

»» Labour productivity of large euro area countries drifts apart – Italy falling behind

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Large variations in economic development between countries make achieving common goals more difficult in heavily integrated currency areas such as the euro area. Greater convergence of growth between member countries requires a certain level of correlation among labour productivity trends. However, significant gaps in productivity are widening between the large member states.

While productivity in Germany and France has grown at a similarly strong pace in the last two decades, Italy in particular has a significant amount of ground to make up. Productivity growth has stagnated here since the turn of the millennium. The economic situation of recent years has been a contributing factor. Italy went through a long recession and slipped into a credit crunch that has impeded the investment activity which could increase efficiency.

Italy's productivity deficit, however, is primarily rooted in structural factors. Italian companies are encumbered by inefficient administration and therefore often do not reach a critical size. For example, larger companies attract more foreign direct investment, invest more in research, have better access to funding and realise other economies of scale. However, small companies and micro-enterprises dominate the business landscape in Italy. This contributes to slower productivity growth.

Due to high levels of debt, the problem cannot be solved simply with extensive support programmes, for instance, for additional research spending. Given the fragile banking sector, there are currently more urgent issues to address. Nevertheless, measures targeted at increasing productivity will pay off, not only for Italy, but for all countries – the more so because reforms could solve the problem of inefficient administration in a relatively cost effective way. This could trigger a process culminating in higher productivity and greater growth in the long term.

Convergence needed in the euro area

A joint currency zone such as the euro area requires convergence among its member countries, because the more similar their economies are in terms of growth, productivity and

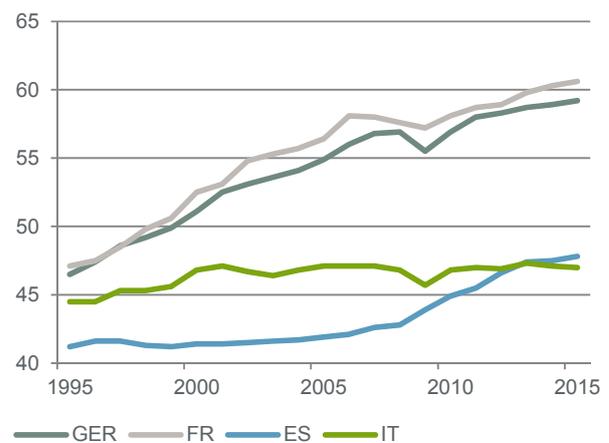
structure, the better the political coordination will be in areas such as joint monetary policy. Asymmetry, dynamic economic growth in some member countries and stagnation in others, for instance, hampers the euro area. It produces interest rates that are too high in some parts of the currency union and too low in others. The debt crisis resulted in substantial growth differentials in the euro area. Deep recessions, as those in Greece and Portugal, stand in contrast to robust recoveries in countries like Germany and Ireland. However, growth was relatively even in the last two years.

Labour productivity is a key driver of economic growth. In particular, countries such as Germany and Italy with limited labour force potential due to demographic changes are generating long-term growth primarily by becoming more efficient and producing more goods and services with the available means. Sustained growth convergence of the four largest economies in the euro area, Germany, France, Italy and Spain, which together account for three-quarters of the economic output of the currency zone, cannot be achieved without convergence of productivity growth.

Empirical data

Figure 1: Italy is falling further behind

Real GDP per hour worked, constant prices and PPPs, USD



Source: OECD

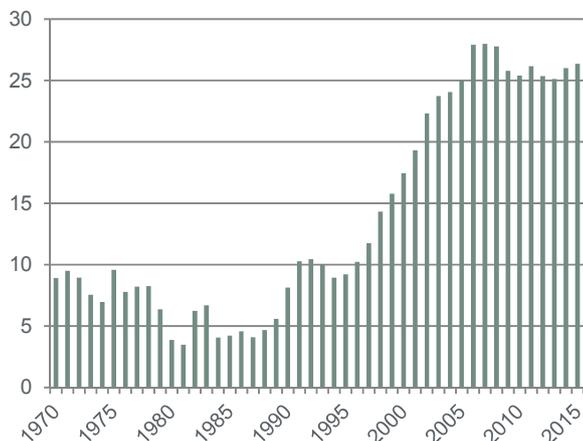
Productivity gaps between Germany / France on the one hand and Italy / Spain on the other

There is, however, a large gap in productivity levels between these four countries. Based on labour productivity measured against real GDP per hour worked, contrasts in development over the last 20 years are clear (Figure 1).¹ While productivity in Germany and France has grown at similar rates and consistently stayed at comparable levels, progress in Spain and Italy has differed from this in terms of both rate of growth and level reached. Productivity has been particularly stagnant in Italy since the turn of the millennium, before which growth had already been meagre. Spain ended a similar phase of stagnation as recently as the financial crisis. Italy in particular has been outpaced by the other countries in the last 20 years, and its 2013 productivity was the lowest of the four large member countries for the first time since at least 1970.

The deviation between the average labour productivity of Germany and France and the average of Spain and Italy increased from approximately 10% in 1970 to currently 25% (Figure 2). Both the southern European countries have fallen behind in the past two decades in particular – not only relative to the two largest economies, but also relative to the euro area as a whole. In 1995, Italy stood at 104% of the euro area average, while in contrast it was only at 90% in 2015.

Figure 2: Productivity gap widens

Deviation of real GDP per hour worked between DE / FR and ES / IT, percentage



Sources: OECD, internal calculations

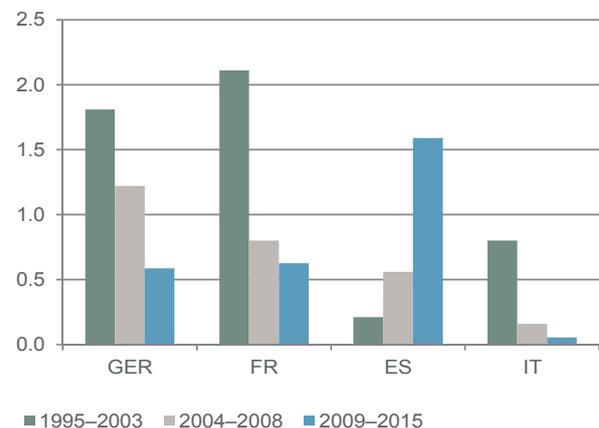
Productivity growth in Germany, France and Italy has decreased continuously over the last 20 years. During the upswing before the financial crisis, it decreased by more than half compared to the previous economic cycle (Figure 3). Also driven by the economic situation, productivity growth continued to decrease during the financial crisis and later during the debt crisis. In Germany and France it stabilised at roughly 0.6% p.a., while productivity in Italy has scarcely grown in the past six years. Spain should be viewed as an outlier in this regard:

Productivity increased by 2% per year between 2009 and 2013, and growth did not slacken until 2014.

However, the positive trend in Spain is mostly due to an especially sharp decline in labour input. The number of hours worked decreased during the financial and debt crises by almost 15%. Since economic output fell less sharply, this increased labour productivity mathematically. Moreover, the decline was most notable in the low-productivity construction sector, resulting in gains in relative importance for more productive economic sectors. Employment increased in Germany in the same period, partly due to the expansion of short-term work during the crisis and the rapid recovery beginning in 2010. The recent improvement in labour productivity in Spain also derives from a rise in the unemployment rate to more than 20% and should therefore not be interpreted as a success story. When this type of “layoff productivity” is disregarded and Spain’s hours worked are assumed to have developed similarly to that of Italy, Spain’s productivity growth loses most of its edge over Italy: Yearly growth since 2009 would have been only 0.5%, substantially lower than the actual 1.6% p.a. Contrary to the picture painted by Figure 1, both countries are falling further behind when compared to the euro area.

Figure 3: Productivity growth declining steadily – except in Spain

Real GDP per hour worked, constant prices and PPPs, percentage year over year p.a.



Sources: OECD, internal calculations

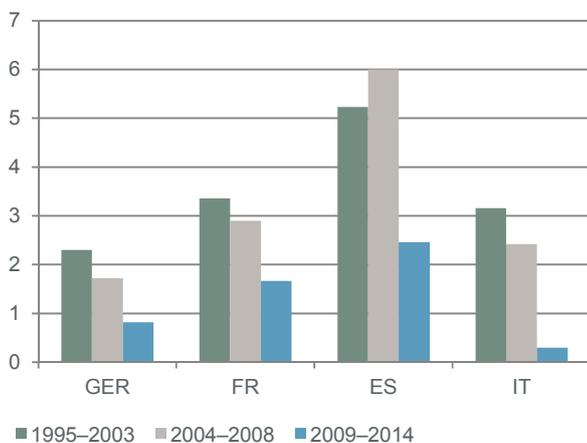
Capital intensity important factor for labour productivity

In addition to labour, capital is a factor used in the production of goods and services. The more capital is invested in forms such as machinery or information and telecommunications equipment, the stronger rises the potential output per worker, or labour productivity. Weak productivity gains in Spain and Italy could therefore be due to low capital intensity of those economies.

This has been true for Italy in the recent past. Capital input growth has been barely above zero since the financial crisis (Figure 4). Capital expenditure has recently decreased two years in a row – a first among the countries considered since data collection began in 1985. However, the increase in capital expenditure fell behind the comparison group average only recently and thus does not solve the puzzle of the previously stagnant labour productivity. This appears to apply to Spain as well, whose capital intensity has clearly increased disproportionately in the last 20 years without driving an increase in productivity growth.²

Figure 4: No recent capital deepening in Italy

Capital expenditure,³ percentage year over year p.a.

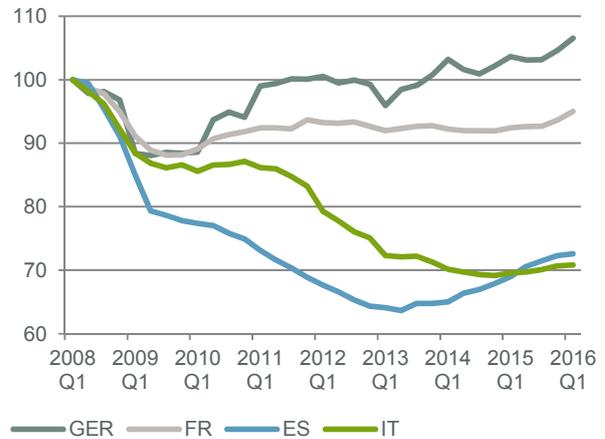


Sources: OECD, internal calculations

Capital deepening should not be expected to boost Italy's labour productivity in the near future. After a short recovery when the financial crisis ended, Italy's economy encountered a credit crunch and slipped into another recession at the end of 2011 that further reduced corporate investment (Figure 5). Only in the last two years has real investment stabilised at 30% under its pre-crisis level. This lack of investment should further slow the growth of the capital stock for the time being. It therefore appears unlikely that labour productivity will recover quickly. The situation is more favourable in Spain. Not only has investment there been growing appreciably again for almost three years, it had also increased significantly prior to the financial crisis. Relative to GDP, the investment rate was at a high 30% before 2008, meaning that the decline started from a relatively high level (investment rate in Italy before 2008: 21%).

Figure 5: Italian investment bottoming out

Real gross fixed capital formation, seasonally adjusted, index Q1 / 2008=100



Source: Eurostat

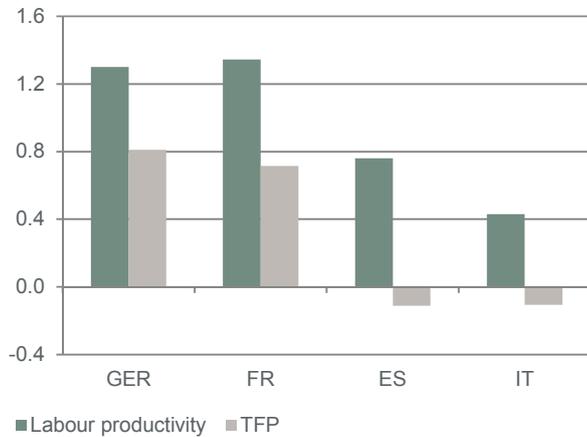
Productivity growth beyond capital deepening partly

An alternative measure for productivity development is total factor productivity (TFP). TFP uses a combination of labour and capital as the input factor, and thus also considers the relationship between output and capital expenditure. Unlike labour productivity, TFP is not affected by capital deepening. Economists therefore often interpret TFP as an approximation of technological progress. It should be noted, however, that in the OECD calculation methodology, technological improvements in machinery ("embodied technical change") are already taken into account when calculating capital expenditure and can therefore have no further influence on TFP.⁴ TFP can be increased by factors such as managerial / organisational improvements, better education of the workforce, learning effects to minimise production waste or economies of scale.

A comparison of labour productivity growth with that of TFP makes it clear that capital deepening is an important factor in labour productivity growth (Figure 6). TFP progress lags considerably behind that of labour productivity in all four countries. If capital deepening in the economy is disregarded, productivity growth in Spain and Italy has been negative since 1995. In both Spain and Italy, the productivity gap is therefore due less to low economic capital intensity and more to poor progress in areas such as the use of economies of scale or internal corporate efficiency.

Figure 6: TFP growth negative in Spain and Italy

Average growth 1995-2014, percentage year over year p.a.

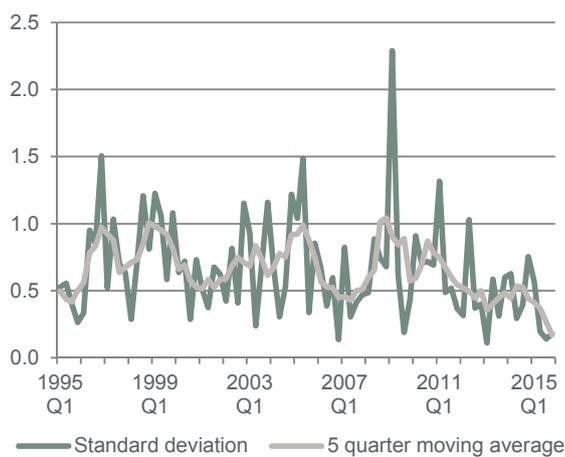


Source: OECD

Overall, both TFP growth and capital deepening, and thus labour productivity gains, have weakened in recent years in all four countries. Labour productivity has been more synchronised recently among the economies considered. The spread of the gains diminished markedly last year and is now (adjusted for short-term fluctuations) at the lowest level in more than 20 years (Figure 7). Convergence of the four largest economies in the euro area has increased in the last twelve months – but productivity growth has converged at a very low level.

Figure 7: Productivity growth converges

Standard deviation in labour productivity growth of the four large euro area countries, seasonally adjusted, percentage quarter over quarter



Sources: OECD, internal calculations

Causes of sluggish productivity growth

Labour productivity determinants

Numerous studies analyse productivity growth based on microeconomic and macroeconomic variables. Frequently identified determinants include company size and age, research intensity, sectoral economic structure, national regulation quality, worker educational level and company internationalisation (its openness to global markets and foreign direct investment).⁵

Theoretically, entering the currency union should have a positive impact on productivity growth convergence of the member countries, as stronger economic integration intensifies capital flows within the joint currency zone and accelerates capital accumulation in countries such as Spain and Italy. Countries with weaker productivity usually catch up with their stronger partners, partly due to a strong linkage via foreign direct investment and corresponding spillover effects.⁶ According to this theory, the productivity gap between Germany / France and Spain / Italy should recently have closed. Figure 2 shows, however, that the opposite is true. An ECB study from 2012 confirms that the establishment of the euro area has not led to greater convergence in productivity.⁷

One possible explanation is that so much capital – from Germany and France, among other countries – flowed into southern European countries in the euro area due to interest rate alignment that its allocation was not entirely efficient. Since funding was no longer scarce, less efficient companies gained access that markets would not normally have given them. There was not sufficient competition for scarce funds that would have occurred had companies been selected according to efficiency considerations.⁸ The effect that the introduction of the euro had on Italian productivity has not been fully explained.⁹

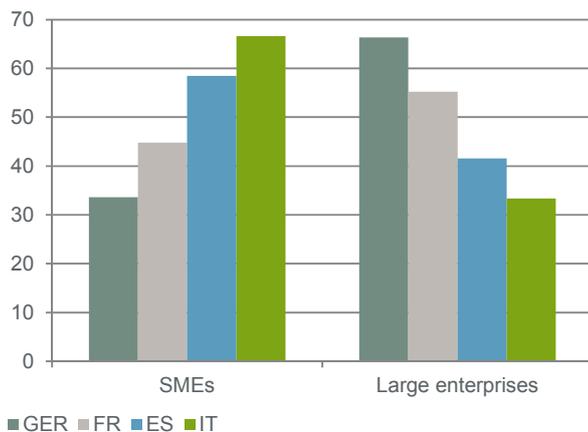
Structural weaknesses of the Italian economy

Italy's weak productivity growth over the past several years has undergone particularly frequent scrutiny. The "Italian Disease" is attributable to factors that include disproportionately burdensome regulation and inefficient public administration. The World Bank's ease of doing business index ranks Italy in only 45th place, behind countries such as Belarus, Kazakhstan and Armenia (Germany and Spain are in 15th and 33rd place, respectively). In particular, the complexity of its tax system and the efficiency of its judiciary earned Italy poor marks from the World Bank. Inefficient regulation hampers the growth of smaller private-sector companies in particular.¹⁰

As a result, the Italian business sector largely comprises small companies and micro-enterprises. Especially in comparison with Germany, small and medium-sized enterprises (SMEs) in the manufacturing sector generate a significantly larger share of gross value added in Italy and Spain (Figure 8). Consequently, large companies with at least 250 employees account for only one-third of value added in Italy, compared to two-thirds in Germany.

Figure 8: Few large companies, focus on micro-enterprises

Share in gross value added in manufacturing sector 2013, percentage



Source: Eurostat

The productivity advantages of large companies over smaller enterprises are not only due to economies of scale. Achieving a specific size not only helps companies attract foreign direct investment, it also helps them acquire funding on favourable terms for own investment, such as sales network expansion and / or access to lower-cost production locations. In addition, large, diversified groups can take bigger risks and invest more intensively in research and development (R&D) than SMEs.¹¹ Italian companies often do not reach the size necessary to increase productivity via these channels. For example, they do not gain the know-how that would spread from foreign direct investment.¹²

Table 1 shows the differences in 2014 R&D expenditures by sector. Admittedly, Italian government and higher education expenditures are comparatively low relative to economic size. The biggest discrepancy, though, is in the business sector. As a ratio of GDP, German enterprises invest three times as much in R&D as do Italian and Spanish companies. Figure 9 illustrates that the Italian economy is largely closed to foreign direct investment. The stocks of both inbound and outbound investment are below average compared to other countries.

Table 1: Companies investing little in research

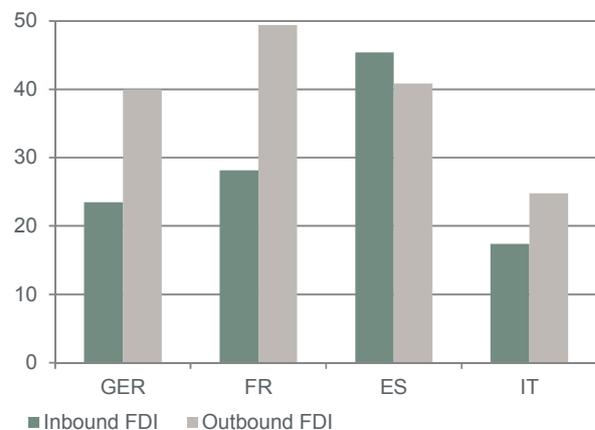
Ratio of R&D expenditures to GDP 2014, percentage

	Business	Government	Higher education	Total
Germany	1.95	0.42	0.49	2.86
France	1.46	0.30	0.46	2.22
Spain	0.65	0.23	0.35	1.23
Italy	0.72	0.19	0.35	1.26

Source: Eurostat

Figure 9: Companies only loosely linked to other countries

Ratio of foreign direct investment stocks to GDP 2014, percentage

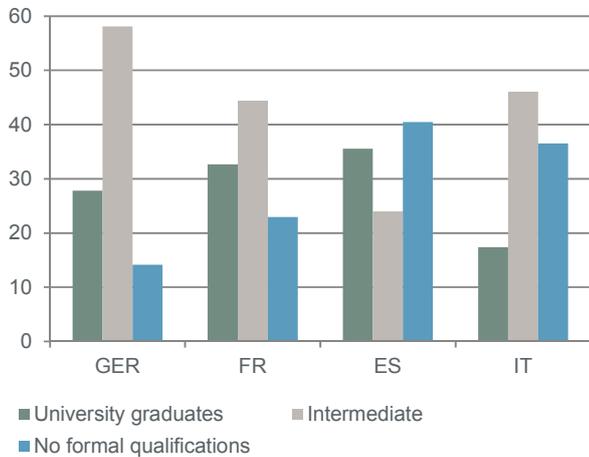


Source: Eurostat

In addition to these structural weaknesses, which are primarily attributable to problems in public administration, Italy's productivity also gains no impetus from human capital. The average workforce educational level has been calculated for 2009 (the most recent data available) based on the EU KLEMS database. In this year, the percentage of highly qualified workers (ISCED levels 5 and 6) was 10 percentage points lower in Italy than in Germany (Figure 10). In contrast, workers with no qualification dominated at 37% compared to 14% in Germany. While the percentage of workers with tertiary education was highest in Spain, it also had the highest share of uneducated workers. However, educational levels have been converging moderately since 2002. The percentage of workers with no qualification decreased by one-fifth in Italy, while the percentage of university graduates increased.¹³

Figure 10: Unequal levels of education

Share of educational attainment in the workforce 2009, percentage



Source: EU KLEMS

Favourable sectoral economic structure in Italy

Different sector mixes between economies could be another factor driving divergences in productivity growth. The industrial sector generally achieves greater productivity growth than the service sector.¹⁴ Among other reasons, industrial production labour can be more readily replaced through use of capital. On the contrary, the value added of many service providers involves above-average labour intensity. This includes cleaning services, hospitality and consulting, for instance. In addition, most R&D investment is driven by industry, and this sector is more heavily impacted by international competition. In contrast, service providers are often oriented towards their domestic market and more heavily regulated, which offers them protection from competition. Focusing on the service sector – and, within this diverse sector, on those industries with particularly low productivity growth – can lead to a permanent

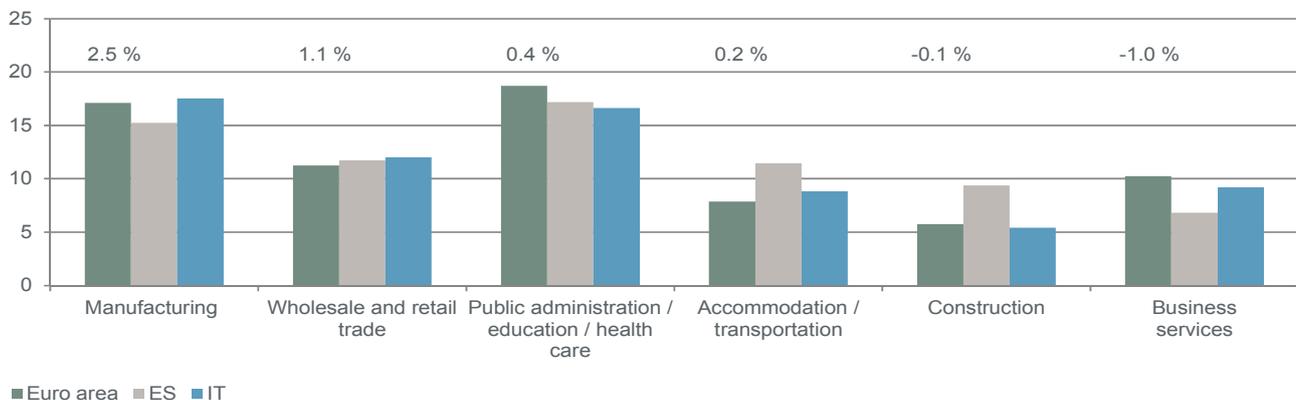
divergence of productivity growth from that of industrial economies.

Figure 11 compares the economic importance of selected industries in Italy and Spain with those of the euro area as a whole. Italy shows a slight preponderance of high-productivity industry. At the same time, labour-intensive business services, which tend to achieve lower productivity growth, are underrepresented. Spain shows an industrial deficit, and the low-productivity construction industry is particularly significant. The overall picture for Spain is mixed, but for Italy, this analysis shows that the productivity gap cannot be attributed to the sectoral composition of value added. This conclusion has also been reached by studies analysing the contribution of sectoral shifts in gross value added to declines in productivity growth.¹⁵

If industry mix is not the determinative factor for low productivity growth, it follows that this growth is lower in the respective sectors than in the euro area as a whole. This is confirmed by a more extensive analysis: Table 2 compares actual annual increases in labour productivity with those that Spain and Italy would have realised had their sectoral economic structure conformed to the euro area average. The table also shows how high growth would have been if these countries had maintained their actual structure but productivity in their industry sectors had grown by as much as the equivalent sectors of the euro area as a whole. Changing its economic structure would have improved Spain's productivity only minimally. In Italy, productivity today would be even lower, meaning that the country boasts a sectoral structure that actually facilitates higher growth. In contrast, if productivity growth in each industry is assumed for both countries to be equal to that reached by the industry in the euro area as a whole, Italy's growth increases fivefold. For both countries, labour productivity growth in the last 20 years would be slightly above the euro area average under this assumption. Italian

Figure 11: Italy no industrial lightweight

Selected industries, share in GVA 1995-2015, percentage in order of productivity growth in euro area, year over year p.a.



Sources: Eurostat, internal calculations

companies are therefore burdened primarily by adverse economic conditions that affect the entire economy.¹⁶

Table 2: Productivity disadvantages span the entire economy¹⁷

Labour productivity 1995–2015, percentage year over year p.a.

	Actual	Assumption 1: Structure as in Euro area	Assumption 2: Productivity as in Euro area
Spain	0.76	0.78	1.20
Italy	0.28	0.21	1.38
Euro area	1.09	/	/

Assumption 1: Sectoral economic structure corresponds to euro area average

Assumption 2: Sectoral productivity growth corresponds to euro area average

Source: internal calculations

Conclusion: Productivity essential for growth

Spain and above all Italy have suffered from low productivity growth in recent years. Despite this, the Spanish economy was growing before the financial crisis. However, the subsequent crisis showed that this was partly due to individual markets overheating and was not sustainable. In contrast, Italy has recorded the lowest growth among founding members since the introduction of the euro.

Increasing productivity is particularly vital for Italy if it is to keep up with the other euro members in the future. The demographic situation there is just as bad as in Germany: The ratio of the working-age population to that aged 65 or older has decreased from 3.3 to 2.3 in the past 20 years (Germany: from 3.6 to 2.3). In Spain, on the other hand, the age dependency ratio of 2.8 is significantly higher than the euro area average of 2.5. Italy's demographics will therefore negatively impact growth for the foreseeable future - making productivity gains all the more important.

Achieving this could involve several approaches. However, Italy has piled up a mountain of debt and is constantly negotiating with the EU Commission on its budget deficit, giving it limited financial leeway. Funds for measures such as tax incentives for R&D or to support SMEs are therefore scarce. Italy is also currently dealing with acute problems in the banking sector that could have worse short-term consequences than productivity stagnation. Investing in productivity pays off in the long run, though, as many economic problems become easier to solve with growth.

Firstly, the non-tradeable goods sector could be deregulated. Giving sectors too much protection from competition can stifle entrepreneurial initiative. Further opening up heretofore protected sectors creates incentives for investment in technologies to improve efficiency. When tight integration with the rest of the economy via inputs exists, such as in the energy sector, this decreases production costs of the business partners in the entire economy at the same time.¹⁸

Secondly, structural reforms of the public administration do not necessarily involve high costs and have an immediate impact.¹⁹ The World Bank ranking shows the need for action here that is limiting growth in the Italian economy. Reforms such as increasing judicial efficiency, and thus legal certainty, dismantling bureaucratic burdens of the tax system or decreasing the much-too-tight relationship between politics and the economy could bring higher private investment.²⁰ A capital markets union could likewise facilitate SME financing, which in Italy depends heavily on the beleaguered banking sector. A rationally designed capital markets union that improves SME access to those markets could accelerate the growth of smaller companies. The analysis has shown that this would trigger a process culminating in greater productivity and growth. ■

¹ Economic output is often considered in relation to the number of workers when calculating labour productivity. However, this calculation is not precise, see OECD (2001), Measuring productivity, OECD manual. Due to, among other things, a different level of part-time work, the average number of hours worked per worker in Germany has decreased by 10% since 1995, compared to less than 3% in Spain. Considering economic output in relation to the number of workers would therefore overestimate productivity growth in Spain.

² The increased capital intensity during the upturn before the financial crisis in Spain can be partly traced back to overheated construction activity. However, the effect of the overheating on the property market should have been small, as the sharp correction in construction investment after the crisis did not disproportionately subdue capital expenditure as reported by the OECD – the decline in Spain was only marginally sharper than in the other three economies considered. According to Eurostat data, commercial construction in Spain is roughly 40% of total commercial capital assets – the aggregate used by the OECD to calculate capital intensity. The capital deepening of the Spanish economy until 2008 is therefore not entirely attributable to excesses prior to the crisis.

³ The OECD calculates capital expenditure in an economy by utilising rental fees, either those actually paid by renters to property owners, such as for commercial buildings or vehicles, or those that property owners hypothetically pay to themselves when they themselves utilise a capital good, see OECD (2001), loc. cit.

⁴ The OECD calculates capital costs for a given level of quality and takes quality improvements in capital goods, such as computers, machinery or means of transport, into account through increasing capital costs, see OECD (2001), loc. cit., OECD (2016), OECD Compendium of productivity indicators 2016.

⁵ This article does not involve a comprehensive overview of the literature on this topic but is instead mostly limited to those analyses most relevant to the problems in Italy.

⁶ See Burda, M. and J. Hunt 2001, From reunification to economic integration: Productivity and the labour market in Eastern Germany, Brookings Papers on Economic Activity 2001, No. 2, p. 1–71.

⁷ See Sondermann, D. 2012, Productivity in the euro area – any evidence of convergence? ECB Working Paper Series No. 1431.

⁸ See Calligaris, S. et al. 2016, Italy's productivity conundrum: A study on resource misallocation in Italy, European Commission, European Economy, Discussion Paper 30.

⁹ Pellegrino, B. and L. Zingales (2014) dispute the argument that the currency union is the cause of Italy's slow productivity growth, see Pellegrino, B. and L. Zingales 2014, Diagnosing the Italian disease, Chicago Booth Working Paper.

¹⁰ See Dall'Olio, A. et al. 2014, Enterprise productivity: A three-speed Europe, ECB Working Paper Series No. 1748 and Giordano, R. et al. 2015, Does public sector inefficiency constrain firm productivity: Evidence from Italian provinces, IMF Working Paper 15/168.

¹¹ See BPI, CDP, ICO, KfW 2015, SME investment and innovation – France, Germany, Italy and Spain.

¹² See Wagner, J. 2011, Productivity and international firm activities: What do we know?, IZA Policy Paper 23 and Deutsche Bank Research 2016, Productivity in the Euro-area, Global Economic Perspectives.

¹³ The PIAAC (Programme for the International Assessment of Adult Competencies) results also indicate an improvement in the general educational level of adults, see OECD 2015, Education at a glance 2015.

¹⁴ However, measuring productivity is problematic, especially for the service sector. For example, a shorter waiting time in a fast food restaurant, the consumer convenience of a 24-hour convenience store or the effects of digitalisation cannot be adequately statistically measured. As a result, tertiary sector productivity gains can be underestimated.

¹⁵ See Codogno, L. 2009, Two Italian puzzles: Are productivity growth and competitiveness really so depressed? Treasury Department, Ministry of Economy and Finance, Working Paper 2009-2 and Codogno, L. and F. Felici 2009, Assessing Italy's reform challenges: What do growth accounting and structural indicators say? Treasury Department, Ministry of Economy and Finance, Working Paper 2009-8.

¹⁶ See Pellegrino, B. and L. Zingales 2014, loc. cit.

¹⁷ Since real labour productivity in Table 2 is measured as real gross value added per hour worked, while the OECD measures real labour productivity based on GDP, there are slight deviations in the data on macroeconomic productivity growth, such as between Table 2 and Figure 6.

¹⁸ See Arnold, J., Nicoletti, G. and S. Scarpeta 2008, Regulation, allocative efficiency and productivity in OECD countries: Industry and firm-level evidence, OECD Economics Department Working Papers 616 and Hornberg, C. 2014, Italy is different: Beyond labour market reforms, Focus on Economics No. 57, May 2014.

¹⁹ See Dall'Olio, A. et al. 2014, loc. cit. and Rouimi, Y. 2016, Reviving productivity: Italy's toughest battle yet, Societe Generale Cross Asset Research, Economics, On Our Minds.

²⁰ See Deutsche Bank Research 2016, Italy: Keep both eyes on the October referendum, Focus Europe: Not what it seems, 13 May 2016.