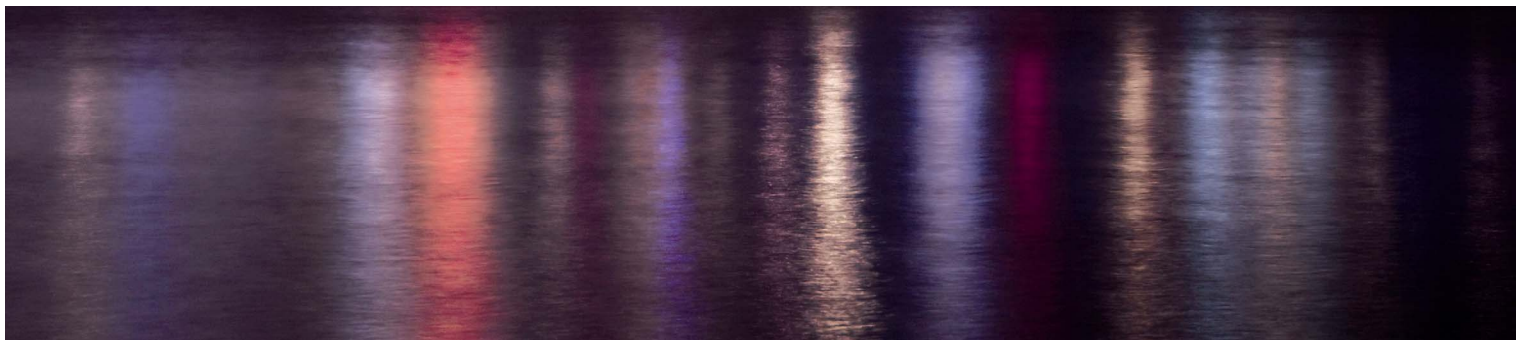




OECD Economic Surveys GERMANY

FEBRUARY 2012

OVERVIEW



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Summary

Following a rapid recovery from the 2008-09 recession, growth has slowed in the second half of 2011 and the economy is facing a soft patch with significant downside risks to activity. On the domestic front, a return to lower growth rates from the strong prior upswing was to be expected from a cyclical perspective as potential growth remains weak. This downswing is exacerbated by the substantial deterioration of world trade growth and a loss of confidence due to the euro area debt crisis.

In the current situation, policymakers are faced with a multitude of challenges. As the economy goes through this soft patch, it is essential to let automatic stabilisers work fully as allowed by the fiscal rule. On the structural side, Germany has made major progress, notably on the labour market, which paid off handsomely in the recent recession. However, still more needs to be done to strengthen the growth potential, not least in view of rapid population ageing. Structural policies should focus on the following areas:

- Strengthening domestic demand

Reforms to foster domestic demand should focus on improving competition enhancing framework conditions for investment and innovation in Germany's domestic sector. This includes lowering the strict regulation in some services sectors, notably professional services, and improving innovation support, for example by introducing a tax credit for R&D complementing direct R&D support. In addition to raising productivity and potential growth, such reforms would also contribute to reducing the structurally high current account surplus and thus make a contribution to reducing global imbalances in a way which benefits Germany as well as others.

- Raising labour input

Past reforms of the labour market contributed to the strong resilience of employment during the past recession by raising working hour flexibility and reducing structural unemployment. The focus now needs to be on raising labour input and avoiding skill shortages. This includes notably increasing female full-time labour participation by lowering fiscal disincentives for second earners and further improving childcare supply. In addition, employment of older workers should be promoted by further removing work disincentives and fostering employability, including by continued reforms of the education and training system, aiming at a higher participation in life-long learning. Importantly, labour migration needs to be better focused on economic needs, which requires lowering the hurdles for high-skilled migrants, for example by introducing a point system.

- Exploiting new sources of growth in climate change mitigation

Environmental policies are becoming more important for growth, not least due to the government's recent decision to accelerate the phase out of nuclear power and the ambitious national targets for emission reduction and renewable energy sources. In this context it is essential to implement climate change mitigation policies in a cost-effective way, for example by strengthening the carbon price signal, and to carefully monitor the generosity of the feed-in tariffs. Furthermore, competition in energy sectors should be a priority together with fostering framework conditions for eco-innovation.

Assessment and recommendations

Growth is slowing after an extraordinary rebound from the recession

Following a rapid and forceful recovery from the deep recession – pre-crisis real GDP was reached again in the second quarter of 2011 - growth has slowed and the outlook has weakened considerably. First, this reflects a moderation of growth rates from their cyclical highs towards their lower potential rates, indicating that the prior upswing was mainly a cyclical one. Second, this slowing is reinforced by a generalized slowing of the world economy, unusually high uncertainty and business confidence that is declining from high levels.

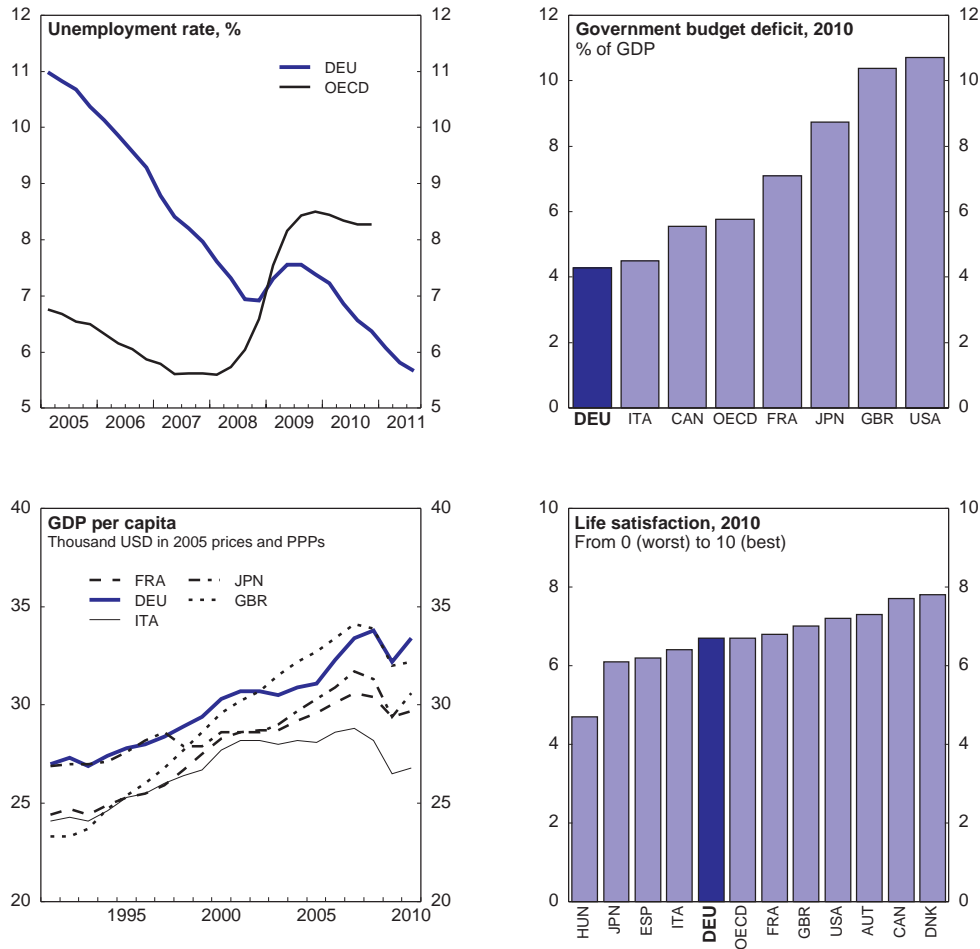
Notwithstanding the weaker outlook, the labour market still remains in relatively good shape. Unemployment barely increased during the crisis and has fallen significantly since then - in stark contrast to almost all other OECD countries (Figure 1). This is due to a decline in structural unemployment as well as a significant increase of flexibility in working hours, demonstrating the beneficial effects of past labour market reforms (Box 1). Regarding government finances, public debt has increased notably in the crisis, but the budget deficit is the lowest among G7 countries, partly due to the good performance on the labour market. The gap in living standards compared to the better performing OECD countries has continuously narrowed since 2005 and in terms of GDP per capita Germany ranked 12th among the 34 OECD countries in 2010. Germany also scores well on several measures of well-being, even though overall life satisfaction is somewhat below the OECD average.

Given rising uncertainties, policymakers are faced with a multitude of challenges. In the short-run, a marked deterioration of the cyclical situation requires to let automatic stabilisers operate fully around the structural consolidation path, as allowed by the fiscal rule. In addition, attention should continue to focus on raising the medium-term growth potential, which remains low at around 1½ per cent and is set to decline to below 1% after 2020 on account of significant population ageing. Ageing will also have a bearing on living standards as the labour force declines as a share of total population and thus fewer contributors face a growing share of benefit recipients.

Boosting potential growth will involve not only raising labour input by activating those parts of the labour force that are currently not fully participating, but also implementing reforms to raise productivity growth, in particular in Germany's less dynamic non-tradable sectors. This would benefit domestic investment spending, which remains relatively low by international standards, thereby contributing to reducing current account imbalances. A stronger German economy with a higher rate of trend growth, stemming not only from a competitive export sector, but also from a dynamic domestic economy would have important spillover effects and give collateral benefits for the world economy overall (Koske and Wörgötter, 2010).

Managing a further reduction in greenhouse gas emissions and the transition towards the ambitious targets set for renewable energy, notably after the decision to phase out nuclear energy, will require making climate change policy more efficient. Reducing regulatory uncertainties in this area will unleash major investments in energy networks and generate the potential for eco-innovation. The benefits from meeting these challenges justify a new broad-based reform effort, building on the success of the changes made in labour market policy in the past decade.

Figure 1. Economic performance of Germany



Note: The deficit is general government expenditure minus revenue and that for the OECD is the average of ratios for countries for which data is currently available. The deficit for Japan refers to 2009. Life satisfaction is measured by asking people to rate how they value their life in terms of the best possible life (10) through to the worst possible life (0). The score for each country is calculated as the mean value of responses.

Source: OECD, *Better Life*, *Economic Outlook* and *National Accounts* databases.

Box 1. The German labour market miracle - lessons for other countries

Despite an above-average fall in real GDP during the crisis, the unemployment rate in Germany increased by only ½ percentage point during the crisis, compared to 3% in the OECD on average. This unemployment reaction was also highly unusual relative to past recessions in Germany; taking the past output-unemployment relationship as a guideline, one would have expected the unemployment rate to rise by almost 3 percentage points.

Some of the factors behind this outcome are Germany-specific to this recession. For example, the sectoral impact was particular in that it was primarily the German manufacturing sector which was affected while the more labour-intensive sectors, such as construction, were not. Also, employment in public services continued to increase. Furthermore, labour shortages were evident in some sectors ahead of the crisis, leading some companies to hold on to their employees. Moreover, the labour force was growing less than in other countries due to population ageing, thus limiting the hike in the unemployment rate.

However, none of these factors can fully explain the benign labour market outcome during the crisis; indeed, evidence suggests that structural factors played a significant role, notably policies to adjust labour via changes in hours worked (the intensive margin) and the beneficial effects of past reforms on work incentives.

Emphasis on adjustment along the intensive margin

In contrast to most other OECD countries (and also to past recessions in Germany), the adjustment of labour input has happened primarily through reductions in hours worked per employee rather than through layoffs. Such behaviour has been facilitated by two developments:

- Increased flexibility of the intra-firm labour market explains two-thirds of the total working hour reduction. Over the decade prior to the crisis, German companies, primarily in the manufacturing sector, gradually introduced more leeway into collective bargaining agreements, such as the option to temporarily reduce weekly working hours and salary. Also, working time accounts, which allow for smoothing of working time over the business cycle, were becoming increasingly more widespread. The effects of working time flexibility were particularly beneficial in this recession since it affected predominantly solid firms with strong cash flow positions who could afford such measures.
- The short-time work scheme - whereby part of an employee's salary lost through fewer working hours is replaced by a transfer from the labour office - also helped to prevent layoffs, notably after the government substantially increased the generosity of the scheme. For instance, employers' obligations to pay social security contributions on the income lost through short-time work were reduced while earned entitlements from health-, unemployment- and pension insurance remained unaffected. Eligibility to use the scheme was widened by relaxing some of the requirements. Overall, the use of short-time work explains around one-third of the reduction in working hours in 2009.

Structural improvements in labour market policy

Past labour market reforms, arguably the most significant among OECD countries during that time, significantly changed labour market institutions in Germany with positive effects on the reaction of unemployment during the crisis.

- A series of reforms starting in 2002, notably the *Hartz* reforms, strengthened work incentives and improved job matching. This had beneficial effects on the structural rate of unemployment over time and throughout the crisis, offsetting some of the cyclical increase in the unemployment rate that would otherwise have happened. Also - and probably related to the downward movement of structural unemployment - wage moderation in the years leading up to the crisis may still have exerted beneficial effects during the crisis.
- In addition, several options for early retirement were phased out in the years leading up to the crisis, thus making it more costly for employers to arrange consensual job-separations for older workers during this recession. By contrast, in earlier crises employees may have been more willing to agree to a layoff and to move into government-sponsored early retirement. The very positive performance of older worker employment in Germany during the crisis is likely to reflect the effects of these reforms.

Will the next recession be as benign on labour market outcomes as the past one? It is likely that the increased working time flexibility has reduced the unemployment-output relationship. Also, the different behaviour of older worker employment may be a lasting feature; at the same time, and unless the government continues to implement labour market reforms, the downward movement of the structural unemployment rate is likely to remain a factor unique to the last recession.

The short-term outlook has weakened, ...

GDP growth has decelerated markedly since the start of the year. To some extent, this is explained by temporary factors, such as the shutdown of nuclear power plants in the spring and weather effects

introducing volatility into quarterly growth rates. However, since the upswing was always perceived to be a cyclical rather than a structural phenomenon, some deceleration of growth towards lower potential growth rates had been expected. Nevertheless, a generalized weakening of the world economy over the summer, a substantial increase in uncertainty and worsening business confidence has worsened growth prospects. While annual real GDP growth still reached 3% in 2011, after 3½ per cent in 2010, it is set to fall back sharply this year to around ½ per cent before increasing back towards 2% in 2013 (Table 1). The through-the-year growth rates (fourth quarter over fourth quarter of the previous year) amount to 1.0% in 2012 and 2.2% in 2013.

Table 1. Short-term projections

	2011	2012	2013
	Percentage changes from previous year, volume (2005 prices)		
GDP	3	0.6	1.9
<i>without working day adjustment</i>	3	0.4	1.9
Private consumption	1.5	0.7	1.1
Government consumption	1.2	0.9	0.8
Gross fixed investment	6.5	1.2	3.8
Public	-0.4	-7.7	-0.3
Residential	5.9	1.3	2.6
Non-residential	7.9	2.4	4.9
Final domestic demand	2.3	0.8	1.5
Stockbuilding*	-0.1	0	0
Total domestic demand	2.2	0.8	1.5
Exports of goods and services	8.2	3.4	6.6
Imports of goods and services	7.2	4.1	6.2
Net exports*	0.8	-0.2	0.5
<i>Memorandum items</i>			
Unemployment rate	5.7	5.5	5.3
Output gap	-0.8	-1.7	-1.2
Harmonised index of consumer prices	2.5	1.6	1.5
General government budget balance	-1	-1	-0.5
Government gross debt/GDP (Maastricht)	81.7	82.2	81.3
Current account balance/GDP	4.9	4.9	5.3

Note: National accounts are based on official chain-linked data. This introduces a discrepancy in the identity between real demand components and GDP. For further details see *OECD Economic Outlook Sources and Methods* (www.oecd.org/eco/sources-and-methods).

* Contributions to changes in real GDP (percentage of real GDP in previous year).

Source: *OECD Economic Outlook 90* and Destatis. Data as of end-January.

The weakening of growth in Germany is projected to come mainly from slowing investment and consumption spending, which may temporarily suffer from adverse confidence effects, as well as from weaker trade growth. Over the medium term, domestic demand is set to strengthen. This reflects the solid balance sheets of both households and non-financial companies which mean that there is no need for deleveraging, in contrast to many other OECD countries where housing bubbles and construction booms led to over-indebtedness. In addition, domestic demand benefits from monetary stimulus, notably if the divergence of growth rates across euro area countries continues and monetary conditions remain supportive for Germany. Such easy conditions will support investment in particular, including residential investment and keep the financing costs for government debt low. House prices have already been trending upwards since 2009 after having fallen for most of the time since 1995.

Beyond the weakening in the short-term, consumers are expected to react positively to the improvement on the labour market as unemployment is projected to remain at post-unification lows. Since not all of the labour market improvement is structural in nature, and thus the labour market is getting tighter, wage pressure is likely to set in by 2012. Disposable income may thus grow more than in past years, supporting consumption even though equity price declines and uncertainty may prevent falls in the household saving rate (Hüfner and Koske, 2010).

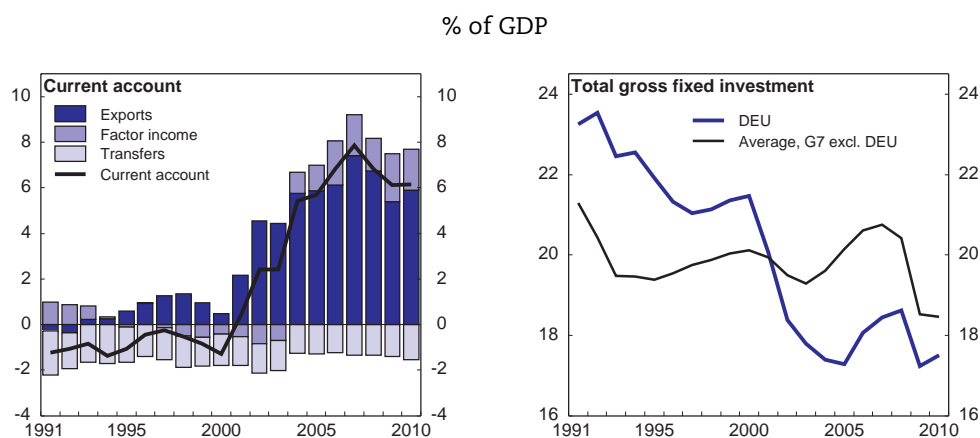
... is surrounded by considerable uncertainty, ...

This projection, which presents a baseline scenario assuming a gradual improvement in confidence during 2012, is surrounded by an unusually high level of uncertainty and, notably, considerable downside risks. These risks relate mostly to a further significant worsening of the euro area debt crisis which would have considerably adverse effects on the domestic banking system, possibly leading to severe constraints on credit supply. Also, such a scenario would affect growth in Germany's trading partners, thus inducing a lower export contribution. At the same time, growth could also evolve more favourable in case a spreading of the crisis to other countries can be contained, leading to an improvement in confidence. In this case, a more dynamic investment and consumption development could be envisaged, because German households and firms do not face general deleveraging needs.

... and imbalances remain

Despite some narrowing since the highs reached in 2007, the current account surplus (at around 5% in 2011) remains large in historical terms and is expected to be broadly unchanged over the next few years. Partly, this reflects the increasing importance of factor income earned on the considerable net foreign assets (42% of GDP in 2010, one of the highest in the OECD) that accumulated during several years of current account surpluses. Factor income has added close to 2% of GDP to the current account surplus (roughly a third) in each year since 2006 (Figure 2, left panel). But more importantly, corporate investment is still weak with firms continuing to have excess savings; this has been another significant factor contributing to the current account surpluses since 2000 with excess household savings playing only a minor role (OECD, 2010a). Investment spending as a share of GDP remains one of the lowest among OECD countries (Figure 2, right panel). This reflects notably a weakness of business investment and to a smaller extent residential investment. Part of the decline in domestic investment can be explained by a surge in foreign direct investment outflows since 2004, partly reflecting outsourcing activities towards the new EU member states, which is a welcome market-based response to globalisation. These efforts to regain price competitiveness through outsourcing were complemented by significant wage restraint in Germany, which helps to explain the fall in the wage share by five percentage points between 1995 and 2010. However, the long-run decline in the investment ratio also reflects structural deficiencies that make Germany less attractive as an investment location, also for migration relative to other countries. Addressing these structural deficiencies (along the lines mentioned further below) would have the double benefit of raising potential growth and of lowering external imbalances, not least through higher domestic investment (OECD, 2010a).

Figure 2. Current account surplus and investment rates



Note: Net current account and components.

Source: Deutsche Bundesbank and OECD, *National Accounts database*.

A stable banking system is essential for sustainable growth

German banks remain highly leveraged

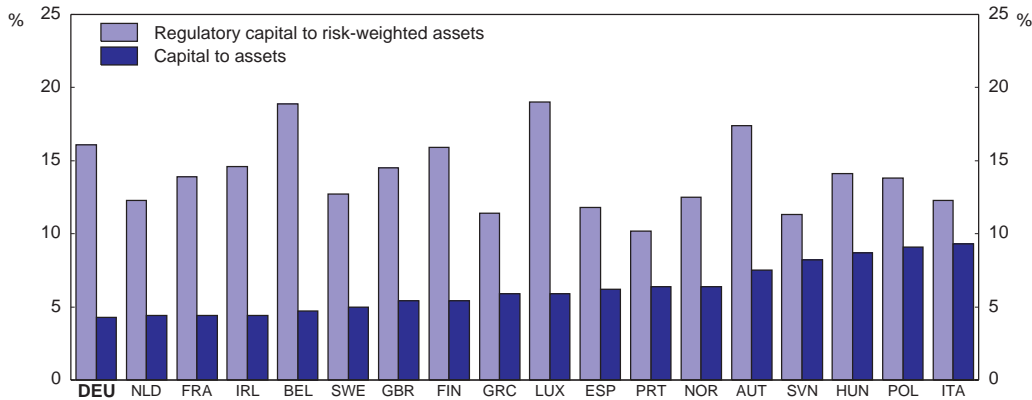
Following the 2008-09 subprime crisis, the banking system was strengthened by substantial government efforts, including the setting up of the *Federal Agency for Financial Market Stabilisation* and the transfer of some institutions' risky assets to bad banks (which significantly raised government debt in 2010). However, attention has now focussed on the vulnerability of the banking system to the sovereign debt crisis in some euro area countries (IMF, 2011a). In addition, the banking system remains highly leveraged (Figure 3): the (non-risk weighted) capital to total asset ratio was 4.3% in 2010, the lowest among European countries; the ratio has decreased slightly in recent years, whereas in most other euro area countries it has increased. The difference between this leverage ratio and the ratio of regulatory capital to risk-weighted assets is among the highest in the euro area. This indicates a high vulnerability of the German banking system to financial market stress in case risk has not been appropriately assessed. However, it must be considered that international accounting standards allow for considerable netting of positions whereas in German national accounting rules this is not the case to such an extent. Balance sheet total therefore is - everything else equal - structurally higher for German banks. Furthermore, under the new Basel III capital requirements the largest German banks will have to increase their capital by at least EUR 50 billion, equal to half of their 2009 core tier capital (Bundesbank, 2010). German banks have already begun to increase their capital with respect hereto.

Reform efforts should continue

Several reforms have been implemented over the last two years. For example, the Bank Restructuring Act implemented in January 2011 facilitates the recovery and reorganisation of systemically important financial institutions (SIFI) in a crisis situation. In addition, as in some other European countries, banks have to pay a specific annual levy in a restructuring fund. Progress has also been made in reforming banking supervision, including by improving the cooperation between the *Bundesbank*, whose macroprudential responsibilities will be enhanced, the regulator (*BaFin*), which will focus more on microprudential supervision, and the government and by internally reorganising *BaFin*. In other areas, however, reform efforts should continue as discussed in OECD (2010a), preferably within a common European approach. Overall, the government should intensify discussions with the banking sector about how to ensure its adequate capitalisation and should stand ready to provide appropriate support. In particular, the *Landesbanken*, which still lack a viable business model, remain vulnerable due to their low capitalisation and profitability and will be especially affected by the regulatory increases in capital requirements. Some of the *Landesbanken* have already been restructured under the pressure

and supervision of the European Commission, but a reform of the sector as a whole is still lacking. Efforts for a coordinated reform of this sector thus need to continue, including a reform of the savings bank sector.

Figure 3. Capitalisation of European banking systems, 2010



Note: Capital is balance sheet equity (paid-in capital plus reserves).

Source: IMF, *Financial Soundness Indicators*.

Growth spillovers from Germany to other countries ...

With Germany being the fourth-largest economy in the world, its economic developments - and policy-making - have an impact on other countries, including through higher imports as domestic demand strengthens. Growth spillovers through trade, however, play a smaller role than is often assumed; the impact of higher growth in Germany on other countries is the lowest among large economies (IMF, 2011b). Indeed, trade links to the larger euro area countries are limited (OECD, 2010b). For example, exports to Germany account for barely 3% of GDP in France, Spain and Italy (Table 2). Furthermore, import propensities for domestic demand are rather small in Germany (but higher for exports), underlining that a rise in domestic demand is unlikely to translate into much growth support for other countries (Pain *et al.*, 2005). Given the weakness in trade links, fiscal consolidation in Germany will have only minor trade-related repercussions on other economies.

Due to its strong position as an exporter, Germany acts more as a transmitter to other countries of external shocks from the US and Asia - to which it is more exposed than other economies - rather than being a source of shocks. This is particularly important for smaller euro area countries, with exports accounting for more than 10% of GDP in Austria, the Netherlands and Slovakia - reflecting the tight integration of supply chains with those countries. In other words, economies forming a joint supply base with Germany are currently more dependent on the impact of world trade on the German export sector, than on German domestic demand.

However, if efforts to boost trend growth become successful via invigorating dynamism in the domestic sector, then demand growth spillovers to other countries may become more important, because a more dynamically growing domestic sector, driven by investment and innovation will generate additional employment and income generation opportunities and become a new source for import demand. By improving its own economic performance, Germany would become a growth locomotive for Europe.

Table 2. Trade links of Germany within the euro area, 2010

	Exports to Germany	
	as a share of total exports	as a share of GDP
France	13%	3%
Italy	11%	3%
Spain	8%	2%
Greece	4%	1%
Ireland	9%	9%
Belgium	12%	10%
Austria	22%	12%
Netherlands	15%	12%
Slovakia	17%	14%

Source: Destatis, OECD.

... are influenced by monetary policy and financial linkages

However, the fairly tight correlation of business cycles between Germany and other euro area countries suggests that the trade channel is complemented by other forms of transmission, such as the monetary policy channel. Given its size, the German economy affects euro area aggregates more than other countries, thereby influencing monetary policy decisions. Low inflation in the first half of the past decade has thus kept interest rates lower than otherwise, boosting growth in smaller, fast-growing countries. The financial system is another channel of spillovers. For example, lending of German banks to peripheral countries rose sharply in the years prior to the crisis; consolidated claims of German banks on Spanish banks reached almost 25% of Spanish GDP (OECD, 2010b). Channelling funds abroad through the banking system thus transmitted high savings in Germany into growth in other countries.

The fiscal rule imposes a return to sustainable public balances...

With public debt having increased by almost 20% of GDP since 2007, to 83% of GDP in 2010 and in view of a significant increase in age-related costs over the coming years, fiscal consolidation is needed over the medium term. The new fiscal rule (*Schuldenbremse*) requires measures to lower the central government deficit to 0.35% of GDP in structural terms by 2016. The planned consolidation measures, amounting to EUR 80 bn (3.2% of GDP) until 2014, implemented over time to reach a reduction in the federal budget deficit of 1% of GDP in 2014, are consistent with this rule. The rule allows the automatic stabilisers to work and, in view of the weaker growth outlook and the associated uncertainties, the authorities should let them do so. However, if the economy were to be significantly weaker than projected, it would be appropriate to provide a temporary stimulus to demand in a way that does not harm the credibility of the fiscal rule domestically and internationally.

The structural aspects of the consolidation measures are welcome and their implementation is supported by the introduction of a top-down approach for budget preparation since 2011, as recommended in OECD (2010a). Two-thirds of the measures are expenditure-based cuts with the largest item being the reduction of social security and unemployment benefits, including the readjustment of parental and housing benefits. On the revenue side, the government has announced a number of new taxes including a nuclear fuel tax and a bank levy. Some measures have already been introduced in 2011, such as a tax on air travel. Others, however, are more uncertain, such as the planned introduction of a financial transactions tax, revenues from the nuclear fuel tax (in doubt given the decision to accelerate the phase out of nuclear energy) or the global expenditure cut in 2014 worth 0.2% of GDP. The expected revenues from these measures and how they will be achieved should be further specified.

...and tax reform should aim at a more growth-friendly tax structure

In addition to reducing the structural deficit, there is still the need for a reform of the tax structure, as argued in the previous *Survey* (OECD, 2010a). Taxation remains skewed towards labour, notably because of high social security contributions (Table 3). This is unfortunate, as cross-country evidence indicates that tax systems which put more weight on less mobile bases, notably consumption taxes and recurrent taxes on immovable property, produce better growth outcomes (Arnold *et al.*, 2011).

Table 3. Tax revenues by category

% of total tax revenue, 2009

	Germany	OECD average
Labour taxes	64	52
<i>personal income tax</i>	25	25
<i>social security contributions</i>	39	27
Taxes on goods and services	30	33
Corporate income tax	4	8
Taxes on property	2	5
<i>recurrent taxes on immovable property</i>	1	3

Note: Social security contributions include those paid by the self-employed and benefit recipients.

Source: OECD (2011), *Revenue Statistics*.

Given this background, revenues from consumption taxes should be increased. While the standard VAT rate has been increased in the past to 19%, it remains somewhat lower than in many other European countries. However, the main challenge is the taxation of many goods at a reduced rate. The tax losses resulting from the application of reduced rates amount to almost 1% of GDP (OECD, 2008a). Reduced rates should be phased out so as to broaden the tax base. Since such a reform might require compensating transfers to low-income households, the net revenue gain of such a measure would be reduced.

Furthermore, taxation of real estate accounts for just over 1% of total revenues compared to 3% in the OECD on average (and ½ per cent of GDP versus 1% of GDP). The low level of revenues reflects primarily a tax base which relies on the values determined in 1964 (1935 for the eastern *Länder*), an arrangement that has been criticised by the Federal Fiscal Court (*Bundesfinanzhof*). While it is true that municipalities in Germany finance several tasks through fees rather than through tax revenues, the overall level of user fees as a share of GDP, both at the local level and across all layers of government, is slightly below the OECD average. The argument for raising the importance of real estate taxes goes beyond their less adverse growth effects compared to other taxes. Such taxes could provide a comparatively stable revenue source for municipalities, at least compared with their current main source of revenue, the local trade tax (Joumard and Kongsrud, 2003). Reforms to the real estate tax should include moving towards actual prices for evaluating the tax base of the tax on land and buildings (*Grundsteuer*). Also, tax rates (*Hebesätze*) could be raised further, although this is within the competence of municipalities.

Labour taxation is particularly high. The total tax wedge for a single individual without children and average income amounts to 39% of gross wage earnings compared to 24% in the average OECD country (Table 4). The wedge is lower for families, but still exceeds the OECD average. This primarily reflects social security contributions, which are more than double the OECD average in terms of gross wage earnings. High non-wage labour costs are a major disincentive for employment, also because they set in at relatively low income levels. Bassanini and Duval (2006) estimate that a 10 percentage points reduction in the tax wedge is usually associated with a drop in structural unemployment by about 2.8 percentage points. A high tax wedge may also hamper the immigration of the most mobile labour, namely the high-skilled. Therefore, lowering social security contributions, notably for low income workers with full-time earnings, should be a priority within a reform of the tax structure (OECD, 2011a). Such a reform should usefully include measures on the expenditure side of the social security system.

Given that the structural unemployment rate in Germany is still higher than in many other countries, despite the improvements over the past years, such a reform would be particularly helpful.

Table 4. Tax wedge by family-type and wage level

% of gross wage earnings, 2010

Family type		single	single	single	single	married	married	married	married
Children		no	no	no	2	2	2	2	no
% of average wage		67	100	167	67	100-0*	100-33*	100-67*	100-33*
Income tax	DEU	13.7	18.7	27.1	-4.1	-0.6	5.5	9.9	13.7
	OECD	10	14.2	20.5	5.1	8.8	9.3	11.2	11.1
Employee soc sec contributions	DEU	20.5	20.5	16.7	20.2	20.2	20.2	20.2	20.5
	OECD	10.2	10.1	9.5	9.9	10	9.8	10.1	9.9
Total	DEU	34.2	39.2	43.8	16.1	19.6	25.7	30.1	34.2
	OECD	20.3	24.3	30	14.9	18.8	19.2	21.2	21

* Two-earner couple.

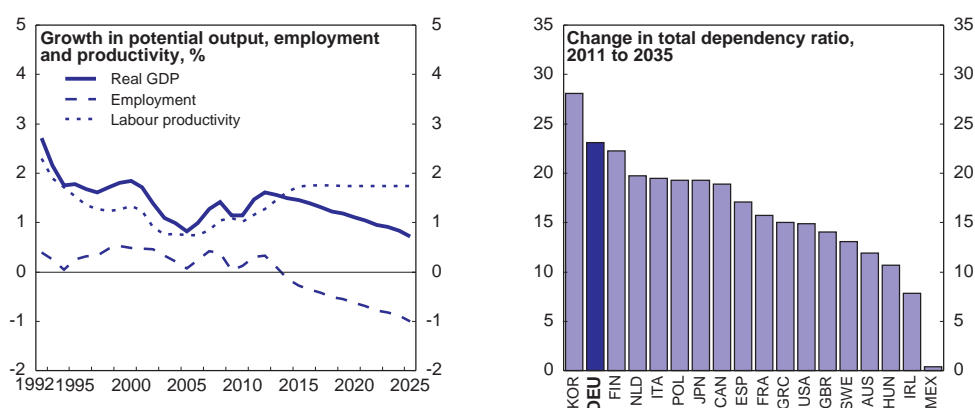
Source: OECD (2010), *Taxing Wages*.

Structural reforms for stronger and more sustainable growth

Potential growth is set to decline over the next decade...

Potential growth is set to fall below 1% at the beginning of the next decade, around half the OECD average (Figure 4, left panel). This primarily reflects a decline in potential employment by around ½ per cent per year over the period 2016-25 as the German population ages; by contrast, employment in the average OECD country is projected to increase by ½ per cent per year over the same period. Lower potential growth will also adversely affect real GDP per capita growth because the working-age population shrinks earlier and more rapidly than total population; the share of those aged under 15 and above 64 relative to the working age population is set to increase from 51% today to 74% by the mid-2030s - much faster than in the average OECD country (Figure 4, right panel).

Figure 4. Potential growth and ageing effects



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

Source: OECD, *Dotstat* and *Economic Outlook* databases.

... requiring reforms raising labour input ...

Raising incentives for female full-time labour participation

In terms of labour input, Germany stands out with the number of actual hours worked per person employed being the third lowest in the OECD and almost 20% lower than the average. A main factor behind this is the relatively low incidence of full-time female labour participation. As a result of this gender difference, the usual weekly working time (*i.e.* excluding holidays, sick leave or irregular overtime) of women amounts to only 30.5 hours, one of the lowest among OECD countries and almost 10 hours less than men, compared to a difference of 6.4 hours for the OECD (Table 5). The difference with other countries and to male employment is most striking for married women and for mothers, while employment patterns for single women without children are similar to other countries, notwithstanding some improvement following the 2007 reform of the parental leave benefit system and increased availability of childcare facilities (OECD, 2008a). Further raising the number of hours worked would contribute to both increasing labour input and significantly lowering the gender earnings gap with Germany's being the third-highest in the OECD after Japan and Switzerland (Koske *et al.*, 2012).

Table 5. Female labour input

			DEU	OECD
Employment rates	Male	2010	76.1	72.7
	Female		66.1	56.7
	of which: Maternal		63.1	61.4
Share of part-time employment	Male	2010	7.6	7.9
	Female		38.2	24.5
Usual weekly working hours	Male	2009	40.1	41.2
	Female		30.5	34.8

Note: OECD average for working hours is un-weighted and excludes US, Mexico, Japan, Israel, Iceland and Canada.

Source: OECD, *Family database, Labour Force Surveys*.

In Germany the mix of tax and benefit policies significantly favours single-earner over dual-earner couples. This huge fiscal disincentive for full-time dual-earner couples is due both to the free health insurance for non-working spouses and to the system of joint income taxation (which is most favourable for one-earner couples as the tax schedule is applied to the average income of both spouses). In particular the former introduces high marginal tax rates at the wage threshold from which on health insurance premiums need to be paid and helps explaining why women are the main users of so-called *Mini-Jobs* (marginal employment not liable for health insurance if earnings remain below EUR 400 per month). Those jobs have few working hours, thus explaining why one fifth of women work less than 20 hours a week, twice the OECD average. Moving from such jobs into regular full-time employment results in a jump in taxes and insurance costs. Not surprisingly, two-earner couples with full-time jobs are much less prevalent than in other countries.

The marginal tax rate for secondary earners when moving from marginal employment into regular full-time employment thus needs to be lowered in order to raise incentives to work longer hours. In this regard, mandatory health insurance premiums should be introduced for non-working spouses. Such a reform would need to be included in a general reform of health care financing (OECD, 2008a). In addition, reforming joint taxation would remove work disincentives for married women, raising their participation rates. While complete mandatory individual taxation of couples may not be possible in Germany for constitutional reasons, individual taxation could be coupled with the option to transfer a certain amount as a tax allowance from the non-working spouse to the working partner (*Realsplitting*), even though labour supply effects would be weaker in the latter option (Steiner and Wrohlich, 2004).

Lack of appropriate childcare facilities is a further hurdle for maternal employment as is suggested not only by OECD comparison but also when comparing employment rates between mothers in the western and the eastern *Länder* (in the latter childcare supply compares well with other OECD

countries). Overall, the enrolment rate for children aged 0-2 years at 18% in Germany is only around half the OECD average. At older ages, childcare and school facilities are often available less than full-time, thus helping to explain the large share of women working part-time. The government has rightly addressed this issue with plans to substantially increase the supply of childcare places, notably in the western *Länder*. These plans should continue and be complemented with efforts to further increase the availability of full-day schooling. By contrast, the increase in childcare supply should not be coupled with a subsidy paid to families who chose not to use childcare. Given its adverse incentive effect, the government should instead apply those resources to creating more high-quality childcare places.

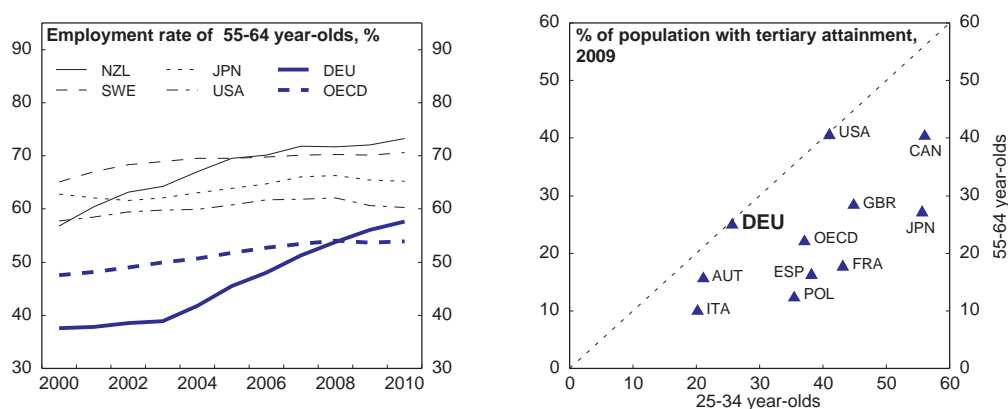
Encouraging a longer working life

Employment rates of older workers in Germany have increased by 20 percentage points over the past decade in response to a series of reforms in the early 2000s limiting early retirement options. While the employment rate for those aged 55-64, at 57% in 2010, exceeded the OECD average of 54%, Germany should aim to catch up with the best performing countries given the seriousness of its ageing problem (Figure 5, left panel). For example, Sweden, Norway and New Zealand have rates around 70%. Activating the old-age population requires reforms raising both the supply and the demand for older workers.

On the supply side, incentives for continued work should be improved further. To this end, penalties for drawing a pension before the statutory pension age should be raised to the actuarially neutral level. Reducing the duration of unemployment benefits for those aged 58 and above should also be considered, for example by reversing the lengthening from 18 to 24 months that was decided in 2007 or by equalising the duration across all age groups. Finally, the pension system could be made progressive, for example by raising the value of pension points for low income workers at the end of their career, to both avoid old-age poverty and discourage low-income workers from early retirement.

These measures should be usefully complemented by demand side measures. The wage premium of older workers relative to young ones is one of the highest among OECD countries and cross-country comparisons show that this reduces the chances of older workers being hired. One option for the public sector to limit this negative effect is to further change its remuneration system, for instance by continuing shifting from seniority towards performance. Social partners should be encouraged to assess in how far current wage schemes inhibit older worker employability. Also, participation in lifelong learning has a positive impact on the employability of older workers. Given that only 30% of workers aged 55-64 currently participate in training or education in Germany, compared to 60% in Sweden, such activities need to be expanded.

Figure 5. Employment of older workers and tertiary attainment



Note: The employment rate is employment as a % of population aged 55-64 years. Tertiary education includes advanced research programmes.

Source: OECD, *Labour Force database* and *Education at a Glance 2011*.

Continuing education reforms

Raising education outcomes would also contribute to labour participation over a working life: across OECD countries, employment rates for tertiary graduates are around 10 percentage points higher than for those with upper secondary education (including those with vocational training) and this difference becomes more marked for older workers. Notwithstanding the fact that Germany's employment rates for 25-34 year olds with vocational education and training are higher than the OECD average and their unemployment rate is lower, employment rates for workers with such educational background decline faster at older ages than for those with tertiary education (OECD, 2010a). The share of tertiary graduates for the overall working-age population at 26% is slightly below the OECD average (30%), despite the low level of education costs. In addition, the share of tertiary graduates has remained unchanged from one generation to the next, while in almost all other OECD countries the younger cohorts have much higher tertiary graduation rates than the older cohorts (Figure 5, right panel). This is the outcome of both a lower number of students who qualify to enter tertiary-type A university (54% vs. OECD average of 64%) and lower entry rates of those having the qualification to do so (40% in tertiary A (plus 19% in tertiary B) vs. OECD average of 59% tertiary A) as well as the availability of well-established vocational education and training options, which lead to very low rates of overall and youth unemployment. Recent measures to make the access to tertiary education for vocational training graduates easier start to show welcome results and efforts should continue in this direction. Furthermore, efforts should be stepped up to increase the participation in lifelong learning, and especially the further education participation of older workers.

In order to further improve access to tertiary education and raise the number of students qualified to pursue tertiary studies, education reforms need to continue as recommended in OECD (2010a). Germany has made significant progress in improving the school system in terms of quality and equity. Reforms to reduce entry barriers of the system should be pursued further. Measures to improve the performance of disadvantaged students have been taken and efforts to increase equity of the school system should continue. Some *Länder* have made considerable progress in reducing the stratification in the school system, notably by delaying the tracking decision to a later age and reducing the number of school tracks. Similar approaches should be adopted in the remaining *Länder*. In addition, the institutional set-up of tertiary education should be improved, including a sufficient and diverse financing of higher education, including private participation, while continuing with measures to facilitate tertiary education for cash-poor students.

Reducing the risk of labour market duality

In addition to raising the numbers in the labour force, the structure of employment matters for labour market outcomes. In this regard, it is worrisome that the labour market is increasingly becoming divided into those employees with permanent contracts and those with fixed-term jobs. Fixed-term jobs now account for almost 15% of all dependent employment, up from around 10% in the mid-1990s, with their share rising faster than the OECD average (which stood at 12.4% in 2010). Fixed-term contracts have increased especially rapidly for younger workers. Almost two-thirds of younger workers have such work contracts - twice the OECD average. While this also reflects the large number of apprentices in vocational training who are usually hired on a fixed term basis, it is also true that this share increased by 20 percentage points since the mid-1990s.

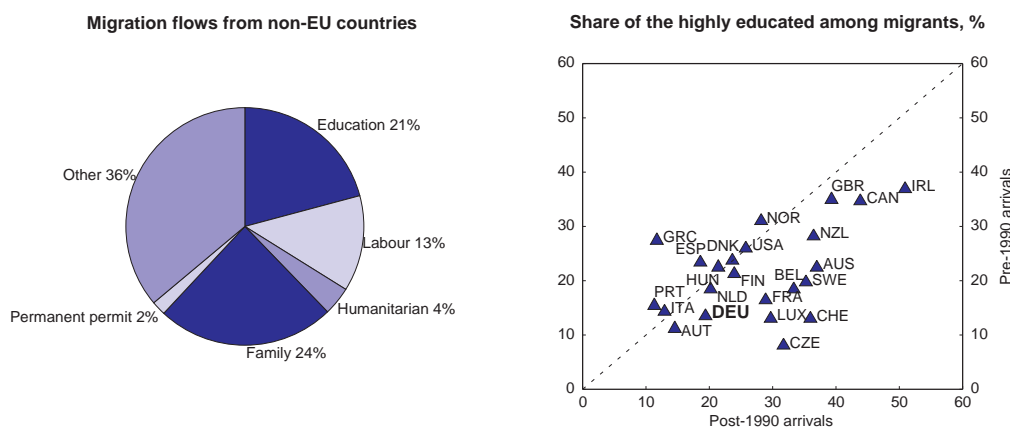
There have been significant efforts over the past years to facilitate the use of fixed-term contracts, which increased employers' flexibility and created stepping stones into permanent employment (around half of all workers on fixed-term contracts obtain regular contracts after the limitation period has ended (Hohendanner, 2010). However, it is well known that employment protection legislation can be a factor behind labour market duality, notably if protection of permanent and fixed-term contracts differs sharply (de Serres *et al.*, 2011). Fixed-term employment can have adverse effects on the long-run employability, especially for young workers, notably because firms are less likely to invest in their training (OECD, 2004). It also contributes to higher income inequality as fixed-term workers tend to earn less than permanent ones (Koske *et al.*, 2012). Germany has substantially liberalised fixed-term work contracts since the mid 1990s to well beyond the OECD average, while protection of regular employment remains among the strictest in the OECD. To lower the risk of dualisation in the labour market, the protection of permanent work contracts should be lowered along the lines suggested in OECD (2010a), for

example by moving towards a unified job contract with the degree of protection rising with tenure. At the same time, the government should resist scaling back the prior liberalisation of fixed-term contracts.

Fostering integration and labour migration

Immigration can also play a larger role, especially in the case of emerging bottlenecks in the labour market. Unfortunately, net migration flows to Germany have declined over the last decade; immigration of workers accounts for only a small share of all immigration, and the proportion of highly educated among migrants is lower in Germany than in many other OECD countries (Figure 6). This outcome reflects a host of factors, such as language and other problems of integration. In this respect, the recent legislation facilitating the recognition of foreign credentials is a step in the right direction. However, hurdles to integration and immigration remain significant and further reform appears warranted. So far, the number of inflows coming from EU member states has been low even after the opening up of the labour market in May 2011. The focus should therefore be on appealing a greater number of, in particular high-skilled, EU-citizens and on making immigration easier for non-EU immigrants with skills that cannot reasonably otherwise be found in Germany.

Figure 6. Composition of migration to Germany and the education level of migrants



Note: Left panel data is from 2009. Total inflows are grouped by type of residence permit received. Permanent permit includes permits delivered to high skilled, accounting for 0.7% of the total. “Others” mainly include temporary authorization to stay for migration candidates, including asylum seekers.

Source: Bundesamt für Migration und Flüchtlinge, *Migrationsbericht 2009*; OECD (2008b), *A Profile of Immigrant Population in the 21st Century*, Chart 4.4.

In case employers intend to hire high-skilled migrants from non-EU countries, they are faced with a labour market test where they need to prove that they cannot fill the position with a domestic worker or EU national. This requirement, however, is waived for jobs with an annual income exceeding EUR 66 000. As this wage exceeds that of many young skilled workers, the provision inhibits the immigration of needed skills. Lowering the threshold would therefore be a first step to attracting more highly qualified foreign workers. To further attract the skills needed by the German economy, a points system should be considered, as is practiced in several OECD countries. Indeed, a points system is transparent and flexible and international experience indicates it leads to an increase in the qualification level of migrants. In addition to fostering high-skilled migration, the need for mid- and low skilled migration due to labour shortages in certain occupations should be assessed, as shortages may develop not only in high-skilled occupations. To this end, an institution tasked with designing, assessing and coordinating labour immigration policy, including setting up shortage lists, could be established.

Box 2. Recommendations for the labour market

Raising incentives for full-time female participation

- Reduce fiscal disincentives to work by introducing mandatory health insurance premiums for non-working spouses and by reforming joint income taxation. Continue plans to expand the supply of childcare facilities and further increase the availability of full-day schooling. Refrain from subsidizing families who choose to not use childcare facilities.

Raising incentives to work longer

- Raise pension discounts for drawing a pension before the statutory pension age towards an actuarially neutral level and make the pension system progressive to both avoid old-age poverty and discourage low-income workers from early retirement.
- Reduce the duration of unemployment benefits for those aged 58 and above, for example by reversing the lengthening from 18 to 24 months that was decided in 2007 or by equalizing the duration across all age groups.
- Continue shifting from seniority towards performance remuneration in the public sector and encourage social partners to assess in how far current wage schemes inhibit older worker employability. Expand lifelong learning activities for older workers.

Education

- Monitor the effect of measures taken to reduce entry barriers of the education system and adjust measures if warranted. Continue to reduce the stratification in the school system, notably by delaying the tracking decision beyond age 10 and reducing the number of school tracks across all *Länder*. Improve the institutional setup of tertiary education, including a sufficient and diverse financing of higher education.

Dual labour market

- Lower the protection of permanent work contracts along the lines suggested in previous *Surveys*. Move towards a unified job contract with the degree of protection rising with tenure.

Fostering integration and immigration

- Consider lowering the wage threshold which exempts employers from proving that they cannot fill the position with a domestic worker or EU national before hiring a high skilled non-EU migrant. Consider moving towards a points system for immigration.
- Monitor whether the recent legislation to acknowledge foreign credentials effectively supports integration.
- Consider establishing an institution tasked with designing, assessing and coordinating labour migration policy, notably including setting up shortage lists.

... and policies for raising productivity and better balanced growth ...

In addition to raising labour input, there is scope for increasing productivity. Growth in productivity per employee over the past decade was only around half of the OECD average (Table 6). This reflects both

a stronger decline in the number of hours worked per person and lower growth in hourly productivity. Labour productivity is particularly lagging behind in business services, where the cumulative growth amounted to only two-thirds of the OECD average over the years 1995-2008. Overall, this translates into significantly lower growth in value added in business services compared to other countries, as argued in OECD (2010a).

Table 6. Labour productivity compared to the OECD

Average annual growth rates

	1995-2010		2000-10		2000-08	
	DEU	OECD	DEU	OECD	DEU	OECD
GDP per employee	0.8	1.5	0.6	1.4	0.9	1.6
of which business services**	1.0	1.4			0.9	1.7
GDP per hour worked	1.3	1.5	1.1	1.5	1.4	1.7
Hours worked per employee	-0.5	-0.3*	-0.4	-0.4	-0.4	-0.3

Note. * Unweighted average excl. Chile, Estonia and Slovenia. **1995-2008. Business services equals total services except for community, social and personal services and includes wholesale and retail trade, restaurants, hotels, transport, storage, communications, finance, real estate and other business services.

Source: OECD *Analytical database* and *STAN*.

Deregulation of the services sector

One factor that is holding back productivity is remaining regulation in some services sectors, notably professional services (in particular architects, engineers and the legal professions; OECD, 2010a). Germany ranks 22 out of 27 OECD countries in terms of strictness and this is mostly due to strict conduct regulations (restrictions on inter-professional co-operation as well as regulation of advertising and of prices and fees). While there are many arguments for having some regulation in place (such as consumer protection), a too restrictive stance hampers market entry and competition. The 2009 reform of the regulation of prices for architects and engineers is a step in the right direction. But deregulation should continue and importantly should include rethinking compulsory chamber membership. The economic impact of deregulation would be significant as the liberal professions (of which professional services form a large part) directly account for around 10% of GDP. Regarding economy-wide regulations, the license and permit system is more burdensome than in other countries, thus acting as a barrier to entrepreneurship also, but not only, in the services sector. The “silence is consent” rule for issuing licenses should be applied and points of single contact should be allowed to issue or accept notifications and licenses. In order to focus the debate and to identify remaining hurdles to higher productivity, an advisory body tasked with reviewing regulation and other issues - similar to the Australian Productivity Commission - should be established.

Cross-country evidence suggests that reforms, which remove entry barriers, foster competition and eliminate red tape, would not only improve productivity but also raise investment. For example, aligning the degree of economy wide product market regulation with best practice could increase the investment rate by ¼ percentage point (Kerdrain *et al.*, 2011) and labour productivity growth could be 1 percentage point per year higher over a period of 10 years (Arnold *et al.*, 2009). Gomes *et al.* (2011) show that a reduction in the mark-up by 15 percentage points in the German services sector would increase output by 4.4%, notably through higher investment. Such policies would make the domestic sector more attractive for employment and investment, and likely would lead to higher wages underpinned by higher productivity. Overall, such reforms would thereby help to lower the current account surplus and thus reducing global imbalances, while benefiting the German economy through higher trend growth (OECD, 2010a).

Fostering innovation

Productivity would also benefit from improved innovation policies. While Germany's current position in innovation activity is quite good when measured by output indicators such as the absolute number of patent filings, its relative advantage is shrinking as the growth of these outputs is declining. This mostly reflects deficiencies on the input side, such as the lack of finance for innovation projects, notably for small firms which tend to produce more radical innovation. As discussed in OECD (2010a), measures should be taken to improve the availability of risk financing, including providing venture capitalists with appropriate exit possibilities. Moreover, Germany relies mainly on direct R&D subsidies at the federal and state level rather than tax incentives, which have become increasingly popular in many OECD countries. While the government is discussing the introduction of an R&D tax credit as an additional instrument, it has not yet been put in place. In their discussion about such a tax credit, authorities should take note of the advantages of a mixed system of direct and indirect support for R&D, while ensuring that the design of such a system sets appropriate incentives for innovation.

Box 3. Recommendations for improving resilience and trend growth

Financial stability

- Intensify discussions with the banking sector on the means to ensure its adequate capitalisation and stand ready to provide appropriate support.
- Efforts for a coordinated reform of the Landesbanken sector should continue, including a reform of the savings bank sector.

Fiscal policy

- Let automatic stabilizers work. In case of a significantly weaker growth outlook provide a temporary stimulus to demand in such a way that does not harm the credibility of the fiscal rule.
- Further specify the consolidation plans.
- Review the structure of the tax system by shifting taxation from mobile bases to immobile bases. Phase out VAT reduced tax rates. Increase real estate tax rates and move towards actual prices for evaluating the tax base. Reduce social security contributions, notably for low income workers, together with a reform of the social security system on the expenditure side.

Domestic sector productivity growth

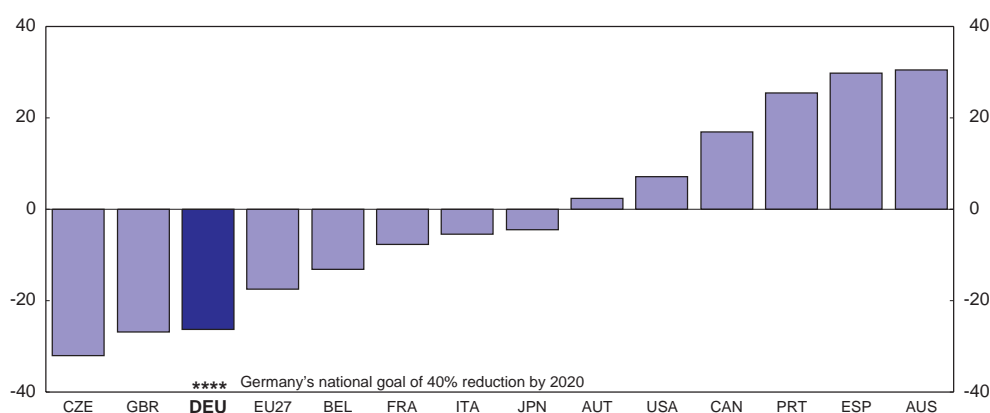
- Continue the deregulation of professional services, including rethinking compulsory chamber membership. Apply the "silence is consent" rule for issuing licenses and allow points of single contact to issue or accept notifications and licenses. Establish an advisory body tasked with identifying and reviewing regulatory hurdles to higher productivity.
- Improve the availability of risk financing, including providing venture capitalists with appropriate exit possibilities. Implement a mixed system of direct and indirect support for R&D, while ensuring that the design of such a system sets appropriate incentives for innovation.

Turning the task of climate change mitigation into a new source of growth

Germany set itself ambitious targets...

Germany has reduced greenhouse gas (GHG) emissions substantially more than other countries; emissions were 26% lower in 2009 compared to 1990, thus outpacing their Kyoto target of a 21% reduction by 2012 (Figure 7). However, part of past emission reductions is due to the collapse of the emission-intensive industry in the eastern *Länder* during the 1990s (Weidner and Mez, 2008). Also, outsourcing of manufacturing activities to new European Union member countries during the 2000s and low growth during most of the past decade has limited emissions. Nevertheless, climate change mitigation policies, which benefit from strong public support, have contributed to this success.

Figure 7. Growth in GHG emissions 1990-2009, %



Source: United Nations Framework Convention on Climate Change (UNFCCC).

Despite past emission reductions, Germany remains a big emitter of GHG. Emissions per unit of GDP are above the EU27 average, partly due to a more carbon-intensive energy mix. Germany has set itself ambitious national targets in its Energy Concept: by 2020, the aim is to reduce GHG emissions by 40% relative to their 1990 level, to reduce primary energy consumption by 20% relative to 2008, and to increase the share of renewable energy sources (RES) in electricity consumption to 35%.

...and the phase-out of nuclear energy will increase the challenge

Going forward, ambitious reductions in GHG emissions will be more challenging: *First*, Germany may not benefit from further one-off reductions in GHG emissions and the target implies an even faster abatement than in the past. *Second*, the phase out of nuclear energy production earlier than previously decided (by 2022 instead of 2036) will at least temporarily require increased use of fossil fuel fired power plants as a large source of low carbon energy production will vanish. Nevertheless, as the government plans to accelerate the expansion of RES and gains in energy efficiency, the negative impact of the nuclear phase-out on GHG emissions may be contained in the medium term.

Even though Germany can benefit from being a first mover in reducing GHG emissions and in developing RES, its strategy is associated with a number of risks, notably extraordinary increases in GHG abatement costs. For example, with the accelerated closure of nuclear power plants, the forced extension and adaptation of the electricity grid as well as the anticipated investments in the fossil fuel fired power plants and in RES will increase the costs related to the reduction of emissions in the energy sector, not least by limiting the development and the use of more advanced technologies. In addition, the immediate closure of some older nuclear power plants will reduce energy supply security in the short run and will make the management of European electricity networks more challenging. Moreover, reducing emissions in the sectors covered by the European Emission Trading Scheme (EU ETS) on top of

the reductions induced by the carbon price would not contribute to higher climate change mitigation. As emissions are capped at the EU level, it would instead free up additional allowances for use elsewhere and distort the price signal created by the scheme.

Despite these disadvantages, the government's more ambitious targets may well be justified, for example insofar as they help in the development of new sectors. However, in order to contain any adverse growth effects or even generate an opportunity for additional growth, it is crucial that these targets are achieved in a cost-effective way. This requires significant adjustments to both climate change policies and to the overall framework conditions to foster the development of green energy sources and to further raise energy efficiency.

Climate change mitigation policies need to become more efficient...

Germany has several environmental policy tools at its disposal, which often creates overlap and thus requires simplification. For example, some GHG emitters are covered by several measures (such as the EU ETS and feed-in tariffs), while others are not covered at all. Also, instruments are not always dedicated to one objective. For example, in road transportation, fuel taxes, motor vehicle taxes or road tolls for trucks address different externalities (like climate change, air pollution, road wear or congestion) or serve different purposes, such as financing infrastructure. As a consequence, measures do not send an explicit price signal to polluters about the externalities they address. Given this, it is essential that environmental policies are evaluated frequently, in a transparent and comprehensive way in line with the recently implemented monitoring procedure of the government.

... by improving the carbon price signal in market-based instruments ...

The most efficient way to encourage emission reductions is to put a single price on GHG emissions which reflects their negative externalities (de Serres *et al.*, 2010). In this regard, the German system could be improved with the aim of making the carbon price signal implicit in the instrument used clearer. This also applies to the carbon price set implicitly through the trading of certificates in the EU ETS, which is likely to be too low and too volatile to encourage CO₂ abatement thus discouraging investment. The cap on emissions will be progressively reduced in the third phase from 2013 onwards encouraging emissions abatement in the sectors covered by the scheme. Nevertheless, consideration should be given to implementing measures to reduce the uncertainty around the carbon price. Examples include a floor price for carbon, implemented through a flexible levy, and ideally applied at the EU level.

In addition, there is no clear and harmonised carbon price in the sectors not covered by the EU ETS. Some taxes, in particular the eco tax based on electricity and fossil fuels consumption, apply to emission-intensive products but are not designed to explicitly tax carbon emissions. The eco tax should be made better targeted by taking into account the CO₂ content of the taxed sources thus creating an effective carbon tax, while also ensuring the adequate pricing of other externalities. In addition, fossil fuel support, which includes both energy tax exemptions and explicit subsidies and accounts for around 0.3% of GDP, encourages carbon emissions. The numerous exemptions and reduced energy tax rates, such as the reduced tax rate on diesel or the refund for export-oriented manufacturing sectors, should be eliminated except if they are designed to avoid double-taxation, notably in sectors covered by the EU ETS. The recent consolidation measures which reduced the generosity of some of these reductions are welcome in this regard. Furthermore, subsidies for coal mining (covering the difference between production costs and the world market price) still amount to around 0.1% of GDP. The government intends to phase them out by 2018 in accordance with EU regulation. The government should consider accelerating its plan for phasing out coal subsidies. In a similar vein, tax expenditures like the commuter tax allowance (0.2% of GDP) should be rethought in light of their environmental impact. As environmental taxes are less distortive than labour or capital taxes, raising revenue through them would also contribute to making the tax system more growth-friendly, while their recycling can limit the losses in competitiveness.

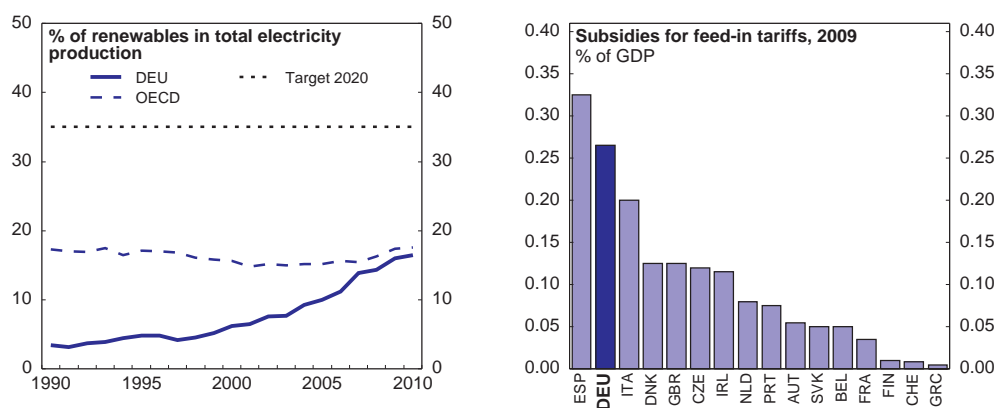
... making non-market based measures to raise energy efficiency more targeted ...

Efficient carbon pricing should usefully be complemented with non-market instruments in cases of clearly identified market imperfections. Germany implements a wide range of such measures, such as providing wide-spread access to information for enhancing energy efficiency, the setting of environmental standards for buildings or the provision of subsidized loans to finance investments in green equipment. However, these instruments could be made more efficient: for example, the allocation of funds should be restricted to low income households or credit constrained firms, rather than handing them out on a first-come-first-serve basis. In addition, proposed changes in rent regulation, which can further remove obstacles to energy savings investments in rental housing, should be implemented swiftly.

... and readjusting support schemes for renewable energy sources

Carbon pricing in the EU ETS will not be sufficient to reach the RES target as these technologies are not yet mature enough to compete with fossil fuels. In the past, the development of RES in Germany has been mainly supported by the provision of feed-in tariffs, which guarantee a sale price for electricity generated through RES and preferential access to the grid (Figure 8, left panel). These tariffs are in general well-designed: they are transparent and predictable (thus fostering long-term investment) and are decreasing over time (thus encouraging innovation). Tariffs also vary across technologies; while this is potentially supporting non-mature but promising power sources more than others, it increases CO₂ abatement costs for certain technologies to excessive levels. Given the relatively high costs of feed-in tariffs (Figure 8, right panel), efficiency-improving adjustments to the system should be considered. It is thus welcome that the government revised the photovoltaic tariffs; it should continue to monitor the generosity of the feed-in tariffs and adjust them tightly in line with market developments. In addition, implicit CO₂ abatement costs related to feed-in tariffs should be maintained at reasonable levels, even at the cost of limiting support to some RES.

Figure 8. Renewables and feed-in tariffs



Note: Renewables in electricity production are hydro, geothermal, solar/wind/sea, biofuels and waste. For subsidies, hydro and waste are excluded. Subsidies are calculated by Egert (2011) as the lower and upper-bound feed-in tariffs in excess of the market prices multiplied by electricity production from a given energy source in 2009. The graph shows the midpoint where a range of tariffs exists.

Source: OECD/IEA, *Energy Balances of OECD countries* (2011 edition) and OECD *Dotstat database*; Egert (2011).

Continuing the green growth success story

In the past, Germany was successful in turning the challenge of climate change into a source of growth, helped by the substantial support for RES noted above. It is among the largest producers of environmental goods and services with a share in global trade of climate protection related products amounting to more than 12%. Achieving the ambitious targets for climate change mitigation will likely

become more challenging, as the new regime without nuclear power may impose additional costs on the economy. In particular, the development of RES may significantly weigh on electricity prices as it will require financial support and substantial investment in infrastructure. While Germany can build on its experience as a leader in the development of green sectors, continuing the green growth success story requires policy adjustments taking cost efficiency more explicitly into account.

Facilitating investment in the electrical grid

The rising importance of RES supply necessitates substantial investment in the national electrical grid to deliver electricity from suppliers to consumers, which are typically not close together (Dena, 2010). Furthermore, it may also be necessary to expand international grid connection capacity to facilitate eventually necessary substitution of domestic electricity supply sources from abroad (see below). Estimates show that considerable investments are required, generating substantial costs for electricity consumers. In addition, due to the fluctuating and unpredictable nature of RES, investing in electricity storage capacity and improving energy efficiency is necessary to ensure a secure energy supply while limiting the recourse to fossil fuel power plants. The government rightly made network expansion a key priority and laid the legal framework to facilitate the planning and authorization process by increasing transparency and public involvement. These procedures need to be put in practice swiftly in order to accelerate the necessary investments. On the distribution side, the government identified the need for 'smart grids' which can predict and respond flexibly to changes in supply and demand. Given the monopolistic nature of the transmission sector, the authorities need to ensure that the transmission system operators have adequate incentives to invest in the most efficient technologies.

Raising competition in the energy sector

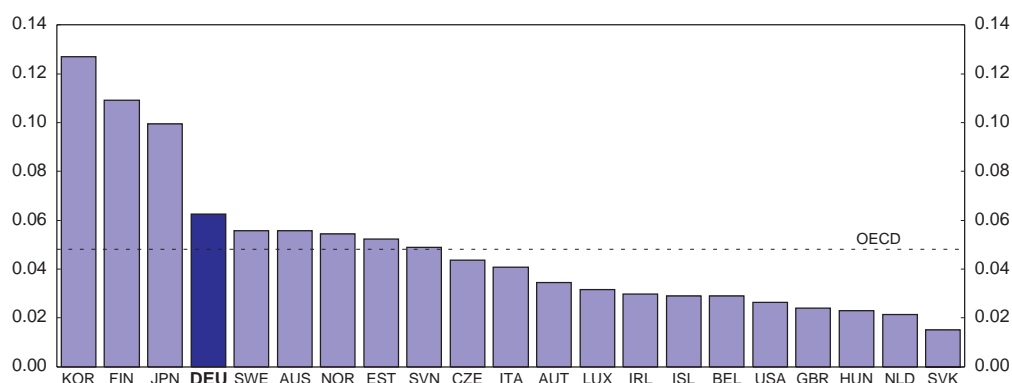
Improving competition in the energy sector is important to facilitate and reduce the cost of RES expansion. Easy access to the grid for new market entrants should be ensured. The recent implementation of the third EU energy package will contribute to promoting increased competition in EU gas and electricity markets. In addition, the establishment of a new body charged with ensuring market transparency on the wholesale market is welcome. Also, greater integration into the European energy market would help to manage electricity volatility induced by the development of RES (IEA, 2011); the interconnection capacity in Germany should thus be expanded. Finally, even though the supplier has non-discriminatory access to final consumers, competition at the retail level remains low. Measures to raise the awareness for consumers about the option to switch their energy supplier could be considered, as this is fostering the innovative activities of energy companies.

Maintaining the lead in eco-innovation

Eco-innovation is an important tool not just to implement climate change mitigation in a cost-effective way, but also as a source of overall economic growth (OECD, 2011b). Germany is a leader in environmental innovation: the number of triadic patents in RES was the second-highest after Japan between 1996 and 2008 (OECD, 2011c). This outcome may be due not least to the early implementation of environmental policies. In addition, government R&D spending in the environment and energy sectors is slightly above the OECD average (Figure 9). While eco-innovation is mainly driven by environmental policies, Germany should ensure other barriers will not hamper eco-innovation. Given increasing global competition in eco-innovative activities and the decline in Germany's innovative outcomes over the past few years (OECD, 2010a), there is a risk that Germany is falling behind at a time when the importance of such technologies is rising. In addition, limited access to finance or the lack of skilled workers is likely to limit the innovative capacities in the German green sectors. While public support for basic research activities should be maintained, introducing an R&D tax credit would help to counter this trend. Similarly, raising the availability of risk financing is important to foster innovative young companies, which are underrepresented in Germany compared to other innovative countries.

Figure 9. Government R&D spending on environment and energy

% of GDP, 2010 or latest



Note: OECD refers to the average of countries in the graph.

Source: OECD, *Research and development statistics, Government budget appropriation or outlays for R&D (GBAORD)* available in the *OECD Dotstat database*.

Box 4. Recommendations for climate change mitigation and green growth policy

Climate change mitigation

- Contribute to discussions at EU level about possible measures to maintain an effective carbon price signal in the EU ETS in line with overall medium and long-term EU emission reduction targets. Consider creating an effective carbon tax in the sectors not covered by the EU ETS and ensure that other, non-carbon related, externalities are adequately priced.
- Eliminate exemptions and reduced energy tax rates (except if they are designed to avoid double taxation, notably in sectors covered by the EU ETS) and accelerate the removal of coal subsidies. Revise environmentally harmful tax expenditures.
- Restrict subsidised loans to low income households or credit constrained firms. In addition, proposed changes in rent regulation, which can further remove obstacles to energy savings investments in rental housing, should be implemented swiftly.
- Continue to monitor the generosity of feed-in tariffs and adjust them in line with market developments. In addition, implicit CO₂ abatement costs related to feed-in tariffs should be maintained at reasonable levels.

Green growth

- Provide adequate incentives for the transmission systems operators to invest in the most efficient technologies while extending the grid. Further implement measures which aim at more transparency and public involvement in the decision process of grid extension.
- Improve competition on the electricity and gas markets by raising further the interconnection capacity of the electricity grid and the awareness for consumers about the option to switch their energy supplier.
- Maintain public support for basic research activities, consider implementing an R&D tax credit for innovative firms and raise the availability of risk financing.

Chapter summaries

Chapter 1. The German labour market: preparing for the future

The strength of the German labour market response to the financial crisis of 2008-09 demonstrated the benefits of past labour market reforms, which raised work incentives, improved job matching and increased working hour flexibility. Going forward, the government should build on this success and address the remaining challenges which include raising the labour participation of females and older workers (which among other things will necessitate adjustments to the tax and education system) and fostering migration, notably of skilled workers. The significant ageing-related decline in the labour force exemplifies the urgency of further structural reforms in this area.

Chapter 2. Climate change policies: make ambition pay

Germany reduced greenhouse gas emissions substantially but remains an important emitter. Ambitious targets for climate change mitigation have been fixed and a broad range of environmental measures are being implemented. The efficiency of these measures, as well as their coordination, should be improved though, as reaching the targets risks being costly. In particular, the early phase-out of nuclear power and the development of renewable energy sources will require high levels of investment and public financial support. Establishing a clear carbon price in all sectors of the economy and phasing out environmentally harmful subsidies would contribute to reducing the CO₂ abatement cost. The generosity of feed-in tariffs also needs to be carefully monitored and adjusted tightly in line with market developments to avoid deadweight losses and excessive increases in electricity prices. In addition, in order to maintain the German leadership in green sectors and preserve future sources of growth, competition in the energy sectors should be increased and eco-innovation further developed.

This Survey is published on the responsibility of the Economic and Development Review Committee (EDRC) of the OECD, which is charged with the examination of the economic situation of member countries.

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