

Missing links in the inclusive growth debate: Functional income distribution and labour market institutions

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Abstract. *This article examines the extent to which “inclusive growth” proposals made by various international organizations are consistent with their own objectives. The authors identify two commonly overlooked “missing links”: functional income distribution and collective bargaining coverage. Using a panel of 42 advanced countries for the period 1990–2018, they find that the first has an important influence on income inequality and the second plays a significant role in explaining increases in the wage share and reductions in income inequality. Consequently, these two factors must be fully integrated into the policy debate of international organizations if inclusive growth is to be successfully promoted.*

Keywords: *inclusive growth, collective bargaining, functional income distribution, inequality, EU, IMF, OECD.*

1. Introduction

Globalization and technological change have been a source of economic growth. Yet the benefits of these processes have been shared unevenly, triggering unemployment, low-paid jobs and high levels of inequality. In countries of the Organisation for Economic Co-operation and Development (OECD), the Great Recession of 2008 together with fiscal austerity and internal devaluation policies have served to reinforce this trend over the last decade (Vaughan-Whitehead 2015; Ortiz et al. 2015). Today, work no longer guarantees a way out of poverty,

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and the living conditions of large sections of the population are under pressure within advanced economies.

In this context, international institutions such as the European Union (EU), the International Monetary Fund (IMF) and the OECD have begun to use “inclusive growth” as a new approach to address current economic and social challenges in advanced countries (European Commission 2018; Eurostat 2019; IMF 2017a and 2020; OECD 2017a and 2017b). The concept of “inclusive growth” was first developed in the 2000s when the World Bank realized that, contrary to Kuznets’s (1955) logic, growth does not necessarily reduce inequality. Thus, a concept initially applied to emerging economies has come into use in OECD countries. In this article, we address certain weaknesses and missing links in the debate.

The OECD defines “inclusive growth” as “economic growth that creates opportunity for all segments of the population and distributes the dividends of increased prosperity, in both monetary and non-monetary terms, fairly across society” (OECD 2015, 84–85). The concern among international institutions for inclusive growth has helped reinforce a multidimensional view of well-being, moving beyond per capita gross domestic product (GDP) to embrace other elements such as job quality, skills and education, basic services, infrastructure, environment and fiscal transfers (European Commission 2018; Eurostat 2019; IMF 2017a and 2020; OECD 2015). And, of course, inequality is a key element when considering inclusive growth.

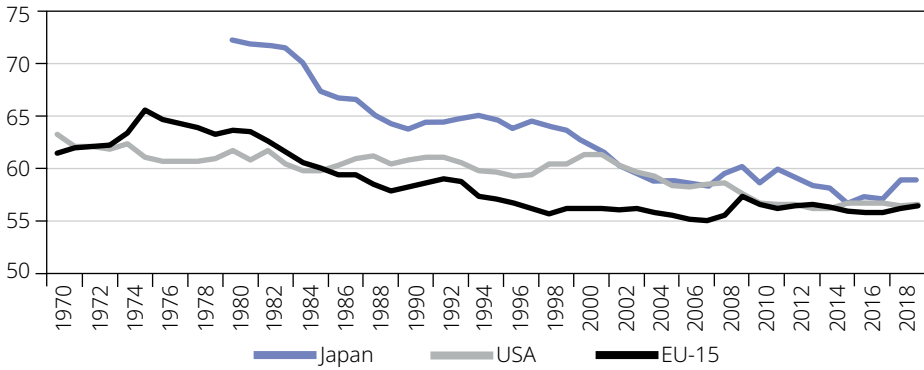
Inequality is a source of concern among these institutions not only because of its effect on social cohesion but also because of its potential impact on economic performance. They have come to realize that policies that increase income inequality undermine social stability and trust among social groups and may also curtail economic growth by constraining the ability of low-income groups to contribute to production (European Commission 2018; Berg and Ostry 2011; OECD 2015 and 2017b). For these reasons, inclusive growth has today become a key objective of economic policy.

However, international institutions have mainly focused on factors such as globalization, technological change, market failures and education gaps to explain the unequal distribution of economic growth and the increase in inequality (IMF 2017a and 2020; OECD 2015 and 2017b). These institutions have paid insufficient attention to other dimensions that are essential to understanding the lack of inclusive growth. In particular, they tend to disregard two fundamental determinants in this debate: the role of functional income distribution, and the capacity of labour market institutions to alter market “pre-distribution” of income.

These two dimensions have undergone important transformations during recent decades in OECD economies. According to Bowley’s law, one would expect the wage share to remain constant in the long run. However, this is not what has happened. A drastic change in the distribution of income between wages and profits appeared in OECD countries in the mid-1970s, when the wage share began a steady downward trend (see figure 1).

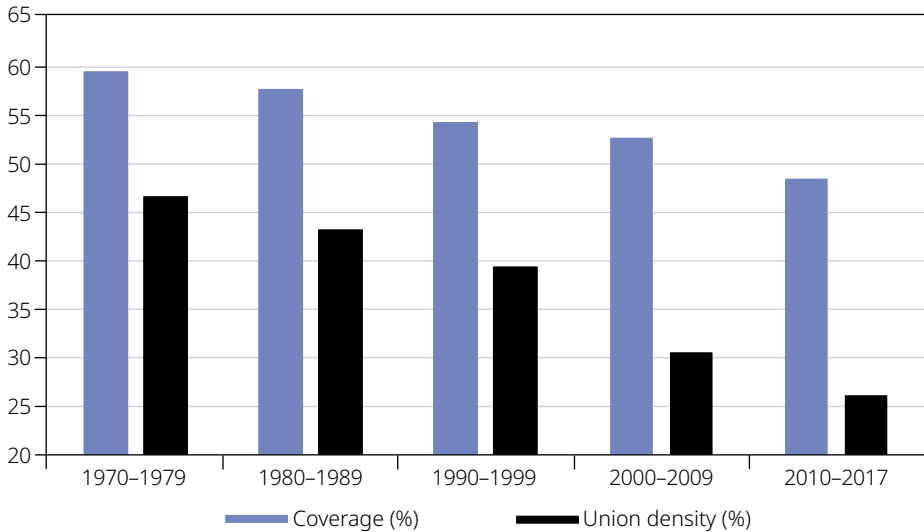
Likewise, labour market institutions have experienced significant changes over the same period, as we can see in figure 2. Over the past five decades, in OECD countries, the average proportion of wage and salary earners who are

Figure 1. Adjusted wage share in main OECD countries, 1970–2018 (percentages of GDP)



Note: EU-15 refers to the Member States of the EU before the accession of ten further countries in 2004.
 Source: Annual macro-economic (AMECO) database of the European Commission.

Figure 2. Employees covered by collective bargaining agreements and trade union density in OECD countries, 1970–2018 (percentages)



Source: OECD/AIAS ICTWSS database.

trade union members has fallen from 46.5 to 25.8 per cent. Similarly, the average proportion of employees who are covered by collective bargaining agreements has decreased over this period from 59.4 to 48.1 per cent. What impact have these changes had on personal income distribution? Is an inclusive growth strategy feasible when the evolution of these two variables is not taken into account?

In recent years, with the surge in research on inequality in the wake of the 2008 crisis, new empirical and theoretical studies have begun to examine the importance of functional income distribution in explaining increased inequality. Recent research (Atkinson 2015; Jacobson and Occhino 2012; ILO 2019) has pointed out how changes in functional income distribution can shape changes

in income inequality in OECD countries. The economic literature has also indicated the existence of a crucial link between labour market institutions and functional income distribution (Moore et al. 2019; Checchi and García-Peñalosa 2010; Kristal 2010).

These same issues are increasingly being studied and confirmed by the research departments of international institutions. However, as we will discuss in the next section, the policies promoted by these institutions continue to ignore them. As a result of failing to incorporate the role of functional income distribution and labour market institutions, the policy recommendations of the international institutions often evince important contradictions and biases in relation to the objective of inclusive growth. Labour market institutions are frequently presented as “rigidities” that can hurt growth and other macroeconomic outcomes, disregarding the possibility of building a new income distribution model that, using these labour institutions as a fulcrum, reconciles economic growth with reduced inequality.

The aim of this article is to discuss the inclusive growth policies of the IMF, the OECD and the EU – the most influential institutions when it comes to explaining economic policy changes in advanced countries – and to examine the extent to which these proposals are consistent with the objectives they aim to achieve. Besides reviewing the policies promoted by these organizations, and in order to provide a solid basis for our discussion, we empirically analyse the two aforementioned missing links: (1) the role of functional income distribution in explaining inequality; and (2) the importance of labour market institutions in explaining both the evolution of the wage share and income inequality.

Our starting hypothesis is that the erosion of labour market institutions helps to explain the decline of the wage share in recent decades, and that both phenomena have contributed to growing inequality in the OECD. Labour market institutions – and particularly collective bargaining – play a key role in the negotiation of the distribution of productivity gains and are therefore crucial in redirecting the functional income distribution and reducing inequality.

Our research contributes to the literature on inclusive growth in several ways. First, it relates the evolution of personal income distribution to functional income distribution, incorporating bargaining between capital and labour into the debate on inclusive growth. Second, when analysing the determinants of functional income distribution and inequality, we focus on the impact of labour market institutions, and particularly on collective bargaining. Third, we are not solely interested in analysing the determinants of income distribution; we also compare our empirical analysis with the policy strategies promoted by the IMF, the OECD and the EU. Lastly, we use a data panel that presents a sample of countries and years larger than those used in most previous research.

We estimate an econometric model using a panel of 42 advanced countries for the period 1990–2018. The countries that make up our sample are the 37 Member countries of the OECD (Australia, Austria, Belgium, Canada, Chile, Colombia, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Republic of Korea, Latvia, Lithuania, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal,

Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom of Great Britain and Northern Ireland, United States of America) and those countries of the European Union that are not part of the OECD (Bulgaria, Croatia, Cyprus, Malta, Romania).

We obtain two relevant results from our estimates: first, that the functional distribution of income has indeed a significant influence on the evolution of income inequality; second, that collective bargaining coverage plays a crucial role in explaining both declines in the wage share and increases in income inequality. These two results suggest the need to reformulate and broaden the policy strategies of international institutions to consider the positive role that a strengthening of collective bargaining can play in achieving inclusive growth. As has been pointed out by other scholars, collective bargaining can play an important part in reducing inequalities, by providing working people with the institutional capabilities required to negotiate their share of productivity gains (Hayter and Visser 2021).

The structure of this article is as follows. In the second section, we analyse the inclusive growth strategies of the EU, the IMF and the OECD. In the third section, we address the missing links and contradictions in such strategies and we outline the importance of taking into consideration both functional income distribution and labour market institutions. In the fourth section, we estimate an econometric model to test the soundness of our main arguments. Lastly, in the fifth section, we conclude and present the policy implications emerging from our analysis.

2. Inclusive growth: A new goal for international institutions

The EU, the IMF and the OECD have committed themselves to inclusive growth, arguing that growth alone is not sufficient to ensure well-being: growth should be to the benefit of all and not just a few, and should contribute to reducing inequality, which has been on the rise in recent decades.

In this section we analyse the inclusive growth strategies of these institutions. We discuss the importance that these strategies attribute to functional income distribution and labour market institutions (such as collective bargaining coverage and union density) in reducing inequality and strengthening the inclusiveness of growth.

2.1. The European Union

The EU made a commitment to inclusive growth in 2010 with its Europe 2020 strategy for smart, sustainable and inclusive growth (European Commission 2010). The Europe 2020 strategy has as its objective a “smart, sustainable and inclusive economy delivering high levels of employment, productivity and social cohesion” (European Commission, 5). Indeed, Europe 2020 focuses on increasing employment, productivity and social cohesion. It does not, however, address the need to reduce inequality or to share productivity more equitably; nor are wages, collective bargaining and the wage share mentioned. The strategy’s

rationale is that inclusive growth allows as many people as possible to share in growth by having a job, irrespective of the wage levels of these jobs. And for those who really cannot get a job, there should be social policy.

Over time, the EU's approach to inclusive growth has changed somewhat. Inequality has come to figure more prominently. For example, the *2017 Annual Growth Survey* states that "the Commission calls on Member States to redouble their efforts on the three elements of the virtuous triangle of economic policy, and in so doing, put the focus on social fairness to deliver more inclusive growth: boosting investment; pursuing structural reforms; and ensuring responsible fiscal policies" (European Commission 2016, 5). Here, labour market issues fall under "structural reforms". The reforms continue, however, to be focused on efficient labour markets and social policy instead of reducing income inequality. The survey does mention the need for wages to become more closely aligned with productivity, but not out of a concern for inequality; rather, it refers to concerns about competitiveness and aggregate demand. Moreover, in line with EU tradition, the document underlines the importance of a role for the social partners in national policymaking through social dialogue, but ignores the differences in power and interests between workers and employers and the possible role of collective bargaining in reducing inequalities.

The *2019 Annual Growth Survey* largely conveys the same message. However, wage growth and collective bargaining start to get some attention:

Wage growth, resulting from increased productivity, can reduce inequalities and support upward convergence of living standards. Real wage developments continued to trail behind productivity in 2017 on average, following a longer-term trend. In a context of declining collective bargaining coverage, policies enhancing the institutional capacity of social partners could be beneficial in countries where social dialogue is weak or has been negatively affected by the crisis. (European Commission 2018, 11)

In rather vague terms, the European Commission, as the executive branch of the EU, thus acknowledges the link between limited collective bargaining coverage and the continued lag of wage growth behind productivity growth. Nevertheless, it proposes no policies to curb this trend by strengthening collective bargaining or union density.

2.2. The International Monetary Fund

The IMF has also been promoting inclusive growth in its flagship reports over the past decade or so, discussing the need to address growing inequalities in income and wealth (IMF 2007a, 2007b, 2017a and 2019). These reports have devoted ample space to analysing the fall of the wage share in advanced economies and causes of this. The April 2017 *World Economic Outlook* discusses a number of factors that have caused this downward trend in the wage share, including technological change and globalization, as well as declining unionization rates and labour bargaining power (IMF 2017b, 121–172). Thus, the importance that labour market institutions may have is confirmed in the analyses of the IMF's research departments. Moreover, the 2017 *Fostering Inclusive Growth* report considers the wage share in its analysis, arguing that "The decline in the global labor share of

income has generally implied higher income inequality” (IMF 2017a, 14). However, collective bargaining and power differences between workers and employers do not feature at all.

More generally, unionization and collective bargaining are entirely absent in the policy recommendations of these reports concerning inclusive growth, and the latter offer no consistent strategy to stop the downward trend in the wage share (and thereby halt the rise in inequalities). The IMF proposes wage subsidies for low-wage workers instead of a policy that would alter the functional income distribution or labour’s bargaining power (IMF 2017a). Its 2020 G20 report does include a policy to counter the decline in the wage share, proposing to achieve this through reforms to strengthen competition and reduce corporate market power (IMF 2020). But it again neglects any policy proposal on union power or collective bargaining.

2.3. The Organisation for Economic Co-operation and Development

In the case of the OECD, an evolution in analysis and policy content can be observed over the years. Its 2008 report *Growing Unequal? Income Distribution and Poverty in OECD Countries* includes an entire chapter analysing the links between earnings and income inequality, but unions and collective bargaining are not discussed. The report works towards two policy strategies aimed to reduce poverty and inequality, one concerning redistribution by governments and the other “making the distribution of market income less unequal”, where “the main instrument ... is that of increasing the level of employment and spreading work opportunities across a larger number of households” (OECD 2008, 302).

By 2019, a number of OECD reports and research papers had established that there is a positive relationship between the coverage and coordination of collective bargaining, on the one hand, and wage equality and employment, on the other (OECD 2011, 2018 and 2019; Denk 2015). Moreover, the report *Negotiating Our Way Up: Collective Bargaining in a Changing World of Work* (OECD 2019) explicitly analyses the relationship between collective bargaining and inclusive growth. It shows that unions and employers, through collective bargaining, affect labour market outcomes (principally wage inequality, productivity and employment) and therefore the inclusiveness of growth. One of its main conclusions is that

The need for co-ordination and negotiation mechanisms between employers and workers is heightened in the changing world of work. Whether considering key issues such as wage inequality, job quality, workplace adaptation to the use of new technologies, or support for workers displaced by shifts in industries, collective bargaining and workers’ voice can complement public policies to produce tailored and balanced solutions. (OECD 2019, 13)

In 2018, the OECD had published its report *Opportunities for All: A Framework for Policy Action on Inclusive Growth*, which acknowledges the key role of collective bargaining in determining functional income distribution and wage inequality (OECD 2018). However, again this issue plays a very minor role in the policy framework proposed by the report. The framework has three pillars: investing in people and places that have been left behind; supporting business

dynamism and inclusive labour markets; and building efficient and responsive governments (OECD, 20). The role of wages is mentioned only as a reminder that, for firms to be innovative, an increase in real wages similar to that of productivity may be necessary (21–24). Collective bargaining does not figure in the three pillars; it is stated only that “the role of social partners and other stakeholders could be strengthened to ensure the creation of quality jobs and non-discrimination in the workplace, as well as to facilitate a smooth transition towards the future of work” (23).

We can therefore summarize this section as follows. The EU, the IMF and the OECD have committed themselves to inclusive growth, arguing that growth alone is not sufficient to ensure well-being: growth should be to the benefit of all and not just of a few, and should contribute to reducing inequality. Initially, they considered that the growth of inequality was fundamentally a consequence of globalization, technological change, market failures, access to employment, and educational differences. However, in recent years, fuelled by the academic literature and their own research, the three institutions have gradually and to varying degrees incorporated in their analyses labour market institutions – the coverage and coordination of collective bargaining, and the strength of trade unions – and the declining wage share trend. However, these issues have not been integrated in their inclusive growth policies and no proposals have been put forward to increase inclusiveness through strengthening the position of trade unions or through a wider coverage and better coordination of collective bargaining.

3. Missing links and contradictions in the inclusive growth debate

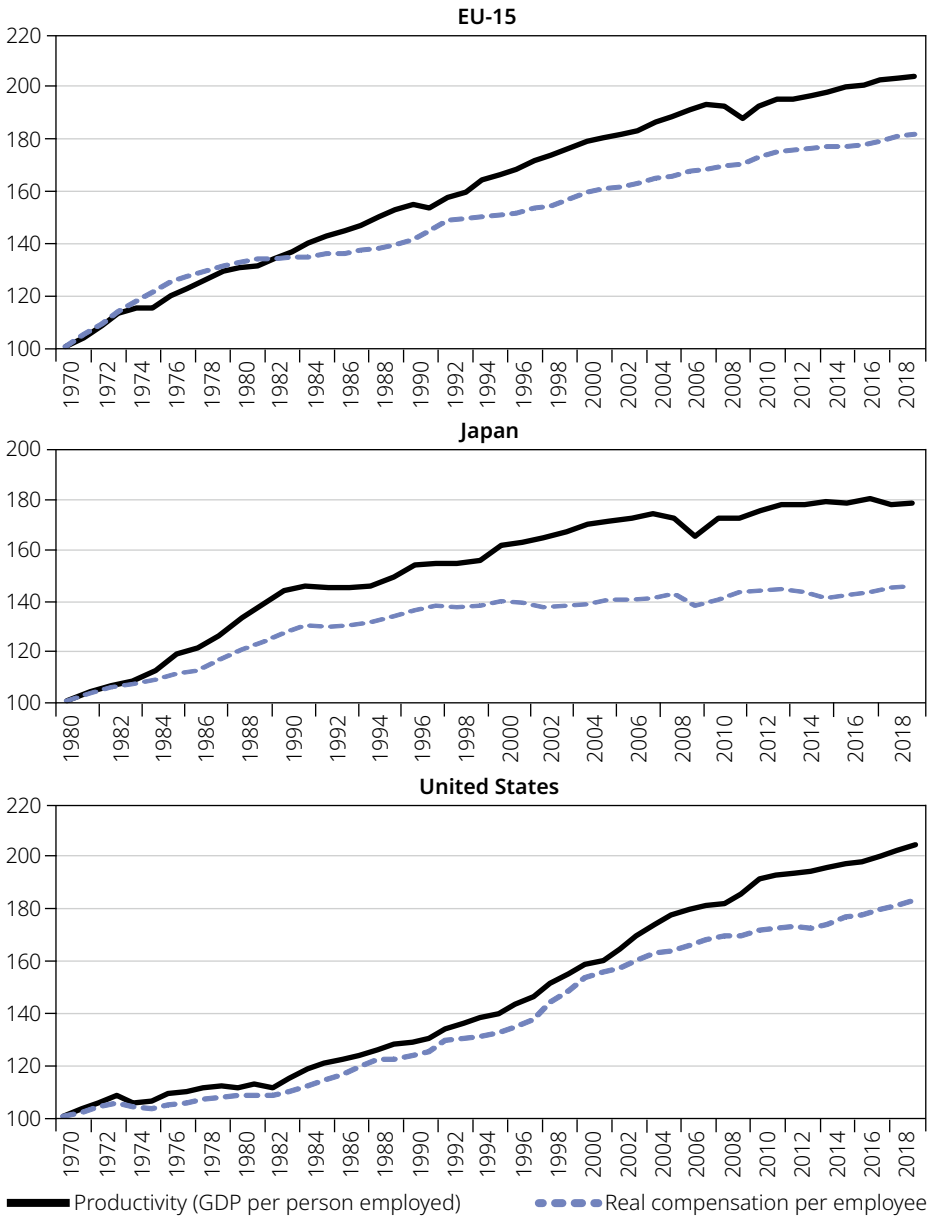
In this section we address the missing links and contradictions in the inclusive growth strategies promoted by the aforementioned international institutions, underlining the need to include functional income distribution and labour market institutions in the design of inclusive growth policies.

3.1. Functional income distribution

The tendency of the wage share to fall reflects the decoupling between productivity growth and increases in real employee compensation (Pasimeni 2018; Bivens and Mishel 2015; Stansbury and Summers 2017). As can be seen in figure 3, whereas productivity and real wages increased at the same speed in the OECD countries until the early 1980s, since then the gap between the two has been widening steadily, indicating that productivity gains are no longer fully translated into wage growth. This decoupling occurs later in the case of the United States, around the year 2000.

This evolution of functional income distribution is not neutral as far as inequality is concerned. There is an increasing body of literature explaining how the increase in income inequality experienced by OECD countries over the last few decades is connected to the downward trend in the wage share (Moore et al. 2019; Jacobson and Occhino 2012; Piketty 2014). Empirical evidence shows

Figure 3. Productivity-wage gap in main OECD countries, 1970–2018



Note: 1970 = 100 (1980 = 100 for Japan due to statistical availability). EU-15 refers to the Member States of the EU before the accession of ten further countries in 2004.
 Source: AMECO database.

that a higher capital share is associated with higher inequality in personal income distribution, since capital is more concentrated than labour endowments (Piketty 2014). In other words, since labour income is more uniformly distributed across households than capital income, the decline in the wage share concentrates total income at the top of the distribution.

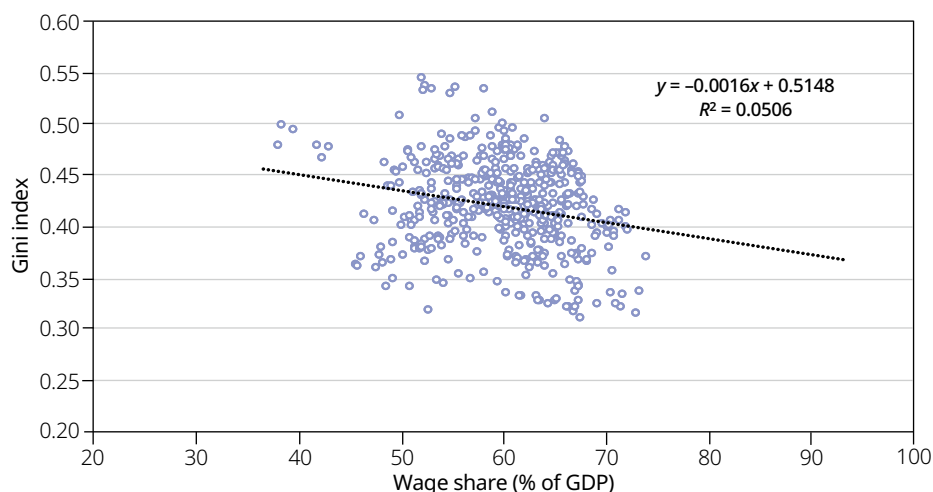
According to Jacobson and Occhino (2012), the decline in the wage share from 1979 to 2007 raised the Gini index by 2.3 percentage points in the case of the US economy. As can be seen in figure 4, this inverse relationship can also be demonstrated with our data sample, a panel of all OECD and EU economies for the period 1990–2018. Thus, the wage share decline seems to go hand in hand with increased income inequality.

Moreover, the fall in aggregate wage share masks a number of very different effects on the various wage brackets. According to some estimates (OECD 2012; Piketty 2014), the fall in the wage share is more pronounced when the richest 1 per cent of the population is not considered. In particular, the OECD (2012) points to a fall in the wage share of 99 per cent of income earners in advanced economies, whereas it has increased by 20 per cent for the top income population (the top 1 per cent).

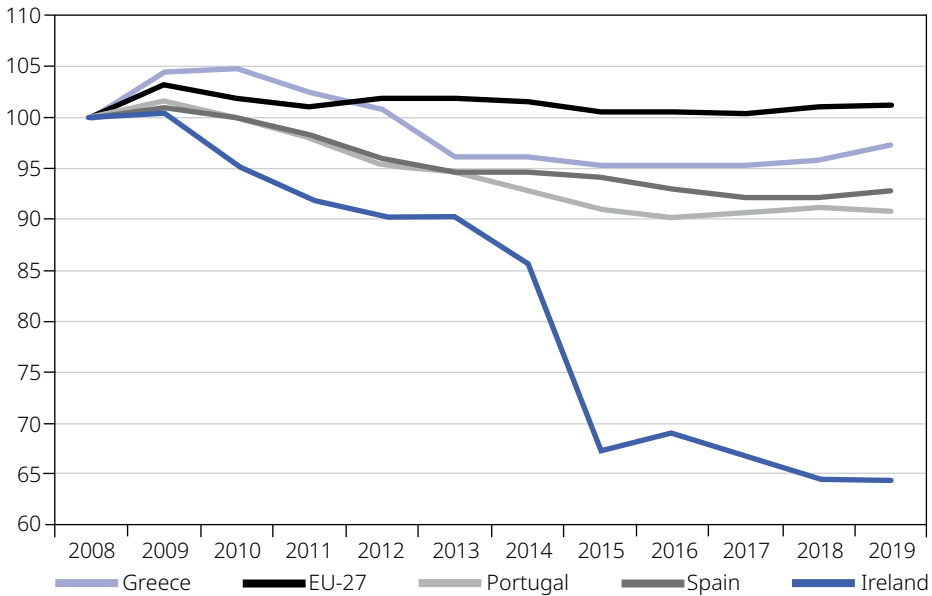
Any policies that seek to foster inclusive growth should therefore take into account this aspect of functional income distribution. However, the strategies designed by the EU, the IMF and the OECD not only fail to take into account the importance of the functional income distribution but are often contradictory and contribute to further accelerating the decline of the wage share. This was true of the wage devaluation policies that were promoted by the IMF and the EU during the Eurozone debt crisis with the aim of reducing real unit labour costs to regain external competitiveness.

In 2012, the Directorate-General for Economic and Financial Affairs of the European Commission explicitly argued that, in order to achieve “better employment outcomes”, the coverage and extension of collective agreements should be decreased and collective bargaining decentralized, while minimum wages and the wage-setting power of trade unions should be reduced (European Commission 2012, 104). To this end, important labour market reforms have been carried out in the intervening years in those EU countries that received bailout loans

Figure 4. Wage share and income inequality in OECD and EU countries, 1990–2018



Source: Authors' calculations based on data from the AMECO database and the World Inequality Database.

Figure 5. Adjusted wage share in EU-27 countries

Note: 2008 = 100. EU-27 refers to the Member States of the EU before the accession of Croatia in 2013. Countries where drastic reforms were adopted between 2010 and 2012 are indicated by way of comparison.

Source: AMECO database.

– Greece, Ireland, Portugal and Spain – triggering a strong erosion of collective bargaining in these economies (Marginson 2015; Koukiadaki, Távora and Martínez Lucio 2016).

These reforms – in picturing collective labour relations as obstacles to market functioning – failed to address the wage-related dimension of inclusive growth (Keune 2015; Visser 2016). As can be seen in figure 5, the downward trend in the wage share has accelerated precisely in those EU countries where these drastic reforms were adopted between 2010 and 2012.

Hence, important contradictions emerge in the debate on inclusive growth. Whereas, on the one hand, international institutions are formally committed to achieving this goal, on the other, they promote policies that foster yet more decline in the wage share, thereby contributing to increased income inequality.

3.2. Labour market institutions

The role that labour market institutions play in the evolution of both functional and personal income distribution is the second major blind spot in the inclusive growth strategies designed by international institutions. As we have already said, labour market institutions are rarely incorporated into the analyses that explain the determinants of inequality. And even when they are, they are not then taken into account in policy design. However, both the academic literature and empirical evidence suggest that these institutions must be considered.

The links between labour market institutions, functional distribution of income, and economic inequality are well established.

Several authors (Atkinson 2015; Wilkinson and Pickett 2009) point to the key role of labour markets in creating inequality: “It is there that value is created and divided between the various gradations of employees. It is there that the inequities which necessitate redistribution are set up” (Wilkinson and Pickett 2009, 249–250). They argue that these inequities have increased following a decline in union membership and collective bargaining in recent decades.

Presumably, greater bargaining power for workers will lead to increases in wages and in the wage share if the demand for labour is relatively inelastic. Empirical research uses different proxy variables related to labour market institutions to approximate the bargaining power of workers (employment protection legislation, unemployment benefits, strike activity, bargaining coverage, union density). Stockhammer (2009) finds that the decline in union density in recent decades has had a negative effect on the evolution of the wage share, reflecting the changes in bargaining power between capital and labour and the decreasing capacity of workers to capture increases in productivity. Guschanski and Onaran (2017), Fichtenbaum (2011) and Bengtsson (2014) also report a significant positive effect of labour market institutions – particularly union density – on the bargaining power of unions and on the wage share. Similarly, Pasimeni (2018) finds that higher unemployment – used as a proxy variable for reduced collective bargaining power among workers – is an important determinant of the productivity–wage gap.

Trade union density is a variable that can, however, skew the results by underestimating the bargaining power of workers (union density is very low in some countries where collective bargaining extension mechanisms reach a much higher percentage of workers). If instead of considering union density, as most of these studies do, we consider the coverage of collective bargaining, we can better capture the relationship between labour market institutions and the wage share.

In recent years, these findings have also been supported by a number of studies from the IMF and the OECD. IMF researchers Jaumotte and Osorio Buitron (2015) focus on the relationships between inequality and labour market institutions, finding that de-unionization leads to greater inequality, since it is strongly associated with an increase in top incomes. It weakens the bargaining power of unions and their influence on corporate decisions, limits the impact of unions on public policy and reduces the weight of equality-oriented social values. According to the authors, the decline in union density explains 40 per cent of the average increase in the top 10 per cent income share in their sample countries. Interestingly, this effect can be partly offset when collective bargaining coverage is guaranteed by extension agreements, which indicates the importance of these mechanisms in controlling increases in inequality.¹ Furthermore, an IMF paper by Abdih and Danninger (2017) on the US economy finds that a fall in unionization (highly statistically significant) helps to explain around 20 per cent of the fall in the wage share.

Some OECD publications point in the same direction, arguing that declining union power, lower bargaining coverage and bargaining decentralization all lead

¹ Yet Jaumotte and Osorio Buitron (2015) contend that the effects are not the same in all countries, and argue that strong unions in Southern Europe have resulted in more rather than less inequality as a result of union power causing higher unemployment and a loss of competitiveness.

to greater wage inequality (OECD 2011), and finding that collective bargaining systems with greater coverage and bargaining systems that are not fully decentralized are more correlated with lower wage inequality (OECD 2019). Furthermore, Denk (2015) – of the OECD Economics Department – points to the negative correlation between the labour income share of the top 1 per cent and collective bargaining coverage. Where larger parts of the workforce are covered by collective agreements, inequality is lower, since top earners are not allowed to increase their work-based income as much and low wages are allowed to increase more.

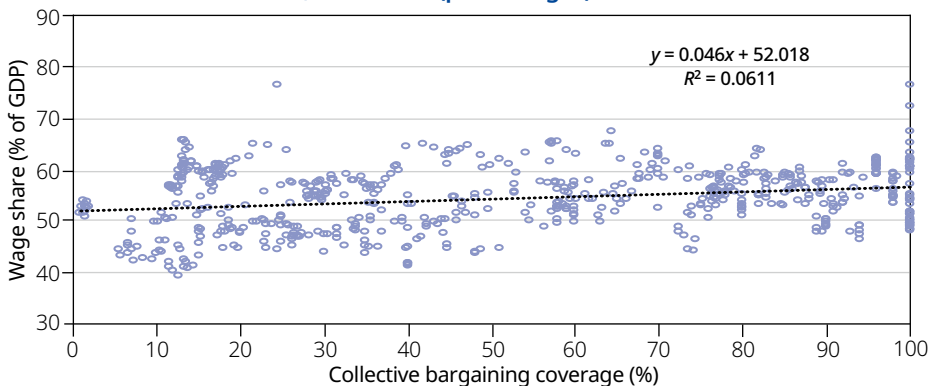
The main arguments of this literature appear to correspond with the empirical evidence derived from our panel of 42 advanced countries for the period 1990–2018, as can be seen below. In figures 6 to 10 we present pooled data that show how collective bargaining coverage is associated with functional income distribution, wage inequality and income inequality.

Figure 6 indicates that the coverage of collective bargaining is positively associated with the wage share: in countries and periods where coverage was comparatively higher, during 1990–2018, the wage share also tended to be higher. This suggests that widespread collective bargaining helps to capture a greater share of total income for workers and that collective agreements can be an important tool of income redistribution.

Collective bargaining affects functional income distribution, but the importance of this institution for inequality is wider reaching. The literature has highlighted the strong relationship that exists between collective bargaining and both wage inequality and personal income inequality, which reinforces its possible role in achieving inclusive growth. Sectoral and industry-level bargaining and high coverage rates are associated with lower within-industry earning differences for workers doing similar jobs, and therefore with lower levels of earnings inequality (Hayter and Visser 2021).

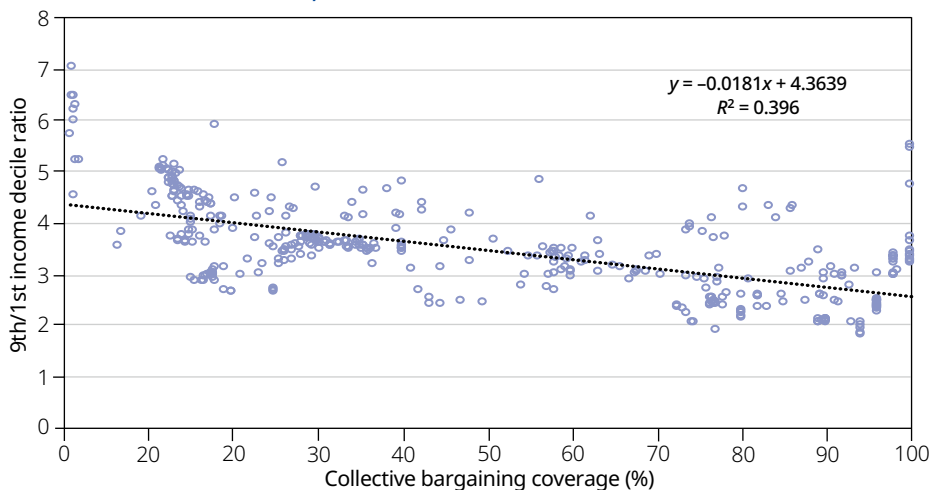
Figures 7 and 8 show that there is indeed a significant negative correlation between collective agreement coverage and wage inequality. Where the coverage of collective agreements is high, the 90/10 inequality ratio tends to be lower (figure 7). Added to this, the percentage of workers with low wages is also significantly

Figure 6. Collective bargaining coverage and wage share in OECD and EU countries, 1990–2018 (percentages)



Source: Authors' calculations based on data from the AMECO and OECD/AIAS ICTWSS databases.

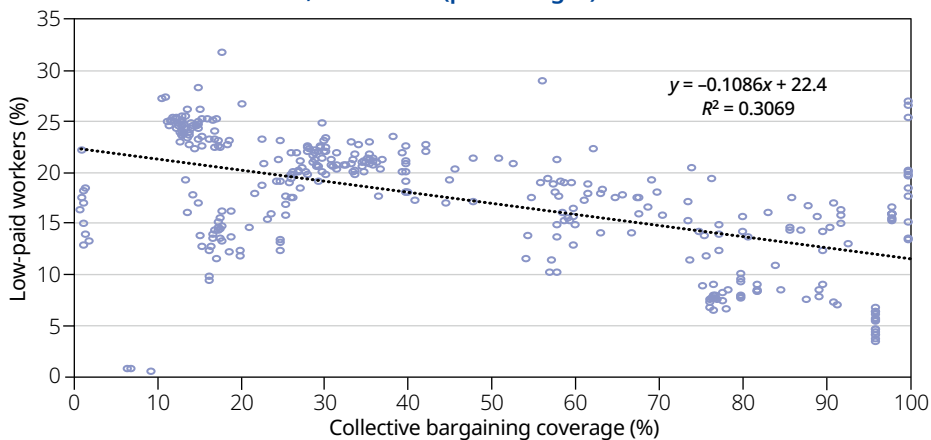
Figure 7. Collective bargaining coverage and wage inequality in OECD and EU countries, 1990–2018



Note: The 90/10 inequality ratio is defined as the ratio of the salary earned by individuals in the ninth decile to the earnings of workers in the first decile.

Source: Authors' calculations based on data from the OECD (decile ratios of gross earnings) and the OECD/AIAS ICTWSS database.

Figure 8. Collective bargaining coverage and low pay incidence in OECD and EU countries, 1990–2018 (percentages)



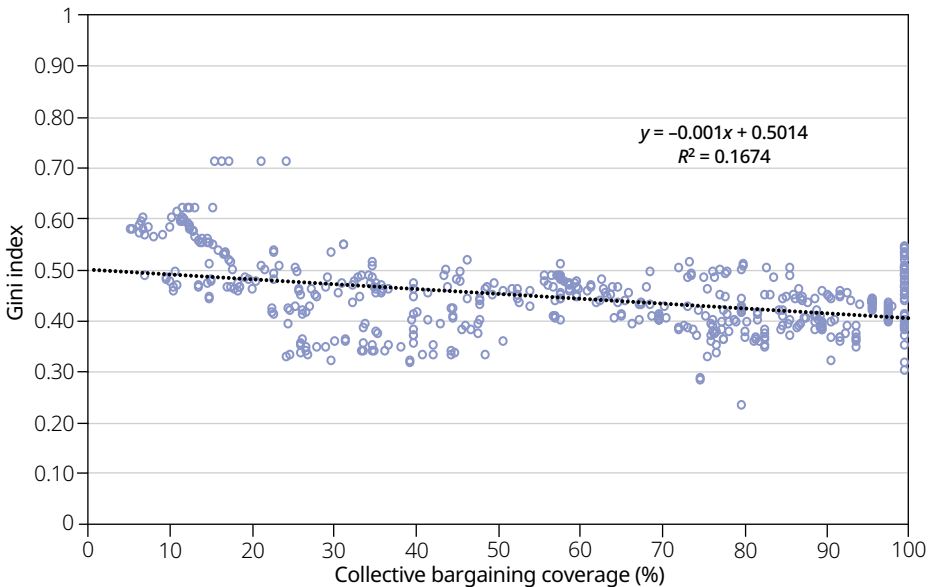
Note: Low pay incidence is defined as the percentage of employees earning less than two-thirds of gross median earnings of all full-time workers.

Source: Authors' calculations based on data from the OECD (decile ratios of gross earnings) and the OECD/AIAS ICTWSS database.

smaller in countries and years where collective bargaining coverage is higher (figure 8). We therefore see how collective bargaining sets limits to wage dispersion by preventing both very low and very high wages (Visser and Checchi 2009).

Through its link with both functional income distribution and wage inequality, collective bargaining coverage also evinces a clear negative association with income inequality. As we can see in figure 9, Gini coefficients tend to be lower

Figure 9. Collective bargaining coverage and income inequality in OECD and EU countries, 1990–2018

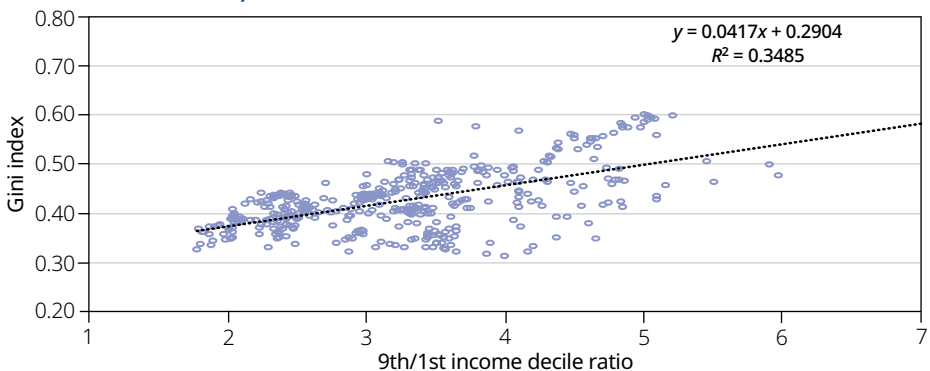


Source: Authors' calculations based on data from the World Inequality Database and the OECD/AIAS ICTWSS database.

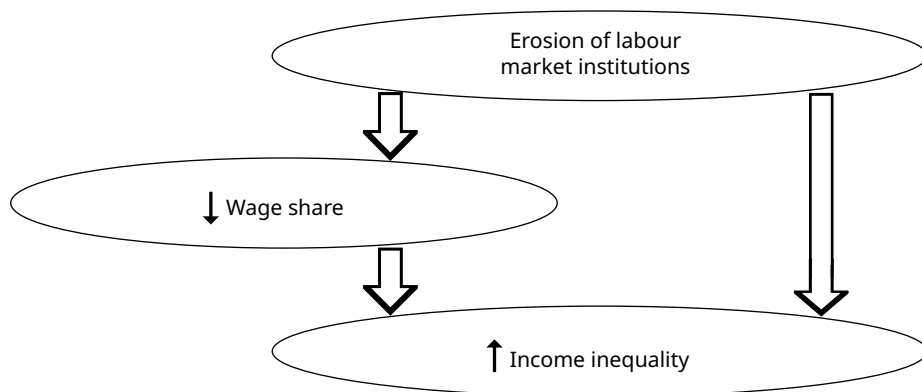
where collective bargaining coverage is higher. Since income inequality is determined by many factors other than the distribution of productivity gains and the evolution of wages (for example, household composition and other types of income), this association appears to be somewhat weaker than the ones stated above.

Nonetheless, as can be seen in figure 10, there is a rather strong relationship between wage inequality and income inequality. In other words, labour market outcomes are crucial to any understanding of income inequality and

Figure 10. Wage inequality and income inequality, (OECD and EU countries, 1990–2018)



Source: Authors' calculations based on data from the OECD (decile ratios of gross earnings) and the World Inequality Database.

Figure 11. The role of labour market institutions in driving inequalities

Source: Authors' elaboration.

the lack of inclusive growth. This also means that labour market institutions – in particular, solid collective bargaining – may prove vital to promoting more equitable growth.

4. A panel data analysis for OECD and EU countries

In this section we estimate a panel data model for 42 advanced economies to evaluate our two hypotheses: first, that the evolution of the wage share influences income inequality and, second, that collective bargaining coverage is a significant determinant of both functional income distribution and personal income distribution. In other words, we are interested in the causal links indicated in figure 11.

4.1. Model specification: Determinants of functional and personal income distribution

We estimate two different specifications in our analysis. In the first one the functional income distribution will be the dependent variable, and in the second one we shall analyse the determinants of personal income distribution.

Most of the literature on inequality and inclusive growth has focused on analysing changes in personal income distribution, rather than changes in functional income distribution; few studies link the former to the latter. In contrast, we analyse this relationship and the role that collective bargaining plays in both cases.

In the research that has been conducted on the determinants of functional income distribution, neoclassical studies (Bentolila and Saint-Paul 2003; European Commission 2007, 237–260; IMF 2007a and 2017b) have traditionally pointed to technological change as the main determinant of the evolution of the wage share. According to this approach, in recent years technological change has become capital augmenting rather than labour augmenting and has also been skill biased. This is believed to have caused a shift in income distribution, from labour to capital, and falling wage shares for low-skilled workers.

Educational achievement has also been considered in neoclassical studies (Grömling and Klös 2019; IMF 2007a and 2007b, 31–65) as a possible determinant of income distribution, since it explains the skills of the workforce and therefore their ability to share in the benefits of technological change.

Likewise, globalization has been highlighted by some studies – both neoclassical and post-Keynesian (IMF 2007a; Dünhaupt 2017; Stockhammer 2017) – as a key driver of changes in income distribution. The main effect of international trade on functional income distribution is the impact it has on the bargaining positions of capital and labour in advanced countries. Globalization and trade openness reinforce the negotiating power of the most mobile factor – capital – versus the most static factor – labour – and increase the strategic options of the former by allowing the international relocation of production.

Recent post-Keynesian studies have incorporated an additional determinant when studying the evolution of wage share: financialization (Pariboni and Tridico 2019; Alvarez 2015; Dünhaupt 2017). The growing importance that financial activity has gained in developed economies in recent decades has affected income distribution in several ways (Stockhammer 2013 and 2017). First, strategies to maximize shareholder value have led to an increase in the payments made by firms to shareholders (in the form of dividends), raising overhead costs and putting downward pressure on the wage share. In addition, the expansion of international capital markets has established a market for corporate control, shifting corporate priorities from growth to profitability. The evolution from a model based on “retain and reinvest” to a model based on “downsize and distribute” (Lazonick and O’Sullivan 2000) brings additional pressures on labour, weakening its bargaining position.

Other authors, particularly from the field of political economy (Kristal 2010), have explained that the downsizing of government activity and the reduction in welfare state generosity that, to a greater or lesser extent, OECD countries have experienced since the 1980s constitute another determining factor in the evolution of income distribution. Welfare state retrenchment has led to a progressive shift towards private provision of public services and an erosion of some crucial supports of workers’ bargaining power (reducing the generosity of the so-called “indirect wage” – education, health, pensions – and the duration of unemployment subsidies).

The literature that has analysed the evolution of functional income distribution has also paid attention to the role played by labour market institutions in explaining the wage share. As mentioned above, various authors (Stockhammer 2009; Fichtenbaum 2011; Bengtsson 2014; Guschanski and Onaran 2017) have observed the negative impact that the erosion of these institutions has had on the evolution of the wage share. However, most of these investigations have used union density as the key variable to proxy the role of labour market institutions. We consider that collective bargaining coverage can better capture the scope of institutional bargaining between employers’ and workers’ organizations, since it does not underestimate the negotiating power of labour in those countries where collective agreements and extension mechanisms reach a much higher percentage of workers than are members of unions.

We first estimate functional income distribution as a function of the previously mentioned determinants: technological change (*tech*), globalization (*glob*), financialization (*fin*), human capital (*humank*), welfare state retrenchment (*welfare*) and labour market institutions (*lmi*). In addition, and like the IMF (2007a and 2007b), we check the extent to which these factors also explain personal income distribution (*gini*), incorporating in this second specification of our model the effect of functional income distribution itself (*wageshare*). We present both specifications in equations 1 and 2:

Specification 1:

$$\text{Wage share} = f(\text{tech}, \text{glob}, \text{fin}, \text{humank}, \text{welfare}, \text{lmi}) \quad (1)$$

Specification 2:

$$\text{Gini index} = f(\text{wageshare}, \text{tech}, \text{glob}, \text{fin}, \text{humank}, \text{welfare}, \text{lmi}) \quad (2)$$

4.2. Estimation equations, variables and econometric methodology

The two baseline specifications are defined in equations 3 and 4, where *i* represents the individual countries surveyed and *t* the years:

Specification 1:

$$\Delta \text{wageshare } i, t = \alpha + \beta_1(\Delta K/L) i, t + \beta_2(\Delta \text{tradeopen}) i, t + \beta_3(\Delta \text{marketcap}) i, t + \beta_4(\Delta \text{humank}) i, t + \beta_5(\Delta \text{governm}) i, t + \beta_6(\Delta \text{coverage}) i, t \quad (3)$$

Specification 2:

$$\Delta \text{gini } i, t = \alpha + \beta_1(\Delta \text{wageshare}) i, t + \beta_2(\Delta K/L) i, t + \beta_3(\Delta \text{tradeopen}) i, t + \beta_4(\Delta \text{marketcap}) i, t + \beta_5(\Delta \text{humank}) i, t + \beta_6(\Delta \text{governm}) i, t + \beta_7(\Delta \text{coverage}) i, t \quad (4)$$

Here, we incorporate the specific variables that we use to proxy the aforementioned analytical dimensions. Table A1 in the Appendix shows the variables and definitions used in our estimates, as well as the data sources from which the time series have been obtained.

Functional income distribution is measured with the adjusted wage share (*wageshare*). We measure technological change (*K/L*) through the evolution of the capital–labour ratio (capital stock at current purchasing power parities (PPPs) divided by the number of persons in the labour market), and we use trade openness (imports plus exports, as a share of GDP) to capture the impact of globalization on income distribution (*tradeopen*). We approximate financialization by measuring the market capitalization of listed domestic companies as a percentage of GDP (*marketcap*), and we also incorporate a human capital index into our equation, based on the average years of schooling and an assumed rate of return to education (*humank*). Government activity and welfare state retrenchment are measured using government expenditure in relation to GDP (*governm*). Finally, collective bargaining coverage is defined as the proportion of all wage and salary earners in employment covered by collective bargaining agreements (*coverage*). In addition, in the second specification of the model (equation 4), we measure personal income distribution through the Gini coefficient of market pre-tax income (*gini*).

Table A2 in the Appendix shows the basic descriptive statistics of our variables. Our baseline specifications are the result of a delicate equilibrium:

maintaining a large sample of countries and years – together with Pariboni and Tridico's (2019), ours is one of the most extensive samples in the literature – and including variables that have significance in explaining income distribution at national level. Other similar studies have used somewhat more specific variables to approximate the dimensions presented here (for example, dividends distributed by non-financial companies as a proxy for financialization, or social transfers to measure welfare state retrenchment). However, the use of such variables would entail giving up one of the main strengths of our research: using a large sample of countries for a period of almost three decades.

Our panel data provide a strongly balanced panel, made up of 42 advanced countries, with data for the period 1990–2018. As we said in the introduction, the countries that make up our sample are the 37 OECD Member countries, together with those EU countries that are not part of the OECD. In our estimation we use yearly observations.

Our initial hypotheses about the causal relationships in the model are the following:

Specification 1:

$$\begin{aligned} (\Delta w\text{ageshare})_{\Delta K/L} < 0; (\Delta w\text{ageshare})_{\Delta \text{tradeopen}} < 0; (\Delta w\text{ageshare})_{\Delta \text{marketcap}} < 0; \\ (\Delta w\text{ageshare})_{\Delta \text{humank}} > 0; (\Delta w\text{ageshare})_{\Delta \text{governm}} > 0; (\Delta w\text{ageshare})_{\Delta \text{coverage}} > 0 \end{aligned} \quad (5)$$

Specification 2:

$$\begin{aligned} (\Delta g\text{ini})\Delta w\text{ageshare} < 0; (\Delta g\text{ini})_{\Delta K/L} < 0; (\Delta g\text{ini})_{\Delta \text{tradeopen}} < 0; (\Delta g\text{ini})_{\Delta \text{marketcap}} < 0; \\ (\Delta g\text{ini})_{\Delta \text{humank}} > 0; (\Delta g\text{ini})_{\Delta \text{governm}} > 0; (\Delta g\text{ini})_{\Delta \text{coverage}} > 0 \end{aligned} \quad (6)$$

We expect the evolution of wage share to be negatively related to technological change, trade openness and financialization, as the literature indicates. In contrast, we expect the wage share to be positively related to the human capital index, government activity and collective bargaining coverage.

In relation to the second specification of our model, we expect the determinants of personal income distribution to behave in a similar way and with the same sign (see equation 6). However, we assume that the link between these determinants and the Gini index is probably weaker and less significant than the relationship in the first specification. Furthermore, and this is the key point of the second specification, we expect the evolution of the wage share to be negatively related to the Gini index.

When dealing with time series cross-sectional data for a broad sample of 42 countries over a period of almost 30 years, one has to consider using fixed effects in order to capture unobserved effects. The use of fixed effects allows one to control for time-invariant unobserved heterogeneity that is not captured by the explanatory variables. That is, the fixed effects model assumes that there is a different constant term for each individual and that individual effects are independent of one another.

However, our sample shows the usual problems when working with time series cross-sectional data. First, both the Levin–Lin–Chu and the Im–Pesaran–Shin tests for panel data indicate the presence of unit roots, which cause non-stationarity in the series and the corresponding risk of spurious correlations. Second, when we use the modified Wald test for groupwise heteroskedasticity,

we have to reject the null hypothesis of constant variance. Third, the Wooldridge test shows the presence of autocorrelation in our sample. Furthermore, we test for possible multicollinearity, but the variance inflation factor method reveals the absence of a linear relationship between the model variables.

We correct for the presence of unit roots in our sample by estimating the model in first differences, which eliminates the problem. It is also necessary to use an estimation method that corrects the heteroskedasticity and autocorrelation errors for panel data. The most efficient way is to model the functional form of both the heteroskedasticity and autocorrelation, so that more efficient and precise estimates can be obtained for the parameters (Cameron and Trivedi 2009). For this purpose, we can use feasible generalized least squares (FGLS) and also panel-corrected standard errors (PCSE) estimations. Both methods correct standard errors for contemporaneous correlated and heteroskedastic errors. When we use FGLS we model the autocorrelation using a panel-specific first-order autoregressive structure, and when we estimate using PCSE we apply a Prais–Winsten transformation. We present both FGLS and PCSE estimates, although the results of our estimates are not affected by the method chosen.

4.3. Econometric results

The results of our estimates are consistent with our hypotheses and also with the previous literature, for both FGLS and PCSE. As can be seen in table 1, the evolution of the wage share is negatively related to trade openness and to financialization, as previously detected by Dünhaupt (2017) and by Pariboni and Tridico (2019). Both variables are strongly significant.

On the other hand, and as Stockhammer (2013 and 2017) also confirms, the impact of technological change on wage share is not very robust, being weakly

Table 1. Functional income distribution estimation results

Variables	FGLS	PCSE
$\Delta K/L$	-0.00294 (0.00206)	-0.00564* (0.00318)
$\Delta tradeopen$	-4.006**** (0.551)	-3.82**** (0.762)
$\Delta marketcap$	-0.00535**** (0.00143)	-0.0072**** (0.00195)
$\Delta humank$	6.299* (3.259)	7.494* (4.133)
$\Delta governm$	0.128**** (0.0161)	0.139**** (0.0267)
$\Delta coverage$	0.0219**** (0.00779)	0.029** (0.0125)
N	714	714
R^2		0.136

*, **, *** and **** indicate statistical significance at the 10, 5, 1 and 0.1 per cent levels, respectively.

Notes: Dependent variable = $\Delta wageshare$. Standard errors appear in parentheses. For a description of the variables, see table A1 in the Appendix.

Source: Authors' calculations based on data from the sources listed in table A1 in the Appendix.

negative and significant only at the 10 per cent significance level in the PCSE estimate. Contrary to what some neoclassical analyses have suggested (Bentolila and Saint-Paul 2003; IMF 2007a), technological change does not seem to be a good determinant of the evolution of functional income distribution (or of personal income distribution, as we see below).

Government activity in the economy – a proxy for welfare state retrenchment – is positively related to the wage share, as is the human capital index, although the first variable is much more significant than the second. These results also mirror the literature: Kristal (2010) and Dünhaupt (2017) show how welfare state retrenchment has had a strong negative impact on the evolution of the wage share, and Harrison (2005) also finds that wage shares are driven by changes in government spending. Furthermore, the IMF (2007a) points to the importance of education in preventing reductions in the wages of low-skilled workers.

Finally, collective bargaining coverage is statistically significant and shows the expected sign: greater coverage leads to a greater wage share. Previous research has reported a significant positive effect of union density on the wage share (Guschanski and Onaran 2017; Fichtenbaum 2011; and Bengtsson 2014). We also observed this positive effect for collective bargaining coverage. The importance of collective bargaining and collective agreements as determinants of functional income distribution is therefore confirmed.

In our second estimation we show how the determinants chosen to explain functional income distribution are also significant in most cases when one seeks to explain personal income distribution (see table 2). However, and as we expected, some of them are not significant – for example, technological change and

Table 2. Personal income distribution estimation results

Variables	FGLS	PCSE
$\Delta w_{age\ share}$	-0.00177**** (0.000278)	-0.00154**** (0.000362)
$\Delta K/L$	-0.0000108 (0.0000167)	-0.0000381 (0.0000238)
$\Delta trade\ open$	0.00399 (0.00511)	0.00413 (0.00706)
$\Delta market\ cap$	0.0000651**** (0.0000155)	0.0000681**** (0.0000223)
$\Delta humank$	-0.0722** (0.0323)	-0.0773* (0.0462)
$\Delta governm$	-0.000286* (0.000148)	-0.000427** (0.000183)
$\Delta coverage$	-0.000185**** (0.0000617)	-0.000162** (0.0000736)
N	558	558
R^2		0.161

*, **, *** and **** indicate statistical significance at the 10, 5, 1 and 0.1 per cent levels, respectively.

Notes: Dependent variable = $\Delta gini$. Standard errors appear in parentheses. For a description of the variables, see table A1 in the Appendix.

Source: Authors' calculations based on data from the sources listed in table A1 in the Appendix.

trade openness. Changes in financialization, human capital index and welfare state retrenchment continue to be significant in this second specification of our model and do maintain the expected signs.

Two aspects are particularly noteworthy in the second specification. First, the wage share is a strongly significant determinant of the evolution of the Gini index: this index increases when the wage share declines, as has previously been reported in the literature (Moore et al. 2019; Jacobson and Occhino 2012). Second, strong collective bargaining coverage not only positively affects the wage share, as we have seen in table 1, but also reduces personal income inequality (see table 2).

Therefore, functional income distribution matters when it comes to explaining the evolution of personal income distribution. Likewise, labour market institutions – in this case, collective bargaining coverage – are not unrelated to personal income distribution: greater bargaining power of workers seems to be related to a less skewed distribution of income between capital and labour and, therefore, to less personal income inequality.

5. Conclusions

In this article, we have sought to contribute to the inclusive growth debate promoted by the IMF, the OECD and the EU in recent years. To this end, we have examined the extent to which the policy proposals made by these institutions are consistent with the objective of growth that reduces inequality. We have also estimated an econometric model using a panel of 42 advanced countries for the period 1990–2018 to analyse the determinants of both functional and personal income distribution.

We obtain two important results from our estimates: functional income distribution has indeed a significant influence on the evolution of income inequality, and collective bargaining coverage plays a crucial role in explaining both declines in the wage share and increases in income inequality. Taking into account these results of our econometric model, and after reviewing the main reports, analyses and policy proposals of the three international institutions, we can conclude that there are at least three major shortcomings in the strategies of these institutions.

First, the analyses and reports of these institutions have long overlooked the role of functional income distribution – the distribution of productivity gains between capital and labour – when explaining inequality. Although this omission has been partially corrected in recent years as this dimension has been incorporated into the research agenda of these institutions, this relationship has not been integrated into their policy strategies, which makes the strategies of these institutions less capable of truly achieving inclusive growth.

Second, the policy strategies of these institutions have also disregarded the important role that labour market institutions – particularly collective bargaining – can play in promoting growth in which gains are more fairly and evenly spread throughout society. What is more, the strategies of these institutions have been counterproductive, recommending labour market reforms that have eroded collective bargaining coverage (as in the Southern European countries

over the last decade). However, the results of our research are clear in this regard: greater coverage of collective bargaining leads to a higher wage share and lower levels of personal income inequality. Therefore, the promotion of labour market reforms that reduce collective bargaining coverage will most likely undermine inclusive growth.

This also means that the trend experienced by some labour market institutions in recent decades should be worrying for all those who seek to promote an inclusive growth strategy. As stated in the introduction, over the past five decades the average proportion of employees covered by collective bargaining agreements in OECD countries has decreased by more than 10 percentage points, from 59.4 to 48.1 per cent.

Third, the policy strategies of the OECD, the IMF and the EU ignore their own research departments when it comes to inclusive growth. In these research departments, several studies in recent years have reached conclusions similar to those raised here (Jaumotte and Osorio Buitron 2015; Abdih and Danninger 2017; Denk 2015). However, these conclusions have not been incorporated into the economic policy of these institutions.

The results of our research, like some of the results of the studies just mentioned, have important policy implications and suggest the need to seriously reconsider the strategies adopted by these international institutions. First, our research clearly points to the need to halt and reverse the fall in the wage share in order to reduce inequality. Second, these international institutions need to take into account the positive effect that a strengthening of collective bargaining can have in achieving inclusive growth. Since labour market institutions, and particularly collective bargaining, are located where the distribution of productivity gains takes place, they can be a key lever in achieving a new model of income distribution. As long as international institutions continue to present labour market institutions as mere “rigidities”, their policy strategies will continue to fail to achieve inclusive growth.

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Appendix

Table A1. Variables, definitions and sources

Analytical dimension	Variable	Definition	Source
Functional income distribution	Adjusted wage share (<i>wageshare</i>)	Adjusted wage share, total economy as a percentage of GDP at current prices.	AMECO database
Personal income distribution	Gini coefficient (<i>gini</i>)	Gini coefficient, pre-tax national income.	World Inequality Database
Technological change	Capital/labour ratio (<i>K/L</i>)	Capital stock at current PPPs divided by the number of persons engaged in the labour market.	Penn World Table, version 9.1
Education	Human capital index (<i>humank</i>)	Human capital index based on years of schooling and returns to education.	Penn World Table, version 9.1
Globalization	Trade openness (<i>tradeopen</i>)	Imports plus exports of goods and services, as a percentage of GDP.	OECD, National Accounts at a Glance
Financialization	Market capitalization (<i>marketcap</i>)	Market capitalization of listed domestic companies, as a percentage of GDP.	World Development Indicators, World Bank
Welfare state	Government expenditure (<i>governm</i>)	Total expenditure of general government, as a percentage of GDP.	OECD National Accounts at a Glance
Labour market institutions	Collective bargaining coverage (<i>coverage</i>)	Percentage of all wage and salary earners in employment covered by collective bargaining agreements.	OECD/AIAS ICTWSS database

Table A2. Summary statistics

Variable	Observations	Mean	Standard deviation	Minimum	Maximum
<i>wageshare</i>	1 109	54.090	6.206	34.002	87.421
<i>gini</i>	925	0.4353	0.0670	0.2311	0.7124
<i>K/L</i>	1 148	241 794.5	131 484.1	8 899.9	690 601.9
<i>humank</i>	1 148	3.092	0.403	1.802	3.807
<i>tradeopen</i>	1 209	0.896	0.567	0.160	4.084
<i>marketcap</i>	888	60.818	48.449	0.046	326.359
<i>governm</i>	1 051	42.577	8.380	15.124	65.084
<i>coverage</i>	1 218	53.68	31.32	0.80	100.00

Source: Authors' calculations based on data from the sources listed in table A1.