

## Chapter 2. Tax revenue trends

*This chapter describes tax revenue trends – looking at both total tax-to-GDP ratios and tax mixes – in OECD countries, Argentina, Indonesia and South Africa. The analysis covers tax revenue trends until 2016, the latest year for which comparable tax revenue data is available. This overview of tax revenue trends is useful to understand the effects of past tax policy reforms and sets the stage for the subsequent discussion on the tax reforms that were recently introduced.*

## Trends in tax revenues

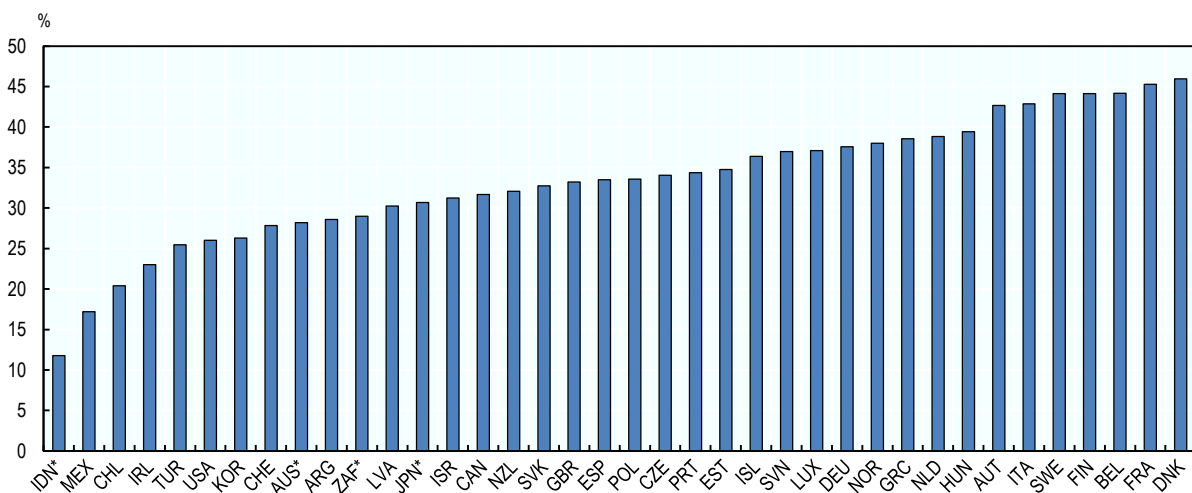
This chapter describes the latest tax revenue trends – looking at both total tax-to-GDP ratios and tax mixes – in all 35 OECD countries<sup>1</sup> as well as in Argentina, Indonesia and South Africa. The analysis covers tax revenue trends until 2016, the latest year for which comparable tax revenue data is available (OECD, 2017<sup>[1]</sup>). This overview of tax revenue trends is useful to understand the effects of past tax policy reforms and provides background to the subsequent discussion on countries' latest tax reforms (Chapter 3).

Overall, this chapter shows that tax revenues across countries have on average continued to increase. A majority of countries recorded increases in their tax revenues as a share of GDP between 2015 and 2016. However, 14 out of the 34 countries for which 2016 data<sup>2</sup> is available experienced decreases in their tax-to-GDP ratios. Compared to the 2014-2015 period, the number of countries recording tax revenue falls increased but the magnitude of these revenue falls was smaller. The chapter also highlights that while there has been an increase in average tax-to-GDP ratios, tax revenues generally account for a lower share of government expenditure than before the crisis. Regarding the composition of tax revenues, countries are on average collecting an increasing share of their revenues from personal income taxes, partly reflecting the effects of recent tax reforms.

### *Tax revenues vary significantly across countries*

Tax revenues as a share of GDP vary significantly across countries. In 2016, Denmark had the highest tax revenues as a percentage of GDP (i.e. tax-to-GDP ratio) among all the countries covered in the report, reaching 45.9%, closely followed by France (45.3%). Seven countries recorded tax-to-GDP ratios above 40% and 20 countries had tax revenues between 30% and 40% of GDP. The country with the lowest tax-to-GDP ratio was Indonesia, with total tax revenues amounting to only 11.8% of its GDP. The second and third lowest tax-to-GDP ratios were recorded by Mexico (17.2%) and Chile (20.4%) (Figure 2.1).

**Figure 2.1. Tax-to-GDP ratios by country in 2016**

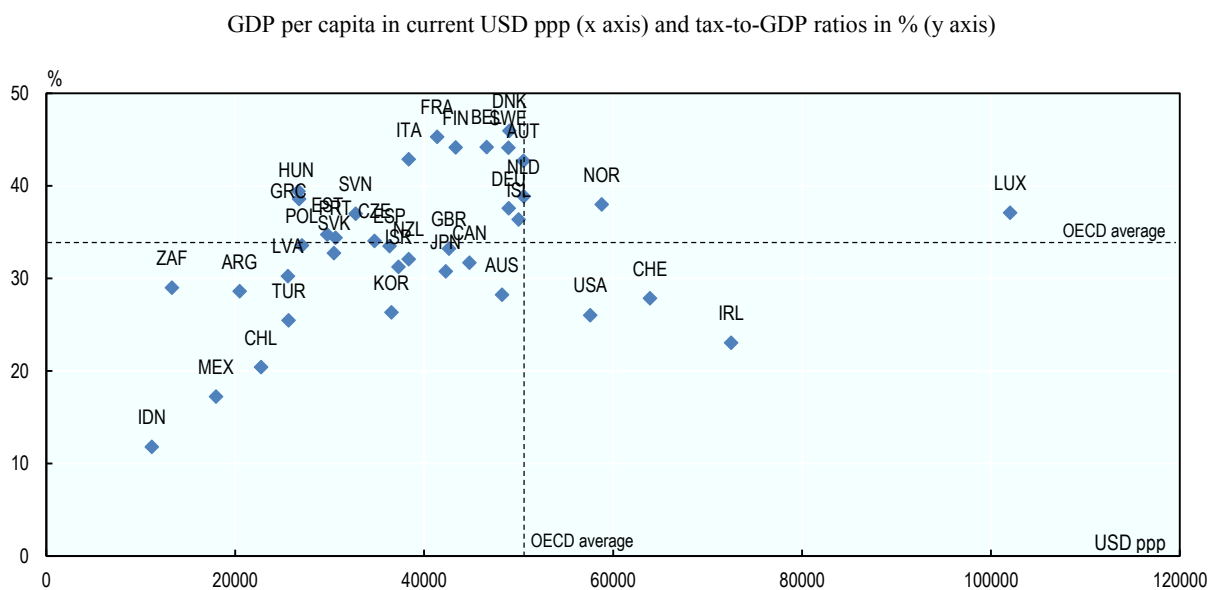


Note: 2015 data used for Australia, Indonesia, Japan and South Africa.

Source: OECD and Global Revenue Statistics databases.

There is a positive correlation between countries' tax-to-GDP ratios and GDP per capita levels. Countries with lower GDP per capita tend to have lower tax revenues as a share of GDP (e.g. Argentina, Chile, Indonesia, Mexico, South Africa and Turkey), while high-GDP per capita countries tend to have higher tax-to-GDP ratios (e.g. Scandinavian countries, Austria, Belgium, France). However, as shown in Figure 2.2, there are many exceptions, particularly at the higher GDP per capita levels with some countries characterised by high levels of GDP per capita but comparatively low tax-to-GDP ratios (e.g. Anglo-Saxon countries, Korea, Japan). There are also countries with below-average levels of GDP per capita but relatively high tax revenues as a share of GDP (e.g. some Central and Southern European countries). Figure 2.2 also highlights that levels of tax-to-GDP ratios also follow regional patterns.

**Figure 2.2. Tax revenues as a share of GDP and GDP per capita**



Source: OECD and Global Revenue Statistics databases and Aggregate National Accounts.

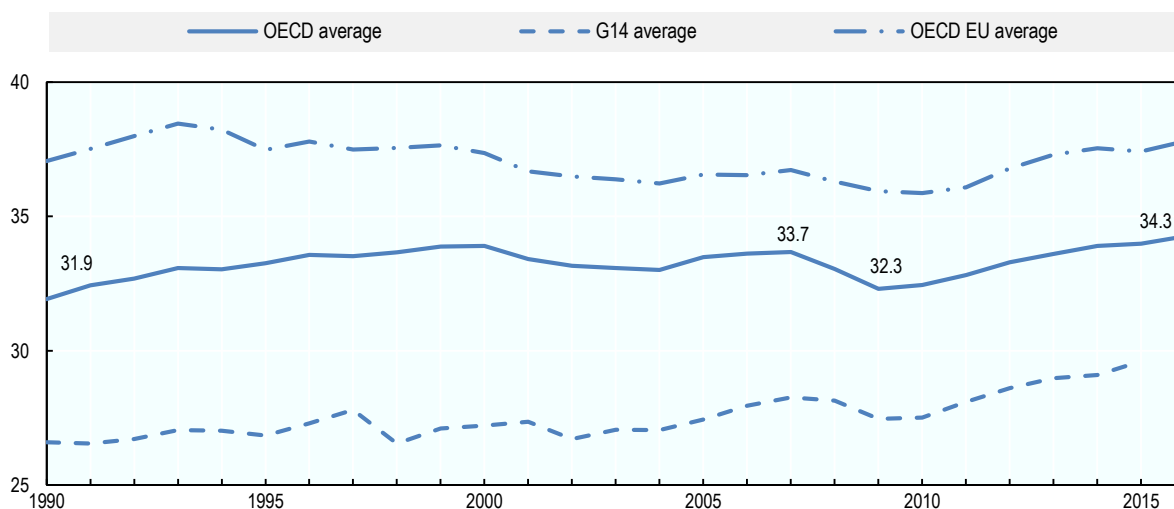
### *The OECD average tax-to-GDP ratio reached a new record level in 2016*

In 2016, the OECD average tax-to-GDP ratio reached a new record level. Between 2015 and 2016, the OECD average tax-to-GDP ratio increased from 34.0% to 34.3%. This is the seventh consecutive annual increase since the low-point experienced in many countries in 2008 and 2009 as a consequence of the financial and economic crisis (Figure 2.3). Looking at longer-term trends, the 2016 OECD average tax-to-GDP ratio was the highest ever recorded since the OECD started collecting tax revenue data in 1965, with a total increase of close to 10 percentage points over the last 50 years (Figure 2.4).

Increasing tax-to-GDP ratios have been a common trend across different groups of countries. In addition to the OECD average tax-to-GDP ratio, Figure 2.3 shows average tax-to-GDP ratios for the 14 countries covered in the report that are members of the G20 (referred to as G14 countries) and for the 21 countries that are EU members. The three groups of countries have experienced increases in their tax-to-GDP ratios since the crisis. Figure 2.3 also shows that the gaps between the G14, the OECD and the OECD EU

average tax-to-GDP ratios have narrowed since 1990, suggesting a degree of convergence in tax-to-GDP ratios.

**Figure 2.3. Tax-to-GDP ratios in different groups of countries**

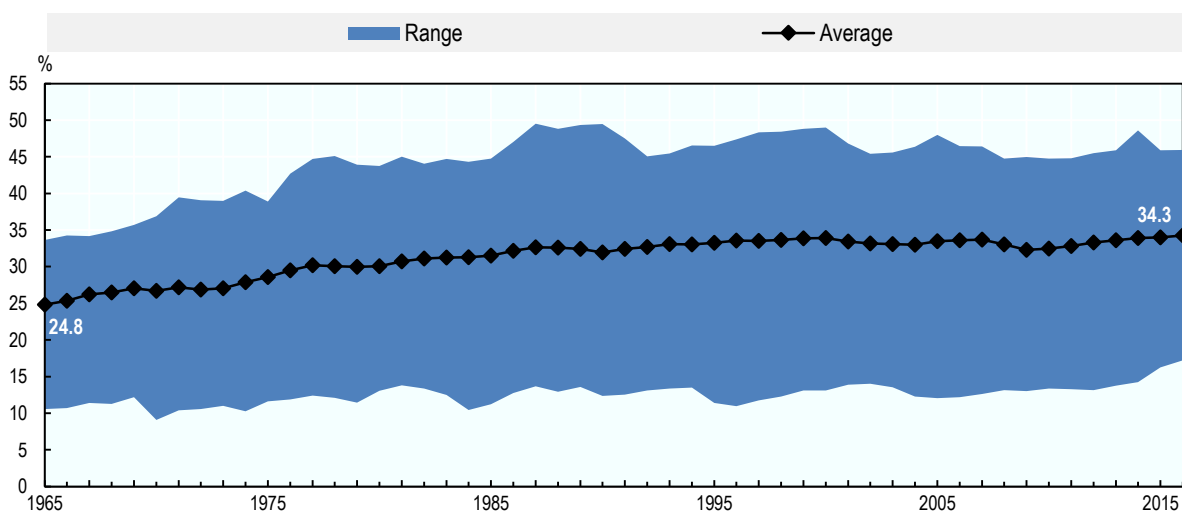


*Note:* G14 countries refer to the 14 countries covered in this report that are members of the G20 including Argentina, Australia, Canada, France, Germany, Indonesia, Italy, Japan, Mexico, Korea, South Africa, Turkey, the United Kingdom and the United States. The OECD EU average is the average for the 21 OECD countries that are members of the European Union.

*Source:* OECD and Global Revenue Statistics databases.

**Figure 2.4. Long-term evolution of the OECD average tax-to-GDP ratio**

Average and range of tax-to-GDP ratios in the OECD, 1965 – 2016



*Source:* OECD Revenue Statistics database.

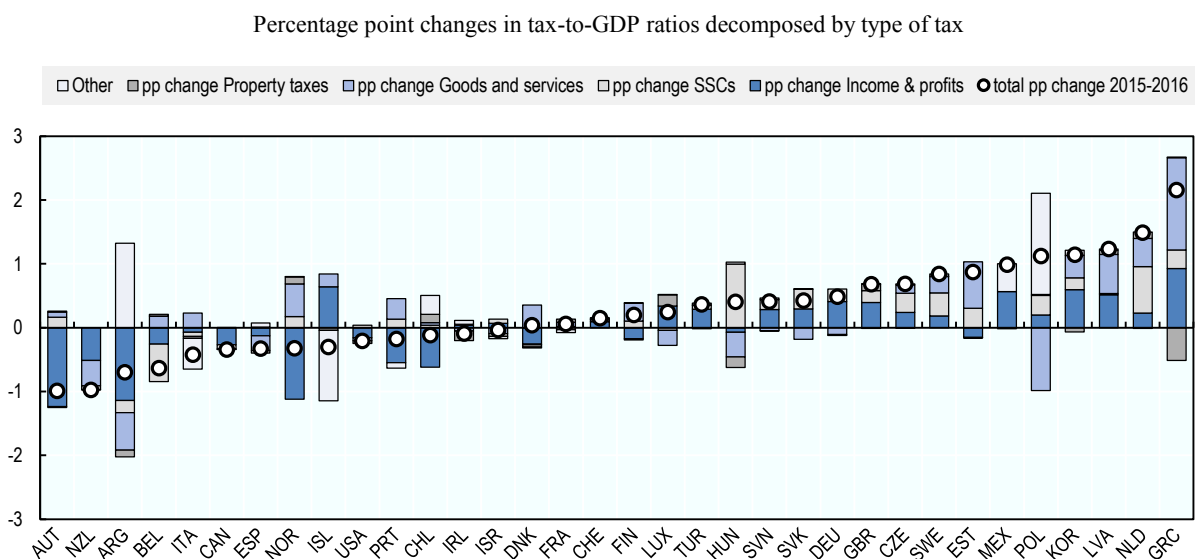
The rise in tax revenues across OECD countries in the years following the crisis was partly the result of active fiscal consolidation measures. In addition to economic

fluctuations, which have effects on tax bases through changes in levels of investment, employment and sales of goods and services, tax revenues are affected by changes in tax policy. In the years that followed the crisis, the adoption of tax reforms aimed at strengthening public finances was one of the factors accounting for the increase in tax revenues. More recently, however, the focus of tax policies has shifted away from fiscal consolidation towards supporting businesses and households through tax cuts (OECD, 2017<sup>[1]</sup>) (OECD, 2017<sup>[2]</sup>). The effects of these tax cuts on future tax revenues are unclear. While they could put a halt to the trend of increasing tax revenues as a share of GDP, increased levels of profitability and higher labour market participation rates may have the opposite effect.

### *Tax revenue trends have differed across countries*

A majority of countries experienced an increase in their tax-to-GDP ratios between 2015 and 2016 (OECD, 2016<sup>[3]</sup>). Indeed, 20 of the 34 countries for which 2016 data is available recorded an increase in their tax revenues as a share of GDP (Figure 2.5). In all these countries, the increase was due to tax revenues increasing more than GDP (Figure 2.6). The tax-to-GDP ratio increase was largest in Greece, due to higher revenues from taxes on income and taxes on goods and services (Figure 2.5), which were partly the consequence of tax increases aimed at enhancing the country's fiscal sustainability (OECD, 2016<sup>[3]</sup>). Tax-to-GDP ratio increases above one percentage point were also recorded in the Netherlands, Latvia, Korea and Poland.

**Figure 2.5. Percentage point changes in tax-to-GDP ratios by country between 2015 and 2016**



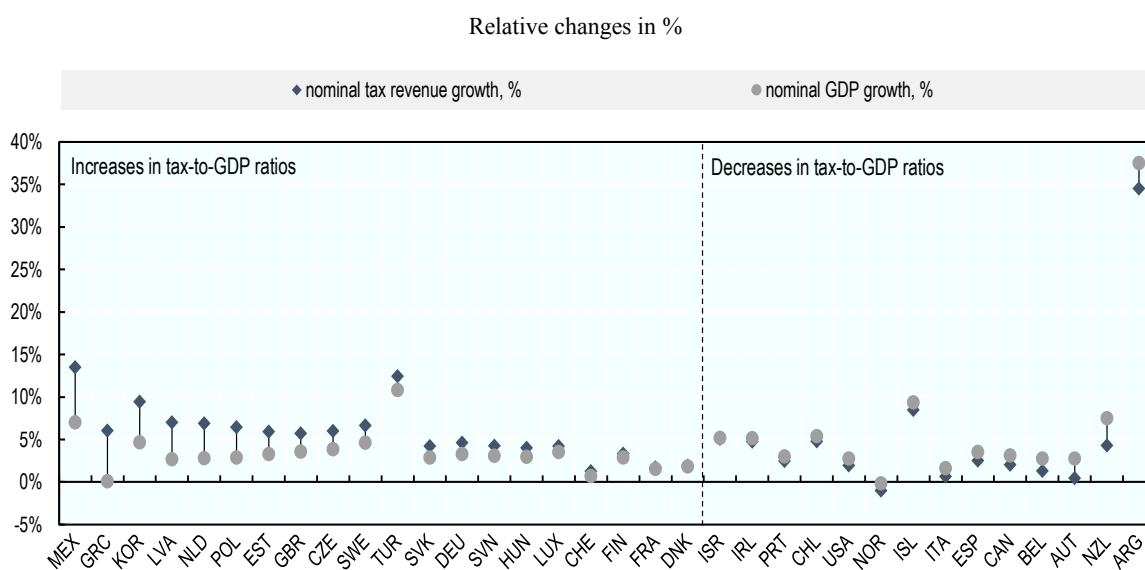
Note: No data for Australia, Indonesia, Japan and South Africa.

Source: OECD and Global Revenue Statistics databases.

On the other hand, 14 countries experienced a decrease in their tax-to-GDP ratios in 2016 relative to 2015. This number is an increase compared to the 2014-2015 period, when only seven countries experienced a decrease in their tax-to-GDP ratios. However, the revenue falls were smaller than the ones reported between 2014 and 2015, with no decreases exceeding one percentage point between 2015 and 2016 (Figure 2.5). The largest decreases were recorded by Austria and New Zealand, due to a decrease in taxes

on income and profits as a share of GDP as well as a decrease in taxes on goods and services as a share of GDP for New Zealand. Tax-to-GDP ratio declines were also seen in Argentina, Belgium, Canada, Chile, Iceland, Ireland, Israel, Italy, Norway, Portugal, Spain and the United States. In all countries but Norway, the falls were due to nominal tax revenues increasing less than nominal GDP, whereas in Norway, both tax revenues and GDP fell (Figure 2.6).

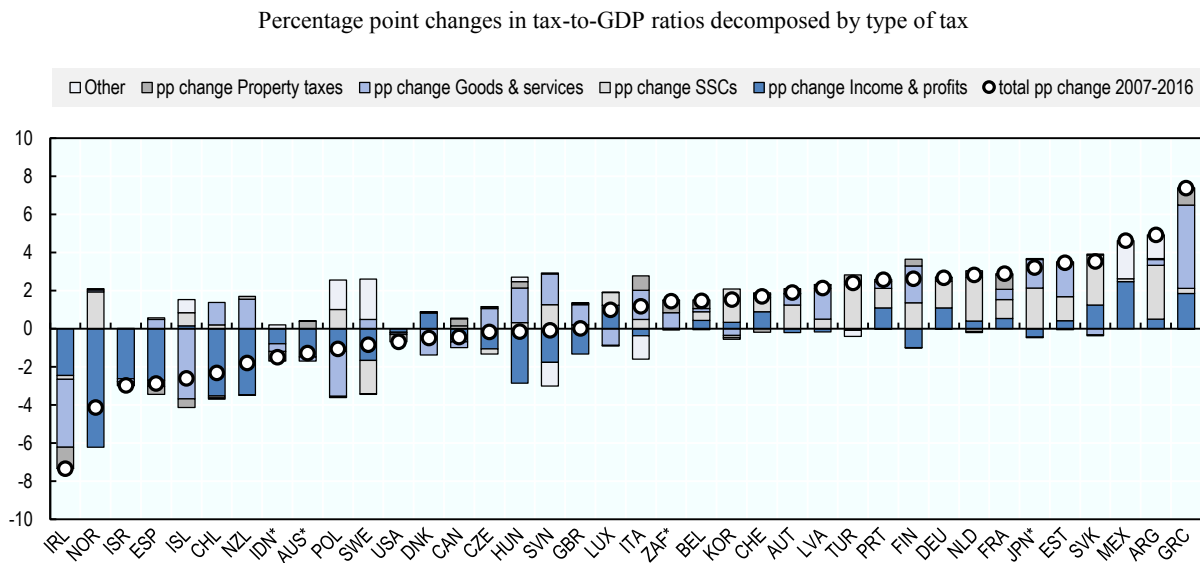
**Figure 2.6. Changes in nominal tax revenues and nominal GDP between 2015 and 2016**



*Note:* No data for Australia, Indonesia, Japan and South Africa.

*Source:* OECD and Global Revenue Statistics databases.

Looking at tax revenue changes between 2007 and 2016 also shows differing trends across countries. 21 out of the 38 countries covered in this report experienced an increase in their tax revenues as a share of GDP compared to pre-crisis levels (Figure 2.7). The largest tax-to-GDP ratio increase between 2007 and 2016 was recorded by Greece (7.4 percentage points). Four other countries – Argentina, Mexico, the Slovak Republic and Estonia – experienced increases of at least 3 percentage points. However, 17 out of 38 countries had lower tax-to-GDP ratios in 2016 than in 2007. Ireland experienced the biggest fall, from 30.4% to 23.0%, mainly because of exceptional GDP growth in 2015. The second largest fall was recorded in Norway, from 42.1% of GDP in 2007 to 38.0% in 2016, largely due to a decline in earnings in the oil sector which in turn caused a sharp drop in corporate income tax revenues.

**Figure 2.7. Percentage point changes in tax-to-GDP ratios by country between 2007 and 2016**

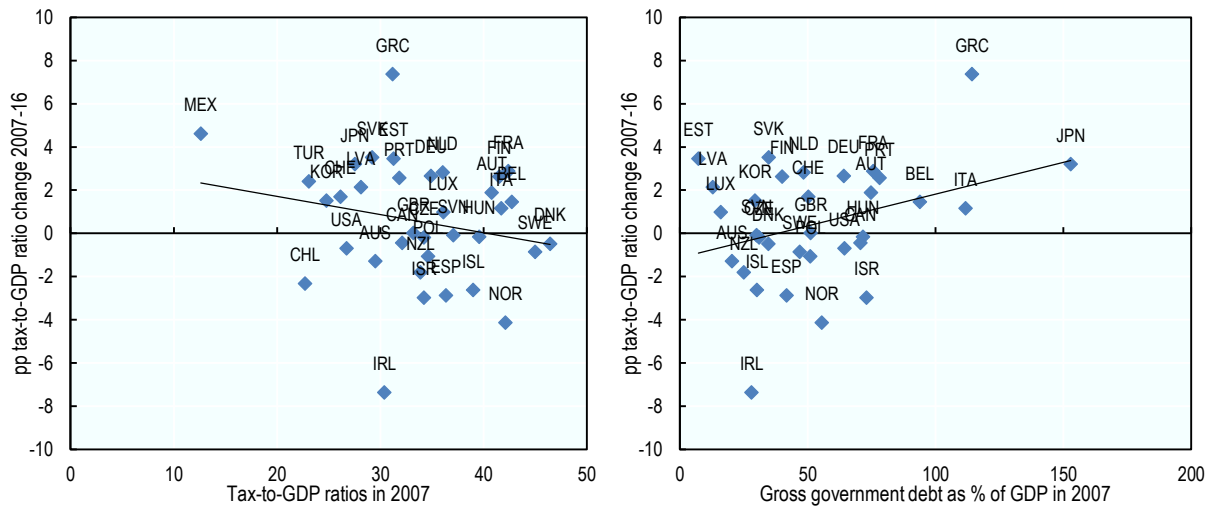
Note: P.p. changes between 2007 and 2015 used for Australia, Indonesia, Japan and South Africa.

Source: OECD and Global Revenue Statistics databases.

Larger public debts and lower tax-to-GDP ratios before the crisis were often associated with greater increases in tax-to-GDP ratios in the years following the crisis. Generally, countries with high levels of public debt in 2007 experienced greater increases in their tax-to-GDP ratios although there were exceptions (Figure 2.8, right panel). There is also a negative correlation between total tax revenues as a share of GDP in 2007 and percentage point changes in tax-to-GDP ratios between 2007 and 2015, suggesting a convergence trend in tax-to-GDP ratios across countries (Figure 2.7, left panel). However, more work is needed to understand convergence patterns in tax-to-GDP ratios across countries.

**Figure 2.8. Percentage point changes in tax-to-GDP ratios between 2007 and 2016, tax revenues and levels of public debt in 2007**

P.p. changes in tax-to-GDP ratios between 2007 and 2016 and tax-to-GDP ratios in 2007 (left panel) and p.p. changes in tax-to-GDP ratios between 2007 and 2016 and public debt as a % of GDP in 2007 (right panel)



*Note:* P.p. changes in tax-to-GDP ratios between 2007 and 2015 used for Australia and Japan. No data for Argentina, Chile, Indonesia, Mexico, South Africa and Turkey.

*Source:* OECD Economic Outlook 102 database and OECD Revenue Statistics database.

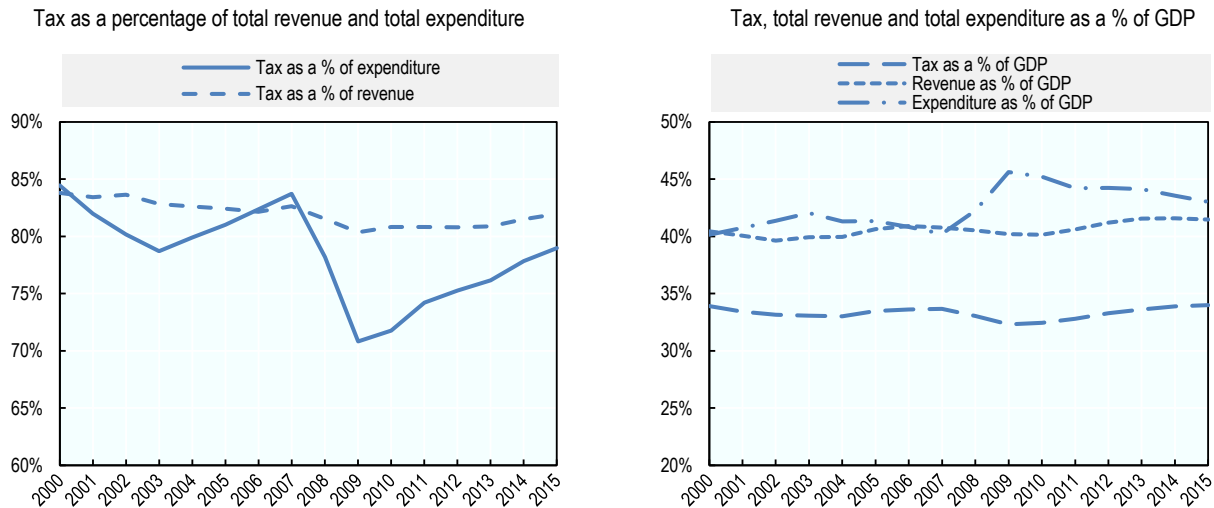
***Recent trends in tax revenues – along with declining public expenditure – have contributed to improvements in public finances***

The financial and economic crisis led simultaneously to a drop in tax revenues and a significant increase in public expenditure in OECD countries on average. Consequently, a bigger part of total government expenditure had to be financed by either non-tax revenues or debt. As shown in Figure 2.9 (left panel), while tax revenues covered on average 84.5% of government expenditure in 2000 in the OECD, they dropped to only around 70% of public expenditure in 2009. The remaining 30% of public expenditure was mainly financed through debt, resulting in higher budget deficits and overall public debt levels (see Chapter 1). Non-tax revenues increased only modestly and did not compensate for the fall in tax revenues.



**Figure 2.9. Tax revenues, total revenues and government expenditure in the OECD**

Taxes as a share of total revenue and total expenditure (left panel) and taxes, total revenue and expenditure as a share of GDP (right panel) – OECD unweighted average, 2000 – 2015



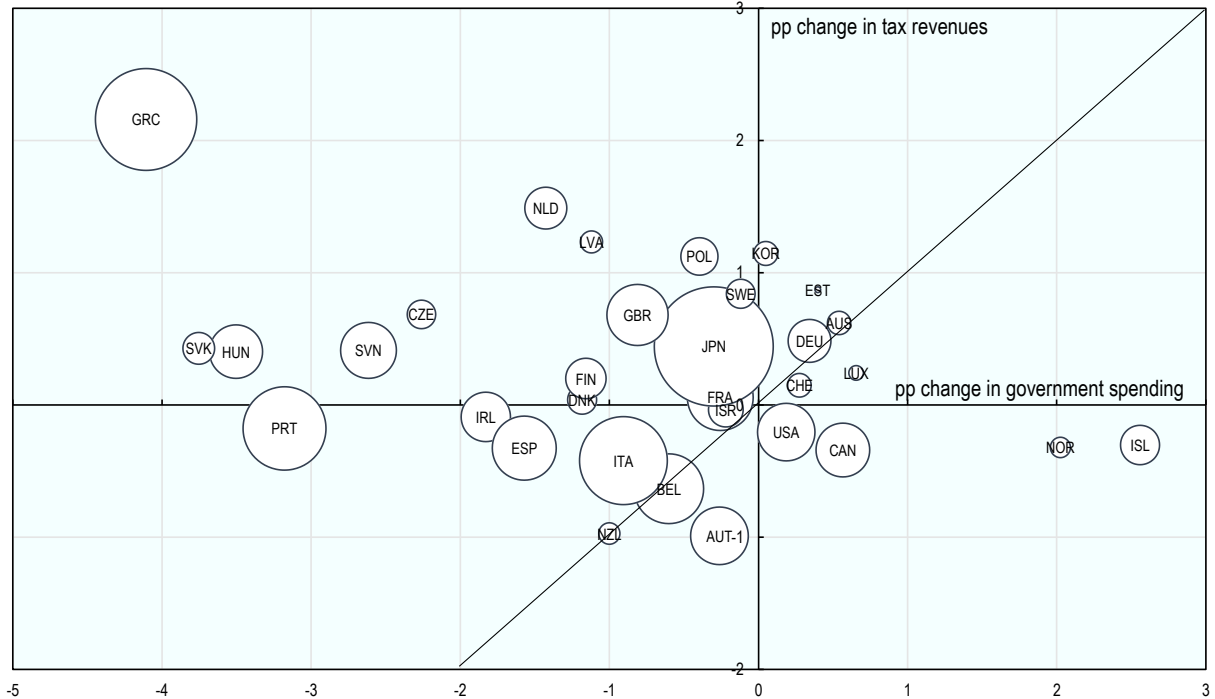
Source: “Special Feature” in (OECD, 2017<sup>[4]</sup>), *Revenue Statistics: 1965-2016*.

Recent years have seen a narrowing of the gap between levels of government expenditure and revenues. Total revenues as a share of GDP have increased since the crisis, reflecting an increase in both tax and non-tax revenues (Figure 2.9, right panel). But more significantly, there has been a strong decrease in public expenditure as a share of GDP. As a consequence of the strong decline in public spending and the increase in revenues as a share of GDP, the gap between government spending and revenues, and therefore budget deficits, have narrowed.

Between 2015 and 2016, most countries saw their tax revenues increase more (or decrease less) than public spending. Figure 2.10 looks at percentage point changes in tax revenues and government spending as a share of GDP between 2015 and 2016. In the countries that experienced tax increases, these were generally accompanied by either spending cuts or lower increases in public spending. Greece, in particular, in an effort to address its high debt-to-GDP ratio and meet the requirements under its bailout agreement, combined the strongest increase in tax revenues with the largest decrease in public spending as a share of GDP. In the countries that experienced tax revenue decreases, these were generally accompanied by even greater decreases in public spending, also indicating improvements in public budgets. There were a few exceptions, however, with public spending increasing more than tax revenues in Iceland, Norway, Canada and the United States, for instance.

**Figure 2.10. Percentage point changes in tax revenues and government spending as a share of GDP between 2015 and 2016**

P.p. changes in government spending (x axis) and in tax revenues (y axis) between 2015 and 2016 and gross government debt as a share of GDP in 2015 (size of the bubbles)



Note: No data for Argentina, Chile, Indonesia, Mexico, South Africa and Turkey. P.p. changes between 2014 and 2015 for Australia and Japan.

Source: OECD Economic Outlook 102 database and OECD Revenue Statistics database.

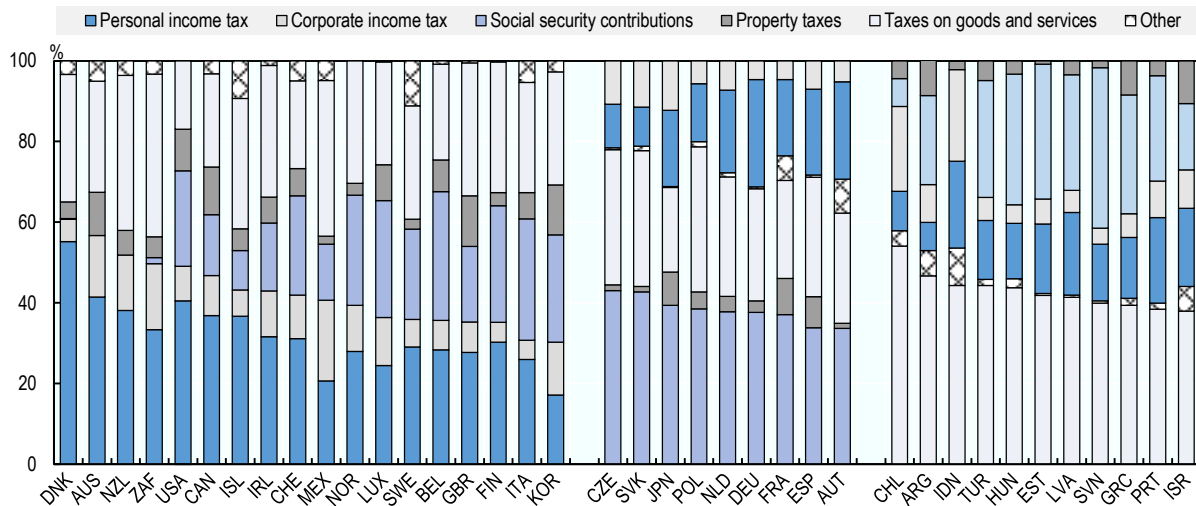
## Changes in tax mixes

### *The composition of tax revenues varies across countries*

The tax structures – or composition of total tax revenues – of countries vary quite significantly. As shown in Figure 2.11, income taxes – including both personal income tax (PIT) and corporate income tax (CIT) – are the largest source of tax revenues in 18 countries. In Denmark, Australia, New Zealand, South Africa and the United States, income taxes account for half or more of total tax revenues, which is partly explained by the fact that Australia, Denmark, New Zealand and South Africa do not collect (or collect very little) social security contributions (SSCs) and partly explained by the comparatively small share of consumption taxes in the United States. In a number of countries, including Central European countries and large Western European countries, SSCs are the primary source of tax revenues. There is a third group of countries which collect most of their tax revenues from consumption taxes.

**Figure 2.11. Tax structures by country in 2015**

Tax revenues expressed as a share of total taxation



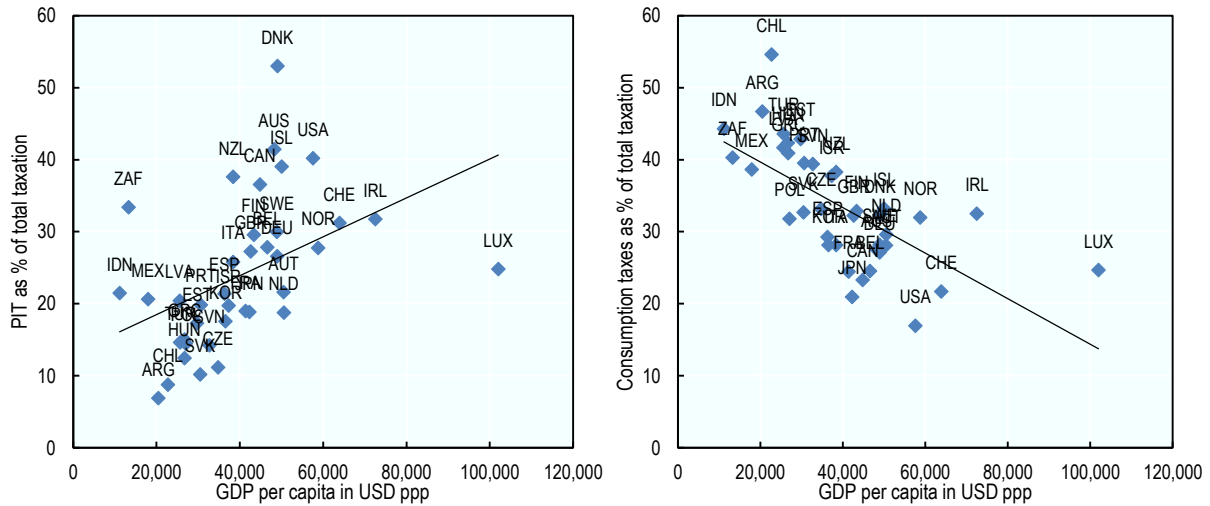
*Note:* Countries are grouped and ranked by those where income tax revenues (personal and corporate) form the higher share of total tax revenues, followed by those where SSCs, and taxes on goods and services, form the highest share.

*Source:* OECD and Global Revenue Statistics databases.

As with tax-to-GDP ratios, there tends to be a link between countries' tax mixes and GDP per capita levels. As shown in Figure 2.12 (left panel), the share of PIT in total tax revenues is positively correlated with countries' levels of GDP per capita, with more developed countries exhibiting higher shares of tax revenues from PIT. There are outliers, however, including South Africa which collects a large share of its total tax revenues through PIT but has a comparatively low level of GDP per capita. In contrast, the share of consumption tax revenues in the total tax mix tends to decrease when GDP per capita levels increase (Figure 2.12, right panel). CIT revenues (not shown in Figure 2.12) also tend to account for a larger share of total tax revenues in emerging economies than in more advanced countries.

**Figure 2.12. Variation in the composition of tax revenues and levels of development**

Personal income taxes as a share of total taxation and GDP per capita in 2016 (left panel) and consumption taxes as a share of total taxation and GDP per capita in 2016 (right panel)



*Note:* For PIT revenues as a share of total taxation: 2015 data for Australia, Greece, Indonesia, Japan, Mexico and South Africa. For consumption tax revenues: 2015 data for Australia, Indonesia, Japan, Mexico and South Africa.

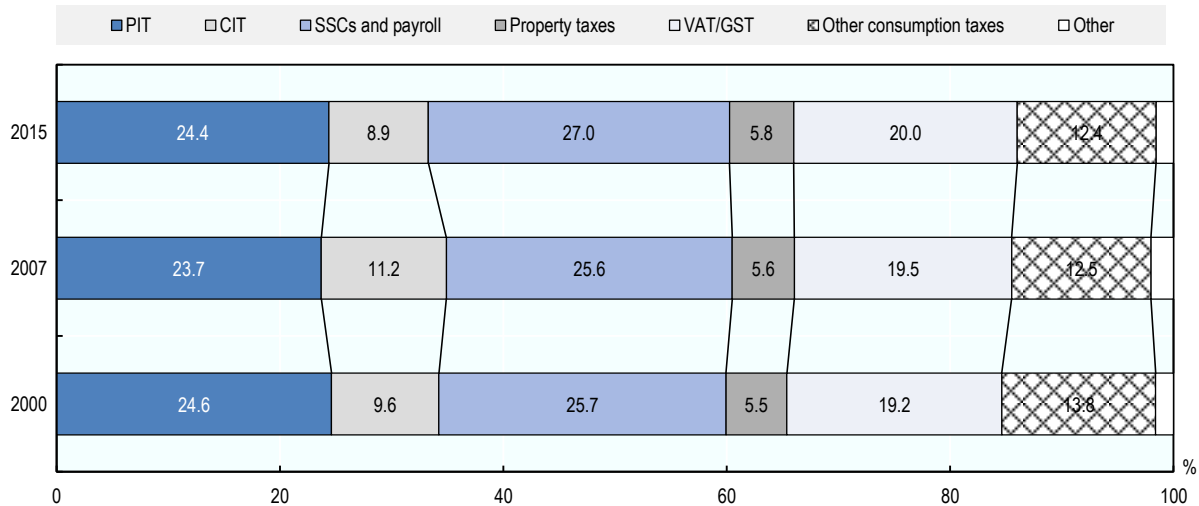
*Source:* OECD and Global Revenue Statistics databases and Aggregate National Accounts.

### *In recent years, personal income taxes have accounted for an increasing share of tax revenues*

On average, the OECD's tax mix is dominated by SSCs, PIT and VAT. Overall in the OECD, SSCs and payroll taxes accounted for 27.0% of total tax revenues in 2015. PIT was the second largest source of tax revenues, accounting on average for 24.4% of total tax revenues. VAT also plays a major role, making up one fifth of the OECD's average tax mix in 2015, while other consumption taxes accounted for around 12.4% of the tax mix. On the other hand, taxes on corporate income and property are much less significant sources of tax revenues on average, respectively accounting for 8.9% and 5.8% of the OECD average tax mix in 2015 (Figure 2.13).

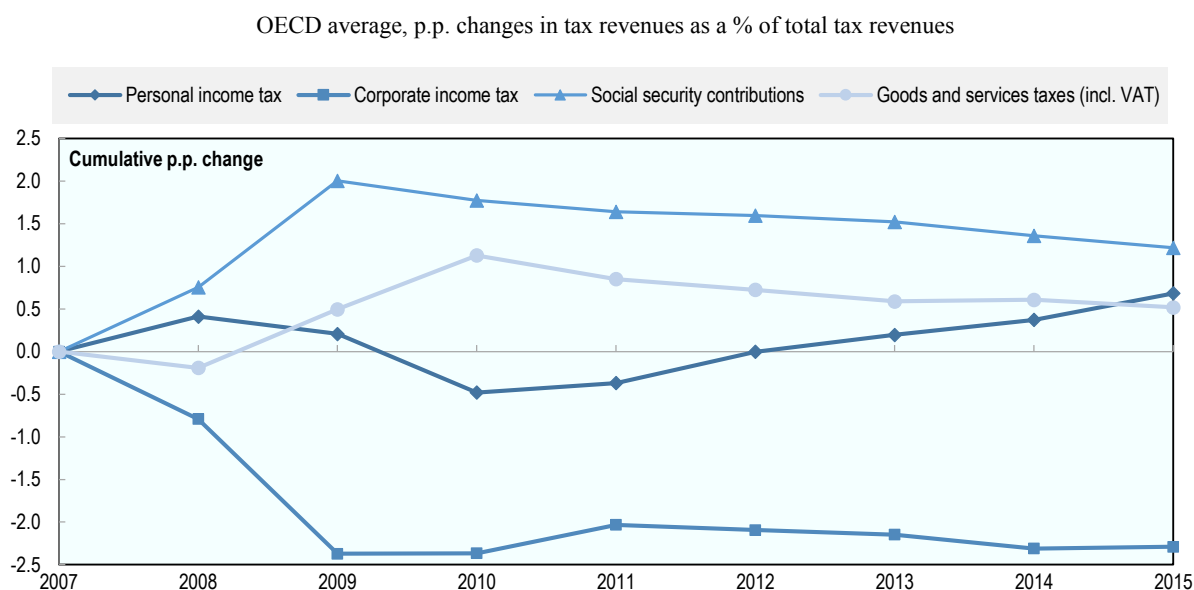
**Figure 2.13. OECD average tax mix in 2000, 2007 and 2015**

Tax revenues expressed as a share of total taxation



Source: OECD Revenue Statistics database.

Immediately after the crisis, there was a strong increase in revenues from VAT and SSCs. On average, the shares of SSCs and taxes on goods and services in total tax revenues rose to highs of 26.6% in 2009 and 33.0% in 2010 respectively. This partly reflected the effects of the tax reforms that were introduced in the wake of the crisis, in particular increases in SSCs and in standard VAT rates (OECD, 2016<sup>[3]</sup>). These trends also highlight the rapid revenue-raising effects of increases in SSCs and consumption taxes compared to other taxes. Since then, the shares of total tax revenues from SSCs and consumption taxes have steadily declined (Figure 2.14), but they remain larger sources of tax revenues on average than in 2007 (Figure 2.13).

**Figure 2.14. Percentage point changes in tax revenues compared to their 2007 levels**

Source: OECD Revenue Statistics database.

More recently, PIT has been playing an increasingly significant role in the tax mix. In contrast with trends in SSC and VAT revenues, the share of PIT revenues in the OECD's average tax mix initially fell after the crisis, from 23.7% in 2007 to a low of 23.2% in 2010, but has been increasing steadily since then (Figure 2.14), partly reflecting the effects of PIT rate increases and PIT base broadening measures (OECD, 2016<sup>[3]</sup>). Between 2014 and 2015, the average share of PIT in total tax revenues increased from 24.1% to 24.4%. In 2015, PIT revenues accounted for a higher share of total tax revenues than in 2007 on average, but were still slightly below their 2000 level (Figure 2.13). As discussed in Chapter 3, however, the focus of PIT reforms has changed in the last couple of years, with many countries lowering taxes, in particular on low and middle income earners.

On the other hand, the importance of CIT in the OECD average tax mix has declined. On average across OECD countries, the share of tax revenues from CIT peaked at 11.2% in 2007, a year characterised by exceptional CIT revenues. In the following years, corporate tax revenues fell sharply, reaching a low of 8.8% in 2010. Since then, CIT revenues as a share of the OECD average tax mix have remained relatively stable (Figure 2.14). Accounting for 8.9% of tax revenues on average across OECD countries in 2015, CIT revenues are a smaller source of tax revenues than they used to be in 2000, when their share of the OECD's tax mix was equal to 9.6% (Figure 2.13).

## Notes

<sup>1</sup> The report includes all OECD countries as at 1 January 2018.

<sup>2</sup> The countries covered in this report that we do not have 2016 tax revenue data for are: Australia, Indonesia, Japan and South Africa.

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