



# Monitoring EU convergence

## **A picture of wage convergence in the EU**

Minimum wages in 2020 – Annual review

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## Introduction

The European integration project and European economies generally have been subject to notable developments and challenges in the last two decades. The period from the mid-1990s to the end of the 2000s was generally characterised by a positive economic and employment outlook, and notable steps forward in the European project, with the adoption of the euro and the EU enlargement towards the East. Then, the financial crisis that emerged in 2008 and the ensuing Great Recession had a significant negative impact on the European economies and labour markets, while straining the European integration project. A notable divide emerged within the EU, as employment and wage levels tended to be more resilient in the European core than in the most affected countries in the European periphery (Eurofound, 2017).

The idea that the process of European economic integration should result in some degree of convergence between Member States is implicit in many EU policy documents. This paper intends to inform the European policy debate by mapping the process of convergence that has taken place in one of the most important areas for the well-being of European citizens, that of wages, over the last two decades.

It is a relevant time to look into this topic, because concerns about disparities in wage levels between European regions already emerged with the enlargement of the EU towards the East, and have subsequently aggravated following the uneven impact of the economic crisis between European countries.

# Theory and policy discussion on wage convergence in the EU

## Economic literature on wage convergence

According to classical economic growth theory, the EU integration process should result in convergence in wage levels between its Member States. This is so because, given the different levels of economic development between European countries, the lower-income countries are expected to experience a process of catch-up as a result of capital flowing to those countries with lower capital endowments, where capital investments are more profitable and lead to higher growth in productivity, economic activity, income and wages.

Trade economic theory would also predict a process of wage convergence between countries in the EU, the world's largest integrated trade area. Since countries are expected to specialise in those activities fitting their relative resource endowments (according to the Heckscher-Ohlin theory), the price of the factors of production (capital and labour) should converge between countries (according to the Stolper-Samuelson theorem). This means that lower income countries, typically more labour-abundant, would specialise in labour-intensive activities and register higher wage growth (as compared to higher-income countries, typically more capital-abundant, which would specialise in capital-intensive activities).

Moreover, the EU represents a group of neighbouring countries characterised by similar relatively economic and social structures, which means this expected process of convergence should be more significant among them, following the empirical evidence on convergence among different groups of countries, known as clubs of convergence (Baumol and Wolf, 1988).

## EU policy discussion on convergence

Eurofound (2018) describes in detail how the debate about convergence developed over time. In their report, authors trace back the start of the debate on convergence to the very first days of the European project. In particular, the reference in the Treaty of Rome (1957) to reducing 'the differences existing between the various regions and the backwardness of the less favoured regions' shows how the assumption that economic integration should result in a certain convergence between European countries is implicitly part of the EU project from its very start.

Nevertheless, the term 'convergence' has not been typically used in an explicit way until recent decades, while 'parity' (which should be theoretically the result of a process of convergence) has never been an explicit objective of the EU project. Instead, from the start of the EU project the broader concept of 'cohesion' was key, found behind the EU regional cohesion policies deployed from decades ago. The concept of cohesion was inserted in the 1986 Single European Act and remains an essential objective, since the reduction of disparities guaranteeing a strong economic, social and territorial cohesion is considered to

be necessary for the overall harmonious development of the European Union (articles 174 to 178 of the Treaty on the Functioning of the European Union).

The explicit use of the term ‘convergence’ in important EU policy documents started with the Maastricht Treaty (1992), even though then it only referred to the necessary convergence in fiscal and monetary indicators to facilitate the implementation of the Economic and Monetary Union. The concept of convergence has finally found its way to the core of the EU policy debate in recent years as a result of the economic crisis and its uneven impact across European countries, which introduced strains in the European project. Current appeals to convergence are not limited to fiscal and monetary indicators and refer to a broader socio-economic dimension.

The Five Presidents’ report (European Commission 2015) reinforced that ‘the notion of convergence is at the heart of our Economic Union’ and appealed to the need for ‘structural convergence’. More recently, the European Pillar of Social Rights laid out a monitoring of performance in employment and social indicators across European countries aimed at tackling the divergence forces unleashed by the crisis, being therefore ‘designed as a compass for a renewed process of upward convergence towards better working and living conditions in the European Union’ (European Commission 2018). Upward convergence is seen as essential for securing the cohesion and political legitimacy of the EU.

In conclusion, achieving more social cohesion is an explicit goal of the EU and the current EU policy debate considers a certain degree of socioeconomic upward convergence between European countries as necessary for the stability of European societies and the European project.

## Eurofound contribution to the topic of convergence

Against the background of growing concerns over disparities and the renewed focus on convergence in the EU policy discussion, Eurofound has been conducting research on wages and income in the last years adopting an EU-wide approach and observing the presence of convergence processes between EU countries (Eurofound, 2015; Eurofound, 2017)

Moreover, Eurofound has devoted a strategic area of intervention in its research mandate to the specific topic of convergence from 2017. This allows Eurofound to regularly and consistently monitor trends in different socioeconomic indicators and assess whether converging or diverging patterns are emerging between EU countries (Eurofound, 2018).

Eurofound notes that the term of convergence is mentioned in different contexts in the EU policy debate and therefore a certain lack of clarity over its meaning exists. Eurofound’s approach is to monitor upward convergence particularly, that is, whether Member States converge towards better working and living conditions. Eurofound defines ‘upward convergence’ as improving performance of Member States in terms of employment, working and living conditions alongside decreasing disparities between them.

## Monitoring wage convergence between EU countries

How has socioeconomic convergence between European countries progressed over the last decades? Eurofound research shows that upward convergence between EU countries has taken place socially and economically. Despite the divergence forces unleashed by the Great Recession, a process of convergence between EU countries has taken place together with an improvement in the average standard of living across all countries, as lower-income countries have managed to progress more than the higher-income EU countries (Eurofound, 2018).

This paper provides a detailed picture of this convergence process in the area of wages, one of high relevance for the working conditions and well-being of European citizens. It uses wage data for the period 1995-2018 from national accounts as provided by the AMECO dataset.<sup>1</sup>

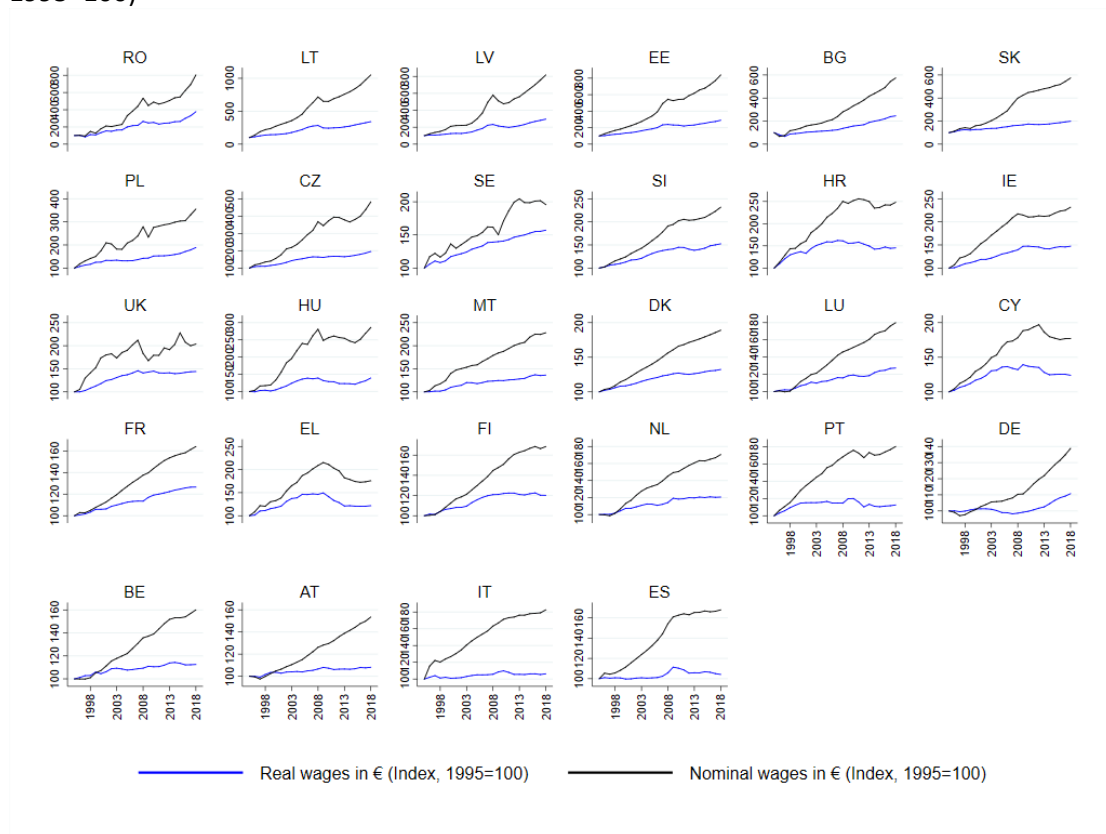
### Overview of wage evolution across EU countries

A first introductory picture into the general wage dynamics across the EU27 and UK in the last couple of decades is presented in Figure 1, which provides information on nominal wages and real wages. While nominal wages provide a more direct picture of what workers earn, real wages (nominal wages corrected by inflation) are a more relevant wage measure for the workers themselves, because it shows how the actual purchasing power of their labour earnings has evolved over the last two decades.

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<sup>1</sup> The wage variables from AMECO are in fact 'compensation of employees', which includes not only wages and salaries but also employer's social contributions. In order to obtain an average wage per employee, the total value of this variable in each country is divided by the total number of full-time equivalent employees (in case of absence of this information on full-time equivalents, it is divided by the total number of employees).

Figure 1: Evolution of real and nominal wage levels across EU countries and UK (index, 1995=100)



Note: Real wages are nominal wages deflated by a national price index.

Source: AMECO

Wages are expressed as an index (taking the value of 100 in 1995) and countries have been ranked by the magnitude of the real wage growth they registered during the whole period. Focussing mainly in real wages, two clear insights emerge from the data. One, even though real (and nominal) wages have progressed across all EU countries, there are very marked contrasts as to the magnitude of the progress. Real wages have increased very notably in the new Eastern European Member States (by around twofold or more in Romania, the Baltics, Bulgaria, Slovakia, Czechia and Poland, and significantly as well in Slovenia, Croatia and Hungary). The real wage growth over the period is much more moderate in the rest of the European countries: between 30-60% in the Nordic countries of Sweden and Denmark and the isles of UK, Ireland and Malta; and by less than 30% in continental countries (Luxembourg, France, the Netherlands, and, especially moderately, in Belgium, Germany and Austria) and Mediterranean countries (Cyprus, Greece, Portugal, and especially, Italy and Spain where real wages only progressed marginally).

Two, the period is not homogenous and is clearly divided by the effects of the crisis that emerged in 2008. Between 1995 and 2008, real wages progressed across all countries with the exception of Germany: they did so notably in Eastern European countries, and as well in Greece, the UK and Ireland, while they progressed marginally in Spain, Italy or Austria. Real wages were then negatively affected by the Great Recession: they remained either stable or declined in half of the EU countries during the initial years of the crisis. In the most recent years, real wage levels have bounced back in many countries (notably in the three Baltic



countries), but in 2018 they were still below the 2008 levels in several countries (Greece, Austria, Spain, Ireland, Luxembourg and Croatia).

It is important to note these wage data do not capture the full extent of the negative impact of the crisis on wage levels. This is due to the compositional effects caused by employment losses among lower-paid workers at the beginning of the crisis, which partially explains the wage increases observed during the very initial years of the crisis in those countries most affected by employment destruction, as it was the case in southern Europe (the initial deflation registered in some of these countries may explain as well this increase in real wages during the early years of the crisis).

While these two wage indicators provide a good introductory picture into the wage dynamics over the last two decades, they are not the best suited measure to assess the convergence and divergence patterns across EU countries. This is best done using a measure of wages which is comparable across countries, as done in the next section.

## Wage convergence between EU countries

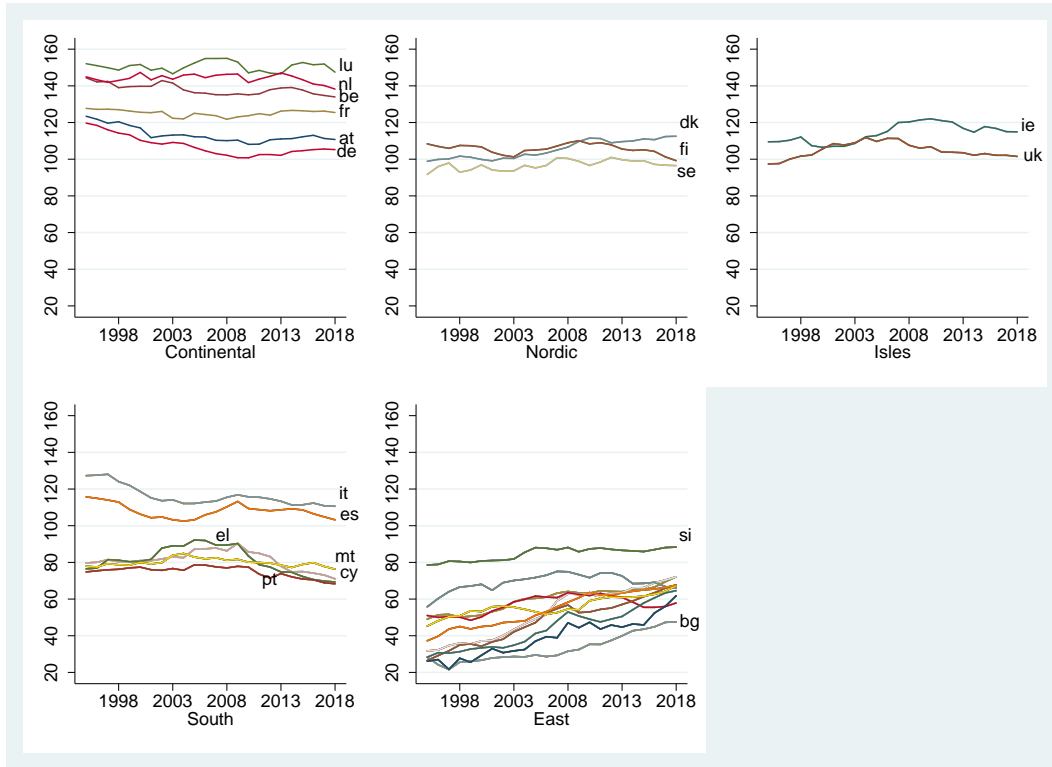
The best approach to map the evolution of wage differentials and assess whether a process of convergence has taken place between EU countries is using data on nominal wages expressed in Purchasing Power Parities (PPP). Nominal wages in PPP-adjusted euros provide a comparable wage measure in terms of their purchasing capacity by taking into account the existing differences in the costs of living and inflation across EU countries. Moreover, using the EU27 and UK as a reference and expressing the wage levels across the different countries in relation to it provides an even more direct picture into the wage convergence dynamics operating in the EU over the period covered.

A first picture of the evolution of this wage variable across EU countries is provided in Figure 2, where countries have been grouped into five geographical clusters (see note under Figure 2 for a list of the countries under each grouping). The data reveal clearly the existence of a process of wage convergence between EU countries and its main characteristics:

- Those countries characterised by wage levels above the EU average (above levels of 100) have experienced wage moderation or reduction. This is most clearly the case in continental countries, where relative wages were the highest and have declined over the period in all cases (especially in Germany). Relative wage levels have progressed rather moderately in Nordic countries and in the isles of UK and Ireland. It is important to note that expressing wages in relation to the EU removes from the picture the growth shared by all countries, which means a stability or decline of this indicator in a certain country reflects an average or below average wage growth, but not necessarily a decline in actual nominal wages (it was shown in Figure 1 that nominal wages have progressed across all EU27 and UK).
- Those countries characterised by wage levels below the EU average (below levels of 100) have tended to experience a notable progress in their relative wage levels. This is very clearly the case in Eastern European countries, which had by far the lowest wage levels initially but have managed to register a very large growth over the period. Nevertheless, the Southern in the Mediterranean show a different picture,

since all of them have experienced a decline in their relative wage levels when the whole period is considered, largely due to the impact of the crisis.

Figure 2: Evolution of nominal wage levels across EU countries and UK, in PPP euros (EU27 and UK=100)



Note: Country groupings used are: Continental (AT, BE, DE, FR, LU, NL); Nordic (DK, FI, SE); Isles (IE, UK); South (CY, EL, ES, IT, MT, PT); East (BG, CZ, EE, HR, HU, LT, LV, PL, SI, SK, RO).

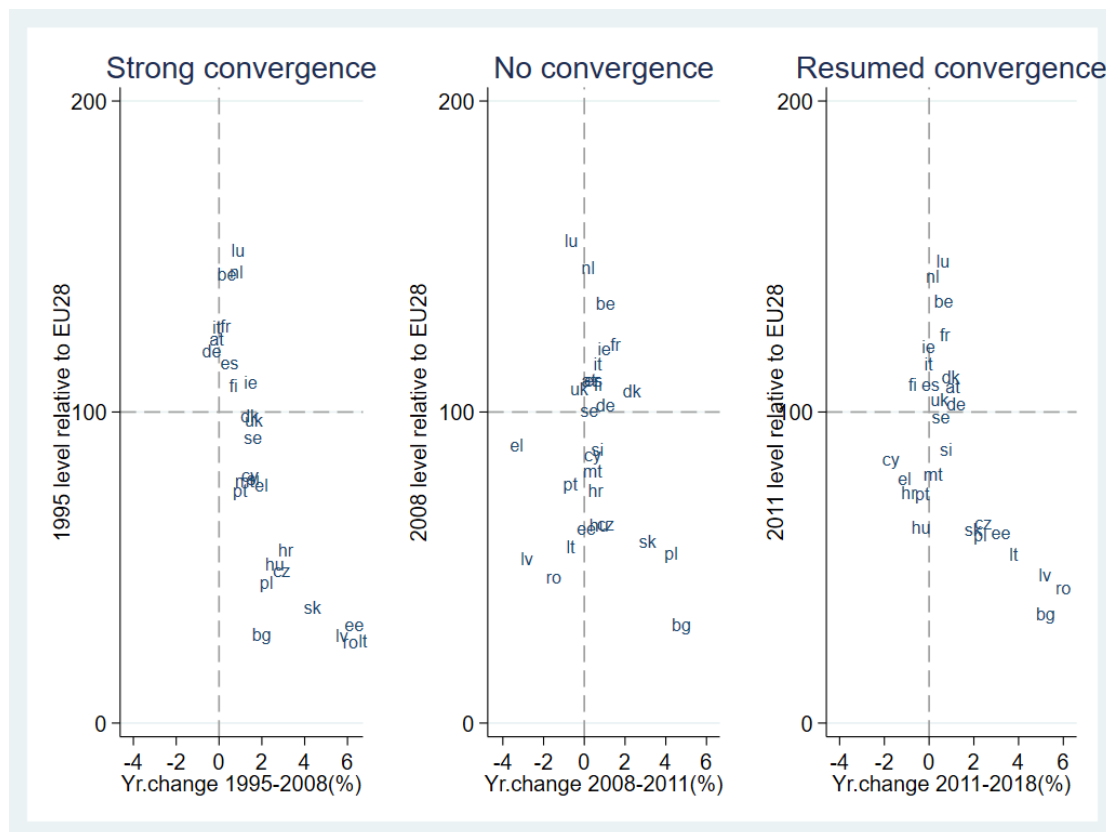
Source: AMECO

A more direct picture of this process of wage convergence between EU countries and how it has evolved in the last two decades, before and after the economic crisis, is provided by Figure 3. It confirms the clear process of upwards wage convergence that has taken place within the EU, mainly due to a process of strong catch-up growth in Eastern European countries, and as well wage restraint or small declines in virtually all EU-15 countries having the highest relative wage levels. Three main sub-period are easily identified:

- At the beginning of the period, between 1995 and 2008, a strong process of upwards wage convergence took place between EU countries (left panel). On the one hand, wages progressed much more in those countries with lower wage levels (at the bottom of the panel). Interestingly, this was the case for Eastern European countries, which had the lowest wage levels in the EU, but not really for Mediterranean countries, which largely failed to converge (only Greece, Portugal, Cyprus and Malta did so very modestly, but not Italy and Spain). On the other hand, wages progressed much less among higher-wage countries, in Scandinavian, Anglo-Saxon and, especially, continental countries (this relative wage indicator fell slightly in Germany, Austria, Belgium or France).

- The process of convergence was halted during the early years of the financial crisis, between 2008 and 2011, due to its stronger negative effect in the countries of the European periphery (centre panel). It can be seen how the relative wage levels registered a notable correction in several lower-wage CEE and Mediterranean countries, such as Romania and the Baltics, or Greece and Portugal. On the contrary, wage levels were generally more resilient in higher-wage countries.
- The process of upwards wage convergence between EU countries re-emerged again strongly in the most recent period, from 2011 to 2018 (right panel). Again, it is a process of wage catch-up of Eastern European countries (although in this case it is not so generalised as before the crisis, since Hungary and Croatia register a decline in their relative wage levels, while in Slovenia they remain rather stable). Again as before the crisis, Mediterranean countries offer a different picture among lower-wage countries as they suffer notable corrections in their relative wage levels. Among higher-wage countries, the evolution of wage levels expressed in relationship to the EU average is generally comparable to the previous sub-periods.

Figure 3: Evolution of nominal wage levels across EU countries and UK, in PPP euros (EU27 and UK=100).



Note: Each panel plots the initial wage level at the beginning of the sub-period and the average yearly change over that sub-period.

Source: AMECO

In summary, the data offer two main insights. One, a notable process of upwards wage convergence has taken place between EU countries in the last two decades, one that was interrupted during the initial years of the Great Recession but has continued thereafter.

Two, this process is essentially by a catch-up process of Eastern European countries, since relative wage levels in Mediterranean countries failed to significantly converge prior to the crisis and have suffered protracted downward corrections after the emergence of the crisis. This means that whatever convergence has taken place in Mediterranean countries in nominal wages is due to higher inflation, since wage data expressed in purchasing parity clearly show a different picture than in Eastern European countries.

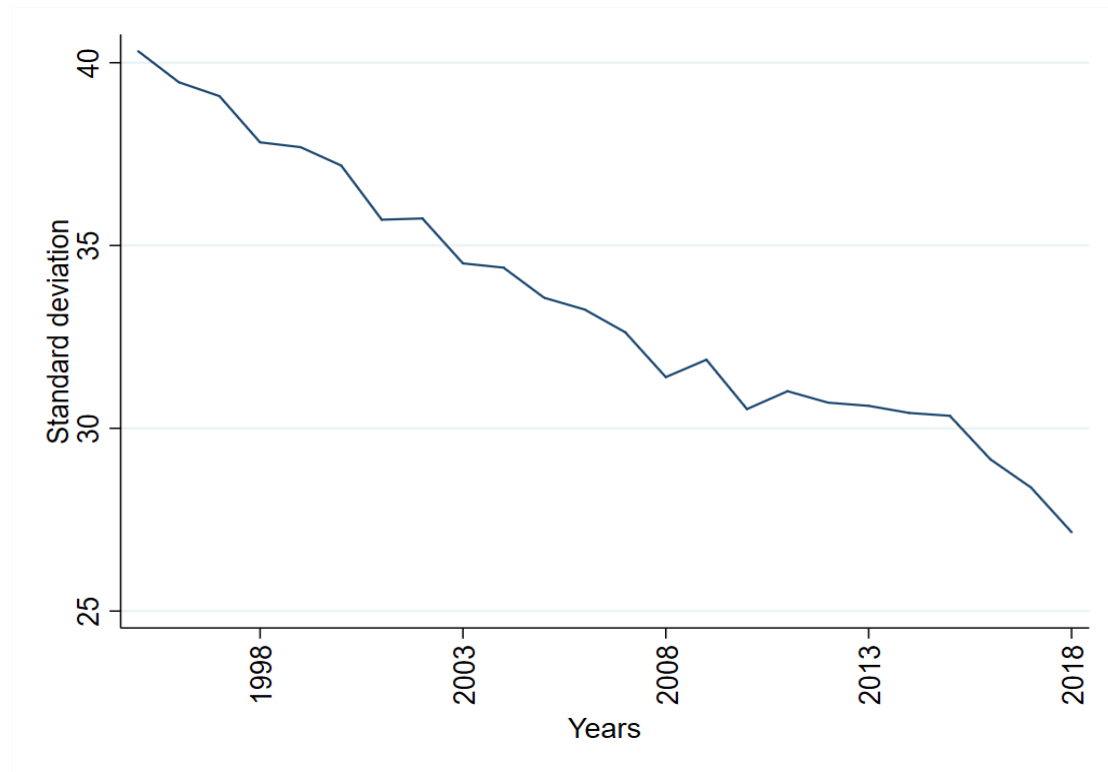
## Eurofound's detailed approach to measure wage convergence

The literature offers several examples of methods which may be used to measure convergence, with its own advantages and disadvantages, and related as well to the different definitions of convergence. The results presented in Figure 2 and discussed above centre around the well-known concept of beta-convergence, which refers to the situation when those lagging behind catch up with the leaders in relation to a specific outcome or policy objective, in this case, wage levels. The results showed that a beta-convergence took place between EU countries in the last couple of decades. Nevertheless, there are other ways to measure convergence in performance among Member States, mainly, sigma, gamma and delta-convergence (Eurofound, 2018).

Eurofound has developed a comprehensive methodology which permits assessing whether upwards convergence emerges. This methodology is applied here to explore trends in wages (nominal wages in PPP-adjusted euro) and provides the following main findings:

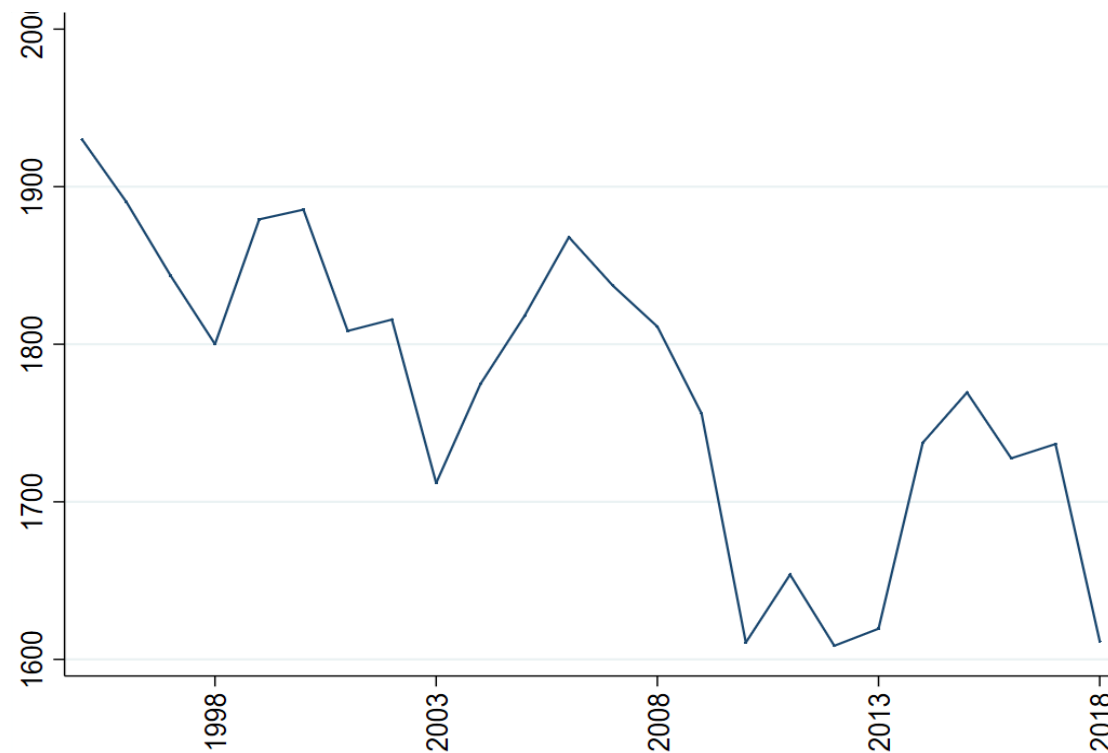
1. A reduction of disparities in wage levels has taken place between EU countries. This is referred to as sigma-convergence and is clearly manifested by a clear reduction in the standard deviation (see Figure 4 below). The cross-country reduction of disparities was intense from the beginning of the period and, after progressing at a slower path during the Great Recession, is resuming strongly in recent years.
2. Wage levels have not only progressed on average across EU countries, but for each of the EU countries. Despite the differences in magnitude, all EU countries have registered growth in their nominal and real wage levels over the period covered, as was shown in Figure 1. The yearly changes in performance reflecting the improvement of Member States is somewhat summarised by Figure 5, which presents the evolution of the overall sum of distances between each EU country and the best performer country (the so-called delta convergence). The data reveal again a process of (delta) convergence, reflected in this case by a reduction in the sum of the distances between each EU country and the best performer among them.

Figure 4: Standard deviation in nominal wage levels across EU countries and UK (in PPP-adjusted euros, EU27 and UK=100)



Source: AMECO

Figure 5: Delta-convergence between EU countries and UK in nominal wage levels (in PPP-adjusted euros, EU27 and UK=100).



Note: The x-axis is the sum of the distances between each EU country and the best performer.

*Source: AMECO*

Against the background of reducing disparities between EU countries, Eurofound distinguishes between upwards convergence (improvement in the average performance of EU countries) and strict upwards convergence (improvement in the performance of each of the EU countries). Therefore, it can be concluded that a process of **strict upwards convergence in wage levels** has taken place between EU countries in the last couple of decades.

## Conclusions and policy pointers

This paper has provided a picture of wage developments across EU countries and the UK over the period 1995-2018. While average wage levels have progressed across all countries both in nominal and real terms, the magnitude of the progress varied markedly and resulted in a clear process of wage convergence between EU countries.

It is an upwards wage convergence process mainly explained by strong catch-up growth in Eastern European countries, while Mediterranean countries failed to converge significantly. On the other extreme, wages progressed much more moderately in most countries among continental, Scandinavian and the isles of UK and Ireland. This process of upwards convergence was very strong prior to the crisis, was halted during the initial years of the Great Recession due its stronger impact on the European periphery, and has resumed strongly again in recent years, with Eastern countries continuing their catch-up growth and Mediterranean countries suffering a downwards correction in the purchasing parity of their average wage levels.

This analysis is relevant for EU policymaking. The results presented here provide evidence supporting the implicit assumption of the EU project that economic integration should lead to socio-economic convergence between its Member States, which has been the case in the area of wages over the last couple of decades, as shown in here. This notable reduction in cross-country wage differentials would as well provide evidence as to the positive results of the European regional development policy implemented from decades ago and aimed at narrowing the differences between European Member States and regions.

Nevertheless, the analysis shows this process of upwards convergence should not be taken for granted. The wage convergence process was halted during the Great Recession, posing a threat to the cohesion of the EU project. Moreover, Mediterranean countries provide a more worrisome picture as a result of their inability to register a significant wage convergence over the period, due to a much weaker convergence prior to the crisis and to a very negative and protracted impact of the crisis in their economies and labour markets.

## References

All Eurofound publications are available at [www.eurofound.europa.eu](http://www.eurofound.europa.eu)

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