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Divided Europe

As some European regions thrive, others are at risk of prolonged stagnation

In September 2008, the bankruptcy of Lehman Brothers marked the low point of the financial crisis. Ten years on, the European economy has recovered, but the scars of the crisis are still visible at a regional level. While employment – measured as employed persons - for the European Union is now 2% above the 2008 peak, this is not the case for many local economies. The crisis has had a long-lasting and deep effect on economic activity and on employment, and many regions have only recently begun to recover.

Some regions have not even shown signs of bottoming out, with employment still in decline. Take the German regions Sachsen-Anhalt and Thüringen, for example, which have seen employment decline steadily over the past decade despite the German Wirtschaftswunder. The strong growth in German employment has not lifted the tide in these regions, indicating the persistence of regional differences. In Italy, strong growth in the northern regions and around Rome masks dismal job creation since the start of the crisis in the southern regions. This begs the question, what differentiates the winners from the losers and will the next decade be any different?

We find that:

- Deep scars caused by the crisis are still impacting regional labour markets across Europe. Many regions are still recovering, with the unemployment rate still above the natural rate, according to our estimates.
- Structural strength or weakness seems to be driven in part by the region's digital infrastructure, the vulnerability to globalisation, the innovative capacity of the region and the residents' level of education.
- A large divide between urbanised and younger regions and rural and ageing regions, with the latter in general performing much more poorly. This confirms the view of a split in society between areas that are vulnerable to population outflow and ones with prolonged high structural unemployment and those which are more vibrant and generally profit from large societal trends.
- When looking at the current state of those structural drivers, the strongest regions are large metropolitan centers, which seem set up for continued strength in the years ahead.
- We also find that there are several regions across Europe – mainly in the southern outer ring of the European Union – which are likely to remain weak in the years to come. As such, investment in infrastructure and intellectual capacity in these regions will be key. Structural improvements at the national level will also be needed, with a large concentration of the weakest regions in a few, mainly Southern European countries. Without this, these areas could face another lost decade of employment growth.
- More redistribution at the European level seems unlikely given the political environment at the moment. With stagnation a possibility for many regions, the appetite for the populist vote, from an economic perspective, at least, could increase.

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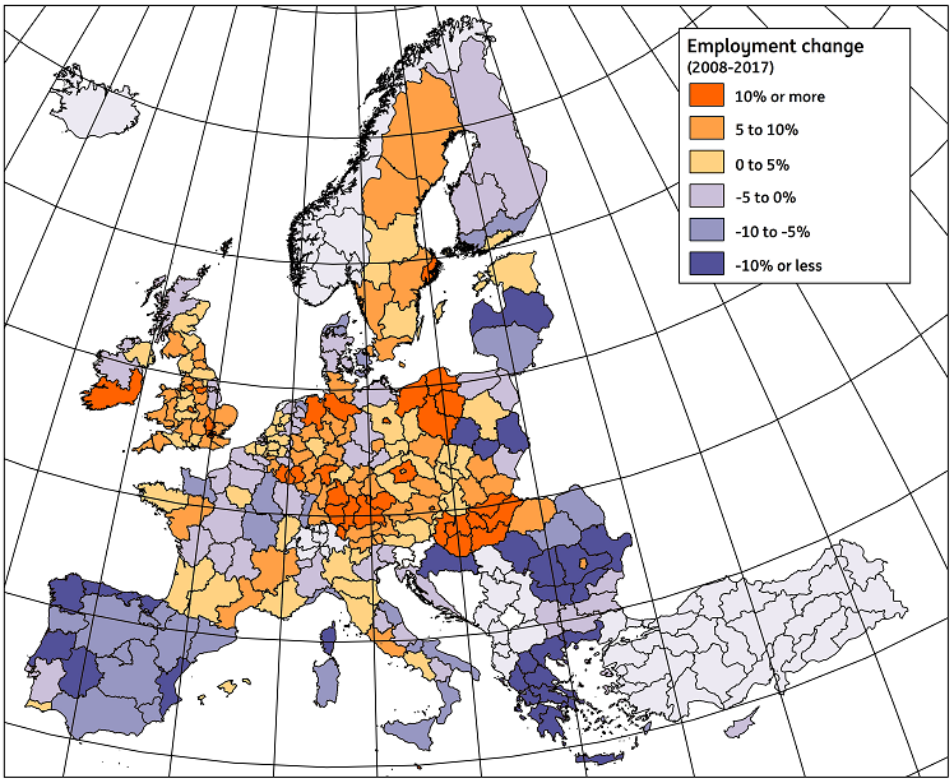
Why was regional employment growth so variable in the past decade?

Many regional labour markets are still recovering from the crisis

Differences in employment between regions are impacted by recovery from the crisis

Crisis effects are still very important in explaining the difference in employment growth between regions. The crisis left deep wounds in countries across Europe from which many regions are still trying to recover. In Spain and Greece this comes as no surprise. But there are also countries which, despite having done better on aggregate, are still suffering from pockets of regional weakness.

Fig 1 Employment has not recovered to its 2008 level yet for many regions



Source: Eurostat, ING Research

To ascertain which regions have recovered cyclically and which regions haven't, we look at output gaps in the labour market. This is determined by the natural rate of unemployment and the gap with the current unemployment rate. If unemployment is higher than the natural rate, it means there is still cyclical unemployment. As there are no estimates of the natural rate of unemployment available at the regional level, we have estimated these ourselves following the methodology from **Claar (2005)[1].**

Plenty of regions still have upside potential to job growth from economic recovery

The regions with unemployment higher than the natural rate are currently still recovering from the crisis. As the expansion in Europe is relatively broad-based, these regions stand a chance of returning to their 2008 level of employment for as long as the economic expansion continues[2]. The depth of the crisis has impacted these labour markets so significantly that the recovery has been dragged out over several years. While the risk of a recession would set back these local economies significantly, a recovery is still possible because at least part of the problem is cyclical, rather than structural, although it has to be said that cyclical and structural elements are

[1] The explanation our natural rate of unemployment estimation can be found in the appendix.

[2] Caveat of relating local unemployment and employment data is that some regions deal with many commuters, making the relationship less apparent. Take a region like Brussels for example, which has structural unemployment of 16.1% according to our estimates, but has seen employment increase by 13.9% since 2008.

influencing each other. A prolonged recession can have negative lasting effects for example, which is what has happened in many European countries. This may have caused structural factors to deteriorate and impact the trend growth of employment.

Structural factors determine the fate of employment growth in the years ahead

Structural factors also play a role in diverging employment growth between regions

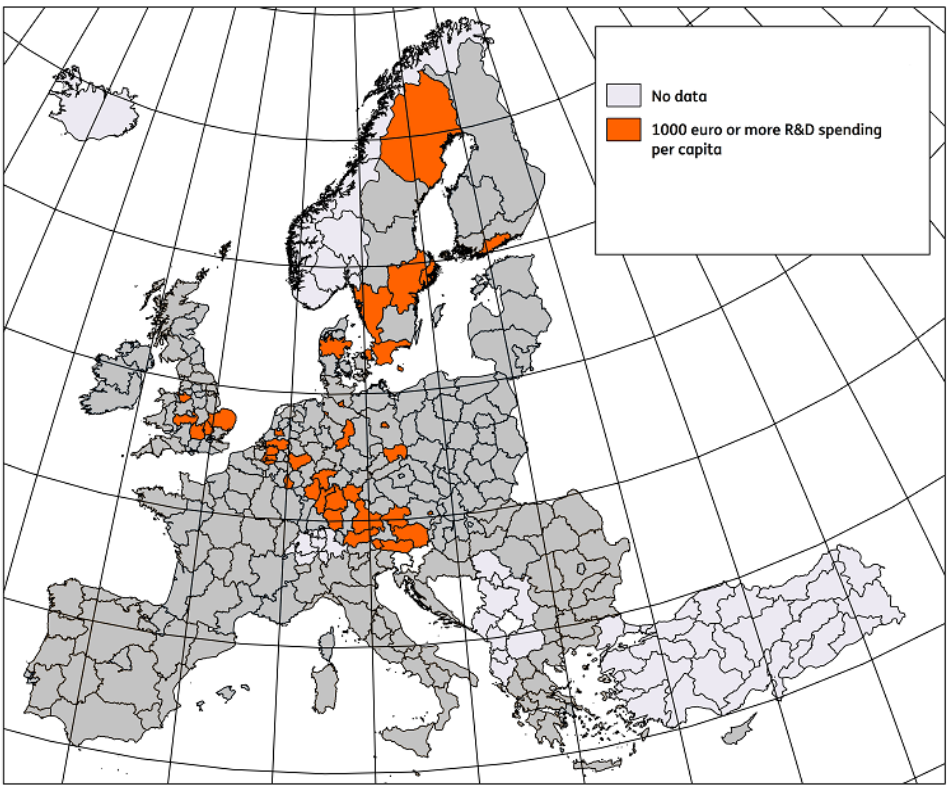
Indeed, we find that structural factors also play an important role in explaining why some regions have seen employment grow faster over the past decade. A cross-regional analysis of employment growth and possible drivers shows that there are many relevant factors outside of the business cycle that determine the fate of employment growth in certain regions[3].

Digital infrastructure and R&D investment provide important foundations for employment growth

Investment in digital infrastructure boosts chances of strong job growth

We find a strong significant relationship between the percentage of the population that has access to broadband internet and employment growth over the past decade, even if we control for factors like the cycle, age of the population and education. This means that digital infrastructure has gained importance over the past decade for centres of economic activity. The growth in access over the past decade has been significant, with many European regions now seeing full broadband penetration. Many regions are still lagging significantly though and have to play catch up, including large parts of Bulgaria, Romania, Portugal and Italy. As technologies are developing rapidly, continued investment remains key. Think of the forthcoming 5G network, which could become vital in the continued development of digital infrastructure in the years ahead. For centres of economic activity, staying ahead is crucial.

Fig 2 The strongest hubs in terms of R&D investment are in a belt from Liverpool to Vienna and the Nordics



Source: Eurostat, ING Research

[3] The explanation of the model used for the analysis can be found in the appendix.

Innovation spending is related to stronger employment opportunities

Investment in research and development was also strongly related to employment growth in the past decade. Regions with higher R&D spending per person over the period had significantly higher employment growth than regions that did not. This suggests that regions which are knowledge hubs create jobs at a faster pace than regions which are not. The top regions in terms of R&D investment per capita are located roughly on a belt from Liverpool to Vienna, together with quite a few Nordic regions. Investment in people is also key as a higher percentage of people with medium- and higher education is related to job growth as well. The larger the share of people with an education, the stronger the employment growth has been.

Globalisation has continued to impact job growth in European regions

While globalisation has impacted job markets negatively in the post-crisis period...

The main impact of globalisation on the job market in advanced economies is often thought to have happened in the first decade of the 2000s when China entered the World Trade Organization and the Central- and Eastern European economies joined the EU. While that is likely to be the case, this does not mean that the impact of globalisation on the European labour market over the past decade has been negligible. We use a proxy for the impact of trade on jobs used in **Autor et al. (2013),** which measures the import sensitivity of regional employment, to estimate the effect of globalisation on regional labour markets[4]. We find that the negative impact of globalisation on jobs continued to play a role at a regional level over the past decade. The regions where labour markets are more exposed to net imports have performed weaker on average than their less exposed peers, which tells us that even though the aggregate impact of globalisation on the job market is likely positive, there are still winners and losers at the regional level.

Negative effects of globalisation on the labour market are concentrated in certain regions

This confirms the view that the negative effects of globalisation on jobs are concentrated. While globalisation is not the dominant factor for regional job losses over the past decade, it is still a relevant force determining whether certain regions perform better than others. It comes as no surprise that job losses are therefore also associated with jobs in the industrial sector. Taking cyclical changes into account, we find a negative relationship between the share of jobs in industry and employment growth over the period. Productivity gains have been the strongest in industry while vulnerability to globalisation is also stronger in industrial sectors, which has played a role here. It has to be said though that there is no good methodology available to test the exact impact so far.

Age and location are key for employment growth

And younger and more urbanised regions perform better than ageing and rural counterparts

Finally, there is a strong relationship between the age of the population and employment growth. Older regions have generally seen weaker employment growth, which could have multiple explanations and the causality might work both ways. Regions with an older population are generally less attractive as a centre of economic activity, as the talent pool is less attractive. At the same time, a prolonged period of weak demand could cause younger generations to move away. This is something that was seen in Greece, Spain and Portugal during the crisis.

Coinciding with age is the correlation between employment growth and urbanisation. The data confirms the story of the younger and more highly skilled moving away from rural areas to the cities where there are more employment opportunities. This paints a picture of a growing socio-economic divide as a longer running trend that may have been neglected due to the crisis. The focus has been on battling cyclical problems, but the structural side of weakness is key for the coming period. In that sense, Europe seems to be little different to the US, where similar findings have been reported.

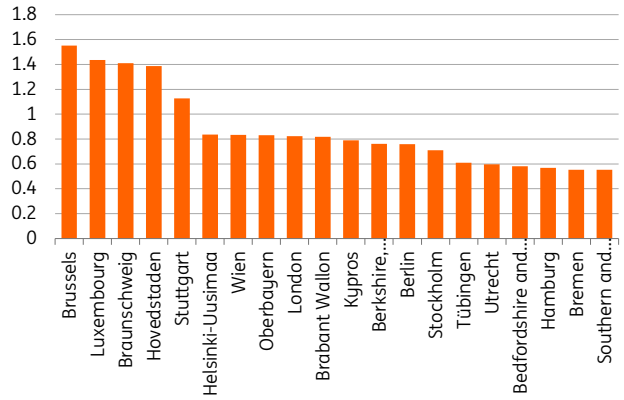
[4] See appendix for the explanation of the methodology to create the import sensitivity measure.

Many European regions set to thrive but others are at risk of prolonged stagnation

Current structural strength provides insight into job growth chances of regions

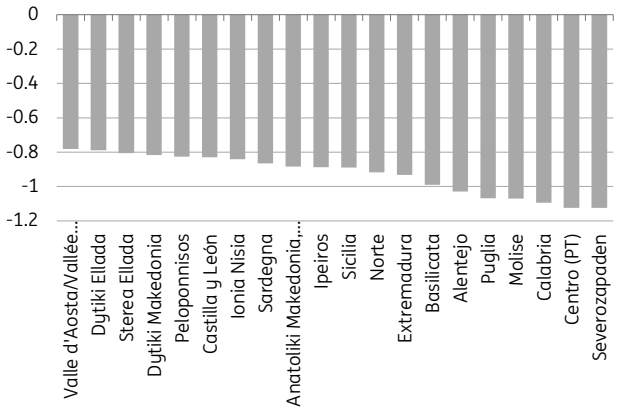
Having identified certain factors that have been highly correlated to employment over the past decade, we took the strongest of these to create an index that explains employment growth. This "Employment Strength Index" represents the relative strength of the different regions for those factors strongly related to employment. If the coming decade sees the same factors related to employment as the previous one, the regions with the higher readings will be set to perform well in terms of job growth.

Fig 3 Top 20 regions with best Employment Strength Index[5]



Source: ING Research

Fig 4 Top 20 regions with worst Employment Strength Index

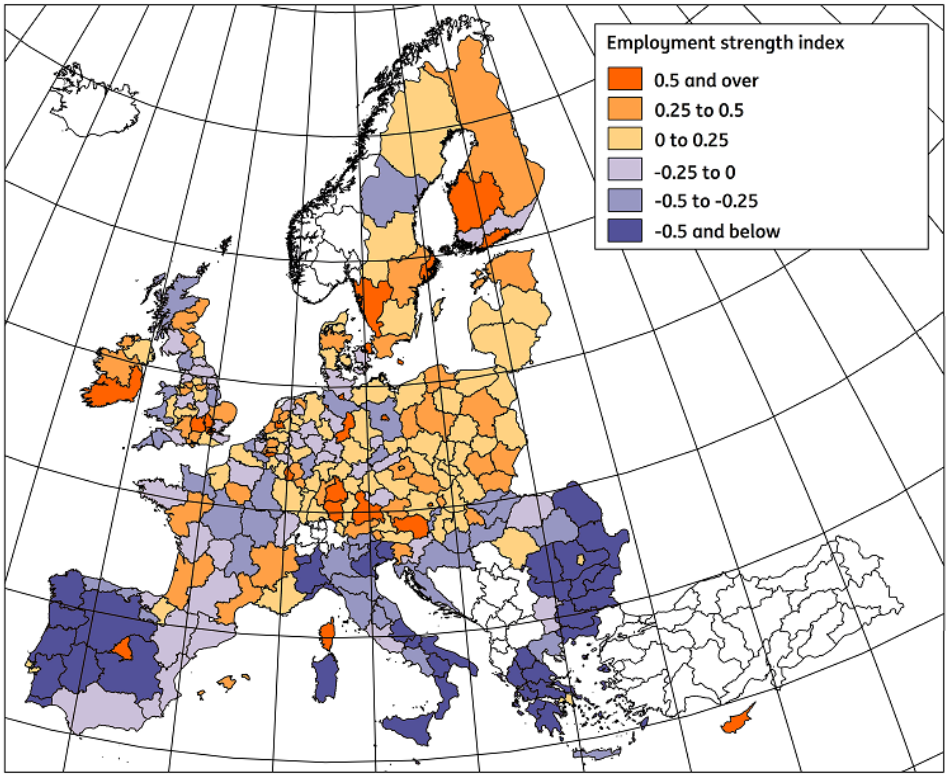


Source: ING Research

The regions that are most highly ranked are the larger European metropolitan areas and stronger innovative industrial centres. In general, these regions score highly on the list of research & development investment, they are all strongly connected to digital

With larger metropolitan areas and industrial centres coming out best

Fig 5 The Employment Strength Index provides insight into structural developments



[5] Excluding regions with a majority of indicators that contribute negatively.

infrastructure, have younger populations with a stronger labour supply and do not have much to fear from globalisation in terms of job losses, given the industrial backdrop.

Weaker regions seem concentrated in Southern Europe

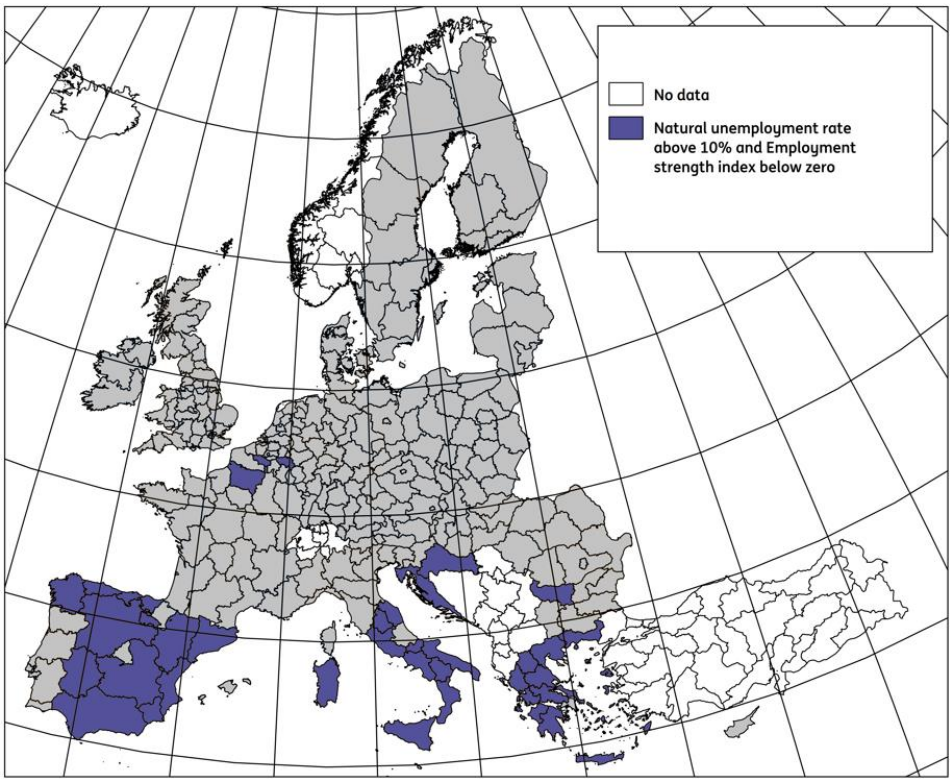
Weaker regions are much less geographically dispersed. The top 20 weakest regions all come from Italy, Greece, Spain and Portugal except for one from Bulgaria. These regions are the ones that are most likely to perform poorly over the coming years although most of them could still see some cyclical recovery. Once the cyclical catch-up has ended, these regions will likely struggle to maintain decent employment growth.

The group of regions with a weak score on the Employment Strength Index average are battling structural issues, although some may have full employment, and while prospects for employment are not strong, this may not cause much strain on society, like in Zeeland, Netherlands for example.

Especially regions with high natural unemployment are set to struggle...

The regions with a poor outlook for employment growth are especially concerning when the natural unemployment rate is already high. This means that cyclical factors will not cause unemployment to come down significantly and that the outlook for structural improvements in employment is weak. When looking at the regions with natural unemployment of above 10% with weak employment prospects, we still find most regions come from roughly the same parts of Europe. These are also regions that have not yet recovered to the levels of 2008 yet, with the exception of Lazio and Campania in Italy.

Fig 6 The weakest regions with structural unemployment above 10% are mainly from Southern Europe



Source: ING Research

Which could result in prolonged stagnation

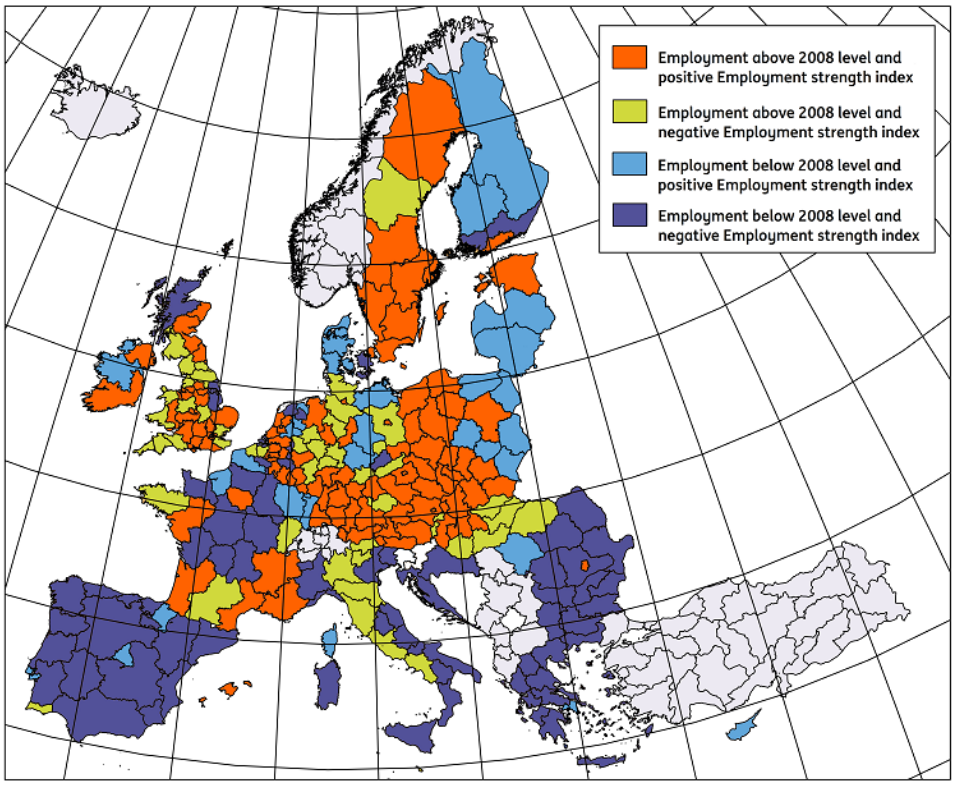
Many regions from Italy, Spain, Portugal, Romania, Bulgaria and Greece are among the weakest in the Employment Strength Index, while other countries, like Ireland and Poland, have all regions with above average scores. This means that there is a clear national side to the differences in regional employment potential as well, which requires a hard look at labour- and product markets- to see whether there is scope for reform that would structurally improve the national framework of institutions.

Regions with strong drivers but weak recent growth are attractive for businesses

Depending on the need of businesses, different regions look attractive...

To give a rough indication of the past performance and current structural employment strength of a region, figure 7 breaks down the regions into four colours. The purple regions have not yet recovered to the 2008 level of employment and are also ranking poorly on the current strength for employment growth. These are the regions most at risk of falling further behind, as their importance as centres of economic activity continues to fade. From a business perspective, these regions are likely to experience weakness in wage growth, possibly making them attractive from a production cost perspective, although other factors making production attractive may be less interesting, gauging from the weak Employment Strength Index.

Fig 7 The regions at risk of prolonged stagnation are mainly in Southern Europe



Source: ING Research

The orange regions in figure 7 have already fully recovered and are set to perform well in the coming years. This makes them attractive from a consumption perspective as employment growth is set to continue. Supply side issues like labour shortages and more significant wage growth are likely to play a role here.

With proximity to consumer, labour shortages, wage levels and infrastructure as relevant factors

For the lime green regions, employment has recovered to 2008 levels, but the upside for the coming years is limited. This means that the attractiveness for businesses is limited as well with not much upside from a growing employed consumer base and a labour market that has already recovered. The light blue regions have not yet recovered but do score better than average on the Employment Strength Index. There is therefore potential from a business perspective for the years ahead and a higher cyclical gap often means that employment has not fully recovered. Businesses will still find a relative abundance of labour and these regions have likely seen wage growth at a very slow pace over the past decade as well.

Investment and reform seem key, but are they likely to happen?

Pressure on redistributive policies will increase...

As many regions are at risk of prolonged stagnation, the question is what this will mean for policy makers. A logical conclusion to draw from this would be that redistributive policies are likely to be revisited, as the regional divide within countries and the EU grows larger. At the EU level, transfers are a heated subject and proposals to increase transfers are often sent to an early grave. At the same time, a large amount of the transfers that do happen at the regional level occur through the European regional funds.

Where a strong focus on investment in innovation, education and digital infrastructure would be key

To the European Commission's credit, the factors that we define as structurally related to employment growth are already focal points for the regional funds. The European Regional Development Fund – by far the largest - focuses on innovation and research and the digital agenda as two of its four investment themes. Depending on the level of development, a certain percentage of the funds have to be allocated here. The European Social Fund focuses on education and employment development specifically.

For the years ahead, an even larger focus on these themes seems warranted to promote employment in the structurally weaker regions. While larger redistributive funds could help, this will remain a hot political debate. The success of the current EU funds are subject to debate as well. The resistance of richer countries and regions to support this will probably remain too large a barrier to overcome. Furthermore, significant boosts to the budget are highly unlikely anyway given the exit of the UK and the subsequent impact on the European budget.

Can politics produce meaningful reform with populist potential in weaker regions?

Structural reforms remain relevant with weak regions concentrated in few countries

That leaves national investment plans for regions and structural reforms of labour and product markets as other policy instruments to improve the fate of regions across the European Union. In terms of reforms, important at a national, as well as regional level, progress has stagnated as the recovery from the euro crisis continues. This is particularly the case in the southern countries of the European Union, which house the most regions that are structurally underperforming.

But can that happen with populist potential in weaker regions?

In terms of impact on the political field, the divide in terms of economic prospects has often been mentioned as one of the reasons for the increase in support for populism over recent years. While other factors play a key role as well, weak prospects for employment may lead to a change in voting behaviour. The likely persistent regional divide in employment prospects may be cause for continued or even increased support for populism in the weaker regions in coming years. The European elections next month will function as an important gauge of the appetite for a populist vote in different European regions. But as the divide between regions is expected to continue, support for populism is unlikely to diminish significantly in the years ahead.

Downward pressure on interest rates as parts of Europe remain structurally weak

Divergence within a country is not necessarily problematic from the perspective of monetary policy, as national redistribution can dampen the overall effects if it functions well. But as many of the structurally weak regions are concentrated in a few countries across the EU, with many in the eurozone, this is more problematic from the point of view of monetary policymaking as this will have an impact on growth and inflation prospects, resulting in prolonged downward pressure on interest rates. From a fiscal perspective, stronger redistribution may become a more pressing matter that could cause a political backlash and/or result in more fiscal spending. This means that the weaker countries could face an increased risk premium.

Appendix

How we determined the natural rate of unemployment for NUTS2 regions

To the best of our knowledge, no estimates of a natural rate of unemployment exist at the regional level in Europe. Since we wanted to focus on a cyclical and structural component of job growth in the past decade, we decided to estimate them ourselves. Most estimates of a natural rate use a NAIRU or 'non-accelerated inflation rate of unemployment', which uses a Philips curve to estimate the neutral rate of unemployment.

Given the lack of inflation data available at a regional level, we have opted to estimate a simple model using just regional unemployment to deconstruct the trend and cycle using a Kalman filter. The trend that results is therefore strictly an equilibrium unemployment rate of natural unemployment and not a NAIRU. The methodology used follows that from **Claar (2005)[6],** which also shows that the trend variables obtained using this method perform well in tests of how trend unemployment should relate to other structural economic variables. Because of data availability, we have had to impute the national average unemployment gap to certain regions to find outcomes for their natural rate of unemployment.

How we determined the "import sensitivity measure"

To estimate the impact of globalisation on job growth in European regions, we use a proxy that is based on **Autor et al. (2013)[7].** We use the indicator referred by Autor et al as the IPW, the measure of local labour market exposure to import competition. It is calculated as the change in [Chinese] imports in a region, where imports are apportioned to regions according to industry mix and their share in national employment. Autor et al say: "[A difference in IPW] across local labour markets stems entirely from variation in local industry employment structure at the start period t".

$$\Delta IPW = \sum_j \frac{L_{ijt}}{L_{ujt}} \frac{\Delta M_{ucjt}}{L_{it}}$$

The labour share Autor et al use can be described in words as 'the number of people employed in region I in industry J, as a share of the number of people employed in region I overall, as a share of the number of people employed in industry J overall in the country.' Our labour share can be described in words as 'the number of people employed in region I in industry J, as a share of the number of people employed in region I overall, as a share of the number of people employed in the country overall, as a share of the number of people employed in industry J overall in the EU'. By dividing by the total EU industry employment, we aim to remove the effect of some NUTS2 regions accounting for very large shares of their country's employment as quite a few NUTS2 regions span their complete country.

A more fundamental difference between our analysis and Autor's is that they are aiming to prove causality between changes in IPW and employment. They do this using a natural experiment (China's entry to the WTO/growth in productivity in the early 2000s) to motivate an instrumental variables approach to their regression analysis. Our time series only begins in 2008 so the natural experiment route is not open to us, but our focus is also different – we are interested in 2008 as a starting point in its own right,

[6] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1368940

[7] http://economics.mit.edu/files/11602

and our hypothesis is that a region's industry mix and consequent change in imports over 2008-2017 has influenced the extent of a region's recovery – among other factors. Apart from copying their idea of using the starting period labour share, we control for the endogenous effects on demand on employment and imports in a completely different way to Autor et al, by using the unemployment gap.

We are not seeking to quantify this relationship by turning a certain level of imports exposure into a number of jobs lost. Instead, the sign and the significance of the IPW variables alongside the other variables is evidence that imports exposure has had an influence on employment outcomes after the crisis.

How we determined the "Employment Strength Index"

The index consists of variables that have shown to have had a relationship with employment over the past decade. To determine this, we have examined indicators that theoretically could have had an influence on job growth. We have looked at correlations between those variables and employment growth between 2008 and 2017 for those regions, which we have used as the basis for regression models to determine which factors have had significant relationships with employment growth over the past decade.

Correcting for certain factors, like the stance of the business cycle for which we use the unemployment gap derived from the natural rate of unemployment, we estimate simple cross regional OLS regressions to find the best mix between cyclical and structural factors explaining differences in regional employment growth over the past decade. The results of that can be seen below.

Fig 8 The regressions with the best fit show both cyclical and structural factors are significant

Dependent variable: Employment growth '08-'17			
		1	2
Constant	(coefficient)	0,18271	0,18061
	(t-statistic)	2,07	1,7
Δ unemployment gap 2008-'17		-0,0234	
		-7,99	
Unemployment gap 2017			-0,02124
			-2,52
% low education		0,0004	-0,00092
		0,83	-1,59
R&D investment per capita		3,2E-05	3,4E-05
		2,41	2,13
% broadband access		0,00164	0,0016
		2,98	2,44
Net imports sensitivity measure		-0,0012	-7
		-3,24	-1,7
Median age		-0,0072	-0,00708
		-3,78	-3,11
Adjusted r2		0,5208	0,3242
N		141	141

Source: ING Research

Using this, we take the 2017 values for the structural variables from the best performing model regression model to give a sense of the current structural strength of the labour market. This gives an indication of how strong employment growth can be in the years ahead if the same variables remain correlated with employment growth in the years ahead compared to last decade.

The variables used are:

- R&D spending per inhabitant
- Medium and high educated share of population
- Net import sensitivity of employment (inverted)
- Broadband access
- Median average age of population (inverted)

To combine them into a single indicator, we have normalised the variables and changed the signs to the net import sensitivity measure and the median age of the population, as they have a negative impact on employment. Then we take a simple average of the z-scores to determine the individual regional values for the indicator (we have also estimated the indicator using weights based on the coefficients of the regression model, for which there was barely any difference given the relatively equal size of the coefficients). For regions for which certain data is not available, an average of the four remaining z-scores is taken. The higher the score, the stronger the region performs on average in terms of employment prospects based on the underlying variables.

Disclaimer