OECD Economic Surveys

Estonia

December 2019

OVERVIEW

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

The draft report was discussed at a meeting of the Economic and Development Review Committee on 12 November 2019, with participation of representatives of the Estonian authorities.

The Secretariat’s draft report was prepared for the Committee by Margit Molnar and Jon Pareliusen under the supervision of Patrick Lenain. Damien Azzopardi provided statistical assistance and Stephanie Henry provided editorial support. The Survey benefitted from contributions by Andrés Fuentes and comments by Christina Von Rueden, Dirk Pilat, Bert Brys, Natia Mosiaahvili, Rudiger Ahrend and other OECD staff. Support from the government of Estonia is gratefully acknowledged.

The previous Economic Survey of Estonia was issued in September 2017.

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**BASIC STATISTICS OF ESTONIA, 2018**

(Numbers in parentheses refer to the OECD average)**

<table>
<thead>
<tr>
<th>LAND, PEOPLE AND ELECTORAL CYCLE</th>
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<tbody>
<tr>
<td>Population (million)</td>
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<tr>
<td>Under 15 (%)</td>
</tr>
<tr>
<td>Over 65 (%)</td>
</tr>
<tr>
<td>Foreign born (%)</td>
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<tr>
<td>Latest 5-year average growth (%)</td>
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</table>

<table>
<thead>
<tr>
<th>ECONOMY</th>
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<tbody>
<tr>
<td>Gross domestic product (GDP)</td>
</tr>
<tr>
<td>In current prices (billion USD)</td>
</tr>
<tr>
<td>In current prices (billion EUR)</td>
</tr>
<tr>
<td>Latest 5-year average real growth (%)</td>
</tr>
<tr>
<td>Per capita (000 USD PPP)</td>
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<table>
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<tr>
<th>GENERAL GOVERNMENT</th>
</tr>
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<tbody>
<tr>
<td>Expenditure</td>
</tr>
<tr>
<td>Revenue</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>EXTERNAL ACCOUNTS</th>
</tr>
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<tbody>
<tr>
<td>Exchange rate (EUR per USD)</td>
</tr>
<tr>
<td>PPP exchange rate (USA = 1)</td>
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<tr>
<td>In per cent of GDP</td>
</tr>
<tr>
<td>Exports of goods and services</td>
</tr>
<tr>
<td>Imports of goods and services</td>
</tr>
<tr>
<td>Current account balance</td>
</tr>
<tr>
<td>Net international investment position</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LABOUR MARKET, SKILLS AND INNOVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment rate (aged 15 and over, %)</td>
</tr>
<tr>
<td>Men</td>
</tr>
<tr>
<td>Women</td>
</tr>
<tr>
<td>Participation rate (aged 15 and over, %)</td>
</tr>
<tr>
<td>Average hours worked per year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ENVIRONMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total primary energy supply per capita (toe)</td>
</tr>
<tr>
<td>Renewable (%)</td>
</tr>
<tr>
<td>CO2 emissions from fuel combustion per capita (tonnes)</td>
</tr>
<tr>
<td>Water abstractions per capita (1 000 m³, 2017)</td>
</tr>
<tr>
<td>Exposure to air pollution (more than 10 μg/m³ of PM 2.5, % of population, 2017)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOCIETY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income inequality (Gini coefficient, 2016)</td>
</tr>
<tr>
<td>Relative poverty rate (%), 2016</td>
</tr>
<tr>
<td>Median disposable household income (000 USD PPP, 2016)</td>
</tr>
<tr>
<td>Public and private spending (% of GDP)</td>
</tr>
<tr>
<td>Health care</td>
</tr>
<tr>
<td>Pensions (2015)</td>
</tr>
<tr>
<td>Education (public, 2017)</td>
</tr>
</tbody>
</table>

* The year is indicated in parenthesis if it deviates from the year in the main title of this table.
** Where the OECD aggregate is not provided in the source database, a simple OECD average of latest available data is calculated where data exist for at least 80% of member countries.
Executive summary
Growth is strong, although slowing
Estonia’s economy continues to perform well, even though growth is slowing somewhat. Growth, however, could be more inclusive and there is room to boost spending in areas supporting long-term equitable growth.

Estonia has continued to enjoy a fast convergence. However, many wellbeing challenges still need to be addressed: inequalities in income, health, environmental quality and other aspects of life, which vary across regions and by level of education, between genders and urban and rural areas. How to lift productivity by embracing digital technologies for stronger and more inclusive growth is the focus of this survey.

Figure 1. Growth is strong by OECD standards

Source: OECD Analytical Database

Growth will ease going forward, moderating wages and inflation, as international demand softens and domestic pressures abate, notably in construction. The outlook is vulnerable to external events, including global trade tensions.

Table 1. Economic growth remains strong

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP at market prices</td>
<td>4.8</td>
<td>3.2</td>
<td>2.2</td>
</tr>
<tr>
<td>Private consumption</td>
<td>4.4</td>
<td>2.7</td>
<td>3.2</td>
</tr>
<tr>
<td>Government consumption</td>
<td>0.8</td>
<td>2.4</td>
<td>1.5</td>
</tr>
<tr>
<td>Gross fixed capital formation</td>
<td>0.9</td>
<td>14.1</td>
<td>1.7</td>
</tr>
<tr>
<td>Exports of goods and services</td>
<td>4.3</td>
<td>4.1</td>
<td>1.1</td>
</tr>
<tr>
<td>Imports of goods and services</td>
<td>5.7</td>
<td>3.8</td>
<td>2.2</td>
</tr>
<tr>
<td>Unemployment rate (% of labour force)</td>
<td>5.4</td>
<td>5.1</td>
<td>5.1</td>
</tr>
<tr>
<td>Harmonised index of consumer prices</td>
<td>3.4</td>
<td>2.4</td>
<td>2.3</td>
</tr>
<tr>
<td>Current account balance (% of GDP)</td>
<td>2.4</td>
<td>1.4</td>
<td>0.9</td>
</tr>
<tr>
<td>General government financial balance (% of GDP)</td>
<td>-0.6</td>
<td>-0.3</td>
<td>-0.4</td>
</tr>
</tbody>
</table>

Source: OECD Economic Outlook 106 database.

Fiscal policies have been mostly prudent, resulting in the lowest debt in the OECD. In the recent upturn, fiscal policy has become procyclical, which should be avoided. The free play of automatic stabilisers should be allowed and in case of a strong downturn, the exemption clause used. Extending the real estate tax base to residential real estate and higher environmental taxes and fees could partly finance long-term spending needs on infrastructure, health and social security and would provide room for cuts in labour and consumption taxes. Monetary policy will be supportive as growth is slowing.

Proposed changes to the pension system pose risks. The proposal to allow opt-out of the mandatory privately-managed second pillar of the pension system and early withdrawal of funds would boost government revenues, but may threaten macroeconomic stability and future pension adequacy. Moreover, impacts of the proposed changes have not been properly assessed. Withdrawal before retirement should not be allowed and pension funds should be more transparent about their costs and better governed to achieve greater efficiency and higher returns.

Figure 2. General government debt is very low

Source: OECD Analytical Database.

Money laundering issues are being addressed. The Financial Supervisory Authority (FSA) closed down Versobank and Danske Bank’s Estonian Branch following earlier breaches of anti-money laundering rules. The FSA and financial sector cooperate to implement necessary checks and balances to prevent new incidences of money laundering. The government is addressing weaknesses of the legal framework to counter money laundering. This should include increasing fines to deterring levels and allowing the prosecutor to freeze assets on the suspicion of money laundering. Nordic-Baltic cooperation in banking supervision could be further improved.

Growth needs to be driven more by productivity
Estonia has adopted a business-friendly regulatory framework and is considering forefront
regulatory tools for artificial intelligence. However, the productivity catch-up has slowed since the global financial crisis and the gap with top performers is large. Digitalisation of businesses provides a promising avenue to lift overall productivity. Further automation is key to boost competitiveness amid rising labour costs.

**Figure 3. Productivity catching up has slowed**

<table>
<thead>
<tr>
<th>Year</th>
<th>EST</th>
<th>FIN</th>
<th>LTV</th>
<th>SVN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>0.2</td>
<td>0.4</td>
<td>0.6</td>
<td>0.8</td>
</tr>
<tr>
<td>1998</td>
<td>0.4</td>
<td>0.6</td>
<td>0.8</td>
<td>1.0</td>
</tr>
<tr>
<td>2002</td>
<td>0.6</td>
<td>0.8</td>
<td>1.0</td>
<td>1.2</td>
</tr>
<tr>
<td>2006</td>
<td>0.8</td>
<td>1.0</td>
<td>1.2</td>
<td>1.4</td>
</tr>
<tr>
<td>2010</td>
<td>1.0</td>
<td>1.2</td>
<td>1.4</td>
<td>1.6</td>
</tr>
<tr>
<td>2014</td>
<td>1.2</td>
<td>1.4</td>
<td>1.6</td>
<td>1.8</td>
</tr>
<tr>
<td>2018</td>
<td>1.4</td>
<td>1.6</td>
<td>1.8</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Source: OECD Economic Outlook 106 database.

**Estonia is a frontrunner in digitalising government services and boasts a number of native ICT unicorns.** The country should build on these key strengths to nurture digitalisation economy wide. Industry digitalisation policies should be holistic and reflected in government documents and their implementation monitored.

**Skills are key to boost the productivity gains from digital technologies.** High educational attainment and skills give solid foundations to make the most out of digitalisation. Almost half of Estonian jobs are at risk of automation or significant change. Ensuring high and up-to-date skills is central to seizing the productive potential from digital technologies and to sharing the gains equitably. Improving unemployment insurance coverage might give the unemployed with up-skillimg needs stronger incentives to participate in training.

**Digital user skills are improving,** but quality of ICT teaching varies across compulsory schools, and many teachers feel unprepared. Adult education and training needs a boost, and employers should take more responsibility to train their employees.

**ICT activities for children should be designed to appeal equally to girls’ and boys’ interests** to boost the number of women ICT specialists. Overall supply of ICT specialists is catching up with demand, but employment is highly concentrated in the ICT sector. Traditional industries lag behind, likely slowing down their productivity-enhancing digital adoption.

**Manager selection and management practices could improve.** Managers are key to the digital transformation to initiate and steer product- and process innovations, and they are responsible for assigning and developing human capital. Estonian managers have a low skill premium compared to other countries, and firms make limited use of high-performing work practices known to boost productivity performance and skills use at work.

**Digitalisation of industry is an imminent challenge.** Access to ultra-fast broadband is one of the major bottlenecks to the adoption of digital technologies, in particular for small firms.

**Figure 4. Managers’ skill premium is low**

<table>
<thead>
<tr>
<th>Country</th>
<th>Literacy</th>
<th>Digital problem solving</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUR</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>IRL</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>AUS</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>CHL</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>AUT</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>ENG</td>
<td>0</td>
<td>-1</td>
</tr>
<tr>
<td>ISR</td>
<td>-1</td>
<td>-2</td>
</tr>
<tr>
<td>NOR</td>
<td>-2</td>
<td>-3</td>
</tr>
<tr>
<td>SVN</td>
<td>-3</td>
<td>-4</td>
</tr>
<tr>
<td>LTU</td>
<td>-4</td>
<td>-5</td>
</tr>
<tr>
<td>RUS</td>
<td>-5</td>
<td>-6</td>
</tr>
<tr>
<td>PIAC</td>
<td>-6</td>
<td>-7</td>
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<tr>
<td>DNK</td>
<td>-7</td>
<td>-8</td>
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<tr>
<td>SWE</td>
<td>-8</td>
<td>-9</td>
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<tr>
<td>USA</td>
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<td>DEU</td>
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<tr>
<td>NLD</td>
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<td>CZE</td>
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<td>SVK</td>
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<td>-17</td>
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<tr>
<td>JPN</td>
<td>-17</td>
<td>-18</td>
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</tbody>
</table>


**Figure 5. Few businesses have ultra-high speed connection, 2018**

<table>
<thead>
<tr>
<th>Country</th>
<th>Small (10 to 49 employees)</th>
<th>Medium (50 to 249 employees)</th>
<th>Large (250 employees and more)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EST</td>
<td>20</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>LVA</td>
<td>40</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>SVN</td>
<td>60</td>
<td>100</td>
<td>120</td>
</tr>
<tr>
<td>OECD</td>
<td>80</td>
<td>120</td>
<td>140</td>
</tr>
<tr>
<td>FIN</td>
<td>100</td>
<td>140</td>
<td>160</td>
</tr>
<tr>
<td>LTU</td>
<td>120</td>
<td>160</td>
<td>180</td>
</tr>
</tbody>
</table>

Source: OECD ICT database on business usage.

**Embracing digital tools provides a leapfrogging opportunity for Estonian firms.** Big data, the Internet-of-things and artificial intelligence are driving the shift to modern industry in digital frontrunner countries.
The small scale of firms inhibits boosting productivity through adopting digital tools. Most firms do not reach the threshold where fixed costs of digital tools are affordable. Digital collaboration within industry associations and ICT clusters could alleviate that issue alongside mergers and joint operations.

Lack of awareness about the potential benefits of adopting digital tools and the type of tools to adopt are bottlenecks to digital transition. Bureaucracy should be reduced for digital diagnostics and take-up rates and success stories should be better disseminated.

Lack of financing is an obstacle to long-term investments, especially the lack of collateral among new and rural firms. Many SMEs’ loan applications are rejected and many do not apply in fear of rejection compared to other countries. Alternative financing sources should be explored.

Figure 6. Availability of finance is an obstacle to long-term investment for smaller firms, 2017

The benefits of growth need to be more equitably distributed and growth greener

Robust growth did not benefit all groups of society.

Income inequality is around the OECD average, but social disparities, including inequalities in life satisfaction or health outcomes, are high in some dimensions: between urban and rural, across regions, men and women, skilled and unskilled and citizens and non-citizens. The whole population should be covered by health insurance and non-recipients should be encouraged to enrol.

The gender wage gap is second highest in the OECD. Employers, including the private sector, should report the size of the wage gap and provide an action plan to eliminate it.

Reducing dependence on oil shale is a key environmental, social and strategic challenge. Estonia is the most carbon intensive and third most energy-intensive economy in the OECD, due to its heavy reliance on oil shale. The industry meets a dominant share of Estonia’s energy needs, it accounts for 4% of GDP, it is a key employer in the northeast of the country, where unemployment and poverty rates are high, and it is seen as key to the country’s energy security. Efforts towards increased refining improves resource efficiency, but the industry remains polluting and vulnerable to international prices of oil and CO₂ emissions.

The amount of household waste has increased with rising incomes in recent years and recycling is low, which calls for better infrastructure and incentives to reduce waste and recycle.
MAIN FINDINGS

Creating macroeconomic conditions conducive to growth and well-being

In the recent cyclical upturn, windfall revenues have been spent, making fiscal policy pro-cyclical.

Productivity growth has been sluggish. The overall level of subjective well-being is low by OECD standards.

Real-estate related tax revenues are low, as the tax base does not include residential housing. Consumption taxes are high.

A previous proposal to strengthen the legal framework to prevent money laundering and financing of terrorism was not passed by the parliament due to the election cycle. Anti-money-laundering measures have been strengthened considerably, and the Government is preparing a new proposal to Parliament.

Seizing the productive potential of digital change

The large number of planning documents at the national and sectoral levels contain overlap and industry digitalisation is not sufficiently emphasised.

Estonian companies are little involved in vocational education and training and the continuous training of own employees.

High-performance work practices boost individuals’ skill use at work, digital adoption and productivity performance. Their use in Estonia is around the OECD average.

The organisation, content and quality of the teaching of digital skills varies between schools, and teachers do not feel sufficiently prepared to teach digital skills and use digital tools.

Access to finance is an obstacle to long-term investment for smaller firms and they are rejected or do not apply for loans in fear of rejection.

Sharing the benefits of growth in a more equitable way and providing a greener environment

The second pillar pension funds have charged high fees and returns have been low. The proposed changes to allow withdrawal of funds would generate extra short-term public revenues but would risk pension adequacy and aggravate old-age poverty in the longer term. The impacts of the proposed changes have not been properly assessed, and public consultations have been limited.

Health insurance coverage is incomplete and out-of-pocket costs are high. The way to extend coverage to all is being explored.

The gender wage gap is high.

An overwhelming majority of ICT specialists are men, reflecting early educational choices.

Many unemployed are not covered by unemployment insurance owing to its stringent conditions and hence cannot benefit from active labour market programmes.

People with low education and skills are more likely to work in jobs more vulnerable to automation and digitalisation.

The oil shale industry is very CO₂-intensive. The industry is highly sensitive to international prices on oil and CO₂ emissions in the EU Emissions Trading Scheme (ETS).

The amount of household waste has increased sharply in recent years and recycling is low.

KEY RECOMMENDATIONS

Avoid pro-cyclical fiscal policy and allow the free play of automatic stabilisers. In case of a strong downturn, fully use the exemption clause built in the existing fiscal rule.

Increase spending on measures boosting the long-term growth potential and inclusiveness such as infrastructure connectivity, innovation and education.

Introduce a recurrent tax on the ownership of residential real estate. Reduce labour and consumption taxes.

Continue strengthening regulations and allow the freezing of assets by the regulator in the case of suspected money laundering and increase fines to deterring levels.

Continue to strengthen Baltic-Nordic coordination in the fields of financial sector supervision and anti-money laundering.

Formulate policies for industry digitalisation in a holistic way as a means of productivity catch-up and reflect those in government planning documents. Monitor implementation.

Strengthen cooperation between the public sector, labour unions and employers to boost their engagement in skill supply, including vocational education and training and continuous learning.

Implement a programme to improve managerial practices and organisational performance of firms with a strong element of network-building to disseminate good practice and mutual learning.

Strengthen the quality and relevance of teachers’ training and professional development in teaching digital skills.

Promote alternative financing to fill the funding gap for SMEs.

Do not allow withdrawal from the second pillar of the pension system before retirement. Assess the impacts of potential changes to the pension system, including on pension adequacy and macroeconomic stability. Enhance competition in pension markets, and make all costs transparent.

Extend health insurance coverage for the entire population. Encourage the inactive non-recipients to obtain health insurance.

Require the reporting of the gender wage gap and action plans to reduce it, including in the private sector. Hold companies accountable for their actions, by for instance requiring explanation for slow progress.

Tailor ICT classes and voluntary ICT hobby activities to better match the interests of both girls and boys from the early stages of compulsory school and in early childhood education and care.

Relax eligibility conditions for unemployment insurance.

Continue to scale up and improve access to active labour market policies, notably up-skilling activities for the unemployed, the disabled and those in high risk of unemployment.

Review taxes and charges on oil shale mining and use to reflect costs and externalities, while addressing social welfare and energy security concerns.

Improve waste collection infrastructure and raise fees on domestic mixed waste going to incineration or landfills to incentivise recycling and waste prevention.
1 Key Policy Insights

Estonia’s economic growth performance has been a success story following its independence. It continues to be robust, albeit slowing somewhat. The benefits of growth, however, need to be more equitably distributed across regions, genders, people with different education levels and urban and rural areas. Inequalities in income, health outcomes and other areas are large in those dimensions. Channelling funds for infrastructure, social protection, health and care-taking would help improve wellbeing of all, while also lifting the growth potential. This chapter provides an overview of growth and wellbeing issues Estonia faces in the short- to medium term.
Introduction

Estonia has continued to narrow the income gap with the most advanced OECD economies. In 2018, the GDP per capita gap to the upper half of OECD countries was 38% (Figure 1.1). The productivity gap to the same group of countries, measured as GDP per hour worked, was somewhat wider, reflecting longer hours worked and a lower capital stock. Massive investment in infrastructure and productive capacity, largely driven by EU funds, helped productivity convergence. Investment plans indicate that it will continue to do so in the coming years. The regulatory framework has become more business friendly. In addition, a further integration in global trade and international capital flows have brought about productivity gains. Macroeconomic stability has been achieved by prudent policies, though as a small open economy, Estonia is exposed to external shocks.

Figure 1.1. The income and productivity gaps have narrowed

Note: Percentage gap with respect to the weighted average using population weights of the highest 18 OECD countries in terms of GDP per capita (in constant 2010 PPPs). The 2018 value of the average hours worked per person employed is estimated for Australia, Canada, Finland, Israel, Mexico, Switzerland and the United States.

Source: OECD, National Accounts and Productivity Databases.

With the population shrinking as it ages rapidly, a major question is how to improve living standards rapidly. Indeed, GDP growth has been weaker in recent years and is projected to fall further, below 3% in 2020. Productivity growth has also been sluggish, making the adoption of structural reforms to reinvigorate the economy even more pressing. Recent government programmes (Box 1.1) have emphasised upgrading infrastructure and have embarked on multi-decade projects with productivity gains expected to materialise in the longer run.
In the past couple of years, the Estonian government adopted a series of reforms to lay the foundations for stronger growth for the coming years and to make a larger share of the population benefit from it. The new government in the spring of 2019 summarised its key priorities in the Hundred Days Plan. The five priorities include creating a family-friendly environment, a cohesive society, a knowledge-based economy, improving governance and establishing a free and protected state. In the first hundred days, major deliveries include approving an action plan for national artificial intelligence, launching a single nation-wide digital registration system for 19 hospitals, adopting an action plan for national reform to decrease bureaucracy in the public sector and to improve public service quality. A review of the state budget was also launched, and in the 2020 budget quality, volume and price goals will be set for programmes and state agencies.

The government formulated its reform strategy in the updated National Reform Programme “Estonia 2020”. Broader use of the potential of creative industries, ICT and other key technologies to increase the value added of other sectors is a key objective of the programme. Public infrastructure projects, which form an important component of reigniting productivity growth, continued and new projects have been launched. As part of efforts to combat climate change, the government is set to electrify railroads, extend the tramways and manage waste better. Transport connectivity will improve due to the planned large-scale Rail Baltica. To attract more foreign talent, the government called for analysing possibilities to better support potential foreign experts in Estonia. A recently launched system will make sure that the professions taught correspond to the needs of the society and vocational education with apprenticeship opportunities will be promoted to achieve a better integration into working life upon graduation.

Reforms to enhance inclusiveness continued on the footsteps of the earlier round in 2016-17 by increasing the non-taxable income threshold and making its withdrawal progressive, as well as increasing family benefits. The combined effect of these reforms is roughly a percentage point reduction in the Gini index of disposable incomes. Inequalities between citizens and non-citizens will be reduced by equating the final exam in social studies at the primary school level with the Estonian citizenship exam.


Some aspects of subjective well-being, such as cognitive skills at age 15 or work-life balance owing to fewer people working long hours are outstanding among OECD countries. The overall level of subjective well-being, however, is low by OECD standards due to low income and wealth levels, poor health status, low housing quality and lack of personal security (Figure 1.2).
Estonia’s strong GDP growth has contributed to fast convergence towards the most advanced OECD member countries. However, other indicators of well-being are still lagging behind; the government’s new focus on the quality of life is thus welcome. The country faces inequality challenges: between urban and rural areas, geographical regions, men and women, skilled and unskilled, and citizens and non-citizens. Structural policies to boost productivity would go a long way towards sustaining strong growth as well as higher living standards, and providing space to address social problems. Against this backdrop, the main messages of the 2019 Survey are:

- Growth performance has been strong, but as growth slows, policies should prevent activity from falling below potential. In particular, spending on measures to lift long-term growth and enhance inclusiveness, such as infrastructure, health, education and long-term care should be prioritised.
Estonia could build on its strong track record in deploying digital technologies in
government to further advance the digitalisation of the economy, which will be key
to reviving productivity growth.

Due to the many inequality challenges that Estonia is facing, a multi-dimensional
approach to reducing inequality is necessary.

A strong economy raises incomes and improves social outcomes

Estonia has seen a period of strong economic growth. Productivity growth has been stable (Figure 1.3.A),
and incomes have risen over the past few decades, only interrupted by the Global Financial Crisis
(Figure 1.3.B). Growth is expected to slow going forward (Table 1.1), as the global outlook softens under
the negative influence of trade tensions, and political uncertainties including Brexit. Short-term indicators
are mixed, with solid consumer confidence and somewhat weak business confidence. Exports will
decelerate, as demand from Estonia’s main trading partners slows and continued losses in cost
competitiveness prevent Estonia from gaining market share. Private non-residential investment growth is
set to increase somewhat from a low base despite trade uncertainties, while slowing demand for new
housing will hold back housing investments. Household real wages continue growing, but increasing
uncertainties will encourage precautionary savings and thus weigh on consumption.

Figure 1.3. Solid growth boosts living standards

Source: OECD Economic Outlook database.
## Table 1.1. Macroeconomic indicators and projections

Annual percentage change, volume, unless otherwise specified

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current prices EUR billion</td>
<td>Percentage changes, volume (2010 prices)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GDP at market prices</strong></td>
<td>21.7</td>
<td>5.6</td>
<td>4.8</td>
<td>3.2</td>
<td>2.2</td>
<td>2.2</td>
</tr>
<tr>
<td>Private consumption</td>
<td>11.2</td>
<td>2.8</td>
<td>4.4</td>
<td>2.7</td>
<td>3.2</td>
<td>3.1</td>
</tr>
<tr>
<td>Government consumption</td>
<td>4.4</td>
<td>1</td>
<td>0.8</td>
<td>2.4</td>
<td>1.5</td>
<td>2</td>
</tr>
<tr>
<td>Gross fixed capital formation</td>
<td>5.1</td>
<td>12.7</td>
<td>0.9</td>
<td>14.1</td>
<td>1.7</td>
<td>2.5</td>
</tr>
<tr>
<td>Final domestic demand</td>
<td>20.8</td>
<td>5</td>
<td>2.8</td>
<td>5.6</td>
<td>2.4</td>
<td>2.7</td>
</tr>
<tr>
<td>Stockbuilding(^1)</td>
<td>0.1</td>
<td>-0.5</td>
<td>1</td>
<td>-0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total domestic demand</td>
<td>20.8</td>
<td>4.3</td>
<td>3.8</td>
<td>4.8</td>
<td>2.4</td>
<td>2.7</td>
</tr>
<tr>
<td>Exports of goods and services</td>
<td>16.8</td>
<td>3.8</td>
<td>4.3</td>
<td>4</td>
<td>1.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Imports of goods and services</td>
<td>16</td>
<td>4.2</td>
<td>5.7</td>
<td>3.8</td>
<td>2.2</td>
<td>2.7</td>
</tr>
<tr>
<td>Net exports(^1)</td>
<td>0.9</td>
<td>-0.1</td>
<td>-0.8</td>
<td>0.2</td>
<td>-0.7</td>
<td>-0.4</td>
</tr>
</tbody>
</table>

### Memorandum items

- **GDP deflator**
  - ... 3.8  4.5  3.4  2.3  2.6
- **Harmonised index of consumer prices**
  - ... 3.7  3.4  2.2  2.3  2.2
- **Harmonised index of core inflation\(^2\)**
  - ... 2  1.7  2.3  2.5  2.2
- **Unemployment rate (% of labour force)**
  - ... 5.8  5.4  5  5.1  5.2
- **Household saving ratio, net(% of disposable income)**
  - ... 7.9  8.2  9.6  7.7  6.8
- **General government financial balance(% of GDP)**
  - ... -0.8 -0.6 -0.3 -0.4 -0.8
- **General government gross debt, Maastricht definition (% of GDP)**
  - ... 9.3  8.4  8.5  7.7  7.6
- **Current account balance (% of GDP)**
  - ... 2.7  2  1.4  0.9  0.5

1. Contributions to changes in real GDP, actual amount in the first column.
2. Harmonised index of consumer prices excluding food, energy, alcohol and tobacco.

Source: OECD Economic Outlook 106 database.

The employment rate is well above the OECD average (Figure 1.4.A), and has surpassed the pre-crisis peak after a protracted period of strong employment growth since 2010 (Figure 1.4.B). The composition of employment has shifted lately, with employment increasing in services relatively to manufacturing. The number of part-time workers has increased, while the number of full-time workers has stayed the same. This has led to a slight drop in the number of hours worked per employee (Eesti Pank, 2019a). Unemployment has fallen, and long-term unemployment is at record-low levels (Figure 1.4C).
Figure 1.4. Employment is high, and unemployment is low

The Work Ability reform, a reform to re-assess the work ability of disability claimants and bring individuals with a partial ability to work into the labour force has so far exceeded expectations. The reform was expected to inflate unemployment (Figure 1.5.A), but so far unemployment has fallen and people diagnosed with disabilities increasingly find employment (Figure 1.5.B). However, the implementation of the reform has benefitted from cyclically strong labour demand. Furthermore, disability claimants have been sequenced so that those assumed to be relatively close to the labour market and having less serious disabilities had their work ability re-assessed first. The reform may therefore still increase unemployment going forward, as some of these individuals will struggle to find new employment, calling for renewed efforts to re-skill and up-skill.

Source: OECD Economic Outlook database.
Solid labour market outcomes reflect that the economy is operating at close to full capacity, with a positive output gap, and high capacity utilisation (Figure 1.6.A). The unemployment gap is also positive. Labour shortages in the services sector are at a level close to that before the Global Financial Crisis, but seem to have stabilised. Moreover, shortages within construction, a cyclical sector central to the pre-crisis boom, have fallen back from high levels in 2017 and 2018 to well below pre-crisis levels (Figure 1.6.B). Labour market pressures have led to solid nominal wage growth, at around 7% a year.

Considerable migration flows help contain pressures in the Estonian labour market, but there is scope to open up for more non-EU immigration to fill skills shortages, discussed further in Chapter 2, and counter the demographic pressures outlined below. Net migration turned from negative to positive in 2015, but is still modest. Short-term work migration under the “D-visa” scheme adds welcome flexibility, but incurs cost to employers, notably time costs of training new arrivals and associated management costs. Non-EU long-term residence- and work permits to Estonia are restricted by an annual quota of 0.01% of the population, or 1315 people in 2019, despite strong demand from businesses and potential immigrants of various backgrounds and skills, notably from Ukraine and Russia. Exceptions exist, notably for those receiving at least double the national average gross salary, but a more flexible approach, taking various measures of skills into account or lowering the wage threshold, should be considered.

Closeness to Finland, both geographically and in terms of language, has added considerable flexibility to the labour market since 1990. Net migration from Estonia to Finland went from a peak of 5400 persons in 2012 to balance in 2018, likely as a result of the strong Estonian labour market and associated wage growth reducing the income gap between the two countries. 46 000 Estonians, or approximately 3.5% of the current Estonian population, lived in Finland in 2018. Furthermore, many Estonians domiciled in the Tallinn area work in the Helsinki area (Figure 1.6.C).

Households have increased savings, and high wage growth has only passed through to price inflation to a limited extent so far. Headline inflation has fallen back to slightly above 2% after hovering around 3.4% in 2017 and 2018 (Figure 1.6.D). High inflation in 2018 was partly due to rises in excise duties, and the current slowdown is partly due to reversals of excise duties on alcoholic beverages taking effect from July 2019.
Figure 1.6. The economy is operating close to full capacity, but not overheating

Solid wage growth (Figure 1.7.A) has recently taken place, but Estonian incomes are significantly lower than the OECD average. Wages in Estonia are responsive to market forces, and nominal wage growth on average is a welcome sign of sectoral shifts towards activities with higher value-added, and re-adjustments of relative wages. However, wages growing faster than productivity reduces cost competitiveness in the long term, and can damage exporting industries. Estonia’s cost competitiveness decreased, notably based on relative unit labour costs, over the past few years compared to Euro area countries (Figure 1.7.B).
However, declining cost competitiveness has had limited impact on export performance so far. Exports received a boost, both as a share of domestic GDP (Figure 1.8.A) and as a share of total imports from Estonia’s trading partners (Figure 1.8.B), when Estonia joined the Euro area in 2010. The non-traded sector has grown faster than the exporting sector since, resulting in a falling share of exports to GDP. Even so, export performance has been stable, despite higher unit labour cost and muted export price growth. Exporting companies stayed profitable by increasing volumes and improving non-cost competitiveness. Estonia has notably gained market share in exports of services of high quality, complexity and value, for which domestic price pressures can be passed on to the buyer. At the same time price pressures have led producers in traditional manufacturing, notably textiles, to outsource low value-added production and move up value chains to focus on higher value-added activities such as design and marketing (Eesti Pank, 2019b and c). Steady growth in domestic demand outpaced export performance, widening the trade deficit and narrowing the current account surplus to 1.7% of GDP in 2018 from 3.2% of GDP in 2017.

With a large share of exports in industrial machinery, Estonia is vulnerable to investment demand fluctuations in export destinations. Sizeable exports of mineral products are linked to re-exports of fuels imported from Russia (Figure 1.8.C). Estonia is also vulnerable to increasing trade barriers, and economic developments among main trading partners in the Nordics, fellow Baltics, Russia and the United States (Figure 1.8.D). Direct exposure to Brexit is limited, as exports to the United Kingdom only accounts for 2.2% of total exports, and imports from the United Kingdom account for 2.7% of total imports. Shocks that could affect Estonia’s economic performance are listed in Table 1.2.
Figure 1.8. Exports are holding up

Source: OECD Analytical database; and Statistics Estonia.

Table 1.2. Vulnerabilities that could lead to major changes in the outlook

<table>
<thead>
<tr>
<th>Vulnerability</th>
<th>Possible outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global or regional crisis contagion</td>
<td>The two largest Estonian banks are either subsidiaries of- or owned by large Nordic banking groups. Even though parent funding of Estonian subsidiaries is limited, a Nordic credit squeeze would impact their liquidity situation and there would be spillover effects from lower export demand from the Nordics.</td>
</tr>
<tr>
<td>Escalating global trade tensions</td>
<td>As a small, open economy, Estonia is exposed to weaknesses in world trade, notably against the backdrop of falling cost competitiveness.</td>
</tr>
<tr>
<td>Geopolitical tensions</td>
<td>Geopolitical tensions, notably in eastern parts of Europe, could hamper trade and investment.</td>
</tr>
<tr>
<td>Rising prices on carbon emissions</td>
<td>The oil-shale industry produces energy and mineral products at a relatively high cost and with high carbon emissions. Unexpected sharp rises in emission prices may make activities in the sector unviable.</td>
</tr>
</tbody>
</table>

Public finances are in good shape

The state of Estonia’s public finances is among the most enviable in the OECD. Thanks to fiscal prudence stemming from a fiscal rule requiring the budget to remain balanced in structural terms, it has very low debt.
and large parts of spending are directed to infrastructure investment, which supports long-term growth. The country's tax structure is also relatively growth-friendly and it has adopted best public finance management practices. Going forward, spending pressures on long-term needs are increasing. Estonia's population is ageing and shrinking rapidly, the average pension benefit ratio is relatively low and set to slide further without reforms, aggravating the problem of old-age poverty. Health insurance coverage is not complete and out-of-pocket payments are high. Unmet healthcare needs are also sizeable. Spending on research, innovation and education also needs to rise. Furthermore, connectivity is to be improved to reap the benefits of economic integration. To meet those challenges, adjustments in the current institutional system could be considered. Low interest rates set by the European Central bank and low real rates due to mild inflation will be supportive of growth in Estonia.

Pro-cyclicality in fiscal policy should be avoided

The fiscal framework is designed to conduct neutral fiscal policy, but changes in the fiscal rule, statistical revisions or misjudgement of the economy's cyclical position can result in deviation from the neutral stance. The State Budget Act of 2014 aims to ensure that the deficit remains under tight control. The fiscal rule enshrined in the Act implies that the budget must be balanced in structural terms, though past surpluses can be used to finance deficits not exceeding 0.5% of GDP per year (Box 1.2). Notwithstanding the strong rules, the budget has been in deficit both in nominal and structural terms for four years (Figure 1.9). Fiscal expansion fuelled growth in 2018-19 as windfall revenues were spent instead of creating fiscal space to use in future downturns. This was possible thanks to changing the fiscal rule in 2017 to allow planning structural deficits to the extent of cumulative past surpluses and up to 0.5% of GDP per year. However, the structural fiscal deficit of 1.7% of GDP in 2018 was much larger than planned, which is related to the realisation of negative risks related to new tax measures and higher spending in some areas. Underestimation of the (positive) output gap can also result in larger-than-planned deficits. The draft 2020 budget envisages consolidation, reducing the structural deficit to 1.2%, 0.7% and 0.2% of GDP in 2019, 2020 and 2021, respectively, with the budget balancing in 2022 in structural terms and remaining balanced thereafter onto 2023. As the Fiscal Council pointed out, however, this pro-cyclical policy is in breach of the fiscal rule, which requires planning structural surpluses after reaching a budget balance to offset past deficits.
Box 1.2. The fiscal rule in Estonia

Estonia’s fiscal rule is enshrined in the State Budget Act of 2014. It implies that the general government budget must be balanced in structural terms, though past surpluses can be used to finance deficits to the extent of the cumulative structural surplus, but not exceeding 0.5% of GDP per year (due to an amendment in 2017). Prior to the amendment, unforeseen deficits had to be offset by surpluses in the following years, while unforeseen surpluses could not be used for future deficits. In this sense, the 2017 amendment made the fiscal rule more symmetric.

A compensation mechanism ensures that the general government budget returns to cumulated balance in structural terms following a greater-than-allowed deficit. If there is structural deficit when the structural budget should have balanced (i.e. if there were no previously accumulated surpluses) or if the structural deficit exceeds what is allowed based on earlier surpluses (with a maximum of 0.5% of GDP), in the following years at least 0.5% of structural surplus needs to be planned per year until a surplus equivalent to the deficit is achieved.

The State Budget Act also includes and exemption clause. The implementation of the compensation mechanism measures may be postponed in case of extraordinary circumstances pursuant to the Stability and Growth Pact.


Figure 1.9. The fiscal balance has slipped into deficit

Government net lending as a percentage of GDP

Note: The structural fiscal balance is expressed in per cent of potential GDP and GDP is real GDP growth.
Source: OECD Economic Outlook database.

In the current low-interest rate and high growth environment and amidst long-term spending needs on infrastructure, education and innovation, the fiscal rule appears restrictive. Thus, the government proposal to scrap the requirement to accumulate surpluses equivalent to the cumulative deficit prior to reaching a balanced budget may appear reasonable. However, too frequent changes to the fiscal rule make it less credible. Enshrining the rule in the constitution would help avoiding frequent changes, though it can also
prevent desirable changes to the rule. Fine-tuning the fiscal rule would likely not work, as Estonia’s potential output is surrounded by one of the highest levels of uncertainty in the European Union and is subject to frequent revisions. A combination of the balanced budget rule with an expenditure rule could make sure that extra revenues in good times are not spent right away in case the positive output gap is underestimated. At present, Estonia’s public debt record is enviable: the country is not saddled with debt as many OECD members; in fact, its public debt-to-GDP ratio was the lowest in OECD at around 8% in 2018 (Figure 1.10).

**Figure 1.10. General government debt is very low**

General government debt as a percentage of GDP

Estonia was a frontrunner in institutional reform of the fiscal management system (OECD, 2019a). The State Budget Strategy presents projections and targets for the main aggregates of government finances and serves as a guide for annual budgets. It also states spending priorities and plans to fund them. The Fiscal Council, attached to the central bank, assesses the government’s forecast, medium-term budget strategy and achievement of the structural budget balance objective. However, medium and long term plans, both overarching and sectoral ones, are not linked to the State Budget Strategy. Clearer links of objectives and funding would increase credibility and feasibility of such plans and would also make spending more efficient.

The launching of the review of spending and the budget process in late 2019 will make spending more efficient. From the 2020 budget onwards, quality, volume and price goals will be introduced for programmes and state agencies and performance-based budgeting will be adopted. Efficiency savings could be channelled to finance long-term spending needs.

With such favourable debt and future deficits under control, debt sustainability is not as big an issue in Estonia (Figure 1.11) as in most other countries. With the current pension indexation (Box 1.3), pension-related spending pressures are mild as current average benefit ratios (the ratio of average pension benefits to average wages) in the public pension system are low and are projected to decline *ceteris paribus*. Assuming current wage and CPI inflation and unchanged pension indexation rules, the average benefit ratio could decline by about ten percentage points by 2060. Lower ratios, however, are not socially sustainable. Keeping the average benefit ratio stable or, as incomes converge to more advanced OECD countries, allowing it also to converge to ratios in those countries would imply additional spending. Ageing costs will also weigh on the health budget. While fiscal prudence is necessary to maintain macroeconomic...
stability and sustainability, in the longer term amending the fiscal rule to allow for small deficits within the limits of EU rules could cover spending in areas necessary for long-term growth. These include social security, infrastructure, research and development, health and education, all necessary to revive the productivity engine and ensure inclusiveness.

**Figure 1.11. Moderate deficits could be sustainable**

Public debt path scenarios for general government debt, Maastricht definition, as a percentage of GDP

![Graph showing debt scenarios](image)

Note: The baseline scenario incorporates actual outcomes until 2018 and OECD projections until 2020. Thereafter, the draft budget plan targets are used until 2023, after which it is assumed that GDP converges to its long-term rate of 2.5% by 2060, interest rates to 3% and inflation to 2.5%. In the baseline scenario ageing (healthcare and pension) costs are included, but following the current pension indexation rule, the average benefit ratio, i.e. the ratio of the average pension to the average wage, decreases sharply and conforming the current budget balance rule, ageing-related spending does not create debt. The constant benefit ratio scenario assumes that the average benefit ratio stays at the current 35% and the balanced budget rule is relaxed to accommodate age-related spending. Another scenario assumes that the average benefit ratio gradually increases to 50% and a further scenario that in addition to that, health spending also increased by 20%.

Source: OECD Economic Outlook database and OECD calculations based on OECD long-term projections.

**Savings should be kept in the second pillar of the pension fund but with higher returns**

Current proposals to allow the withdrawing of funds from the second pillar (i.e. the mandatory private individual accounts) before the retirement age threaten long-term sustainability and would exacerbate old-age poverty, which is already high in Estonia. The intention behind the proposals is to allow more freedom in pension savings investment decisions, following a 5.5% real annual loss made on average by second pillar pension funds in 2018, on top of a slight loss in real terms a year earlier (and a 0.2% average loss over the preceding 15 years). OECD data confirm that Estonian pension funds returns were among the lowest in the entire OECD area over a 15-year horizon. The lack of sufficiently high financial literacy may prevent people from identifying better opportunities and many may choose to withdraw in light of the other alternative of uncertain future returns. According to opinion polls, roughly 25-30% of accumulated pension assets are expected to be withdrawn, equivalent to 5% of GDP. Small savers are more likely to withdraw and many plan to deposit the withdrawn funds in banks. Moreover, this move could exacerbate income inequalities, as less financially literate people are less likely to identify high-return investment opportunities.

Therefore, withdrawal should not be allowed before the retirement age, but instead pension funds should be better governed and supervised. Cost efficiency of pension funds is at the heart of pension adequacy and Estonia is not the only country with perceived high fees. A combination of lower fees, greater competition and less restrictions on pension funds’ investments could make them profitable. Recent
adjustments point in this direction: maximum basic management fees are being lowered from 2% to 1.2% and performance-based fees are allowed if returns exceed the benchmark index. Furthermore, the 75% limit on equity-based investments has been abolished and the investment limit in derivatives increased from 10% to 50%, in unquoted securities from 30% to 50% and in a single property from 5% to 10%. Pension funds are now able to lend up to 10% of their assets. A good example of intense competition and an efficient pension fund market is that of Australia, where fees have come down sharply and funds invest also in real estate and infrastructure assets, which promise high returns.

People with second pillar savings between 50 and 700 times of the national pension are obliged to collect their benefits via insurance contracts, which are provided by three insurance companies whose cost structure is not fully transparent. Fees of the second pillar annuities are not regulated, but insurance companies are obliged to share at least 50% of their second pillar profits on an annual basis. Moreover, once the insurance contract is signed, savings are not inheritable, except when it is an annuity with a guaranteed period, an option chosen by 90% of pensioners. In contrast, before the insurance contract is signed or in the case of funds in the second pillar below or above the threshold of the mandatory insurance contract (i.e. below 50 times and above 700 times of the national pension) are inheritable. In addition to requiring insurance companies to disclose their fees and provide comprehensive information about future benefits and fees for those wishing to choose insurance contracts over direct payment from the pension fund, people should be allowed to get their benefits paid directly from pension funds.

In a rapidly ageing country like Estonia, the second pillar provides old-age security when the contributor-beneficiary ratio keeps decreasing. Maintaining such a mandatory pillar is even more important where voluntary savings do not appear to be very popular (less than a fifth of contributors choose to invest in the third pillar). If an insurance contract is chosen for voluntary savings, charges are not disclosed, therefore reducing the pillar’s attractiveness in particular for people with higher financial literacy. Greater transparency about fees and other conditions would encourage more savings through this channel.
The revenue and spending structures are relatively growth friendly

The tax burden is around 33% in 2019, slightly below the OECD average of 34.2% in 2018, and the tax structure is relatively growth friendly. Indirect taxes are the major source of government revenue at around 14% of GDP, while the combined share of personal and corporate income taxes are only slightly above the half of that (Table 1.3). Personal income taxes have a low degree of progressivity (due to the flat-rate personal income tax). Most assets and savings are taxed at a flat rate and as in other countries. Private pension savings are tax-favoured.

The tax system could be even more inclusive and environment- and growth-friendly if it relied more on tax types that are less harmful to growth such as property taxes or taxes correcting for externalities and less on labour and consumption taxes. Property taxes could reduce inequalities as most of household wealth is held in the form of real estate. As the 2017 Survey pointed out, there is ample room to increase taxes on immovable property, in particular by extending the tax base to residential property and using market values for the tax base. The tax should be designed in a way so that it does not constitute too much of a burden for less wealthy households. This could be done by introducing a threshold, below which property is taxed at a very low rate. The current government is considering taxing agricultural and forest land if in economic use, which would also be growth friendly. Environmental taxes are already above the OECD average, but could be an even more important source of revenue, given high pollution in international

Box 1.3. The Estonian pension system

Estonia has a three-pillar pension system: a mandatory state pension as the first pillar, mandatory private accounts as the second pillar and voluntary savings accounts as the third pillar. The state pension is a pay-as-you-go system entirely financed from the social tax contributions of 20% or 16% of gross wages of current taxpayers (paid by the employer), respectively, depending on whether the person has joined the second pillar. Since 1999, pension benefits depend not only on the number of contribution years but also on the size of contributions.

The second pillar has been mandatory since 2002 for everyone born since 1983, older people were allowed to join this pillar up until 2010. Under this pillar, individuals contribute 2% of their gross wages, while an additional 4% comes from the 20% social tax paid by the employer. Individuals can make voluntary supplementary contributions to their retirement savings under the third pillar in the form of an insurance contract or a supplementary pension fund.

The retirement age will be 65 by 2026, thanks to annual increases in the retirement age by three months for every cohort. The replacement rate is 42% and many pensioners are at risk of poverty. In 2017, 47.5% of persons aged 65 and above were at risk of poverty.

Pensions are indexed annually to consumer prices (with a weight of 20%) and to the increase of the pension part of the social tax revenues (with a weight of 80%). The Pension Insurance Act requires the government to evaluate the impact of pension increases on financial and social sustainability, and propose changes to the indexation if necessary.

Pension payments from savings in the second pillar are made in three forms: (i) withdrawal as a lump sum upon retirement if the funds do not exceed 10 times the national pension rate (average monthly pension), (ii) regular payments from the pension fund if the funds are 10-50 times or above 700 times of the national pension rate and (iii) lifetime payments by insurance companies if funds are 50-700 times of the national pension rate. Currently savings can be transferred and split across pension funds.


The revenue and spending structures are relatively growth friendly

The tax burden is around 33% in 2019, slightly below the OECD average of 34.2% in 2018, and the tax structure is relatively growth friendly. Indirect taxes are the major source of government revenue at around 14% of GDP, while the combined share of personal and corporate income taxes are only slightly above the half of that (Table 1.3). Personal income taxes have a low degree of progressivity (due to the flat-rate personal income tax). Most assets and savings are taxed at a flat rate and as in other countries. Private pension savings are tax-favoured.

The tax system could be even more inclusive and environment- and growth-friendly if it relied more on tax types that are less harmful to growth such as property taxes or taxes correcting for externalities and less on labour and consumption taxes. Property taxes could reduce inequalities as most of household wealth is held in the form of real estate. As the 2017 Survey pointed out, there is ample room to increase taxes on immovable property, in particular by extending the tax base to residential property and using market values for the tax base. The tax should be designed in a way so that it does not constitute too much of a burden for less wealthy households. This could be done by introducing a threshold, below which property is taxed at a very low rate. The current government is considering taxing agricultural and forest land if in economic use, which would also be growth friendly. Environmental taxes are already above the OECD average, but could be an even more important source of revenue, given high pollution in international
comparison (discussed later on in this chapter). Real estate and environmental taxes could provide a relatively stable source of revenues in the longer term (Box 5) and would allow for a reduction in labour and consumption taxes.

Table 1.3. Fiscal indicators appear healthy

<table>
<thead>
<tr>
<th>Percentage of GDP</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total disbursements</td>
<td>39.3</td>
<td>39.5</td>
<td>39.4</td>
<td>39.1</td>
</tr>
<tr>
<td>Government final consumption expenditure, GDP expenditure approach</td>
<td>20</td>
<td>20.4</td>
<td>19.9</td>
<td>19.6</td>
</tr>
<tr>
<td>Social security benefits</td>
<td>11.3</td>
<td>11.6</td>
<td>11.3</td>
<td>11.4</td>
</tr>
<tr>
<td>Current disbursements</td>
<td>36.6</td>
<td>37.4</td>
<td>36.2</td>
<td>36.3</td>
</tr>
<tr>
<td>Capital Transfers paid and other capital payments</td>
<td>0.7</td>
<td>0.6</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Government fixed capital formation, appropriation account</td>
<td>5.2</td>
<td>4.7</td>
<td>5.7</td>
<td>5.3</td>
</tr>
<tr>
<td>Net capital outlays of the government</td>
<td>1.5</td>
<td>1.7</td>
<td>2.3</td>
<td>1.8</td>
</tr>
<tr>
<td>Gross government interest payments</td>
<td>0.1</td>
<td>0.0</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Total receipts</td>
<td>39.4</td>
<td>39.0</td>
<td>38.6</td>
<td>38.6</td>
</tr>
<tr>
<td>Direct taxes on households</td>
<td>5.8</td>
<td>6.0</td>
<td>5.8</td>
<td>5.4</td>
</tr>
<tr>
<td>Direct taxes on business</td>
<td>1.9</td>
<td>1.5</td>
<td>1.4</td>
<td>2.0</td>
</tr>
<tr>
<td>Social security contribution received</td>
<td>11.3</td>
<td>11.5</td>
<td>11.4</td>
<td>11.7</td>
</tr>
<tr>
<td>Taxes on production and imports</td>
<td>14.1</td>
<td>14.7</td>
<td>14.1</td>
<td>13.7</td>
</tr>
<tr>
<td>Property income received by government</td>
<td>1.1</td>
<td>0.8</td>
<td>0.9</td>
<td>0.6</td>
</tr>
<tr>
<td>Current receipts</td>
<td>38.3</td>
<td>38.5</td>
<td>37.7</td>
<td>37.5</td>
</tr>
<tr>
<td>Capital tax and transfers receipts</td>
<td>1.1</td>
<td>0.4</td>
<td>0.9</td>
<td>1.0</td>
</tr>
<tr>
<td>Government net lending</td>
<td>0.1</td>
<td>-0.5</td>
<td>-0.8</td>
<td>-0.6</td>
</tr>
<tr>
<td>Government primary balance, as a percentage of GDP</td>
<td>0.1</td>
<td>-0.6</td>
<td>-0.8</td>
<td>-0.6</td>
</tr>
<tr>
<td>Cyclically adjusted government net lending, as a percentage of potential GDP</td>
<td>1.6</td>
<td>0.9</td>
<td>-0.7</td>
<td>-1.3</td>
</tr>
<tr>
<td>Cyclically adjusted government primary balance, as a percentage of potential GDP</td>
<td>1.6</td>
<td>0.8</td>
<td>-0.7</td>
<td>-1.3</td>
</tr>
<tr>
<td>Underlying government net lending</td>
<td>2.1</td>
<td>1.1</td>
<td>-0.3</td>
<td>-1.2</td>
</tr>
<tr>
<td>Underlying government primary balance</td>
<td>2.1</td>
<td>1.1</td>
<td>-0.3</td>
<td>-1.2</td>
</tr>
<tr>
<td>Gross public debt, Maastricht criterion (EU countries only)</td>
<td>10.1</td>
<td>10.2</td>
<td>9.3</td>
<td>8.4</td>
</tr>
<tr>
<td>Tax-to-GDP</td>
<td>33.3</td>
<td>33.7</td>
<td>33.3</td>
<td>33.3</td>
</tr>
</tbody>
</table>

Source: OECD Economic Outlook database.

Investment growth has been robust, resulting in a quadrupling of the per capita capital stock in just two decades. The capital stock, however, is still somewhat below the OECD average (Figure 1.12). Notwithstanding the large number of infrastructure projects undertaken in recent years, the length of highways is relatively low and that of railways is not high, either. Going forward, infrastructure investment may need to be financed from alternative sources in case of decreasing EU funding. Currently public-private partnerships are considered, which can potentially be a way of enhancing efficiency and involving private providers in infrastructure, but a solid legal framework is needed and its use to hide government debt should be avoided (Box 1.4). Contingent liabilities including those related to PPPs should at the minimum be disclosed (even if not recognised as liabilities) in notes to financial statements as in Australia or New Zealand or in a separate report as in Chile. In general, investment projects should be subject to rigorous cost-benefit analysis ex ante and should only go ahead if there are clear net benefits.
Figure 1.12. The capital stock has quadrupled in two decades, but is lower than the OECD average

Real capital stock per capita (at 2015 PPP, thousands USD)

Source: OECD Economic Outlook database.

Box 1.4. PPPs for better infrastructure outcomes

Public-private partnerships' potential to enhance efficiency of infrastructure investments through greater competition and innovation and to reduce public spending is appealing to many countries. PPPs, however, are not without risks, which should be mitigated by an effective framework with a proper classification and accounting system and a clear risk sharing scheme, among other ingredients. The World Bank and the OECD published a joint checklist for PPPs in 2015 for the G20 Investment and Infrastructure Working Group. The Global Infrastructure Hub, brought into life by G20 economies, advocates sustainable infrastructure and engages in a range of activities such as promoting best practices in preparation of projects and creating an enabling environment for infrastructure investment.

Australia, hosting the headquarter of the Global Infrastructure Hub, is a frontrunner in implementing PPPs. Its national guidelines for infrastructure delivery include PPPs. Those guidelines aim at enhancing efficiency, reducing procurement costs and removing disincentives to participation in infrastructure investment. They define PPPs as a long-term contract where the government pays the private sector to deliver infrastructure and related services that would otherwise be undertaken by the government. PPPs typically make the private sector parties responsible for the condition and performance of the infrastructure they built on a whole-of-life basis. The value-for-money principle is at the heart of PPP projects and it can be ensured by allocating risks to whoever can manage it best. The public sector comparator is the financial benchmark in the quantitative assessment of value for money at the earlier stage of the process. Australia discloses contingent liabilities including to PPPs in notes to financial statements available online.


Public investment has been robust, but the public capital stock is relatively low (Roehler et al. 2019). Local governments carry out about a quarter of public investment, funded by capital grants from the EU and national schemes. The approval of projects is not linked to the budget calendar and local budgets are not subject to central approval, instead the central government uses earmarked grants to guide priorities.
Moreover, the National Audit Office only audits the central government budgets, while local budgets are dealt with by private auditors and are not subject to performance audits. Consistent standards for project approval, ex post evaluation and auditing procedures across government levels would improve overall efficiency of public investment. As many infrastructure projects are likely to have large spill-over effects on neighbouring regions, such effects should be taken into consideration when approving such projects. To avoid foregoing infrastructure projects with large positive externalities such as building roads and other transport infrastructure from cities to its surrounding areas, greater coordination across regions (for instance in the form of joint project applications) and greater central involvement would be more effective.

Box 1.5. Quantifying the fiscal impact of selected reforms

The table below (Table 4) quantifies the fiscal impact of selected recommendations in the Survey. The estimates are the direct impacts of the respective fiscal measures and are based on the latest publicly available data. They are based on costs in other countries and hence serve only an illustrative purpose. Some of the measures are one-off expenditures, others involve continuous disbursement of public funds. Rollout of fast broadband is a one-off measure, which could possibly be carried out over multiple years. Here it is assumed that it takes two years, and the table shows the proportionate spending for a single year. Similarly, offering government services through mobile applications could also be introduced over a longer time than one year, as assumed in the below table. A potential measure to improve health outcomes is free screening for diseases with increasing mortality rates. Offering free blood test to all above 50 and colonoscopy to patients at risk with the objective of prevention and early stage detection of colon cancer could also be phased in over several years. All these items involve recurring costs, which are significantly lower than the below initial costs. In contrast, environmental taxes and real estate taxes on the ownership of residential real estate would bring about continuous revenues.

It is assumed that the below spending measures could to a large extent be financed from efficiency savings stemming from the planned expenditure review.

Table 1.4. Estimated fiscal impact of selected recommended reforms

<table>
<thead>
<tr>
<th>Reform measure</th>
<th>Impact on the fiscal balance, % of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Deficit-increasing measures</strong></td>
<td></td>
</tr>
<tr>
<td>Fast internet broadband rollout to rural areas</td>
<td>1.9</td>
</tr>
<tr>
<td>Mobile app for the 400 most important government services</td>
<td>0.16</td>
</tr>
<tr>
<td>Free blood test for all above 50 and free colonoscopy for residents at risk</td>
<td>0.09</td>
</tr>
<tr>
<td>Increase active labour market spending to the level of the OECD upper half</td>
<td>0.5</td>
</tr>
<tr>
<td>A combination of spending efficiency measures to offset the above spending</td>
<td>-2.65</td>
</tr>
<tr>
<td>increases</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
</tr>
<tr>
<td><strong>Deficit-reducing measures</strong></td>
<td></td>
</tr>
<tr>
<td>Introduce a recurrent tax on owning real estate</td>
<td>1</td>
</tr>
<tr>
<td>Raise environmental taxes</td>
<td>1.3</td>
</tr>
<tr>
<td>A combination of labour and consumption tax cuts to keep the above tax</td>
<td>-2.3</td>
</tr>
<tr>
<td>measures budget neutral</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
</tr>
</tbody>
</table>

1. Assuming that rollout costs are proportionate with the size of the area and based on EUR 14 billion estimated costs for rural area coverage.
2. Assuming EUR 100 000 cost per app with high security, one off, maintenance not included.
3. Assuming EUR 500 cost per examination, 516 761 people aged 50 and above and 10% at risk.
4. Assuming that real-estate related taxes will be in the same magnitude (as a ratio to GDP) as in other OECD countries.
5. Assuming that environmental taxes will increase from the current 2.7% of GDP to Denmark’s level of 4%.

Source: OECD calculations.
Table 1.5. Past OECD recommendations to improve fiscal policy

<table>
<thead>
<tr>
<th>Main recommendations from the 2017 Survey</th>
<th>Actions taken since the 2017 Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase spending on measures that boost growth potential and welfare. Consider allowing a small deficit in the government budget rule in the longer term.</td>
<td>Large infrastructure projects continue. In addition, spending in areas such as education and health have been prioritised. As a result, the deficit was authorised to increase 0.5%.</td>
</tr>
<tr>
<td>Extend the tax base for the tax on immovable property to residential property.</td>
<td>No action taken.</td>
</tr>
</tbody>
</table>

**The banking sector is well capitalised**

The two largest lenders in Estonia, SEB and Swedbank, are branches of Nordic banking groups. Luminor, Estonia’s third-biggest lender, springs out from a joint venture of two Nordic banking groups, although the investment fund Blackstone gained majority ownership in 2019. The Estonian banking system appears to be well capitalised, with the highest risk-weighted capital ratio in the OECD and one of the highest capital-to-asset ratios. Estonian banks are profitable and have a low share of non-performing loans (Figure 1.13). Luminor recently merged and converted into branches its Latvian and Lithuanian subsidiaries, with the head office in Estonia. This increased the total assets of the Estonian banking sector by some 40% and created some new risks by increasing exposure to economic developments in Latvia and Lithuania. Micro- and macroprudential supervisory authority falls to Estonia, as does responsibility for liquidity assistance. A large share of Luminor’s funding is for the moment coming from its Nordic parent banks, contrary to SEB and Swedbank, that are largely financed by deposits. The reorganisation therefore increases Estonia’s exposure to the interconnected Nordic financial market (Eesti Pank, 2019c). Continuing strong cooperation between financial regulators in the region is key to address risks efficiently and maintain a high level of crisis preparedness.
The banking sector appears solid

Note: 1. OECD averages exclude countries not shown in the figure. 2. Non-performing loans are defined as loans in which the borrower has paid neither interest nor amortisations in the last 90 days.

Source: BIS; IMF Financial Soundness Indicators database.

A large share of the loan portfolios of the banks operating in Estonia is composed of loans to real estate and construction companies, but there seem to be no immediate financial stability concerns. Housing is affordable. Housing prices grew 5.7% year-on-year in the second quarter of 2019, but wage growth has been strong for some time, and the average price-to-income ratio has been stable for a decade. Likewise, the price-to-rent ratio and household liabilities remain stable after having fallen back in the aftermath of the financial crisis. A broader index suggests that housing affordability has been fairly stable following the price correction in 2008 and 2009. The number of housing transactions and new permits are both slowing, and labour shortages in the sector are easing (Swedbank, 2019).

The favourable economic environment has over time allowed those banks using internal risk models to assess mortgages to reduce their capital requirements, and Eesti Pank therefore introduced a 15% minimum risk weight for mortgages in September 2019 as a precaution to prevent financial stability risks from reduced capital buffers in the future. Minimum risk weights are a useful back-stop to prevent tail-end risks to the Estonian financial system, and complement the current macro-prudential arsenal which includes a maximum loan-to-value ratio of 85%, a debt-service-to-income limit of 50% and a maximum loan maturity of 30 years. As internal risk weights have fallen, Swedbank and SEB, those banks use internal risk models, have gained market share and now control 75% of the mortgage market. Minimum risk weights could contribute to level competition between banks as a useful side-effect to increased financial resilience.
The money laundering scandal involving amongst others Danske Bank’s Estonian branch over the period 2007-2015 has had some, but relatively limited, adverse impacts on the Estonian financial system. Funding costs for Nordic parent banks have at times faced slightly elevated spreads, but loans from Nordic banking groups made up less than a fifth of the liabilities of the banks operating in Estonia at the end of 2018, as their Estonian subsidiaries are largely funded by domestic deposits. The Financial Supervisory Authority (FSA) closed down the operations of Versobank and Danske Bank’s Estonian Branch following long-term breaches of the anti-money laundering rules (Eesti Pank, 2019c). This temporarily reduced competition in financial services, but the situation is set to normalise going forward, when Estonian financial group LHV finalises the take-over of Danske’s portfolio, and Luminor, the third-biggest lender, finalises current re-organisations.

Shortcomings revealed by the money-laundering scandal are being addressed, but a tightened legal framework was delayed by the Riigikogu (parliament). The Council of Europe pointed in 2014 to deficiencies in the legal framework for monitoring complex, unusual large transactions and transactions with persons from or in countries that do not or insufficiently apply the FATF recommendations (Moneyval, 2014). An anti-money laundering commission led the government to propose several amendments to the law in November 2018. The Riigikogu postponed the passing of the law until after the March 2019 elections, notably on the issue of turning the burden of evidence around so that assets can be frozen if owners cannot prove their legal origin. Consequently, a new proposal is being prepared by the government. While waiting for a strengthened legal framework, the FSA has strengthened their supervisory activities, and are cooperating with the financial sector to implement necessary checks and balances. Systems to prevent money laundering seem to function well today, but a timely strengthening of the legal framework, including fines set at a deterring level and the option to freeze suspect assets temporarily should remain a key priority for the Government.

Table 1.6. Past OECD recommendations on financial stability

<table>
<thead>
<tr>
<th>Main recommendations from the 2017 Survey</th>
<th>Actions taken since the 2017 Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>To foster competition in the financial sector, create a centralised credit bureau that will collect both positive and negative information on creditors.</td>
<td>No action taken.</td>
</tr>
</tbody>
</table>

Nine wellbeing challenges for the coming decade

The government of Estonia engaged in a large-scale public consultation process to define nine major development needs for the next decade and a half in the context of formulating the “Estonia 2035” strategy. The public had a chance to vote for the policy areas they consider most important and were asked to rank them according to their own priorities. This way, the nine development needs were identified: (i) demographic challenges, (ii) smart business growth, (iii) infrastructure, (iv) social inequalities, (v) health, (vi) life-long learning, (vii) green environment, (viii) security and (ix) governance. The indicators with a social focus have a considerable overlap with the OECD Wellbeing indicators. Reforms in those areas could bring about significant gains in per capita GDP, in particular in the longer term. The impacts of selected proposed reforms in this Survey are quantified in Box 1.6.

Medium and long-term planning documents are common in Estonia and aim at communicating government goals and bringing in the whole population. Estonia 2035 provides a somewhat longer-term vision. Those documents can also create national unity to work toward a shared goal and enhance transparency and accountability. For such documents, however, to have a significant impact, a better link to the funding is needed. Currently, such links are being discussed. Also, greater consistency across the documents would make priority setting and policy formulation easier. Currently there are 47 sectoral strategies (to be cut down to 20 during the next planning cycle) in addition to the national-level documents. Streamlining them and linking their major objectives to funding would make them effective tools for creating the conditions for
long-term sustainable and inclusive development. Among others, Singapore and Malaysia, with long histories of economic planning, have relatively consistent sets of planning documents.

Box 1.6. Quantifying selected structural reforms

The table below (Table 1.7) quantifies selected structural reforms proposed in the Survey. Most of the estimates are based on empirical modelling of the relationship between the reform measure and total factor productivity, capital deepening and the employment rate.

The sample of countries includes OECD members (Égert, 2018). Where possible, the table uses the time or “within” estimate to assess the impact of the change over time.

Table 1.7. Estimated impact of structural reform on per capita GDP

<table>
<thead>
<tr>
<th>Reform measure</th>
<th>Immediate effect</th>
<th>10-year effect</th>
<th>Long-term effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase active labour market spending to the average of the upper half of OECD</td>
<td>0.283%</td>
<td>1.046%</td>
<td>5.440%</td>
</tr>
<tr>
<td>Reduction of government shares to below 50% in the largest firm</td>
<td>-0.002%</td>
<td>0.016%</td>
<td>0.056%</td>
</tr>
<tr>
<td>Electricity generation</td>
<td>0.010%</td>
<td>0.033%</td>
<td>0.080%</td>
</tr>
<tr>
<td>Electricity sector (generation, import, transmission, distribution and supply)</td>
<td>0.003%</td>
<td>0.010%</td>
<td>0.026%</td>
</tr>
<tr>
<td>Courier</td>
<td>0.010%</td>
<td>0.033%</td>
<td>0.080%</td>
</tr>
<tr>
<td>All postal services (courier, letter and basic parcel)</td>
<td>0.009%</td>
<td>0.030%</td>
<td>0.072%</td>
</tr>
<tr>
<td>Air transport</td>
<td>0.003%</td>
<td>0.009%</td>
<td>0.022%</td>
</tr>
<tr>
<td>Rail freight</td>
<td>0.007%</td>
<td>0.024%</td>
<td>0.058%</td>
</tr>
<tr>
<td>Rail freight &amp; infrastructure</td>
<td>0.036%</td>
<td>0.118%</td>
<td>0.286%</td>
</tr>
<tr>
<td>All the above related to reduction of government share</td>
<td>0.109%</td>
<td>1.09%</td>
<td>2.18%</td>
</tr>
<tr>
<td>Boosting digital skill use in the private sector by 10 percentage points</td>
<td>0.019%</td>
<td>0.063%</td>
<td>0.152%</td>
</tr>
<tr>
<td>Assess alternative policy instruments before adopting new regulation</td>
<td>0.039%</td>
<td>0.125%</td>
<td>0.304%</td>
</tr>
</tbody>
</table>

Note: State shares of the largest firm in the sector make up 97.3% in air transport and 100% in the other sectors listed in this table.

The demographic clock is ticking

Successfully adjusting to demographic challenges is identified as one of the major development needs owing to the extent and the speed of population ageing. Estonia’s population has been falling for decades, partly due to low fertility rates, partly due to emigration. By 2050, the population pyramid will be even slimmer (Figure 1.14). The top will be thicker for some age groups than it is now and the bottom will be thinner than in an average OECD country, reflecting the ageing of baby boomers who are in their 20-30s now. Although the gender imbalance will still be stark in older age groups, especially in comparison with the OECD average, it will be smaller than it is now as men live longer. In the future, emigration will play a less important role in shaping population dynamics than it did in the past. Natural decrease will continue as fertility rates are below the replacement rate. Natural shrinking of the population will only partially be made up by migration, given the current quota system allowing somewhat over 1000 newcomers a year. Thus, the population fall will still imply rapid ageing. During the span of the National Development Plan (till...
2035), the median Estonian resident will grow about five years older; though will be still younger than in several OECD members.

**Figure 1.14. The population pyramid will become slimmer, reflecting rapid ageing**

% of total population

<table>
<thead>
<tr>
<th></th>
<th>Estonia 2018</th>
<th>Estonia 2050</th>
<th>OECD 2018</th>
<th>OECD 2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>80+</td>
<td>0-4</td>
<td>0-4</td>
<td>0-4</td>
<td>0-4</td>
</tr>
<tr>
<td>75-79</td>
<td>5-9</td>
<td>5-9</td>
<td>5-9</td>
<td>5-9</td>
</tr>
<tr>
<td>70-74</td>
<td>10-14</td>
<td>10-14</td>
<td>10-14</td>
<td>10-14</td>
</tr>
<tr>
<td>65-69</td>
<td>15-19</td>
<td>15-19</td>
<td>15-19</td>
<td>15-19</td>
</tr>
<tr>
<td>60-64</td>
<td>20-24</td>
<td>20-24</td>
<td>20-24</td>
<td>20-24</td>
</tr>
<tr>
<td>50-54</td>
<td>30-34</td>
<td>30-34</td>
<td>30-34</td>
<td>30-34</td>
</tr>
<tr>
<td>40-44</td>
<td>40-44</td>
<td>40-44</td>
<td>40-44</td>
<td>40-44</td>
</tr>
<tr>
<td>35-39</td>
<td>45-49</td>
<td>45-49</td>
<td>45-49</td>
<td>45-49</td>
</tr>
<tr>
<td>30-34</td>
<td>50-54</td>
<td>50-54</td>
<td>50-54</td>
<td>50-54</td>
</tr>
<tr>
<td>20-24</td>
<td>60-64</td>
<td>60-64</td>
<td>60-64</td>
<td>60-64</td>
</tr>
<tr>
<td>10-14</td>
<td>70-74</td>
<td>70-74</td>
<td>70-74</td>
<td>70-74</td>
</tr>
<tr>
<td>5-9</td>
<td>75-79</td>
<td>75-79</td>
<td>75-79</td>
<td>75-79</td>
</tr>
<tr>
<td>0-4</td>
<td>80+</td>
<td>80+</td>
<td>80+</td>
<td>80+</td>
</tr>
</tbody>
</table>

Note: Momentum variant (instant-replacement-fertility, constant-mortality and zero-migration).

The old-age dependency ratio (the ratio of the population aged 65 and above to those aged 15-64) at around 31% in 2018 was higher than the OECD average (at slightly above 27%), lower than in many advanced economies such as Finland, but on par with other transition economies such as Latvia and Slovenia (Figure 1.15). It is, however, projected to sharply increase in the coming decades. The population is already shrinking, but the ageing of the baby-boomers who are now in their 20-30s will exacerbate the burden on both public finances and the society. The number of returning emigrants, who left for other countries to work in the past, is increasing as they are attracted by higher wages and wellbeing. This trend alone, even though expected to continue, will not solve the ageing problem. Relaxing restrictions on immigration from non-EU countries, in particular on temporary workers and on people with skills in high need in Estonia could be the way forward.

Investments, both in physical capital and in the areas of social security, healthcare and old-age care need to be made in time to prepare for the challenges of rapid population ageing. This could be areas to channel additional spending to. Demand for old-age care could be a driver of digitalisation and innovation. As in Japan, parts of health and old-age care services could be automated. Artificial intelligence would similarly help serving the ageing society by analysing risk profiles and identifying solutions for daily challenges. The current focus of the government is on easing the burden of caretakers. Since July 2018, caretakers can get an extra five-day leave, new places have been created in care homes for the elderly with dementia and a Competence Centre for Dementia has been set up. Material compensation for caretaking could also be considered as relatives are proved to be able to provide a more secure and supportive environment. Several OECD countries provide compensation for informal caretaking by family members, in England, for...
instance, the family decides how much caretaking it can provide, which is compensated, and the remaining needs are met by professional caretaking services. Furthermore, the system of professional caretakers in Estonia should be further developed, as such systems are able to cater to needs more effectively. This would not hinder labour force participation of family members, who tend to be women. Japan has a comprehensive system of professional home care.

**Figure 1.15. The old-age dependency ratio is sharply increasing**

Ratio of population aged 65 and above to the working-age population aged 15-64

Note: Medium fertility variant (instant-replacement-fertility, constant-mortality and zero-migration).

**Flexible life-long learning should be based on people's needs**

Educational attainment and skills are high in Estonia. Estonian 15-year-olds are among the top performers in the OECD’s Programme for International Student Assessment (PISA), finishing first of OECD countries in reading and science and third in Mathematics in the 2018 PISA Survey. Furthermore, the country has a high share of high performers and the lowest share of low performers in the OECD (Figure 1.16). Adult skills are well above the PIAAC average in both literacy and numeracy. Education and skills serve as a foundation to obtain new skills, and enable individuals to perform more diverse and complex digital tasks, necessary to thrive in increasingly digital-intensive workplaces and adapt to changing skills requirements (OECD, 2019c; OECD, 2019e).
Figure 1.16. Basic skills are high

A. Share of high-performing 15-year olds in at least one subject (Level 5 or 6)

B. Share of low-achieving 15-year olds in all three subjects (below Level 2)

Note: The three PISA subjects are reading, mathematics and science.
Source: OECD, PISA 2018 Database.

Indeed, the digital transformation implies vast shifts in skill demand (Grundke et al., 2018; OECD, 2019a). Certain jobs will change significantly and some jobs may disappear altogether, notably those involving tasks that are easy to substitute with digital technologies. Nedelkoska and Quintini (2018) assess that 14% of jobs in OECD countries are highly automatable, and that another 32% may undergo significant changes due to automation. Estonia is not shielded against these developments, with 12% of jobs highly automatable, and an additional 31% at risk of significant change (Figure 1.17). Ensuring high and up-to-date skills, notably management skills and practices, specialist ICT skills and digital user skills is central to seize the potential to automate and boost productivity. As an illustration, firms with a 10% higher share of employees using computers for work purposes see 1.5% higher productivity growth than the average firm. Furthermore, spill-over effects, notably in manufacturing, boosts the productivity of other firms in the sector (Pareliussen and Mosiashvili, 2019; Chapter 1 of this Survey).
Figure 1.17. Almost half of Estonian jobs are at risk of automation or significant change

Share of jobs which are at a high risk of automation or a risk of significant change (%)

Note: Jobs are at high risk of automation if the likelihood of their job being automated is at least 70%. Jobs at risk of significant change are those with the likelihood of their job being automated estimated at between 50 and 70%. Data for Belgium correspond to Flanders and data for the United Kingdom to England and Northern Ireland.

Digital user skills could improve

Digital user skills are central to reaping this productivity potential, and they become increasingly important to participate in the labour market and social life. However, a quarter of Estonian adults lacked basic computer skills at the time of the PIAAC survey, a share three times higher than in top performing countries. Younger generations perform somewhat better relative to other countries, but only around the PIAAC average. Estonian schools have high autonomy to define curricula (OECD, 2016a), and the organisation, content and quality of the teaching of digital skills varies between schools. Furthermore, teachers’ digital skills and their preparedness to teach digital skills should be strengthened by intensifying and increasing the quality of their professional development in the subject.

Boosting adult education and training and increasing business participation

Existing skills gaps and growing needs to re-skill and up-skill parts of the population call for concerted efforts to boost adult education and training. Participation has increased considerably from 10% of the population in 2008 to 19% in 2018 (European Commission, 2019). However, as pointed out in the 2017 OECD Economic Survey of Estonia, businesses are little involved in the provision of both upper secondary vocational education and adult education and training. Estonian companies are among the least inclined in Europe to provide training to their employees (Figure 1.18). Recent initiatives, such as DigiABC and Choose IT provide models for how to improve the relevance of training initiatives through cooperation and dialogue between the government and employers’ and labour unions.
Figure 1.18. Businesses could be more involved in training their employees

Percentage of businesses providing ICT training to their employees, 2018

Note: Data refer to businesses with 10 or more employees that provided any type of training to develop the ICT related skills of their employees within the last 12 months.
Source: OECD ICT Access and Usage by Businesses Database.

Labour market policies are key to reduce the burden for those who lose out from structural change and to adapt and upgrade their skills, and net social benefits from training and other activation policies are high in Estonia (Praxis, 2003). However, both active and passive support to the unemployed in Estonia are relatively weak (Figure 1.19). Only 47% of the registered unemployed are covered by unemployment benefits, notably because of stringent eligibility criteria (Praxis, 2019), and the Work Ability reform will increase retraining needs going forward. The situation is improving, with increased active labour market policies (ALMP) spending the past few years, and training increasingly made available to individuals at risk of unemployment, for example in traditional industries in Estonia’s north-east. Spending is still low compared to other OECD countries and further ramping up training activities for the unemployed and those at risk of unemployment is warranted. Improving unemployment insurance coverage could give the unemployed better access to training and stronger incentives to participate (OECD Economic Survey, 2017).
**Figure 1.19. Spending on the unemployed is low**

Labour market policy (LMP) spending per unemployed scaled by GDP per capita (2016)


**Table 1.8. Past OECD recommendations to improve the education system and upgrade skills**

<table>
<thead>
<tr>
<th>Main recommendations from the 2017 Survey</th>
<th>Actions taken since the 2017 Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relax annual immigration quotas, and simplify conditions for work permits of skilled workers.</td>
<td>No action taken.</td>
</tr>
<tr>
<td>Strengthen the monitoring of training courses, by using ex post evaluation of training including labour market outcomes of participants.</td>
<td>No action taken.</td>
</tr>
<tr>
<td>Extend the accreditation system to all publicly funded learning programmes to signal and improve their quality</td>
<td>No action taken.</td>
</tr>
</tbody>
</table>

**Smart businesses should become new drivers of growth**

Estonia’s productivity growth has been weak in recent years, but digitisation could provide new avenues to unleash the country’s productivity potential. Estonia has successfully embarked on the digitalisation of government services and is now a global frontrunner, ranking second, only behind Austria in terms of online availability of government services in 2017 according to the European Commission’s e-government benchmark index. It is relatively easy to find information online on government services and now services are also available cross border. As the swift digitisation of government services shows, efficiency gains are sizeable and a considerable potential is still to be reaped in the business sector. Compared to the globally excelling e-government services, digitalisation is still to be embraced by the non-ICT enterprise sector, in particular in manufacturing.

**The ICT sector needs to be strengthened**

A key factor affecting the potential of the digital economy is the state of the ICT sector. The ICT sector is a big employer in Estonia and it contributes 0.25% to growth, but its labour productivity is lower than in many other transition economies, let alone digital frontrunners such as Finland or Korea. The extent of trade in digitally deliverable services, another measure of ICT-sector competitiveness, is relatively low, notwithstanding low barriers to digital services trade (Ferencz, 2019). Greater demand from the domestic business sector for ICT services could also create competition and boost efficiency.

Estonia has not been earning much IPR-related revenues from overseas, and ICT-related patents are only a fraction of all patents notwithstanding its large number of successful ICT start-ups and its high global
ranking of creative apps. Limited spill-overs of those start-ups to the domestic economy may constrain productivity gains in the sector. In contrast, Estonia ranks quite high in the global scale in trademarks and industrial designs. Greater orientation of research, in particular government-sponsored research, towards applications would help raising intangible capital. The share of intangible capital is relatively low. Even in industries such as publishing activities or telecommunications it was just above 8%, while in other industries it is even lower. In addition, allowing inventors to reap personal benefits from their patents would encourage more patenting.

*The right framework conditions, regulations and incentives would spur digitalisation*

To spur diffusion of digital technologies in production, framework conditions need to facilitate the creation as well as the scaling up of firms. Product market regulations in Estonia appear to be business friendly, though the business community complains about excessive state intervention in operations, in particular of state-owned enterprises in the energy sector. Indeed, the government owns the largest firm in many services such as electricity, posts, railways and air transport. While in many network industries several competitors could hardly survive in a small market like Estonia, private shareholders could exert pressure to improve efficiency. Also, at least some segments in certain network industries could have more competition, for instance in electricity generation. Multiple railway operators may also be feasible. Greater competition in those industries would lift overall productivity. Where competition or other private participation is not feasible, better governance of the incumbent public enterprise could also bring about efficiency gains. In addition, before adopting a regulation, regulators should be required to assess alternative policy instruments and the government should issue guidance on using alternatives to traditional regulation.

Conditions for smart business growth are being improved, an increasing number of companies is using e-invoicing or other digitally-enabled services. In international comparison, although many companies have websites, only a few are equipped with the functions of online ordering and booking (Figure 1.20). State-of-the-art digital tools including big data, artificial intelligence (AI) and internet-of-things (IoT) are the driving forces of productivity upgrading in digital front-running countries, and Estonia too could benefit from the leapfrogging opportunities those tools provide. Estonia is striving to be a frontrunner in setting up regulatory systems for future production. It is now preparing a bill to allow the use of fully autonomous information systems in all areas of life and is working on its AI strategy.

*Figure 1.20. Few business websites are used for ordering or booking*

Source: OECD ICT database on business usage.
Business enterprises, in particular the smaller ones are not fully aware of the productivity gains digitalisation could potentially bring about. The digital diagnostics tool, an exercise to determine digital needs of companies, could be made more easily available in terms of bureaucracy and its take-up and successful cases better disseminated.

In manufacturing, most firms are small and micro firms, below the threshold where some digital investments are considered profitable. Automation is low, not only among smaller but also large firms (Figure 1.21). Mergers and joint operations to reach the critical threshold are possible ways to overcome the scale issue. Furthermore, supporting industrial associations in providing platforms and developing affordable smart solutions in areas such as joint marketing, supplier interactions and customer support would also work to that end. China and Singapore, for instance, have such programmes in place, as discussed in Chapter 1 of this Survey.

**Figure 1.21. The use of robots is particularly low among SMEs**

Access to finance is crucial to fund the digital transition

A relatively high share of micro firms and SMEs consider the lack of financing as an obstacle to long-term investment (Figure 1.22). The rejection rate of loan applications by SMEs, a more meaningful indicator of access to finance, is more than double the EU average (11% vs. 5%) and so is the share of SMEs that do not apply for bank loans in the first place in fear of rejection (also 11% vs. 5% in the European Union). The lack of fixed assets, in particular in services industries, is a major constraint to borrowing. Alternative financing methods are gaining space in Estonia to fill in for demand unmet by banks. Factoring has become the most important source of financing for SMEs, followed by bank loans and internal funds (European Commission, 2018b). The Green Paper on Industrial Policy recognises that in order to make investments, industrial companies need long-term financing opportunities.

Alternative financing, including FinTech, should be promoted to fill the funding gap for SMEs, while keeping safe standards regarding consumer protection and predatory lending. More complete documentation on the borrower side and better risk assessment by lenders would also work to that end. To overcome the lack of fixed assets, a system and standards to accept intangible assets as collateral could be established. Given the strong performance in registering trademarks and industrial design by Estonian companies, collateralising those could ease borrowing constraints. Korea has an effective system providing loans for purchasing, commercialising and collateralising intellectual property under the “Techno Banking” initiative by the Korean Development Bank.
Figure 1.22. Smaller firms consider the availability of finance as an obstacle to long-term investment

% of firms reporting availability of finance as a major obstacle to long-term investment, 2017

Source: EIB Survey.

Table 1.9. Past OECD recommendations to improve the business environment

<table>
<thead>
<tr>
<th>Main recommendations from the 2017 Survey</th>
<th>Actions taken since the 2017 Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Give more weight to co-operation with the private sector when allocating funds to public R&amp;D institutions.</td>
<td>Two activities were launched in 2016 (“Supporting applied research in smart specialisation growth areas” and “Strengthening sectorial research and development”) where the funding formula was amended so that business contracts are assigned a coefficient of 2.</td>
</tr>
<tr>
<td>Establish an independent body to advise on policies to raise productivity.</td>
<td>No action taken.</td>
</tr>
</tbody>
</table>

Infrastructure investment is crucial for future productivity growth

Robust investment in infrastructure would help reinvigorating productivity convergence. Notwithstanding heavy investment in infrastructure in the past couple of decades, largely using EU funds, infrastructure quality is not particularly high (Figure 1.23). The share of road transport in total freight transport is among the highest in the OECD, implying heavy road traffic in vehicle-km per unit of GDP. A lack of motorways implies lower speed and hence lower efficiency of transport services. Moreover, Estonia’s ranking on the quality of roads sub-index of the infrastructure component of the Global Competitiveness Index is not very high. In contrast, rail infrastructure quality seems much better and in port infrastructure quality, Estonia ranks among the top ten economies globally. Improving road infrastructure, in particular building key motorways would improve connectivity as well as boost transport service efficiency. The International Transport Forum at the OECD is currently undertaking a comprehensive assessment of Estonia’s transport development needs based on economic modelling, the results of which will be available in 2020 (ITF, 2020).
Figure 1.23. Perceived infrastructure quality is close to the OECD average

Connectivity by air and sea are particularly weak, as the sub-indices of the Global Competitiveness Index indicate. From Tallinn, there are no direct daily flight to many major European cities. The small size and the geographical location of the country explain that. In addition, all neighbouring countries have a large city not far from the Estonian border, thereby reducing potential air or maritime transit traffic. Connectivity will greatly improve once the high-speed Rail Baltica link is completed. Rail Baltica plans to launch its high-speed rail shortening the travel from Tallinn to Riga to an hour and 40 minutes, passing through Pärnu, by 2026. The network will reach Warsaw and Berlin as well (3 Seas Initiatives Summit, 2018). Rail Baltica
could potentially relieve traffic on Via Baltica, which is currently the major transport route for freight between the Baltics and the rest of continental European Union. Via Baltica itself is being modernised also with the aim to strengthen road safety and reduce accidents. Energy connectivity will also improve once the interconnection of the electricity system with that of the European Union will materialise in 2025.

The government plans to invest EUR 1.3 billion to reach a -13% CO2 emission target by 2030. The three major areas targeted are transport, agriculture and waste management. The major contributor will be public transportation through the electrification of railways and better connection and extension of tramways. Indeed, the level of railway electrification at 11% in 2016 was the third lowest among OECD countries for which data are available, next to Ireland and Lithuania. Increasing diesel emission standards by the European Union will imply switching from diesel to electric locomotives. Alternative technologies to electrification could also be considered, for instance using fuel charge and hydrogen technology (Ruf et al., 2019).

More importantly, digital infrastructure needs to be revamped to make digitisation a new driver of business growth. Although mobile network coverage is 100% like in most advanced economies, in terms of bandwidth, Estonia ranks only 78th in the world. Fixed broadband coverage is lower than in the EU average and download speed of fixed broadband connection is low (Figure 1.24). The government is investing in the extension of the infrastructure during the current budget plan.

**Figure 1.24. Download speed of fixed broadband connections is low**
Average experienced download speed of fixed broadband connections, Ookla and M-Lab measures, 2018

![Image showing download speed comparison](image)

Note: The Ookla measure reflects wired or wireless broadband speed achievable ‘on-net’, while the M-Lab Network Diagnostic test is primarily for identifying Internet bottlenecks rather than computing averages of upload and download speeds from different user populations.

Infrastructure-related investment is to a large part co-financed by EU structural funds, and so far there has been no plans to make up for a potential future reduction of such funds. Cost-benefit analysis for infrastructure projects is common now, which is a positive development, but spill-overs are currently not considered in either feasibility studies or ex-post. Given the large potential spill-over effects of several infrastructure projects, including roads, railways and bridges on the surrounding areas, such effects should be incorporated in feasibility studies.
Table 1.10. Past OECD recommendations to improve infrastructure

<table>
<thead>
<tr>
<th>Main recommendations from the 2017 Survey</th>
<th>Actions taken since the 2017 Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carry out ex ante cost-benefit analysis for all large-scale infrastructure projects based on a uniform methodology.</td>
<td>Cost-benefit analyses are applied in most but not all cases.</td>
</tr>
</tbody>
</table>

**Inequalities have multiple dimensions**

Inequalities in both market and disposable incomes are in line with the OECD average (Figure 1.25). Reforms of the personal income tax system in 2018 (i.e. increase of non-taxable income and the introduction of progressivity in the withdrawal of the income tax allowance) reduced the Gini coefficient for disposable incomes by 0.8 percentage points, and reforms of the family benefit system in the same year (i.e. increase of the child allowance and the parental allowance and the extension of the latter to families with 3-6 children) by another 0.2 percentage points (Paulus and Klein, 2019). Inequalities in health outcomes are sizeable (see health section below), partly related to incomes, partly to education level.

**Figure 1.25. Inequalities in both market and disposable incomes are in line with the OECD average**

Working-age population (aged 18-65), 2017 or latest year available

![Graph showing Gini coefficients for market income and disposable income across countries](image)

Source: OECD Income Distribution Database (IDD).

Inequalities have multiple dimensions. Notwithstanding the small size of the country, regional disparities are sizeable, with Tallinn and the western areas doing better and the eastern and southern worse. The urban-rural divide is also significant. The regional divide to some extent reflects the divide between Estonian speakers and Russian speakers with many of the latter living in the eastern regions. Estonian speakers are more satisfied with life in general than minorities. While Russian-speaking Estonian citizens on average have the same satisfaction level, the downward dispersion for this indicator is much greater. People not holding Estonian citizenship, be it people holding other citizenship or none, are on average much less satisfied with life. This divide between Estonian speakers and minorities would also be apparent if asking them about their satisfaction with the economic or the political situation of the country or the education or health systems.

In a small country like Estonia, better connectivity across the region and across the national borders with other EU and non-EU economies can be a powerful tool to reduce regional and urban-rural inequalities. In particular, having branded itself as an ICT leader in some aspects, the country could exploit its state-of-the-art digital ID system and digital tracking of interactions with government to better target the people left...
behind. For instance, people eligible for social assistance, could be automatically notified to increase take-up rates. For ethnic minorities, a more embracing education system with opportunities to acquire Estonian language skills in any part of the country could help. Estonian language teachers could be attracted to minority areas by improving benefits and incentives.

Men have greater earnings opportunities thanks to the construction boom, even though on average they have lower education attainment than women. The combination of inequalities in multiple dimensions makes Russian-speaking women in the East of the country have the lowest chance to find a job. The gender pay gap is apparent, at 25.6% it is among the highest in OECD (Figure 1.26). When decomposing this measure, the major factors behind the gap are men working in better-paying occupations and sectors than women. At the same time, the unexplained part of the gap is large, meaning it is not related to personal, job or enterprise characteristics. The gap is slowly narrowing as a result of new measures. Employers should be required to report the size of the pay gap, including in the private sector, and explain the reasons for it and provide an action plan to eliminate it. In France, for instance, the relatively low gender wage gap is ensured by a reporting requirement and fines for firms employing at least 50 people.

**Figure 1.26. The gender wage gap is high**

Full-time employees, 2018 or latest available

Note: The gender wage gap is unadjusted and defined as the difference between median wages of men and women relative to the median wages of men. For Estonia, latest available data are as of 2014.


**Table 1.11. Past OECD recommendations to make growth more inclusive**

<table>
<thead>
<tr>
<th>Main recommendations from the 2017 Survey</th>
<th>Actions taken since the 2017 Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relax eligibility conditions for unemployment benefits, not least to improve participation in active labour market measures.</td>
<td>No action taken.</td>
</tr>
<tr>
<td>Extend the share of parental leave reserved for fathers.</td>
<td>Paternity leave rights have been extended to 30 days, effective from July 2020.</td>
</tr>
</tbody>
</table>

**Health is a top development need**

Relatively low outcomes by different health indicators explain the inclusion of health among the top nine development needs. Life expectancy at birth since 2000 increased more in Estonia than in any other OECD country, with the increase being greater for men than women, thereby reducing the gender gap by two full
years by 2017. However, the gap at 8.8 years in 2017 remains the third largest in the OECD (next to Latvia and Lithuania).

Despite some improvement, Estonia also still ranks rather poorly on alcohol consumption and smoking -- two important behavioural risk factors. Together, they account for around a quarter of deaths (OECD/European Observatory on Health Systems and Policies, 2019). This is nearly the same as dietary risk, the number one behavioural risk factor at 26%, in particular related to high sugar and salt and low fruit and vegetable consumption. Average alcohol consumption per capita is not different from those in other Central-Eastern or large European economies, but episodic heavy alcohol consumption (binge drinking), in particular among men, is high (OECD/European Observatory on Health Systems and Policies, 2019). A new regulation bars the open display of alcoholic beverages and tobacco from the second half of 2019 and advertisements are banned, including at point of sale displays. In addition to barring open display and advertisements of alcohol per se, banning those for materials that could serve as a base for producing alcohol should also be considered given that the death rate related to accidental poisoning is second only to the United States in the OECD. Rules for handling poisonous materials (e.g. methanol) should be made more rigorous and fines for non-observance deterring.

The mortality rate from ischaemic heart disease, the number one cause of death, has fallen as people, especially men, have started to smoke less, but is still the fifth highest in the OECD. Lung cancer, the most common form of cancer, has also decreased. In contrast, chronic liver disease and pancreatic and colorectal cancer are on the rise (Figure 1.27). Low screening among high-risk population groups results in late detection rates. Earlier treatment carries significant benefits in terms of lower treatment costs and reduced mortality, but screening programmes also incur costs, and should only be implemented following thorough cost-benefit analyses. Raising awareness of screening programmes and covering a greater proportion of the costs by insurance would help getting diseases on the rise under control. It is shown that, for instance, colonoscopy reduces mortality from colorectal cancer by curbing the incidence of late-stage cancers (Jacob et al. 2012). Given that colorectal cancer affects a relatively large number of people, it is on the rise and it is generally curable at earlier stages, free screening of people at risk should be considered. For instance, offering a one-off free screening of blood in stool, and free colorectal screening (colonoscopy) to those who test positive, could effectively curb future treatment and opportunity costs. For people at risk aged 50 and above, it would cost roughly 0.09% of 2018 GDP, which is an upper limit as it could be phased in over several years. Infectious diseases, such as HIV and tuberculosis are also common, with HIV incidence ranking seventh in OECD, but decreasing over the past decade.
Health outcomes vary strongly also with income and education. The perceived health status differs greatly between people in the top and bottom income quintiles and between those with high and low level of education (Figure 1.28). Those gaps are among the highest in the OECD. The gaps may partially reflect actual differences in health status related to more hazardous workplace conditions in mines and construction where part of the low-skilled and low-income people work. Another factor is differences in the exposure to behavioural risk factors, notably higher obesity and smoking rates among low-income people. In addition, it may also reflect those people’s perceived ability to improve their health, which stems from high out-of-pocket payments and low coverage of reimbursed preventive measures. High out-of-pocket payments prompt patients to skip consultations and prescribed medicines, exacerbating the health outcome divide related to income disparities. Furthermore, the share of the population not having access to specialised medical care and dental care is bigger in lower income quintiles (Statistics Estonia, 2018). Reduction of income inequalities and higher insurance coverage of health services and medicine are thus both conducive to narrowing the gap in health outcomes.
Estonia has very high levels of unmet healthcare needs, which is largely related to long waiting lists. Insufficient gatekeeping, limited services by primary care and a lack and uneven distribution of specialists contribute to long waiting times. Among OECD countries for which data are available, Estonia’s share of patients with over 3 months of waiting for various interventions is the highest. Notwithstanding the maximum target waiting times set by the health insurance fund, people find themselves waiting well beyond those targets.

Regional disparities compound the gender, income and education divide across health outcomes. For instance, people in Tartu have 4.5 years longer life expectancy than those in Ida-Viru. Furthermore, people in Lääne and Saare counties in the western part of the country have eight years of disability-free life expectancy at age 65, in contrast to residents in Võru County, in the south-east, who live only 1.7 years without disability (OECD/European Observatory on Health Systems and Policies, 2019). The distribution of health resources plays a role in regional disparities in health outcomes. The two largest hospitals, for example, located in Tallinn and Tartu, account for half of specialist services countrywide. Incentives for medical personnel to move to rural areas are limited. As a result, unmet healthcare needs due to distance are high.

The Estonian Health Insurance Fund covers only 94% of the population. A 2017 reform instituted a government transfer to the Health Insurance Fund on behalf of pensioners from 2018, which will improve

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the finances of the Fund. In that year, it stood at 7% with an objective to increase it to 13% in 2022, the same as the employer contribution rate. The scope of services financed by health insurance were also raised, including emergency care, tuberculosis and HIV treatment for the uninsured, and ambulance care. The health insurance will also coordinate preventive services. The uninsured, many of whom are unemployed, have access only to emergency care, not to preventive services, primary care or other specialist care. Covering all residents by health insurance would relieve pressure from emergency services and would allow for better health outcomes through focusing more on prevention. The inactive should be encouraged to obtain basic health insurance, for instance at the level of social tax paid by minimum wage earners for health insurance purposes.

Healthcare spending efficiency is not particularly low, but there are a number of OECD countries, including in Central and Eastern Europe, that achieve lower death rates from treatable diseases from similar expenditures (Figure 1.29).

Figure 1.29. Some countries achieve lower treatable death rates from similar expenditures

A. Standardised treatable deaths rate, 2016

B. Total health expenditure per capita, USD PPP 2016

Source: OECD Health Data.

**Ensuring safety and security**

Security aspects encompass personal security as well as elements that are critical to the effective functioning of a state, in particular energy. Public security in Estonia is on par with the OECD average, but due to the gaps in the social protection system, income security is an issue. Health-environment and safety regulations and their enforcement need improvement, calling for more resources to the labour inspectorate.
and incentives to report work sickness and work injuries as such. Occupational risks are relatively common, and fines are low. Work-related injuries are not reported in Estonia and hence are not addressed. While occupational diseases are reported, diagnosis appears lengthy. Compensation at EUR 500 per month in the case of long-term injuries is relatively low and in-kind assistance, for instance transportation, is not sufficient.

Digital security is increasingly important in peoples’ everyday lives, as vital services like rescue, electricity and water supply, phone and data communication, currency circulation, payment services and personal identity management increasingly rest on digital foundations. Estonia’s critical digital infrastructure is well protected, but many Estonian companies lag behind in digital security, and a large share of internet users are either unaware or passive towards issues of digital security and data privacy (See Chapter 2).

Oil shale is at present key to Estonia’s energy security. It is exploited in few countries other than Estonia, and the largest mining and processing company is government-owned. It is more CO2-intensive than coal and is contributing to diverse environment- and health issues. However, it meets around 70% of Estonia’s energy needs, mostly through electricity generation and heat, and is seen as key to the country’s energy security. Furthermore, the sector accounts for 4% of GDP and 1.5% of employment and is a key employer in the northeast of the country, where unemployment and poverty rates are high (OECD Economic Survey, 2017). Reducing the dependence of oil shale mining and use is thus a key economic, environmental, social and strategic challenge (OECD, 2017c).

Connectivity in the area of energy will improve, and this could help mitigate energy security concerns. The Balticconnector gas pipeline between Finland and Estonia already exists and a planned regional LNG terminal adjacent to it in Paldiski (North-western Estonia) is to be built to ensure long-term security and diversification of gas supply. Interconnection of the electricity system with that of the European Union is another task ahead. Currently the Baltic States are still linked to the BRELL (Belarus, Russia, Estonia, Latvia and Lithuania) electricity system, where Russia provides stability. Baltic States decided as early as in 2007 to synchronise their grids with the European Union, and synchronisation is expected to be completed by 2025 via Poland. This will allow system operation according to EU standards and eliminate technical dependency for operational planning on third countries (3 Seas Initiatives Summit, 2018).

Table 1.12. Past OECD recommendations on safety and security

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<thead>
<tr>
<th>Main recommendations in past Surveys</th>
<th>Action taken since the previous Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase subsistence benefits.</td>
<td>No action taken on subsistence benefits, but a significant strengthening of child benefits has reduced child poverty.</td>
</tr>
<tr>
<td>Increase sanctions for breaches of health and safety regulations.</td>
<td>No action taken.</td>
</tr>
<tr>
<td>Require that employers purchase occupational accident and disease insurance.</td>
<td>No action taken.</td>
</tr>
</tbody>
</table>

**Keeping a clean natural environment**

The natural environment in Estonia is for the most part clean, with low built-up surfaces per capita and very good air quality (Figure 1.30.A and B), although there are pockets of pollution around the capital Tallinn and in the northeast, where oil shale is exploited. However, progress with decoupling CO2 emissions from GDP growth has been limited over the past 10 years (Figure 1.30.C and D), and Estonia is projected to miss its 2030 target to reduce greenhouse gas emissions outside the EU-ETS. There are also issues regarding municipal waste.

The exploitation of oil shale is the main culprit behind Estonia’s high greenhouse gas emissions. Oil shale mining has in the past generated large volumes of waste and polluted ground water and soil. Remediation of old contaminated sites is costly but is not the responsibility of the mining companies, since most of the pollution originates from Soviet times. However, the sector brings incomes, it is a large employer in the...
North-East, and key to energy security. Furthermore, new research and technology development indicates that health risks from mining waste is lower than previously thought, and the residues have alternative uses, for example as a substitute for gravel in road and rail construction. To reflect these findings and facilitate a better use of the resource, shale ash will be reclassified as non-hazardous waste as of 2020.

Environmental tax revenues are high, mostly from the taxation of oil shale (Figure 1.30.E). Nonetheless, Estonia’s CO₂ emissions are largely priced below the low-end estimate of the climate cost of carbon of EUR 30 (Figure 1.30.F) mostly because prices in the European Union’s emission trading scheme (ETS), which covers most of Estonia’s oil-shale related emissions, are still lower. Double taxation of emissions should be avoided, but ETS prices may rise further: The supply of emission permits will be scaled back more strongly starting in 2021. Moreover, a large majority of EU countries, including Estonia, now support a target of reaching net zero emissions by 2050. Estonia’s economy could be vulnerable to substantially higher ETS prices.

Reducing the dependency on oil shale while minimising social impacts and energy security concerns is a key challenge going forward, and a broad policy response is needed to successfully support regions undergoing industrial transition (Box 1.7). The National Development Plan (NDP) for Oil Shale Use for 2016-2030 aims at increasing mining efficiency while minimising the environmental impact. The government plans to shift oil shale use towards the production and export of oil and other chemical products. This would avoid CO₂ emissions domestically but still generate local environmental impacts from mining and processing. A focus on technological solutions to environmental challenges, shown in a high share of environmentally related inventions (Figure 1.30.G), is positive, but not sufficient. Low oil prices have posed risks for the viability of this business model in the past (OECD, 2017c), and rising prices on emissions quotas has rendered parts of the sector unprofitable lately. The sector could end up as a liability in the future, notably if decisive climate mitigation action by oil-consuming countries depresses oil prices, crowding out production at relatively high cost (Mercure et al., 2018).
Box 1.7. Policy responses to regional industrial transition

Globalisation, technological progress, and the transition to a climate-neutral and circular economy are transforming OECD and European regions. Regions undergoing industrial transition often have a strong legacy in manufacturing and sophisticated innovation activities, well-trained workers and strong social capital. At the same time, a skills base concentrated in declining sectors with a potential overspecialisation in mature technologies and industries in decline make these regions vulnerable to higher unemployment from concentrated deindustrialisation. Successful industrial transition will depend on these regions’ ability to foster innovation-led growth and ensure that the benefits from growth are widely shared.

Regions in industrial transition should use a variety of policies and instruments to support their transition processes, calling for a coordinated effort including different levels of government, social partners and the private sector. These policy instruments are usually not new, but a successful industrial transition may call for improved, intensified and place-based implementation of existing policies within areas such as skills provision, entrepreneurship, research, development and investment support.

Finland’s foresight co-ordination for Northern and Eastern regions is an example of coordination between relevant actors at the regional level. Headed by regional councils, it monitors the regional operating environment and changes in industry, and analyses current and future skills needs. A key success factor of regional foresight in Finland is close cooperation among different foresight actors in order to create a shared understanding of future challenges in the region, a shared vision around future development objectives and means to reach set targets. Each region has launched place-specific regional foresight models and produced local analysis reports feeding into the support of regional policy strategies and programmes.

The Norwegian Innovation Clusters programme is an example of network-based approaches, supporting industry-science ties and fostering cross-sectoral links to boost innovation-led transitions. The programme is a government-supported cluster programme organised by Innovation Norway in a joint effort with Norway’s Industrial Development Corporation and the Norwegian Research Council. The programme’s objectives are to increase the innovation capability and value creation in different clusters and to support cross-fertilisation between clusters. Through annual open calls, clusters compete to be part of the programme. Criteria for participation include cluster resources, potential for growth and position in the industry, and that the wish to build a financially supported cluster is based on the commitment and leadership of the companies forming the cluster.

Skills and labour market policies are key to share the benefits and burdens of industrial transition. Saxony’s “We Need All Talents” initiative takes a multi-stakeholder approach to improve transitions from compulsory school to education to employment, to prevent dropouts and youth unemployment and help youth overcome personal crises. The initiative focuses on improved cooperation among existing authorities such as the Youth Employment Agency, the Youth Welfare Office and schools in order to offer coordinated assistance in one-stop-shops based on the individual’s needs.


Renewable energy could help provide energy security, but without CO₂ emissions and considerably less environmental impact than the oil shale sector. Renewable energy generation has increased markedly (Figure 30.H). Renewable capacity consists mostly of burning biomass from by-products of the wood industry. Wind and solar energy contribute little. However, forests are used intensively, and logging increased over the past decade. Estonia has put in place several financial and institutional measures to...
promote sustainable forestry over the past two decades, including an advisory system for private forest owners, support to compile forest management plans, public campaigns and easy access to forestry data. However, the 2017 Environmental Performance Review (OECD, 2017c) highlights that Estonia needs to further promote sustainable forestry practices through better co-operation and dissemination of knowledge among private forest owners.

Estonia liberalised its retail electricity market in 2013, and has completed the roll-out of smart meters. Dynamic pricing contracts help to match demand and supply of electricity in real-time. Such contracts are available, and used by approximately one-third of the population. Additional measures to boost the use of dynamic pricing contracts would help adjust consumption to more volatile production from renewable sources, with the added benefits of making demand more robust to supply disruptions and reducing the dominant position of the incumbent (European Commission, 2019).

Transport is a key sector, as in most EU countries (European Commission, 2019). Average CO2 emissions from new cars in Estonia are the highest among EU countries (European Environment Agency, 2018). The government is investing in the electrification of railways and extension of tramways. The 2017 Environmental Performance review recommends introducing a road pricing system or taxes on motor vehicles adjusted to reflect the environmental characteristics of the vehicle, including CO2 emissions. Such steps would help Estonia integrate incentives for the purchase of zero-carbon vehicles without budgetary cost and prepare the pricing of road transport to the future low-fossil-fuel world. More generally, for cost-effective public investment, it is key to plan long-lived infrastructure in a way that is consistent with decarbonisation (OECD, 2018c; OECD/The World Bank/UN Environment, 2018).

Estonia has reduced household waste over the past 15 years (Figure 30.I). This trend has however reversed sharply with rising incomes in recent years, and recycling is low. Improving waste collection infrastructure and increasing fees on domestic mixed waste going to incineration or other treatment, as recommended in the 2017 Environmental Performance Review, would reflect the higher environmental cost of incineration and could strengthen incentives to improve recycling and waste prevention.
Figure 1.30. A clean environment, but more needs to be done to curb greenhouse gas emissions

A. Population exposure to PM$_{2.5}$

B. Municipal waste treatment

C. CO$_2$ intensity

D. Energy intensity

E. Environment-related taxes

F. CO$_2$ emissions priced above EUR30 and EUR60

G. Environment-related inventions

H. Renewable energy share

I. Built-up area per capita

Source: OECD Green Growth Indicators database.
Table 1.13. Past OECD recommendations on keeping a clean natural environment

<table>
<thead>
<tr>
<th>Main recommendations in past Surveys</th>
<th>Action taken since the previous Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set tax rates on oil shale, vehicle and energy use at a level that better reflects the environmental damage they generate.</td>
<td>No action taken.</td>
</tr>
<tr>
<td>Strengthen incentives for operators of heating networks to improve efficiency.</td>
<td>No action taken.</td>
</tr>
<tr>
<td>Strengthen incentives to invest in energy efficiency of buildings.</td>
<td>No action taken.</td>
</tr>
</tbody>
</table>

Smart public governance in cooperation with people

Being a small country with a relatively small public sector demands high public sector efficiency to deliver high-quality public services to equal standards across the country. Estonia’s comprehensive push towards e-Government is important in this respect, and the country has spearheaded innovative approaches, such as e-elections and using artificial intelligence to judge minor offences (e-Estonia, 2019). The move towards performance-based budgeting and a stronger link to long-term objectives set in the “Estonia 2035” strategy, from 2020, is set to improve horizontal coordination.

A major step towards improving administrative capacity in larger administrative units, and hence deliver better local public services, was taken with the landmark 2017 territorial reform. The reform reduced the number of municipalities from 213 to 79 through a combination of financial incentives and a threat of forced merger for municipalities with less than 5000 inhabitants failing to present a voluntary merger proposal. The third elected level of government (county) was suppressed and their tasks transferred to ministries and already existing agencies (European Commission, 2018).

Fighting corruption is important for ethical and economic reasons, as it harms the business climate, distorts competition and diverts public resources into overpriced or worthless projects, and generates mistrust in institutions and corrodes the social fabric. Estonia ranks slightly worse than the OECD median in both the World Bank’s Worldwide Governance Indicators (Figure 1.31.A) Transparency International’s Corruption Perceptions Index (Transparency International, 2018), designating the country as the least corrupt of Eastern Europe (Figure 1.31.B). Estonia has improved its ranking considerably since the early 2000s (Figure 1.31.C), and it scores at or above the OECD average for each sub-component of the Varieties of Democracy index (Figure 1.31.D). Estonia is compliant with the standards set by the Global Forum on Transparency and Exchange of Information for Tax Purposes (Figure 1.31.E).

More than two-thirds of Estonian respondents to the 2017 Eurobarometer survey on corruption considered that corruption was widespread in their country, placing the country at the European Union average. However, only a tenth of respondents in Estonia report being affected by corruption in their daily lives. This is a lower share than in the European Union (25%), the United Kingdom (14%) and Sweden (11%) and not far below Finland (5%) and Denmark, the best performing country of the European Union. Furthermore, just 5% report personal experience with corruption. Also, a relatively high share find that there are enough successful prosecutions to deter people from corrupt practices. Corruption is seen as more widespread among political parties, politicians and officials issuing building permits, public tenders and business permits, in particular at the local level. Banks and public service providers enjoy relatively high levels of trust (European Commission, 2017).

As illustrated by the Danske Bank money-laundering scandal discussed earlier in this chapter, Estonian companies face challenges when conducting business abroad in high-risk jurisdictions and sectors. The OECD Working Group on Foreign Bribery points to several improvements to Estonia’s legislative framework, including in clarifying corruption-related offences in the Criminal Code, allowing surveillance activities to counter corruption and adopting legislation guaranteeing confidentiality to private sector whistle-blowers. Also, to meet the requirements of the OECD Anti-Bribery Convention, Estonia should amend its legislation to waive the statute of limitations following a mutual legal assistance request, expand the scope of its false accounting offences and increase the corresponding sanctions. More should also be
done to improve systems and routines and train officials in the judiciary system and front-line agencies, such as the tax agency and the export credit agency, and to engage more effectively with stakeholders from the financial sector, the accounting and auditing professions, and the private sector (OECD, 2016b).

**Figure 1.31. Perceived corruption is declining**

**A. Control of Corruption, 2018**

**Worldwide Governance Indicators (WGI)**

Scale: -2.5 (worst) to 2.5 (best)

**B. Corruption Perceptions Index, 2018**

**Transparency International**

Scale: 0 (worst) to 100 (best)

**C. Evolution of “Control of Corruption”, WGI**

**D. Components of VDEM, Corruption by sector**

Scale: 0 (worst) to 1 (best), 2018

**E. Tax Transparency: Exchange of Information**

Note: Panel A: the “Control of corruption” a composite indicator of the World Bank Worldwide Governance Indicators (WGI). For details, see Kaufmann et al., (2010); the chart shows both the point estimate and the margin of error. Panel B: the “Corruption Perceptions Index” by Transparency International subsumes several sub-indicators. Panel D: the corruption indicator by the Varieties of Democracy Project (“VDEM”) is one of the subcomponents of the World Bank “Control of Corruption” indicator. Panel E summarises the overall assessment on the exchange of information in practice from the Phase 2 peer reviews by the Global Forum on Transparency and Exchange of Information for Tax Purposes. Peer reviews assess member jurisdictions’ ability to ensure the transparency of their legal entities and arrangements to cooperate with other tax administrations in accordance with internationally agreed standards. The panel shows first round results (a second round is ongoing).

### Table 1.14. Recommendations to enhance macroeconomic stability, inclusiveness and sustainability

<table>
<thead>
<tr>
<th>MAIN FINDINGS (key findings in bold)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating macroeconomic conditions conducive to growth and well-being</td>
</tr>
<tr>
<td>In the recent cyclical upturn, windfall revenues have been spent, making fiscal policy procyclical.</td>
</tr>
<tr>
<td>Productivity growth has been sluggish. The overall level of subjective well-being is low by OECD standards.</td>
</tr>
<tr>
<td>Real-estate related tax revenues are low, as the tax base does not include residential housing.</td>
</tr>
<tr>
<td>Local governments provide a quarter of public investment and their budgets are not approved by the central government. This risks foregoing projects with large positive externalities.</td>
</tr>
<tr>
<td>Government spending by functional classification is not publicly available.</td>
</tr>
<tr>
<td>As Estonia rapidly catches up with more advanced EU countries, it will be less eligible for EU funds.</td>
</tr>
<tr>
<td>A previous proposal to strengthen the legal framework to prevent money laundering and financing of terrorism was not passed by the parliament due to the election cycle. Anti-money-laundering measures have been strengthened considerably, and the Government is preparing a new proposal to Parliament.</td>
</tr>
<tr>
<td>Collateral in the form of fixed assets is usually required when borrowing from banks, but other assets, such as intellectual property, are not accepted as collateral.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RECOMMENDATIONS (key recommendations in bold)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid procyclical fiscal policy, and allow the free play of automatic stabilisers. In case of a strong downturn, fully use the exemption clause built in the existing fiscal rule.</td>
</tr>
<tr>
<td>Increase spending on measures boosting the long-term growth potential and inclusiveness such as infrastructure connectivity, innovation and education.</td>
</tr>
<tr>
<td>Introduce a recurrent tax on the ownership of residential real estate.</td>
</tr>
<tr>
<td>Reduce labour and consumption taxes.</td>
</tr>
<tr>
<td>Require the assessment of spillover effects of infrastructure projects at the feasibility phase.</td>
</tr>
<tr>
<td>Publish government spending by functional classification.</td>
</tr>
<tr>
<td>Prepare an exit plan for infrastructure spending envisaging decreasing EU funding. Set up a robust legal framework before implementing PPPs.</td>
</tr>
<tr>
<td>Continue strengthening regulations and allow the freezing of assets by the regulator in the case of suspected money laundering and increase fines to deterring levels.</td>
</tr>
<tr>
<td>Establish a system and standards to accept intangible assets as collateral.</td>
</tr>
<tr>
<td>Introduce additional measures to increase consumer engagement to reduce the dominant position of the incumbent electricity provider and boost the use of dynamic pricing contracts.</td>
</tr>
<tr>
<td>Increase collection and use of feedback by public service providers to increase service quality.</td>
</tr>
<tr>
<td>To meet the requirements of the OECD Anti-Bribery Convention, amend legislation to waive the statute of limitations following a mutual legal assistance request, expand the scope of false accounting offences and increase the corresponding sanctions.</td>
</tr>
<tr>
<td>Health insurance coverage is incomplete and out-of-pocket costs are high. The way to extend coverage to all is being explored.</td>
</tr>
<tr>
<td>Death rates from several diseases are on the rise, part of which could be prevented by early screening.</td>
</tr>
<tr>
<td>The death rate from accidental poisoning is one of the highest in the OECD.</td>
</tr>
<tr>
<td>The gender wage gap is high.</td>
</tr>
<tr>
<td>The second pillar pension funds charge high fees and returns have been low. The proposed reform to allow withdrawal of funds would generate extra short-term public revenues but would risk pension adequacy and aggravate old-age poverty in the longer term. The impacts of the proposed changes have not been properly assessed, and public consultations have been limited.</td>
</tr>
<tr>
<td>Do not allow withdrawal from the second pillar of the pension system before retirement. Assess the impacts of potential changes to the pension system, including on pension adequacy and macroeconomic stability. Enhance competition in pension markets, and make all costs transparent.</td>
</tr>
<tr>
<td>Regional disparities are high in multiple dimensions.</td>
</tr>
<tr>
<td>Improve connectivity across regions to reduce disparities.</td>
</tr>
</tbody>
</table>

**Product market and governance reforms for greater productivity**

| **Estonia liberalised its retail electricity market in 2013, and has completed the roll-out of smart meters. Dynamic pricing contracts are available, but only used by approximately one-third of the population.** |
| **User satisfaction with public services is below the OECD average and collection and use of user feedback is wanting.** |
| **The OECD Anti-Bribery Convention points to unresolved weaknesses in anti-bribery legislation, including a statute of limitations following a mutual legal assistance request, a narrow scope of false accounting offences and low corresponding sanctions.** |

**Sharing the benefits of growth in a more equitable way and providing a greener environment**

| **Health insurance coverage is incomplete and out-of-pocket costs are high. The way to extend coverage to all is being explored.** |
| **Death rates from several diseases are on the rise, part of which could be prevented by early screening.** |
| **The death rate from accidental poisoning is one of the highest in the OECD.** |
| **The gender wage gap is high.** |
| **The second pillar pension funds charge high fees and returns have been low. The proposed reform to allow withdrawal of funds would generate extra short-term public revenues but would risk pension adequacy and aggravate old-age poverty in the longer term. The impacts of the proposed changes have not been properly assessed, and public consultations have been limited.** |
| **Do not allow withdrawal from the second pillar of the pension system before retirement. Assess the impacts of potential changes to the pension system, including on pension adequacy and macroeconomic stability. Enhance competition in pension markets, and make all costs transparent.** |
| **Regional disparities are high in multiple dimensions.** |

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Poverty is persistent among certain groups, for instance, the old. Better exploit digitally available information to target the left behind.

Proficiency in the Estonian language is key to obtaining citizenship for residents, but not all have the chance to receive such training. Ensure that all people have the chance to acquire proficiency in the Estonian language. Provide sufficient incentives to Estonian language teachers to move to ethnic minority areas or dispatch them as part of their career requirement.

The oil shale industry is very CO₂ intensive. The industry is highly sensitive to international prices on oil and CO₂ emissions in the EU Emissions Trading Scheme (ETS). Review taxes and charges to reflect costs and externalities associated with oil shale mining and use.

The amount of household waste has increased sharply in recent years and recycling is low. Improve waste collection infrastructure and raise fees on domestic mixed waste going to incineration or landfills to incentivise recycling and waste prevention.

Logging has increased over the past few years. Promote sustainable forestry practices through better coordination and dissemination of knowledge among private forest owners.

References


