, J.P., Scarpetta, S., 1998. Key lessons for labour market reforms: evidence from OECD countries' experiences. Swedish Econ. Policy Rev. 5, 205–252.
Fitoussi, J.-P., Saraceno, F., 2013. European economic governance: the Berlin–Washington consensus. Camb. J. Econ. 37 (3), 479–496.
Freeman, R., 2008. Labor Market Institutions Around the World. London,LSE CEP Discussion Paper No. 844.
Friedman, Milton, 1968. The role of monetary policy. Am. Econ. Rev. 58 (1), 1–17.
Garegnani, P., 1984. Value and distribution in the classical economists and marx. Oxf. Econ. Pap. 36 (June (2)), 291–325.
Garegnani, P., 1992. Some notes for an analysis of accumulation. In: Halevi, J., Laibman, D., e Nell (a cura di), E.J. (Eds.), Beyond the Steady State: A Revival of Growth Theory. Macmillan, London, pp. 47–71.
Garibaldi, P., Violante, G.L., 2005. The employment effects of severance payments with wage rigidities. Econ. J. 115, 799–832.
Griffith, R., Harrison, R., Macartney, G., 2007. Product market reforms, labour market institutions and unemployment. Econ. J. 117, 142–166.
Guerriero, M., Sen, K., 2012. What Determines the Share of Labour in National Income? A Cross-country Analysis. IZA Discussion Paper No. 6643.
Heckman, J.J., 2007. Comments on 'Are Protective Labor Market Institutions at the Root of Unemployment? A Critical Review of the Evidence' by D. Howell, D., Baker, A. Glyn and J. Schmitt, 2. Capitalism and Society (Issue 1).
Hicks, J.R., 1939. Value and Capital, ed. Oxford Clarendon Press, Oxford.
Howell, D.R., Rehm, M., 2009. Unemployment compensation and high European unemployment: a reassessment with new benefit indicators. Oxf. Rev. Econ. Policy 25 (1), 60–93.
Howell, D.R., Baker, D., Glyn, A., Schmitt, J., 2007. Are protective labor market institutions really at the root of unemployment? A critical perspective on the statistical evidence. Capitalism Soc. 2 (1), 1–71.
ILO, 2015. World Employment and Social Outlook: The Changing Nature of Jobs. International Labour Office, Geneva, Switzerland.
ILO, IMF, OECD, World Bank, 2015. Income inequality and labour income share in G20 countries: trends, Impacts and Causes. In: Prepared for the G20 Labour and Employment Ministers Meeting and Joint Meeting with the G20 Finance Ministers, Ankara, Turkey, 3–4 September 2015.
IMF, 2003. Unemployment and Labour Market Institutions: Why Reforms Pay Off. In World Economic Outlook 2003. IMF, Washington, DC, pp. 129–150.
IMF, 2015. Structural Reforms And Macroeconomic Performance: Initial Considerations For The Fund, IMF Staff Reports, November 2015. IMF, Washington, DC.
IMF, 2016. Time for a Supply Side Boost? Macroeconomic Effects of Labor and Product Market Reforms in Advanced Economies. In World Economic Outlook 2016. IMF, Washington, DC, pp. 101–142.
Jaumotte, F., Osorio-Buitron, C., 2015. Inequality and Labor Market Institutions. IMF Staff Discussion Note. IMF, Washington, DC.
Koopmans, T.C., 1965. On the Concept of Optimal Economic Growth. The Economic Approach to Development Planning. Rand McNally, Chicago, pp. 225–287.
Kurose, K., 2013. The dynamics of the labour market and income distribution in relation to the speed of demand saturation. Struct. Change Econ. Dyn. 24, 101–111.
Lazear, E., 1990. Job security provisions and employment. Q. J. Econ. 105, 699–726.
Lingens, J., 2003. The impact of a unionised labor market in a Schumpeterian growth model. Labour Econ. 10, 91–104.
Maarek, P., Orgiazzi, E., 2013. Currency crises and the labour share. Economica 80 (319), 566–588.
Marx, K.,1867, 1885, 1894. Das Kapital, ed. Meissner, Hamburg; it. trans., Il Capitale, Cantimori, D., Panzieri, R., Boggeri, M.L. (Eds.), Editori Riuniti, Roma, 1994.
Moneta, A., Russo, F., 2014. Causal models and evidential pluralism in econometrics. J. Econ. Methodol. 21 (1), 54–76.
Mortensen, D.T., 2005. Growth, unemployment and labor market policy. J. Eur. Econ. Assoc.
OECD, 1994. OECD Jobs Study. OECD, Paris.
OECD, 2012. Labour Losing to Capital: What Explains the Declining Labour Share? In OECD Employment Outlook 2012. OECD, Paris.
OECD, 2016. Short-term Labour Market Effects of Structural Reforms: Pain Before the Gain? In OECD Employment Outlook 2016. OECD, Paris.
Palumbo, A., 2015. Demand and supply. In: Kurz, H., Salvadori, N. (Eds.), The Elgar Companion to David Ricardo. Cheltenham, Edward Elgar, pp. 105–114.
Pasinetti, L.L., 1974. Growth and Income Distribution: Essays in Economic Theory. Cambridge University Press, Cambridge.
Pasinetti, L.L., 1993. Structural Economic Dynamics –A Theory of the Economic Consequences of Human Learning. Cambridge University Press Cambridge, UK.
Ricardo, D., 1817. On the Principles of Political Economy and Taxation, ed. John Murray, London; it. trans. Principi di economia politica e dell'imposta. UTET, Torino.
Roncaglia, A., 1978. Sraffa and the Theory of Prices. John Wiley and Sons, New York.
Rovelli, R., Bruno, R., 2008. Labor Market Policies, Institutions and Employment Rates in the EU-27. Discussion Paper No 3502. IZA, Bonn, Germany.
Scarpetta, S., 1996. Assessing the role of labour market policies and institutional settings on unemployment: a cross-Country study. OECD Econ. Stud. 26, 43–98.
Schivardi, F., 1999. Rigidità nel mercato del lavoro, disoccupazione e crescita, Temi di discussione, Banca D'Italia, Servizio Studi.
Siebert, H., 1997. Labor market rigidities: at the root of unemployment in Europe. J. Econ. Perspect. 11 (3), 37–54.
Skedinger, P., 2010. Employment Protection Legislation. Evolution, Effects, Winners and Losers. Edward Elgar.
Solow, R.M., 1956. A contribution to the theory of economic growth. Q. J. Econ. 70 (1), 65–94.
Solow, R.M., 2004. Introduction. In: Solow, R. (Ed.), Structural Reform and Economic Policy. Palgrave Macmillan, Basingstoke and New York.
Sraffa, P., 1960. Production of Commodities by Means of Commodities, ed. Cambridge University Press, Cambridge.
Stirati, A., 2016. Real wages in the business cycle and the theory of income distribution: an unresolved conflict between theory and facts in mainstream macroeconomics. Camb. J. Econ. 40, 639–661.
Stockhammer, E., Onaran, Ö., Ederer, S., 2008. Functional income distribution and aggregate demand in the Euro area. Camb. J. Econ. 33 (1), 139–159.
Stockhammer, E., 2013. Why Have Wage Shares Fallen? A Panel Analysis of the Determinants of Functional Income Distribution. ILO Working Paper. Conditions of Work and Employment Series No. 35.
Storm, S., Naastepad, C.W.M., 2012. Macroeconomics Beyond the NAIRU, ed. Harvard University Press, Cambridge, Massachusetts, and London, England.
Togliatti, P., 1964. Capitalismo e riforme di struttura. Rinascita 28, 11, luglio.
Turrini, A., Koltay, G., Pierini, F., Goffard, C., Kiss, A., 2015. A decade of labour market reforms in the EU: insights from the LABREF database. IZA J. Labor Policy 4, 12.
Vergeer, R., Kleinknecht, A., 2012. Do flexible labor markets indeed reduce unemployment? A robustness check. Rev. Soc. Econ. 70, 451–467.
Williamson, S.D., 1986. Costly monitoring, financial intermediation, and equilibrium credit rationing. J. Monetary Econ. 18, 159–179.
World Bank, 2013. World Development Report 2013: Jobs. World Bank Publications, Washington D.C.