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KEEPING THE EDGE:
COMPETITIVENESS
FOR INCLUSIVE GROWTH

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Better Policies

Germany: Keeping the Edge

COMPETITIVENESS FOR INCLUSIVE GROWTH

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Foreword

Germany's economy has held up well in the face of the global economic and financial crisis, reaping impressive gains from its far-reaching labour market and other structural reforms in the early part of the 21st century. Despite the harsh external economic environment, Germany has managed to reduce unemployment significantly while buttressing the long-term sustainability of its public finances.

Impressive as Germany's reform track-record may be, the country cannot afford to become complacent. Germany's powerful export engine and improving fiscal management have served it well, but they should be complemented with policies that support sustainable and inclusive growth, ensuring that prosperity is shared by all. Such policies will be critical as the country enters an advanced stage of demographic ageing over the next two decades.

Some policy initiatives can target multiple objectives. For instance, improving childcare facilities and reducing marginal tax rates on second earners would raise full-time female labour market participation. In turn, this would help narrow the gender pay gap, while boosting growth and making up much, if not all, of the ageing-related decline in labour supply. Shifting some of the tax burden from labour to real estate, to polluting activities and to consumption would support growth and further improve labour supply while making Germany a greener, cleaner place. Efforts to boost competition and productivity in services could also have an economy-wide, growth-enhancing impact while dampening consumer price increases. Policies are also needed to create a more dynamic and innovative SME sector and to spur entrepreneurship in order to lay the foundations for future growth.

Achieving high growth rates in the face of an ageing society will help sustain the role of social benefits in moderating inequality and addressing poverty while allowing the country to maintain high quality infrastructure and key public services such as health and education.

The new Federal government under the leadership of Chancellor Angela Merkel has announced important steps to reform its economy and support the European recovery. Drawing on the expertise and experience of OECD member countries, this note sets out key policy priorities to boost productivity growth and social inclusion. We look forward to supporting Germany in this new phase of its economic, social and environmental development.



Angel Gurría
Secretary-General, OECD

1. Unlocking Stronger, Cleaner, Fairer and Better Balanced Growth

In the face of the global financial crisis, the German economy has proved remarkably resilient, outperforming other large, high-income European economies. Unemployment has reached post-unification lows even as job losses mount across Europe, given ambitious and timely labour market reforms and other policy reforms. Concerted efforts will be needed, however, to ensure continued, sustainable, broad-based improvements in living standards, particularly in light of emerging demographic, social and environmental challenges. Germany must continue to lead the way on reforms, laying the foundations for stronger and more sustainable growth across Europe.

The beginning of Germany's second grand coalition of the 21st century is an appropriate juncture to take stock of the country's progress since the turn of the century, and the challenges it faces as it looks to the future. Indeed, three aspects of the coalition agreement underpinning the government's mandate serve to highlight the complexities and trade-offs inherent in simultaneously fulfilling the country's social, economic and environmental aspirations: i) introducing a minimum wage without undermining employment prospects (**Chapter 3**); ii) improving the incomes of pensioners without undermining fiscal sustainability (**Chapters 2 and 4**); and iii) reducing the cost of transitioning towards renewable energy without undermining efforts to reduce carbon emissions (**Chapter 7**).

Addressing these challenges while maintaining a responsible fiscal stance will require the deepening and extension of structural reforms that generate stronger, cleaner and fairer economic growth. In particular, boosting female participation in the labour force (**Chapter 3**) and further upgrading skills (**Chapter 5**) could largely offset the negative impact of demographic ageing on growth. The German growth engine would also be better supported by liberalising the services sector (**Chapter 6**), improving the transport infrastructure (**Chapter 10**) and providing better support for innovative start-ups and R&D (**Chapter 8**). In this respect, the new Government's adoption of a spending target of 10% of GDP on education and R&D is to be welcomed.

The proposed reforms would not only boost Germany's growth prospects, but would strengthen overall demand in the euro area and support current account rebalancing. Past current account surpluses in Germany have also led to large capital outflows and exposed domestic financial institutions to substantial losses on foreign exposures during the crisis. The government has taken several legislative initiatives recently to strengthen the resilience of the financial sector, but further action is required at national and European levels (**Chapter 9**).

Recent improvements in living standards

The German economy has performed exceedingly well given the context. GDP *per capita* has risen above the pre-crisis level and has converged to that of the best-performing OECD countries. Unemployment is lower now than before the crisis, having fallen from 11.3% in 2005 to 5.3% in July 2013, well below the OECD average of 8%. Falling unemployment helped eliminate government deficits by reducing social spending needs and raising tax revenues. This improvement in public finance was supported by the introduction of a "debt brake" rule adopted in 2009. This has in turn helped maintain financial market confidence.

Advances in German living standards have been sustained and impressive. According to the OECD well-being framework, which encompasses eleven domains covering both material and non-material living conditions, German households enjoy a relatively high level of economic welfare. Germany performs above the OECD average in jobs, earnings, wealth and housing. Moreover, non-monetary measures of quality of life are high by OECD standards, notably with respect to environmental quality and personal security - two areas where Germany is among the top performers. Germans also have good social connections. However, these welfare outcomes are not equally shared. Inequality is one of the key challenges that should be addressed by, among other actions, improving education and skills.

Sustaining the competitiveness of the export-oriented manufacturing sector

Germany's dynamic export engine has underpinned its high living standards. In recent years, German manufacturing exporters have continued to gain market shares while expanding into new markets. Improved price competitiveness, innovation in sectors with long-standing comparative advantage and specialisation in the production of those investment goods demanded by fast-growing emerging economies have all played important roles. The good performance of the manufacturing sector has helped Germany attain a relatively high rate of labour productivity growth, 1.1% annually between 2000 and 2012. This growth rate is similar to that of other countries with high productivity levels, such as Denmark (1.3%) or the Netherlands (0.9%), but below that of the United States (1.5%).

Domestic value-added, that is, the difference between final production and input values, accounted for 73% of German exports in 2009, mostly in manufacturing. Germany is now the world's second largest exporter in value-added terms after the United States. It is also a major exporter of intermediate goods used in third country exports. The competitiveness of firms in economies with which Germany is closely integrated, notably in the EU, is thus important for the competitiveness of German firms themselves. The German economy is also particularly vulnerable to the evolution of demand in European and overseas markets. This underlines the need to ensure a wider positive European economic performance and for the European outlook to be kept as a priority issue on the German agenda.

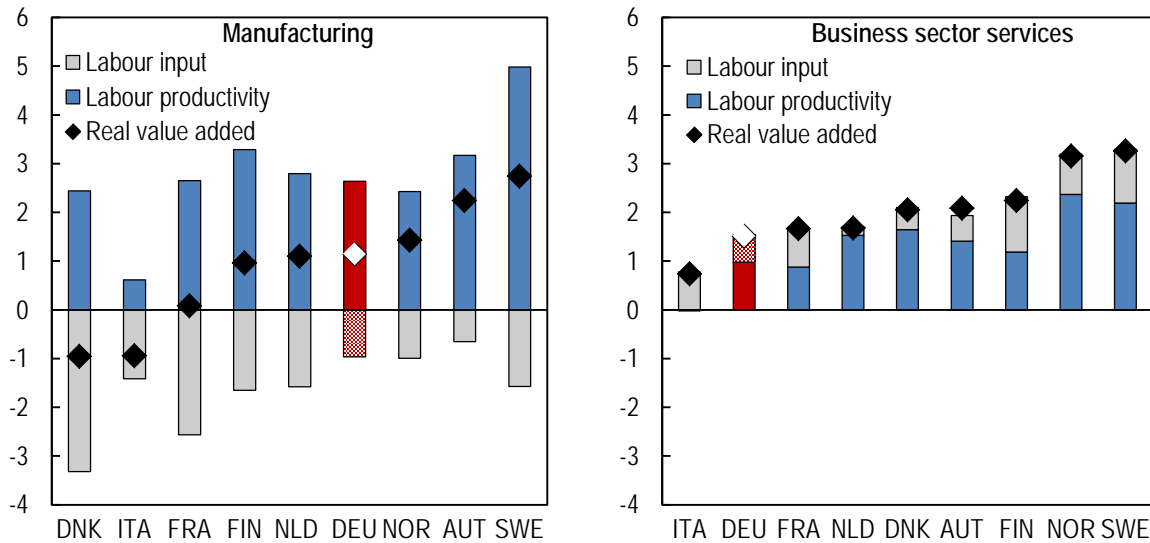
Making the services sector more dynamic

The success of the export-oriented manufacturing sector has relied on major improvements in productivity (Figure 1) and substantial cost containment. On the other hand, the services sector has lagged behind, with **rates of growth of productivity and value added below those of comparable European economies**.

Indeed, as a consequence of its manufacturing focus, compared to other EU countries, Germany has a relatively low services content as a percentage of its gross exports, although services still amount to almost 50% of gross exports. Throughout OECD economies, services are increasingly used to differentiate, customize and upgrade manufacturing products, underscoring the economy-wide importance of an efficient services sector. In the case of transport equipment, for example, the share of services inputs increased by more than one third between 1995 and 2009.

Figure 1: Decomposition of real value added growth

Average annual growth rates, 2000-2011 or latest year available



Note: Labour productivity is calculated as real value added divided by total hours worked. Business sector services comprise the following ISIC Revision 4 categories: Wholesale and retail trade, repair of motor vehicles and motorcycles; Transportation and storage; Accommodation and food service activities; Information and communication; Financial and insurance activities; Real estate activities; Professional, scientific and technical activities; Administrative and support service activities, but excluding real estate activities.

Source: OECD STAN database.

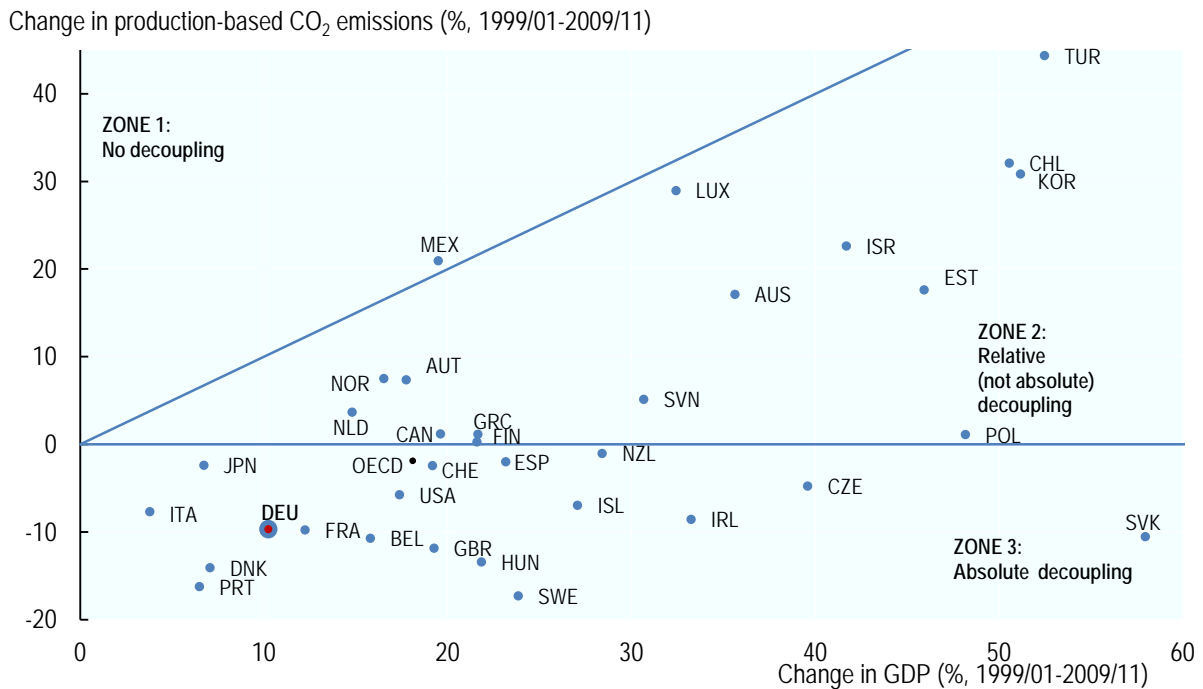
Stringent regulation in the professional services sector and weak competition in some network services further constrain German productivity growth. Removing such barriers to development of the services sector, including a broadening of the remit of innovation policy (**Chapters 6 and 8**), can therefore not only strengthen activity in domestic-oriented sectors but also boost manufacturing performance further, allowing Germany to consolidate its position at the heart of many Global Value Chains. **The potential benefit that could accrue from aligning product market regulation in the German services sector to international best practice would represent a gain in labour productivity of about 10% over ten years.**

Greening growth

Despite significant reductions in greenhouse gas (GHG) emissions over the past two decades, with GDP growth having become decoupled from CO₂ emissions (Figure 2), **Germany remains one of the largest GHG emitters in the OECD**, partly due to an emission-intensive energy mix and its large manufacturing sector (**Chapter 7**). Germany has set ambitious targets for further GHG abatement that go beyond the EU requirements for climate change mitigation. Achieving these objectives will require equally ambitious policy efforts and can also underpin economic growth, notably by reducing the vulnerability of the economy to energy price volatility and by fostering innovation. Better carbon pricing and an improved regulatory environment can play important roles in this respect.

Figure 2: Production-based CO₂ emissions vs. GDP

Production-based CO₂ emissions vs. GDP, OECD countries



Note: 'Absolute decoupling' means that positive economic growth is achieved with reductions in emissions. 'Relative decoupling' stands for an increase in emissions, but at a slower pace than GDP growth. 'No decoupling' means that emissions grow faster than GDP.

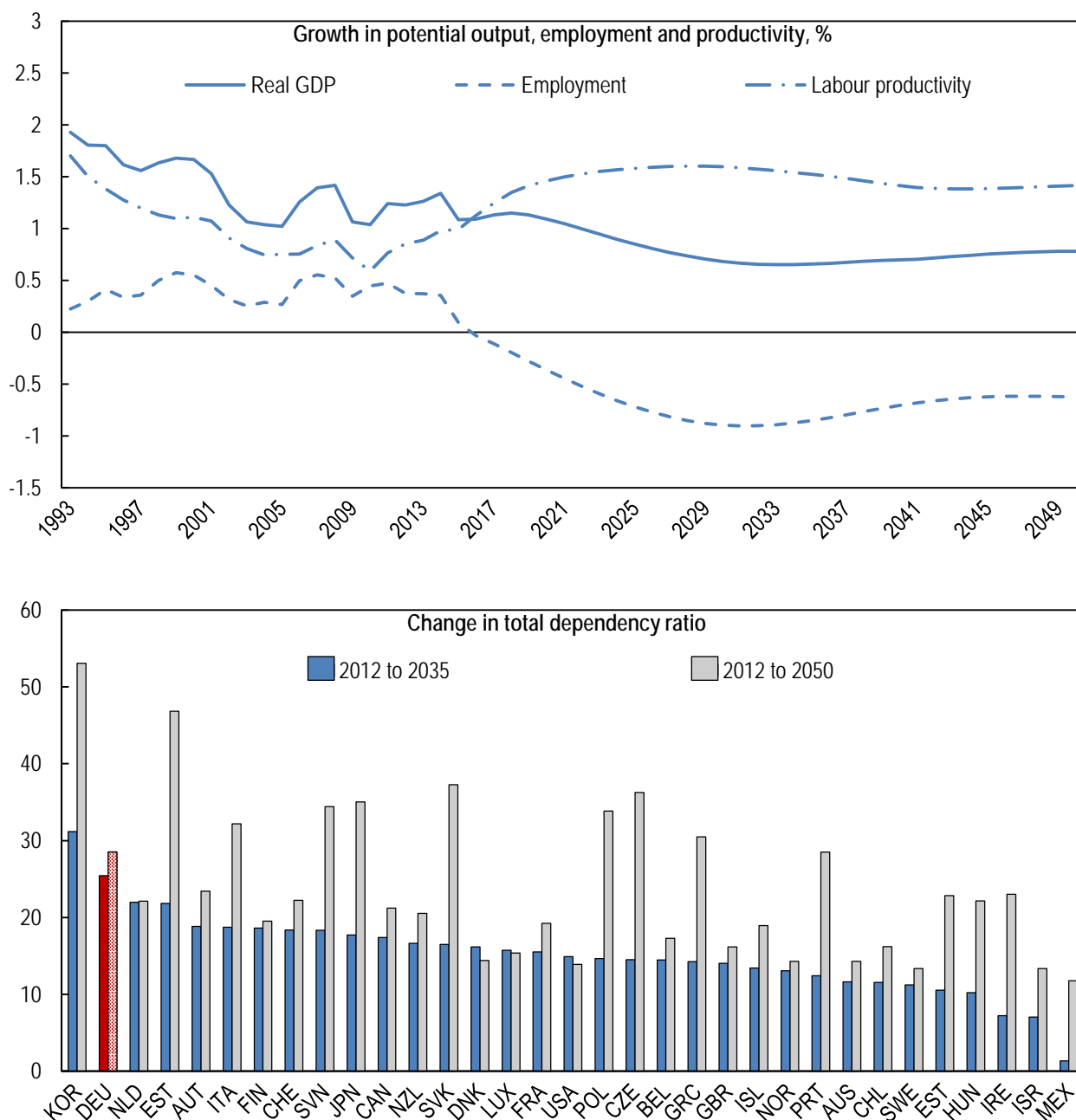
Source: OECD; IEA; the World Bank World Development Indicators for Brazil, Russian Federation, Indonesia, India, China and South Africa.

Adaptation needs to be an integral component of countries' climate change policies. In particular, recent floods have underlined Germany's vulnerability to inclement weather events and the consequent need to adapt administrative capacity and contingency planning to better prevent and mitigate disaster risk (Chapter 10).

Better use of available labour can support growth, underpin public finances and mitigate the impact of an ageing population

The economy's potential growth rate is set to weaken considerably by 2035 as a result of population ageing, which is setting in earlier than in other OECD economies (Figure 3). If current population patterns persist, the proportion of Germans aged over 65 will rise from 20.6% in 2011 to 32.3% in 2050, while **the working age population will contract by 14.8 million (28%)**. Since an increasing share of the population will be inactive, growth in GDP *per capita* will slow down. It is therefore necessary to introduce measures that help dampen the impact of demographic change on *per capita* income and living standards while ensuring the sustainability of public social expenditures. This requires changes in a broad range of policy areas, to boost both productivity and labour participation.

Figure 3: Potential growth and ageing effects, 1993-2050



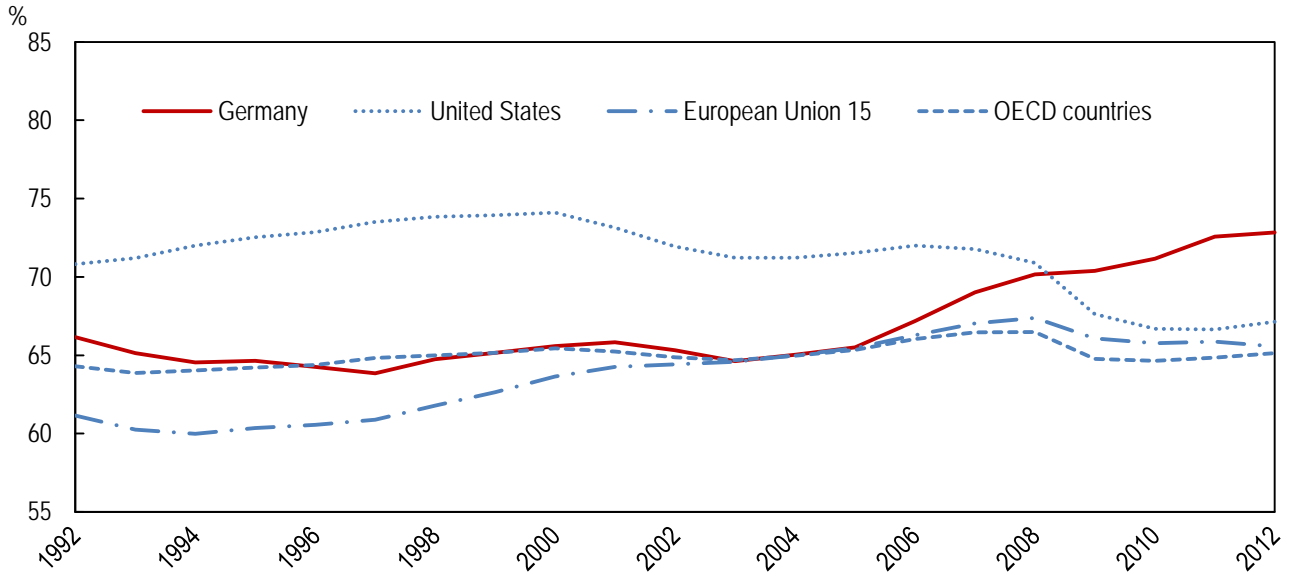
Note: Labour productivity is calculated as real GDP divided by total employment. The total dependency ratio is population aged under 15 or 65 and over divided by population aged 15-64 (working age).

Source: OECD Population Statistics database and Economic Outlook database.

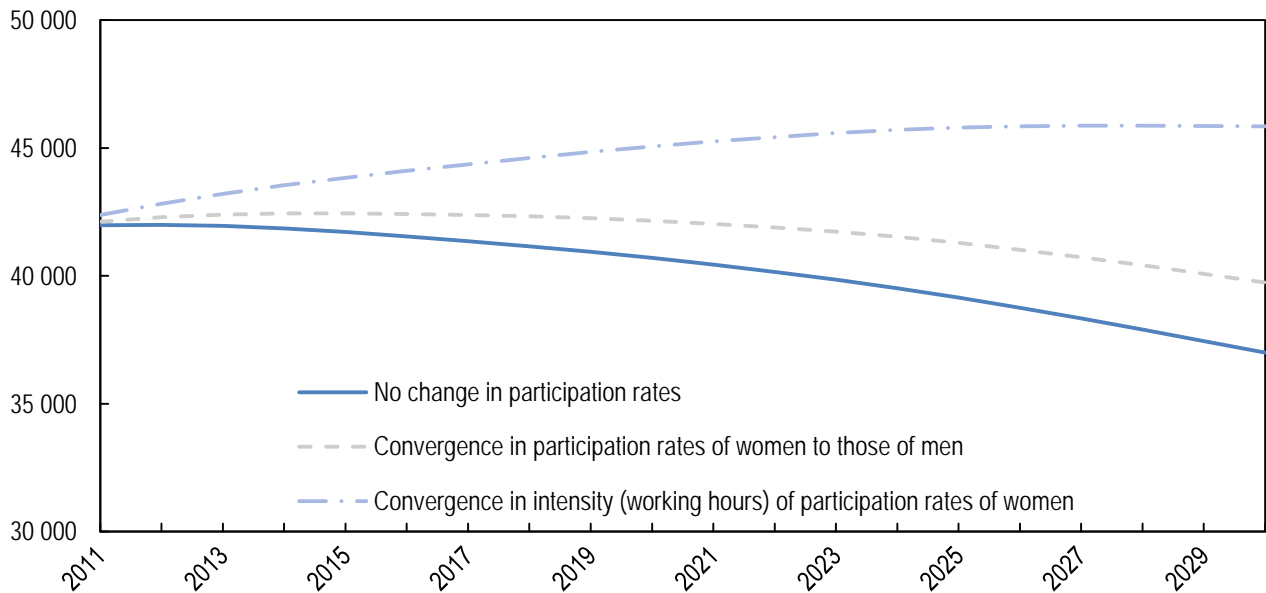
At the foundation of the improved price competitiveness of German exports, and macro-economic out-performance more broadly (including German’s employment record), were labour market reforms introduced from 2002 onwards (**Chapter 3**). These reforms strengthened work incentives for the unemployed and improved job matching, thereby increasing labour supply and helping moderate wage growth. German companies, primarily in the manufacturing sector, benefited from greater labour flexibility, such as having the option to temporarily reduce working hours and salaries in the face of weak demand.

Figure 4: High employment rates belie scope for better labour utilisation

**A. Evolution of employment rates^a
1992 to 2012**



**B. Projected size of labour force, thousands of people^b
2011 to 2030**



a) Source: OECD Employment and Labour Market Statistics Database (<http://dx.doi.org/10.1787/lfs-lms-data-en>).

b) The labour force projections are based on population projections for persons aged 15-64 years, as reported by the OECD Demography and Population Database. Source: OECD (2012), *Closing the Gender Gap*.

Germany now has one of the highest employment rates in the OECD (Figure 4a), and there are growing labour shortages, notably for skilled labour. On the other hand, hours worked per employed person are among the lowest in the OECD, mostly reflecting the relatively low incidence of – and high barriers to – full-time labour market participation by women. Eliminating these barriers through policies that help parents better balance their work and family lives, for instance, could significantly increase labour supply (**Chapter 4**). **In fact, if female labour participation – in terms of full-time equivalent rates – was to converge fully with that of men by 2030, this could more than offset the projected ageing-related decline in labour supply over this period** (Figure 4b), potentially adding more than 0.5% to the GDP annual growth rate. If well designed, such policies could also help reduce the gender earnings gap, which is the third-widest in the OECD. Further progress on the Early Childhood Education and Care Agenda is particularly important in this regard.

Although employment rates for workers aged more than 55 years have increased substantially over the past 10 years, as pension reforms improved incentives to work for longer, they remain below the best-performing countries. Germany has also become an increasingly attractive destination for immigrants from other European countries seeking jobs; a trend that can help offset the impact on labour supply of an ageing population. There is significant scope to increase labour market participation among these populations.

To further support employment, notably for low-income groups, there is also scope within the existing fiscal framework to **reorient the tax burden from labour to real estate, pollution and consumption** in order to spur growth while using public sector efficiency savings to boost equality enhancing social investment (**Chapter 2**).

Upgrading skills and promoting entrepreneurship

Young Germans may not have suffered the negative impacts of the economic crisis experienced by their European neighbours, but there is still scope for education reforms to improve employability among younger age cohorts (**Chapter 5**). For example, efforts to boost tertiary education opportunities among economically vulnerable populations, including through facilitating transition from the high-performing vocational system, could help tackle social exclusion, reduce inequality and improve employment outcomes. **As the latest PISA results show, educational performance among 15-year-olds remains strongly determined by the socioeconomic background of the parents.** The report also showed that Germany has consolidated the major gains in educational performance observed in the 2006-9 period. But improvements can still be made, for instance by addressing Germany's high incidence of grade repetition.

Despite Germany's strong vocational training tradition, low skills are also a concern among an important minority of the population. As shown in the recent OECD study on adult skills (PIAAC), **a high proportion of Germany's adult population is under-skilled compared to other OECD countries.** Out of 24 OECD countries in the PIAAC study, some 17.5% of German adults between ages 15 and 65 attain only Level 1 or below in literacy proficiency¹, compared to an average of 15.5%. The incidence of low literacy is particularly high among some migrant populations.

More can also be done to **promote entrepreneurship, especially among young people**, by enhancing support for entrepreneurial networks and the venture capital market, by integrating experience-based methods into enterprise education and developing top-tier business schools. Promoting entrepreneurship among young people would also help lift the relatively low youth self-employed rate (**Chapter 8**).

¹ Level 1 is the lowest one in the performance ranking. At this level, individuals are supposed to read brief texts on familiar topics and locate a single piece of specific information identical in form to the information in the question.

Ensuring growth is inclusive

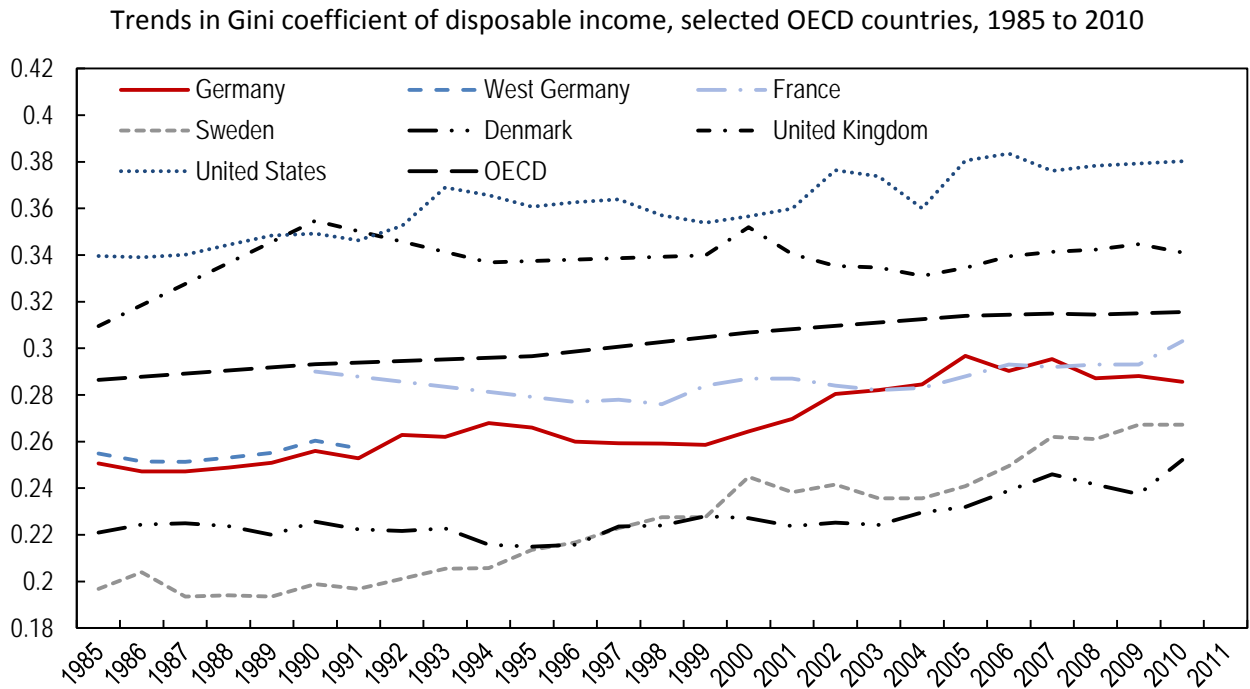
Although German income inequality rose steadily through the early 2000s (Figure 5), this trend appears to have moderated in recent years, and the country remains more equal than the OECD average. The pre-crisis trend increase in income inequality was largely driven by widening gaps in wages, self-employment income and capital income. Growth in non-standard (“atypical”) employment such as mini-jobs, part-time and temporary work also contributed.

Thanks to the robust labour market, and in stark contrast to many other European countries, German household income has increased since 2007, benefitting incomes at both ends of the scale. The redistributive impact of taxes and social benefits has also helped. According to the most recent data, the German tax-benefit system reduces inequality among the working-age population by almost 30%, a larger impact than in most OECD countries.

Nonetheless, **the large reduction in unemployment since 2005 has not been accompanied by a significant decline in poverty.** In fact, the incidence of relative income poverty has continued to grow over the past decade. The mobility of workers from low to higher wages has also declined and inequality in the lower half of the individual labour earnings distribution, as measured by the earnings of the fifth decile relative to the first decile (the 5:1 decile ratio), is well above the OECD average.

The new coalition government has agreed to introduce a nationwide minimum wage of EUR 8.5 per hour, or about half of the median wage, to be phased in between 2015 and 2017. When fully implemented (in 2017), the ratio of the German minimum wage to national median full-time wages will be in the middle range of OECD countries. In principle, the minimum wage will boost the incomes of low earners. **But it will be essential to monitor its impact and adjust it so as to avoid negative effects on the employment prospects for low-skilled workers, particularly young people and those living in less developed regions of the country (Chapter 3).** The government has also announced a boost to pensions, although the measure’s suitability for poverty-alleviation is limited (Chapter 2).

Figure 5: Income inequality rose until the mid-2000s



Notes: The Gini coefficient ranges from 0 (when all people have identical incomes) to 1 (when one person has all the income). Market incomes are labour earnings, income from capital and savings. Disposable income is market income plus social transfers less income taxes. Incomes are adjusted for household size. Data refer to the total population.
 Source: OECD Income Distribution Database, via www.oecd.org/social/inequality.htm

Despite scoring highly on most of the eleven dimensions considered in the OECD well-being framework, inequalities in outcomes are slightly higher than the OECD average and are closely linked to educational attainment and income levels. Relatively speaking, for instance, Germany registers high socio-economic differences in health outcomes: 77% of the richest households report a very good or good health status, but only 51% of the poorest do so.

2. Making Fiscal Policy more Growth-, Equity- and Environment-friendly

Germany has made considerable progress in consolidating its government finances. Going forward, Germany is faced with the challenge of maintaining fiscal sustainability while supporting growth, equity and environmental objectives. This will require freeing resources to finance growth-enhancing and social investment by improving the efficiency of existing expenditures. It will also require tax reforms to reduce distortions and re-orient the tax burden away from labour.

The introduction of the “debt brake” and top-down budgeting rules by the federal government has helped to withdraw the fiscal stimulus triggered by the crisis, reducing the cyclically-adjusted government deficit from 3.5% of GDP in 2010 to 0.3% by 2012. The “debt brake” requires the central government to limit its structural deficit to 0.35% of GDP from 2016, and the *Länder* to balance their budgets in structural terms from 2020. This approach should see the ratio of government debt to GDP fall gradually while allowing automatic stabilisers to work fully.

Previously legislated pension reforms have also improved the long-term sustainability of government finances, limiting the projected increase in ageing-related government spending over the next 40 years. Public pension expenditure is expected to increase from its current level (under 11% of GDP) to 13% of GDP by 2050. Population ageing will also put pressure on health spending, with implications for other government expenditure.

The government plans to increase public pension benefits through four main measures: first, so-called “pensions for mothers” will be extended. There will be extra pension credits for women who had children before 1992. Second, penalty-free early retirement two years before the legal retirement age (currently 65 years, rising to 67) will be introduced as long as the person has a minimum contribution record of 45 years. Third, a minimum pension of up to EUR 850 per month will be introduced after a contribution record of 40 years. Fourth, pensions for people with partial disability will be raised.

These measures will raise public pension expenditure, pushing up the tax wedge on labour to finance it in the medium-term. They are also generally not well targeted to alleviating poverty risks among pensioners. As a result of past pension reforms, old-age poverty is expected to rise significantly in the next 20 years and may therefore give rise to further spending pressures. A review of these proposals is in order to ensure their consistency with social and political objectives. It would also be preferable for any additional pension costs, especially those targeting lower income households, to be funded via general government revenue, rather than additional social security contributions, as currently proposed. Moreover, incentives to continue working at higher ages need to be strengthened.

Making room for growth and equity enhancing spending

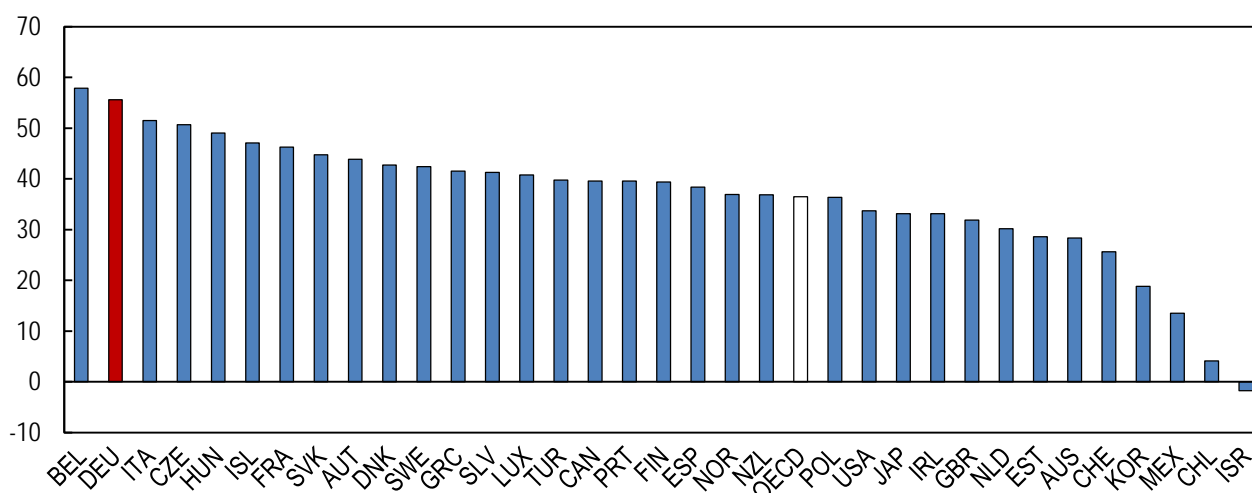
Public funding for the provision of key services, such as childcare and infrastructure, will require more resources. Public investment has fallen below the level necessary to maintain existing infrastructure. In particular, sub-national governments (which account for around 75% of total public investment) have responded to fiscal constraints by cutting investment to maintain spending on existing services. Many *Länder* and local governments now face difficulty in trying to maintain service provision and adequate investment while bringing their finances into line with the requirements of both the “debt-brake” rule and legislation adopted in July 2013 pursuant to the “European Fiscal Compact” (*Fiskalvertrag*).

Continuing on a sustainable path for public finances requires new spending needs to be financed by cuts in less urgent spending programmes, reaping efficiency gains and increased revenues. Efficiency improvements can free substantial resources. Savings could come from improved co-ordination across levels of government, as envisaged for instance under the Federal Government programme “Network-Based and Transparent Administration”. The federal and state governments have also launched a new joint initiative, the “National Process Library”, to foster organisational interoperability between administrations, contributing to cost savings. Further efficiency gains could be generated through the re-allocation of the tasks of administering and collecting tax revenues from the “Länder” to the federal government. There is also scope for making the financing of healthcare more efficient. In particular, private health insurers could be included in the financing system based on the central health fund to strengthen competition among health insurers.

Scope for a greener, fairer and simpler tax system

The tax burden on labour is high, reflecting high social security contribution rates, while recurrent taxes on immovable property and consumption taxes contribute less to revenues than in most OECD countries. Shifting the tax burden from labour towards immovable property and consumption would support labour supply and strengthen economic growth. In particular, narrowing the scope of the lower VAT rate would reduce distortions and administrative and compliance costs. Taxes on residential property could be increased and more closely aligned with the tax burden on other assets. Basing these taxes on recent valuations – with well designed adjustments for lower-income households – would make the system fairer and more effective. Increased revenue from these taxes could then be used to lower the tax burden on labour, particularly for low-income households. Work incentives also need to be strengthened for second earners, who currently face one of the highest marginal tax rates in the OECD (Figure 6; and chapters 3 and 4). This could be done by introducing mandatory health insurance premiums for non-working spouses and by reforming joint family income taxation.

Figure 6: Marginal tax wedge on second earners, % of labour costs, 2012



Note: The marginal tax wedges shown in this figure are calculated as a simple average of three cases. In each case, the primary earner has a salary equal to the average wage, and the couple has two children. What varies is the initial level of earnings for the second earner: 0%, 33% and 67% of the average wage in the three cases.

Source: OECD (2013), *Taxing Wages*.

At 2.2% of GDP in 2011, revenues from 'green' taxes in Germany are in line with the OECD average. There is further potential, however, to eliminate environmentally harmful tax expenditures to generate substantial efficiency gains and benefit both government finances and the environment (see Chapter 7). Like many other countries, Germany taxes diesel substantially less than gasoline – not only per litre, but also in terms of energy and CO₂ content – which is not justified on environmental grounds. Also, the tax treatment of personal road transport tends to encourage car use over public transport, as does the lack of tolls for passenger cars on German highways. Moreover, existing tax relief for energy-intensive industries should be reconsidered.

Key OECD Recommendations

- **Maintain the current fiscal stance** to further lower the public debt ratio, while allowing automatic stabilisers to function, in line with the “debt brake rule”.
- **Review the design of the pension system** to ensure effective protection against old-age poverty while maintaining financial sustainability and promoting later retirement.
- **Improve public sector efficiency**, notably by improving co-ordination across levels of government. Transfer the tasks of administering and collecting tax revenues from the “Länder” to the federal government.
- **Lower the marginal income tax burden for second earners.** Introduce mandatory health insurance premiums for non-working spouses and reform joint income taxation.
- **Shift the tax burden from labour to real estate and environmental externalities as well as consumption.**

3. Preparing the Labour Market for New Challenges

The outstanding performance of the German labour market during the crisis illustrates the benefits of past labour market reforms in strengthening work incentives, improving job matching and increasing flexibility in working hours. Germany's unemployment rate is one of the lowest in the OECD, and its employment rate is among the highest. However, Germany needs to address growing duality and introduce further reforms to counter the ageing-related decline in the labour supply.

Maintaining competitiveness while tackling inequality

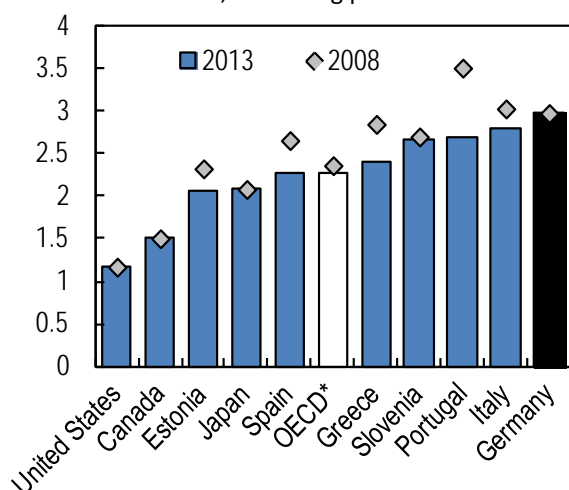
A prolonged period of substantial wage moderation and an increase in productivity has helped strengthen Germany's international competitiveness. However, despite sustained employment growth and a large drop in unemployment – largely brought about by the far-reaching labour market reforms in the mid-2000s – income inequality and the risk of relative poverty have not declined markedly. The substantial increase in the number of “mini jobs” and other forms of low-paid and precarious work has countered the positive impact of the large reduction in unemployment since 2005 on reducing inequality. Maintaining competitiveness while tackling inequality will require employment protection reforms.

In contrast with many other OECD countries, Germany did not reform rigid employment protection legislation (EPL) for open-ended contracts in recent years and now has the most stringent EPL for such workers in the OECD (Figure 7). Although these rigid rules may have helped preserve jobs during the recession, they risk hampering German competitiveness going forward by limiting labour reallocation from less to more productive firms and sectors. Moreover, combined with protection for temporary contracts which is below the OECD average, this risks exacerbating labour market duality, as reflected in the growing share of fixed-term contracts, especially through temporary agency work. To address these issues, consideration should be given to unified job contracts – with the degree of protection rising with tenure. Another option would be to simplify procedures for redundancy payments for open ended contracts, which tend to create legal uncertainty.

Figure 7. Employment protection legislation and temporary agency workers

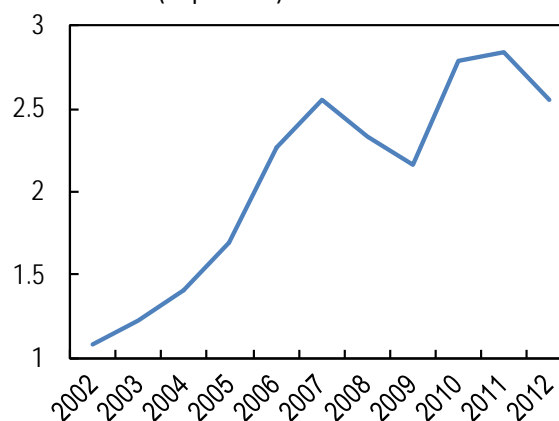
A. Protection of permanent workers against individual and collective dismissals

Scale 0-6, increasing protection



B. Temporary Agency Employment in Germany

Employment subject to social security contributions (in percent)



* Unweighted average for OECD.

Source: OECD Employment Outlook 2013 and Bundesagentur für Arbeit, Sozialversicherungspflichtige Beschäftigte

Unlike the majority of EU countries, Germany has no national minimum wage. Instead, it has traditionally relied on collective agreements to set minimum wages, which may differ across sectors and regions. The new government has committed to phase in a nationwide minimum wage of EUR 8.50 per hour between 2015 and 2017 as a way to limit the fall in wages in the low-pay sector. This will place the German minimum wage at a similar level in absolute terms to those of other European countries such as Belgium, France and the Netherlands, but it will be in the middle range of OECD countries relative to median full-time wages. Although the minimum wage is unlikely to have a major negative effect on employment, it could result in job losses in some low-pay sectors and for inexperienced and low-skilled workers.

There are also plans to create a commission to propose future adjustments of the general minimum wage. Members of the commission will be nominated by social partners and the commission will be able to consult independent experts with no voting power. It would be preferable for independent experts to be included within the commission as they can provide a broader perspective on, for instance, the impact of the minimum wage on the unemployed. Such an independent commission could have recommended the initial level of the minimum wage. The commission should also discuss future adjustments to the rate and the desirability of introducing differential rates or exemptions to ensure that the employment prospects of certain population segments, notably youth, are not undermined. In particular, consideration should be given to introducing a lower minimum wage for youth as well as for apprentices, as is the case in a number of other OECD countries.

Increasing labour supply

Germany's population faces rapid ageing. By 2050, almost one in three Germans (32.3%) will be aged 65 and over (20.6 % in 2011) and, under current employment patterns, the working age population (15-64) is projected to have fallen by 14.8 million. This will weaken economic growth and affect the sustainability of public social expenditures. Reforms are therefore required to boost labour supply by extending working lives, raising incentives for female full-time labour participation, encouraging labour migration and fostering the integration of migrants.

The effective age of retirement has been increasing over the past 10 years, largely following the phasing out of early retirement and special unemployment benefit schemes for older workers. The employment rate of workers aged 55-64 increased from 52.3% at end-2007 to 62.0% at end-2012, 6 percentage points above the OECD average but below Switzerland, Norway, Sweden, New Zealand, and Iceland, where older worker employment rates are above 70%. There is still room, therefore, for improvement through reforms to eliminate remaining financial disincentives to working longer, to promote greater training opportunities, and to improve the health of workers at all ages.

Although Germany has one of the highest employment rates for women aged 25-54 in the OECD (78.2%), almost two-fifths of women work part-time only and surveys indicate that about 15-20% of this part-time work is not entirely voluntary. Married women and mothers face severe disincentives to work longer hours due to high implicit tax rates (see Chapter 2) and a lack of childcare facilities (see Chapter 4). Germany should therefore reduce these financial disincentives and continue with the expansion of childcare facilities and full-day schooling.

Labour migration can also help meet future labour demand and address skills shortages caused by a shrinking working-age population. Recent reforms have put Germany among the OECD countries with the fewest restrictions on labour migration for highly skilled occupations. Managed inflows of permanent labour migrants have risen recently, but remain low relative to other countries and to the size of the German labour market. For international recruitment to help meet labour market needs that cannot be met locally, OECD analysis suggests streamlining administrative procedures for hiring foreign workers and opening new pathways for labour migration, especially in medium-skilled occupations. Promoting labour migration, both among potential recruiters as well as potential labour migrants, and putting in place a set of well-targeted measures (including support for SMEs and language training) would also help.

Key OECD Recommendations

- **Simplify redundancy procedures for open-ended contracts and reduce the large gap in employment protection between permanent and temporary contracts.**
- **The commission that will review the national minimum wage should include independent experts** who can provide advice on the impact of the minimum wage on employment. The introduction of a lower minimum wage for youth should also be considered.
- **Boost labour supply by further measures to** (i) increase employment of older workers through the removal of remaining financial disincentives and increased training opportunities; (ii) encourage greater full-time employment by women by tackling the lack of childcare facilities and high implicit tax rates; (iii) further simplify procedures for hiring foreign workers, especially in medium-skilled occupations.

4. Helping Parents Reconcile Work and Family Life

Many parents and would-be parents in Germany encounter difficulties in reconciling work and family commitments. This affects birth rates, female employment rates and career progression. Introducing policies that help families better manage their work-life balance could boost economic growth, reduce gender gaps and mitigate the looming, ageing-related decline in the size of the labour force.

Gender gaps are large

As in other OECD countries, women are participating more and more in education and young women are more likely than men to complete tertiary education. This has contributed to a steady increase in the female employment rate which, at 68% in 2012, is well above the OECD average (60%), albeit below the rate for German men (78%). Women in Germany also spend on average two hours more per day on unpaid household work than men. Women with children often resort to part-time work (see Chapter 3), frequently in “mini/midi” jobs: 62% of employed women aged 25-54 years with dependent children work part-time compared with only 26% in France. The projected decline in the German labour force could be avoided if female employment rates were to reach male levels over the next 20 years and if women were also to work as many hours as men (see Figure 4, Chapter 1).

Gender differences in working hours explain about half of the gender pay gap, which at 22% for median earnings is the third largest in the OECD. Part-time employment also makes career progression difficult with only 28% of German senior managers and less than 4% of board-members of listed companies being female. Shorter careers and lower earnings for women also lead to gender gaps in retirement. Female pensioners get only about half of men’s pensions, the third largest “pension gap” in the OECD.

Increasingly, women postpone motherhood, often until the age of 30 or later, resulting in fewer children overall. Since 1983 the Total Fertility Rate has ranged between 1.3 and 1.4 children per woman, compared to 1.7 on average in the OECD and 2.0 in France in 2011, for example. This contributes to the projected decline in the German labour force.

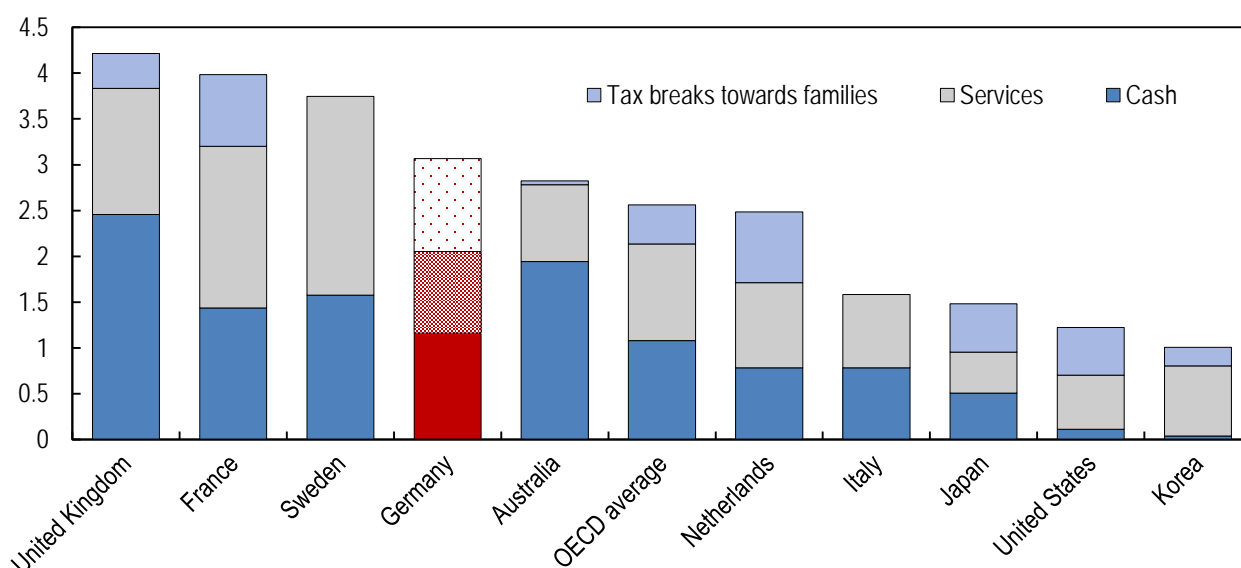
Redesigning the family policy mix

Germany spends more on family supports than the OECD average (Figure 8) and has been successful in achieving a relatively low child poverty rate of 9.1%, compared with 13% on average in the OECD. However, the German policy mix is not effective in helping couples to have children and both engage in employment. Germany is the only OECD country in which the tax/benefits system significantly favours single breadwinner couples over dual-earner families when children are of school age (see Chapter 2). Much of family policy support is delivered through cash benefits and the tax system. Only 29% of spending on family benefits is focused on services, including childcare and pre-school services, compared to approximately 44% in France and 58% in Sweden (Figure 1). As a result, only 23% of children aged 0-2 years are enrolled in childcare. Enrolment rates are considerably higher for children aged 3 to 5 (94%), but kindergartens are often open only in the morning and schools rarely offer out-of-school-hours care services. Appropriately, the new government plans to make more resources available for improving childcare services.

Germany is making progress and has moved to guarantee access to childcare for all parents, if only for a few hours per day. Nevertheless, it could do more as in, for example, France, Denmark or Sweden, where family policy provides a continuum of supports throughout a child’s early years, making it easier for parents to combine work and family responsibilities. Greater investment in formal childcare also fosters child development, which supports education and employment outcomes in later life. These effects are strongest for children of low-income families, including those with immigrant origins (see Chapter 5 on education issues).

Figure 8. Spending on family benefits

Public spending on family benefits, % of GDP, 2009



Source: OECD (2013), *OECD Family database*.

Beyond a greater focus on investment in childcare services, the design of income support for families could favour more female labour market participation and gender equality. Germany's 2007 parental leave reform moved in the right direction by (i) introducing leave entitlements for the exclusive use of the father, which increased the proportion of fathers taking leave from 9% in 2007 to 28% for children born in the third quarter of 2011; and (ii) facilitating taking one year of parental leave (paid at a higher rate) rather than two years. The government's plans to continue to make parental leave entitlements more flexible for working parents of young children are welcome. However, the 2013 introduction of the home-care allowance ("*Betreuungsgeld*") for parents of young children who do not use publicly funded childcare facilities is a regressive step as it provides financial incentives for women to withdraw from the labour force.

Key OECD Recommendations

- Reform the **tax-benefit system** so that both parents have broadly similar financial incentives to work.
- Ensure that the design of **cash benefits for parents with very young children** facilitates a timely return to work and generates a more equal sharing of care commitments.
- Invest more in good quality, affordable **childcare** to foster child development and help parents better reconcile work and family commitments; and improve access to **out-of-school-hours care** services.

5. Reforming Education, Enhancing Skills, Promoting Life-long Learning

While unemployment rates in the EU among 25-34 year-olds education increased, Germany managed to buck this trend. The number of young people who were neither employed nor in education or training (NEET) in Germany also decreased. Nevertheless, education has a major role to play reduce inequality and to prepare younger generations for the challenges of fast changing and knowledge-based societies. In particular, reforms to enhance early childcare and increase both vocational and academic tertiary graduation will be needed. The new government's target of spending 10% of GDP on education and R&D, if well-spent, will help ensure these policy objectives are achieved.

The overall performance of 15-year-olds in Germany improved greatly during the last decade, although the latest PISA results show hardly any change in performance in the period 2009-12. The earlier improvements were mostly due to better results among students coming from a lower socio-economic background and students with an immigrant background. These improvements were in part triggered by the initial "PISA shock" which motivated teachers to address the situation. Progress was also made in some *Länder* by, for instance, reducing the number of school tracks and by delaying early academic tracking.

Nevertheless, more could be done to promote equity in, and the performance of, the education system. In particular, early academic tracking, which in some *Länder* starts at the age of 10, and reliance on repetition (around one in five German 15-year-olds have repeated at least one grade at primary or lower secondary school) can hinder equity, and have been shown to be a costly and inefficient way to raise student learning performance. Reforms in these areas could reduce failure rates while freeing resources to strengthen early childhood education and care and tertiary education.

Further developing high-quality early childhood education and care

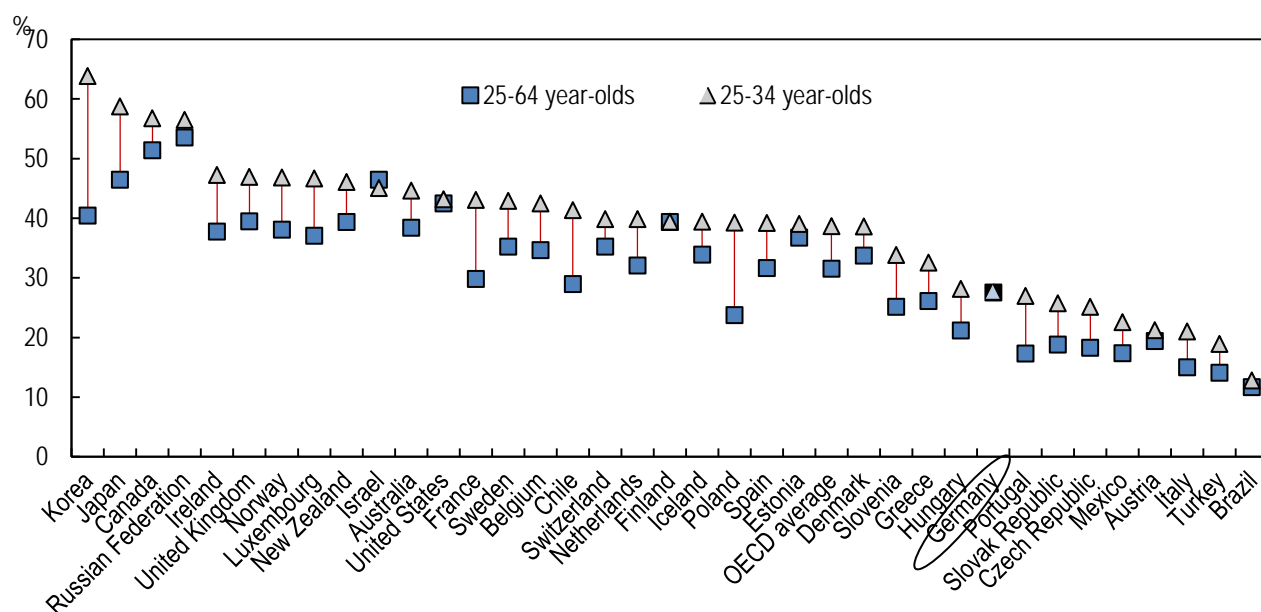
Access to quality early childhood education and care (ECEC) needs to be further developed and can lay the foundations for stronger and more inclusive growth, notably through its impact on the performance of children from immigrant and disadvantaged backgrounds as well as by supporting female participation in the labour force (Chapter 4). The positive association of pre-primary education on PISA reading scores at the age of 15 in Germany is even stronger than in most other OECD countries. Germany's commitment to progress in ECEC is reflected in the guaranteed childcare provisions in force since August 2013 alongside significant efforts to reform family policies and scale up child care provision. However, the introduction of a subsidy for families who choose not to use childcare (*Betreuungsgeld*) risks undermining the goal of increasing enrolment, particularly in the population groups for which attendance matters most. Moreover, the quality of services for children under the age of three remains an issue. To increase the benefits of existing ECEC, more effort is needed to reduce the staff-child ratio, orient curriculum reform towards more integrated provision of education and care, and ensure childcare workers have better qualifications and incentives to perform.

Increasing the number of tertiary graduates and improving adult training

The German dual education system, which combines apprenticeships in a company with vocational education at a specialised school, is deeply embedded. It stands out in international comparison for ensuring a successful transition from education to employment for a large number of young people. The employment rate among 25-34 year-olds with a vocational upper secondary or post-secondary qualification (84%) is more than 30 percentage points higher than that among adults of the same age who have a general upper secondary or post-secondary qualification (53%). The unemployment rate among 25-64 year-olds with a vocational upper secondary or post-secondary non-tertiary degree is almost 2% lower than among those with a general upper secondary or post-secondary education. However, employment outcomes for graduates from this system evolve less favourably than for tertiary graduates later in the working life.

Despite recent reforms, the route from post-secondary VET to academic or vocational higher education is rarely travelled, and not all the obstacles en route have been removed. Overall, Germany lags behind the OECD average in tertiary attainment (Figure 1). Only 28% of Germans aged 25 to 34 attained a tertiary education in 2011 and out of a total student population of 2.5 million in 2009, less than a quarter came from a working-class background. Just 20% of young adults achieve a higher level of education than their parents, far below the OECD average of 37%; meanwhile, 22% achieved a lower level, compared to the OECD average of 13%. The transition system from VET to higher education suffers from undue fragmentation and an absence of transparency. The new government intends to improve pathways from post-secondary VET to higher education. This transition could be supported by encouraging credit transfer arrangements, making the opportunities better known to students, recognising prior learning, as well as creating a co-ordinating committee within each of the *Länder* to improve co-operation between stakeholders and make transition opportunities more transparent.

Figure 9. Proportion of the population (in %) that has attained tertiary education (2011)



Source: OECD. Table A1.3a. *Education at a Glance*.

The recent OECD Skills Outlook identified Germany as one of the countries where low-skilled adults (those reaching Level 1 or below in the PIAAC assessment) have least access to training programmes. About 17% of that group follows a training or educational programme, compared to 26% on average in the other 22 countries that reported this data.

Key OECD Recommendations

- **Reduce school drop-out and failure rates** by eliminating grade repetition and postponing early tracking and student selection.
- **Improve the quality of the entire early childcare sector**, including by improving the staff-child ratio, orienting curriculum reform towards more integrated provision of education and care; and ensuring childcare workers have better qualifications, more up-skilling opportunities and better working conditions.
- **Facilitate the transition from post-secondary VET to academic higher education** through transfer credit arrangements, better transparency and co-ordination.
- **Improve access to vocational training to adults from disadvantaged backgrounds**, for instance by providing training credits and introducing training requirements for the low-skilled unemployed.

6. Reinvigorating the Services Sector

The performance of Germany's services sector has lagged behind that of its manufacturing sector. Further efforts to increase competition and productivity in the services sector would have a positive economy-wide impact, boosting domestic demand and strengthening growth. Strict regulation in professional services and barriers to enter network industries should be eased.

As in most modern economies, services in Germany account for the bulk of economic activity, contributing 68% to total value-added in 2011. Over the past ten years, however, productivity growth in business services has been relatively low, especially in telecommunications and information technology, and in professional, scientific and technical activities.

This poor performance reflects important obstacles to competition as well as an innovation policy skewed toward manufacturing (Chapter 8). Regulation can protect consumers, for example, to offset information asymmetries between suppliers of professional services and consumers. However, overly restrictive regulation hampers the entry of new firms and constrains competition, thereby holding back innovation, employment and productivity. Moreover, since many services represent intermediate inputs in other sectors, lack of competition in these sectors imposes costs throughout the economy. Stronger growth in service sector activities would boost domestic demand and make economic growth less export-dependent. Given the importance of competitive services to participation in Global Value Chains (about 30% of all manufacturing exports are services), productivity enhancing reform in this area could also add fuel to Germany's export engine.

Spurring competition in services

The scope for making the regulation of services more conducive to competition remains substantial. For example, barriers to international trade in services hamper competition. At present the procedures and criteria for recognition of foreign qualifications are not clearly defined. It is welcome that the new government intends to make improvements in this area. Germany requires an economic needs test for non-European Economic Area services providers (even if those providers do not seek employment in Germany).

The economic impact of deregulation in liberal professions – of which professional services form a large part – is potentially large, given that they account for around 10% of GDP. Professional services – in particular the services of architects, engineers and lawyers – are highly regulated compared to most other OECD countries (Figure 10). Since 2008, little progress has been made in this area. Regulations affecting business conduct are particularly tight and include restrictions on inter-professional co-operation as well as on regulation of advertising and of prices and fees. Entry is hampered by compulsory chamber membership and by restrictions on share owners in businesses offering professional services.

Further deregulating network industries

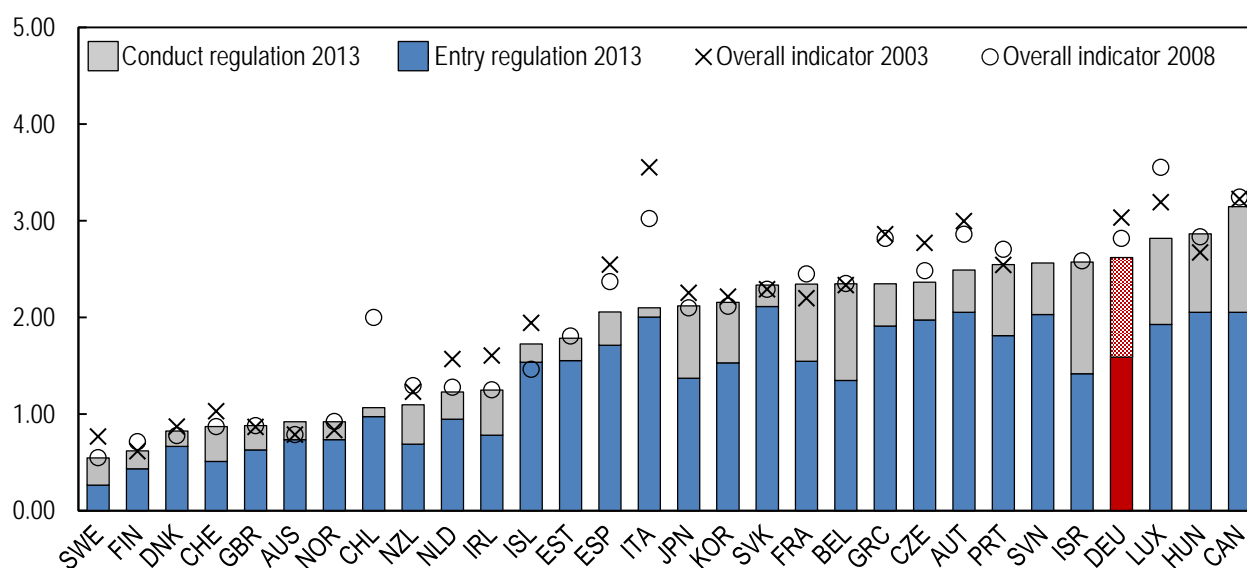
Although the overall regulatory environment governing network industries is already relatively competition-friendly by international comparison, productivity in these sectors would benefit from further reform. In particular, the railway sector is dominated by one large, vertically integrated incumbent company operating the network. It thus has considerable scope to make market entry cumbersome and costly for potential competitors. Fully privatising the railway transport service subsidiaries while retaining state ownership of the tracks would be a major step in increasing competition. Also, the role of the regulator – *e.g.* in setting prices – is restricted and tendering for regional railway services is designed such that the number of bidding offers is often very limited.

Initiatives to increase competition in telecommunications could also have large benefits, notably on the very promising market of machine-to-machine (M2M) communication. In Germany only spectrum holders

can issue SIM cards. Permitting mobile virtual network operators and non-telecom operators to issue their own SIM cards would allow businesses and consumers in all sectors to switch network providers seamlessly, to purchase mobile roaming at lower cost, and increase reliability, generating large cost savings. For example, cost savings in the provision of mandatory safety services in cars (such as precise automatic localisation in case of an accident, which requires the use of a SIM card) could amount to 2 billion Euros for manufacturers. Moreover, liberalisation would allow businesses and consumers to fully take advantage of the development of services which use devices that connect to the internet via mobile networks, unleashing significant potential for innovation, and economic and social development.

Figure 10: Regulation in professional services

0-6, from least to most restrictive



Note: The professional services indicators cover entry and conduct regulation in the legal, accounting, engineering, and architectural professions. Conduct regulation refers to restrictions on price setting, advertising, form of business, and inter-professional cooperation.

Source: OECD (2014), *International Product Market Regulation Database*, www.oecd.org/eco/pmr.

Key OECD Recommendations

- **Identify barriers to productivity growth in services.** Establish an advisory body tasked with identifying and reviewing regulatory hurdles to higher productivity.
- **Liberalise professional services.** Simplify entry conditions by rethinking compulsory chamber membership and by further easing education requirements. Further reduce restrictions on cooperation between professions and reassess the need for restrictions on advertising.
- **Reduce barriers to trade in services** by easing ownership restrictions and foreign qualification requirements, and by facilitating the cross-border movement of providers.
- **Facilitate competition in network industries.** Explore possibilities to privatise the railway transport service subsidiaries while retaining state ownership of the tracks. Make tendering of regional railway services compulsory and strengthen the role of the network regulator in facilitating access of entrants. In telecommunications, allow non-spectrum companies to issue their own SIM cards.

7. Promoting an Energy-efficient and Environment-friendly Economy

Germany aspires to be one of the world's most energy efficient and environment friendly economies, while maintaining affordable energy prices and economic prosperity. Rigorous environmental policy implementation has helped curb the energy and resource intensities of the economy, improve natural asset management and enhance citizens' quality of life. More cost-effective policy measures will be needed if the country is to achieve its ambitious energy and environment objectives.

Following the March 2011 Fukushima Daiichi nuclear accident in Japan, Germany decided to accelerate the phasing-out of nuclear power. It adopted a range of policy measures – the *Energiewende*, or energy transition – with the goal of reaching 60% of final energy consumption and 80% of gross electricity consumption through energy generated from renewable sources by 2050 (from about 12% and 20% respectively in 2011). Within this framework, Germany also intends to cut greenhouse gas (GHG) emissions by 40% by 2020, and by at least 80% by 2050.

Towards a sustainable energy future

Energy efficiency improvements and the large-scale deployment of renewable energy are at the heart of the energy transition, and Germany has made significant progress. The Renewable Energy Sources Act (EEG) is the key instrument supporting electricity production from renewable sources, notably by means of feed-in tariffs recovered through a surcharge on electricity bills. Since the EEG's inception in 2000, electricity generation from renewables has more than tripled. By stimulating large-scale demand for renewables technology, the EEG has helped accelerate learning and innovation and has reduced technology costs. Debate over the social and economic impacts of EEG has intensified as retail electricity prices have continued to rise alongside the share of renewable energy. Households and firms serving the domestic market have absorbed most of the costs of energy transition, while firms facing international competition have been shielded from the EEG surcharge.

The energy transition has come at a cost: a recent review (Effective Carbon Prices, OECD 2013) found that out of 15 OECD countries studied, Germany has the highest total abatement costs of the carbon-related policies applied in the electricity sector as share of GDP (in the order of 0.3%), due primarily to feed-in tariffs under the EEG. The high costs reflect high ambition, but also the use of relatively costly policy instruments. A fairer allocation of costs among all market participants would facilitate public acceptance of the transition to low-carbon energy. A stronger focus on least-cost policy instruments could also reduce the costs of action and help ensure the transition does not undermine competitiveness or fiscal sustainability.

More cost-effective market-based approaches, such as a tendering scheme for larger installations, are also needed to support the expansion of renewable energy generation capacity while mitigating the cost of the transition (see the IEA's 'In-depth Review' of Germany's energy policies). The new government has put this issue on its agenda and intends to present wide-ranging plans for EEG reform this spring. One measure under consideration is the introduction of tendering from 2018 onwards. Subsidies for green energy initiatives should be subject to rigorous *ex ante* cost-benefit analysis and *post hoc* evaluation, taking into account the interactions between these policies and the total emission cap set under the European Union's Emissions Trading System.

A predictable regulatory framework is essential to secure investor confidence and to stimulate the considerable investments needed to expand the electricity network and storage capacity. Germany's record in developing grid infrastructure is inconsistent; planning and licensing procedures present major stumbling blocks. The 2011 Network Expansion Acceleration Act aims to overcome these obstacles. Further measures should nevertheless be considered to improve the transparency of decision making. Enhanced co-operation among *Länder* – and between the federal government and the *Länder* – is also

necessary. Given its international impact, Germany's energy policy will also have to be decided within the context of a broader European energy policy framework and in close consultation with neighbouring countries.

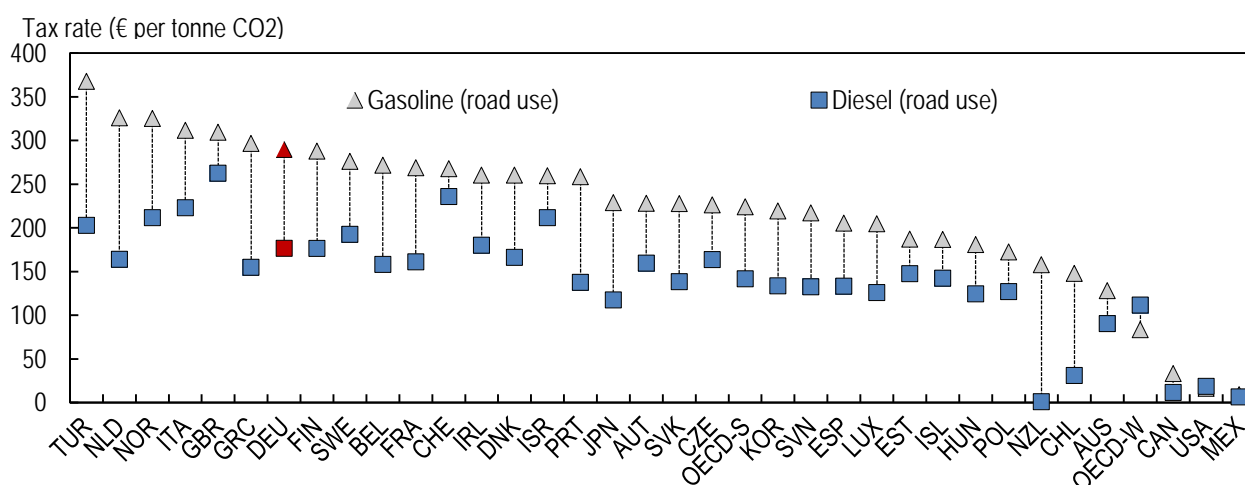
Combating climate change and improving environmental performance

Consolidation and implementation of an ambitious environmental policy framework has helped reduce the carbon, energy and resource intensities of the German economy. The increase in renewable energy generation, coupled with energy efficiency improvements, has helped Germany decouple greenhouse gas (GHG) emissions from economic growth (Figure 2 in Chapter 1). Emissions declined by 12% between 2000 and 2011 to 26.4% below the 1990 level, well beyond Germany's Kyoto Protocol commitment. Achieving the *Energiewende* target for 2020 will require additional domestic measures to complement the EU Emissions Trading System (EU ETS). In particular, and as recommended by the 2012 OECD Environmental Performance Review of Germany, energy taxation and the EU ETS should be better combined to provide an effective and consistent carbon price signal across the economy.

Germany's long-standing, effective waste management policy has resulted in increasing rates of material recycling and waste recovery. However, some concerns remain, including ambient air quality in some cities, freshwater quality, and access to wastewater treatment in some *Länder*. A large proportion of land is under some form of nature protection, but relatively high population density, dispersed settlements and a variety of industrial and agricultural activities continue to exert strong pressures on ecosystems and biodiversity.

Germany has extended the use of economic instruments, such as taxes and charges, to tackle environmental challenges. However, potential synergies among instruments have not been fully exploited and policy coherence could be strengthened. Energy taxes do not consistently reflect all environmental externalities. For instance, diesel is taxed at a lower rate than petrol, but it has a higher carbon content and generates more emissions of local pollutants such as particulate and nitrogen oxides (Figure 11, see also Chapter 2). Environmentally harmful subsidies, such as those encouraging the use of fossil fuels and private cars, remain large (of the order of 1.9% of GDP in 2008, according to recent studies). To meet its ambitious goals, Germany needs to improve the consistency and cost-effectiveness of its policy mix, including by reforming environmentally harmful subsidies and extending the use of green taxes.

Figure 11: Effective tax rates on CO2: gasoline vs. diesel (road use)



Note: OECD-S is the OECD simple average rate while OECD-W is a weighted average.

Source: OECD (2013), *Taxing Energy Use: A Graphical Analysis*.

Key OECD/IEA Recommendations

- **Develop market-based mechanisms**, such as tendering schemes for large installations, to manage the cost of further renewable energy capacity in the context of EEG implementation.
- **Ensure that the costs of the *Energiewende*** are minimised and allocated fairly.
- **Ensure a regulatory system that provides sufficient incentives and policy certainty to encourage investment** in cleaner generation, electricity storage, transmission and distribution infrastructure.
- **Use energy taxation** to effectively complement the EU ETS and to provide consistent carbon price signals across the economy. Extend the use of green taxes to target further externalities.
- **Systematically assess the environmental impact of existing and proposed subsidies.** Phase out those that are environmentally harmful and economically and socially inefficient.

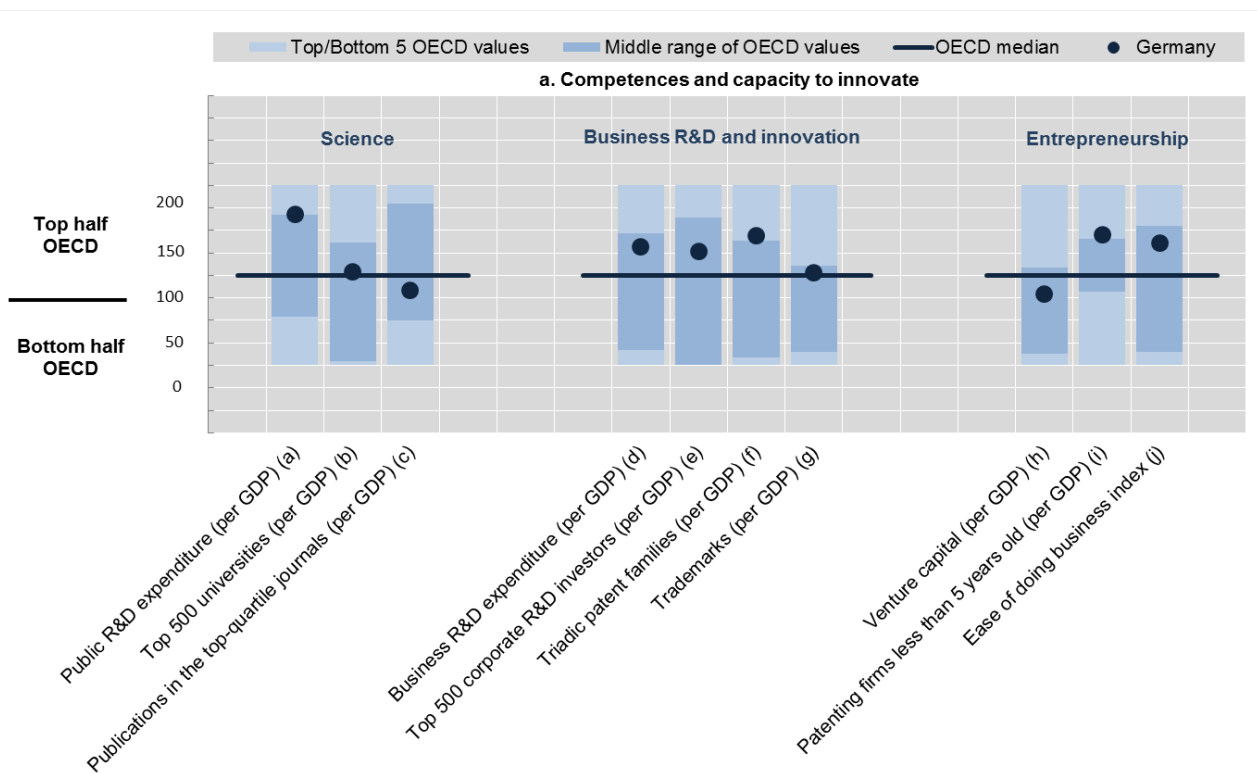
8. Boosting Innovation and Promoting Entrepreneurship

Innovation is a key driver of productivity and income growth, while entrepreneurship and innovation are inextricably linked. Germany boasts the building blocks of a strong innovation ecosystem and a dynamic SME sector. However, more can be done to broaden innovation support to services and investment in knowledge-based capital, improve access to finance and equip the next generation of entrepreneurs.

Accounting for 9% of the OECD's total R&D, Germany is a leading player in global innovation, spending over 2.9% of GDP on R&D in 2012. Public and business expenditures on R&D, at 0.86% (2011) and 1.95% (2012) of GDP, respectively, are both well above the OECD average (Figure 12), thanks to a high priority of the government and to Germany's specialisation in R&D intensive industries. Recent initiatives such as the Higher Education Pact, the Excellence Initiative, the Joint Initiative for Research and Innovation, and the Academic Freedom Act all aim to further strengthen research and innovation.

Figure 12: Comparative performance of Germany's national innovation system, 2012

Normalised index of performance relative to the median values in the OECD area [Index median = 100]



Source: OECD, *Science, Technology and Industry Outlook 2014* (forthcoming).

Modernising innovation policies

The High-Tech Strategy 2020 is the over-arching blueprint for German innovation; it aims to reinforce the German science and technology base, not only to enhance innovation and job creation in the German economy, but also to contribute to addressing global challenges, and thereby improving people's lives more broadly. The strategy focuses on the so-called "selected forward-looking projects" (*Zukunftsprojekte*), such as Industry 4.0, Sustainable Mobility and Better Health. These projects target the development of specific strengths in science and technology in the next ten to fifteen years.

The Strategy focuses its supports mainly on high tech, export oriented manufacturing, which runs the risk of ignoring the important role that the services sector plays in Germany's innovation ecosystem and in value creation. Fostering innovation and productivity in services requires further strengthening of competition (see Chapter 6), but also a stronger focus on services in innovation policy.

Germany's intellectual property portfolio goes far beyond patents, with a large number of trademarks and designs reflecting the breadth of its innovation effort. Investment in knowledge-based capital (KBC) – i.e. computerized information, innovative property and economic competencies – accounted for almost 10% of GDP in 2010. However, the growing importance of KBC for productivity gains and growth is still not fully reflected in policy efforts. This calls for a review of the system of support for business R&D and innovation. In particular, specific policy action to strengthen investments in organisational capital, design, and the ability to create value from data should be considered.

Promoting entrepreneurship

Germany also needs to release the innovative potential of its SMEs, which account for a lower share of BERD than the OECD average. Limited access to finance remains an obstacle to growth and innovation for SMEs even though, in contrast to other OECD countries, their credit availability has improved steadily since 2008, supported by notable policy efforts (see Chapter 9 for a wider discussion of financial sector issues in Germany). The public KfW Bank, for instance, provides financing on favourable terms to small-scale entrepreneurs and promotes capital market innovations such as the development of mezzanine finance to fund market-oriented R&D. However, the venture capital market remains underdeveloped, with investment standing at less than 0.03% of GDP in 2011. This is lower than in France and the United Kingdom, and considerably below the 0.2% of GDP of the United States. Enhancing investment in venture capital requires not only support for financing, but also better exit possibilities for investors.

Better support is also needed for Germany's business angel networks (BANs). Germany was early in establishing a national BAN, with federal government support, and local BANs with regional government support. However, the visible activity level of the BANs in Germany has not been comparable with other countries in Europe.

More can also be done to spur entrepreneurship by developing entrepreneurial mindsets and skills in university students. The Federal government's EXIST Programme offers support for universities to develop entrepreneurship education strategies and for researchers and students to start businesses. However, teaching techniques need to be improved. For example, in eastern German universities surveyed by the OECD, business plan writing is the most common learning tool, while more experience-based teaching methods – such as visits to companies, use of social media, self-learning exercises, developing prototypes and learning about enterprise failures – are not so frequent. German business schools also need to be upgraded to better compete with the top tier schools in Europe.

Key OECD Recommendations

- Review the support for business R&D and innovation with a view to **broadening innovation efforts** to encompass services and Knowledge Based Capital.
- Further **improve access to funding for start-ups and innovative SMEs**, including by enhancing exit possibilities for venture capitalists.
- **Adopt experience-based learning methods in entrepreneurship education.**

9. Reforming the Financial Sector to Support Growth

Germany has moved to strengthen its banking system, implementing elements of the Liikanen Report, including separation of banks' trading and deposit taking activities. Vulnerabilities remain, however. If the banking sector is to play its full role in supporting growth, in Germany and more broadly, more reforms will be needed, particularly in further improving banking regulation, strengthening bank capital positions and consolidating the regional banks (*Landesbanken*).

The global financial crisis exposed major weaknesses in financial market regulation and institutions worldwide. German banks have fared relatively well over the course of the European debt crisis, as the solid performance of the German economy and low interest rates kept losses on domestic lending portfolios low. However, some banks suffered large losses on their international investments, especially in the initial phase of the crisis, requiring large-scale government rescue operations to prevent a credit crunch. Taxpayers have suffered some losses, with assets transferred from government to the banks amounting to about 10% of GDP. Since then, progress has been achieved in correcting the flaws in financial regulation and strengthening the financial sector, both in Germany and at the European level. But more steps are needed to avoid costs of future financial crises being borne by taxpayers and to ensure that banks are funding sustainable growth while avoiding excessive risks. Full recognition of losses from legacy assets which remain on bank balance sheets would help to ensure the allocation of loanable funds to their most productive uses.

Further strengthening bank regulation

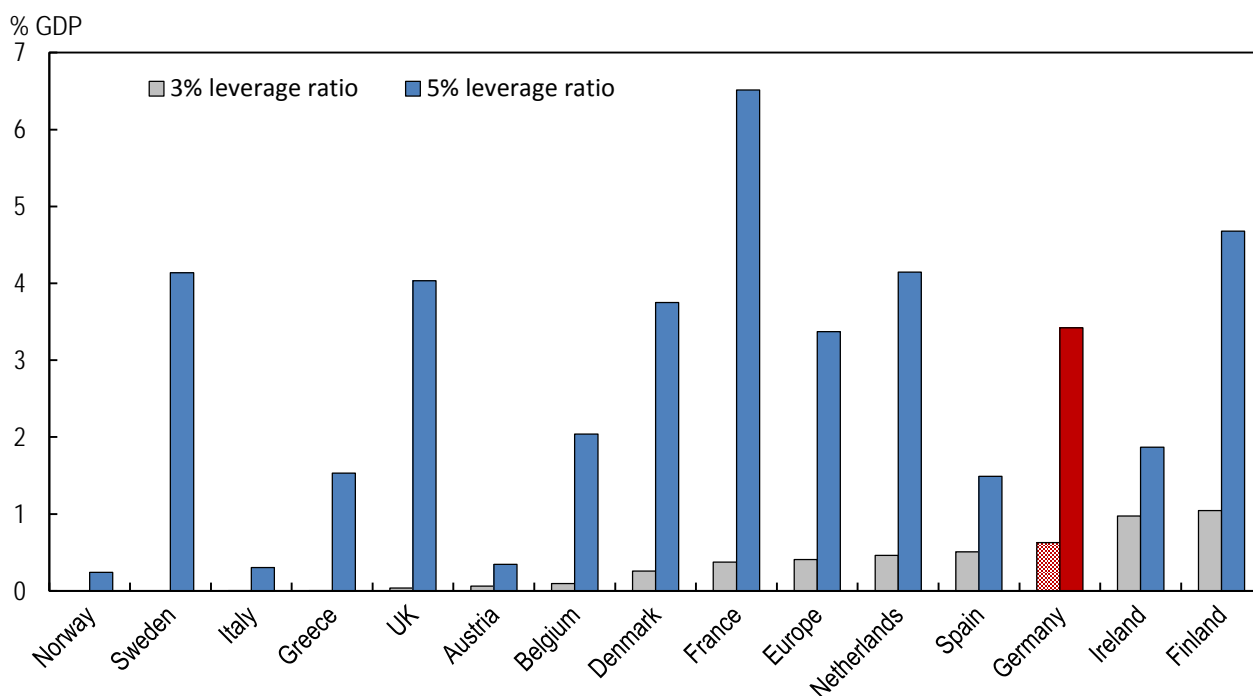
Newly approved German legislation requires large banks whose securities trading activities exceed certain size thresholds to assign these activities to ring-fenced subsidiaries. This is a step towards the separation of deposit banking from risky proprietary trading activities and asset positions, advocated by the OECD as a way to address the "too-big-to-fail" (TBTF) issue and strengthen the structural resilience of the banking system. The envisaged holding company structure allows banks to offer a complete range of services to customers, while improving the landscape for competition. The main practical challenge to a workable separation is to draw a sensible dividing line between trading activities and deposit banking activities. However, German legislation allows for exemptions from the separation requirements. It is likely to be difficult to distinguish trading for market-making purposes from other trading. Moreover, the OECD's analytical work suggests that a more effective approach would be to use the size of derivative positions to set the threshold for separation. This will encourage banks to focus on financing real economic activity while reducing their risks, limiting interconnectedness and discouraging excessive leverage.

Ending TBTF also requires effective and realistic recovery and resolution plans, as promoted in the European Commission's related directive. The 2011 German bank restructuring law marks some progress in this direction. It strengthens the powers of authorities to facilitate the more timely and effective resolution of problem banks. Banks have to pay a specific annual levy into a restructuring fund. Systemically important banks are also required to develop restructuring plans to deal with situations of financial stress while avoiding costs to taxpayers. The German Financial Supervisory Authority will assess whether banks can be wound down in an orderly fashion and can require banks to take steps to ensure that this is the case. The new legislation has also strengthened requirements on risk diversification and sharpened the personal liability of managers. Nonetheless, implicit guarantees and potential costs to taxpayers could be reduced further by introducing a "bail-in mechanism", which would ensure that bank debt can absorb losses comprehensively if banks need to be restructured by the authorities and their capital is insufficient, following the lead of the European Union directive.

The reliance on risk-weighted assets (RWA) as a basis for capital requirements, as under the Basel III system, is another important issue. The Basel III system has evolved into a system of extreme complexity, inviting regulatory arbitrage to reduce risk-weighted assets relative to total assets, which is likely to result in many banks being under-capitalised. In Germany, as in several European countries, while capital levels appear high on a risk-weighted basis, capital is still low relative to total assets, and below the 5% leverage ratio used as a benchmark for well-capitalised banks by the US Federal Deposit Insurance Corporation, although differences

in accounting standards makes this ratio not fully compatible with Europe due to the treatment of derivatives (Figure 13). This suggests that banks in Germany (and elsewhere) would require significant additional capital to avoid risks to growth in the medium term. Consideration should be given to an un-weighted leverage ratio, especially for the large, systemically important banks, as the failure of such a bank generates particularly large risks for the economy and the taxpayer.

Figure 13: Additional capital needed to move core tier 1 capital to 3% and 5% of Total Assets



Note: Latest available data from December 2012 to September 2013.

Source: Bloomberg, OECD.

Making *Landesbanken* fit-for-purpose

Germany has a large public banking sector, consisting mainly of local savings banks and regional *Landesbanken*, many of which experienced large losses on their foreign financial investments during the global financial crisis. The nature and scale of these investments reflected a questionable business model as well as governance problems owing to insufficient managerial capacity. They compete with private banks and no longer seem to fulfil a public service function. Some progress has been made in restructuring these banks but reform needs to continue, including through privatisation. Further consolidation would also help to reduce the influence of each state government on business conduct. The activities of remaining public *Landesbanken* should be refocused on their traditional role as central banks for the savings banks.

The reform of the *Landesbanken* is also connected to the broader initiative to establish a banking union in the Eurozone. The move to common regulatory and supervisory standards is already affecting the *Landesbanken*, with calls for larger capital buffers. Another important initiative will be the establishment of a common deposit guarantee fund and bank rescue authority, supported by a common and sufficiently strong fiscal back-stop. Ultimately, for the sake of regulatory consistency, all banks including the *Landesbanken* should be integrated into the various parts of the banking union.

Key OECD Recommendations

- **Continue efforts to clean bad assets from banks' balance sheets.**
- **Encourage banks to adopt a ring-fenced non-operating holding company structure**, with a threshold based on derivatives exposure.
- **Strengthen the framework for winding down systemically important banks while avoiding costs to tax payers.** Introduce an effective “bail-in” instrument, so that the value of implicit bank debt guarantees is reduced.
- **Consider introducing a simple and strictly binding leverage ratio** for systemically important banks, the calculation of which does not involve risk-weightings.
- **Continue restructuring the *Landesbanken***, including through privatisation, further consolidation, focusing on core activities, and ensuring they have a viable business model.

10. Future-Proofing Transport Infrastructure

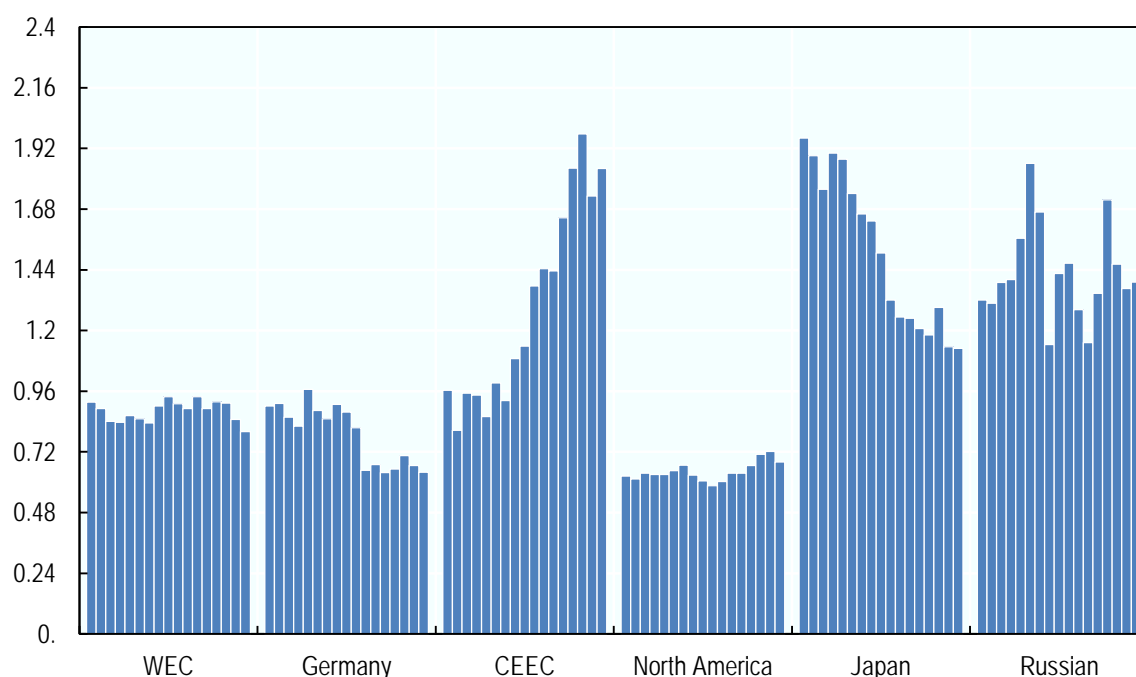
Germany's transport infrastructure is regarded to be among the best in the world. Moving goods and people efficiently is critical for a country that is both a nodal point on the European continent and a hub of strongly export-oriented manufacturing. Safeguarding this excellence will require Germany to invest more in transport infrastructure. It will need to shift spending from new infrastructure investment to maintenance. Ensuring stable funding will require a move towards more user charging, while access to private sector financing will be helped by simplified frameworks for public-private partnerships.

Road networks represent significant long-term investments. They are one of the principal assets held by national and regional governments. An excellent road network is of particular importance to Germany. The country is one of the major transit nations on the European continent, bordering directly with nine other countries. Its strong manufacturing sector relies more on the efficient transport of goods than services-driven economies. Passenger traffic on German roads increased by a quarter and freight traffic by a factor of three over the past twenty years. Over the same period, gross expenditures on road networks have declined by 24%, however. In terms of percentage of GDP, road infrastructure investments in Germany have declined from 1% of GDP in 1995 to around 0.7% in 2011 (Figure 14), as noted by the *Daehre* Commission. While this is in line with an overall negative trend across OECD countries, where the decline has been from 1.0% of GDP to 0.85%, it is significantly more marked. Under current funding arrangements, available resources fall short by EUR 3.3 billion of spending needs for maintenance, upgrading and extensions.

Focus on maintenance

In times of tight budgets, funding for road maintenance is often postponed. While temporary savings are achieved, in the long term deferring maintenance can make roadway costs much greater because of increased vulnerability to local or systemic disruptions. German road transport should therefore shift from construction to maintenance and upgrading of existing networks, and to selective expansion of capacity. A long-term, asset management approach to road network management, linking it explicitly to strategic budgets, is also essential to deliver a cost-effective and performing infrastructure. The proposal in the coalition agreement to end reliance on the annual budget cycle for transport funding and to introduce reciprocal coverage between transport modes points in the right direction. The overall aim of strategic asset management is to optimise the service level delivered by infrastructure over its life-cycle. The focus of management should be on value to users or customers and not solely, nor even primarily, on cost or asset replacement cost perceived by the infrastructure provider.

Figure 14. Investment in inland transport infrastructure by region 1995-2011
(as a percentage of GDP, at current prices and exchange rates)



Source: International Transport Forum at the OECD. Note: WECs include Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey and the United Kingdom. CEECs include Albania, Bulgaria, Croatia, Czech Republic, Estonia, FYROM, Hungary, Latvia, Lithuania, Montenegro, Poland, Romania, Serbia, Slovakia and Slovenia. North America includes Canada, Mexico and the United States. Data for Japan excludes private investment.

Move towards user charges as a source of funding

Germany levies distance-based user charges on its *Autobahnen* (motorways) and some *Bundesstrassen* (federal roads) from heavy goods vehicles above 12 tons. Tolls are collected electronically and have generated revenues of EUR 35 billion since their introduction in 2005. The new government intends to extend truck charges to all main roads and to develop it further to reflect tonnage, network considerations and external costs. It also plans to introduce a vignette-based user charge for all private cars in 2014/15.

User charges can be an efficient tool to facilitate more efficient use of transport infrastructure. Further, fuel economy improvements and CO₂-reduction efforts will shrink fuel consumption as a tax base unless transport demand grows strongly. Research by the International Transport Forum (ITF) at the OECD suggest that the fuel tax base in several countries, including Germany, could be one third smaller in 2050 than it is today. If technology shifts away from fossil fuels more quickly than expected, the fuel tax base could shrink by half. This erosion of the fuel tax base calls for a shift to other sources of transport and other infrastructure funding, such as user charges.

Consideration should also be given to a wider deployment of congestion charges than is currently the case. Congestion charges can contribute to transport demand management and can generate considerable amounts of revenue.

Redesign Public-Private Partnerships

Germany has a mix between publicly financed projects and projects realized in public-private partnerships (PPPs). The new government aims to make greater use of cooperation between public and private sector companies where this leads to cost savings and a more efficient realisation of projects.

PPPs can enable cost-savings particularly where they foster innovation in project design and cost-effective construction and maintenance. Successful PPPs require governments to set clear, transparent and flexible frameworks for agreed outcomes, rather than detailed project specifications. Reducing the administrative burden often associated with PPPs will support the coalition's objective to open PPPs more to Small and Medium Enterprises (SME). Doing so will provide the government with a wider choice of contractors and hence enable potentially more efficient outcomes.

The government's intention to standardise the methodology for Cost-Benefit Analysis (CBA) is also to be welcomed. CBA is a valuable tool for bringing structure, rationality and transparency to strategic policy choices about infrastructure. To be effective, CBAs need to be sufficiently comprehensive, accounting for uncertain factors.

Continue supporting global knowledge exchange

Germany plays a leading role in global knowledge exchange for better transport policy. The Annual Summit of Transport Ministers has been hosted by Germany since 2008. The Summit is the leading global platform for exchange among transport policy makers, with around 70 nations participating. It has been instrumental in aligning policy perspectives and sharing global best practices. Facilitating exchange is a key to tackle the many transport policy challenges, not least those associated with rapid growth in emerging economies where exploding motorisation is leading to dramatic increases in road fatalities, air pollution and CO² emissions.

Key OECD/ITF recommendations

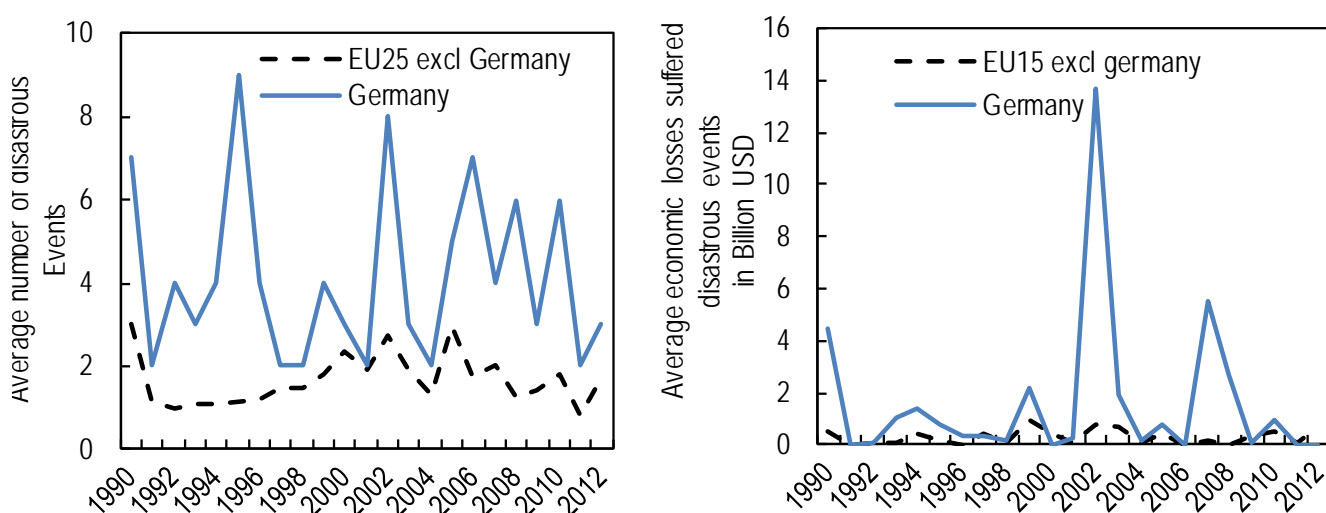
- **Prioritise infrastructure maintenance** over new projects to ensure system reliability and pre-empt mounting future costs for repairs and replacements.
- **Move towards more user charging**, including congestion charges, to ensure reliable funding for transport in the light of likely falls in revenue due to a decreasing fuel tax base as well as an efficient tool for demand management.
- **Redesign public-private partnerships** with a view to creating clear, transparent, flexible frameworks that can build trust for the long-term and broaden the base of potential partners of government.

11. Strengthening the Governance of Disaster Risk Management

Since the early 2000s, Germany has embraced a comprehensive, integrated approach to disaster risk management, but the impact of recent floods underlines the value of investing further in disaster risk management and prevention policies.

The floods which affected Germany and other countries in central Europe in June 2013 were of greater impact than the 2002 floods, causing an estimated EUR 12 billion in damage, affecting more than half a million people, and resulting in insured losses estimated at EUR 3 billion. Greater destruction observed in Germany and other countries (Figure 15) is due partly to more frequent and extreme weather-related events, but also results from increases in population size and concentration, and more social and economic assets located in flood prone areas.

Figure 15. Natural Catastrophes, 1990-2012



Source: EM-DAT: The OFDA/CRED International Disaster Database, Université catholique de Louvain, Brussels, Belgium.

Disaster risk management has largely improved, incorporating lessons from past catastrophic events

Floods in the 1990s and in 2002 prompted Germany to adopt a comprehensive strategy, mixing disaster risk prevention and mitigation measures. This included structural measures to improve and scale-up physical retention and to prevent flooding. Other non-structural measures have also been adopted: (i) spatial planning to reduce damage in flood prone areas and increase retention zones; (ii) improvements to building codes; and (iii) improvement of behavioural prevention measures, including flood warning systems and just-in-time flood predictions. These efforts have resulted in increased risk awareness and insurance uptake. Moreover, to ensure effective and hazard-based planning decisions, the functions for spatial planning have been decentralised, with the centre providing general guidelines and leaving the crucial planning and building permit decisions at the local level.

Germany has also tried to change the public's perception of risk. In flood prone areas, detailed mapping of hazard zones has been developed, helping to visualise assets at risk and inform the public at municipal level. For example, one of the frequently affected *Länder*, Saxony has established an online flood hazard map, supported by the building insurance industry, that combines flood risk with risks of heavy rain, storm or lightning strikes. Saxony also decided to make public information on applicants and recipients of damage compensation. This practice raises awareness of public disaster compensation expenses and creates pressure to increase efficiency.

Better risk governance institutions could further bolster prevention and mitigation efforts

The floods in 2013 showed that more could be done, and more quickly, in particular by resolving a number of governance gaps. Many of the measures that were adopted in 2002 have only been partially implemented due to constraints in administrative capacities across levels of government. In some cases, stronger direction from the centre could contribute to reducing risk. This would help to push for reforms, such as making it compulsory to not only keep existing retention zones, but also to enlarge them and build new ones. The federal government could introduce regulations to improve the protection of existing settlements in flood prone areas, which remain vague and non-binding for most sub-national regulations.

There is also scope for improving financial planning and management. Financial contingency planning remains short-sighted. Even though setting up solidarity funds has helped finance the majority of disaster damages and losses, they have required ad-hoc budget re-allocations and deferral of tax reform measures. This could have negative distributional effects and impede future growth. While the bundling of national and EU solidarity compensation funds, as well as donor funds (for example from the Red Cross and Caritas), reduces bureaucratic delays and redundant payouts, information has been lacking on the amounts of compensation potential beneficiaries of public support have received from insurance companies in most instances.

Incentives for individuals to improve protection levels should be enhanced, and existing risk transfer mechanisms adapted and complemented. Public authorities have less scope than in other countries to expropriate land exposed to risks. Individuals whose homes have been destroyed by flooding have little incentive to relocate elsewhere as the government is prohibited by law from forcing them to resettle, and insurance compensation is lower if houses are not rebuilt in their initial location. Some *Länder*, such as Bavaria after the 2002 floods, have offered additional compensation to those who resettle – a policy that could be extended elsewhere.

In addition, individual reliance on state aid creates a disincentive for self-insurance: a survey revealed that 30 % of households affected by the 2002 floods still would not consider purchasing insurance. Overall, only 25% have insured their assets against flood damage. Other countries – such as Switzerland, Spain and France – have relied on alternative insurance models, including compulsory measures. These could be combined with other measures to adapt risk transfer mechanisms and improve non-structural preventive and mitigating measures. Alternatively, Germany may consider collective action solutions, including common pool funds, such as those established in Austria to initiate mutual financing at local levels for flood protection investment.

Key OECD Recommendations

- **Strengthen administrative capacity across all levels of government** to improve timely implementation of necessary prevention and mitigation measures.
- **Increase harmonisation of hazard zone mapping and flood protection strategies** across levels of government and sub-national jurisdictions, potentially considering some degree of central coordination where necessary.
- **Develop financial contingency planning** as an alternative to ad-hoc solidarity funds.
- **Promote incentives for individuals to improve their protection levels**, and adapt and complement existing risk transfer mechanisms.

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