

Assessment and recommendations

- *Growth is picking-up and digitalisation brings new challenges and opportunities*
- *Growth is picking up*
- *Macroeconomic policy has been supportive*
- *Raising medium-term growth*
- *Seizing opportunities and addressing the challenges arising from digitalisation*
- *Challenges for green growth*

Growth is picking-up and digitalisation brings new challenges and opportunities

After several years of subdued growth, economic output has accelerated in 2016 supported by a tax reform that entered into force in 2015-16, and more recently a pick-up in international trade. The upturn has improved fiscal balances, and the public debt ratio is on a downward path. The improvement in the macroeconomic situation has strengthened business and household confidence and the short-term outlook is favourable.

Like in most OECD countries, however, potential growth has weakened since the 1990s as capital formation, hours worked per person and total factor productivity have slowed. Austria initially benefitted from the rapid build-up of new regional value chains in Central and Eastern Europe, but has since tended to lose ground in this area. Policymakers currently aim at drawing on the global digital revolution to help renew business models, refuel productivity, accelerate innovation and boost competitiveness.

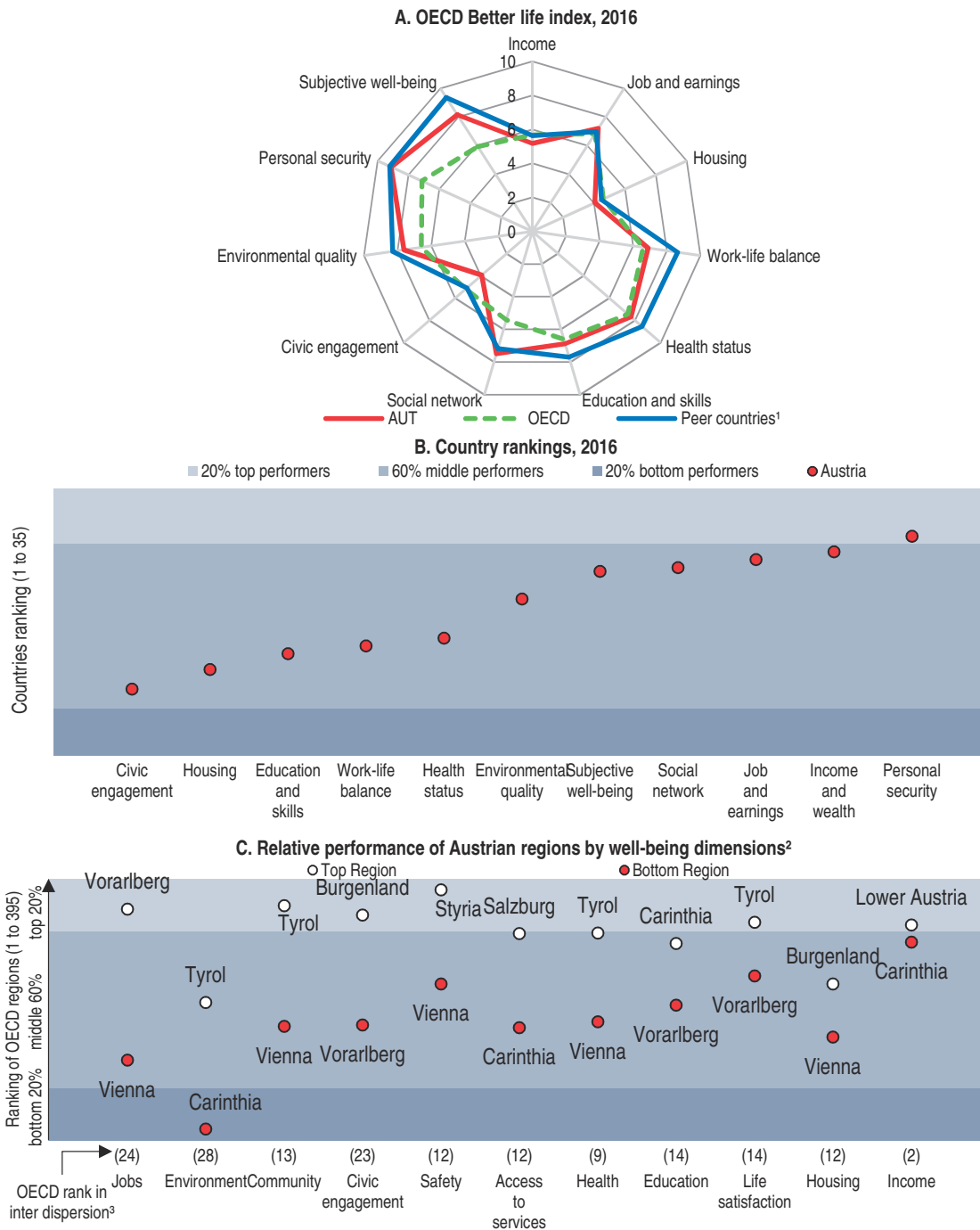
Austria remains a wealthy and stable economy, and its citizens enjoy a high quality of life (Figure 1, Panels A and B). GDP per capita and the employment rate exceed the OECD average. The risk of long term-unemployment is low and so is labour market insecurity. Even if a large share of jobs, particularly for women, is part-time, strong overall labour market performance boosts Austria's favourable international rankings for jobs and earnings, income, and subjective life satisfaction. Nonetheless, the country lags behind other high-income small European economies (henceforth "peer countries") with respect to work/life balance, health and housing, as discussed in recent OECD Economic Surveys, which focused on health in 2011, well-being more broadly in 2013 and gender inequality in 2015.

At the subnational level, Austria is also in the upper half of OECD countries in most well-being dimensions. Inequalities in regional GDP per capita declined since the early 2000s and are currently the second lowest in OECD (Figure 1, Panel C). However, disparities have increased in recent years for other regional indicators, notably with respect to R&D expenditures, unemployment rates and gender gaps in labour force participation.

The redistribution and social protection systems, backed by long-standing social partnership institutions, play an important role. Wage inequalities and poverty compare favourably to other countries, thanks to a tax and transfer system that curbs market income inequality by nearly half (Figure 2). In 2016, social expenditures accounted for nearly 28% of GDP in Austria against an OECD average of 21% (OECD Social Expenditure Database). Austrians finding themselves out of work can expect a lower average income loss than in most other OECD and peer countries (OECD, 2017a). The pension system offers relatively high replacement rates across all earning levels, and old-age poverty is lower than the OECD average, although many leave the labour market before the statutory retirement age, which reduces their pension entitlements.

Financing redistribution, however, is becoming more difficult. The population is ageing and slower growth in total hours worked implies a deceleration of the growth in social contributions. Benefit adjustments have been made over the past decade, and

Figure 1. Well-being is high



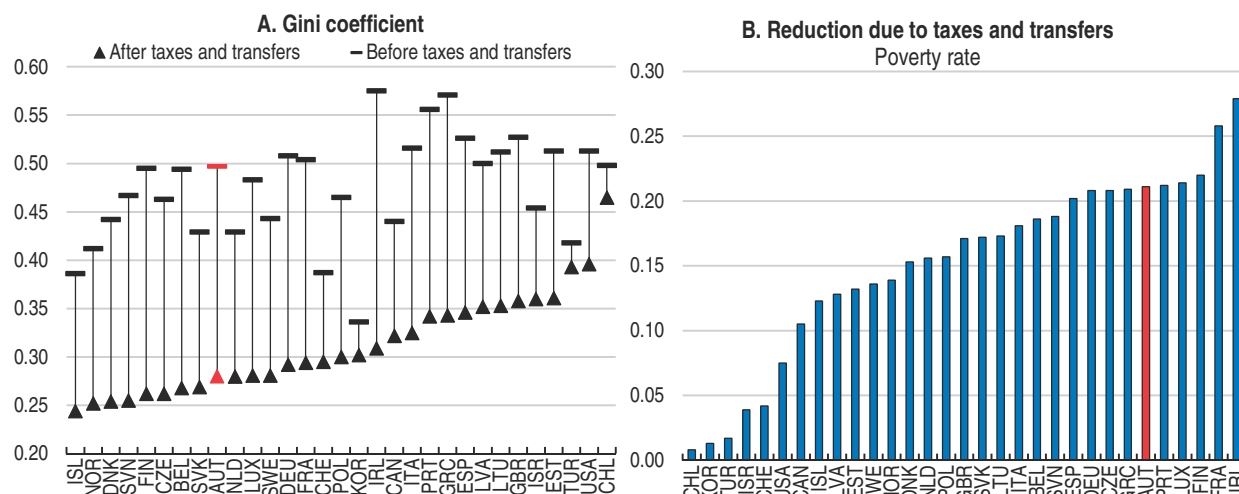
Note: Well-being dimensions are based on different indicators in panels A and B (where they are based on the OECD Better Life Index database definitions: www.oecdbetterlifeindex.org) and in panel C (where they are based on OECD Regional Well-being database definitions: www.oecdregionalwellbeing.org).

- Denmark, Netherlands, Sweden and Switzerland.
 - Relative ranking of the regions with the best and worst outcomes in the 11 well-being dimensions, with respect to all 395 OECD regions. The 11 dimensions are ranked according to the size of regional disparities in the country. In order to increase the sample size, all the annual waves of the Gallup survey between 2006 and 2014 have been pooled together.
 - Gap between top and bottom regions. Austria's rank between 34 OECD countries is shown, 34 (highest dispersion), 1 (lowest dispersion).
- Source: OECD (2016), Better Life Index database, www.oecdbetterlifeindex.org and OECD (2016) Regional Well-being database, www.oecdregionalwellbeing.org.

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Figure 2. **Redistribution plays an important role**

2013



Note: The Gini coefficient has a range from zero (when everybody has identical incomes) to 1 (when all income goes to only one person). The poverty line is defined as 60% of median income.

Source: OECD database on income distribution and poverty.

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further changes will be necessary in the future to shift the composition of funding away from labour taxes and social contributions towards wealth, consumption and other taxes, which are less distorting (Box 1).

Box 1. **Considering the tax-and-benefit system as a whole**

Successive studies in OECD considered the impact of different types of taxes on economic growth (Arnold et al. 2011) and, more recently, extended the analysis to inclusiveness. This stream of work suggests that when growth and inclusiveness objectives are considered together, the tax-and-benefit system in each country should be examined as a whole (Brys et al., 2016).

Across OECD countries, “recurrent taxes on immovable property” are found to be the least harmful for growth, followed by consumption taxes (including environmental taxes), “other property taxes”, personal income taxes and corporate income taxes. The other property taxes encompass “property transaction taxes”, “recurrent taxes on net wealth” and “inheritance taxes”, the individual impacts of which have not been investigated separately so far.

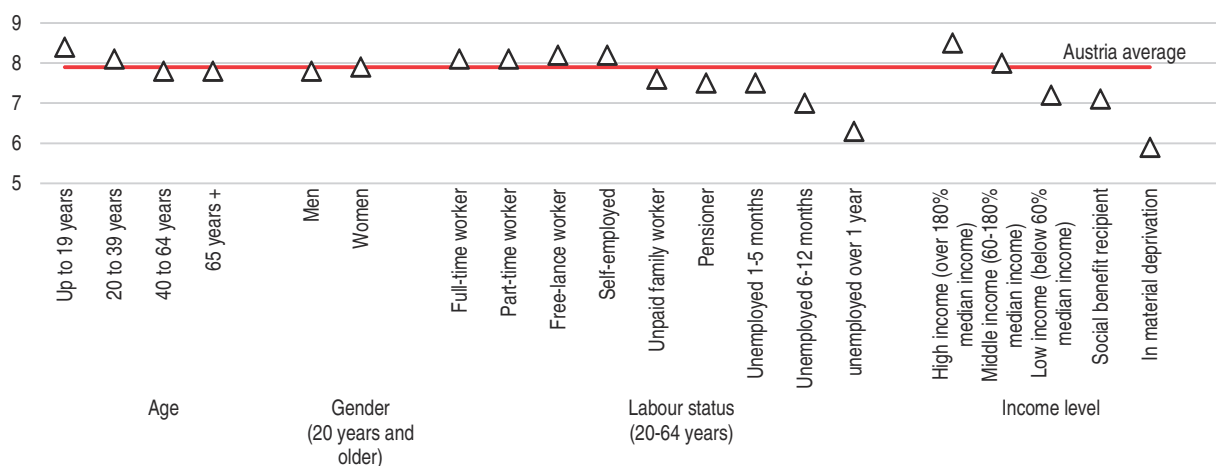
In the new extended approach, tax design for inclusive growth is defined as “tax policy which reconciles efficiency and equity considerations. This can be achieved either by minimising the trade-offs between efficiency and equity –meaning by reducing the equity costs of efficient tax reforms, or by lowering the efficiency costs of equitable tax reforms– or by implementing tax reforms that enhance efficiency and equity simultaneously”.

Given the special scope of the tax-and-transfer system in Austria and the need to generate alternative revenue sources to employment-unfriendly labour taxation, a comprehensive reconsideration of the tax-and-benefit system as a whole may help identify various reform options.


In contrast to income, wealth remains very concentrated in Austria. According to the OECD Wealth Distribution Database, as of 2010, the wealthiest 10% Austrian households held 62% of the country's wealth, the second-highest share among 13 OECD countries after the United States (76%). Although in all OECD economies wealth inequality is significantly higher than income inequality (the top 10% of the wealth distribution hold on average half of total household wealth) the stark contrast between Austria's income equality and wealth equality invites further scrutiny. The sources of this contrast are not well understood and need a thorough study of its own. Some very general insights can be offered when looking at OECD work on tax systems analysed for its growth friendliness on the one hand and for its contribution to inclusiveness on the other (Box 1). Another weakness in social cohesion pertains to gender inequalities, which run deeper than in comparable countries. Childbearing tends to worsen gender gaps with respect to the distribution of paid and unpaid work, earnings, career prospects and entrepreneurship opportunities (OECD, 2015a).

Life satisfaction is high for most social groups (Figure 3) but distinctly lower for the long-term unemployed, who account for 2.5% of the adult population, and other social benefit recipients, including pensioners who retired with short contribution histories. Moreover, 3% of the population report experiencing "severe material deprivation" (Eurostat, 2017c) and a larger group of Austrians appear less confident than in the past about their capacity to maintain their well-being and living standards. A 2016 survey had more than half of them expressing dissatisfaction with recent economic and social trends, while going forward 21% expected an improvement in their quality of life and 27% a deterioration, albeit from a relatively high level in international comparison (SORA, 2016a and 2016b).

Figure 3. **Divergences in life satisfaction**
Life satisfaction across social groups, 2015 or latest available



Source: Statistics Austria; EU SILC 2015.

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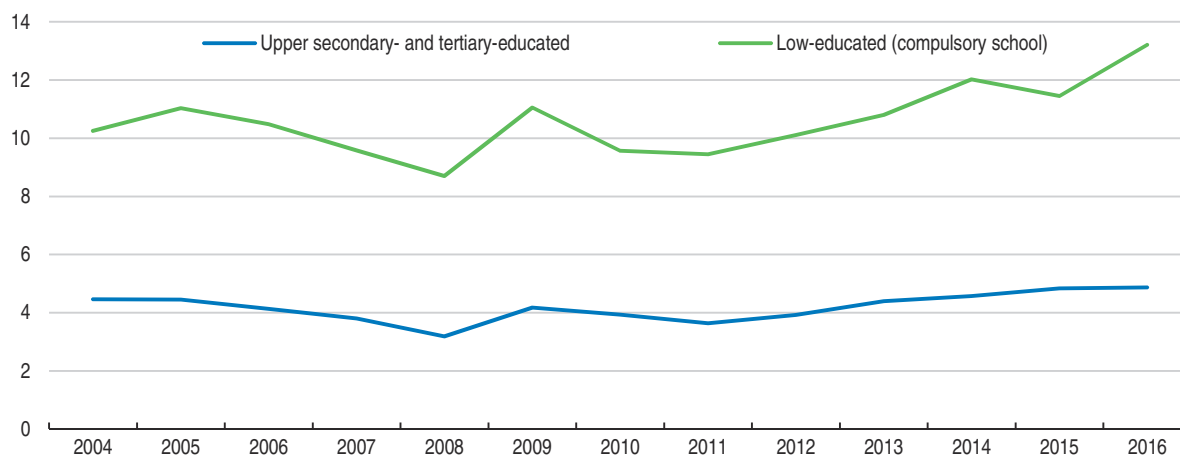
Well-established economic competencies of a majority of Austrian firms and workers have long made for high living standards. However, both firms and workers are challenged by the speed of change induced by global megatrends such as the geographical fragmentation of production and the digital transformation of work processes. Societal and economic structures may be less well suited to embrace these changes. Recent empirical research suggests that plant closures in Austria generate particularly large employment and wage

costs, possibly reflecting the important role but limited portability of enterprise-specific human capital (Winter-Ebner, 2016). Transition probabilities from joblessness to employment have been lower in Austria during 2005-12 than in most peer countries (Cournède et al., 2016). Concerning technological transformations there are many indications that the speed of change is slower in Austrian firms and households than in comparable countries.

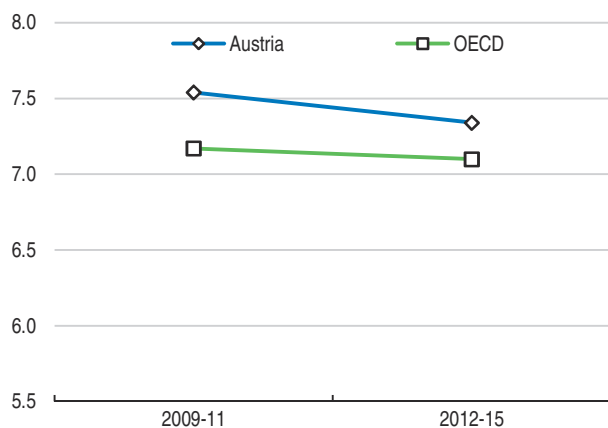
All population groups are affected by change, but the low-educated seem to face particular challenges in Austria. Not only their current skills, but also their capacity to upgrade abilities, occupations and jobs appear relatively low. Those with only compulsory education, one fifth of the population, are particularly affected. Their unemployment rate is three to five times higher than the one of other education groups (Figure 4, Panel A). Their subjective well-being, which used to be relatively close to that of higher-educated fellow citizens, remains well-above that of the low-educated in an average OECD country, but has deteriorated in recent years (Panels B and C).

Figure 4. **The low-educated face special pressures**

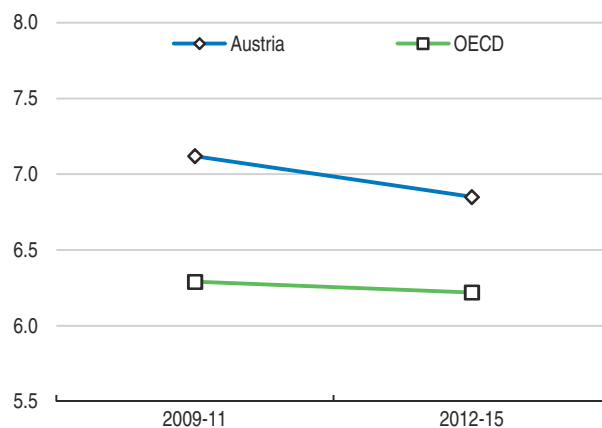
A. Unemployment rates according education level, % of active population




B. Life satisfaction for high-educated (tertiary education)



C. Life satisfaction for low-educated (compulsory school)



Source: Statistics Austria; Gallup World Poll.

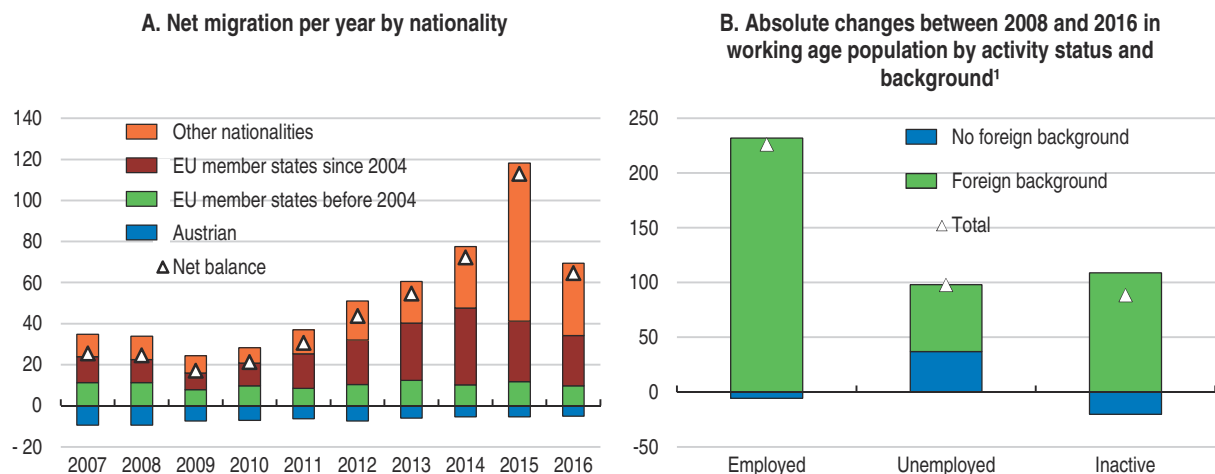
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These adjustment challenges tend to be starker for the less well-educated segments of the large immigrant population (OECD, 2014), which justifies the recently increased government efforts to improve their language skills and adaptation to changing labour market demands. Efforts to significantly improve the language capacities of immigrant children with a newly introduced two-year programme in kindergarten are also very welcome. These initiatives entail substantial costs but are crucial investments for future growth and social cohesion.

Austria has experienced increasing inflows of migrants over the past decade, in particular from new EU member states (mainly Romania, Hungary and, to a lesser extent, Poland, the Slovak Republic, Bulgaria and Croatia) and, more recently, from Afghanistan, Iraq and Syria amid the international refugee crisis (Figure 5, Panel A). More than half of the immigrants have been successfully integrated in the labour market, becoming the major driver of total employment growth in Austria (Panel B). At the same time, roughly 15% of the newly arrived are unemployed and another 27% inactive.

Figure 5. **Migration inflows have fostered labour supply**

Thousand persons



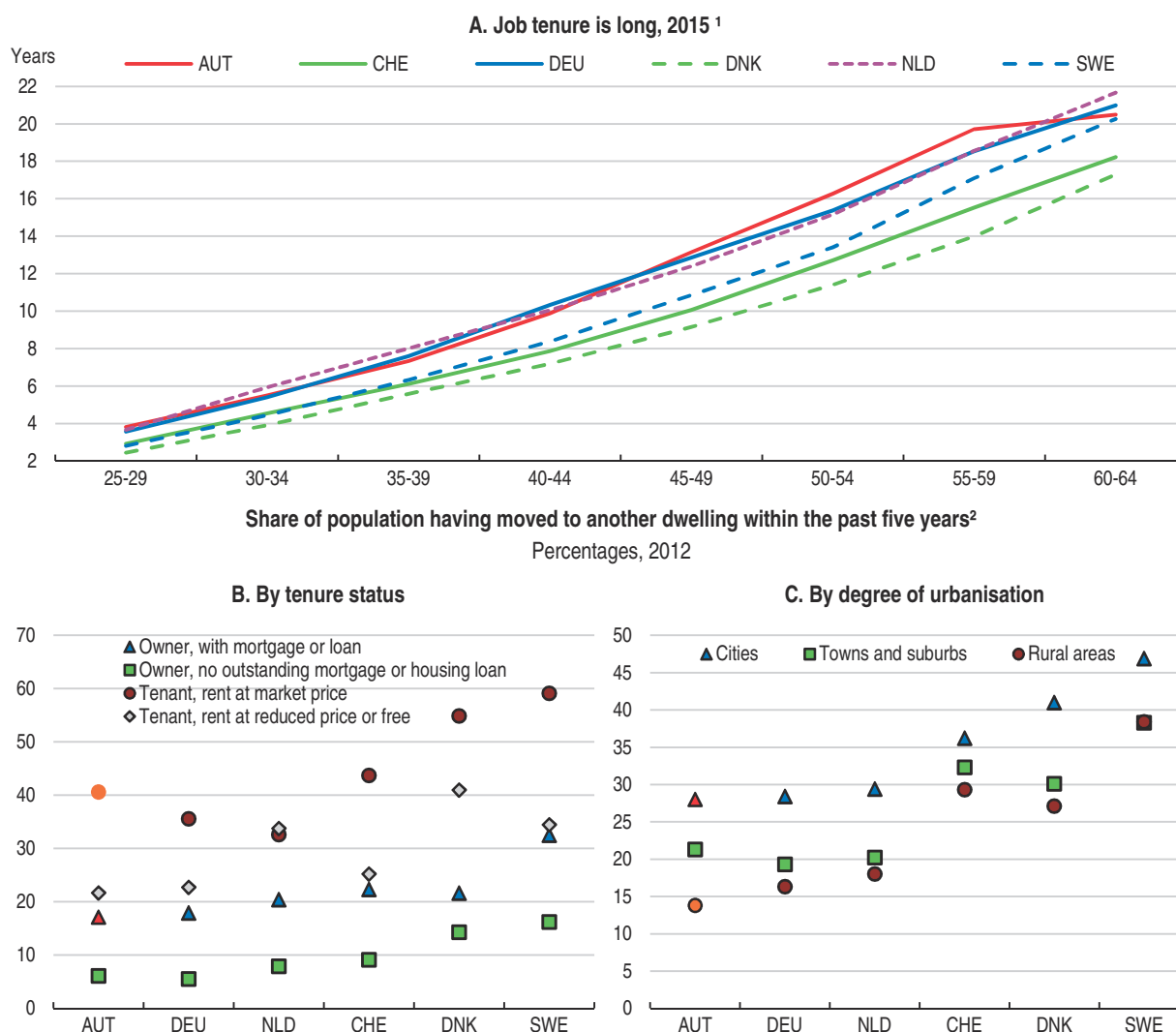
1. Foreign background means that both parents are born abroad.

Source: Statistics Austria.


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Even if business performance and job creation improve more broadly across the country, a higher degree of geographical mobility may be required in the future to accommodate disruptions arising from reallocations within global value chains and skill-biased technological changes in enterprises. However, many Austrians are very attached to their living place (Figure 6). Average job tenures are long, social networks are locally rooted, and housing arrangements are stable (OECD, 2013a). Many Austrians prefer long commuting times and even weekly long-distance commuting to moving. Government policies such as the commuting subsidy have also supported these patterns so far. Such life choices and policies helped sustain local communities, but pressures for greater mobility may intensify in the future.

Youth employment has traditionally been high. The youth employment rate held up well during and after the global financial crisis, but some groups are now falling behind – possibly revealing emerging tensions in the education and training system as labour market

Figure 6. **Job tenure is long and geographic mobility low**

1. Job tenure is measured by the length of time workers have been working with their current employers.
 2. Countries are ranked by total share of population having moved to another dwelling within the past five years.
- Source: OECD Labour Force Statistics database; Eurostat.

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needs change rapidly. Some 62% of youth aged 15-29 were in employment in 2015, far above the 51% OECD and 48% EU average. However, 162 000 youth (more than 10% of the 15-29 cohort) were not in employment, education or training (NEET), some 20 000 more than in 2012. In response, public authorities recently introduced new “training guarantees” for those leaving the education system with insufficient skills. Rapid changes in skill demand (Schitter et al., 2012; Benkovskis and Wörz, 2014) may be creating additional challenges for those entering the labour market with weak social and educational capital. The relatively narrow and too occupation-specific scope and low versatility of skills gained in some areas of the vocational education system may be compounding this challenge. Youth whose parents do not have upper secondary education are now over three times as likely to become NEETs as other youth, compared to an OECD average of 1.8 times. Youth born abroad are 2.4 times as likely to be NEET, compared to an OECD average of 1.5. Equality of opportunity and labour market prospects need to be improved across social groups (OECD, 2016f).

Sizeable refugee inflows from war-torn countries compound these social cohesion challenges. Austria has had the third-highest inflow of refugees per capita among OECD countries, and a relatively high share of asylum seekers have been allowed to stay. Immigration is not a new phenomenon in Austria, where more than a quarter of the population has a migrant background, but the composition of new arrivals creates special challenges. Most of the refugees originate from Syria (nearly 30%), Afghanistan (another 30%) and Iraq (around 15%), with employment histories and qualifications rooted in different market conditions. This makes their integration in Austria more demanding than for most earlier immigrant cohorts and calls for effective integration policies. Concerning young cohorts, around 18 000 children with a refugee status currently attend Austrian schools. Experience in comparable countries suggests that effective integration policies include more direct recognition of foreign qualifications, language courses, adult education, mentorship programmes and early labour market entry for immigrants (OECD, 2016g).

Against this background, the main messages of this Survey are:

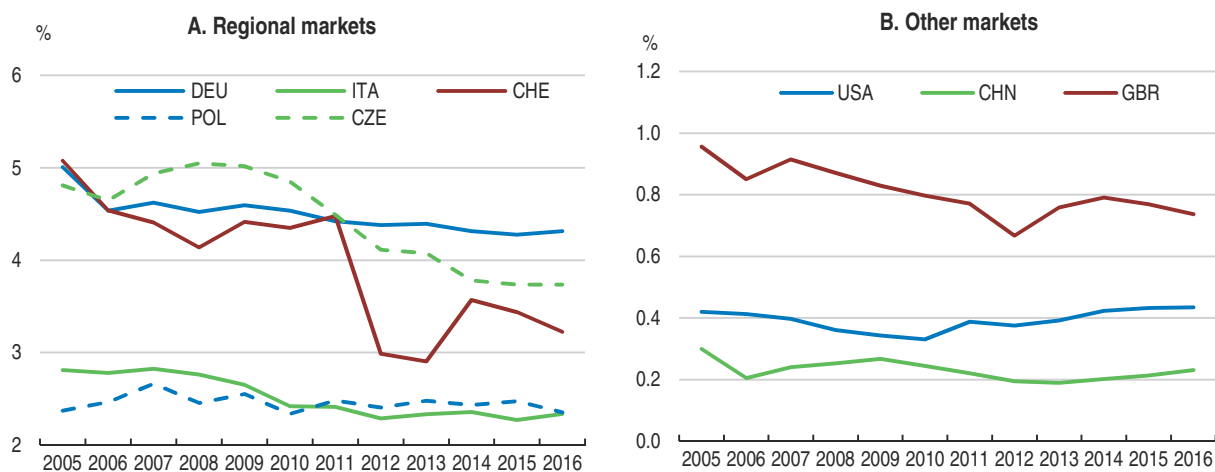
- Potential employment and output growth need to be boosted to improve both fiscal sustainability and social cohesion. This requires deeper structural reforms than currently envisaged.
- Austria's transition to a digital economy and society seems to be slower than in other high-income small European economies. Fostering business dynamism is crucial for the diffusion of new business models and ICT innovations.
- The technology-induced transformation of labour markets calls for a comprehensive approach to ensure equality of opportunity in the face of technological change.

Growth is picking up

Following the initial rebound from the financial crisis, growth languished in Austria (Figure 8, Panel A). Private consumption received a boost in 2015-16 from the tax reform that increased household disposable income by roughly 3% from 2016 onward (Panel C). Compared to its peers, investment has grown less in Austria since 2012 (Panel D), but the investment ratio remains relatively high at around 23% of GDP. Austria's export performance, measured by the cumulated growth of exports over the cumulated growth in export markets, deteriorated by more than 7 percentage points between early 2012 and late 2016 as supply parts of Germany-based regional value chains were lost to emerging Eastern European countries (OECD, 2016e). Similar to other high-income small European economies, Austria's market shares in regional goods markets have weakened (Figure 7, Panel A). At the same time, Austria has gained market shares in the United States (Panel B), which has become the second biggest goods export market for Austria, and other distant markets such as China, India and Japan. On aggregate, Austria's global market share in goods and services has stabilised since 2012 following strong declines in the aftermath of the financial crisis (Figure 8, Panel F) and the current account balance remains in surplus mainly thanks to tourism.

Economic activity picked up in 2016, with growth exceeding 1% for the first time since 2011, reflecting stronger private consumption and investment. Going forward, private consumption will be propelled by gains in disposable income fuelled by the tax reform and favourable labour market developments (Table 1). Income gains had initially gone partly into saving, but the saving ratio has started to edge down as consumer confidence has improved. Investment is projected to gather pace. Accelerating international trade will boost export growth.

Figure 7. Austria's market share in main export destinations



Note: Exports of goods only.

Source: IMF (2017), Direction of Trade Statistics (DOTS).

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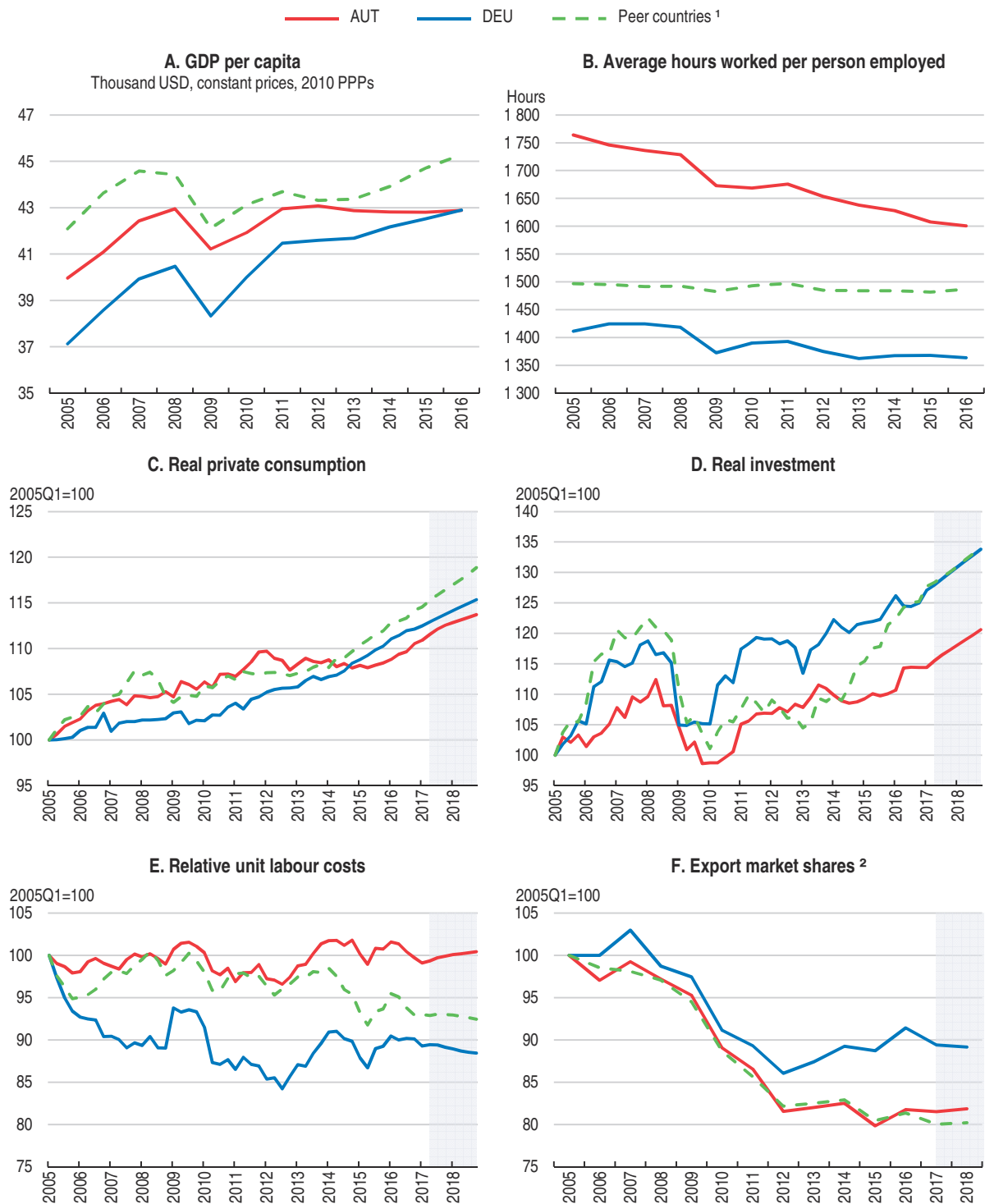
Core inflation remains higher in Austria than in the euro area at large. Most of the wedge is explained by higher price inflation in activities related to the vibrant tourism sector. For instance, the average annual inflation gap *vis-à-vis* Germany since 2012 is roughly 50 basis points, despite more sluggish growth, 30 basis points of which are explained by catering and accommodation services. House prices and rents have also been on the rise in recent years, notably in Vienna. Nonetheless, housing remains affordable in international comparison amid relatively low rent-to-income and debt-service-to-income ratios (OECD Affordable Housing Database).

Austria's labour force has expanded faster than in most peer countries, due to stronger immigration and a larger increase in labour force participation by women and older workers, and unemployment increased from 4.9% in 2011 to 6.0% in 2016. In line with the pick-up in economic activity, unemployment is expected to have peaked in 2016 and is projected to decrease gradually going forward.

The risks to this projection are broadly balanced. The saving ratio could decline less than projected, which would hold back the increase in private consumption and reduce growth. Uncertainty in the run-up to the announced snap elections in October 2017 may affect consumer and business confidence and weigh on domestic demand. Export performance would deteriorate if Austria's market share losses were to continue. Conversely, if international trade picks up more than expected, export growth could be more buoyant and support investment and growth more than projected. A stronger decline in saving would result in stronger consumption growth. Any additional electoral commitments could spur growth in 2018 at the cost of a higher public deficit.

In addition, Austria could be adversely affected by a number of exogenous shocks (Table 2). A rise in geo-political tensions may trigger a new wave of refugees. A resurgence of internal tensions in Europe may negatively affect confidence. Stress in parts of the European banking sector may exert contagion effects. Finally, if the results of snap elections in October were to make the establishment of a stable government more difficult, reform efforts may lose momentum and hold back growth.

Figure 8. Recent developments



1. Denmark, Netherlands and Sweden.

2. Share of value exports of goods and services in world exports, USD.

Source: OECD National Accounts database; OECD Productivity database and OECD Economic Outlook database.


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Table 1. Macroeconomic indicators and projections
Annual percentage change; volume (2010 prices) unless specified

	2013 Current prices (Billion EUR)	2014	2015	2016	2017 (projected)	2018 (projected)
GDP	322	0.8	0.8	1.6	2.2	1.7
Private consumption	174	-0.3	-0.1	1.3	2.0	1.3
Government consumption	64	0.8	2.2	1.8	1.5	1.6
Gross fixed capital formation	75	-0.8	0.7	3.3	2.2	3.0
Housing	14	-0.6	0.9	0.3	2.3	2.3
Final domestic demand	312	-0.2	0.6	1.9	1.9	1.8
Stockbuilding ¹	2	0.3	-0.1	0.5	0.5	0.0
Total domestic demand	314	0.2	0.5	2.4	2.5	1.8
Exports of goods and services	172	2.4	3.6	1.4	5.6	4.6
Imports of goods and services	163	1.3	3.4	3.1	6.2	5.0
Net exports ¹	8	0.6	0.2	-0.8	-0.1	0.0
Other indicators						
Potential GDP	..	1.2	1.1	1.1	1.1	1.1
Output gap ²	..	-2.7	-3.0	-2.6	-1.5	-1.0
Employment	..	0.2	0.9	1.7	1.7	1.5
Unemployment rate	..	5.7	5.8	6.1	5.7	5.5
GDP deflator	..	1.8	1.9	1.3	2.0	2.0
Consumer price index	..	1.5	0.8	1.0	2.1	1.8
Core consumer prices	..	1.7	1.7	1.6	1.8	1.8
Household saving ratio, net ³	..	7.0	7.3	8.2	7.1	7.1
Current account balance ⁴	..	2.4	1.9	1.7	1.9	1.9
General government financial balance ⁴	..	-2.7	-1.1	-1.6	-1.0	-0.7
Underlying government financial balance ²	..	0.2	1.3	0.2	0.1	0.1
Underlying government primary balance ²	..	2.2	3.1	1.8	1.5	1.4
Gross government debt (SNA definition) ⁴	..	106.8	106.2	106.1	102.7	100.9
Gross government debt (Maastrichtn definition) ⁴	..	84.4	85.5	84.6	81.1	79.3
General government net debt ⁴	..	59.1	57.1	57.0	53.5	51.8
Three-month money market rate, average	..	0.2	0.0	-0.3	-0.3	-0.3
Ten-year government bond yield, average	..	1.5	0.7	0.4	0.7	1.1

1. Contributions to changes in real GDP, actual amount in the first column.

2. As a percentage of potential GDP.

3. As a percentage of household disposable income.

4. As a percentage of GDP.

Source: OECD (2017), OECD Economic Outlook: Statistics and Projections 101 (database).

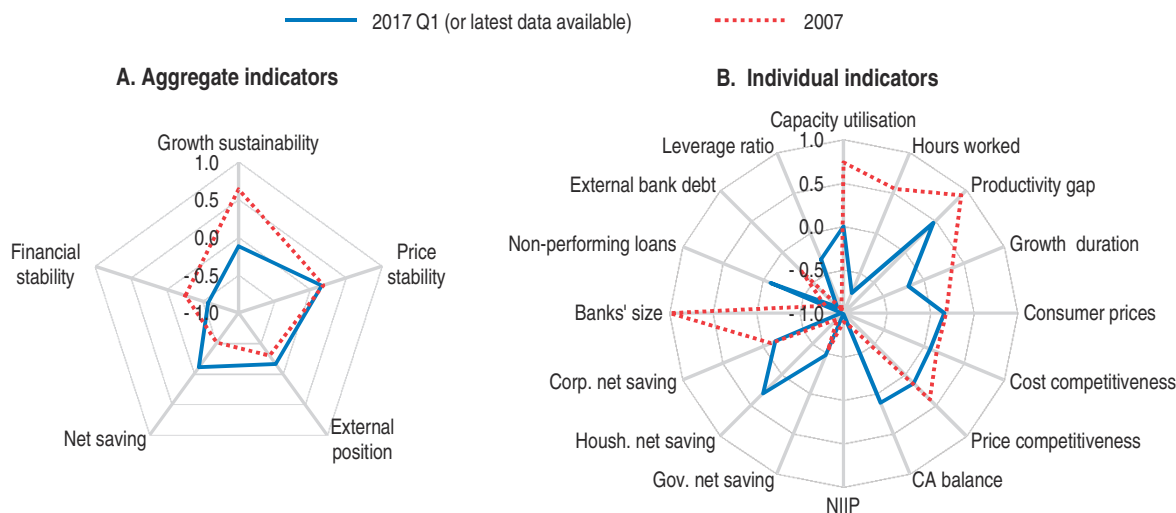
Table 2. Possible shocks and their economic impact

Possible shocks	Likely outcome
A rise in geo-political tensions triggering a new wave of refugees.	Expenses for integration as well as internal and external security would limit fiscal space and undermine the implementation of planned reforms with adverse consequences for growth.
Resurgence of internal tensions in Europe.	Risk premia could increase and consumer and business confidence could suffer.
Tensions in parts of the European banking sector may increase.	Austrian banks' funding costs could increase and squeeze their margins and capital adequacy.

On the whole, macro-financial vulnerabilities are lower than in 2007 (Figure 9). Leveraging is not excessive and the recent prolonged spell of low growth implies that overheating is unlikely. Price inflation is above trend but not by much and this mostly reflects dynamic service prices (see above). External and saving positions remain favourable, despite a slight deterioration with respect to 2007.


Figure 9. **Evolution of macro-financial vulnerabilities since 2007**

Deviations of indicators from their real time long-term averages (0), with the highest deviations representing the greatest potential vulnerability (+1), and the lowest deviations representing the smallest potential vulnerability (-1)¹



1. Each aggregate macro-financial vulnerability indicator is calculated by aggregating (simple average) normalised individual indicators. Growth sustainability includes: capacity utilisation of the manufacturing sector, total hours worked as a proportion of the working-age population (hours worked), difference between GDP growth and productivity growth (productivity gap), and an indicator combining the length and strength of the expansion (growth duration). Price stability refers to consumer prices and is calculated as the absolute value of (core inflation minus inflation target) + (headline inflation minus core inflation). External position includes: the average of unit labour cost based real effective exchange rate (REER), and consumer price based REER (cost competitiveness), relative prices of exported goods and services (price competitiveness), current account (CA) balance as a percentage of GDP and net international investment position (NIIP) as a percentage of GDP. Net saving includes: government, household and corporate net saving, all expressed as a percentage of GDP. Financial stability includes: banks' size as a percentage of GDP, the share of non-performing loans in total loans, external bank debt as percentage of total banks' liabilities, and capital and reserves as a proportion of total liabilities (leverage ratio).

Source: OECD calculations based on OECD (2017), *OECD Economic Outlook: Statistics and Projections* (database); OECD (2017), *Main Economic Indicators* (database); OECD (2017), *OECD National Accounts Statistics* (database); and Thomson Reuters Datastream.

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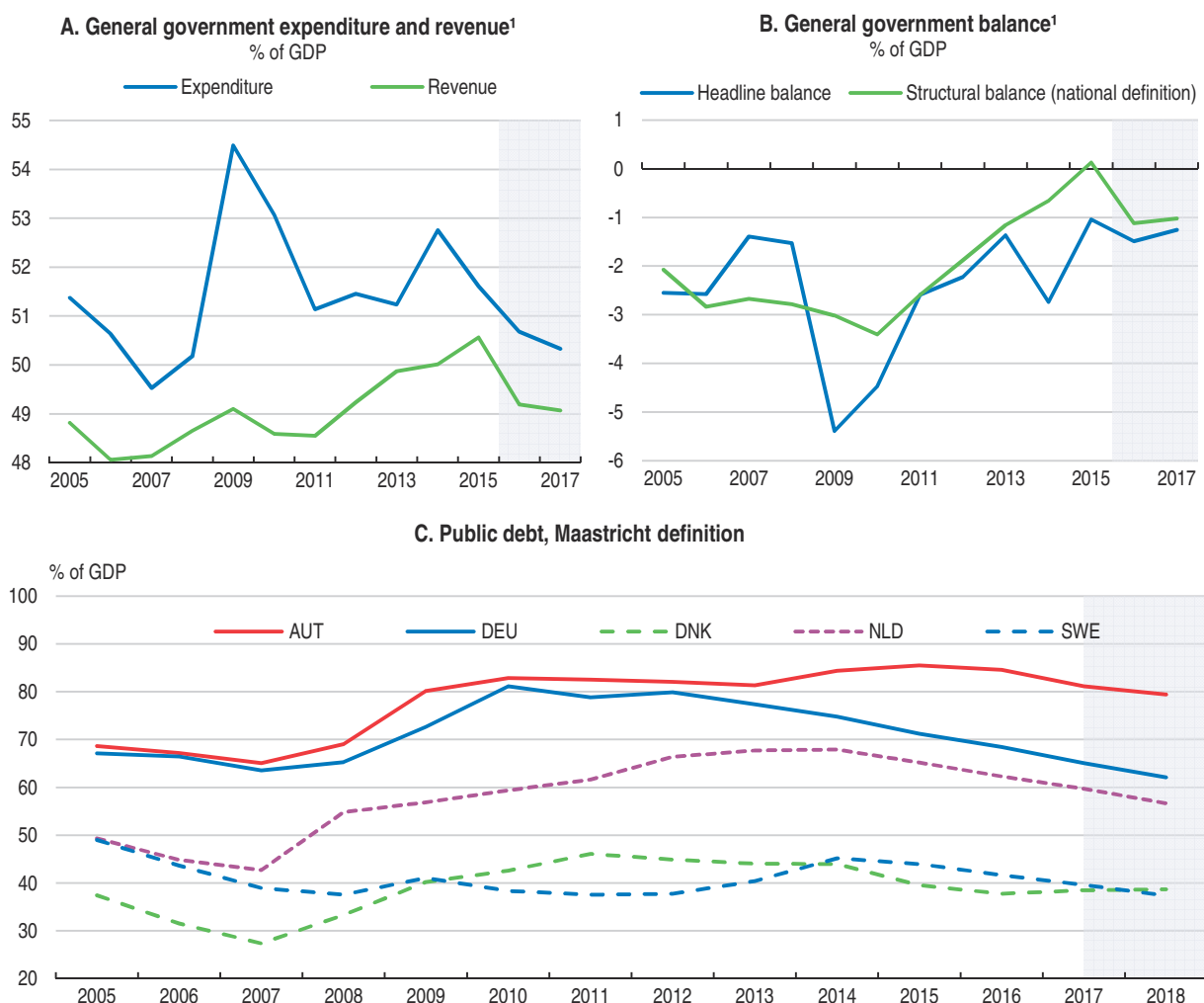
Macroeconomic policy has been supportive

Fiscal policy is being used more actively

Fiscal policy contributed to the cyclical upturn in 2016 (Figure 10). The personal income tax rate for the lowest taxable bracket was cut from 36.5% to 25%, at a tax revenue loss of around 1.4% of GDP. On the spending side, despite pressures from unplanned refugee and security-related costs, targets were met, both at federal and sub-central levels. The public deficit rose to 1.6% of GDP in 2016 from 1.1% in 2015, and the structural deficit (according to the national methodology) rose to 1.1%, against a balanced position in 2015. Nevertheless, public debt, as a share of GDP, is declining, partly thanks to the liquidation of assets of nationalised banks and associated defeasance vehicles.

The 2017 Austrian Stability Programme envisages a broadly neutral fiscal stance. The public deficit is projected to inch down to 1.0% in 2017 and 0.8% in 2018. Excluding the costs related to the refugee crisis and the fight against terrorism, the “adjusted” structural deficit is projected to settle below 0.5% of GDP in 2017 and 2018, consistent with Austria’s EU commitments. Against this background, the two coalition parties agreed on a new package of economic measures to make Austria more attractive for business investment (Box 2), but the snap elections might put the implementation of the programme at risk. The budgetary cost of

Figure 10. Fiscal balances have improved but debt remains high



1. 2004 revenues include remission of Austrian Federal Railways' (ÖBB's) debt to the federal government. Interest payments exclude swap transactions.

Source: Statistics Austria, Austrian Ministry of Finance, Austrian Institute of Economic Research (GDP), European Commission and Fiscal Advisory Council's fall forecast (2016 and 2017); OECD Economic Outlook database.

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Box 2. The January 2017 policy package

In January 2017, the government coalition parties agreed on a new policy package aiming at “strengthening growth and employment, supporting businesses and ensuring sustainability by allowing firms and citizens to seize the opportunities arising from digitalisation and the ecological transition”. Some of the measures have already been legislated, whereas others are still subject to political discussion. The most salient components were:

Labour cost reductions

- Halving non-wage costs for each newly created job from Autumn 2017, limited to the recruitment of registered unemployed, holders of a red-white-red immigration card, graduates from Austrian education institutions, and persons having already worked in Austria (estimated costs of EUR 2 billion until 2021 subject to an evaluation in 2019).

Box 2. The January 2017 policy package (cont.)

- Cutting the employer contribution to the Family Burden Equalisation Fund by 0.6 percentage points in 2017-18, with an expected fiscal cost of around EUR 1 billion per year (0.3% of yearly GDP).

Other labour market measures

- Encouraging geographical mobility of workers through tax incentives and wage subsidies.
- Creation of 20 000 new workplaces for senior workers above 50, if necessary in the public sector.
- Introduction of a minimum wage of EUR 1 500 per month (for full time work), to be discussed between social partners through 2017. As of April 2017, the first agreements had been reached in the textile and hairdressing sectors for gradual catching-up with the targeted minimum. Economy-wide, a total of 300 000 full-time workers currently earning less than EUR 1 500 per month will benefit.
- Indexation of the first two income tax bracket thresholds to inflation from 2019 onwards.

Support to firms

- Frontloading the tax deduction for investment expenditures for firms with over 250 employees.
- Subsidy of 10% in 2017 and 2018 for SME investment expenditures.
- Subsidy of 75% for costs entailed by sickness absences in companies with less than 10 workers.
- New guarantees for the financing of start-ups.
- Streamlining the personal bankruptcy system.
- Expanding public support to business angels, allocating further resources to seed financing and university spin-offs.
- Increasing the research premium from 12% to 14% of all R&D-related expenditures from 2018 onwards.

Education

- 5 000 additional student places in universities of applied sciences (*Fachhochschulen*), which offer excellent job prospects to their students.
- New model of financing for public universities on the basis of study places and student/teacher ratios.
- New measures to improve the social mix in universities fostering, for instance, access to apprentices and more student grants.
- Implementation of the “School 4.0” programme (which is also part of Austria’s “Digital Roadmap”, see below).
- Introduction of a new apprenticeship package.

Digitalisation

- Reduction of the tax levy on digital infrastructure.
- Doubling of funds by private telecom operators earmarked for the so-called “broadband offensive” (EUR 1 billion to generalise high-speed internet by 2020, including in all SMEs and schools).
- Equipping all schools with broadband and Wi-Fi by 2020.

Refugee integration

- Obligatory integration (education) year for persons granted asylum and for asylum seekers with a high probability to be granted asylum.

the measures was estimated at roughly 0.5% of GDP per year over 2017-18, to be financed through expenditure cuts yet to be specified and additional revenues due to stronger growth.

Additional investments are desirable in high-priority areas, such as child and elderly care, kindergartens, integration programmes for immigrants and asylum seekers, and fast broadband infrastructure. They would help lift potential growth and strengthen social cohesion. However, even if under the fiscal consolidation objectives agreed with the EU such investments are partly exempt from the agreed spending and deficit caps (Box 3), and even if the still very low interest rates create some room for extra spending in the short term without altering the long-term debt dynamics, the best way to durably raise investment in these areas is through savings in spending areas where there is room for rationalisation.

Box 3. Implementation of a fiscal initiative in the European context

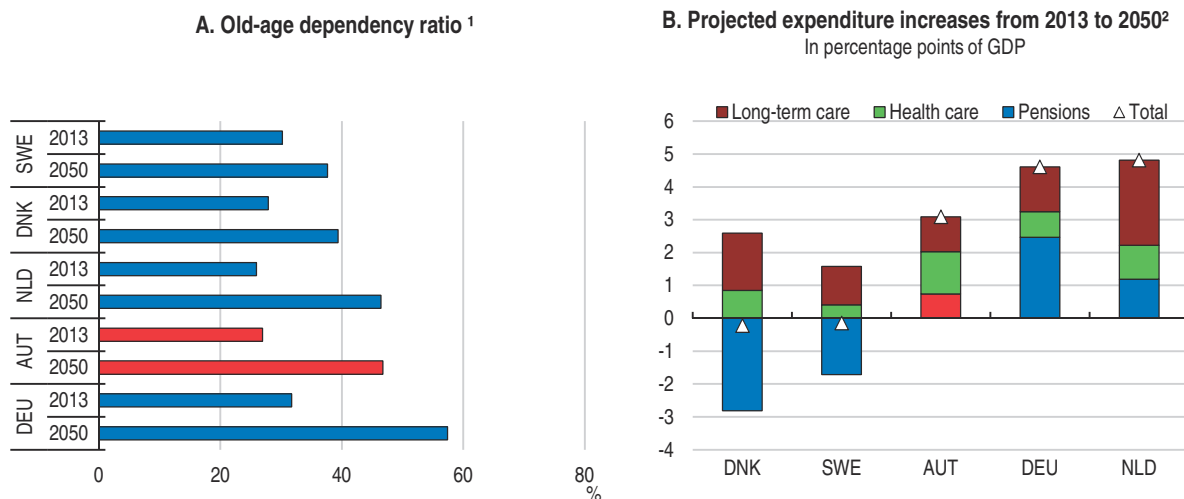
Austria's fiscal policy is subject to the preventive arm of the Stability and Growth Pact and the government has committed to respect the medium-term budgetary objectives agreed with the European Union. Under this agreement, the public debt-to-GDP ratio needs to be reduced below 60% of GDP in the medium-term and the general government headline deficit is capped at 0.5% of GDP in the short term (from 2017). This ceiling can be loosened for cyclical reasons (by 0.25% of GDP when the output gap is wider than -1.5% of GDP and the economy grows below potential), and must be tightened (by 0.25-0.50%) when the output gap is above +1.5% and the economy grows above potential.

This agreement provides room for desirable spending for “investment” and “structural reform” purposes. Spending increases and/or tax cuts for infrastructure projects under EU co-ordination (such as Trans-European transportation and communication projects), as well as for structural reforms with verifiable long-term benefits for potential growth (such as investments in childcare facilities) are eligible. So are refugee costs if they are ratified by the Commission and if the aggregate general government deficit stays below 3% of GDP.

Over the longer term, population ageing will put considerable pressure on Austria's public finances. Old-age dependency ratios are projected to increase by roughly 20 percentage points until 2050 (Figure 11, Panel A). The number of pensioners is set to increase by 40 percentage points over the same period bringing down the ratio of contributors to pensioners from 1.7 in 2013 to 1.3 in 2050. Assuming no policy change, the European Commission (EC, 2015) has projected in its baseline scenario that ageing-related spending (pensions +0.7 percentage point, health +1.3 percentage point and long-term care +1.1 percentage point) will rise by 3 percentage points of GDP until 2050 (Figure 11, Panel B).

In the baseline scenario (Figure 12), where this spending is assumed to be fully debt-financed, the public debt ratio would turn up from 2030 and reach levels higher than seen in the aftermath of the global financial crisis, putting debt on an unsustainable trajectory. In a higher-interest rate scenario, which assumes a 5 basis point increase in the interest rate per year with respect to the baseline scenario, the public debt ratio would exceed 100% of GDP by 2045 and continue to rise further. In contrast, structural reforms such as linking retirement ages to increases in life expectancy or improving the efficiency of health and long-term care spending would not only reduce costs but also spur potential growth. In such a structural reform scenario, the public debt ratio would converge towards 60% by 2035 without the need to increase tax pressure.

Figure 11. Long-term fiscal pressures arising from ageing are high

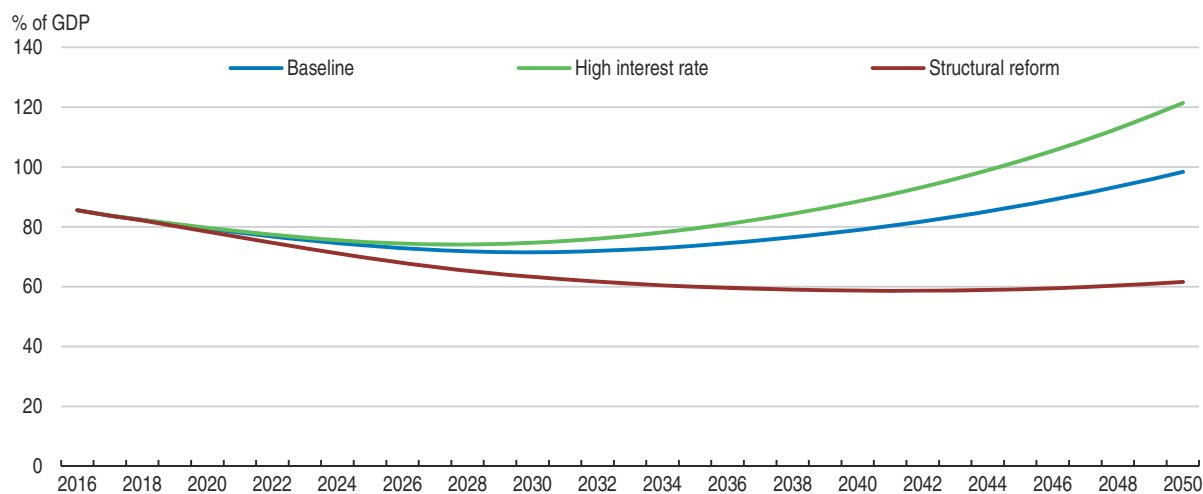


1. The old-age dependency ratio is the population aged 65 and over as a percentage of the population aged 15-64.
2. Baseline scenario for pensions and the European Commission's Ageing working group scenarios for health and long-term care.

Source: European Commission (2015), *The 2015 Ageing Report*, European Economies Series, No. 3/201

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Figure 12. The public debt path is highly uncertain



Note: The baseline scenario assumes that ageing costs as projected by the Ageing Working Group (AWG) of the European Commission are reflected one for one in the primary balance. Real GDP growth is as in the Economic Outlook 101 until 2018 and 1.2% per year thereafter. The effective interest rate is assumed to decline to 1.3% by 2022 before rising linearly to 3% until 2050. The "high interest rate" scenario assumes an additional 5 basis points increase of the effective interest rate per year with respect to the baseline scenario (a total of 165 basis points by 2050). The structural reform scenario is based on the AWG policy scenario that links retirement ages to increases in life expectancy combined with the cost-control ("indexed") health care spending scenario, and assumes that annual potential growth is 0.3 percentage points higher.

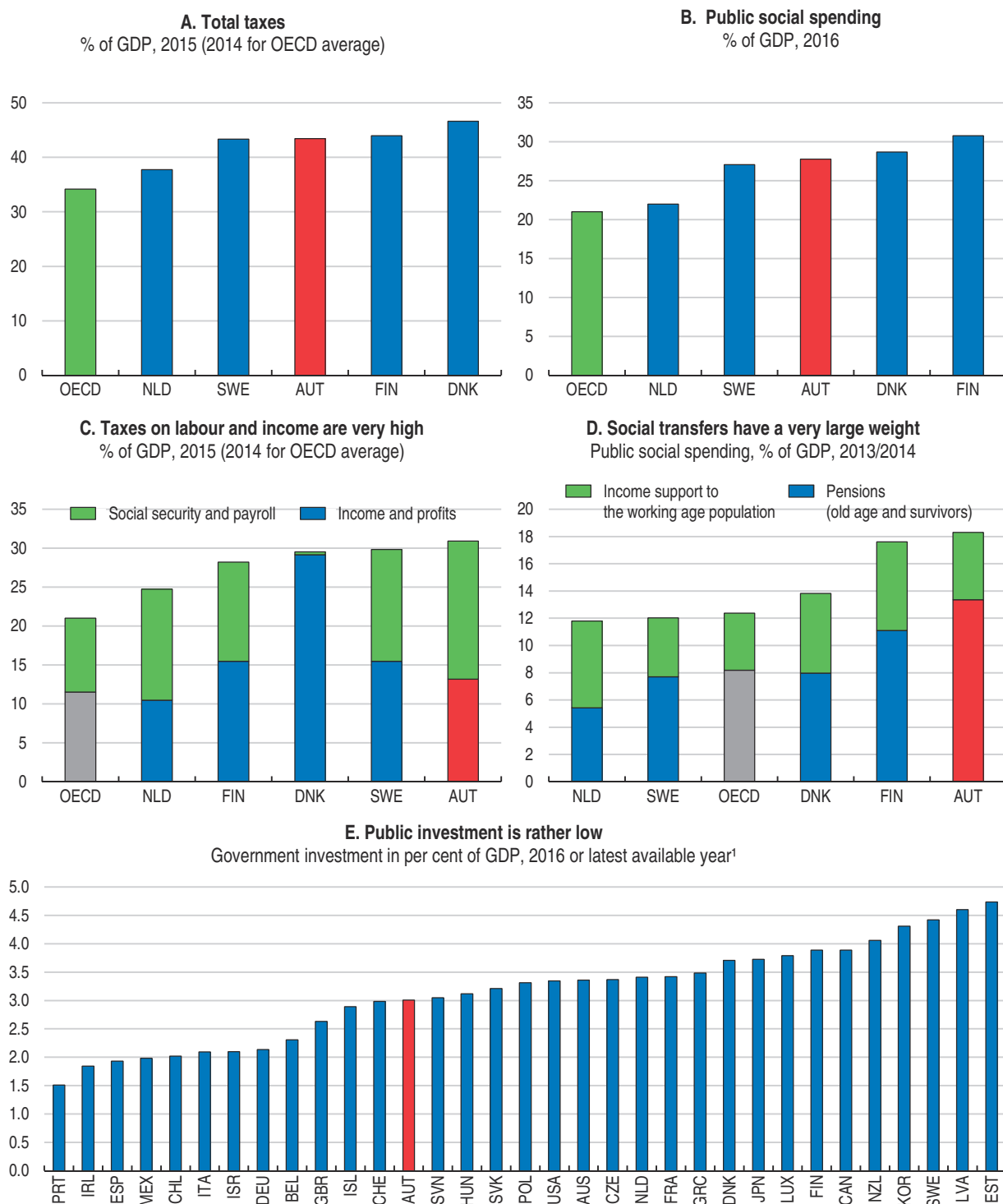
Source: Calculations based on OECD Economic Outlook 101 database.

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Deeper fiscal reforms should be a policy priority

Despite recent reforms, Austria still faces other longstanding fiscal challenges. High spending on current transfers limits room for savings and reallocations (OECD, 2011; Fischer et al., 2011) towards programmes that would contribute to a more gender-balanced society, with a healthier work-life balance. Additional investment in fast broadband would accelerate

Figure 13. Revenue and spending structures offer room for reform



1. Data are not perfectly comparable across countries. If road infrastructure investment is included, Austria's share is 1 percentage point higher.

Source: OECD, Revenue Statistics database; OECD, Society at a Glance 2016; and OECD Economic Outlook database.

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the transition towards the digital economy. A thorough public expenditure review would bring useful information on public-sector efficiency, in particular in public administration and healthcare (Dutu and Sicari, 2017), where costs could be reduced and responsiveness to user needs could be improved. The binding constraint in these areas is the fragmentation of funding and spending responsibilities across government layers. Responsibilities are blurred in too many areas, including in core education, health and social services. The 2017 Financial Equalisation Law did little to address this issue.

Austria's tax system could be made more conducive to growth, employment and social cohesion (Köppl and Schratzenstaller, 2015a and 2015b). The 2016 tax reform was a useful step, but revenues remain overly reliant on labour and income taxes (Figure 13). The revenue structure should be shifted towards consumption, environmental, wealth and inheritance taxes, which would also help reduce wealth inequalities (Brys et al., 2016). Any adverse impacts of consumption tax increases on the purchasing power of low-income households could be addressed by targeted transfers. A comprehensive tax reform could have high economic and social returns.

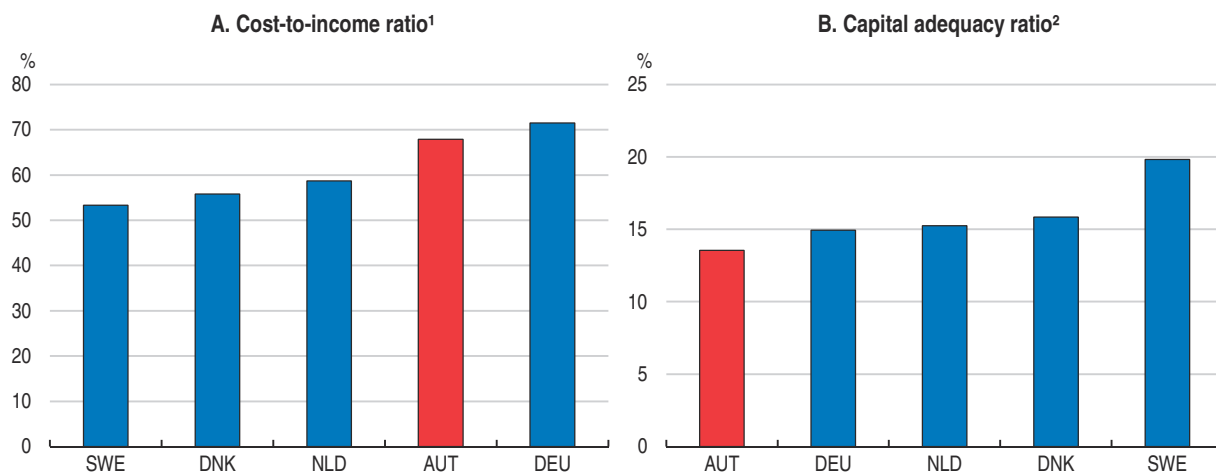
The desirable degree of fiscal transparency has not yet been achieved. In a number of areas, fiscal costs, contingent liabilities and spending outcomes are not fully documented (Fiskalrat, 2016). Transparency is crucial for the development of evidence-based fiscal policies. Austria should emulate international best practice and seize the opportunities offered by "individual level" data to improve the transparency of the take-up rates and outcomes of various public services and transfers, and to strengthen the tax administration. A prime objective is good monitoring of off-budget and quasi-fiscal liabilities, in particular those arising in the financial sector (Schich and Kim, 2012). Past large fiscal liabilities arising from implicit federal government guarantees to Länder-controlled financial institutions have been addressed by reforms (Schich et al., 2014). Government guarantees to both the financial and non-financial sector remain high in international comparison, despite an aggregate decline from 38% of GDP in 2012 to 23% of GDP in 2015 (Eurostat, 2017a).

Further rationalisation is desirable in the financial sector

Austria's banking system has largely recovered from the financial crisis. Banks' profits increased in recent years, despite the challenges of the low-interest rate environment. The profitability and funding structure of Austrian banks' large subsidiaries in Central and Eastern Europe (CESEE) have improved. Non-performing loans have declined. Foreign-currency loans to households, while remaining a source of risk, have also been cut significantly since their peak in 2008. The Financial Market Stability Board (FMSB) has advised the Ministry of Finance to expand its macroprudential toolkit and noted that sustainable lending standards in real estate are crucial for maintaining stability and growth (FMSB, 2016). The European Banking Authority's EU-wide stress tests in July 2016 suggested that two large Austrian banks (Erste and Raiffeisen) have adequate capital positions. On aggregate, banks' capital adequacy and profitability ratio remain below comparable European banks (Figure 14). Against this backdrop, rigorous supervision of large as well as small banks is particularly important. Banks concur with the recommendation of national regulators to improve their risk-bearing capacity by increasing their risk buffers by 2% of risk-weighted assets until 2019. To this effect, enhancing profit margins by increasing operational efficiency appears necessary (OeNB, 2017).


Structural change in banking is less advanced than in peer countries (Box 4). Organisational and technological convergence towards international best practices has been

Figure 14. **Bank profitability and capital adequacy are relatively low**
Q3 2016



1. Ratio of total operating expenditures over total operating income of domestic banking groups and stand-alone banks including foreign (EU and non-EU) controlled subsidiaries and foreign (EU and non-EU) controlled branches.
2. Ratio of common tier 1 capital over risk-weighted assets of domestic banking groups and stand-alone banks including foreign (EU and non-EU) controlled subsidiaries and foreign (EU and non-EU) controlled branches.

Source: European Central Bank.

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Box 4. Capacity adjustments in the banking sector

Austrian banking is characterised by a dense branch network and is more labour-intensive than in peer countries (OeNB, 2016). The number of employees has remained close to its historical peak, though bank employment has declined noticeably in other countries. Moreover, compensation per employee grew more than productivity since the global crisis, and unit labour costs increased, putting additional pressure on bank costs.

To date, pressure to dismiss large numbers of workers has not been strong. Even restructuring banks have refrained from layoffs, rather resorting to attrition and early retirement. When activity is weak, banks traditionally encourage workers to work part-time. Employment protection is strong: many employees have high tenure and would be entitled to receive large severance payments if they were laid off.

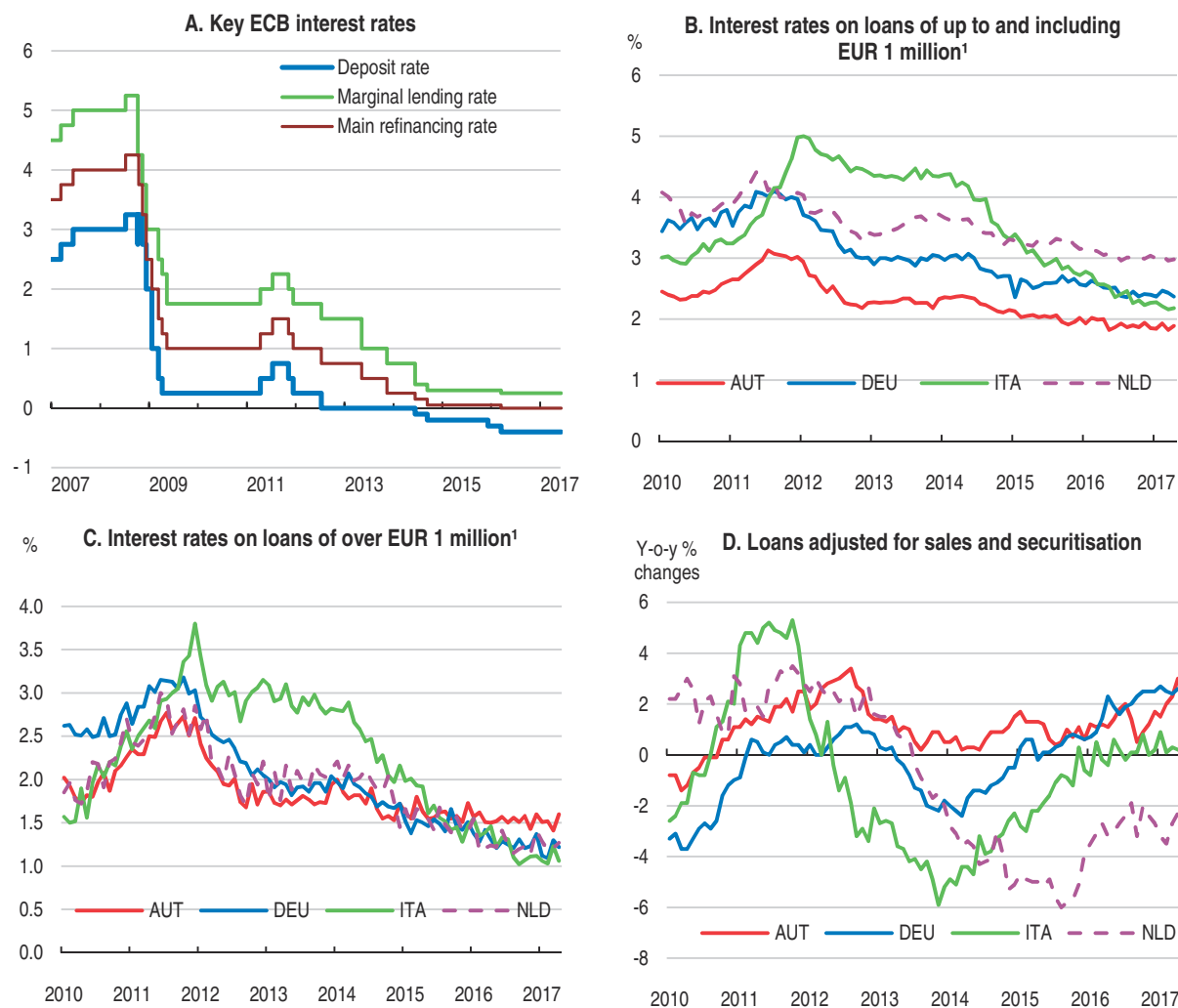
Traditional banking is further challenged by emerging innovations in financial technology, or FinTech. Digital consumer and small business banking, and on-line investment management provide a wider range of products to consumers at lower cost, and reduce demand for bank employees. A related challenge is the advent of less labour-intensive internet competitors to traditional banks.

A number of Austrian banks have recently started to announce restructuring programmes. Österreichische Volksbanken, a co-operative banking group, is expected to merge its formerly 60 individual banks into eight regional banks. Around 2 800 employees of UniCredit Austria have expressed their readiness to leave the bank with extra severance payments. Both OeNB and the public employment service AMS anticipate further employment reductions in banking. A collective agreement in March 2016 included a resolution to create a “labour foundation” for bank employees. Such foundations retrain redundant workers for employment in other sectors, and have been widely used in the steel industry in the past.

Source: Ritzberger-Grünwald, D., A. Stiglbauer and W. Waschiczek (2016), “Banking employment in Austria”, in *Financial Stability Report No. 32*, Österreichische Nationalbank, Vienna.


slow. Expansionary euro area monetary policy has been effectively transmitted by banks and has benefited the Austrian economy, but signs of friction point to excess costs and efficiency lags (Figure 15). There is no evidence of credit rationing (IMF, 2017) but a degree of stickiness in the costs (interest rates) of certain types of loans (Panel C) suggests that when loan demand picks up, efficiency bottlenecks may become more taxing. Faster modernisation of the financial sector at large, with a fuller development of securitised sources of funding, would support broader-based investments by large, small and start-up firms alike across the entire territory (Aiyar et al., 2015).

Figure 15. **Monetary policy transmission operates well but there are signs of friction**



1. New business loans with an initial rate fixation period of less than one year. Loans other than revolving loans and overdrafts, convenience and extended credit card debt.

Source: ECB (2017), "MFI interest rate statistics", Statistical Data Warehouse, European Central Bank.

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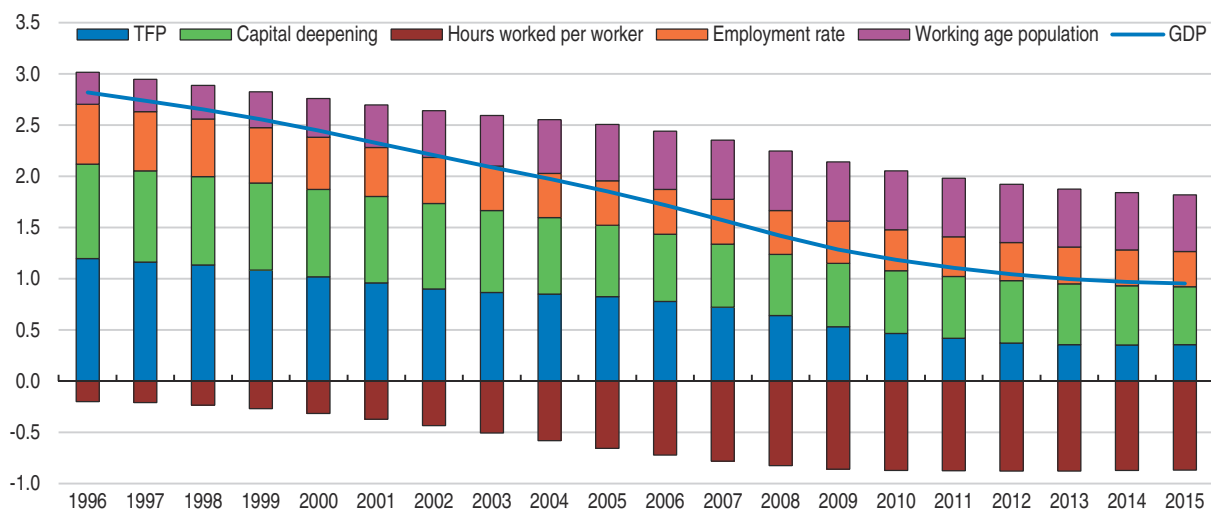
Embracing new financial technologies (FinTech) is one way to promote modernisation, further cost-cutting and rationalisation. So far, Austria has been adopting such technologies rather slowly. With about EUR 1.4 in online alternative financial transactions (crowdfunding, peer-to-peer lending) per capita in 2015, Austria is below the median of European countries, which are led by the United Kingdom (EUR 65.9), Estonia (EUR 24.0) and Finland (EUR 11.65)

(OECD calculations based on Cambridge Centre for Alternative Finance, 2016). A more supportive regulatory environment for FinTech innovation, for example by introducing some proportionality in regulatory obligations to facilitate the entry of smaller service firms, could help foster this development and boost competition and innovation in the banking sector. Switzerland, for example, has proposed amendments to its banking laws to ease the regulatory framework and reduce entry barriers for innovative financial technology companies (crowdfunding platforms and other FinTech firms that do not intend to provide the full spectrum of banking services and do not engage in maturity transformation). Latvia has been drafting alternative financing industry regulation that is expected to be one of the most detailed in Europe. Other countries have established “regulatory sandboxes” that allow regulators to better understand the benefits and risks of new services before they assess their deployment and regulatory requirements. Austria could follow suit in this area.

Raising medium-term growth

Like in most other advanced OECD countries, trend growth has declined considerably in Austria since the beginning of the century, from 2.5% in 2000 to around 1% in 2015 (Figure 16). An important contributing factor to this decline has been lower work intensity – a decline in hours worked per employed, which explains about 40% of the total decline in trend output growth.

Figure 16. **Potential growth has weakened**



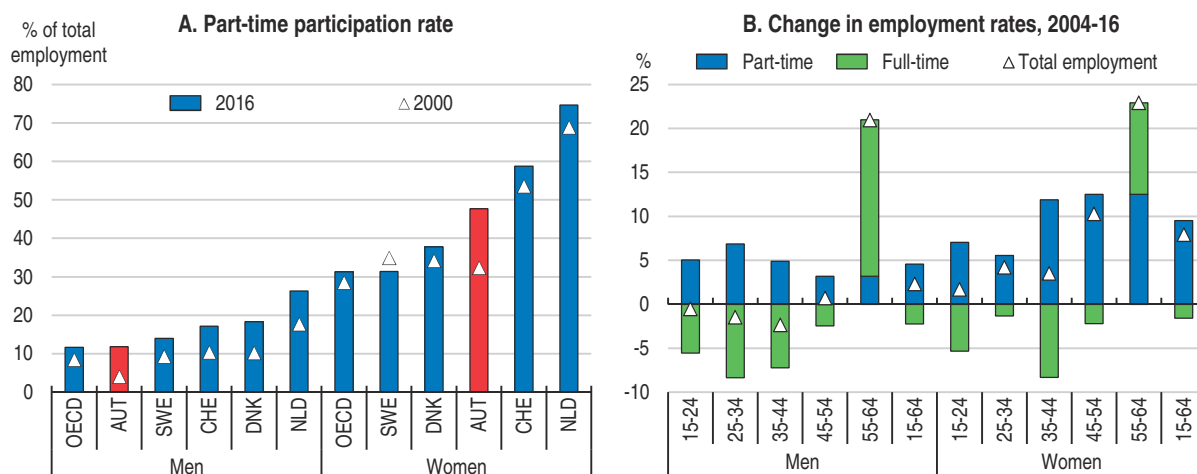
Note: Time series for real GDP, capital stock, hours worked, employment and working age population have been smoothed using an HP-filter. Growth rates of trend components are shown.

Source: Calculations based on OECD National Accounts database data.

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The decline in average hours worked is largely explained by the greater prevalence of part-time employment (Figure 17, Panel A), in particular among women. Austria has the highest share of women in part-time jobs (79%) in the OECD, after Luxembourg. Favourable tax treatment of overtime work (mostly provided in practice by men) contributes to this gender imbalance in work hours. The biggest shift towards part-time occurred for prime-age women with child-caring responsibilities. Greater investments in full-time full-day childcare and school facilities would help parents, especially women, to shift from part-time to full-time jobs, thus contributing to more equality of opportunity across genders and spurring

Figure 17. Participation increased but mainly in part-time jobs



Source: OECD National Accounts database; and Statistics Austria, Micro-census.

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medium-term growth. Progress with such reforms that promote gender equality has been limited since 2015 (Table 3). As recommended in the 2015 Economic Survey of Austria (OECD, 2015c), introducing a legal entitlement for a place in childcare centres and full-day schools, and stepping up investment in these facilities, would help reconcile full-time employment and family responsibilities. At present, the decision to transform a standard half-day school

Table 3. Past recommendations to promote gender equality and actions taken

2015 Economic Survey recommendation	Actions taken
Spur investment in high quality childcare facilities. Enhance the availability of full-day schools and care centres. Consider introducing legal entitlements for these services.	The “Education Investment Law”, adopted in 2017, will provide another EUR 750 million for the expansion of full-day schooling until 2025. For the period 2014-17, the federal government has considerably increased earmarked subsidies to <i>Länder</i> for financing child day-care.
Reduce the implicit taxation of transition from marginal and part-time to full-time employment and replace the sole-earner tax deduction by targeted transfers to families in need.	No action taken since the 2015/16 tax reform.
Transform childcare allowance and parental leave schemes into a unique childcare account that allows parents to allocate subsidised absence from work flexibly over time. Reserve a sizeable part of this account, at least 33%, for the exclusive use of fathers.	Since March 2017 the new system of flat rate childcare allowance can be taken flexibly within the duration of 456 and 1063 days. 20% is reserved exclusively for fathers (before: 16.5%). The Partner Bonus entitles parents who claim child care allowance almost equally (i.e. the period during which child allowance is received must be distributed either 50:50 or up to 60:40) to a one-time payment of EUR 500 each. Working fathers who take care of their families directly after the birth of a child, are entitled to the “family time bonus” (about EUR 700).
Raise awareness by publicising more information on innovations in study area choices of schoolgirls and schoolboys, earlier return to full-time work of mothers, and fathers’ participation in care and household duties.	Several initiatives to mitigate gender stereotypes in educational choices have been undertaken. For example, the possibility to choose between different types of handicraft courses has been abolished in order to avoid reproduction of stereotypes. The new paternity leave entitlement (see above) has the potential to change mind-sets towards more equal sharing of care responsibilities. The campaign “Time for your child” and so-called freecards were designed to raise awareness for fathers in parental leave and draw fathers’ attention to this topic.
Develop a comprehensive database on social transfers or a comprehensive panel survey to assess the impact of alternative family policy schemes on labour supply, child care use and net budget costs, and adjust policy packages in the light of this information.	No action taken.

into a full-day school is made by the regional government after consultation of the respective school board. Besides a minimum size of pupils, infrastructure and available alternative care support are taken into consideration. In January 2017, the Education Investment Law (*Bundesgesetz über den weiteren Ausbau ganztägiger Schulformen – Bildungsinvestitionsgesetz*) was adopted to invest another EUR 750 million for the expansion of full-day schools to offer an additional 270 000 places by 2025. Further, raising awareness for the need for convergence in paid and unpaid work across genders, notably through the adjustment of tax incentives and the promotion of flexible work arrangements, would also help to reduce the gender pay gap. Benefits for work-life balance and economic growth can be sizeable, as shown in the 2015 Economic Survey (OECD, 2015a).

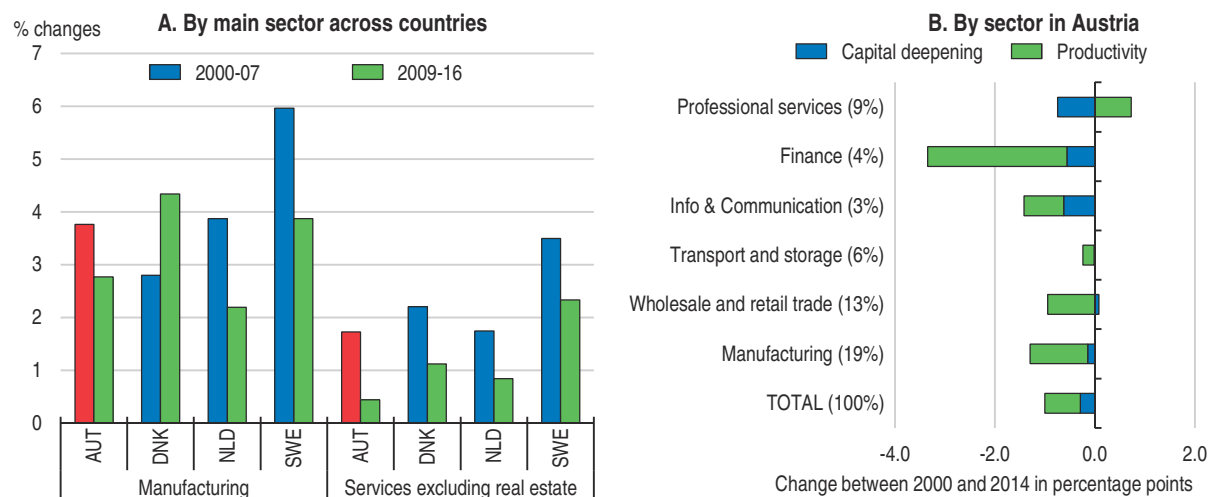
Austria's effective retirement age increased by more than two years between 2010 and 2016 thanks to reforms limiting pathways to early retirement and improving labour market prospects of older workers. Nonetheless, the gender gap remains one of the largest in the OECD mainly reflecting a large gap in the statutory retirement age (women: 60 years; men: 65 years). Labour-market participation of older workers (55-64 year-olds) remains well below comparable countries (46% against 75% in Sweden, 73% in Switzerland, 65% in Denmark or 62% in the Netherlands). Fostering employability of older workers requires skills upgrading, a challenge heightened by the disruptive nature of the digitalisation and off-shoring possibilities provided by globalisation. Raising awareness for the benefits of increased participation of the elderly is necessary to change mind-sets, adapt work environments and reconcile work with life-long learning requirements. Targeted vouchers, for instance for basic digital training, could be useful to support this process.

Fostering innovation and productivity

The slowdown of labour productivity has been uneven across sectors, and more pronounced in services than in manufacturing (Figure 18). While the productivity slowdown is not well understood, a contributing factor seems to have been the weaker growth of the capital stock relative to output (so-called capital deepening). Various explanations have been put forward such as the slowdown of investment in information and communication technology (ICT) following the peak around 2000; population ageing reducing aggregate saving and domestic investment opportunities; weak aggregate demand and balance sheet vulnerabilities in the wake of the global financial crisis further reducing appetite for investment. Another possible explanation is that the need for investment induced by digitalisation may have been lower than in former waves of innovations because new business models related to big data or e-commerce relies less on investment than on network economies of scale and access to supportive services. Platform markets also enable more efficient use of existing capital, for instance, by renting out or selling under-used assets (e.g. AirBnB, e-bay). This is perhaps offset by higher depreciation rates of new types of investments, such as software and databases, and measurement of knowledge-based capital within national accounts may understate investment in intangibles, thereby reducing measured capital deepening (OECD, 2016a).

The churn rate of enterprises (entry and exit of firms) appears lower in Austria than in comparable countries according to the partial information available, and this may slow down the “creative destruction” process and the replacement of less productive firms by more productive ones (OECD, 2016b, Calvino et al., 2015). According to the same set of data, the share of net job creation by new entrants in total employment was among the lowest across OECD countries although their average size was higher than in comparable countries. They

Figure 18. Labour productivity growth by sector



Note: Panel A: Annual growth rates of gross value added per hour worked in constant prices are displayed. Panel B: Contributions to change in growth rates of trend labour productivity between 2000 and 2014 is shown for main industries in Austria.

Source: OECD Productivity database; EU KLEMS Growth and Productivity Accounts.

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grow at a slower rate than in comparable countries and, according to the same data, their rate of survival is on the lower side. According to more recent but not fully comparable information, survival rates may have improved in the most recent period (Eurostat, 2017b). On the other hand, Austria also exhibits the lowest share of women inventors across the OECD, hinting yet again at suboptimal use of human capital and unequal opportunities (OECD, 2016b). Further, the OECD's Science, Technology and Industry Scoreboard suggests that SMEs are considerably less innovative than large firms in Austria, in particular in terms of marketing and organisational innovations, and that Austrian firms are less specialised in technological-intensive sectors such as nanotechnology, biotechnology and ICT (OECD, 2015c). Against this background the policymakers have initiated several recent initiatives to stimulate start-up activities in Austria (ABA, 2017).

To this effect they have to address a number of challenges. First, financing of investment activities rely still excessively on internal sources in small firms and the bulk of external financing stems from bank loans, while venture capital and other forms of equity financing are scarce (European Investment Bank, 2017). Second, notwithstanding some recent improvement (Table 4), professional services remain strictly regulated in Austria (Figure 19), in particular via the number of exclusive or shared exclusive rights, compulsory chamber membership and strict education requirements. The update of OECD product market regulation indicators in 2018 will help re-assess the exposure of Austrian firms to new entries and competition, in international comparison. Recent reforms with regard to the recognition of professions and professional qualifications from other EU Member States are expected to help ease the regulatory burden. Third, the retail trade is similarly burdened by the high number of licences and permits needed to engage in commercial activity and inflexible regulation of shop opening hours. Regulation hindering competition in the services sector spills over to the manufacturing sector (Égert and Wanner, 2016), which may have contributed to the recent sluggishness in export performance. Since April 2015, a new regulation exempts non-hazardous small facilities (i.e. retail enterprises with surface areas below 200 m²) from authorisation procedures thus lowering administrative burdens in the

Table 4. **Past recommendations to promote growth**

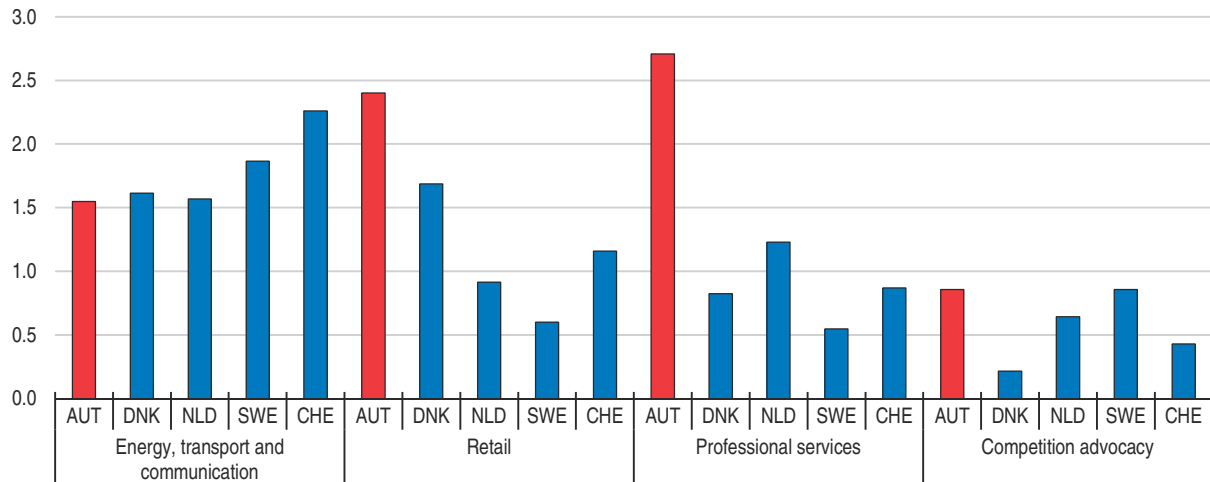
<i>2015 Economic Survey (ES) and Going for Growth (GfG) recommendations</i>	<i>Actions taken</i>
Further reduce the labour tax wedge for low-income earners by partly or fully waiving social security contributions, financed by a broadening of the tax base and increases in consumption, environmental and recurrent property taxes (ES, GfG).	Besides the measures taken as part of the tax reform entering into force in 2016 that reduced the tax rate of the lowest tax bracket, payroll taxes will be cut progressively in 2016-2018: the employer contribution to the Family Burdens Equalisation Fund is reduced by 0.4 percentage point in 2017 and by another 0.2 percentage point in 2018. Companies that employ more elderly than on average in their sector are eligible for an additional 0.1 percentage point cut in 2018.
Align the official retirement age for women with that for men. Eliminate all remaining subsidised avenues to early retirement. Tighten eligibility to disability pensions also for those above 50 and help partially-disabled workers to better use their remaining work capacity. Reflect changes in life expectancy more directly in the parameters of the pension system (GfG).	No action taken (In line with 1992 legislation, the statutory retirement age for women will be raised by six months each year starting in 2024; accordingly this process will be completed by 2033).
Reduce barriers to competition in services by easing entry regulations, removing restrictions on capital shares and voting rights of foreign investors and strengthening the investigation power of competition authorities (ES, GfG).	In July 2016 the Recognition and Evaluation Act (AuBG) entered into force. It facilitates and harmonises procedures for the recognition and evaluation of professional qualifications obtained abroad. A recent amendment to the competition law improved the National Competition Authority's powers of inspection (concerning electronic data, saved e.g. on external servers or in a cloud). The Competition Authority's budget will increase by EUR 2 million in 2017.
Make schools and educational tracks more inclusive. Strengthen the early socialisation as well as language and cognitive development of children from disadvantaged backgrounds to improve their intergenerational education mobility (ES).	To ease the transition from kindergarten to school, an exchange of data on learning needs between the relevant institutions has been legislated in 2016 ("Bildungskompass"). Since 2016 a child day care counselling is compulsory for parents and their children, who do not attend kindergarten. Between 2016 and 2018 significant extra funding is being provided for additional teachers, social workers and school psychologists to support language learning and integration of refugees in school and to offer specific courses in adult education. "Inclusive Model Regions" have been introduced in three provinces (Styria, Carinthia, Tyrol), particularly focussing on the inclusion of children with special needs. In 2017, a national strategy for improving the social dimension and inclusion in Higher Education has been launched.
Encourage municipal mergers to exploit economies of scale. Align spending and financing responsibilities at different administrative levels by increasing the tax autonomy of sub-central governments (ES).	The 2017 fiscal equalisation act stipulates inter-municipality co-operation. The tax autonomy to raise the housing subsidy contribution (<i>Wohnbauförderungs-beitrag</i> , currently 1% of payroll) is transferred from the central government to the <i>Länder</i> with effect in 2018.

retail sector. The 2017 Deregulation Act and the Deregulation Principles Act aim at reducing bureaucratic burdens including through the provision of eGovernment solutions (electronic communication, delivery and tendering). Deregulation in network sectors has also made good progress.


The secular decline in total factor productivity growth, like in most advanced countries, has increasingly been linked to a widening dispersion of productivity across firms due to slower diffusion of innovation and winner-takes-all dynamics (Andrews et al., 2016). Frontier firms have reaped the benefits of digitalisation and participation in global value chains while laggards increasingly struggle to keep pace. Low enterprise churning rates increase economic costs, in particular if non-viable firms survive artificially or inefficient insolvency regimes make firm exit too costly and undermine the culture of risk-taking (Adalet McGowan et al., 2017). The authorities consider that as a whole Austria's insolvency framework is working efficiently, with a recovery rate of assets of over 33% in insolvent companies and relatively short bankruptcy proceedings of 1 to 1½ years, despite relatively high administrative costs of resolving insolvencies, at 10% of the estate against an average of 5% for peer countries according to the

Figure 19. **Retail and professional services remain over-regulated**

Index scale of 0-6 from least to most restrictive, 2013



Source: OECD (2013), Product Market Regulation database, www.oecd.org/economy/pmr.

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World Bank's Doing Business indicators. The bankruptcy law for private persons was recently amended and made less penalising for failed entrepreneurs and there is ongoing work to improve the solvency regime. The stock of government guarantees to businesses is also higher than in peer countries, requiring close scrutiny of their impact on credit market discipline and the quality capital allocation. A high share of these guarantees concern export credits and a recent law which lowered their upper limit from EUR 50 billion to EUR 45 billion is welcome.

Seizing opportunities and addressing the challenges arising from digitalisation

The aforementioned measures to increase potential growth and social cohesion by fostering innovation and productivity on the one hand, and promote equality of opportunity in the labour market on the other, will need to be implemented in the context of the digital revolution. The scale and scope of digitalisation call for an integrated policy agenda to seize the opportunities and address the challenges that it raises. Overall, Austria is not among the most advanced OECD countries in this process, but it is stepping up its efforts in this area – to wit, the comprehensive Digital Roadmap announced in January 2017 (Box 5). OECD experience suggests that this Roadmap can be further strengthened by specific targets and deadlines for implementation, as well as by product (competition), labour market and more fundamental tax reforms (OECD, 2017b).

Box 5. Austria's "Digital Roadmap"

The Austrian government presented a Digital Roadmap in January 2017, "to shape the path towards a digital future and position Austria amongst the innovation leaders in digitalisation". The strategy aims at integrating different sectoral policies and co-ordinating across stakeholders (government, social partners, business sector, universities and civil society). It emphasises that i) everyone in Austria should be able to participate in digitalisation and the digital gap should be closed; ii) digital education should start as early as possible, and no child should leave school without digital competencies; and iii) as digitalisation creates new business and working models, it requires the adaptation of the

Box 5. Austria's "Digital Roadmap" (cont.)

legal and regulatory framework. The strategy aims at making Austria a leading digital business location. The Roadmap spells out 12 core objectives:

- Education: encouraging women to specialise in science and engineering (STEM); strengthening digital competencies of teachers; using innovative tools in education and open source software in schools, universities and lifelong learning institutions. A digital strategy for education and training (School 4.0) will be implemented from school year 2017/18.
- Infrastructure: establishing a cutting-edge broadband and mobile digital infrastructure (5G); closing the infrastructure gaps between urban and rural areas.
- Research and innovation: becoming an innovation leader in digital technologies; further supporting R&D in the private sector with a stronger focus on digital technologies.
- Business sector: improving framework conditions for start-ups; providing digital one-stop-shops to entrepreneurs; helping SMEs 'go digital' including by adapting apprenticeship curricula.
- Employment and work: up-skilling employees in new occupations; providing a social security net and co-determination channels for those engaged in new forms of work; adapting the legal framework and the financing sources of the welfare system.
- Health, care and social issues: drawing on digital technologies for assistance and care in living places.
- Environment, energy, agriculture and climate protection: improving energy efficiency with digital applications; promoting smart metering in agriculture; enhancing broadband access in rural areas.
- Mobility and transport: developing a supportive legal and safety framework for driverless transport; promoting smart traffic systems.
- Media and culture: countering the malicious use of new media; fighting the digital diffusion of hate speech.
- Integration and inclusion: generalising education and training in ICT; implementing multilingual service platforms.
- Security, safety and trust: enhancing cybersecurity, including via stronger international co-operation; enforcing high privacy and consumer protection standards.
- Politics and public administration: expanding e-government services and digital one-stop-shops; promoting open data, open government and open source.

A yearly digital summit will ensure constant monitoring and adaptation of the strategy. The responsibility for implementation of the various measures will remain with different line ministries.

The strategy has been designed in line with the EU's Digital Agenda for Europe (EC, 2011), which highlights key policy pillars such as i) promoting digital literacy and inclusion; ii) promoting fast and ultra-fast internet for all; iii) diffusing open standards and interoperability; and iv) developing on-line trust and security. It puts a special emphasis on achieving a single digital European market.

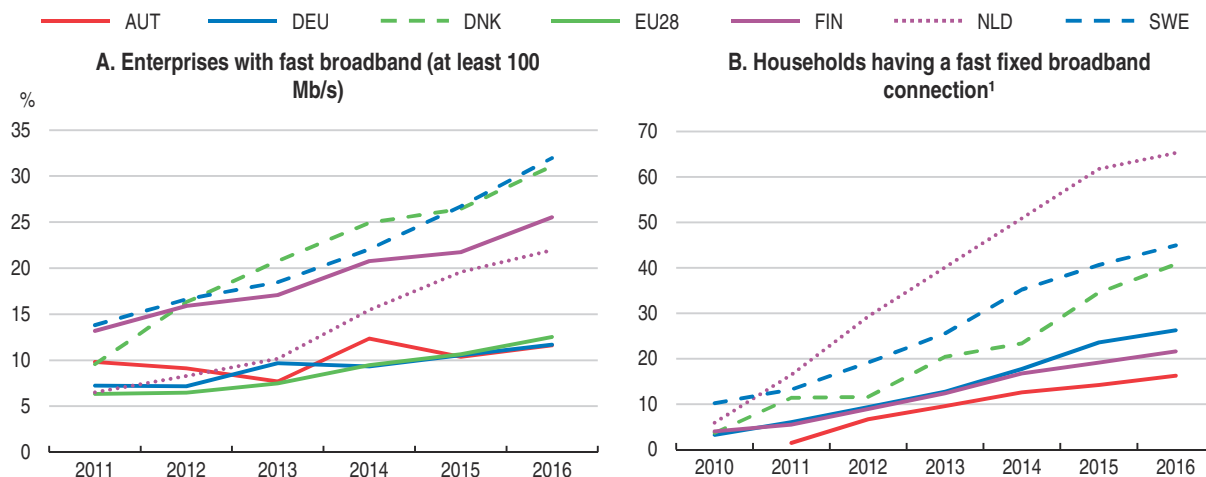
Digitalisation as a new frontier

Digitalisation has revolutionised information processing, data transmission and communication. Economic activities incorporating a significant share of digital techniques in their products, services or work processes are experiencing major changes in their cost

structures and competition conditions. Notably, compared to traditional manufacturing and services, the lower marginal costs of digitalised products and services enable firms and platforms to scale up very rapidly. First movers can gain a dominant position in national and then international markets. On the demand side, the rapid spread of information on social networks hastens the emergence of “superstars”, with faster reputation build-up and prompt access to financial markets – which further accelerates the growth of leaders. However, these developments also entail challenges, in particular sharper fluctuations in firm-level employment and skill demand than in the past.


The digital revolution requires adequate physical infrastructure, notably broadband internet, which is well-developed in Austria. However, compared to other countries, the most advanced variants of the infrastructure, necessary for the new generations of high-volume data services, are less utilised by firms and households. Despite attractive service prices, only slightly more than 10% of Austrian firms subscribed to fast broadband (at least 100 Mb/s) in 2016 and 15% of households to “household broadband” (at least 30 Mb/s), against up to three and four-fold higher rates of use in other high-income small European economies (Figure 20). This seems to reflect relatively weaker demand for sophisticated digital services by Austrian enterprises and households, rather than bottlenecks in the supply of infrastructure. Nonetheless, the physical shortcomings of the network (a low share of fibre on long and short-distance connections, and a high share of copper in the “last mile”) have created a less dynamic environment for infrastructure innovation. More public investment in the fibre network (as intended in a new Broadband Plan) and more active competition policy to foster competition between service providers would take Austria’s digital infrastructure closer to peer country standards.

Figure 20. **Advanced digital infrastructures are less used in Austria**



1. Fixed broadband connection with an advertised download speed above 30 Mbps.

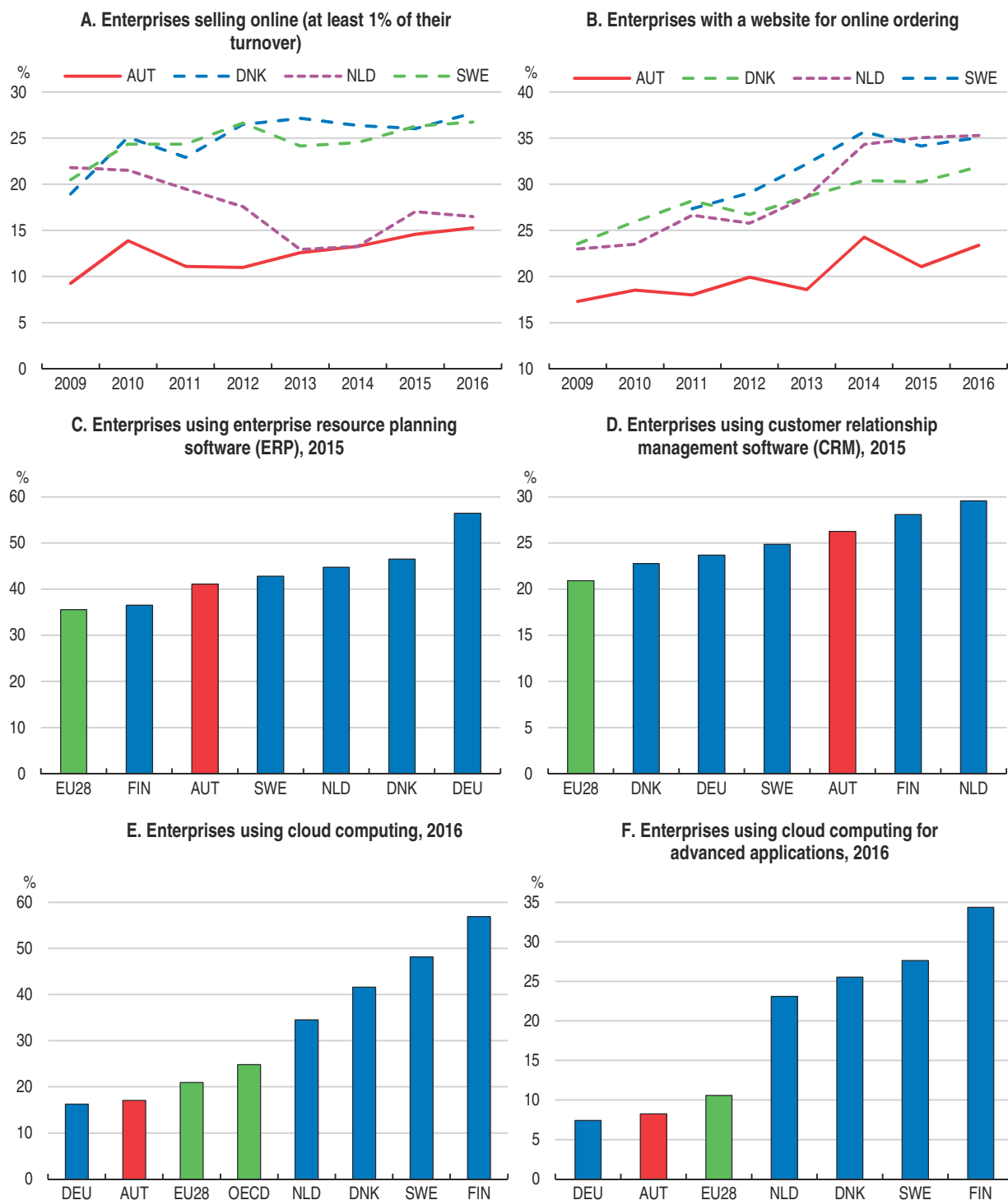
Source: Eurostat.

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The utilisation of information and communication technology (ICT) applications in the business sector is around OECD averages, but, apart from certain specific areas, behind the most advanced countries (Figure 21). The business sector appears somewhat less digitalised than what could be expected based on aggregate productivity and R&D intensity (Figure 22). This appears in line with Austria’s former “technological follower” model (OECD, 2007) but falls short of policymakers’ efforts to join the group of OECD innovation leaders (Austrian

Figure 21. **Enterprises lag behind peers in most ICT applications**

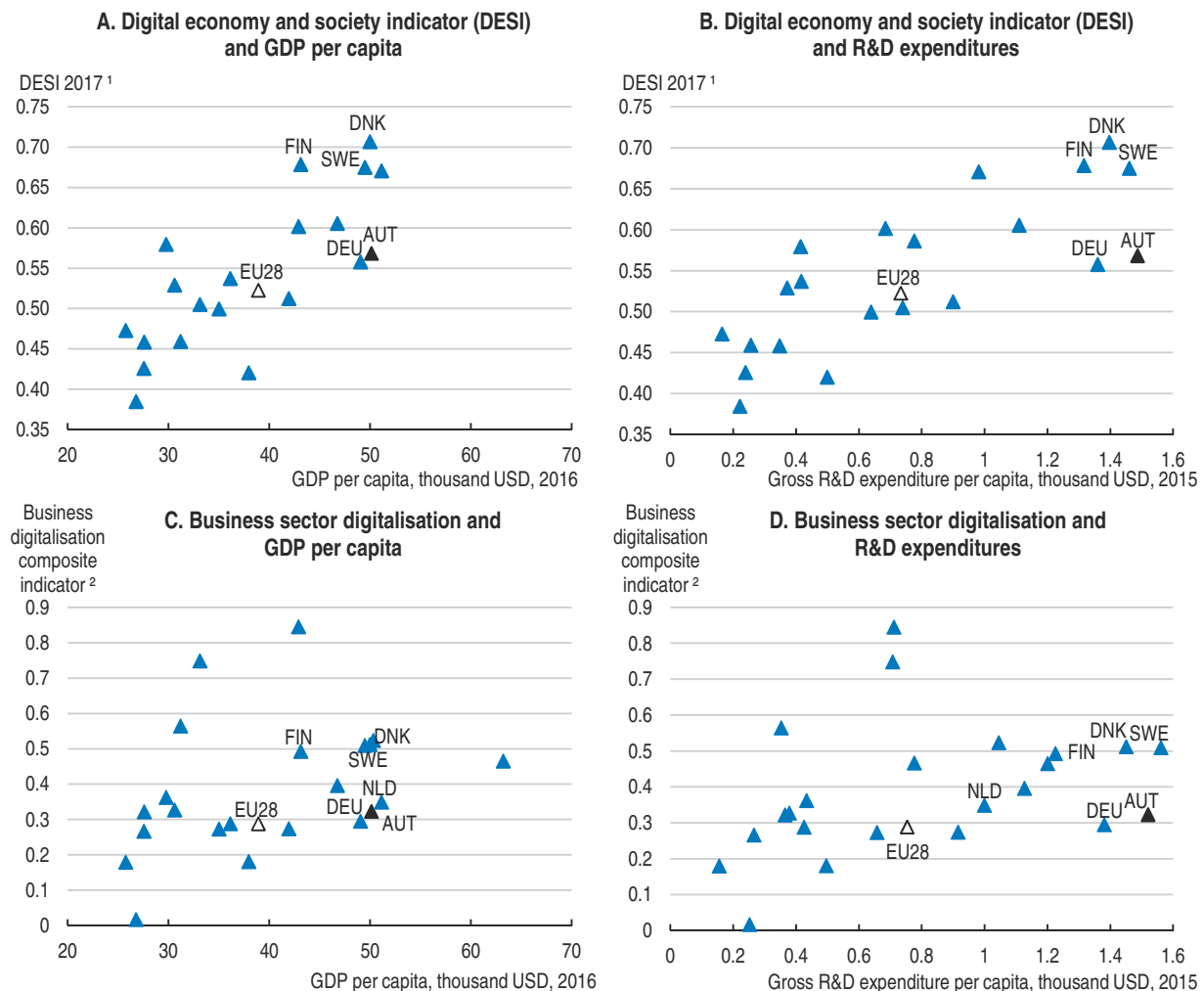
Non-financial firms, %



Source: Eurostat and OECD Digital Economy Outlook 2017 (forthcoming).

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Research and Technology Report, 2016). In contrast to other technologies, a systemic lag in digitalisation may create cumulative productivity and competitiveness bottlenecks for Austrian firms in markets where early-mover advantages and winner-take-all dynamics are

Figure 22. **The overall degree of digitalisation is behind its expected level**

1. The Digital Economy and Society Index (DESI) is a composite index by the European Commission based on i) the deployment of broadband infrastructure and its quality; ii) endowment with ICT skills; iii) the variety of activities performed by citizens online; iv) the digitalisation of businesses and in particular SMEs; and v) the digitalisation of public services.
2. The business sector digitalisation indicator is computed as the average percentage share of enterprises i) selling on-line at least 1% of their turnover; ii) connecting to the internet via a mobile broadband; iii) buying cloud computing services over the internet; and iv) exchanging electronic messages with public authorities. It is normalised between 0 (less) to 1 (more digitalisation).

Source: European Commission, Digital Economy and Society Index (DESI) 2017; OECD National Accounts database; OECD Main Science and Technology database; and OECD calculations based on European Commission data.

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at play (OECD, 2016a). The Digital Roadmap recognises this challenge and seeks to address it (Box 5).

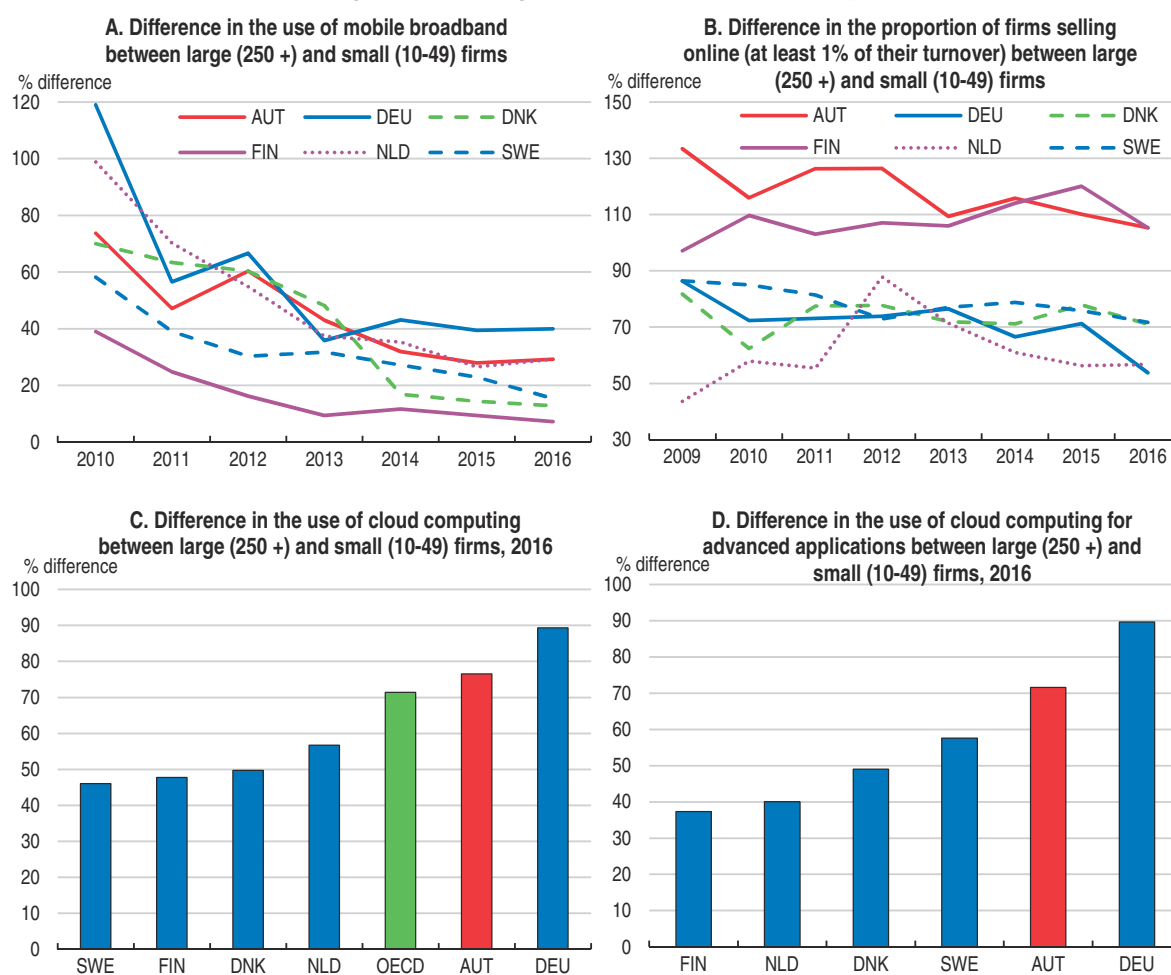
Further progress by Austria is needed in particular in two areas. First, the potential for technological and organisational modernisation in existing firms should be freed up (the so-called “within channel” in technology diffusion). Secondly, business dynamics, i.e. the rate of entry of new firms, the rate of growth of the successful ones, and the rate of contraction and exit of lower-productivity firms should be boosted (the “between” channel). There is considerable room for progress in Austria on both fronts.

Enterprises with certain characteristics are more prone to adopt ICT than others (DeStefano et al., 2017). Large firms (with higher investment capacity) and those producing

digital products and services (with more know-how and human capital in this area) tend to move faster. OECD work also concludes that the effective use of digital technologies relies on the scope of organisational change within firms, led by sound management and leadership, and this capacity may be ampler in large firms (OECD, 2017b). The lag of larger Austrian firms in the absorption of ICT applications against the international frontier is indeed limited. The average gap of the business sector derives principally from the lag of smaller firms (Figure 23). Shortcomings in ICT skills and reluctance to shift to new business models may explain the overall digital gaps in the business sector with respect to peer country counterparts. Limited availability of equity finance (external funding being provided quasi-exclusively through bank loans) appears to further hinder investment in knowledge-based assets, especially by smaller firms (Andrews and Criscuolo, 2013).


Figure 23. Small firms display distinct weaknesses in ICTs

ICT utilisation gaps between large and small firms in Austria and peers, 2009-16



Note: For each indicator, differences in the utilisation ratios by large (250+) and small (10-49) firms are expressed as a percentage of the average utilisation ratio of large and small firms in each country.

Source: Eurostat and OECD Digital Economy Outlook 2017 (forthcoming).

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Changes in banking regulations following the global financial crisis have put constraints on bank lending to SMEs in all OECD countries and in Austria as well. Between 2007 and 2015, the average weight of bank loans in the balance sheet of Austrian SMEs declined from 32% to

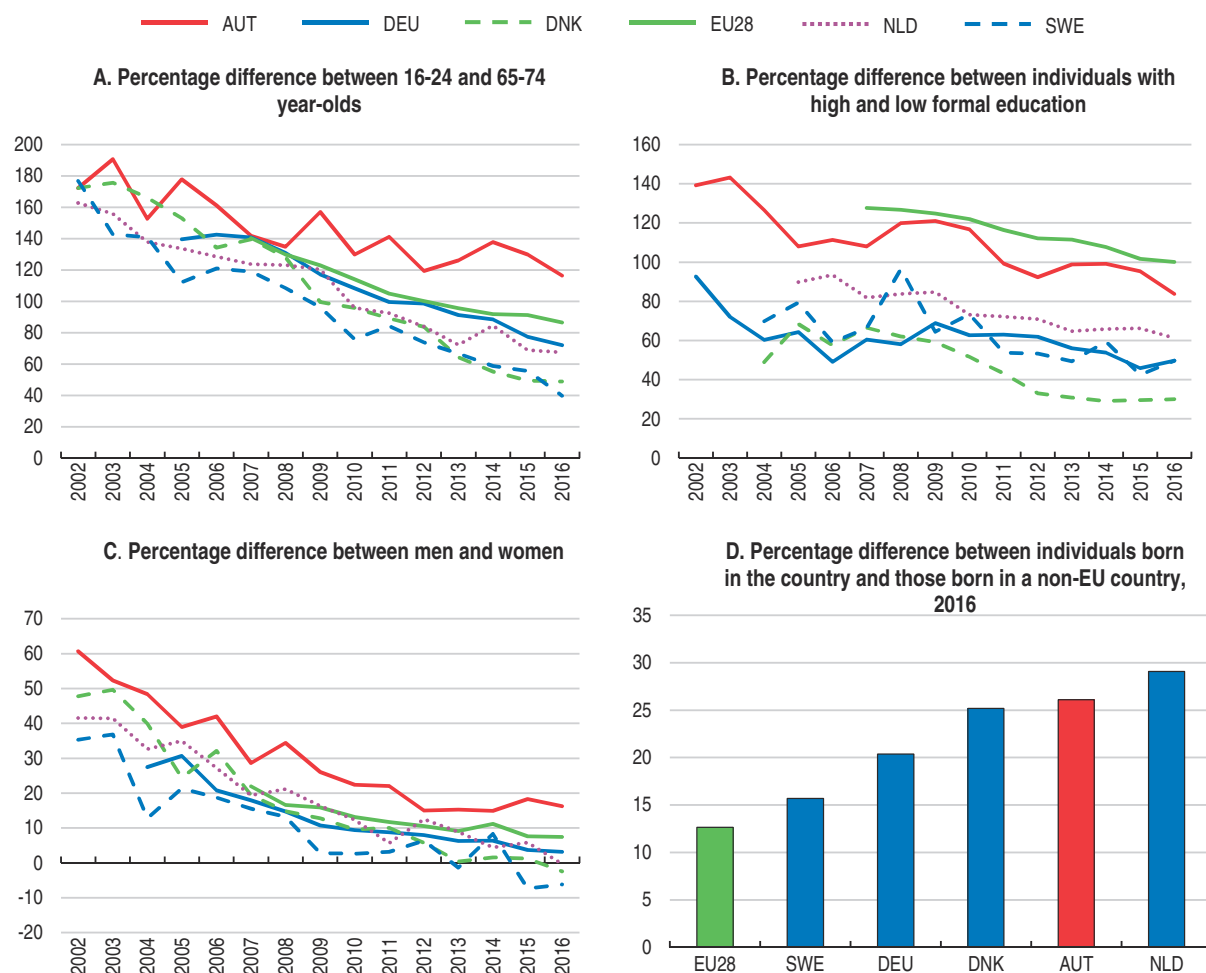
28% (OECD, 2016j). According to a 2015 survey by the Austrian Federal Economic Chamber and the *austria wirtschaftsservice* (aws), nearly 9% of SMEs were already using alternative forms of financing (venture capital, mezzanine capital, silent partnerships, business angels or crowdfunding) and 24% of them were planning to do so (OECD, 2016j).

As noted earlier, firm entry and exit are relatively low in Austria and so is the number of start-ups. A recent study which surveyed the business practices of old and new firms in a large number of countries found that young firms make more active use of ICT applications, shift to more innovative business models, and reap additional performance benefits. Enterprises created and run by women are smaller in average, but are more effective users of digital tools, suggesting that traditional size shortcomings could be overcome by younger and better equipped firms (Future of Business Survey, 2017). Freeing-up a new wave of start-ups in Austria is crucial for reactivating the modernisation of the business sector, and the authorities have confirmed their commitment to this goal (“Austria as a Number One Start-Up Country” objective).


Austria’s regulatory framework could be improved in several dimensions. The financing infrastructure for start-ups will notably need to be further developed. Fostering a level-playing market, including through active competition policies and competition advocacy would allow new firms to grow and challenge incumbents. This is becoming more important as digitalisation creates risks of closure, collusion and even monopolisation in several market areas. On the other hand, digital innovations also open new avenues for entrepreneurs in all sectors, giving them access to wider markets, facilitating the reaching out to far-off business partners, reducing investment needs through the use of cloud services, and bringing in new funding mechanisms such as crowdfunding. Further progress in these areas would help Austria revive business dynamics (OECD, 2017b).

Like in other countries, not all households adopt digital technologies at the same pace. Young and highly educated Austrians are eager and fast to adopt digital innovations and gender differences are small. In contrast, for older individuals, such gaps are wider, and depend on characteristics such as education and immigration origin (Figure 24). Even if the limited use of digital technologies by private persons may be seen as a matter of free choice or cultural preference, the observed determinants of divergence hint at educational and socio-economic backlogs. This calls for educational campaigns targeting lagging groups. The “Digital Roadmap” includes some initiatives in this direction.

To reduce transaction costs in the digital economy and facilitate the adoption of innovations, trust is crucial. Three key dimensions pertain to cybersecurity, privacy and consumer protection (OECD, 2016h). Like in other OECD countries, digital security is a strategic issue, to be addressed in line with the *Recommendation of the OECD Council on Digital Security Risk Management for Economic and Social Prosperity* (OECD, 2015d). This approach requires a culture of dialogue and co-operation among key stakeholders, which is well-developed in Austria. Privacy issues should continue to be handled along the principles-based privacy framework of the *OECD Privacy Guidelines* (OECD, 2013b). Furthermore, new consumer protection issues are faced in specific activities such as e-commerce, online banking and online user tracking, and legal safeguards beyond general consumer protection rules are needed. Austria’s consumer protection agency participates in the International Consumer Protection and Enforcement Network (ICPEN). Guidelines in this area have recently been revised in the *OECD Recommendation on Consumer Protection in E-commerce* (OECD, 2016i).

Figure 24. **ICT adoption gaps between population groups: the case of e-commerce**

Source: Calculations based on Eurostat data.

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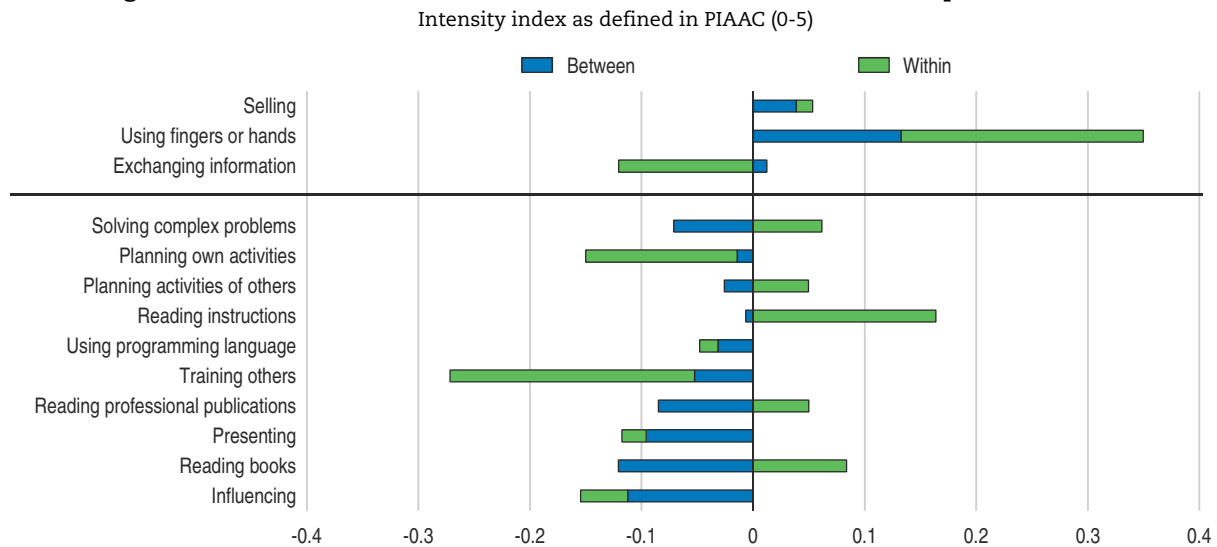
Managing the labour market and social consequences of digitalisation

The pace of technological progress has spurred fears of a future with fewer work opportunities, as robots and software replace human workers. The authorities acknowledge the importance of the transformations ahead and have initiated several policy initiatives in this regard (see the Digital Roadmap, Box 5). While the potentially disruptive nature of these technologies for labour markets is undeniable, the net effect of digitalisation on total employment will depend on i) firms' and workers' capacity to identify and nurture complementarities between machines and human beings and ii) the extent to which the absorption of new technologies raises productivity and reduces prices, thereby adding new demand for goods and services. Specifically, labour market disruptions are more likely to lead to changes in the task structure of occupations than the disappearance of entire occupations (Autor, 2015).

Against this background, tasks associated with social and creative intelligence are complementary to digital technologies and less likely to be replaced in the near future (Frey and Osborne, 2017). PIAAC results suggest that Austria's occupational structure is tilted towards occupations that make less use of skills such as "influencing", "reading books and


professional publications”, “presenting” or “solving complex problems” (Figure 25), which explains why the country exhibits a relatively high share of jobs at risk of automation (Arntz et al., 2016). This finding echoes the identified backlogs in the transition towards digitalisation and suggests that some adjustments that have already occurred in other countries may still lie ahead in Austria. To preserve social cohesion, policies that foster business dynamics (see above) should be flanked with adequate safety nets and an enabling system of active job search and retraining activities. A more fundamental tax reform to shift taxation away from labour to property, environmental bads and consumption while preserving the purchasing power of the low income groups would support employment and social cohesion and strengthen the sustainability of social institutions and the environment.

Figure 25. **Differences in skills use at work between Austria and peer countries**



Note: Differences in the task intensity between Austria and peer countries are shown. “Between” refer to the contributions of the occupational structure to the overall difference (obtained by resampling Austria’s occupations with average sampling weights of peer countries and computing the difference between the non-resampled and the resampled weighted average of intensities across occupations). “Within” differences refer to the contribution of differences in the intensity occupation by occupation between Austria and its peers (obtained as the sum of differences in task intensities for each occupation weighted by peer countries’ average employment shares). Austria’s peer countries are Denmark, the Netherlands and Sweden. The first three tasks significantly increase automation risks, the other tasks are significant bottlenecks to automation (see Arntz et al., 2016).

Source: Calculations based on Survey of Adult Skills – PIAAC (2012, 2015).

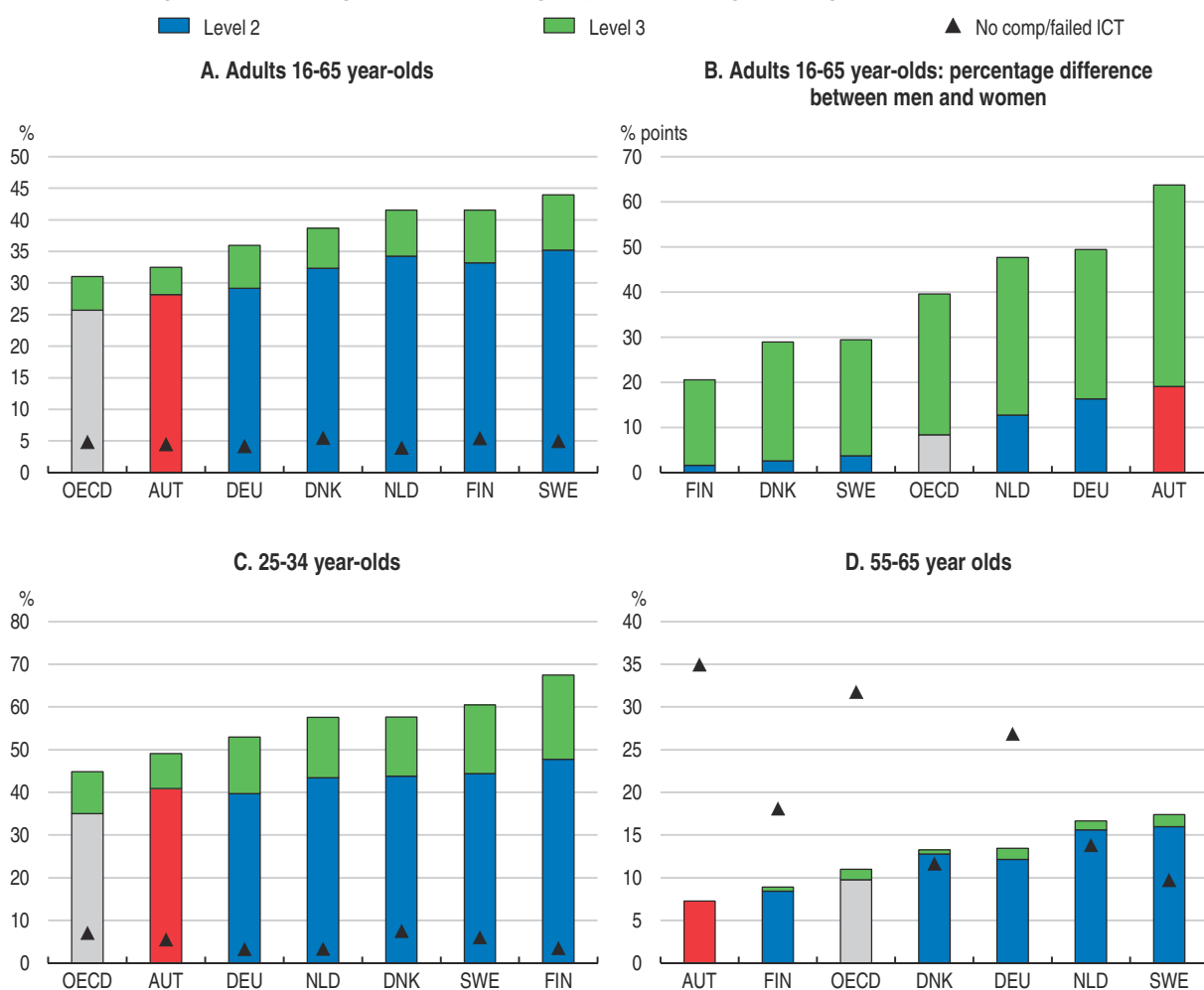
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Digitalisation also modifies labour relations as new forms of work have emerged blurring the traditional lines between employers and employees. The “on-demand economy” links crowd-workers via platforms to their customers (consumers and firms). This provides market participants with benefits such as increased flexibility, access to larger markets and superior supply-demand matches. On the other hand, existing labour law and social institutions need to be adapted to avoid benefits accruing disproportionately to firms and platforms due to asymmetric bargaining power, a lack of social protection and precarious working conditions. Authorities should engage a social dialogue with platforms to ensure minimum standards, such as portability of crowd-worker ratings and safeguards against discrimination. Finally, well-designed policies are needed to mitigate the risk of underinvestment in skills as new forms of work often shift the burden of up- and reskilling away from firms to individuals and the public sector.

The penetration of digital tools at work fundamentally changes the set of required skills for a wide range of occupations. To this end, PIAAC added the item “problem-solving in a technology rich environment” to the list of basic skills to be assessed. Results suggest that only 32% of Austrians are able to solve problems that require the use of both generic and more specific technology applications, against 40% in peer countries (Figure 26). Further OECD evidence suggests that digital literacy backlogs may be partly rooted in Austria’s school system. Digital reading scores and task-oriented navigation skills fall far behind peer countries and are among the lowest in the OECD (PISA, 2012). The pedagogical approach should be revised in line with international best practices, with a greater focus on collaboration and peer reviewing to upgrade and professionalise teaching practices and benefit from external feedback (Nusche et al., 2016). The planned greater school autonomy, if combined with effective accountability, can play an important role. More elaborated needs-based funding formulas could help to reduce inequalities between schools. Finally, digital education should start with early childhood education for instance by the use of playful approaches to coding and by instructing the prudent usage of digital devices.

Figure 26. The adult population’s digital proficiency is lower than in peer countries

Percentage of adults scoring at level 2 or 3 in digital problem solving or having no computer experience, 2015



Source: OECD (2016), Skills Matter: Further Results from the Survey of Adult Skills.

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With rapidly changing labour market needs, a key priority is to ensure the responsiveness of the education system and to promote work environments that are geared towards reconciling work with the need for life-long learning. In this regard, Austria should build on the high prominence of vocational education and training (VET) and modernise dual apprenticeship systems to preserve their attractiveness to both employers and apprentices. Government measures announced in spring 2017 go in this direction, including subsidies for language training abroad. Cost-benefit analyses suggest that financial incentives for firms vary considerably across training professions. Subsidy schemes and training durations should respond flexibly to supply and demand discrepancies to avoid windfall gains and encourage firm participation in fields where the productivity of apprentices rises only slowly with apprenticeship duration (Mühlemann, 2016; Kis, 2016; Kuczera, 2017).

In order to remain attractive to students, and to respond to increasing demand for flexibility and adaptation, VET programmes should seek to provide skills that go beyond those required for a specific occupation, and also ensure better transitions to higher education. In this regard, the system of modular apprenticeships and VET colleges should be developed further. The projected modification in task and occupational structures strengthens the need for well-designed skill assessment and anticipation exercises as well as for constant up-grading. Building on Austria's strong social partnership foundations, the authorities could consider introducing a generalised subsidy-based lifelong learning incentive scheme akin to Singapore's SkillsFuture Programme.

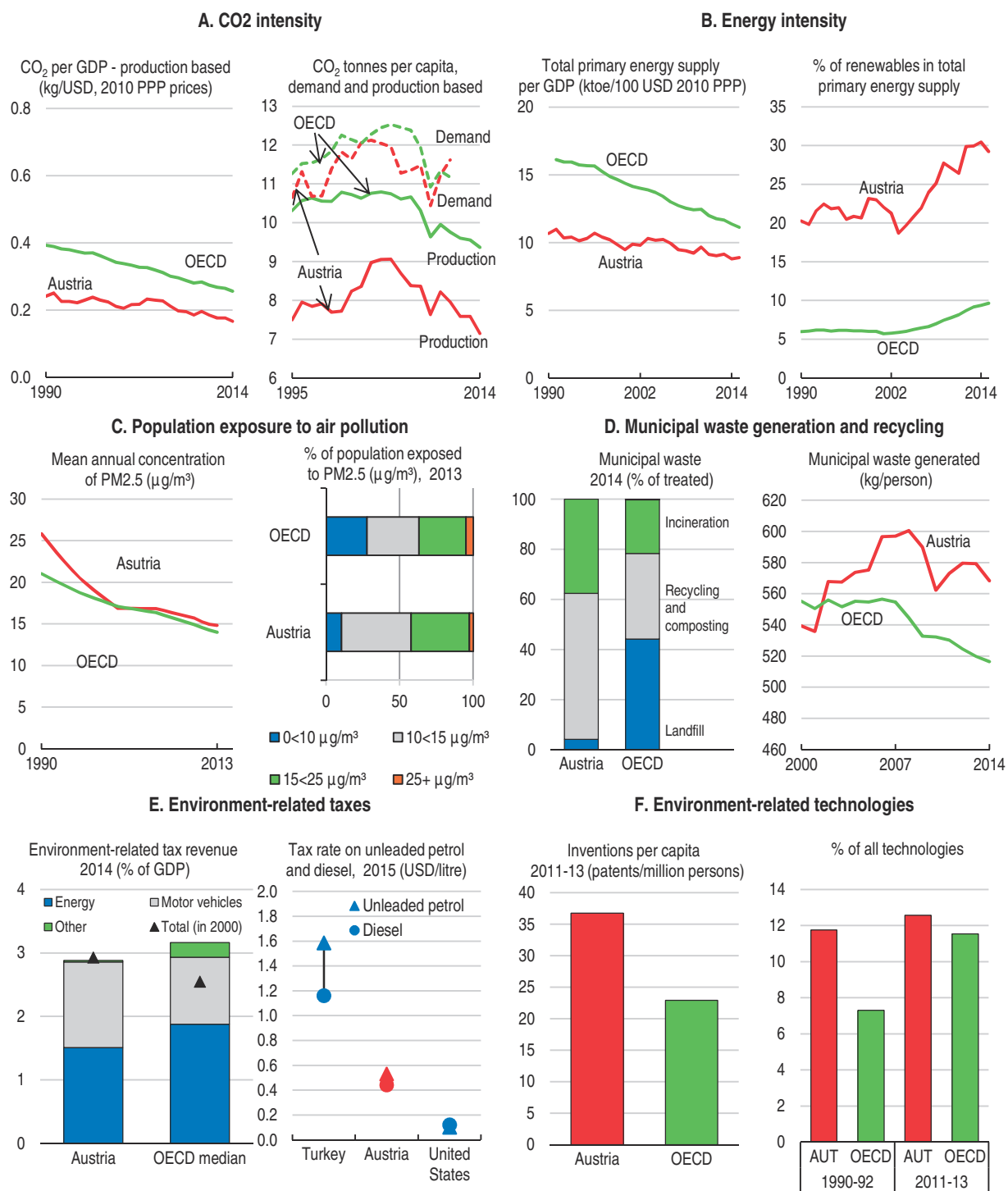
Challenges for green growth

Austria's economy is less energy-intensive than the OECD average and its energy mix features a much higher share of renewables (Figure 27). This share has soared over the past decade to 29% of total primary energy supply (TPES) in 2015. The increase mainly reflects growth in the use of biofuels and waste for heat or power, which now account for 19% of TPES, almost double the 2000 share. Most of the rest is hydropower. The contribution of wind and solar has risen ten-fold since 2000 but still supplies only 2% of TPES. However, when account is taken of estimated CO₂ emissions embodied in exports and imports, per capita CO₂ emissions implied in Austria's final demand structure are close to the OECD average.

Austria does not have an explicit carbon tax, but carbon prices for energy users reflect specific taxes on energy use and the EU Emissions Trading System. Only 57% of Austria's non-road energy related CO₂ emissions were priced in 2012, and only 26% were priced above EUR 30 per tonne of CO₂, that is, above a conservative estimate of their climate cost (OECD, 2016c). Variations across sectors are large and result in mixed price signals. The authorities should extend the use of environmentally-related taxes beyond transport and energy-producing sectors with a view to providing consistent carbon price signals across the economy.

There is also scope to increase tax rates on fossil fuels. Tax rates on petrol and diesel are lower than in many neighbouring countries, which encourages motorists from neighbouring countries and freight haulers (as many international roads cross Austria) to fill their tanks in Austria. This "fuel tourism" contributes to around one third of Austrian transport-related GHG emissions, and, by increasing traffic, to higher levels of air pollution. Although air quality has generally improved, nitrogen oxide emissions remain above the national limit. Road transport is the major source of NO_x emissions, largely due to a high share of diesel in the overall vehicle fleet.

Figure 27. **Green growth indicators: Austria**



Source: OECD (2017), Green Growth Indicators (database).

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Austria has made some progress in reforming support measures for fossil fuels. For example, the country phased out an excise-tax reduction on diesel fuel for farmers in 2013 (OECD, 2015b). But a number of poor incentives remain, including a tax reimbursement

scheme for industrial energy consumers, which can reduce incentives for energy efficiency (OECD, 2016b). Tax incentives for company cars and commuting costs are also in place, which can encourage private car use, long-distance commuting by car and urban sprawl, increasing emissions of GHG and local air pollutants, noise, congestion and accident risks. The 2016 tax reform has marginally reduced the implicit tax subsidy for highly polluting company cars albeit from one of the highest levels in Europe (EC, 2010).

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