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PART 2/3

COMMISSION STAFF WORKING DOCUMENT

Annual Report on Taxation 2021

2 PERFORMANCE OF NATIONAL TAX SYSTEMS

When it comes to national tax systems, there is no 'one size fits all'. Both collecting taxes and combating tax fraud and evasion are competences of the Member States. Nevertheless, a number of priorities have been put forward and agreed by Member States at EU level, and the resulting body of law must be respected. In this context, this chapter looks at national developments in the four tax priority areas derived from more general EU priorities and introduced in Chapter 1: fostering innovation and productivity; paving the way to for environmental sustainability and good public health; fighting tax fraud, evasion and abuse; and contributing to social fairness and prosperity.

The chapter presents a range of indicators that show the most recent situation in Member States as regards various dimensions of tax policy, as well as changes over time. It also describes examples of policies that were put forward by Member States and which align their tax mix with those priorities. In doing so, this chapter provides evidence for policy development and change. Given the nature of the data used and its availability, these indicators mostly use data from before the COVID-19 pandemic took hold (March 2020), though in some cases 2020 data is used.

2.1 Fostering innovation and productivity in support of Europe's economic growth

As outlined in Section 1.1.1, taxation is one of the factors that can influence companies' investment decisions. This section examines the features of national tax systems that may be relevant in this respect, looking at indicators on effective tax rates, the corporate debt bias, R&D tax incentives, tax administration, and tax certainty. New elements in this year's analysis include discussions on the recent MABIS project, the Commission's work on simplifying withholding tax procedures in the EU, and specific TADEUS projects.

2.1.1 Effective marginal tax rates on corporate income

The effective marginal tax rate (EMTR) on corporate income can influence corporate investment decisions, and in particular how much to invest in a given project. The EMTR is the (forward-looking) expected tax burden on the last euro invested in a hypothetical project that just breaks even (the 'marginal' investment)[1]. It captures a wide range of factors in addition to statutory corporate tax rates, such as:

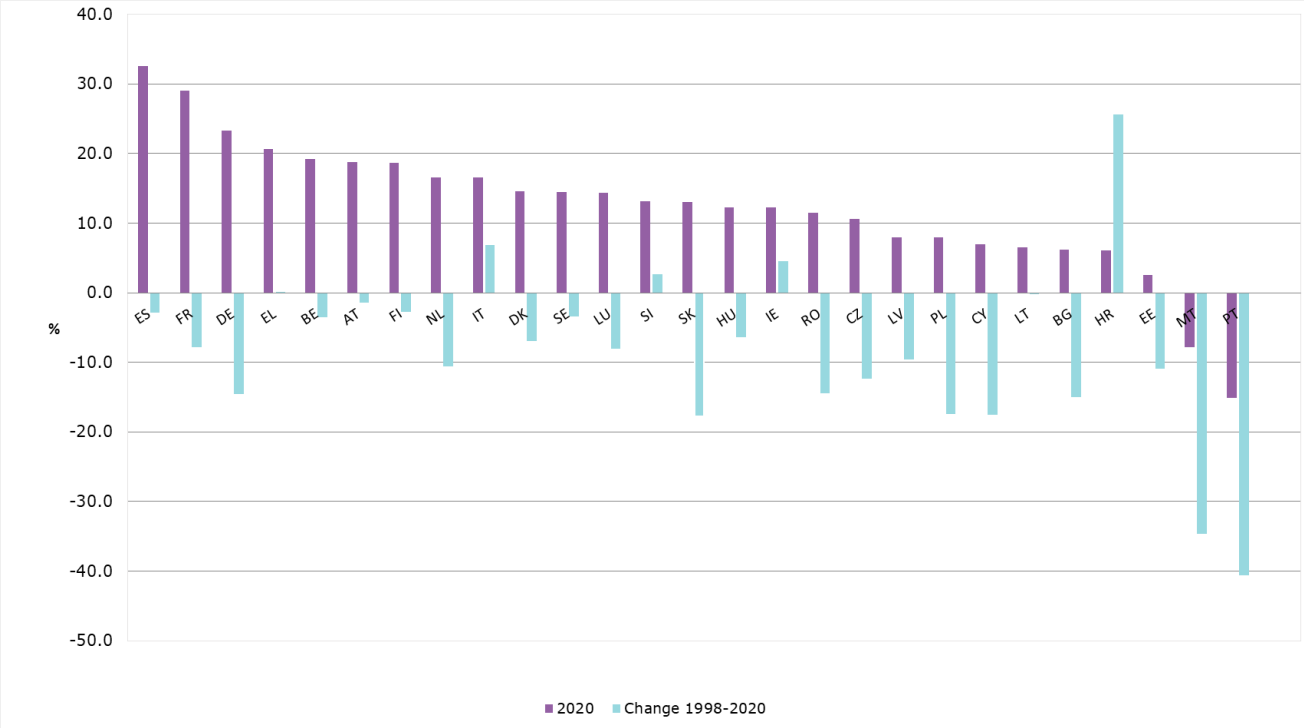
- the elements of the tax code affecting the determination of the corporate income tax (CIT) base;
- the source of financing for the investment (debt, retained earnings or new equity); and
- the type of asset to be invested in (machinery, buildings, intangibles, inventory or financial assets).

[1] While (forward-looking) EMTRs are expected to determine the intensity of investment in a given location, (forward-looking) effective average tax rates (EATRs) are expected to determine firms' decisions as to where to invest (Devereux, 2007; Devereux & Griffith, 2003).

The EMTR is calculated based on a series of assumptions about the pre-tax rate of return, the interest and inflation rates, and the asset and funding source composition. It does not in its primary nature (i.e. without extensions), however, reflect the impact of aggressive tax planning (ATP) or tax rulings/special tax regimes. On average, the lower the EMTR, the more conducive a tax system is to corporate investment. However, tax sensitivity differs among firms with different profitability levels (particularly multinational), with the least and the most profitable firms being less sensitive to EMTRs than firms with average profitability (Millot, Johansson, Sorbe, & Turban, 2020).

There are several ways to affect the EMTR and design a tax system that is more supportive of investment. These include: offering faster depreciation schedules; making equity costs deductible; and improving conditions for carrying losses forward. In general, high corporate taxes can be distortive and affect investment levels. At the same time, low corporate taxes negatively affect revenue generation. It is important to be wary of the trade-off between tax incentives and revenues. Corporate taxes also affect business location, profit-shifting and the choice of company structure. Lowering the EMTRs on equity and R&D expenditure can thus in principle increase investment, reduce the tax-induced corporate debt bias and increase R&D spending. Addressing the tax-induced corporate debt bias can lower the EMTRs for equity, and R&D tax incentives can do the same for R&D investment. For example, reductions in the EMTRs for Belgium, Cyprus, Malta, Poland and Portugal stem partly from the introduction of notional interest deductions in those countries. In the context of the current pandemic, the EMTR could be reduced for projects to incentivise investment in certain EU priority areas (e.g. more environmentally sustainable production). Importantly, however, the particular incentive effects of EMTRs can be better analysed at industry- and firm-level, as substantial heterogeneity can mask the channels of interest when looking at the country-level EMTRs.

GRAPH 14. (FORWARD-LOOKING) EMTRS (%), 1998-2020



Source: ZEW, 2020
Notes: The indicator is based on a version of the Devereux-Griffith model, which considers five types of asset and three sources of finance at corporate and shareholder level. This methodology has been used to calculate (forward-looking) effective tax rates in the EU every year since 1998. The full dataset is available at: https://ec.europa.eu/taxation_customs/publications/studies-made-commission_en

2.1.2 Debt bias in corporate taxation

Most corporate tax systems present companies with incentives to acquire debt by making interest payments deductible, but do not extend the same incentives to equity. Since debt-financed investment enjoys a preferential tax treatment, the 'cost of capital' (i.e. the minimum pre-tax return required to make an undertaking worthwhile) is lower than in the case of equity-financed investment. The debt bias in corporate tax systems leads to higher debt levels, contributing to financial stability risks, e.g. by increasing the probability of bankruptcy (Sutherland & Hoeller, 2012). This can make economies more prone to financial crises and/or make the recovery process lengthier, as the 2008-2009 crisis and recovery illustrate (FSC Subgroup on Non-Performing Loans, 2017)[(2)].

The higher cost of equity finance is particularly problematic for young and innovative companies, which often have limited access to external debt funding. This is compounded by limited access to alternative sources of finance such as venture capital. A number of Member States have introduced tax incentives to promote venture capital and business angel funding, but these types of finance represent only a small proportion of the total funding mix[(3)]. Consequently, small and innovative businesses, often perceived by banks and financial institutions to be higher risk, might be at a particular disadvantage, despite their importance in generating future growth.

The tax-induced corporate debt bias encourages firms to over-leverage, hurting corporate resilience in adverse times. It also encourages debt leveraging of the financial sector, which, in times of crisis, may translate into significant fiscal costs. Overall, the debt bias has an adverse impact on the incentives resulting from the cost of capital at corporate level, as well as on investment, growth, and general macro-financial stability[(4)]. The corporate debt bias therefore presents an obstacle to the creation of a stronger equity base in European companies and may impede efficient capital market financing. Corporations exploit the asymmetric tax treatment of debt and equity by organising their debt strategically to reduce their overall tax burden[(5)].

The COVID-19 pandemic has made it even more important to address the debt bias. Economic losses resulting from the COVID crisis have significantly weakened the equity position of many companies. Furthermore, a drastic reduction in incoming cash flows has prompted many European companies to raise additional debt to meet their short-term financial obligations. As a result, the capital structure of many of these companies has become much more fragile, putting some of them on the verge of insolvency. It is therefore more important than ever to address the corporate debt bias, to support the re-equitisation of European firms and minimise future risks.

Graph 15 shows the debt bias in corporate taxation, measured as the difference in cost of capital between new equity and debt-financed investment. It is clear that the extent of the corporate debt bias for both financial and non-financial companies differs markedly across the EU.

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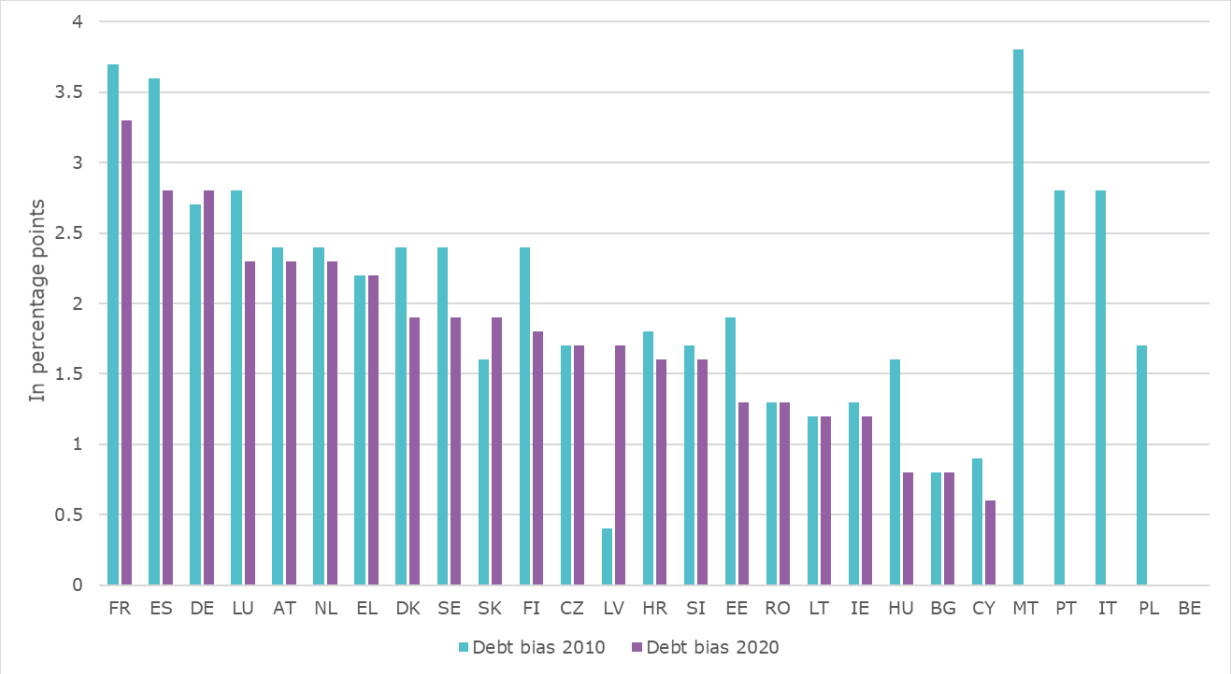
(2) This relationship was explained in the Report of the FSC Subgroup on Non-Performing Loans (2017) available here: https://data.consilium.europa.eu/doc/document/ST-9854-2017-INIT/en/pdf.

(3) See (PWC, 2017).

(4) See, for instance, (Langendijk, Nicodème, Pagano, & Rossi, 2014) and (Spengel, Heckemeyer, Nicolay, Bräutigam, & Stutzenberger, 2018)).

(5) This has been addressed by the Anti-Tax Avoidance Directive (ATAD) – see Section 3.2.1.3 of the 2018 edition of this report (European Commission, 2018a).

GRAPH 15. DEBT-EQUITY TAX BIAS IN CORPORATE FINANCING, 2010 AND2020



Source: ZEW, 2020.
Notes:
(1) The cost of capital measures the required minimum pre-tax return of a real investment (the 'marginal investment') to achieve a 5% after tax real return.
(2) To reflect the allowance for corporate equity in Belgium, Cyprus, Italy, Malta, Poland and Portugal, the assumption is that the rates of these allowances equal the market interest rate in the model. For Belgium, the debt-equity bias could be non-zero due to the notional interest rate being relatively low, while the eligible equity only covers the average annual increase over the previous 5 years. For Cyprus, the bias is small, since the allowance does not apply to investments in financial assets.

Various reforms can address the corporate debt bias. One option is to limit or abolish the deductibility of interest costs (via the comprehensive business income tax (CBIT) reform or thin capitalisation rules). Another option is to extend deductibility to other forms of financing, making them equally attractive. The extension of preferential tax treatment to equity can include an allowance for corporate equity (ACE) or 'notional interest deductions'. Tax deductions can also be applied irrespective of the mode of financing (such as the allowance for corporate capital (ACC) and cash flow taxation)[(6)].

However, these reform options may affect the cost of capital in different ways. CBIT reforms increase the taxable base to a normal return (i.e. what an alternative investment would yield) for debt-financed investments. This in turn increases the EMTR and reduces investment, all other things being equal. In contrast, tax exemptions for the cost of equity (ACE) reduce the EMTR and shift the tax burden towards above-normal returns, also by relatively reducing the taxation of normal and below normal returns. Therefore, they not only tackle the corporate debt bias, but also support investment activity (Radulescu & Stimmelmayr, 2007). However, one shortcoming of ACE is that it decreases corporate tax revenue due to the narrower tax base (De Mooij & Devereux, 2010).

In practice, the characteristics and rationale of ACE schemes tend to vary. Table 2 shows the ACE schemes currently in place in the EU[(7)]. While these schemes have economic advantages,

[(6)] In a cash-flow tax system, investment is expensed immediately, rather than depreciated over time. In an R-base system, only 'real' operations count and financial flows (paid and received) are not part of the tax base. Estonia currently has a cash-flow system that taxes company profit only when distributed as dividends (S-base system). Initially, the United States considered a cash-flow system for its 2017 corporate tax reform, but the adopted proposal includes only a temporary cash-flow tax in the form of immediate expensing of investment.

[(7)] Austria intends to re-introduce an ACE as early as 2021.

they can also act as ATP vehicles for multinationals[8] if not designed appropriately. The factors driving their potential attractiveness in respect of ATP are:

- the applied notional interest rate;
- how the deductible amount of equity is calculated; and
- the existence or absence of comprehensive anti-abuse provisions.

As shown in Table 2, the notional interest rates applied can vary substantially. Ideally, and theoretically, a notional interest rate should approximate a risk free rate plus a risk premium for equity. In Cyprus, the notional interest rate depends on the domestic risk free rate in the country from which the funds are invested.

A broad distinction can also be made as regards the equity base: either it covers the full amount of equity ('full' ACE) or only new equity is deductible ('incremental' ACE schemes). However, incremental ACE schemes maintain an asymmetry favourable to debt, with only an increment in equity being deductible and usually only so for a period of several years. While both types offer economic incentives to reduce debt and increase investment, the 'full' ACE is thus more effective at eliminating the debt-equity bias, while also potentially providing firms with windfall profits.

Safeguard measures against the abuse of ACE schemes are particularly important when dealing with (multinational) corporate structures. Such measures should for example prevent intra-firm cascading of multiple ACE deductions, or intra-firm conversion of debt into equity for tax planning purposes[9].

Any reform needs to be well designed, limiting tax planning and distortions of competition. Empirical evidence from the evaluation of ACE schemes in Member States suggests that they have been largely effective in reducing the corporate debt bias (see e.g. Branzoli & Caiumi (2018) and Princen (2012). However, it is important that the schemes contain strong and comprehensive anti-abuse provisions, preventing multinational firms from using them for ATP purposes. The Commission's proposal for a common corporate tax base (CCTB)[10] addresses both points. It would remove the corporate debt bias by offering an allowance for growth and investment (AGI). This is a tax deduction for companies that choose to finance new business activities through equity rather than debt. The AGI is calculated by multiplying the change in equity by a fixed rate composed of a risk-free interest rate and a risk premium. The CCTB proposal also includes anti-avoidance provisions.

[8] Hebous & Ruf (2017) show that the implementation of Belgium's ACE scheme in 2006 led to a substantial shift of (passive) equity by German multinationals, an indication of profit-shifting.

[9] See Zangari (2014) for a comparison of the anti-abuse provisions in Belgium's and Italy's ACE schemes at the time.

[10] COM/2016/0683 final.

TABLE 2. ALLOWANCES FOR CORPORATE EQUITY (ACES)[11]

Country	Period	Details	Notional interest rate (2020)	Tax base (2020)
Belgium	Since 2006	The notional interest deduction allows all companies subject to Belgian corporate income tax to deduct a fictitious amount of interest, calculated based on their shareholders' equity (net assets) from their taxable income. In 2013, legislative changes ruled out the carrying-forward of unused allowances. Small firms receive an additional 0.5% risk premium on their notional rate. This was initially capped at 6.5% and is now limited to 3%. Since 2018, the deduction no longer applies to the full equity stock. It includes anti-avoidance provisions to prevent the cascading of the tax benefit.	0.726% (0.5 p.p. higher for SMEs, i.e. 1.226%)	New equity
Cyprus	Since 2015	Applicable new equity is calculated against 2015 as a base year. The notional interest deduction is limited to 80% of EBIT[12] and applies only to fully-owned subsidiaries if their assets are used for business (non-financial) purposes. The notional interest rate is the 10-year government bond rate of the country where funds are invested, plus a 5% risk premium. The 10-year Cypriot government bond rate only applies if the country in which the new equity is invested has not issued any government bond up until December 31 of the previous year.	min. 4.5%; max. 18.5%	New equity
Italy	Since 2011	The applicable new equity is calculated against 2010 as the base year. The considered new equity includes the equity contributions and retained earnings, excluding the profits allocated to a non-disposable reserve. It deducts reductions to the net equity with assignment to shareholders (especially dividend distributions), investment in controlled companies, and certain intra-group business acquisitions and transactions.	1.3%	New equity
Portugal	Since 2017	The notional return is deductible up to EUR 2 million and capped at 25% of firm EBITDA[13]. It applies to capital increases for 5 years, provided equity capital is not reduced in that period.	7.0%	New equity
Malta	Since 2018	Notional interest deduction is limited to 90% of chargeable income and can be carried forward indefinitely. The notional interest rate is set to the rate of 20 year Maltese government bonds (1.37% in Q3 2020), plus a risk premium of 5%.	6.47% (in Q3 2020)	Full equity stock
Poland	Since 2019	The notional return is deductible up to approximately EUR 55 000. The notional interest rate is the National Bank of Poland's reference rate (as applicable on the last day of the preceding calendar year), plus 1 p.p.	2.5%	Full equity stock

Source: Desk research carried out by the Commission based on publicly available data from national ministries of finance, KPMG and IBFD reports.

2.1.3 R&D tax incentives

R&D investment is an important source of long-term productivity and economic growth (Romer, 1990)**.** R&D plays a fundamental role in innovating production, distribution and consumption, which improves productivity growth and support the EU's long-term competitiveness. In addition, since the transition to a sustainable economy requires new technologies, R&D and innovation investment will continue to play an important part. R&D investment can also play an essential role in the recovery from the COVID-19 pandemic, contributing to kick-starting the economy (European Commission, 2020), (Borunsky, Dumitrescu Goranov, Ravet, & Rakic, 2020).

[11] Austria is considering introducing the ACE in 2021. Denmark is also considering introducing the ACE.

[12] EBIT: earnings before interest and tax.

[13] EBITDA: earnings before interest, tax, depreciation and amortisation.

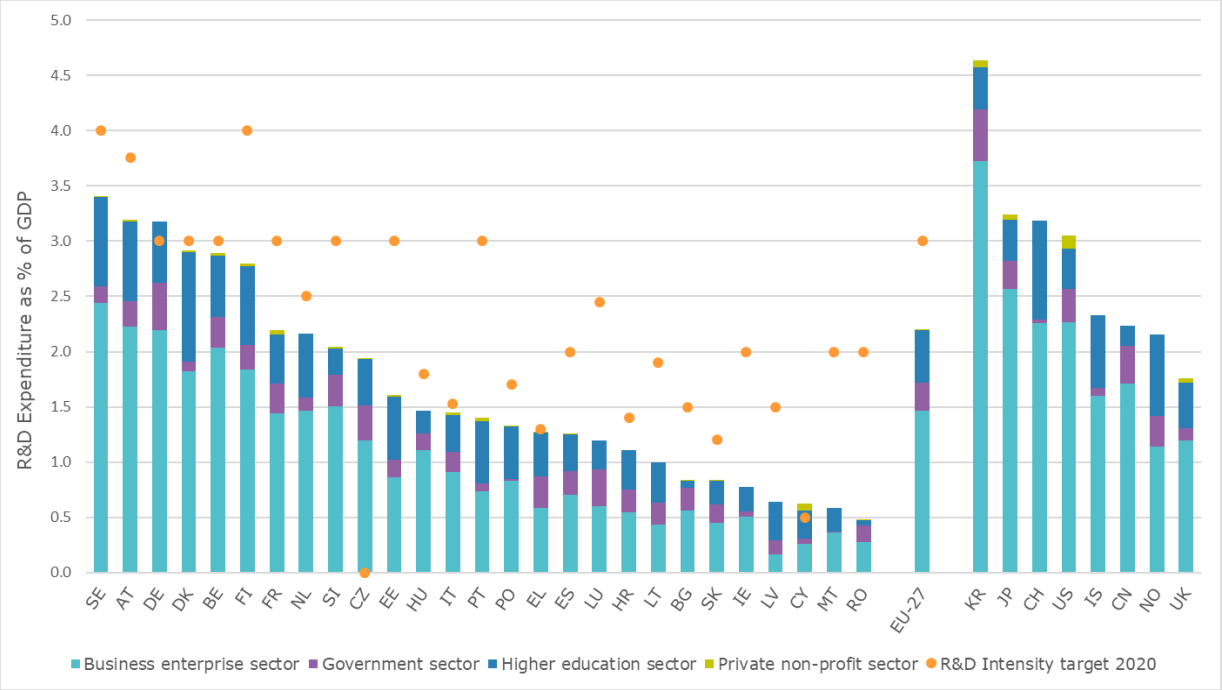
However, overall R&D investment tends to remain below its socio-economic optimal level. Knowledge creation can have spillovers and positive effects on other firms' activity or even the whole economy (for example vaccines). However, when deciding how much to invest in R&D, firms tend to take account only of the private return from innovation, thus ignoring positive spillovers (Hall, 2019; Arrow, 1962). Since the private return from innovation is below the social return, there is systematically too little R&D investment at the level of the whole economy (a market failure). In general, basic research is more likely to generate positive spillovers than applied research (Hall, 2019; Akcigit, Hanley, & Serrano-Velarde, 2013), as the findings of basic research tend to be broadly applicable, whereas applied research usually targets a single sector and technology, making spillovers less likely.

Other reasons for the underinvestment in research and innovation include the high uncertainty concerning the success of – and future returns on –, such innovation activities, often significant upfront investment needs (e.g. on research infrastructure) and challenges in getting access to finance for R&D activities (lack of collateral). Since research results are uncertain and insurance markets usually incomplete, firms cannot fully insure their research activity (Arrow, 1962). This increases their financing costs, resulting in less R&D investment. SMEs are particularly vulnerable in this respect, as innovation costs are paid up front, while benefits accrue only if a discovery is made and taken to market. This is one of the reasons for why many countries have policies to encourage young, innovative firms and to help SMEs overcome liquidity constraints.

Business enterprise R&D (BERD) investment in the EU-27 is, on average, significantly lower than in large OECD countries (see Graph 19). This is a possible factor in the widening productivity gap between the EU and the United States (Ark, O'Mahoney, & Timmer, 2008; Roeger, Varga, & in't Veld, 2010). In 2020, the Commission reaffirmed the 2020 target of 3% GDP to be invested in EU research and innovation, as this target had not been met. To meet the 3% target, the EU would need to invest an additional amount of EUR 110 billion per year (Borunsky, Dumitrescu Goranov, Ravet, & Rakic, 2020). It also proposed a new EU 1.25% GDP public effort target to be achieved by Member States by 2030[(14)].

[(14)] For background information on these initiatives, see the Communication on a new European Research Area for research and innovation.

GRAPH 16. R&D INTENSITY BY SECTOR, 2019 AND R&D INTENSITY TARGETS AS % OF GDP, 2020



Source: DG Research and Innovation for targets, Eurostat (online data code: rd_e_gerdtot) and OECD
Notes:
(1) CH: year 2017; US: year 2018 for HERD and PNP; IS: year 2018 for PNP;
(2) CZ: an R&D intensity target is available only for the public sector (1%);
(3) DE: data for government and higher education imputed;(4) IE: the national R&D intensity target of 2.5% of GNP has been estimated to equal 2.0% of GDP;
(4) IE: the national R&D intensity target of 2.5% of GNP has been estimated to equal 2.0% of GDP
(5) LU: the R&D intensity target for 2020 is between 2.30% and 2.60%. A target of 2.45% was assumed;
(6) PT: the R&D intensity target for 2020 is between 2.70% and 3.30%. A target of 3.00% was assumed.

Governments support private R&D mainly through direct grants and tax incentives. Although both types of measure aim to support private R&D, their specific objectives and modes of operation differ. The former can involve the government in all project decisions and tend to have higher administrative costs, while the latter tend to let the firm choose and manage projects (Hall, 2019). Grants can give 'directionality' to R&D and this can be more effective in supporting certain R&D outcomes (e.g. breakthrough innovation, solutions for accelerating the EU's transition towards climate neutrality). Nevertheless, the two types of measure are complementary as regards stimulating business R&D. Tax policy is increasingly used to incentivise R&D spending and spur innovation. Such incentives can target the *inputs* of innovation through R&D tax credits, accelerated depreciation or enhanced allowances[15]. Alternatively, governments can target the *output* of innovation through a patent/intellectual property (IP) box (scheme), where IP derived income is taxed below the statutory CIT rate. Graph 17 shows the types of tax incentive used in the EU. Besides supporting business R&D, R&D tax incentives can also be used to strengthen public-private R&D cooperation (e.g. France), encourage the employment of researchers (e.g. Belgium, France, Hungary, Spain) or support SMEs' innovation potential (e.g. France).

Evidence suggests that patent/IP boxes do not necessarily stimulate R&D and can be used as a profit-shifting instrument. While nexus rules (reducing the need for a direct link between physical presence and tax payments) should eventually limit the scope of profit shifting using patent boxes, old patent boxes might still allow ATP during the transition to the new

[15] The OECD has collected evidence on R&D tax credits through its work on the incidence and impact of public support for R&D, co-funded by Horizon 2020 through the TAX4INNO project, to quantify and compare countries based on indirect public support to R&D.

rules[16]. Furthermore, IP boxes apply only to a limited set of innovations, e.g. they only provide incentives to invest in R&D projects that are expected to produce an enforceable IP right. In addition, they do not reduce *ex ante* risks of innovation, as they only reward successful projects. Lastly, they may also be used as an instrument of tax competition (Alstadsæter, Barrios, Nicodeme, Skonieczna, & Vezzani, 2018). Overall, patent/IT boxes seem likely to be an ineffective, inefficient way of supporting R&D (CPB, 2014)[17].

As innovation happens in complex systems, a range of measures is needed to support it. To maximise the effects of tax support programmes, governments must mobilise a coherent range of direct and indirect support policies and engage in complementary intervention in national Research & Innovation eco-systems (D'Andria, Pontikakis, & Skonieczna, 2017). For example, companies that want to invest more in R&D may lack access to external finance, a qualified workforce or other system-level inputs such as high quality public research organisations and related public research infrastructure.

Member States increasingly rely on tax incentives to stimulate R&D investment. Between 2006 and 2018 public support for R&D rose from 0.13% of GDP to almost 0.20%[18]. Graph 18 shows public support to business R&D as a proportion of GDP, both direct (e.g. through grants and loans) and indirect (through tax incentives for business R&D). In 2018, 53% of total public support in the EU-27 came from tax incentives, with the other 47% made up of direct measures. Most Member States used a combination of direct and indirect measures.

[16] Some patent boxes do not require the IP income to be linked to underlying R&D activity, thus encouraging ATP. In response, the OECD and the EU have developed 'nexus' rules whereby, in order to qualify for the preferential regime, the IP income must be proven to be linked to the expenditure incurred in developing the IP asset. Member States have committed to complying with the nexus approach.

[17] In essence, they grant a tax advantage to income already protected via a patent.

[18] The 2006 average comes from (European Commission, 2018a) and includes all 28 (then) Member States, while the source of 2018 is for EU-27 and source of the data is the same as for Graph 18.

GRAPH 17. R&D TAX INCENTIVES BY MEMBER STATE, 2019

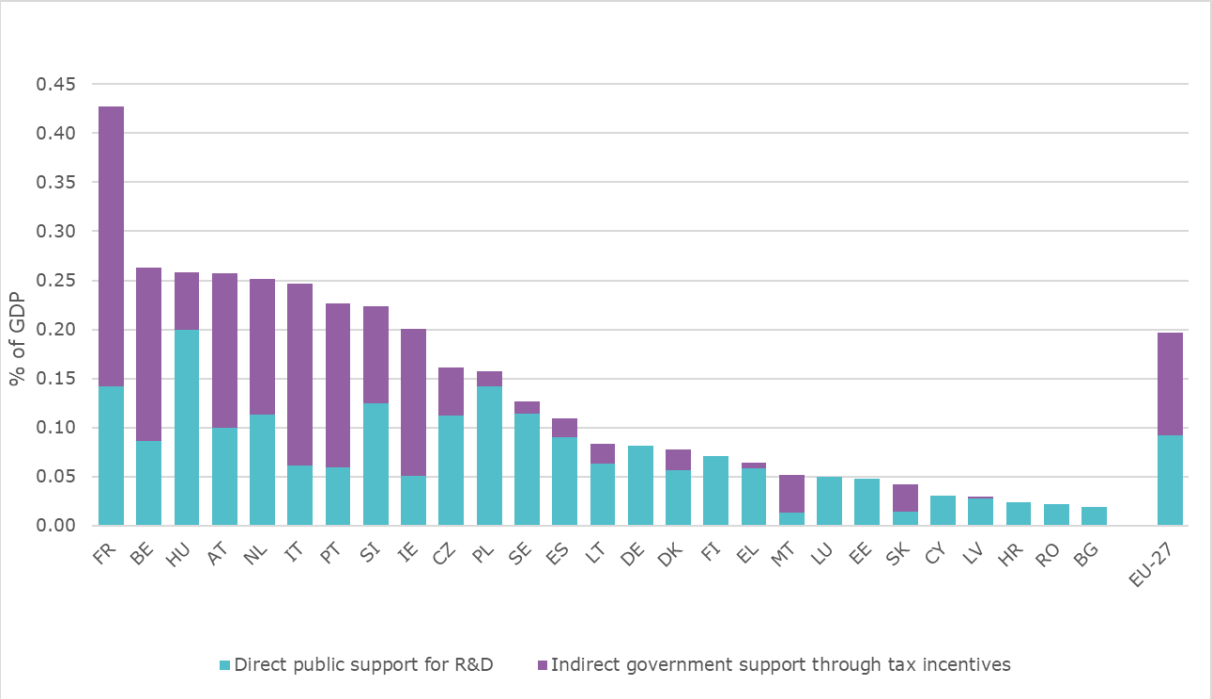
	Patent box	Tax credits	Enhanced allowance	Accelerated depreciation
Total EU-27	**14**	**17**	**14**	**19**
BE	●	●	●	●
BG				●
CZ		●	●	●
DK		●	●	●
DE		●		●
EE				
IE	●	●		●
EL			●	●
ES	●	●		●
FR	●	●		●
HR			●	
IT	●	●	●	●
CY	●			
LV			●	●
LT	●		●	●
LU	●	●		●
HU	●	●	●	●
MT	●	●	●	
NL	●	●		●
AT		●		
PL	●		●	●
PT	●	●		
RO			●	●
SI		●	●	
SK	●	●	●	●
FI				●
SE		●		

Source: CPB (Bureau for Economic Policy Analysis, part of the Netherlands' Ministry of Economic Affairs and Climate Policy), 2014, updated by the Commission.
Notes:
(1) No R&D tax incentives in EE.
(2) The incentive can apply to corporate and personal income taxes, social security contributions and payroll taxes.
(3) The graph shows only tax incentives. Direct support is not included.
(4) RO is the only Member State with a temporary tax exemption for R&D (not shown in the graph).

It is important to note that there is a time lag between the introduction of an R&D tax incentive and an increase in business R&D investment. Available evidence shows that, while such incentives can directly increase private R&D expenditure ('input additionality'), there are variations across countries, sectors and firms (for a literature review see (Ognyanova, 2017)). The incentives' effectiveness depends on their design, implementation and administration, and on the

structural characteristics of a Member State's economy[19]. Sectors with firms that focus on R&D as their main strategy to develop new technologies show an increase in R&D expenditure caused by a tax incentive scheme (Freitas I., 2017). The opportunity cost of business R&D investment will also be affected by the design of other tax provisions, e.g. full loss offset, and capital gains/personal taxation affect risk-taking, venture capital, innovation-related investment and human capital formation.

GRAPH 18. R&D: DIRECT PUBLIC SUPPORT AND INDIRECT GOVERNMENT SUPPORT THROUGH TAX INCENTIVES, 2018 (OR LATEST AVAILABLE YEAR)

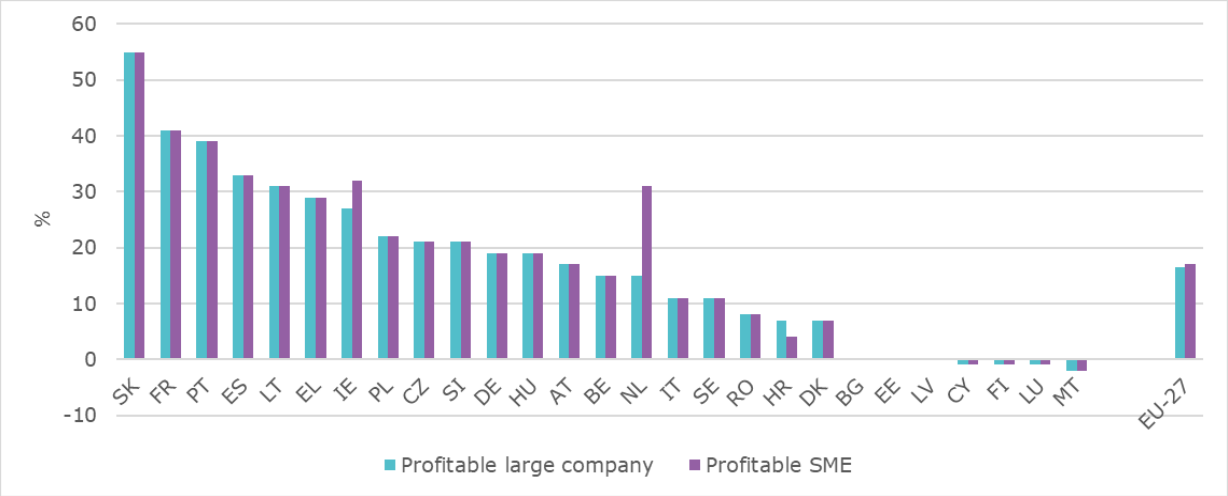


Source: European Commission, DG Research & Innovation, 'Chief Economist – R&I Strategy & Foresight unit based on Eurostat (online data code: rd_e_gerdfund) and OECD data
Notes:
(1) FR, BE, AT, IE, SE, DE, DK, EL, LU, BG: year 2017;
(2) Estimated direct public support for BERD includes direct government funding, funding by higher education and public sector funding from abroad. Public sector funding from abroad is not included for SE;
(3) EU-27 figure estimated by DG Research and Innovation;
(4) Tax incentives data for RO not available.

Graph 19 presents implicit tax support across the EU in 2018. The implicit R&D tax subsidy (the 'one minus B' index) shows the influence of R&D tax incentives on the price of conducting business R&D (user cost). A value of 10% suggests that the price for a business to invest in R&D is 10% lower than it would have been in the absence of any R&D taxation measures. A value of zero corresponds to no taxation, where all R&D expenses are immediately tax -deductible (Warda, 2001). In contrast, a value of -5% suggests that R&D attracts a net tax cost such that the user cost is 5% higher than it would have been without any tax measures applying. The indicator combines the design features of tax incentives and characteristics of national tax systems.

[19] In countries with a low proportion of medium-/high-tech sectors or a predominant services sector, the impact of tax incentives is likely to remain limited, since very few firms are R&D intensive (European Commission, 2018a).

GRAPH 19. IMPLICIT TAX SUBSIDY RATES FOR R&D (%), 2020



Source: OECD, data for 2020 from R&D tax incentive indicators (https://www.oecd.org/sti/rd-tax-stats.htm), March 2021.
Note: Subsidy rates are in percentages. The data for the EU-27 is a simple average of Member States.

Evidence shows a number of good practices to make R&D tax incentives effective[20]. Tax incentives can be made more effective by: helping young and small companies benefit; simplifying them (e.g. by offering a volume rather than an incremental tax credit) and their application procedure (e.g. by having a one-stop shop or online application procedure); and regularly evaluating their impact. Good design features include carry-forward provisions, cash refunds and relief from labour taxes (CPB, 2014; Ognyanova, 2017). As can be seen in Graph 19, the Netherlands[21] offers more generous implicit tax subsidy rates to SMEs than to large companies. France offers a tax credit[22] with a headline rate of 30% for R&D expenditure below EUR 100 million and 5% for R&D expenditure above EUR 100 million.

The Commission's CCTB proposal includes a tax incentive to stimulate R&D investment called the R&D super deduction. The super deduction would allow companies to deduct the full cost of R&D from the tax base (100%), while an additional 50% deduction would be offered for R&D expenses of up to EUR 20 million. An additional 25% deduction would be allowed for R&D spending over EUR 20 million. Start-ups would be able to deduct even more[23]. In addition to being able to deduct their full (100%) R&D costs, they would be allowed to deduct a further 100% (i.e. a 200% total deduction) up to EUR 20 million[24]. This could also give a boost to young, innovative companies that are an important source of job creation and help create more dynamic, competitive markets.

[20] An extensive overview was provided by the Horizon 2020 Policy Support Facility on Administration and Monitoring of R&D tax incentives (Uhlíř, Straathof, & Hambro, 2017).

[21] The Netherlands also offers tax credits for wage costs of research staff.

[22] The calculations for the implicit tax subsidy rates in Graph 19 do not reflect the effects of thresholds and ceilings that may limit qualifying R&D expenditure or the value of R&D tax relief. The rate for large profitable companies and SMEs is therefore the same. do not reflect the effects of thresholds and ceilings that may limit qualifying R&D expenditure or the value of R&D tax relief. The rate for large profitable companies and SMEs is therefore the same.

[23] A multinational that spends EUR 50 million on R&D would be allowed to deduct EUR 67.50 million from its tax base. This comprises 100% of the full expenditure (EUR 50 million), an additional 50% for the first EUR 20 million (EUR 10 million), and an additional 25% for the remaining EUR 30 million (EUR 7.5 million).

[24] An eligible start-up that spends EUR 20 million on R&D would be allowed to deduct EUR 40 million (i.e. 100% + 100% of its EUR 20 million R&D expenditure).

Box 2.1: MABIS project

The OECD project on the measurement and analysis of business innovation government support policies (MABIS) provides new research tools and evidence on the role of public support for business R&D and innovation. It contributes to efforts to monitor and assess research and innovation policies in Europe and beyond. The project is co-funded by the EU's **Horizon 2020 framework programme**.

Building on the OECD's expertise in standard setting and analysis, as well as its formal access to national experts and officials with policy and statistical responsibilities across its member countries, the MABIS project seeks to extend the existing evidence on the use of policy instruments in support of business innovation in the following ways:

- Ensuring the collection, processing and dissemination of **information and statistical indicators on the design and cost of tax relief for business R&D (tax) expenditure** across the entire EU and OECD membership, plus key partner economies;
- Using a distributed[(25)] firm-level data approach to the **impact analysis of public support, including tax incentives for business R&D**. This approach facilitates a co-ordinated statistical analysis of the impact of tax relief design features and their interaction with direct forms of public R&D funding by exploiting variation in support within and across countries;
- Help meet demand for evidence on the efficiency of increasingly-used **IP boxes** and related instruments associated with the tax treatment of intangibles;
- **Fostering knowledge sharing** on the use, design, implementation and analysis of impact of a broader range of R&D and innovation support policies;
- **Supporting the coherent delivery of business R&D support policies and R&D statistics** within and across countries by promoting the efficient use of common and state-of-the-art definitions and standards.

This project builds on the TAX4INNO project[(26)], which compiled cross-country and comparable evidence on the measurement and monitoring of R&D tax credits. The results, including a database with annual time series data on GTARD and B-index, 35 country profiles, codified information on the design of R&D tax incentives, as well as policy and working papers, are regularly added to the project webpage: http://www.oecd.org/sti/rd-tax-stats.htm.

The final report of the TAX4INNO project (OECD, 2020b) focuses on R&D input additionality, i.e. the effectiveness of R&D support policies in encouraging additional business R&D investment compared to a counterfactual scenario in which no support is provided[(27)].

2.1.4 Improving tax administration

Effective and efficient tax administrations and a high degree of tax certainty for taxpayers are essential for encouraging investment, compliance and competitiveness. Taxpayers tend to have greater trust in tax administrations that are perceived to be efficient and effective. Well-functioning tax administrations provide tax certainty and helps create a supportive business environment. This section looks at various indicators of Member States' scope to improve their tax administration and offer more tax certainty. It also presents several recent projects of the Tax Administration EU Summit (TADEUS), the forum for strategic dialogue and cooperation among heads of tax administrations.

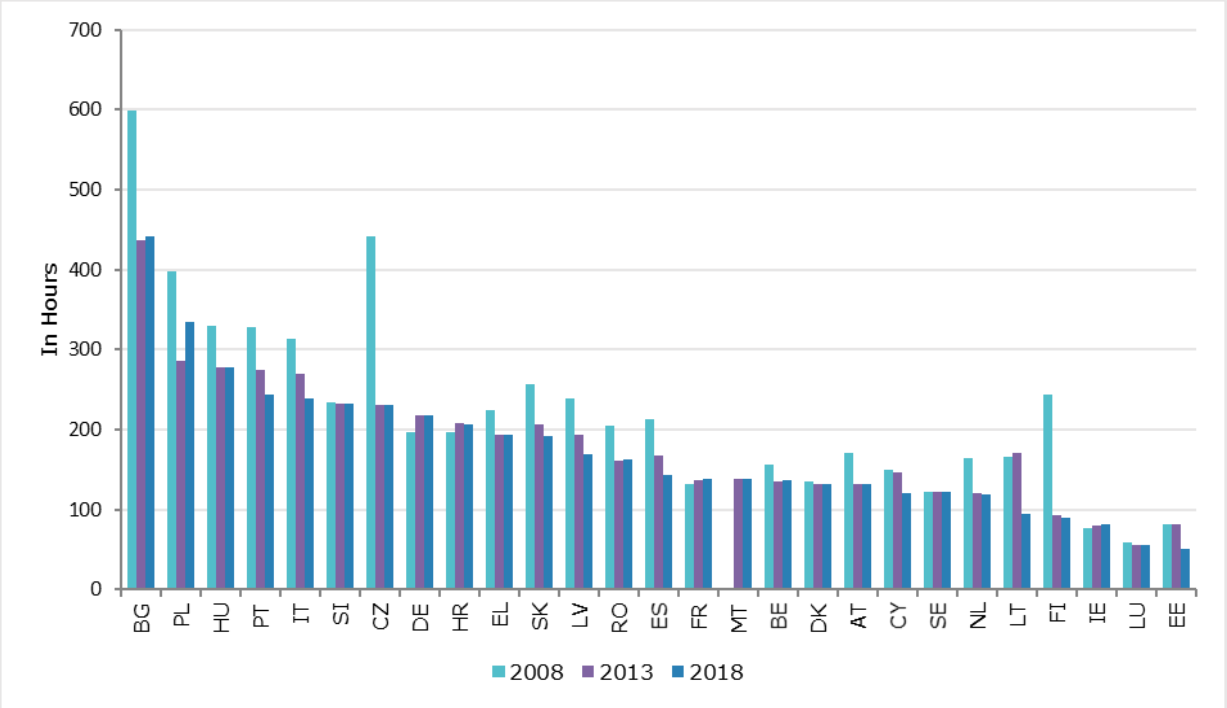
(25) A 'distributed' approach facilitates a harmonised analysis of confidential business R&D and tax relief microdata.

(26) This was also a Horizon 2020 co-funded project in 2016-2019.

(27) Further information on impact assessment of R&D tax incentives, distributed micro-data analysis, as well as comparative analysis of R&D tax incentives vis à vis direct support can be found here: http://www.oecd.org/sti/microberd.htm.

Tax systems impose compliance costs on taxpayers. The costs a company incurs are determined not only by the rules and obligations *per se*, but also by how easy it is to deal with the authorities. A simpler and more transparent tax system can reduce tax compliance costs and the time it takes to complete tax returns. Graph 20 shows the number of hours that a medium-sized company[28] spends each year in meeting its tax obligations, i.e. as regards CIT, VAT and employment taxes (wages and social contributions), etc. This can serve as a proxy for tax compliance costs.

GRAPH 20. HOURS PER YEAR NEEDED TO ENSURE TAX COMPLIANCE (MEDIUM-SIZED COMPANY), 2008-2018

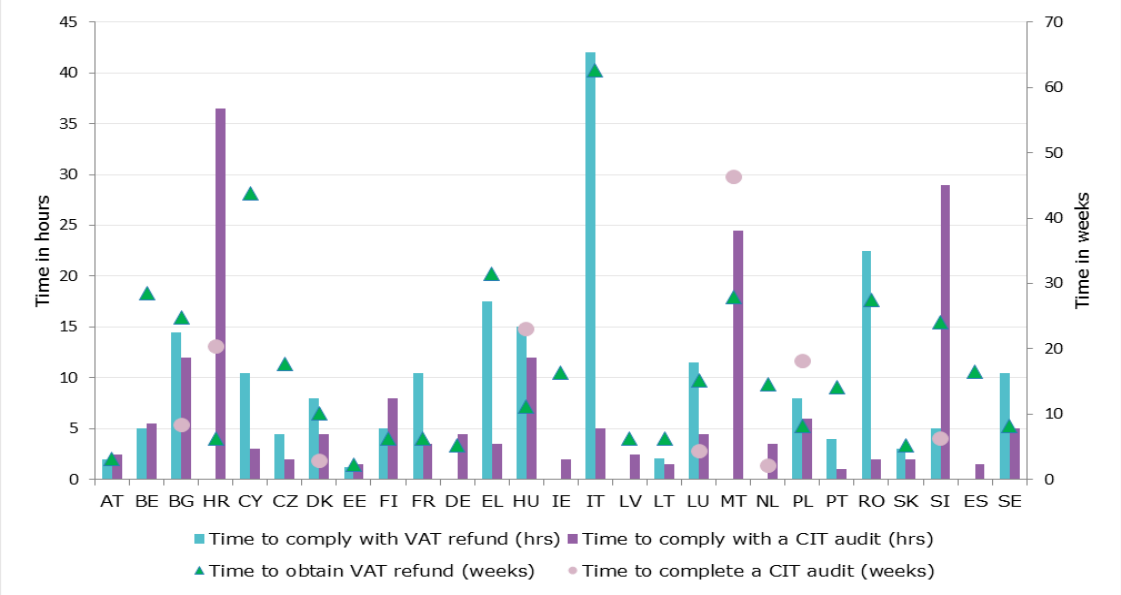


Source: World Bank, 2019

Companies also face compliance costs *after* they have filed their tax returns, e.g. in obtaining tax refunds or when being audited. The 'post-filing index' captures the amount of time a company takes to comply with tax refunds and corporate income tax (CIT) audits, obtain a refund and complete a CIT audit. It is one of four sub-indicators that form the 'ease of paying taxes' indicator (part of the World Bank's series of indicators on the ease of doing business).

[28] The World Bank focuses on a case study of a standardised medium-sized company. For more information on their methodology, see: https://www.doingbusiness.org/en/methodology/paying-taxes.

GRAPH 21. POST-FILING INDEX, 2018



Source: World Bank, 2019

Box 2.2: Simplifying withholding tax procedures in the EU

Inefficient cross-border withholding tax (WHT) procedures have been a recurrent issue for a long time and several initiatives were already undertaken in this area at EU and international level. For many years, the Commission has been active in promoting simpler WHT procedures within the EU, including with a Recommendation on WHT relief procedures (2009) and a Code of Conduct on WHT (2017).

The Code of Conduct is a non-binding document that calls for voluntary commitments by Member States. It is a compilation of approaches for improving the efficiency of WHT procedures (in particular for refunds), which Member States can supplement or adapt in the light of national needs or contexts.

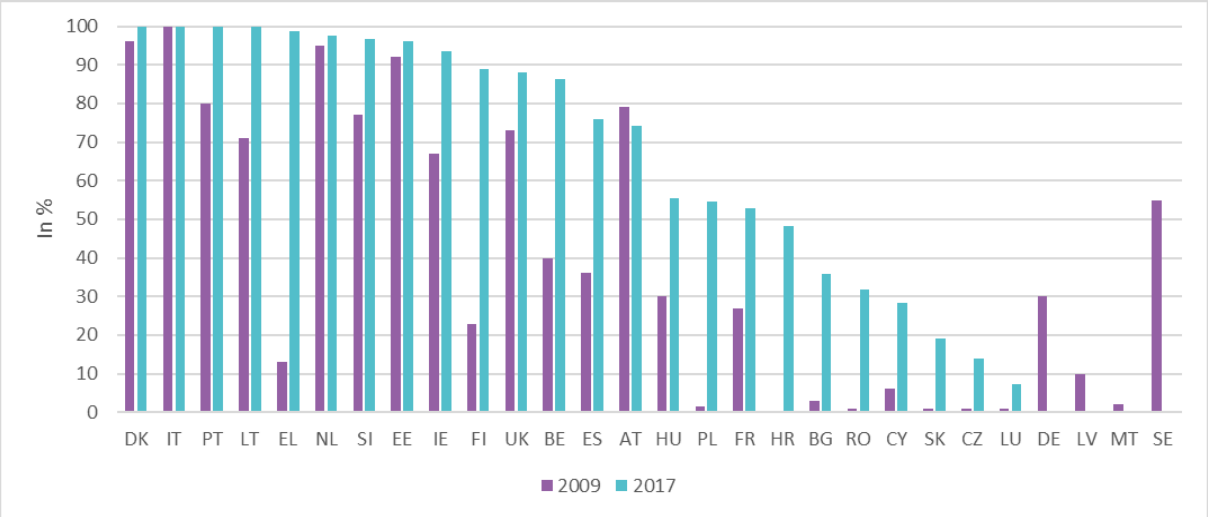
During the 2018-2019 period, the Commission organised several workshops with Member States' tax experts in order to monitor whether developments related to WHT procedures across the EU were aligning with the recommendations included in the Code of Conduct.

Based on information from Member States, it appears that there are few barriers left that prevent non-resident investors from applying for 'relief at source' (or for refunds) in an effective manner. Notwithstanding the foregoing, there are several goals which have been achieved. Relief at source is available in almost all Member States. In most Member States, the forms that non-resident investors need to fill in are considered user friendly, are also available in English, and the guidance on completing them is kept up to date. Most Member States provide refunds on average within 6 months. Tax residence certificates are accepted almost everywhere in the format provided by the residence country. Several EU countries have set up single points of contact to handle WHT procedures.

Building on the Code of Conduct and the conclusions on its subsequent follow up, the action plan for fair and simple taxation supporting the recovery strategy, published on 15 July 2020, and the Capital Markets Union for people and businesses-new action plan, published on 24 September 2020, envisage a further streamlining and simplification of WHT procedures by the end of 2022. In particular, the Commission will propose a legislative initiative for introducing a common, standardised, EU-wide system for withholding tax relief at source, accompanied by an exchange of information and cooperation mechanism among tax administrations. In addition, the Commission will assess the need for exchange of information and cooperation between tax authorities and financial market supervisory authorities

A wide range of digital services for taxpayers, especially e-filing opportunities, can reduce compliance costs while making tax administration more efficient and improving compliance. The e-filing indicator shows what proportion of personal income tax returns are sent to tax authorities online (as opposed to being sent on paper). The latest data indicate improvements in almost all EU countries since 2009, but the level of e-filing is still relatively low in some countries.

GRAPH 22. E-FILING OF PERSONAL INCOME TAX RETURNS (% OF TOTAL), 2009-2017



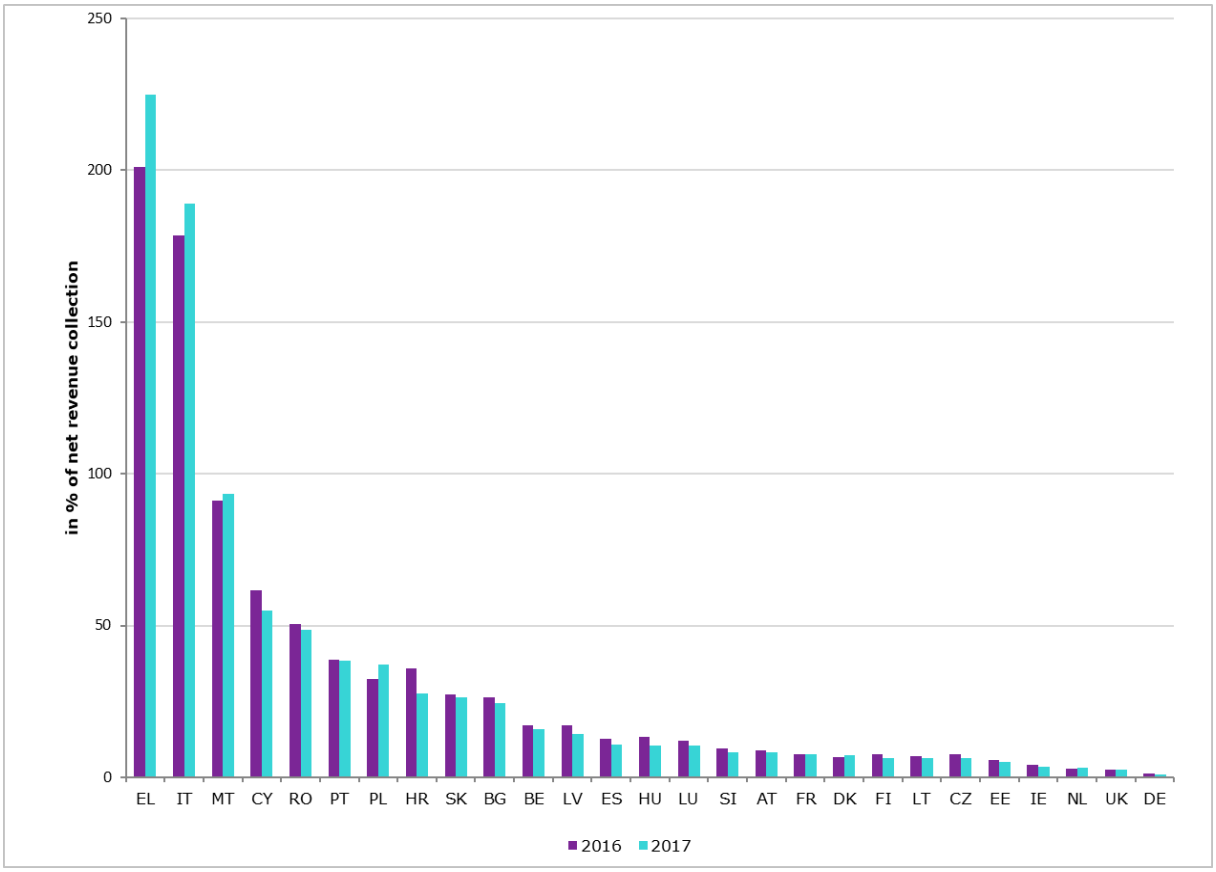
Source: OECD, 2017

Notes:
(1) No 2017 data available for DE, LV, MT and SE.
(2) No 2009 data available for SK (2011 figures have been used instead).
Source: (OECD, 2019a)

The extension of tax filing dates and deferral of tax payments for a variety of taxes and tax subjects have both been widely used by Member States to alleviate the hardship brought about by the COVID-19 health crisis (OECD, OECD Dataset: Tax policy measures taken so far, 2020a). Deferred taxes are not considered due until the date defined by national tax authorities.

Taxes are overdue for multiple reasons and tax arrears differ considerably for different taxes across the EU. In general, the level of overdue taxes can be an indication of tax compliance challenges in a country, and the (in)efficiency of the tax-payment system. The OECD (OECD, 2019a) provides data on tax arrears, defined as the total amount of tax that is overdue for payment, including interest and penalties. Graph 23 shows ratios of total year-end tax arrears (including debt that is considered not collectable) to total net revenue in 2016 and 2017.

GRAPH 23. TOTAL YEAR-END TAX DEBT / TOTAL NET REVENUE, 2016-2017



Source: OECD, 2019a
Notes:
(1) No data available for SE.
(2) To improve comparability, VAT (gross imports) has been removed from total net revenue collected.
(3) For EL and LU, arrears do not include interest and penalties.
(4) For MT, interest and penalties are excluded from taxes other than VAT.

In order to reduce the amount of outstanding tax debt, the Commission's tax action plan includes a number of actions to improve the efficiency of tax payment systems in the EU[29]. Specifically, Action 6 makes recommendations of good practices 'for improving the assistance for the recovery of unpaid taxes' in the EU.

2.1.5 Increasing tax certainty

Tax certainty is an important determinant of investment. It helps businesses and individuals to make good economic decisions and tax administrations to predict their revenue. Sustaining and increasing tax certainty has become one important priority for tax policy in the EU, as well as for the G20 and the OECD.

Uncertainty in taxation can arise from many sources, domestic and international. Complex and ambivalent tax legislation, inconsistent implementation and unexpected and frequent tax changes are major domestic sources of tax uncertainty. Internationally, the co-existence of multiple different tax systems generates ambiguity for cross-border investment. Significant tax obstacles to cross-border business activity include: (i) the possibility of unrelieved double taxation

[29] European Commission (2020), An action plan for fair and simple taxation supporting the recovery strategy. COM (2020) 312 final, URL: https://ec.europa.eu/taxation_customs/sites/taxation/files/2020_tax_package_tax_action_plan_en.pdf.

on cross-border income and capital, (ii) the inconsistent application of transfer pricing regulations across tax authorities, (iii) absent or non-enforceable dispute resolution mechanisms, and (iv) inconsistencies or conflicts in tax authorities' interpretation of tax standards. Issues can also arise from the interaction of taxes in international transactions, such as VAT and direct taxes.

Several policy measures are available to improve tax certainty. Dispute resolution mechanisms ensure that disagreements between tax administrations can be resolved quickly to prevent double taxation. Closer cooperation, more transparency, simple tax rules and commonly agreed transfer pricing rules can prevent disputes in the first place.

The EU, the G20 and the OECD have undertaken a series of efforts to improve tax certainty. The OECD's project on Base Erosion and Profit Shifting (BEPS) is an international effort to remove tax obstacles for cross boarder economic activity and increase tax certainty. The implementation of BEPS Actions 8-10 and the OECD's transfer pricing guidelines has made transfer-pricing rules simpler and easier to administer (IMF/OECD, 2019). The mutual agreement procedure (BEPS Action 14) supports the resolution of tax-related disputes between jurisdictions (OECD/G20, 2020). Automated information exchange between tax administrations (BEPS Action 5) and country-by-country reports published by companies (BEPS Action 12) create transparency. The BEPS activities are complementary to work on co-operative compliance programmes, which facilitate compliance, reduce compliance costs and increase tax certainty by creating an ongoing, trusting relationship between tax administrations and companies (OECD, Action plan on base erosion and profit shifting, 2013). Joint audits are another essential element of the tax certainty agenda and allow tax administrations to operate in an increasingly global environment, co-operating ever more closely and frequently with each other to ensure compliance and minimise the probability of costly and time-consuming disputes (OECD, Joint Audit 2019 – Enhancing Tax Co-operation and Improving Tax Certainty: Forum on Tax Administration, 2019b).

The EU has introduced several initiatives to simplify taxation and increase tax certainty. The Arbitration Convention[(30)] and, more recently, the Tax Dispute Resolution Mechanism Directive (DRM directive) ensure quicker and more effective resolution of tax disputes in direct taxation[(31)]. The adopted VAT e-commerce package facilitates cross-border trading for small businesses. VAT obligations for online sales in the EU can be managed on an easy-to-use online portal. The Fiscalis 2020[(32)] enables national tax administrations of EU Member States to create and exchange information and expertise and to work together at the operational and expert level[(33)]. The Tax Administration EU Summit (TADEUS) provides a new form of cooperation at senior management level. The cooperation network among heads of EU tax administrations and the Commission can better address common challenges faced by EU countries in today's era of globalisation and digitalisation. Furthermore, through its Structural Reform Support Programme 2017-2020[(34)] and the Technical Support Instrument 2021-2027[(35)], the Commission is in a strong position to provide targeted and tailor-made technical support to EU countries.

Past efforts have contributed to increased tax certainty and reduced tax avoidance, but with 27 different tax systems within the European Single Market, more needs to be done. The new tax action plan is one key element of a comprehensive and ambitious EU tax agenda for the coming years (European Commission, 2020b). It sets out a strategy towards a fair, simple and efficient tax system, resulting in a list of 25 forthcoming tax actions. Several of these

[(30)] 90/436/EEC: Convention on the elimination of double taxation in connection with the adjustment of profits of associated enterprises - Final Act.

[(31)] Council Directive (EU) 2017/1852 of 10 October 2017 on tax dispute resolution mechanisms in the European Union.

[(32)] Fiscalis 2020 is an EU cooperation programme. It enables national tax administrations to create and exchange information and expertise.

[(33)] Regulation (EU) No 1286/2013 of the European Parliament and of the Council of 11 December 2013 establishing an action programme to improve the operation of taxation systems in the European Union for the period 2014-2020 (Fiscalis 2020) and repealing Decision No 1482/2007/EC.

[(34)] Regulation (EU) 2017/825 of the European Parliament and of the Council of 17 May 2017 on the establishment of the Structural Reform Support Programme for the period 2017 to 2020 and amending Regulations (EU) No 1303/2013 and (EU) No 1305/2013

[(35)] Regulation (EU) 2021/240 of the European Parliament and of the Council of 10 February 2021 establishing a Technical Support Instrument

actions are highly relevant for tax certainty, e.g. Action 3 aims to create an EU cooperative compliance framework. Based on cooperation, trust and transparency amongst tax administrations, the initiative should provide a clear framework for preventive dialogues between tax administrations for the common resolution of cross-border tax issues. Under Action 4, the Commission will present a legislative proposal for modernising VAT reporting obligations to ensure a more detailed and timely exchange of information on VAT for intra-EU transactions while simplifying mechanisms for domestic transactions. Action 15 focuses on the monitoring and full implementation of the DRM directive. Action 16 will result in the creation of a dispute resolution mechanism for VAT. Action 21 envisages the setting up of a Transfer Pricing Expert Group to increase tax certainty for transfer pricing issues in the EU, and at the same time reduce the risk of double taxation.

The EU and its international partners are working to remove tax barriers to cross-border economic activity and create tax certainty. Higher transparency, better tax system information, better cross-country information and a common approach to international taxation, which also ensures a fairer distribution of tax revenue from cross-border investments, can go a long way to increasing tax certainty and thus investment.

Box 2.3: TADEUS projects

The Tax Administration EU Summit (TADEUS)[36], launched over 3 years ago, is already showing its added value and delivering first results.

TADEUS works essentially through projects chosen by heads of tax administration during their meetings. These projects address common problems faced by tax administrations across the EU. Their merit lies in producing results that can be achieved only, or more easily, through cooperation. Recent projects touched upon the strategic themes highlighted in the TADEUS multi-annual plan, such as digital economy, tax compliance, human resources and performance measurement. The sections below describe some of these projects in detail.

Recent and ongoing projects

The first TADEUS project - led by the Finnish tax administration –in 2019 resulted in recommendations on reporting requirements for the sharing and gig economy. The so-called 'digital and data' project provided a sound technical basis for preparing a new policy initiative on mandatory automatic exchange of information reported by platform operators. It proved very useful for the proposal on administrative cooperation (DAC 7)[37], which extends EU tax transparency rules to digital platforms, so that those who make money through the sale of goods or services on platforms pay their fair share of tax too.

Another TADEUS project, led by Greece and completed in 2020, designed a diagnostic tool for human resources management in tax administrations. This **human resources management readiness and agility model** allows every tax administration to assess its main human resources management functions and practice. It helps the administrations with implementing their business plans in better ways and creating a culture that facilitates continuous improvement. The results of this project may be easily used by any tax administration, from within or outside the EU. TADEUS encourages Member States' tax administrations to use the tool with the EU tax competency framework[38].

[36] For additional background information on TADEUS, see https://ec.europa.eu/taxation_customs/news/tadeus-%E2%80%93-tax-administration-eu-summit_en.

[37] For more information, see: https://ec.europa.eu/taxation_customs/sites/taxation/files/2020_tax_package_dac7_en.pdf.

[38] For more information, see: https://ec.europa.eu/taxation_customs/eu-training/taxcompeu-eu-competency-framework-taxation_en#:~:text=The%20EU%20competencies%20are%20further,Competencies%20and%20Tax%20Management%20Competencies.&text=The%20Management%20Competencies%20are%20targeted,set%20of%20Tax%20Core%20Values.

Three other important TADEUS projects that address tax compliance issues from two different perspectives are presented below:

- The first project, led by Sweden, is set to develop a new strategic approach and a better understanding of the drivers of tax compliance. This 'trust and compliance' project will deliver on a number of guidelines about how to understand, create and use trust in relation to taxpayers and what tools tax administrations should use to build trust and maintain tax compliance. The product developed under this project could be useful for senior managers and tax compliance specialists in the tax administrations.

- The second project, led by Portugal, is looking at administrative cooperation among Member States' tax administrations working together in Eurofisc, an anti-fraud network of experts in the VAT area. This 'Eurofisc strategy and governance' project examines the objectives and the governance of Eurofisc and proposes possible ways forward to ensure that Eurofisc delivers the results expected by the heads of tax administrations. The conclusions of this project will allow Member States and the Commission to continue to develop Eurofisc and make the fight against VAT fraud more effective.

- Finally, the TADEUS project on 'measuring the performance of administrative cooperation', led by France, aims to improve the identification of business results achieved thanks to administrative cooperation. This project will help better quantify the outcomes of administrative cooperation, and will include new indicators and new ways of collecting performance data. The project's objectives include increasing the performance of administrative cooperation in the field of direct and indirect taxes and trust among EU Member States. This TADEUS project will deliver its recommendations in the course of 2021.

Future work

In 2021, TADEUS will continue launching new projects and activities, supporting the effective implementation of EU legislation at the tax administration level, and addressing challenges faced by tax administrations in the EU. Its role is even more important during the EU's recovery from the corona crisis.

In particular, TADEUS will steer the implementation of the **multi-annual strategic plan for taxation (MASP-T)**, a new governance framework for common information technology (IT) projects in the area of taxation in the EU. This plan will create a coherent and interoperable electronic environment for taxation in the EU to ensure coherence and coordination of IT capacity building actions. MASP-T will ensure that the Commission and the Member States have a common understanding of EU IT projects related to taxation (direct and indirect taxes, recovery of claims and excise duties) and their dependencies (such as legal deadlines, business analysis and process clarifications).

Furthermore, TADEUS is expected to continue to facilitate the Member States' and the Commission's common work on **estimating the tax gap (see Section 2.3.4),** which will greatly contribute to identifying the effects of tax policy decisions taken and feed into future tax compliance policies. Such work on the tax gap should harmonise, improve and expand the gap estimations available in the area of direct taxes and could also lead to sectoral estimations on the VAT gap in areas with high risks of non-compliance.

Over the last two years, strategic discussions among heads of tax administration and the Commission offered a good number of valuable results, providing 'the proof of concept' for TADEUS as a new and effective cooperation framework. Of course, the results were achieved thanks to the work of project leaders and of their project teams.

2.2 Paving the way for environmental sustainability and good public health

2.2.1 Environmental and climate challenges in the EU

Like other advanced economies, most EU Member States have achieved high levels of human development ('living well') but remain environmentally unsustainable. Currently, the EU is still far from achieving its 2050 vision of 'living within the limits of our planet'. For instance, while pollution has decreased and water quality has improved, the EU is a long way from achieving a good ecological status for all its water bodies. According to the 2020 European Environment State and Outlook Report[39], the conservation status of 60% of species protected under the Habitats Directive[40] is considered unfavourable. Furthermore, air pollution continues to impact biodiversity and ecosystems, and is the single largest environmental risk to the health of Europeans. 95% of the EU's urban population is exposed to pollutant concentrations above World Health Organization air quality guidelines, which in turn results in preventable disease. Waste management in the EU is improving, though slowly, and the outlook for limiting waste generation is uncertain.

The impact of climate change on biodiversity and ecosystems is expected to intensify, while the way activities such as agriculture, fisheries, transport, industry and energy production are conducted continue to cause biodiversity loss, resource extraction, harmful emissions and other environmental damage. Climate change and environmental degradation are also intrinsically linked. Climate change accelerates the destruction of the natural world through droughts, flooding and wildfires, while the loss and unsustainable use of nature are in turn key drivers of climate change. The five main direct drivers of biodiversity loss[41] – changes in land and sea use, overexploitation, climate change, pollution and invasive alien species – are making nature disappear quickly. In the last four decades, global wildlife populations fell by 60% as a result of human activities[42] and almost three quarters of the Earth's surface have now been altered[43]. Biodiversity loss and ecosystem collapse are one of the biggest threats facing humanity in the next decade[44].

Reversing the situation calls for fundamental changes in lifestyles, production and consumption, knowledge and education. Recognising persistent environmental and climate challenges at European and global levels, European environmental and climate policymaking is increasingly driven by long-term sustainability goals. This is embedded in the 2050 vision of the EU's seventh environment action programme (7th EAP)[45] and in the Commission's proposal for the 8th EAP[46], the 2030 agenda for sustainable development[47] and the Paris Agreement on climate change[48]. More recently, President Ursula von der Leyen called for a European Green Deal[49], committing to make the EU the first climate-neutral continent by 2050. As part of the Green Deal, the Commission also committed to refocusing the European Semester process of macroeconomic coordination to integrate the EU's and the United Nations' sustainable development goals into the heart of the EU's policy making and action, and to put sustainability

[39] See: https://www.eea.europa.eu/soer/2020https://www.eea.europa.eu/soer/2020.

[40] Council Directive 92/43/EEC.

[41] IPBES (2019), Summary for policymakers, pp. 17-19, B.10-B.14; European Environment Agency (2019), The European environment – state and outlook 2020.

[42] World Wildlife Fund (2018), Living Planet Report - 2018: Aiming Higher.

[43] IPBES (2019), Summary for policymakers, p. 4, A4.

[44] World Economic Forum (2020), The Global Risks Report 2020.

[45] See: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013D1386&from=EN.

[46] See: https://ec.europa.eu/environment/pdf/8EAP/2020/10/8EAP-draft.pdf.

[47] See: http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E.

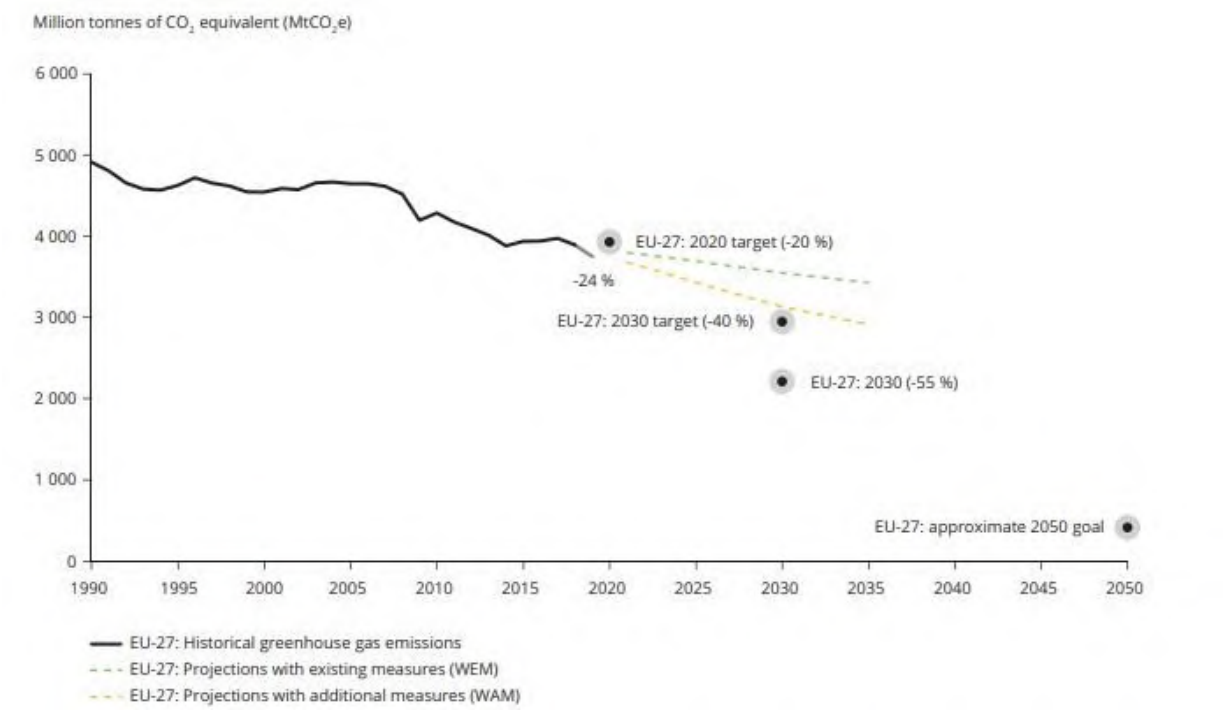
[48] See: https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf.

[49] See: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en.

and people's well-being at the centre of economic policy[50]. The Green Deal also highlighted that 'well-designed tax reforms can boost economic growth and resilience to climate shocks and help contribute to a fairer society and to a just transition. They play a direct role by sending the right price signals and providing the right incentives for sustainable behaviour by producers, users and consumers. At national level, the European Green Deal will create the context for broad-based tax reforms, removing subsidies for fossil fuels, shifting the tax burden from labour to pollution, and taking into account social considerations'. The Member States are also encouraged to consider sustainable fiscal reforms in the context of their Resilience and Recovery Plans.

The EU has already started to modernise and transform its economy to achieve climate neutrality and tackle environment-related challenges. Between 1990 and 2019, the reduced greenhouse gas emissions by 24%, while its economy grew by 60%[51]. However, much remains to be done to put the EU firmly on track for climate neutrality by 2050, and for meeting commitments under the goals of the Paris Agreement. Current policies will not reduce greenhouse gas emissions sufficiently, as shown in the graph below. The European Council endorsed in December 2020 a binding EU target of a net domestic reduction of at least 55% in greenhouse gas emissions by 2030 compared to 1990. To reach that intermediate 2030 goal, the Commission will table a 'Fit for 55'[52] package. This package will cover a wide range of policy areas, including: more ambitious use of emissions trading; revision of energy taxation; a carbon border adjustment mechanism (CBAM); and revisions of the Effort Sharing Regulation setting Member States' greenhouse gas emission reduction targets; the land use, land use change and forestry Regulation; the Renewable Energy Directive; and the Energy Efficiency Directive.

GRAPH 24. GREENHOUSE GAS EMISSION TRENDS AND PROJECTIONS IN THE EU-27, 1990-2050



[50] Based on the Commission proposal, the political agreement of the Special European Council of 17-21 July 2020 sets an overall climate target of 30% applicable to the total amount of expenditure from the EU budget 2021-27 and NextGenerationEU, the main instrument for implementing the recovery package. In addition, each recovery and resilience plan will have to include a minimum of 37% of expenditure related to climate investments and reforms. See: https://ec.europa.eu/clima/policies/budget/mainstreaming_en and https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en

[51] See: https://ec.europa.eu/clima/policies/strategies/progress_en#:~:text=EU%20greenhouse%20gas%20emissions%20were,)%2C%20in%20particular%20power%20plants.

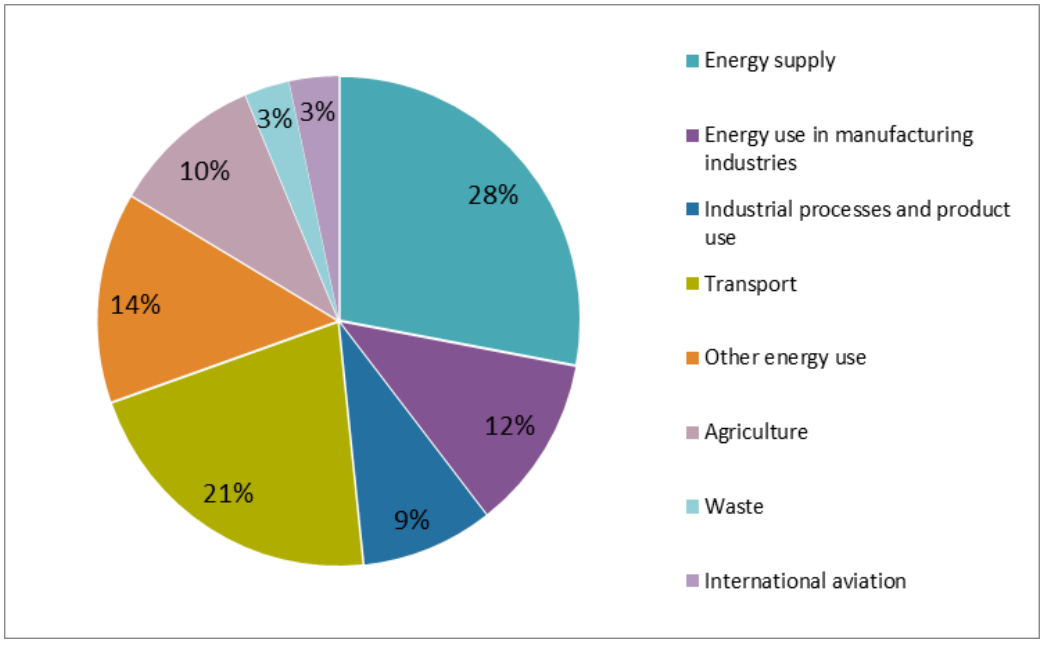
[52] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1940

Source: European Environment Agency, 2020
Notes:

(1) The calculations of greenhouse gas emission trends, projections and targets include emissions from international aviation and exclude emissions and removals from the land use, land-use change and forestry (LULUCF) sector, as well as emissions from international navigation.
(2) The 'with existing measures' scenario reflects existing policies and measures, whereas the 'with additional measures' scenario considers the additional effects of planned measures reported by Member States under the Monitoring Mechanism Regulation (EU) 525/2013 (MMR).
(3) The approximate value corresponding to the EU's 2050 goal was derived from those five scenarios exhibiting an emission reduction of 55% in 2030 compared with 1990 and net-zero emissions by 2050 (i.e. REG, MIX, MIXnonCO2variant, CPRICE, ALLBNK).

The transition to net-zero greenhouse gas emissions will require economic and societal transformation, engaging all sectors of the economy and society. Energy will play a central role, as the production and consumption of energy (including transport) is currently responsible for more than 75% of the EU's greenhouse gas emissions. In recent years, trends have indicated the likely achievement of the renewable energy targets[53], and of the 2020 energy efficiency targets. However, the insufficient policies in place will have to be compensated for to reach the 2030 targets. In addition, the subsequent recovery from the COVID-19 pandemic is expected to lead to a rebound in energy demand, and there is a risk that the implementation of new policies and policies announced in the national energy and climate plans (NECPs) and the national long-term renovation strategies could be delayed as a result of the current crisis[54].

GRAPH 25. GREENHOUSE GAS EMISSIONS BY SOURCE SECTOR, 2019



Source: European Commission, 2019

[53] As set out in the Renewable Energy Directive (2009/28/EC). See: https://ec.europa.eu/energy/topics/renewable-energy/renewable-energy-directive/overview_en.

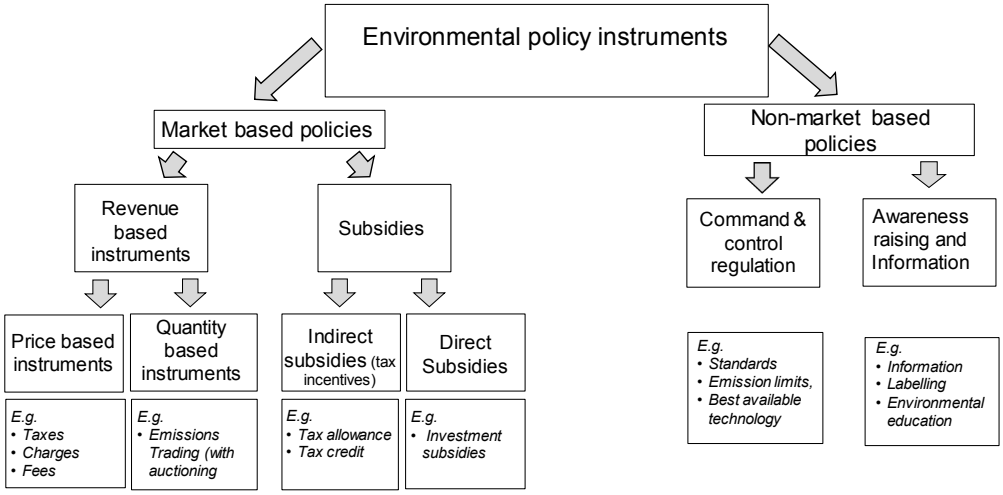
[54] COM(2020) 954 final: https://ec.europa.eu/energy/sites/ener/files/progress_report_towards_the_implementation_of_the_energy_efficiency_directive_com2020954.pdf

2.2.2 The role of environmental taxation

Numerous policy instruments can be used to address these challenges and achieve the new 2030 and 2050 climate and environmental objectives. These policy instruments can be divided into two basic categories: (i) market-based instruments, including environmental taxes, and (ii) non-market-based instruments, encompassing command and control regulatory measures such as standards, limits, awareness-raising measures or information campaigns. In practice, Member States use a combination of both types of instruments to meet their climate ambitions. The Commission's impact assessment of its 2030 Climate Target Plan also shows that both pricing and regulatory instruments are necessary in order for the EU to meet the increased 2030 target in the most cost-efficient way[55].

All EU Member States make use of environmental taxes, although there are substantial differences across Member States. At EU-level, the 'polluter pays' principle is enshrined in the Treaty on the Functioning of the EU[56]. This principle is respected by putting a price on negative consequences, with the tax rate in principle set to reflect the marginal social damage caused by consumers and producers. However, optimal pricing is hindered by the complexities of the relevant EU and national policy frameworks. While the Energy Taxation Directive[57] sets minimum levels for energy taxation, there is limited EU legislation in the area of other environmental taxes, albeit that numerous legislative acts encourage Member States to use economic instruments to ensure that the polluter pays.

GRAPH 26. OVERVIEW OF ENVIRONMENTAL POLICY INSTRUMENTS



Source: European Commission, 2020
Note: Some policies, such as feebates, are revenue-neutral and do not fit in this overview.

Environmental taxation (taxes on energy, transport, pollution and resources[58]) can encourage behavioural change and help meet environmental targets, in addition to raising revenue. Environmental taxes are considered to be among the least economically distortive taxes. They are also cost-efficient compared to non-tax measures, given their lower administrative cost, relative ease of management, and the strong price signals they send to consumers and businesses to induce them to change their behaviour. The cost efficiency of these taxes may, however, be reduced if, for example, environmental taxes result in higher consumer prices, which in turn reduce real wages. This could lead to a decline in living standards of the population and in the supply of labour, unless mitigating measures are put in place (e.g. reducing labour income tax).

[55] See: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020SC0176

[56] Article 191(2) TFEU.

[57] Council Directive 2003/96/EC.

[58] Areas covered by environmental taxation according to Eurostat classification: https://ec.europa.eu/eurostat/statistics-explained/index.php/Environmental_tax_statistics.

There is an increasing number of *ex-post* studies demonstrating that environmental taxes can effectively support a changeover to production technologies or consumption patterns reducing greenhouse gas emissions and environmental impacts or at least dampen their growth. However, with regards to carbon taxes, existing empirical research suggests that the current order of magnitude of the effects is insufficient to reach the medium- and long-term reduction emission goals set in international, European and national agreements, legislation and plans. This may have to do with the fact that, in most countries, tax rates are quite low, with some activities exempt. A combination of tax and regulatory policies may be needed to achieve the goals in the timeline set out.

Since the beginning of the 1990s, and significantly influenced by Porter and van der Linde (1995), the hypothesis that environmental regulation can have a positive influence on growth and competitiveness has gained in importance[(59)]. The proponents of the so-called Porter hypothesis put forward that environmental policy can play an active role in improving and securing the competitive position of companies or entire industries. At the heart of the argument is the idea that firms develop new innovative technologies and products as a result of environmental regulation. The literature (Acemoglu D. a., 2013), (Acemoglu D. A., 2014), (Popp D. C., 2010) concludes that a combination of environmental taxes and government subsidies can effectively redirect innovation towards cleaner and resource efficient products and energy efficient innovation. Nevertheless, empirical research, see, e.g. (Popp D. , 2006) suggests that, to induce innovation, the carbon price should be rather high, and that there should be a credible path for a high and stable future carbon price (Laing, 2013).

Empirical research does not show a significant impact of environmental taxation on domestic competitiveness but gaps and possible cross-border spillovers call for an adjustment mechanism. Scholars (Arlinghaus, 2015) suggest that carbon taxes do not significantly impair competitiveness per se, hinting at a very low price elasticity of demand and a shift of the tax burden to downstream sectors and consumers. Nevertheless, concerns over the possible reduction in competitiveness of certain sectors, in particular those with high fossil fuel consumption and exposure to international competition, have led several Member States to introduce exemptions from environmental taxes. This includes rebates on energy taxes for industries that are more energy intensive and exposed to international trade and competition, or exempting certain industries from environmental taxes if they are already regulated by emissions trading schemes. If trading partners do not internalise the cost of emissions and can thus keep their prices artificially lower, it could lead to imports with higher emissions from outside the taxed area (carbon leakage). Both of these practices reduce the effectiveness of green taxation in internalising emissions in sectors where these may de facto be higher, and undermine the general objective of reducing emissions. In this context, a cross-border adjustment mechanism may be a more efficient and effective way to achieve environmentally sustainable production.

The burden of environmental taxes could be regressive, necessitating compensatory measures. This is for example the case for taxes on energy, as lower income households spend a larger share of their income or a higher share of their consumption expenditure on energy intensive products (Marron, 2014). In contrast, a rather broad consensus has emerged in the literature that fuel taxes are less regressive than other environmental taxes, see, e.g. (European Commission, 2021). This result is due to the fact that the share of household transport expenditure rises with income, whereas the share of household energy consumption for housing decreases with income. Such evidence suggests that revenue collected from environmental taxes could therefore be used to provide lump-sum payments to lower income households, mitigating any regressive effects on living standards[(60)]. Evidence shows that if the same revenue is used to decrease social security contributions and taxes on labour income, this could generate positive employment effects. Note also that groups of a lower socio-economic status (the unemployed, those on low incomes or with lower levels of education) tend to be more negatively affected by environmental health hazards, as a result of their greater exposure and higher vulnerability[(61)].

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(59) For further information, see European Commission (2021): https://op.europa.eu/en/publication-detail/-/publication/1840d9df-5162-11eb-b59f-01aa75ed71a1/language-en/format-PDF/source-196233837

(60) Although in practice, lump-sums payments are hard to implement

(61) European Environment Agency, EEA Report No 22/2018 Unequal exposure and unequal impacts: social vulnerability to air pollution, noise and extreme temperatures in Europe (European Environment Agency 2018)

Tax incentives to support environmentally beneficial activities or to discourage environmentally harmful behaviour are much more diverse across countries than environmental taxes (European Commission, 2021). They are also overall less prevalent than fiscal incentives (e.g. direct subsidies, preferential loans). They are frequently found to be barely cost effective, and to be problematic from a distributional point of view. Package solutions, combining several climate policies in general with carbon pricing and tax incentives, may be more effective than single measures.

The need to phase out environmentally harmful subsidies has long been recognised and has been a contentious point of discussion for several years[62]. This includes both direct (e.g. grants) and indirect subsidies (e.g. tax exemptions[63]). While the EU has a long-standing commitment to removing or phasing out environmentally harmful subsidies, several Member States still apply them. For example, fossil fuel subsidies, amounting to EUR 50 billion in 2018, remained relatively stable over the past decade after peaking at EUR 53 billion in 2012. After falling from 2012 to 2015, they started to increase again, growing by 6% by 2018. Tax expenditure designed to benefit specific income groups or sectors can sometimes have a detrimental effect on the environment and can run counter to energy, climate and environmental objectives. While the subsidies are often cited as serving an equity purpose, i.e. providing targeted relief to disadvantaged or vulnerable groups, they often appear to benefit only selected parts of the population. The tax-friendly treatment of private use of the company car is a frequently-cited example of the latter. Hence, the environmentally harmful subsidy's effectiveness to improve equity should be asessed on a case-by-case basis, with particular attention as to whether the subsidy stills serves is stated equity purpose. Moreover, the harmful subsidies slow down the shift to sustainable patterns of production and consumption. For instance, reduced VAT rates on energy, fertilisers and pesticides or favourable tax treatment of company cars are among many environmentally harmful subsidies that are still applied in the EU. Phasing out these harmful subsidies, particularly when they involve fossil fuel subsidies, can increase revenue, contribute to the achievement of environmental policy objectives and improve the effectiveness of environmental taxation. This will be addressed also through the revision of the Energy Taxation Directive (ETD) in 2021, as one of the objectives of the revision is to remove implicit tax subsidies on fossil fuels.

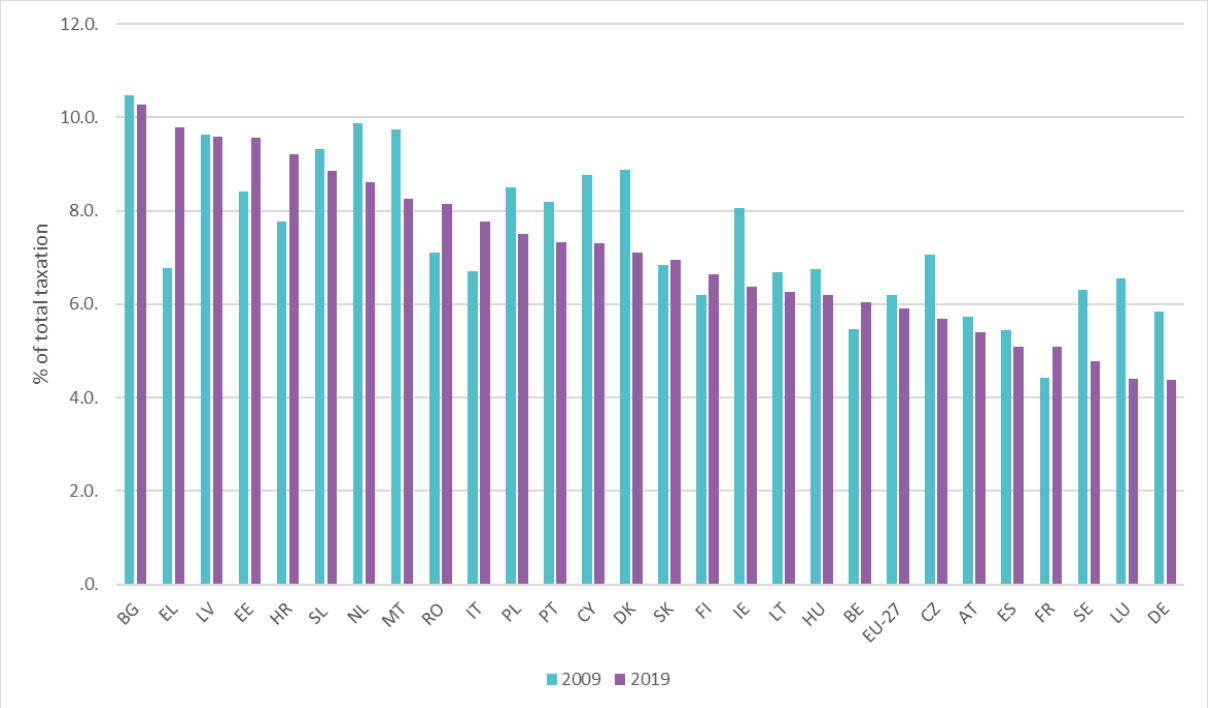
2.2.3 Analysis of the performance of national green tax systems

Environmental taxes (i.e. energy, transport, pollution and resource taxes) contributed around 6% of total tax revenue in the EU-27 in 2019, with the share at Member State level ranging from 4.4% in Germany and Luxembourg to 10.3% in Bulgaria. For the EU-27 as a whole, the share of environmental taxes in total tax revenue remained relatively stable between 2009 and 2019. Changes at national level were more pronounced, with the largest increases in Greece and the largest reductions in Luxembourg.

[62] For energy-related subsidies, see: https://ec.europa.eu/energy/sites/ener/files/progress_on_energy_subsidies_in_particular_for_fossil_fuels.pdf

[63] Although tax exemptions are not considered as subsidies in National Accounts but simply lower tax revenue

GRAPH 27. ENVIRONMENTAL TAXES AS A % OF TOTAL TAXATION, 2009-2019



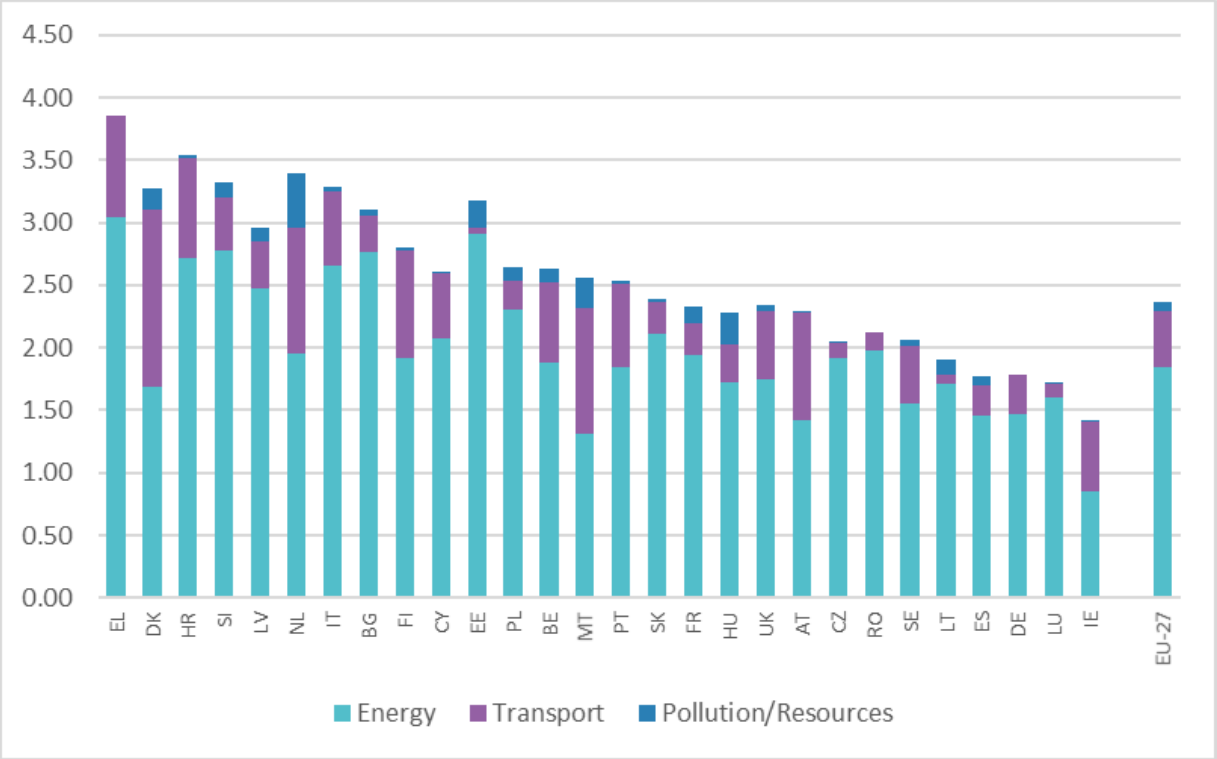
Source: European Commission, 2021

The commitment of different countries to environmental objectives should not be measured solely in terms of the tax revenues they raise via environment taxation. This is partly because taxes affect behaviour and reduce their own tax base. Therefore large environmental tax revenues can be equally generated by countries with low environmental tax rates and a large consumption base (i.e. high polluting countries) and by countries with high environmental tax rates and a small consumption base (i.e. less polluting countries). Moreover, environmental taxation often has behavioural change objectives, which can lead to uncertainty as regards revenue generation: if taxes are successful in changing behaviour, revenue will gradually decrease in the medium-long term, if the tax base or tax rate is not adjusted (depending on price elasticity). Finally, Member States that have high levels of other taxes, such as on labour, might score lower on Graph 27, even though they have significant environmental taxes in place.

Therefore, a more tailored assessment is needed, to consider additional parameters, like the country's actual tax rates, energy intensity, energy mix, and industrial structure (including the different weight of the sectors covered by exemptions). Energy taxes (including on transport fuel) account for the lion's share in almost all Member States, and in total for 78% of environmental tax revenue in the EU-27 in 2019[64]. This can be partly explained by the minimum levels set for energy taxation by the ETD, as well as by the larger tax base for energy taxes, given the high-energy intensity of key economic sectors (e.g. production of goods, heating and transport). Graph 28 shows in detail the structure of environmental tax revenue in the Member States in 2019, and highlights that the share of transport taxes (excluding fuel), just like pollution taxes, is very limited in terms of revenue generation across the EU. This also increases the proportion of energy tax revenue in overall environmental tax revenue.

[64] See: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Environmental_tax_statistics#Environmental_taxes_in_the_EU

GRAPH 28. STRUCTURE OF ENVIRONMENTAL TAXES AS % OF GDP, 2019



Source: European Commission, DG Taxation and Customs Union, based on Eurostat data.

Notes:
(1) Energy taxes include taxes on energy products and energy used for both transport and stationary purposes, including taxes on related CO_2 emissions and Member States' revenue from the EU emission trading system.
(2) Transport taxes include taxes relating to the ownership and use of motor vehicles, and taxes on other transport equipment (e.g. planes) and related transport services.
(3) Pollution taxes include taxes on measured or estimated emissions to air (except revenue relating to CO_2 emissions, which is included in energy taxes) and water, on the management of waste and on noise.
(4) Resource taxes include any taxes linked to the extraction or use of a natural resource.
(5) EU-27 values are weighted averages by GDP size.

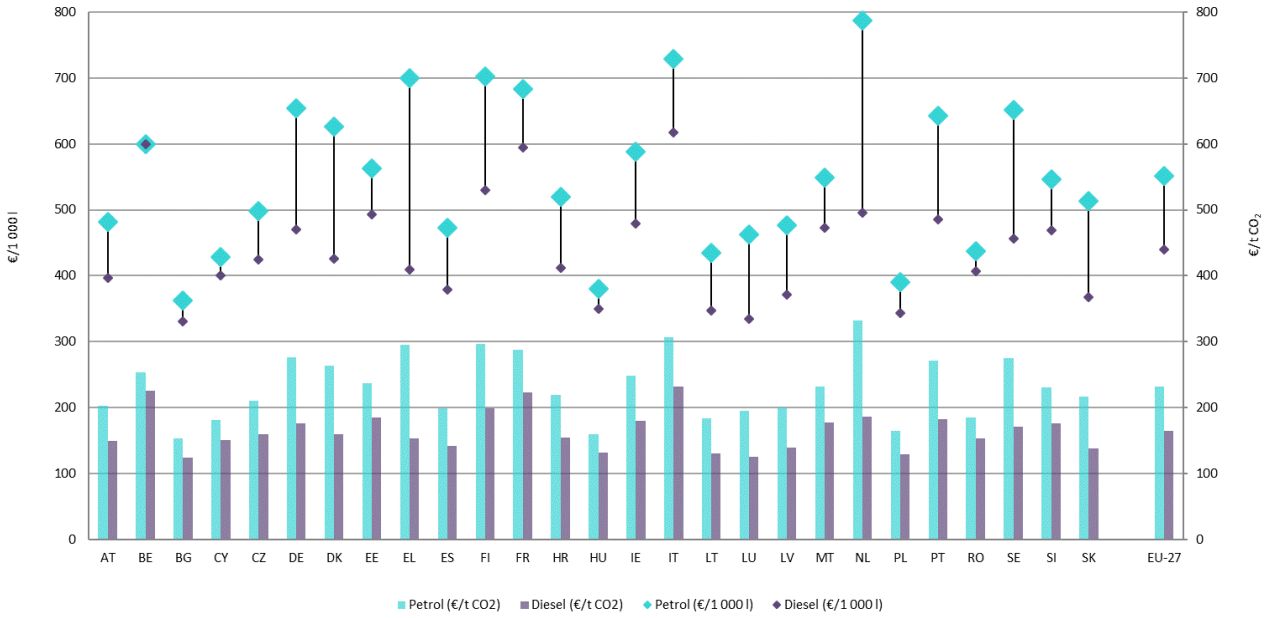
Graph 29 shows the nominal marginal tax rates on (standard) petrol and diesel, per volume consumed and per CO_2 emissions when used in private transport[65]. All Member States apply fuel taxes. In nearly all Member States, the nominal marginal tax rates on diesel for private road usage are lower than those on unleaded petrol[66], even though diesel has a higher carbon content and greater negative impact on air quality. This is true for both the tax per litre and the tax per tonne of CO_2 emissions. To align the taxes applied to fuels more closely with the environmental damage (such as carbon emissions) they cause[67], some Member States introduced car registration and/or annual circulation taxes. However, while the former affect a buyer's decision when purchasing a car and the latter add to the overall cost of ownership, neither affects the extent to which a car is actually used once it is owned and available (i.e. marginal cost of driving a car). Altogether, effective vehicle taxation requires a combination of various specific taxes. To influence the carbon emission intensity of new cars, vehicle taxes are more effective than fuel taxes. The latter are more effective in curbing mileage driven and in promoting efficient driving behaviour (COWI, 2002).

[65] Some Member States apply several rates depending on fuel quality. Some tax biofuels or fuels with a given biofuel content at lower rates.

[66] With the exception of Belgium, where rates are equal per volume of fuel consumed.

[67] The objective of fuel taxation is not limited to curbing carbon emissions. It also addresses consequences related to e.g. energy security, resource depletion, air pollution, congestion, etc.

GRAPH 29. NOMINAL TAX RATES ON PETROL AND DIESEL USED AS PROPELLANTS (PRIVATE USAGE), 2019



Source: European Commission, DG Taxation and Customs Union calculations.
Notes:
(1) Marginal tax rates show the excise duty rates applicable in Member States in January 2019; they exclude VAT, but include any applicable carbon taxes.
(2) The amount of EUR/t CO_2 emitted is calculated based on emissions per 1 000 l of fuel burnt (2 371 and 2 664 t CO_2 per 1 000 l of petrol and diesel, respectively) and therefore not well-to-wheel emissions (which also take account of emissions from extracting and processing the fuel).
(3) Petrol and diesel consumption for private road usage accounts for different proportions of total fuel consumption across Member States.

The EU emissions trading system (EU ETS) is a cornerstone of the EU's policy to combat climate change. Under its cap and trade system, which introduced carbon pricing in the EU and Iceland, Liechtenstein and Norway, the average price of an EU ETS allowance was around EUR 40/tonne CO_2 in mid-March 202[68]. Within the cap, allowances are sold in the form of auctions with industrial sectors prone to the risk of carbon leakage receiving free allowances based on benchmarks. Companies covered by the system (in the industrial, power and aviation sectors[69]) can trade allowances as needed. After each year, a company must surrender enough allowances to cover all its emissions. To meet the increased 2030 target, the Commission is looking at how to increase the ambition in the existing EU ETS and is considering to extend the use of emissions trading to other sectors (such as maritime, road transport and buildings). Extending carbon pricing can provide an extra incentive for change, together with sectoral legislation, such as a revision of the Energy Efficiency Directive, the Energy Performance of Buildings Directive and higher CO_2 standards for new cars and vans.

The number of free allowances declines annually, which may raise the marginal price for allowances[70]. An increase of the EU ETS allowance price raises the costs for greenhouse gas emissions incurred by European producers, which could increase the risk that greenhouse gas emissions from carbon-intensive production are relocated to other regions rather than reduced or eliminated via a combination of climate neutral production processes, climate-friendly material use and enhanced recycling. Adequately addressing concerns about carbon leakage risks is thus essential for enhancing the regulatory credibility of the EU ETS and the resulting carbon price.

[68] An EU ETS allowance is valid for compliance of 1 t/CO_2 eq. emissions by the sectors covered by the EU ETS; for more information, see https://ec.europa.eu/clima/policies/ets_en

[69] The EU ETS presently applies only to flights between airports located in the European Economic Area (EEA).

[70] For more information on the upcoming EU ETS revision, see: https://ec.europa.eu/clima/policies/ets/revision_en, https://ec.europa.eu/clima/policies/ets/revision_en

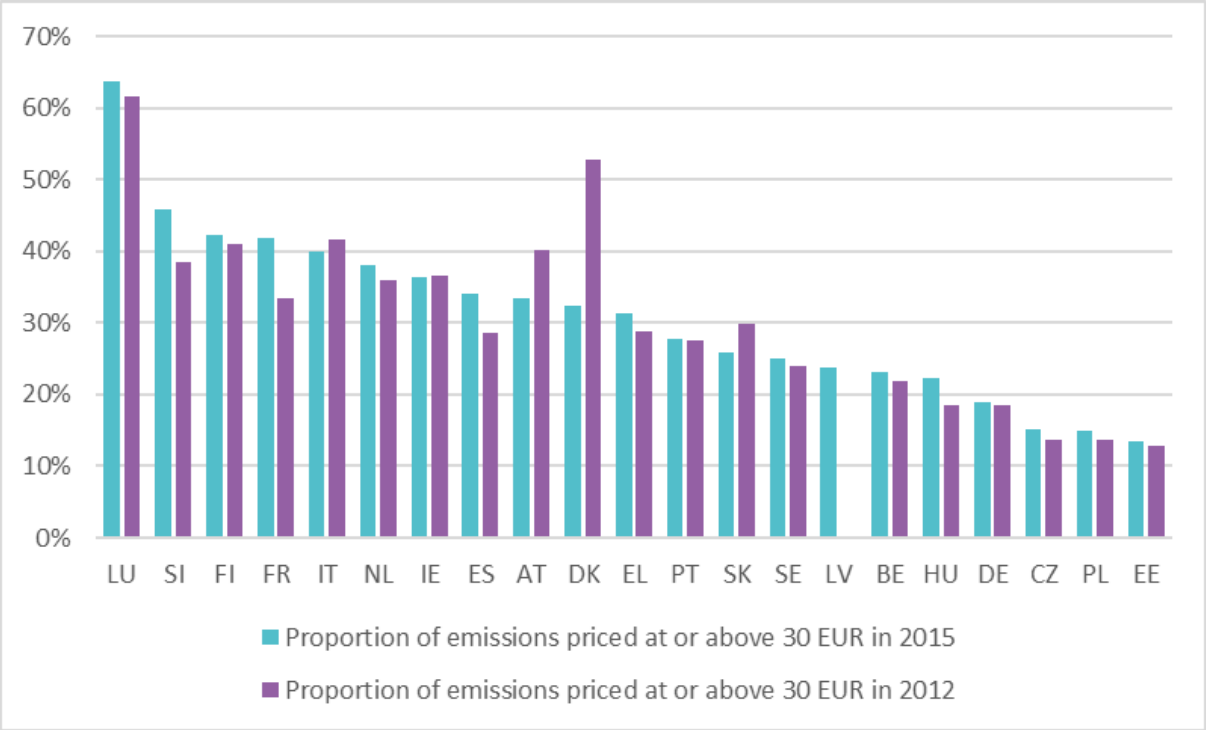
The protection of installations covered by the EU ETS against the risk of carbon leakage has been at the heart of the EU ETS since its inception in 2005 and each of its subsequent revisions. The current framework consists of two main measures: the free allocation for direct emissions and the possibility for Member States to compensate installations for higher electricity costs due to the EU ETS (indirect emissions). These policies have been developed based on thorough impact assessments, which looked at various measures to address the risk of carbon leakage. A carbon border adjustment mechanism (CBAM) would be an alternative to these policies for the sectors to which it would apply (discussed in more detail in Chapter 4). The Commission is currently assessing the precise design of the measure. The results of this assessment will be presented by June 2021 as part of the 'Fit for 55' package. The CBAM would ensure that the price of imports reflect more accurately their carbon content. Finally, the revision of the ETD, also planned for June 2021, will contribute to aligning the taxation of energy products and electricity with EU energy and climate policies and as such will contribute to achieving the EU's climate and energy targets. In addition to CO_2 emission externalities, taxes on fuel for road transport may also be designed to price in other externalities (e.g. managing infrastructure congestion or dealing with other pollutants).

The pricing of environmental outcomes, such as greenhouse gas emissions, varies widely across sectors and countries. The 'effective carbon rate', as calculated by the OECD, shows how pricing policies overall (including specific taxes on fossil fuels, carbon taxes and tradable emission permit prices) interact to provide price signals for greenhouse gas emission reductions[(71)]. The most recent data available (2015) show that most emissions from road transport were priced at or above EUR30/t CO_2. However, with a few national exceptions, in most other sectors few or no emissions were priced at or above EUR30/t CO2[(72)] (see Graph 30).

[(71)] For full details of the methodology, see (OECD, 2018c).

[(72)] There may be policy reasons to tax different sectors at different rates, e.g. different other outcomes, price elasticities or the existence of other regulatory interventions.

GRAPH 30. PROPORTION OF CARBON EMISSIONS PRICED AT EUR30/T CO_2 OR MORE, RESIDENTIAL AND COMMERCIAL SECTORS (2015)



Source: OECD, 2018c
Notes:
(1) Emissions from the combustion of biomass included in the emission base.
(2) No data available for BG, CY, HR, LT, MT and RO.

Compared to energy and transport, Member States make limited use of taxes to tackle pollution and environmental degradation. Only 3.2% of the EU's total government revenue from taxes and social contributions came from the taxation of pollution and resources in 2019[73]. As a policy tool for achieving environmental objectives, pricing instruments can be useful in areas such as waste and resources policy. In these areas, EU action has traditionally focused on legislative action, including setting targets, e.g. for waste recycling. Also using pricing instruments is in line with the Commission's recognition of the role that taxation can play as a policy tool that helps Member States achieve the objectives set at EU level. Member States tax environmentally costly forms of waste disposal (e.g. landfill, incineration) and specific products (often to discourage the use of single-use items, such as plastic bags), as well as specific emissions, sources of pollution, or the extraction of resources.

[73] See: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Environmental_tax_statistics_-_detailed_analysis#Energy_taxes_stand_out_as_the_major_source_of_EU_environmental_tax_revenue

TABLE 3. EXAMPLES OF ENVIRONMENTAL TAXES BY DIFFERENT ENVIRONMENTAL POLICY AREAS:

Theme	Examples of environmental taxes
Air quality	Taxes on pollutants (SO2, NOx, etc.), indirect taxes on products and services (e.g. energy tax, congestion charges).
Waste, resources and circular economy	Landfill and incineration taxes, packaging taxes, resource (abstraction) taxes.
Water	Taxes on water pollutants as pesticide taxes, fertiliser taxes, phosphorus taxes; abstraction taxes/charges.
Biodiversity & land-use management	Taxes on pollutants as pesticide taxes or taxes on nutrients; peatland taxes; forestry tax.

Source: (a) (European Environment Agency, 2016)*; Landfill taxes and bans overview 2017*, (b) (European Environment Agency, 2016), and Confederation of European Waste-to-Energy Plants (CEWEP); http://www.cewep.eu/wp-content/uploads/2017/12/Landfill-taxes-and-bans-overview.pdf
Notes: (1) Table includes taxes, charges, levies, duties. (2) The 'individual products' category includes a very wide range of different market-based instruments. See EEA report for full details.

2.2.4 Health taxes: saving lives and improving public health

Harmful levels of alcohol and tobacco consumption are linked to many ill-health conditions and premature death. They are risk factors for numerous medical conditions including cancer, obesity, cardiovascular diseases and diabetes, which in turn are also associated with a heightened risk of COVID-19 related death (Williamson, 2020). Taxing addictive substances such as alcohol and tobacco can be a very cost effective way to improve public health by changing behaviour, leading to a reduction in medical care costs and an increase in productivity (Frank J. Chaloupka, 2019). The revenues it generates can also help reduce the burden on other tax bases such as savings and income, even if this may not be the primary goal. EU Member States have agreed on common rules to ensure that excise duties[74] on tobacco and alcohol are applied in the same way and to the same products in the EU[75], having defined harmonised categories of manufactured tobacco and alcohol products. They have also agreed to apply at least a minimum rate of excise duty on tobacco and alcohol products. However, as taxation rates are mainly the responsibility of individual Member States, there is some variation in the taxation levels imposed on alcohol and tobacco, linked in part to differences in countries' income levels. This section examines how Member States tax tobacco and alcohol and discusses how taxation can contribute to Europe's Beating Cancer plan[76].

Taxation is an effective tool for reducing tobacco use. Tobacco consumption is the single largest avoidable health risk and the most significant cause of premature death in the EU, responsible for nearly 700 000 deaths a year. Around 50% of smokers die prematurely (on average 14 years earlier than non-smokers)[77]. Member States have sought to discourage tobacco consumption through legislation (including tobacco taxes[78]), recommendations and information campaigns. The World Health Organization notes that taxes are an effective tool for lowering tobacco usage (WHO, 2019a). As shown on Graph 31, in 2020[79] the total tax burden (including

[74] Excise duties are indirect taxes.

[75] For more information, see: https://ec.europa.eu/taxation_customs/business/excise-duties-alcohol-tobacco-energy_en#:~:text=Excise%20duties%20are%20indirect%20taxes,The%20common%20provisions.

[76] For more information, see: https://ec.europa.eu/commission/presscorner/detail/en/ip_21_342.

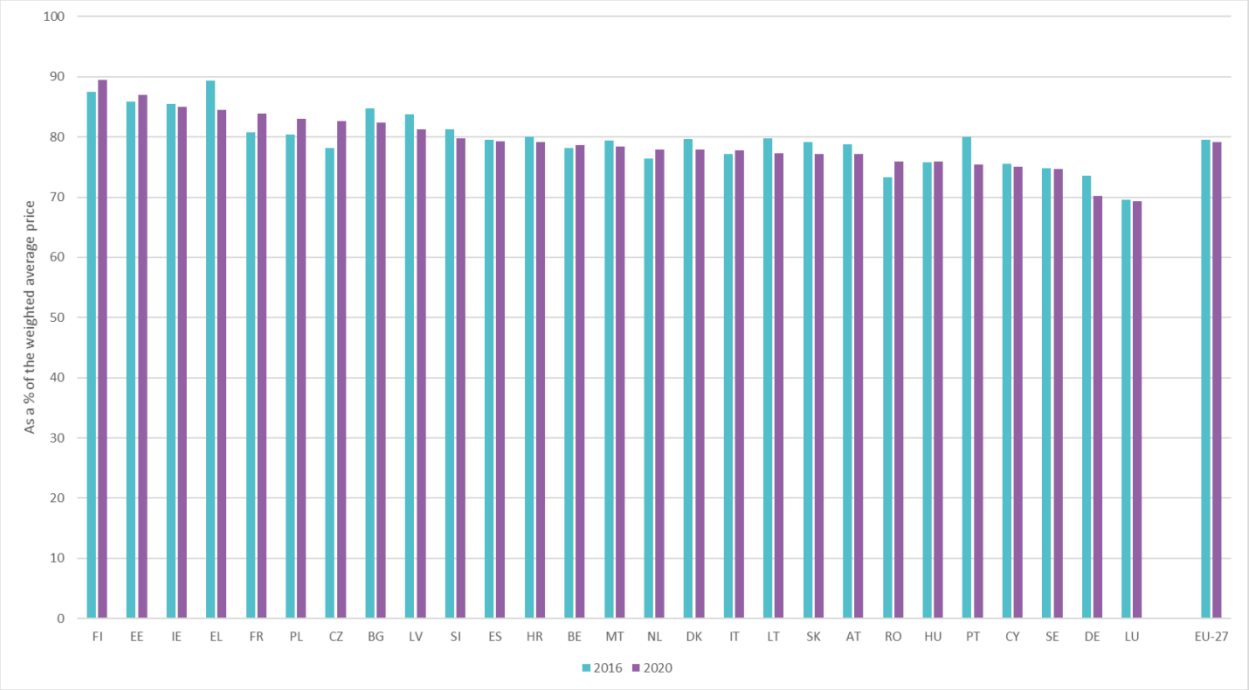
[77] For more information on the Commission's tobacco policy, see: https://ec.europa.eu/health/tobacco/overview_en.

[78] For more information on excise duties on tobacco in the EU, see: https://ec.europa.eu/taxation_customs/business/excise-duties-alcohol-tobacco-energy/excise-duties-tobacco_en

[79] For more information on excise duties on tobacco in the EU, see: https://ec.europa.eu/taxation_customs/business/excise-duties-alcohol-tobacco-energy/excise-duties-tobacco_en

VAT) on cigarettes in the EU ranged from 69.3% (in Luxembourg) to 89.5% (in Finland) of the weighted average price (WAP)[80].

GRAPH 31. TOTAL TAX BURDEN (INCLUDING VAT) ON CIGARETTES, % OF WEIGHTED AVERAGE PRICE



Source: European Commission, DG Taxation and Customs Union, 'Taxes in Europe' database (TEDB).
Note:
(1) No 2016 figures are available for IE and FR, so 2017 figures were used.
(2) The EU-27 figure is a simple average.
(3) 2016 figures reflect the situation as on 1 January 2016; 2020 figures reflect the situation as on 1 January 2020.

Taxation can reduce harmful levels of alcohol consumption. In 2018, Europe continued to have the highest levels of alcohol consumption in the world, resulting in the highest share of all deaths attributable to alcohol consumption. Despite the overwhelming evidence on the role of alcohol in premature mortality and disability, nearly half of the male population continues to engage in heavy episodic drinking and more than 60% of adolescents (15–19) are current drinkers.

Every day, about 800 people in Europe die from alcohol-attributable causes. Most worryingly, a relatively high proportion of alcohol harm occurs early in the life-course, with one in every four deaths among young adults (aged 20–24) being caused by alcohol[81]. Even moderate alcohol consumption increases the long-term risk of certain heart conditions, liver disease and cancers, and frequent consumption of large quantities can lead to alcohol dependence[82]. Taxation can reduce alcohol consumption by increasing the price of alcoholic products, to which consumers, including young people and heavy drinkers, are sensitive (Bundit Sornpaisarn, 2017). Member States impose different levels of excise duties on alcoholic beverages[83]. Graph 32 shows the level of excise duties imposed on one type of alcohol in the EU[84]. Over the past few years, the tax rate

[80] Under Articles 8(2) and 14(2) of Council Directive 2011/64/EU, the WAP for cigarettes and fine-cut tobacco is to be calculated by reference to the total value of all cigarettes/fine-cut tobacco released for consumption, based on the retail price (including all taxes) divided by the total quantities released for consumption in the previous calendar year.

[81] See: https://www.euro.who.int/__data/assets/pdf_file/0009/386577/fs-alcohol-eng.pdf

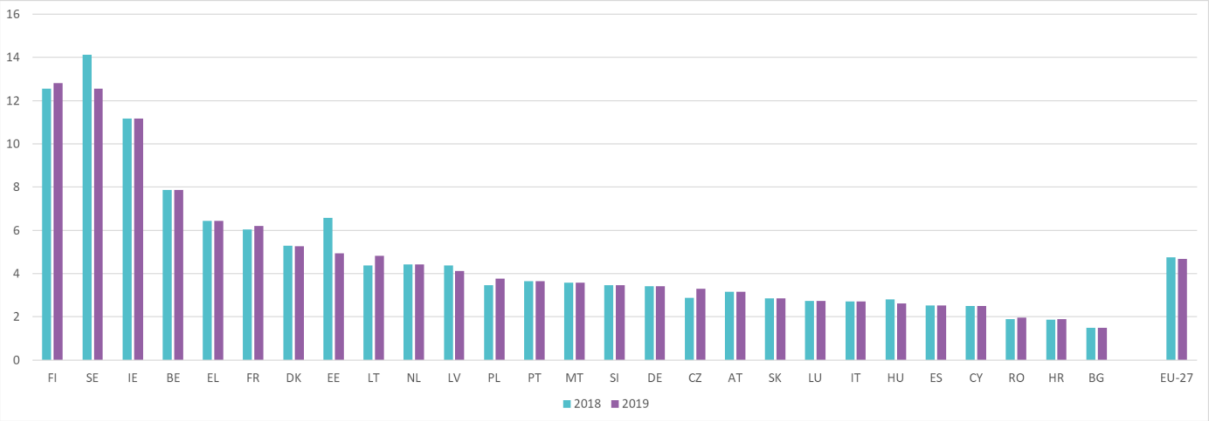
[82] For more information on EU actions aimed at reducing alcohol-related harm, see: https://ec.europa.eu/health/alcohol/overview_en

[83] For more information on EU legislation on excise duties on alcohol, see: https://ec.europa.eu/taxation_customs/business/excise-duties-alcohol-tobacco-energy/excise-duties-alcohol_en

[84] There are also differences between the level of excise duties imposed by Member States on other alcohol products such as beer and wine -

on spirits has decreased in several countries[85][86], raising fears of an increase in alcohol-related harm. This is most prominent in some Nordic and Baltic Member States, where changes in one Member State have explicitly led to policy changes in another to try prevent loss of tax revenue due to cross-border shopping in countries with lower taxation (Rabinovitch, 2009)). The EU countries in which the most alcohol is consumed all have excise duties around or below the EU average (WHO, 2019b).

GRAPH 32. EXCISE DUTY ON A 700ML 37.5% BOTTLE OF SPIRITS (%)



Source: European Commission, DG Taxation and Customs Union, 'Taxes in Europe' database (TEDB).
Note:
(1) The EU-27 figure is a simple average.
(2) 2018 figures reflect the situation as on 1 July 2018; 2019 figures reflect the situation as on 1 July 2019.

Several Member States also impose soft drink taxes to improve public health. These taxes can reduce the consumption of sugar-sweetened drinks, contributing to improved nutrition by promoting the consumption of healthier alternatives, such as water. In 2020, seven EU Member States and the Spanish region of Catalonia levied excise duties on soft drinks. While these taxes are not harmonised and differences exist, most of them are levied on the amount of sugar. Recent evidence shows that such taxes have a positive health impact by reducing obesity, in addition to raising additional revenue (Andreyevaa et al, 2011)[87]. If the revenue raised from these taxes is directly invested in improving public health, its benefits are even greater.

[85] Not all of these changes are due to changes in rates. Some of the changes on the graph are due to currency conversion fluctuations or because a Member State has imposed an annual increase in the excise duty rate to account for inflation.

[86] There can be a variety of reasons for these rate reductions, including the prevention of tax leakage and the fact that certain countries do not have indexed tax rates.

[87] Certain UK data suggest some adjustment in consumer behaviour (see https://bmcmedicine.biomedcentral.com/articles/10.1186/s12916-019-1477-4). Furthermore, behaviour has changed at the producer level in that some producers have now reduced the sugar content of their drinks.

TABLE 4. SOFT DRINKS TAXES IN THE EU, 2020

Member State	Excise duty on a 355ml can of a soft drink
Ireland	€0.107
Finland	€0.078
Portugal	€0.057
France	€0.055
Catalonia, Spain	€0.043
Latvia	€0.026
Belgium	€0.024
Hungary	€0.008

Source: 'Sugar drink taxes map' of the Global Food Research Program of the University of North Carolina at Chapel Hill: http://globalfoodresearchprogram.web.unc.edu/.

Box 2.4: Contribution of taxation to Europe's Beating Cancer plan

Each year, 3.5 million people in the EU are diagnosed with cancer. Around one third of deaths from cancer are due to the five leading behavioural and dietary risks: tobacco use, alcohol use, high body mass index, low fruit and vegetable intake, and a lack of physical activity. Tobacco use is the most significant risk factor for cancer and is responsible for approximately 22% of cancer deaths.

Taxation can play a critical role in the fight against cancer by reducing tobacco and alcohol consumption. In February 2021, the Commission launched Europe's Beating Cancer plan, which recognises the pivotal role of taxation in reducing cancer risk, in particular to deter young people from smoking and abusing alcohol. The plan covers the entire cycle of the disease, starting from prevention and early diagnosis to treatment and quality of life of patients and survivors.

The Beating Cancer plan provides the political momentum to use tax policy to achieve more ambitious public health objectives. Four EU taxation directives are relevant for the plan: i) the tobacco tax directive (covering both rates and structures), ii) the alcohol directive on structure, iii) a separate alcohol directive on rates, and iv) the directive on general arrangements for excise duties, which covers the level of cross-border acquisition of tobacco and alcohol by private individuals.

Work is underway at EU level to improve the effectiveness of the directives. While they generally serve their purposes, there is scope to improve them. For example, the misuse of cross-border shopping arrangements for both alcohol and tobacco by private individuals is a source of concern for a number of Member States as it can have a negative impact on national public health policies and reduce revenue. Furthermore, the tobacco directives do not cover relatively recent products. The possibility to tax certain alcoholic beverages based on alcoholic content rather than on volume could also be explored. These and other issues will be addressed in the coming months and years.

It is important to holistically consider any proposed changes to the current legislative framework. For example, rate increases can incentivise consumers to engage in cross-border shopping in Member States with lower taxes or, alternatively, to buy products on the illegal market (i.e. tax evasion). Above all, to assess the impact of tobacco taxes, one must go beyond solely assessing the impact of consumers' behavioural changes on revenue. While tax revenue may decrease as individuals limit their tobacco consumption, people's health will improve (leading to a decrease in medical care costs) and productivity will increase.

2.3 Fighting tax fraud, evasion and abuse so that everybody pays their fair share

Improving tax compliance to secure revenue to finance public policies on education, healthcare, infrastructure, etc. and create a fair society is now more essential than ever. The socio-economic crisis resulting from the COVID-19 pandemic has made the fight against tax fraud and evasion even more urgent, as public finances have been and will continue to be strained in coming years. It is therefore crucial that all economic actors contribute to the recovery by paying their fair share of tax. Alongside active measures to combat tax fraud, evasion and avoidance, a transparent and well-functioning tax administration (see also Section 2.1.4) is crucial to create and preserve trust in public authorities. This trust in the functioning of the system – essentially the sense that others are also paying their fair share – is a pre-condition of voluntary tax compliance. A solid tax compliance system also reduces options for criminals to reinvest the proceeds of their illegal activities in the financial system. Although it is (by the nature of the phenomena) difficult to estimate how much money is lost to tax fraud, evasion and avoidance, this section presents indicators that aim to gauge the scale of the issues in this area.

2.3.1 Estimates of tax avoidance

Tax avoidance refers to taxpayers reducing their tax liability through arrangements that may be legal, but are against the spirit of the law. It can take various forms, e.g. debt shifting via intra-group loans, the location of intangible assets and the manipulation of transfer pricing.

Many studies demonstrate the existence of tax avoidance practices and, although these are hard to measure, existing estimates point to tens of billions of euro of related revenue losses. It is hard to quantify what is *de facto* a hidden phenomenon. Nonetheless, several studies, including recent studies by Álvarez-Martínez *et al.* (2021) and Tørsløv *et al.* (2018), have tried to quantify revenue losses associated with tax avoidance practices[(88)], giving an estimate of EUR 36-37 billion[(89)] of corporate income tax (CIT) revenue losses per year. It should be noted that budgetary losses from increased tax avoidance might not appear directly in CIT revenue. In some cases, CIT revenue can even increase despite increased tax avoidance activities. This is because the effect of tax avoidance can be hidden by policy choices, e.g. a broadening of the tax base, which increases CIT revenue, can overcompensate the revenue loss from tax avoidance (Nicodème, Caiumi, & Majewski, 2018).

2.3.2 Financial activity

Very high financial activity, as compared to the size of the economy, may indicate that a country is being used for tax avoidance purposes. It is useful to look at financial activity indicators to see if these are in line with real economic activity or if they are a reflection of tax avoidance behaviour. High flows to offshore financial centres (OFCs) may be a further indication of tax avoidance, as these jurisdictions are likely to be used in aggressive tax planning (ATP) schemes. Furthermore, when transparency on financial activities is low, there is a risk that criminals may use OFCs for money laundering purposes.

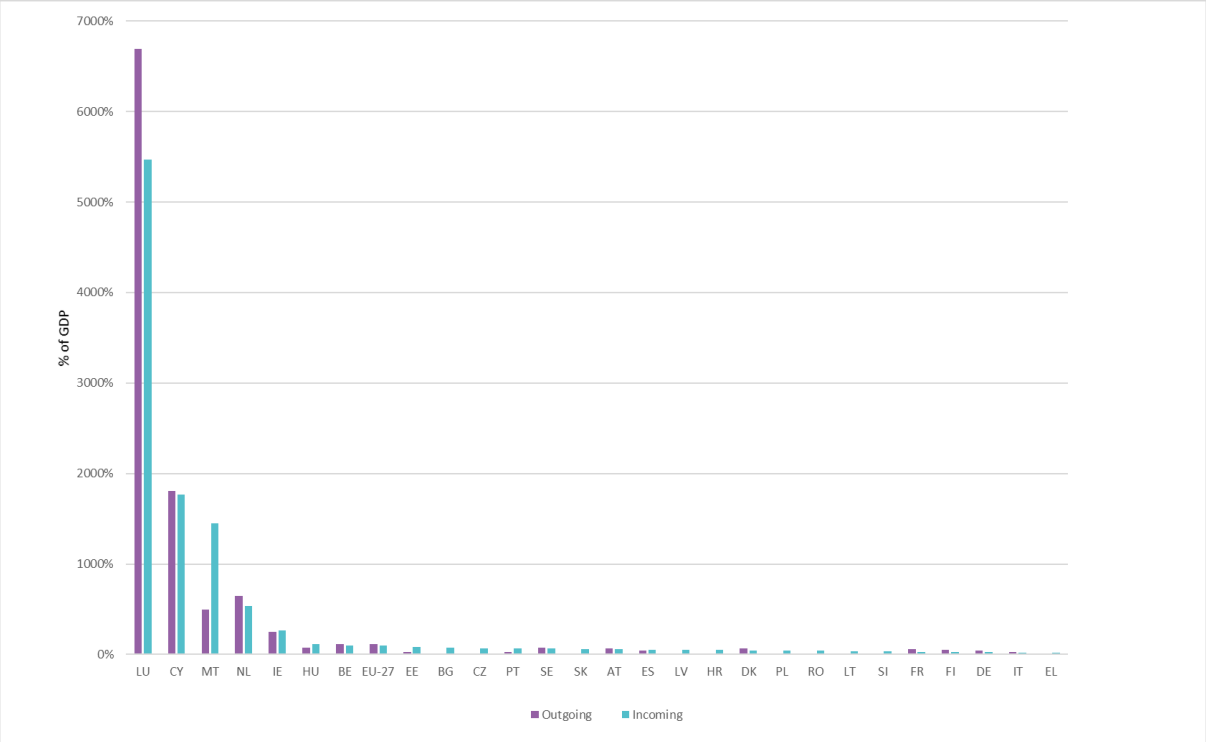
Such indicators are in themselves inconclusive in determining whether a country is being used for tax avoidance purposes, but together constitute a body of evidence. They provide circumstantial evidence and are useful in prompting further investigations into possible ATP in a given country. In this respect, it is useful to look at foreign direct investment (FDI), as it

(88) Dover, Ferrett, Gravino, Jones, & Merler, 2015.

(89) Own calculations based on Tørsløv *et al*. (2018), *The missing profits of nations.*

captures cross border investments between related companies. Graph 33 contrasts FDI data with countries' GDP. Certain Member States have an extremely high FDI-to-GDP ratio: for instance, the stock of Luxembourgish direct investment abroad represents nearly 65 times its GDP, while the stock of foreign direct investment in Luxembourg represents about 55 times its GDP. To a lesser extent, Cyprus, Malta, the Netherlands and Ireland also display stock of inward or outward foreign investment much larger than their respective domestic production.

GRAPH 33. FDI POSITIONS, 2018

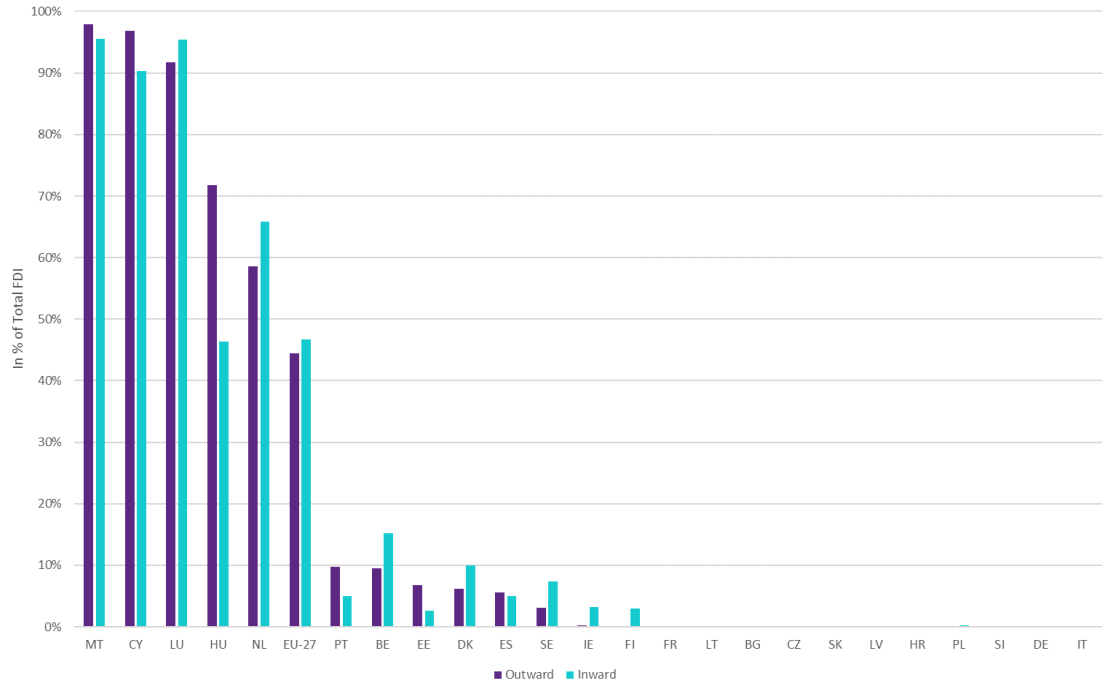


Source: European Commission, DG Taxation and Customs Union, based on Eurostat data (online data codes: bop_fdi6_pos and nama_10_gdp)
Notes:
(1) FDI is the category of international investment in which an entity based in one country (the direct investor) acquires a lasting interest in an enterprise based in another (the direct investment enterprise), including through a special purpose entity (SPE), i.e. a legal entity created to fulfil narrow, specific or temporary objectives. A direct investment enterprise is one in which a direct investor owns 10% or more of the ordinary shares or voting rights (or the equivalent for an unincorporated enterprise).
(2) Ingoing FDI or direct investment in the reporting economy (DIRE) denotes investment by foreigners in enterprises based in the reporting economy. Outgoing FDI or direct investment abroad (DIA) accounts for investment by domestic entities in affiliated enterprises abroad.
(3) FDI stocks (or positions) denote the value of the investment at the end of the period.

In some instances, direct investment via special purpose entities (SPEs) may be a vehicle for tax planning. Although direct investment stock carried out through SPEs may have legitimate purposes (e.g. achieving a defined set of goals without putting the entire firm at risk), in some instances, SPEs may also be investment vehicles used for tax planning (e.g. 'round trip transactions'). Thus, a large proportion of direct investment stocks held through SPEs may be an indication of ATP. Here again, Graph 34 shows that in 2019 (latest available data), Cyprus, Malta, Luxembourg and the Netherlands, along with Hungary, displayed a significant use of SPEs for both inward and outward FDI. However, CEPS (2020) estimated following the approach of Damgaar et al (2019) using firm-level data that "*just under half (47.5%) of all inward FDI positions in the EU involve SPEs*". Furthermore, EU level macro data show[(90)] that the recent declines in intra-EU-27 FDI flows have been a result of slowing down FDI trough SPEs as the inward intra-EU-27 FDI position for this type of investment was 12% lower in 2019 than in 2016. In the same time, the remaining FDI intra-EU-27 positions increased by almost the same percentage (11.6%) for this period.

[(90)] See: EC, "Staff Working Document on Capital Movements and the Freedom of Payments", 2020

GRAPH 34. PROPORTION OF OUTWARD AND INWARD DIRECT INVESTMENT STOCKS HELD THROUGH SPES, 2019

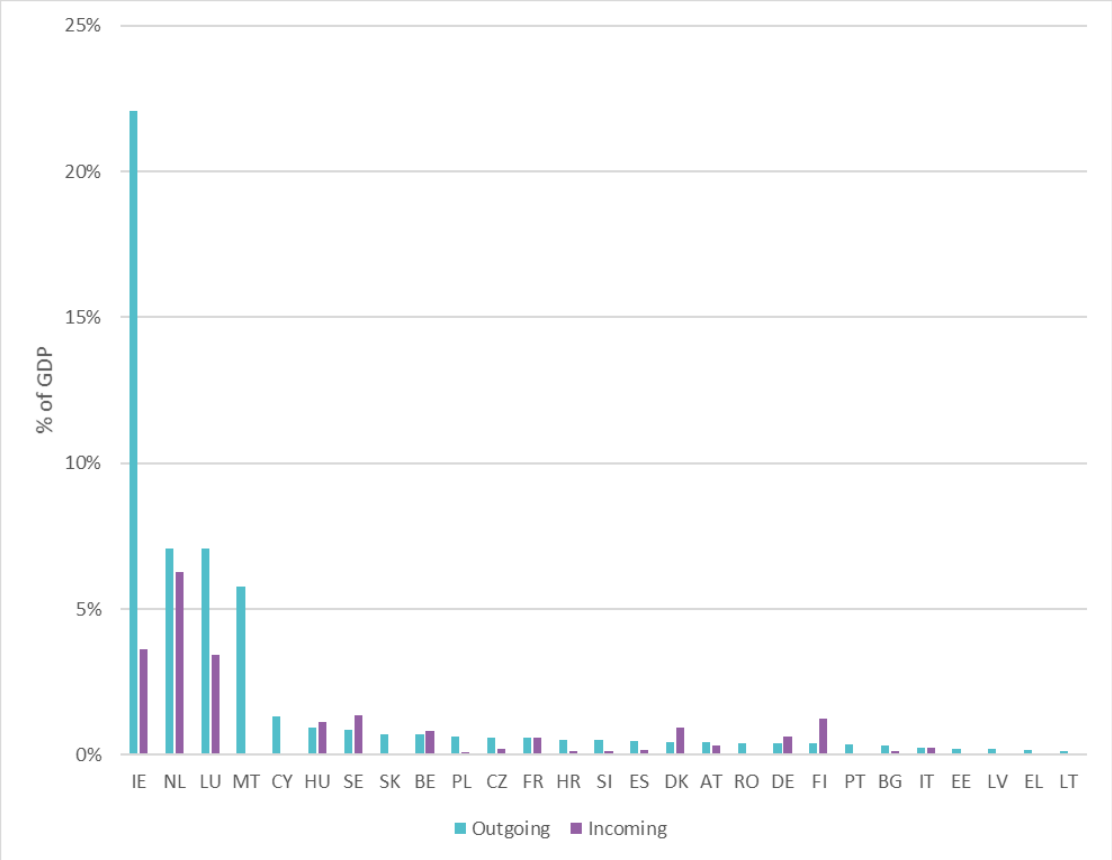


Source: European Commission, DG Taxation and Customs Union, based on Eurostat data (online data codes:bop_fdi6_pos and nama_10_gdp)
Note: Data on SPEs are unavailable for EL, AT and RO.

Some tax avoidance strategies involve (re)locating intangible assets (e.g. intellectual property) to jurisdictions offering favourable conditions. A high volume of royalty payments, particularly when relative to GDP, might be indicative of loopholes in tax legislation. If no withholding tax is applied by EU Member States to outgoing royalty flows towards non-EU countries, there is a risk that these payments may escape tax altogether or be taxed at a very low rate in the recipient non-EU country. As shown in Graph 35, in some countries a high proportion of these flows go to OFCs[91]. Ireland is, by far, the country that displays the highest ratio of outgoing royalty flows relatively to its GDP, with the Netherlands, Luxembourg and Malta also having high ratios. In terms of incoming royalties, the Netherlands, Ireland and Luxembourg display the most significant flows relative to their respective GDP. Again, such indicators are not in themselves conclusive proof that a country is being used for tax avoidance purposes, but they can contribute to a body of evidence that indicates that ATP is occurring in a specific country.

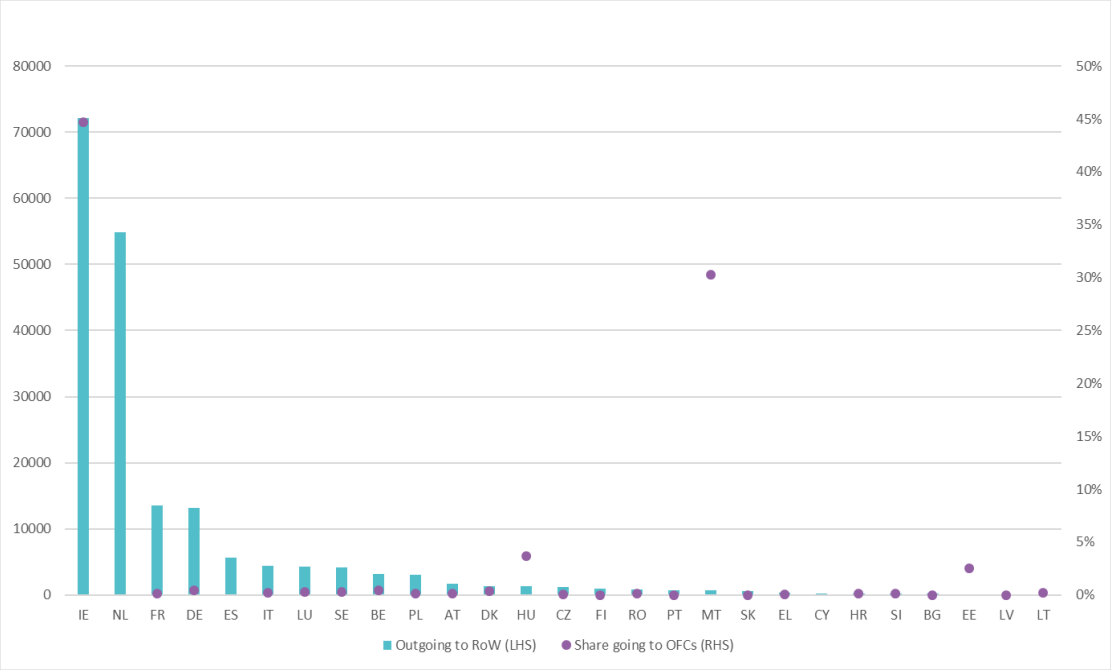
[91] As defined by Eurostat in its *Balance of payments vademecum*.

GRAPH 35. CHARGES TO/FROM REST OF THE WORLD (ROW) FOR USE OF INTELLECTUAL PROPERTY (% OF GDP), 2018



Source: European Commission, DG Taxation and Customs Union, based on Eurostat data (online data codes:bop_its6_der and nama_10_gdp)
Note: Data on incoming flows are unavailable for CY and MT.

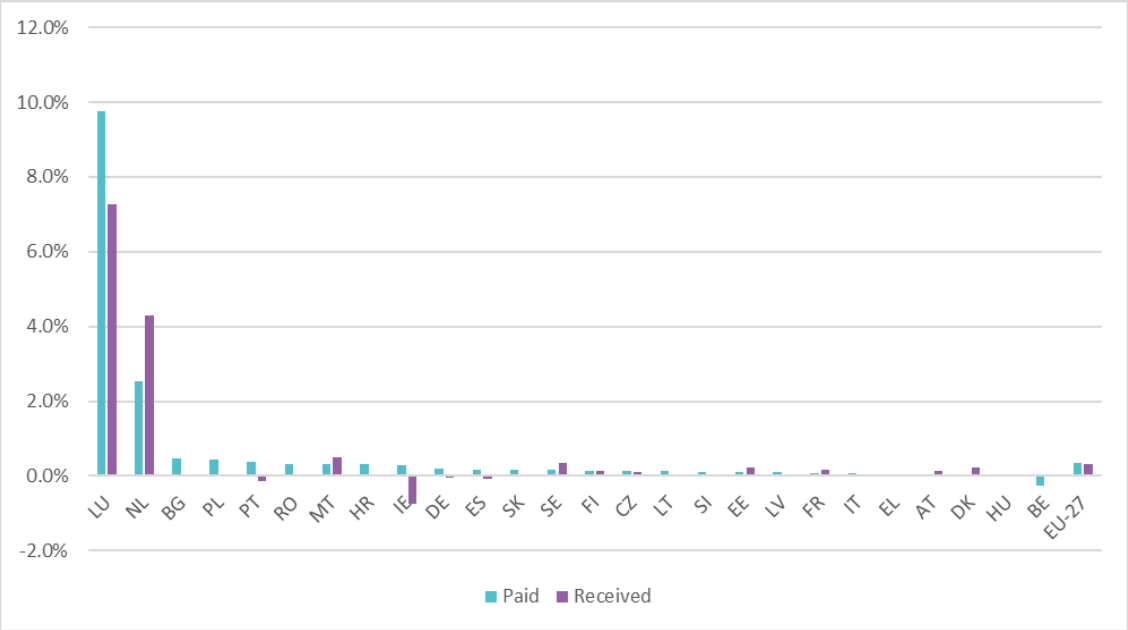
GRAPH 36. CHARGES PAID TO REST OF THE WORLD FOR USE OF INTELLECTUAL PROPERTY (€ MILLION) AND PROPORTION GOING TO OFFSHORE FINANCIAL CENTRES (%), 2018



Source: European Commission, DG Taxation and Customs Union, based on Eurostat data (online data codes: bop_its6_det. and nama_10_gdp)
Note: Data on flows to OFCs are unavailable for CY, ES and NL. OFC is an aggregate used by Eurostat.

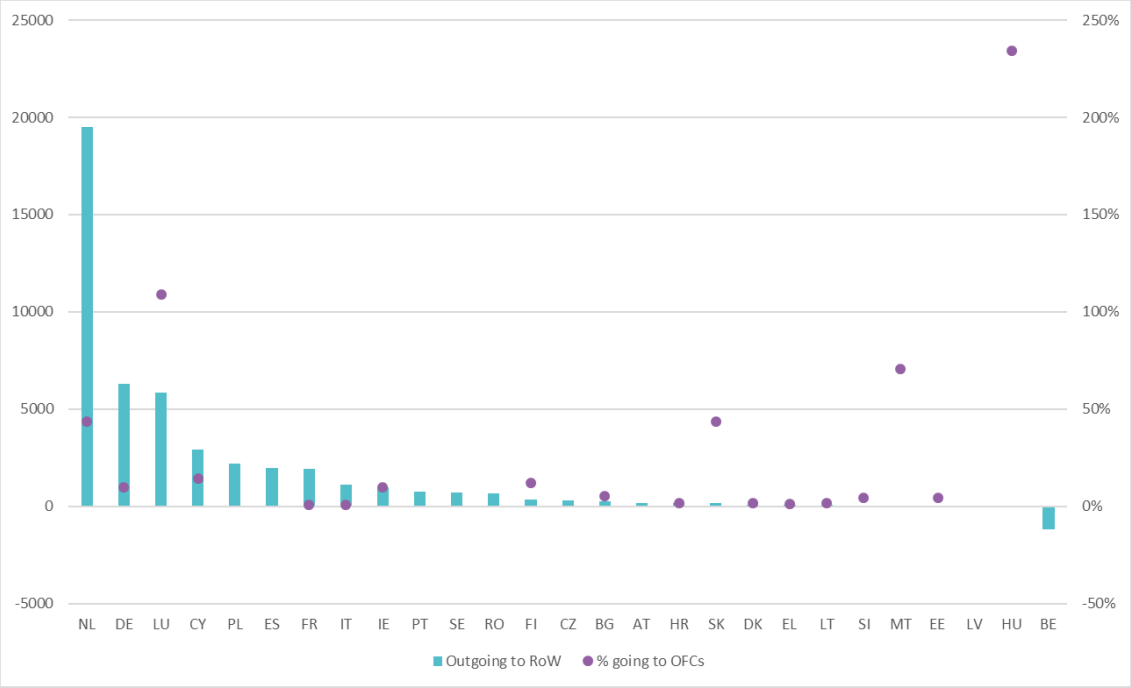
Other tax avoidance strategies involve intra-company loans from low-tax countries (where companies may benefit from low taxes on interest received) **to high-tax ones** (where they may benefit from tax deductibility on interest paid). Similar strategies may involve countries (including Member States) with high statutory tax rates but low effective tax rates on interest income e.g. as a result of their interpretation of the transfer pricing or profit allocation rules. Graph 37 shows the inward and outward flows of interest payment in each Member States, relative to the size of their respective GDP. Once again, the ratios of incoming and ongoing interest flows to GDP for Cyprus, Luxembourg and the Netherlands are much larger than for other Member States.

GRAPH 37. NET INCOME ON DEBT (INTERESTS) PAID/RECEIVED TO/FROM REST OF THE WORLD (% OF GDP), 2018



Source: European Commission, DG Taxation and Customs Union, based on Eurostat data (online data codes: bop_fdi6_inc and nama_10_gdp)

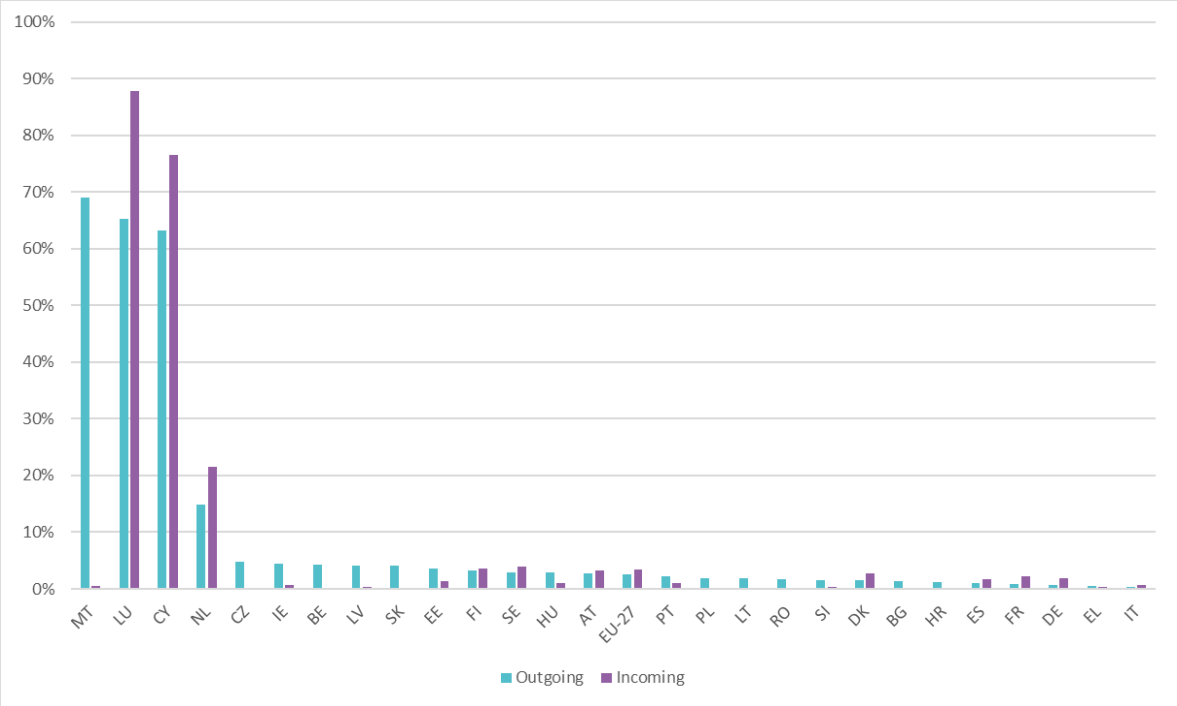
GRAPH 38. NET INTEREST ON DEBT PAID TO REST OF THE WORLD (€ MILLION) AND PROPORTION GOING TO OFFSHORE FINANCIAL CENTRES (%), 2018



Source European Commission, DG Taxation and Customs Union, based on Eurostat data (online data code: bop_fdi6_inc)
Notes:
(1) A negative flow means that the loan is from the subsidiary (e.g. in HU or BE) to the parent company (abroad).
(2) Data on flows to OFCs are unavailable for PL, ES, PT, SE, RO, CZ, AT, LV and BE.

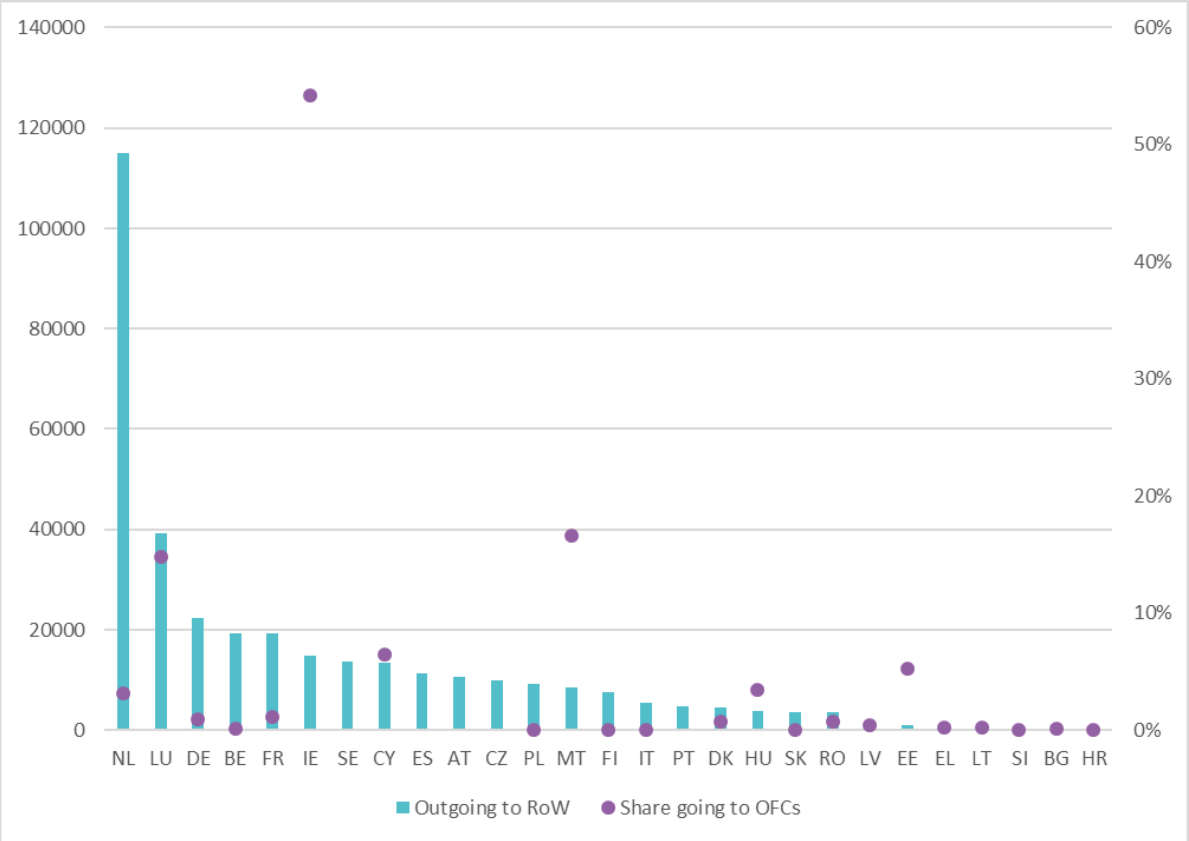
Some multinationals reroute their dividends to reduce taxation, e.g. through 'tax treaty shopping'. In the absence of withholding taxes, such payments can escape taxation if they are not taxed in the recipient jurisdiction. This results in disproportionally high flows of outgoing dividend payments. As shown in Graph 39, Malta, Luxembourg, Cyprus and, to a lesser extent, the Netherlands have a significantly high outgoing dividend-to-GDP ratio and, with the exception of Malta, incoming dividend-to-GDP ratio.

GRAPH 39. NET DIVIDEND INCOMES PAID/RECEIVED TO/FROM REST OF THE WORLD (% OF GDP), 2018



Source: European Commission, DG Taxation and Customs Union, based on Eurostat data (online data code: bop_fdi6_inc)

GRAPH 40. NET DIVIDEND PAYMENTS TO REST OF THE WORLD (€ MILLION) AND PROPORTION GOING TO OFCS (%), 2018



Source: European Commission, DG Taxation and Customs Union, based on Eurostat data (online data code: bop_fdi6_inc)
Note: Data on flows to OFCs are unavailable for SE, ES, AT, CZ and PT.

2.3.3 Overview of tax rules

Multinationals that engage in aggressive tax planning (ATP) use loopholes that exist in a tax system or mismatches between two or more tax systems to reduce their tax liability. ATP may generally lead to tax avoidance. ATP can result in double deductions (e.g. the same loss is deducted both in the state of source and in the state of residence) and double non-taxation (e.g. income that is not taxed in the source state is exempted in the state of residence). It is therefore essential to assess whether Member States' tax rules can be used in ATP schemes.

The Anti-Tax Avoidance Directive (ATAD)[92], implemented since 1 January 2019, has provided all Member States with a set of robust anti-abuse rules[93], including interest limitation rules (to discourage artificial debt arrangements designed to minimise taxes) and rules on controlled foreign companies (CFC) to deter profit shifting to low/no-tax jurisdictions. However, as shown by the current tax reform discussions in the G20/OECD framework[94] on the right to tax and to set a minimum effective tax rate on companies' profits, the ATAD rules are not sufficient to put an end to ATP-related tax avoidance.

Tax rules that *can* prompt ATP schemes must be assessed case by case before conclusions can be drawn as to any link with ATP practices and tax avoidance. The ATP practices can be identified as harmful by the Code of Conduct group or as State aid by the Commission. State aid may be found in tailor-made tax practices investigated as tax ruling cases under State aid rules[95] or in the tax provisions themselves. State aid granted through tax provisions that provide a selective advantage pursuant to State aid rules was found to exist in the Commission decisions regarding the Belgian excess profit taxation[96] and the UK Controlled Foreign Company (CFC) scheme[97], as both schemes led to the granting of illegal tax advantages to certain multinational companies. Such assessment requires detailed analysis of their actual design and application, taking account of the extent to which the tax rules are properly safeguarded, with measures to prevent abuse.

While the absence of withholding taxes is generally intended to prevent double taxation[98], it may also facilitate ATP under certain circumstances. Payments to other countries may escape tax altogether if they are not subject to tax in the recipient jurisdiction. Withholding taxes prevent tax-free profit shifting, thereby discouraging or impeding ATP.

At EU level, this is a gatekeeper issue. If a Member State implements a defensive measure against financial flows exiting to a third country untaxed or low-taxed, such financial flows might be redirected to other Member States still permitting an exit of the EU untaxed or low-taxed. Since the implementation of the Interest and Royalty Directive[99] and the Parent Subsidiary Directive[100], interest, royalty and dividend flows within a company group in the EU are free from withholding taxes. This means that financial flows can circulate freely within the EU in line with the freedom of movement of capital. However, such financial flows may also exit from a Member State

[92] Council Directive (EU) 2016/1164.

[93] For more information, see Ramboll Management Consulting and Corit Advisory (2015).

[94] OECD (2019), Programme of work to develop a consensus solution to the tax challenges arising from the digitalisation of the economy, OECD/G20 Inclusive framework on BEPS, OECD, Paris, www.oecd.org/tax/beps/programme-of-work-to-develop-aconsensus-solution-to-the-tax-challenges-arising-from-the-digitalisation-of-the-economy.htm. www.oecd.org/tax/beps/programme-of-work-to-develop-aconsensus-solution-to-the-tax-challenges-arising-from-the-digitalisation-of-the-economy.htm.

[95] Commission Decision (EU) 2016/2326 on State aid which Luxembourg granted to Fiat, OJ L 351, 22.12.2016, p. 1–67; Commission Decision (EU) 2017/502 on State aid implemented by the Netherlands to Starbucks, OJ L 83, 29.3.2017, p. 38–115; Commission Decision (EU) 2017/1283 on State aid implemented by Ireland to Apple, OJ L 187, 19.7.2017, p. 1–110; and Commission Decision (EU) 2017/6740 on State aid implemented by Luxembourg to Amazon, OJ L 153, 15.6.2018, p. 1-142.

[96] Case SA.37667 Excess Profit exemption in Belgium, Commission decision of 11 January 2016, available at http://ec.europa.eu/competition/elojade/isef/case_details. cfm?proc_code=3_SA_37667.

[97] Case SA.44896 Aid implemented by the United Kingdom concerning CFC Group Financing Exemption, Commission decision of 2 April 2019. See: https://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=3_SA_44896

[98] As provided for by Council Directive 2011/96/EU (Parent/Subsidiary Directive), as amended by Council Directive 2014/86/EU.

[99] Council Directive 2003/49/EC of 3 June 2003.

[100] Council Directive 2011/96/EU of 30 November 2011.

to a low-tax country without being taxed, if that Member State does not apply a withholding tax on financial flows from the EU. Bilateral tax treaties with no or low tax countries should also be renegotiated if necessary to insure that domestic withholding taxes are not overridden by obligations under bilateral tax treaty.

Table 5 shows which Member States apply a withholding tax (i.e. exceeding 0%) on flows of interest, dividends or royalties to non-EU country jurisdictions.

TABLE 5. WITHHOLDING TAXES (WHT) ON FLOWS TO NON-EU COUNTRY JURISDICTIONS, 2020

	Royalties	Interests	Dividends
HU	×	×	×
MT	×	×	×
CY	✓	×	×
EE	✓	×	×
LU	×	×	✓
NL	×	×	✓
AT	✓	×	✓
DE	✓	×	✓
IE	✓	✓	×
FI	✓	×	✓
SE	✓	×	✓
BE	✓	✓	✓
BG	✓	✓	✓
CZ	✓	✓	✓
DK	✓	✓	✓
EL	✓	✓	✓
ES	✓	✓	✓
FR	✓	✓	✓
HR	✓	✓	✓
IT	✓	✓	✓
LT	✓	✓	✓
LV	✓	✓	✓
PL	✓	✓	✓
PT	✓	✓	✓
RO	✓	✓	✓
SI	✓	✓	✓
SK	✓	✓	✓

Source: ZEW (2016b) and complementary desk research carried out by the Commission.
Notes:
(1) The table focuses on WHT rates specified in national corporate tax law; it does not reflect those specified in double tax treaties.
(2) A cross means that the Member State does not apply a WHT (exceeding 0%).
(3) In the Netherlands, a recent law has introduced WHTs on flows of royalties and interest to low-tax jurisdictions as of 1 January 2021.
(4) WHTs on royalties in IE are only applied on patents and with exemptions in certain cases, for WHTs on dividends there is a broad range of exemptions for corporate and individual shareholders. In DK, WHTs on interest are only applied if paid to foreign related entities. In SE, royalties are subject to income tax by assessment.

Box 2.5: EU list of non-cooperative jurisdictions[101]

The EU list of non-cooperative jurisdictions is a common tool that Member States can use to tackle external risks of tax abuse and unfair tax competition. The idea was first floated in the Commission's 2016 external strategy for effective taxation, which pointed out that a single EU blacklist would hold much more weight than a medley of national lists and would have a dissuasive effect on non-EU jurisdictions that do not play fair on tax matters. The first EU list was agreed by Member States in December 2017.

It was the result of an extensive screening of 95 jurisdictions, using internationally recognised good governance criteria, such as tax transparency (exchange of information), fair taxation and implementation of anti-base erosion and profit-shifting (BEPS) measures. The blacklisted countries are those that fail to make a high-level commitment to comply with agreed good governance standards or that do not deliver on that commitment on time. The Commission monitors the implementation of these commitments on behalf of the EU Member States. Since 2020, the EU list is updated twice a year based on progress made by jurisdictions. By the end of 2020, 95 jurisdictions had been screened.

The purpose of the list was to address threats to Member States' tax bases. However, it has evolved into something much wider than just a listing exercise. It has prompted unprecedented engagement between the EU and its international partners on important tax issues. It has raised the standards of tax good governance globally, both through improvements made by other countries and by influencing international criteria for zero-tax countries.

As a result of the EU listing process, countries have taken tangible steps to improve their tax systems, in line with international standards. Over 130 harmful regimes have been eliminated. Zero-tax countries have introduced new measures to ensure a proper level of economic substance and information exchange. In addition, many jurisdictions have brought their tax transparency standards into line with international norms for the first time. Moreover, dozens of countries became members of international fora such as the OECD's Global Forum for Transparency and the Base Erosion and Profit Shifting (BEPS) Inclusive Framework.

To ensure effectiveness, the EU list is linked to EU funding under new provisions in the Financial Regulation and other legislation, so blacklisted jurisdictions cannot be used to channel EU funds. In addition, Member States have agreed on national sanctions against the listed jurisdictions, which should be strengthened by the end of 2020. In its Communication on tax good governance in Europe and beyond, the Commission has also announced that it will continue to support Member States' work on developing coordinated defensive measures for the EU list and screening additional jurisdictions in response to their requests. The Commission is also updating the priority table[102] of non-EU jurisdictions for tax purposes and has announced that it will work on a revision of the EU listing criteria to make them fit for future challenges.

[101] For the latest information on this initiative, including the current EU list, see: https://ec.europa.eu/taxation_customs/tax-common-eu-list_en

[102] Formerly known as the 'scoreboard': https://ec.europa.eu/taxation_customs/sites/taxation/files/2016-09-15_scoreboard-indicators.pdf

2.3.4 Estimates of tax fraud and evasion

Tax evasion is an illegal practice whereby taxpayers pay less than they should, by hiding or understating the base on which the tax should normally be paid. As the tax base is not easy to calculate, because some activities may be hidden, it is difficult to measure the actual extent of tax evasion. To calculate the magnitude of tax evasion it is necessary to establish the 'correct' benchmark level of the tax and have good available data. The revenue lost to tax evasion can be estimated by using a top-down methodology[(103)] based on macroeconomic data such as national accounts data, or a bottom-up methodology[(104)] that uses more specific, individual-level data, e.g. from surveys and tax audits. Tax fraud is a deliberate form of tax evasion, which is generally punishable under criminal law. The term also includes situations in which deliberately false statements are submitted or fake documents are produced.

The non-observed economy (NOE) – which includes underground, informal and illegal activities – provides an indirect, though broader, indication of tax evasion. Tax evasion is a key motive (but by no means the only one) for economic agents to perform economic activities underground or informally. Laundering of proceeds from criminal activities and financing terrorism are other key reasons.

Statistical offices in Member States take account of the NOE when calculating national account statistics. They use various statistical methods or adjustments to overcome the gaps in national accounts information that stem from the NOE, but not all of them publish data on the adjustments.

Moving from the whole economy to specific taxes, there are several estimates of how much tax remains uncollected. The VAT gap is the difference between the amount of VAT actually collected and the estimated amount that is theoretically collectable based on VAT rules. It measures the effectiveness of VAT compliance and enforcement measures in the country in question. It estimates revenue loss due to voluntary non-compliance (i.e. fraud, evasion and avoidance), bankruptcies, financial insolvencies and errors or miscalculations. The VAT gap in the EU was estimated at **EUR 140.0 billion** in 2018 (CASE et al., 2020). Graph 41 shows the VAT gap in EU Member States as a % of theoretical tax liability. Cross-border VAT fraud across the EU is estimated to account for about **EUR 50 billion** a year (EY, 2015). Due to the effect of the COVID-19 on the European and global economy, the VAT gap report has forecast a pronounced increase in VAT revenue losses in the EU, to EUR 164 billion in 2020. As a result, the VAT gap in 2020 is projected to increase by up to 4.1 pp up to 13.7%. VAT gap is pro-cyclical, during a growth cycle, taxable agents are more likely to comply with their obligation, because the risk of avoiding is valued higher than the benefit of avoidance, whereas during an economic downturn, the relative benefit of avoidance will be perceived as higher than the risk of avoiding.

(103) Also referred to as the 'macro' or 'indirect' method.

(104) Also referred to as the 'micro' or 'direct' method.

GRAPH 41. VAT GAP (% OF THEORETICAL VAT LIABILITY), 2017-2018

Source: CASE et al., 2020.

Several Member States also estimate other tax gaps, e.g. the corporate income tax (CIT) gap. In response to a survey carried out by the Fiscalis Tax Gap Project Group (Fiscalis Tax Gap Project Group, 2018), nine Member States provided estimates of their CIT gap or have taken steps to do so (Belgium, Bulgaria, Denmark, Greece, Italy, Romania, Slovakia, Finland and Sweden). Four others said that they were planning to do so (Czechia, Portugal, Latvia and Lithuania). Unfortunately, national estimates are not always publicly available and cross-country comparison is not possible due to the use of different methodologies.

Tax evasion through underreporting of income by self-employed people produces non-negligible budgetary losses. A recent study by the European Commission Joint Research Centre quantified the loss at up to 1.6% of GDP (JRC, 2019). The self-employed have more opportunity to underreport their income for tax purposes, since their income is typically not subject to third-party reporting. This form of tax evasion has negative distributional implications, due to the high concentration of self-employed in the higher income groups.

Tax evasion by individuals in offshore financial centres represents sizeable tax losses for EU Member States. A study by ECOPA and CASE (2019) provides estimates of offshore wealth held by individuals (for the world's main economies) and corresponding estimates of revenue lost by the EU and its Member States due to international tax evasion. Global offshore wealth is estimated at EUR 7.5 trillion in 2016, with an estimated EUR 1.5 trillion held by EU residents (i.e. 9.7% of GDP, down from 15.7% in 2001). EU revenue lost due to international tax evasion was estimated at EUR 46 billion (0.3% of GDP) (see Graph 42). On average, France, Germany and the UK accounted for over 55% of this amount, in monetary terms. Member States with the largest offshore wealth as a share of their GDP are Cyprus, Malta, Portugal and Greece. In 2016, the countries with the largest ratios of level of revenue lost to tax evasion as a share of GDP were Malta (2.4%), Cyprus (0.7%) and Latvia (0.7%).

GRAPH 42. TOTAL REVENUE LOST IN THE EU DUE TO INTERNATIONAL TAX EVASION (€ BILLION)

Source: ECOPA and CASE, 2019.

Underreporting by the self-employed is substantial in all 14 of the EU countries[105] in the scope of the study, ranging from 10% of income reported by employees in Bulgaria and Cyprus to above 40% in Latvia. In most countries, the estimated impact is below 0.6% of GDP, while the largest impacts are found in Ireland (at around 0.9% of GDP, due to high levels of underreporting and a relatively high share of self-employed income) and Greece (at more than 1.6% of GDP, due to the high share of self-employed income).

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[105] Bulgaria, Croatia, Cyprus, Czechia, Estonia, Greece, Hungary, Ireland, Latvia, Lithuania, Poland, Portugal, Romania and Spain.

[106] Bulgaria, Croatia, Cyprus, Czechia, Estonia, Greece, Hungary, Ireland, Latvia, Lithuania, Poland, Portugal, Romania and Spain.

2.4 Contributing to social fairness and prosperity by creating jobs and addressing inequalities

The design of the tax and benefit system can be instrumental in stimulating economies, promoting growth, employment and equality of opportunity whilst ensuring a social safety net for those in need. The overall tax burden on employment needs to find a balance to fund welfare systems and public services without stifling job creation and employment.

On the supply side, a high tax burden can dis-incentivise work, especially for low income and second earners. Features of tax and benefit systems could discourage low-income and second earners, often women, from working or opting for full-time work. If this leads to an increase in low-work intensity and a reduction in income in households with children, a high tax burden may also have knock-on effects on children's well-being and access to good quality education.

Similarly, a high tax wedge discourages hiring, resulting in lower employment and higher unemployment rates. In turn, this would also increase government expenditures on unemployment and other social benefits. It may also discourage employers from investing in skill formation with an adverse impact on productivity and equality of opportunity.

The EU-27 employment rate (20-64) was on a slow upward trend from 2013, reaching 73.1 % in 2019, before falling as a result of the COVID-19 pandemic. The employment rate remains below the EU2020 75 % target rate[107] and as discussed below the COVID-19 pandemic has negatively affected employment despite Member States' extensive use of short time work and other support schemes. This highlights the ongoing challenges Member States face in activating and providing employment opportunities across all groups in their working-age populations. One challenge is closing the gender employment gap[108], which has stagnated over the last six years as the male and female employment rates picked up by similar amounts since 2013.

Graph 43 compares full-time equivalent (FTE) employment rates of the total population, women and low-skilled workers. FTE employment rates reflect hourly work patterns and capture the extent of part-time work, which is hidden in the overall employment rates. In the graph, women are used as a proxy for second earners and the low skilled (ISCED levels 0-2, less than upper secondary education attainment[109]) are a proxy for low-income earners. Both groups have lower FTE employment rates, in part due to a much higher incidence of part-time work. Participation taxes are costs incurred when someone joins the labour market, including through loss of other benefits. Of particular relevance to women's ability to work full time are the availability, quality and affordability of early childhood education and care (ECEC) and long-term care services. In 2019, the highest FTE female employment rates were found in Lithuania, Latvia and Sweden (see Graph 43). FTE employment rate gaps between the total population and women range from 2.4pp (Lithuania) to 24.3pp (Malta, Italy and the Netherlands all over 24pp). The highest FTE low-skilled employment rates were recorded in Portugal and Malta (both over 60 %), which are also the EU member states which have the highest shares of low-skilled adults (25-64 years, 47.8 % and 44.2 % respectively vs EU-27, 21.6 %). The widest gap of low skilled compared to total employment was in Slovakia (47.2 pp).

The recent years' growing trend in the employment rate reversed in 2020 due to the impacts of the COVID-19 pandemic, and hours worked fell more than headline employment. The year-on-year seasonally adjusted quarterly employment rate fell in Q2 2020 and Q3 2020. Women's disproportionate care burdens exacerbated the economic impacts they faced from the pandemic[110][111]. For example, women were more likely to reduce their working hours[112] to cope with increased care demands. The rate of decline for the year-on-year (seasonally

[107] See: https://ec.europa.eu/eurostat/statistics-explained/index.php/Employment_rates_and_Europe_2020_national_targets

[108] The gender employment gap is the difference in male and female employment rates

[109] See: https://ec.europa.eu/eurostat/statistics-explained/index.php/International_Standard_Classification_of_Education_(ISCED)

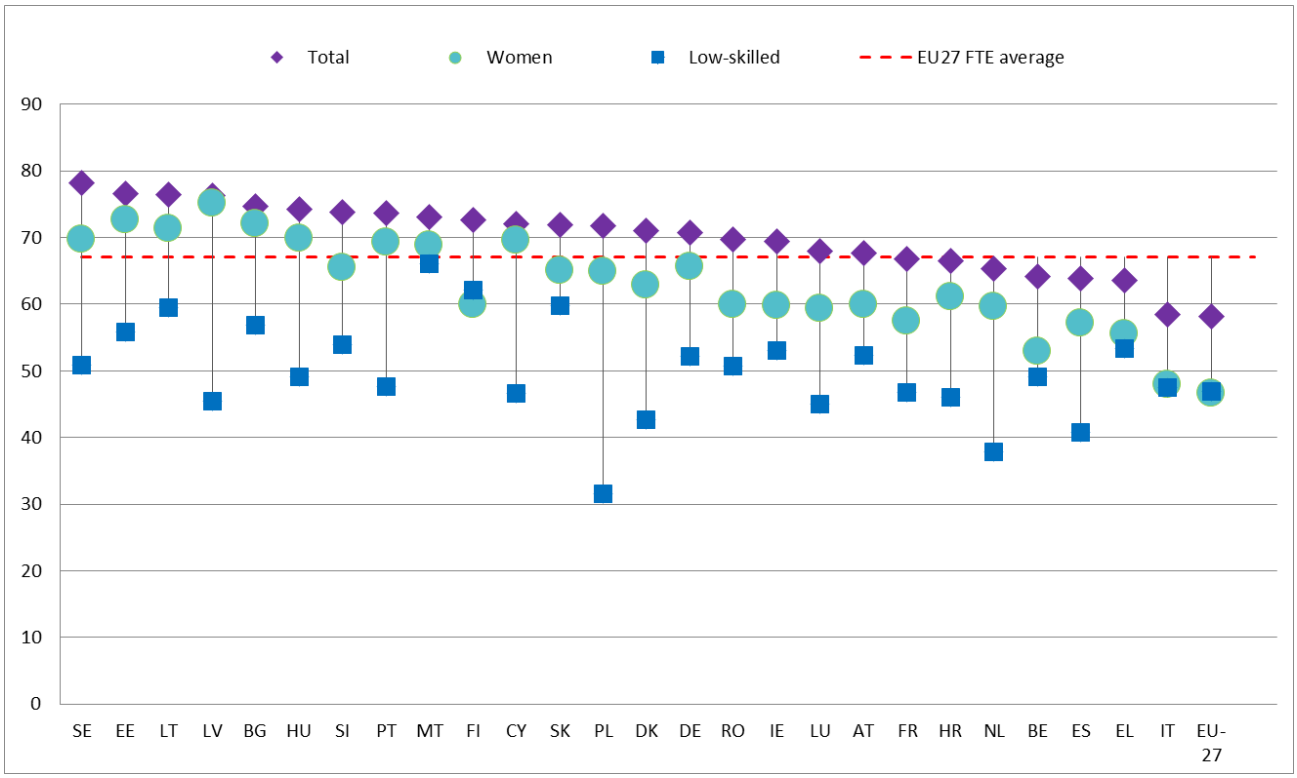
[110] JRC Science of Policy Report: How will the COVID-19 crisis affect existing gender divides in Europe?, 2020

[111] https://www.qualtrics.com/blog/inequitable-effects-of-pandemic-on-careers/

[112] Data from ESTAT variable [lfsi_ahw_q]

adjusted) quarterly employment rate in Q2 2020 was stronger for low-skilled workers and women compared to men and high-skilled workers (ISCED levels 5-8). The following quarter (Q3 2020) similarly showed stronger rates of decline for low and medium skilled women.

GRAPH 43. FULL-TIME EQUIVALENT EMPLOYMENT RATES, 20-64 YEARS – TOTAL POPULATION, WOMEN AND LOW-SKILLED (%), 2019



Source: Eurostat, extractions from EU-LFS microdata

2.4.1 Overall tax burden on labour

The overall burden of taxes on employed labour is paid by both employees and employers in most Member States. This measure is known as the implicit tax rate (ITR) on labour income. It is an aggregate measure based on macroeconomic variables in the national accounts that is used to assess the tax burden on all employed labour. The ITR combines all tax rates on personal income, namely personal income tax, employees' and employers' SSCs, and payroll taxes. ITR is computed by dividing the sum of all labour taxes and employees' and employers' SSCs by compensation of employees. Graph 44 shows that the top personal income tax (PIT) rates (including surcharges but excluding SSCs) are generally higher than average labour tax rates for a single worker on the average wage[113].

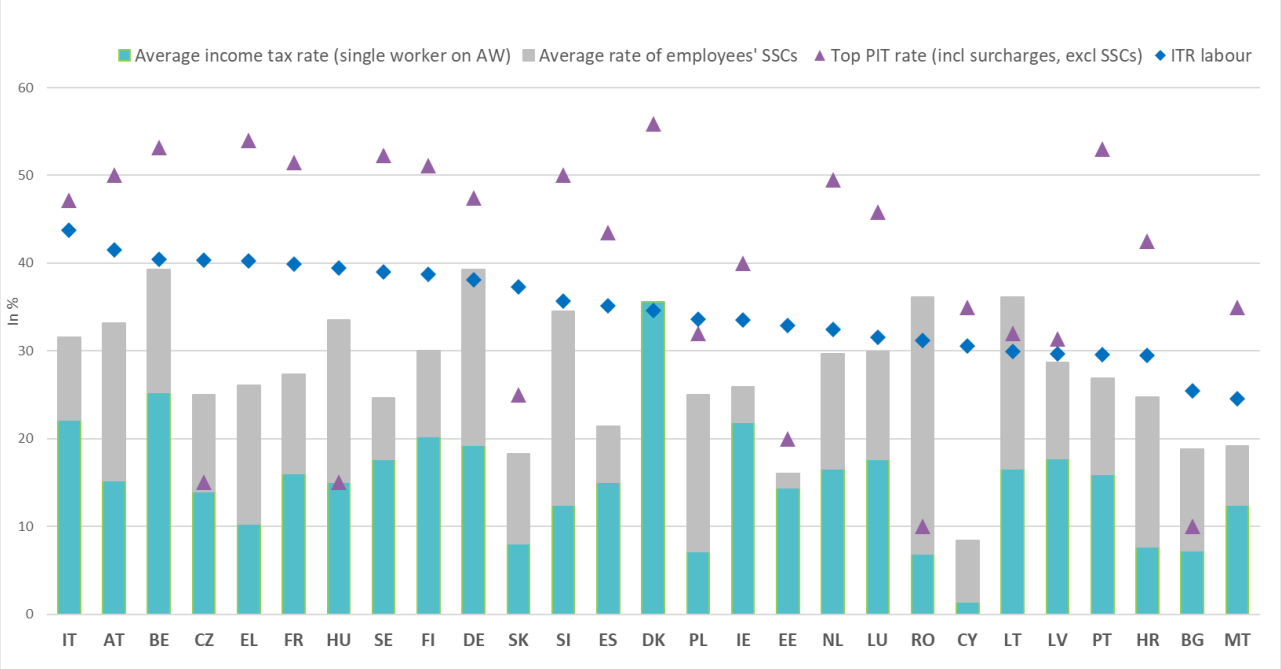
Indications of the differences in the structure of personal income and labour taxation are also shown on the graph. It reveals the extent to which different components of the labour tax base pay the tax burden on labour:

- the level of the top PIT rate differs greatly between Member States, from 10 % in Bulgaria and Romania to 55.9 % in Denmark. However, this should be interpreted with caution as the top rate may be applicable from very different income levels in different Member States;

[113] The average labour tax rate is the sum of income taxes and employees' SSCs as a percentage of gross income. It differs from the tax wedge, which also includes employers' SSCs.

- the labour tax rate for a single person on the average wage is therefore an important complementary indicator. Again, labour income taxation differs substantially between Member States, from 1.4 % in Cyprus to 35.6 % in Denmark. In addition, the gap between the top PIT rate and the average income tax rate (for average wage workers, excluding social contributions) varies substantially, from zero in Hungary to 43.8 pp in Greece; and
- the ITR on labour gives an indication of overall tax burden on labour, taking into account the whole income distribution. It is highest in Italy (43.8 %) and lowest in Malta (24.6 %).

GRAPH 44. TAX RATES ON PERSONAL/LABOUR INCOME (%), 2019 AND 2020



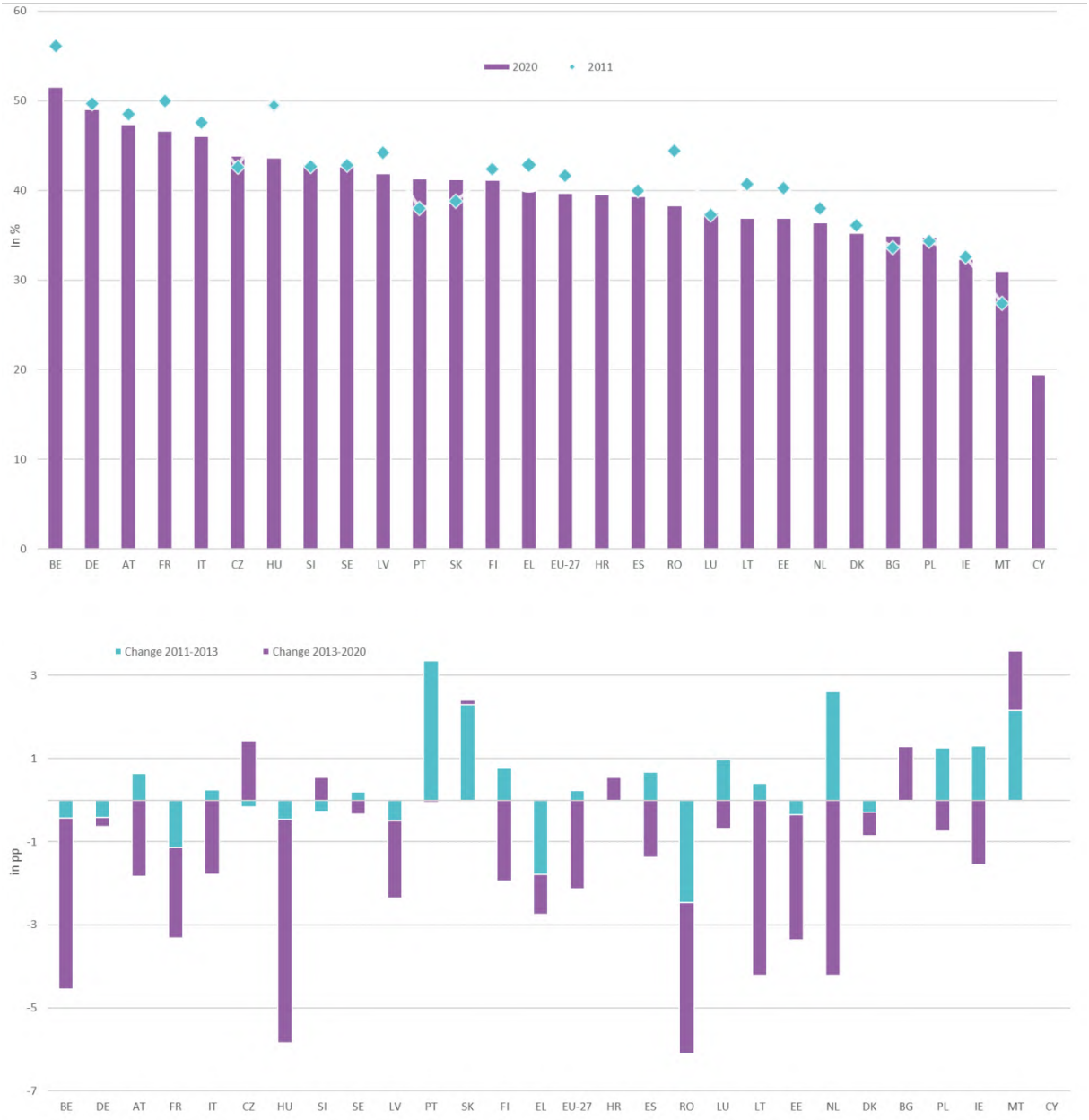
Source: Commission services based on Eurostat and OECD data.
Note: The average income tax rates and average rate of employees' SSCs are from 2019. Top PIT rates are from 2020. ITR on labour are from 2019.

The tax wedge measures the difference between employers' labour costs and employees' net pay. It is an indicator of the burden borne by employers and employees and a high tax wedge negatively influences work and hiring incentives. The EU-27 tax wedge for a single person on an average wage has declined (by 1.7 pp) since 2015, to 39.7 % in 2020 (see Graph 45). However, that is still above the OECD average of 36 % (2019 latest data available). Since 2011, nine EU Member States have recorded notable declines in their tax wedges, with the strongest decreases in Romania, Hungary and Belgium. Conversely, over the same period, significant increases occurred in Malta, Portugal and Slovakia (see Graph 45). The tax wedge on labour for a single worker on an average wage and a single worker on a low wage (50 % of average wage) are indicators used by the Eurogroup for benchmarking progress in reducing the tax burden on labour[114].

[114] See: http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ecofin/144872.pdf
http://www.consilium.europa.eu/en/press/press-releases/2015/09/12-eurogroup-statement-structural-reform/

GRAPH 45. TAX WEDGE FOR SINGLE PERSON EARNING AN AVERAGE WAGE, 2020

a) 2020 and 2011 and b) changes 2011-2013 and 2013-2020



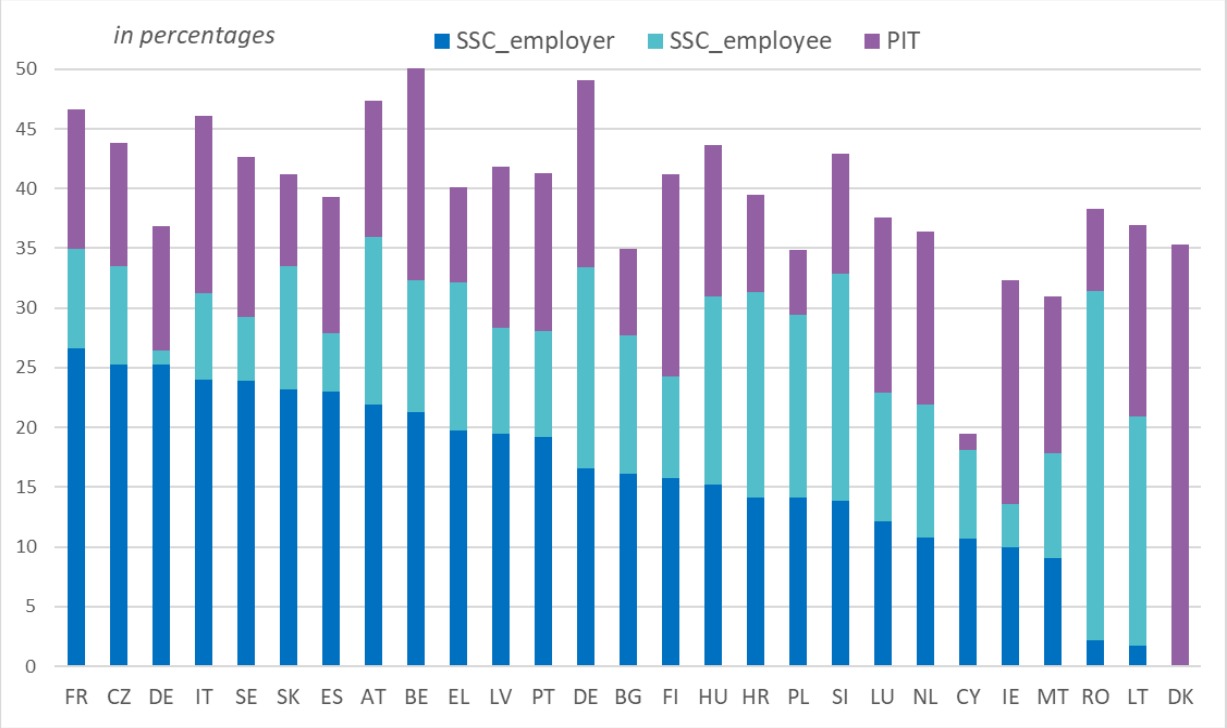
Source: European Commission, DG ECFIN, Tax and benefits database, based on OECD tax/benefit model (updated March 2021).
Notes: 2011 data are not available for Croatia and Cyprus and 2013 data is not available for Cyprus.

The composition of the tax wedge varies significantly across Member States. Its components (personal income tax (PIT), employee SSCs and employer SSCs) adversely influence labour supply and/or demand, depending on who bears the cost. However, SSCs have an important link to contributory-based social benefit entitlements (e.g. unemployment insurance, pensions) in many Member States. SSCs' importance has been amplified in light of economic restrictions to curb the COVID-19 pandemic resulting in greater demands for, for example, unemployment benefit payments. It has also highlighted the importance of addressing forms of tax evasion such as 'envelope wages' - workers working in the informal economy - that leave many unprotected in times of financial need. Informal workers receive a wage but have no access to insurance-based social benefits or training. The strength of the link between contributions and pensions varies across Member States. Reducing pension contributions for low-income workers may work to increase employment rates. It needs, however, to be part of a comprehensive

strategy that includes options for recouping potential revenue loss and safeguarding low-income workers access to the social safety net to avoid the risk of increasing future pensioner poverty.

An illustration of different breakdowns of the tax wedge for a single worker on the average wage in 2020 are shown in Graph 46. France, Czechia and Germany have the highest employer SSC contributions, accounting for over 25 % of employment costs. Denmark has no SSC elements in their tax wedge, and employers SSCs are less than 5 % in Lithuania and Romania. Overall combined SSCs (employer and employees) are largest as a proportion of employment costs in Austria (36 %) followed by France, Slovakia and Czechia. Apart from Denmark, Ireland (13.6 %) and Malta (17.8 %) have the lowest overall SSC contributions as a proportion of labour costs. Graph 46 highlights that Romania, Denmark, and Lithuania have the highest proportion of employment costs paid by employees (by combining PIT and employee SSCs). The lowest proportions are found in Cyprus (8.8 %), Germany (11.6 %) and Spain (16.7 %).

GRAPH 46. TAX WEDGE COMPOSITION FOR A SINGLE EARNER ON THE AVERAGE WAGE, 2020



Source: European Commission, DG ECFIN, Tax and benefits database, based on OECD tax/benefit model (updated 05/03/2021).
Notes: (1) Member States are ranked in descending order by the level of the employer SSC.
(2) Family allowances do not influence the data as the data is for a single earner with no spouse or children.

2.4.2 Tax burden on low-income earners

A high tax burden on labour can dampen labour market activity, particularly by low-income earners, who are often more responsive to rate changes. Women and other disadvantaged groups are more concentrated in the low-income earning brackets, so addressing their tax burden could reduce inequality. Finally, stimulating the employment of low-income earners can boost aggregate demand, as they also have a higher average propensity to consume.

Some measures, which incentivise taking up employment, may at the same time dampen incentives to work full-time. Tax credits and tax-free allowances may reduce the net tax burden at low earnings and thus boost in work income and incentivise labour market entry. However, their tapered withdrawal at higher earnings levels may increase marginal effective tax rates and reduce the incentives to increase working hours or to work full time, especially for those with other costs to working such as childcare. Their composite design needs to strike a balance between ensuring a decent living and employment opportunities for all without creating disincentives or barriers to full-time employment and career progression.

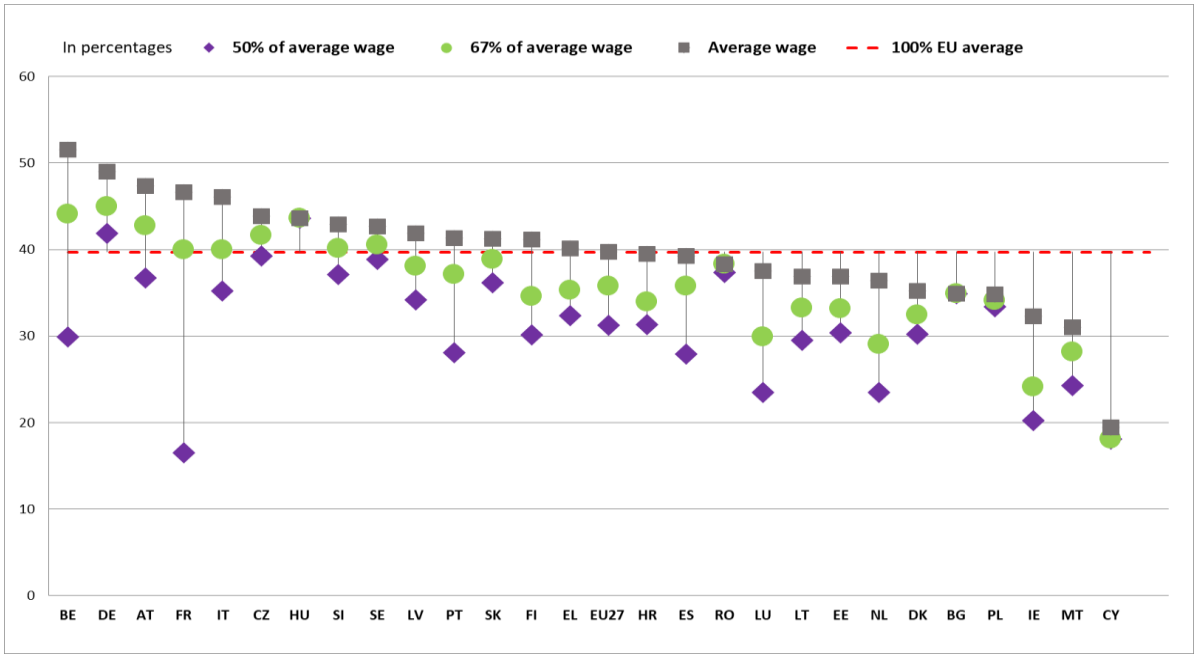
The tax wedge for single earners with no children is higher for those on average wages (AW) than it is for those earning 67 % of AW, and in turn slightly higher than it is for those on 50 % of AW[(115)] (see Graph 47). This demonstrates some progressivity of taxes for those on average to low earnings, in the EU-27. However, in Hungary, Romania, Bulgaria and Cyprus the tax wedge is the same at the average wage as is it at 67 % and 50 % of AW levels. Whereas, in France, Belgium and Luxembourg the differences in the tax wedge between the three earnings levels are most substantial.

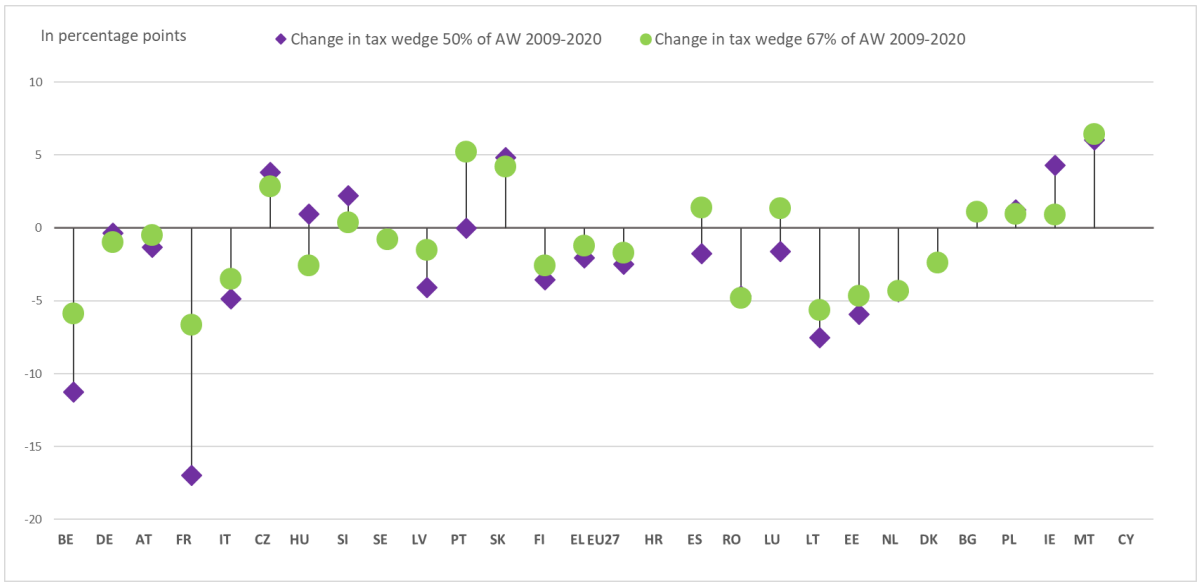
The tax wedge for single earners on low incomes (50 % and 67 % of average wage) in the crisis year 2020 is lower than in the past crisis year 2009 (see Graph 47). In 2009, when the economy was hit by a severe economic shock, the tax wedge was 33.8 % and 37.5 % for earners at 50 and 67 % of AW respectively (see Graph 47). In 2020, the tax wedge for earners at 50 and 67 % of AW was 31.3 % and 35.8 %, respectively. Between these points, the decline for those on 50 % and 67% of average earnings was largest in France and Belgium respectively. However, the tax wedge increased for low-income earners in some Member States during the 2009-2020 period. Increases for those on 50 % of average wage were strongest in Malta and Slovakia. At 67 % of average wages, it increased most in Malta followed by Portugal. Lower tax burdens on low-income earners should increase economies' capacity to recover from the shock in a more equitable way as it lowers barriers to hiring low-skilled workers who were hardest hit by the crisis (see Chapter 4).

[(115)] This is one of the indicators used by the Eurogroup in benchmarking the tax burden on labour (alongside the tax wedge for a single person on the average wage – see above).

GRAPH 47. LOW WAGE EARNERS (50 % & 67 % OF AVERAGE WAGE) COMPARED TO AVERAGE WAGES, IN 2020

a) 2020 figures and b) changes 2009 - 2020





Source: European Commission, DG ECFIN, Tax and benefits database, based on OECD tax/benefit model (updated Mar 2021).

The 'inactivity trap' is caused by implicit taxes incurred by moving into work and may therefore perpetuate inactivity. This effect is realised when net gains in disposable income on taking up work are small, due to costs brought about by the tax/benefit system largely offsetting the increase in gross labour income. These costs are realised through increases in tax and social security charges as well as a reduction or even withdrawal of cash and in-kind benefit support, including for housing. It therefore creates a trap and acts as disincentive to work. The 'inactivity trap' is calculated by measuring the part of the additional gross wage that is taxed away where a

previously inactive person[116] takes up a job, i.e. showing the remaining financial incentive to move from inactivity (and social assistance) to employment.

Four Member States (Estonia, Slovakia, Greece and Italy) share the lowest traps for single earners at both 50 % and 67 % of average wage (see Graph 48). The most pronounced traps for low-income earners on 50 % of average wages are in the Netherlands for both groups and in Denmark and Sweden. For low-income earners on 67 % of AW the most pronounced traps are in the Netherlands, Slovenia and Finland. It is worth noting however, that whilst this ranking might be attributed to their generous out-of-work welfare systems, inactivity in these Member States is well below EU-27 average. Well-designed welfare systems providing adequate support to unemployment people to find work may speed up labour market re-entry, as will good skill levels and robust labour demand. The contribution of taxation to the inactivity trap is greatest in Romania and it is lowest in Denmark followed by Spain and Cyprus.

GRAPH 48. INACTIVITY TRAP FOR LOW INCOME EARNERS, 2020

a) 50% of average wage (AW) and b) 67% of average wage (AW)

Source: European Commission, DG ECFIN, Tax and benefits database, based on OECD tax/benefit model (updated 05 Mar 2021).

[116] A person not entitled to receive unemployment benefits, but eligible for income-tested social assistance.

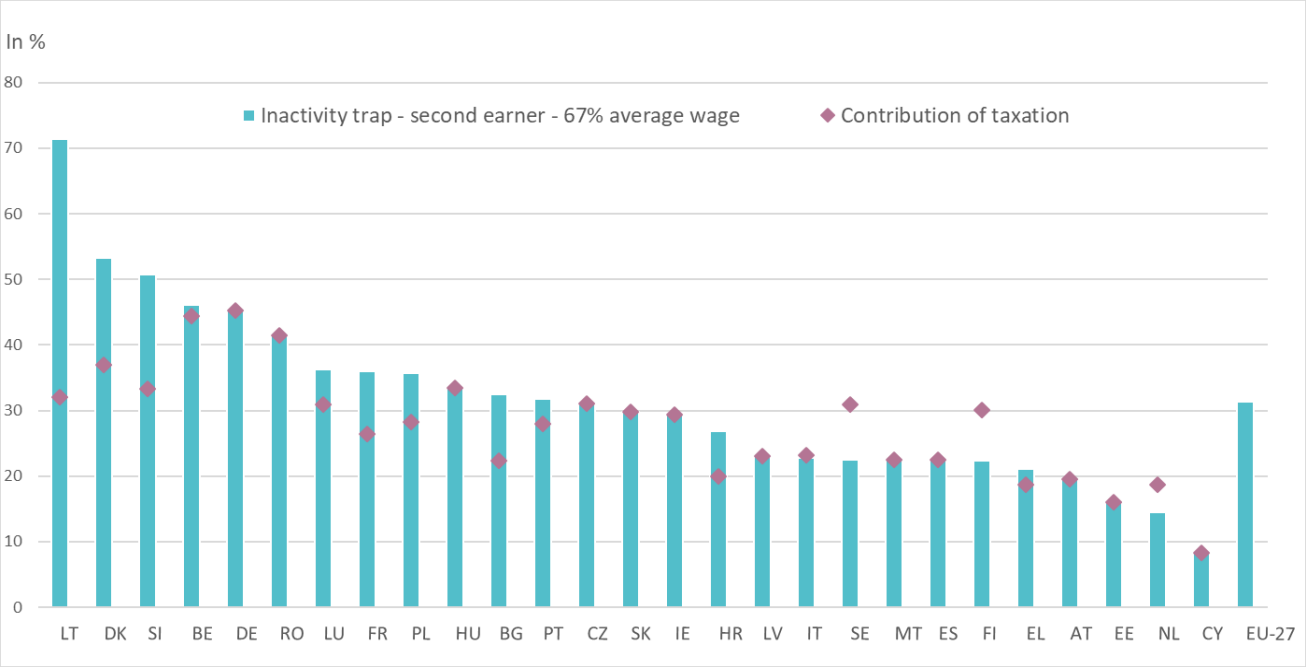
2.4.3 Tax burden on second earners

The tax burden on second earners has important gender equality implications as the majority (78%) of second earners in the EU are women. Joint progressive taxation systems can negatively impact second earners' entry into employment and hours worked by creating a high marginal tax burden and potentially contradicting the principle that more work should equal more pay. The degree of the joint taxation of the combined income of a couple (including transferable tax credits) and the benefit system design (e.g. the withdrawal of means-tested benefits) affect the level of the inactivity trap for second earners. Joint taxation can lower single or dual-earner couples' overall tax burden where earnings are unevenly distributed between the partners. It can inflate marginal tax rates for non- or lower earners, as their income is all effectively taxed at a higher marginal rate in line with their higher-earning partner. This can therefore drive gender employment gaps. It also contributes to the unadjusted gender pay gap, as the differences in average hours worked is the second largest contributor of the explained proportion of the gender pay gap.

Problems with the availability of affordable early childhood education and long-term care adds to the levy on women as second earners. They would have to factor in these costs if considering moving into to work or working full-time. These costs are known as the participation tax rate. For low-earning mothers in some Member States, the cost of early childhood education and care (ECEC) alone accounts for as much as 90 % of their earnings. It even exceeds earnings in Cyprus and Slovenia, leaving them financially better off not working. Some Member States offer a range of support to families, from guaranteed places (for example Demark, Estonia and Latvia, though not necessarily free), fee reductions and subsidies covering part or all costs, and tax credits, though the latter tend to be regressive. Moreover, though targeted support can result in substantial reductions for low-income earners, ECEC costs could still be quite high (1/4 full-time earnings), especially when its use entails loss of generous homecare or child-raising allowances offered in some Member States (Finland, Slovenia and Slovakia) (see Rastrigina Olga, et al., 2020). Measures that lead to long-term career interruptions for women have knock on impacts on the gender pay gap; where this is common the pay gaps are highest in the EU.

Taxation contributes significantly to the second earners inactivity trap in most Member States. The inactivity trap for second earners is highest in Lithuania, Denmark, Slovenia, Belgium, Germany and Romania (see Graph 49). This means that if an inactive spouse with two children takes up a job at 67 % of the average wage in Lithuania, more than 70 % of her earnings would be lost in additional taxes and withdrawn benefits. In contrast, this implicit tax rate is less than 20 % in Estonia and the Netherlands, and less than 5 % in Cyprus. The contribution of taxation is most pronounced in Belgium, Germany and Romania, contributing over 40 % in potential loss of revenue for a second earner on 67 % of average wage when entering paid employment.

GRAPH 49. INACTIVITY TRAP FOR SECOND EARNERS, 2020

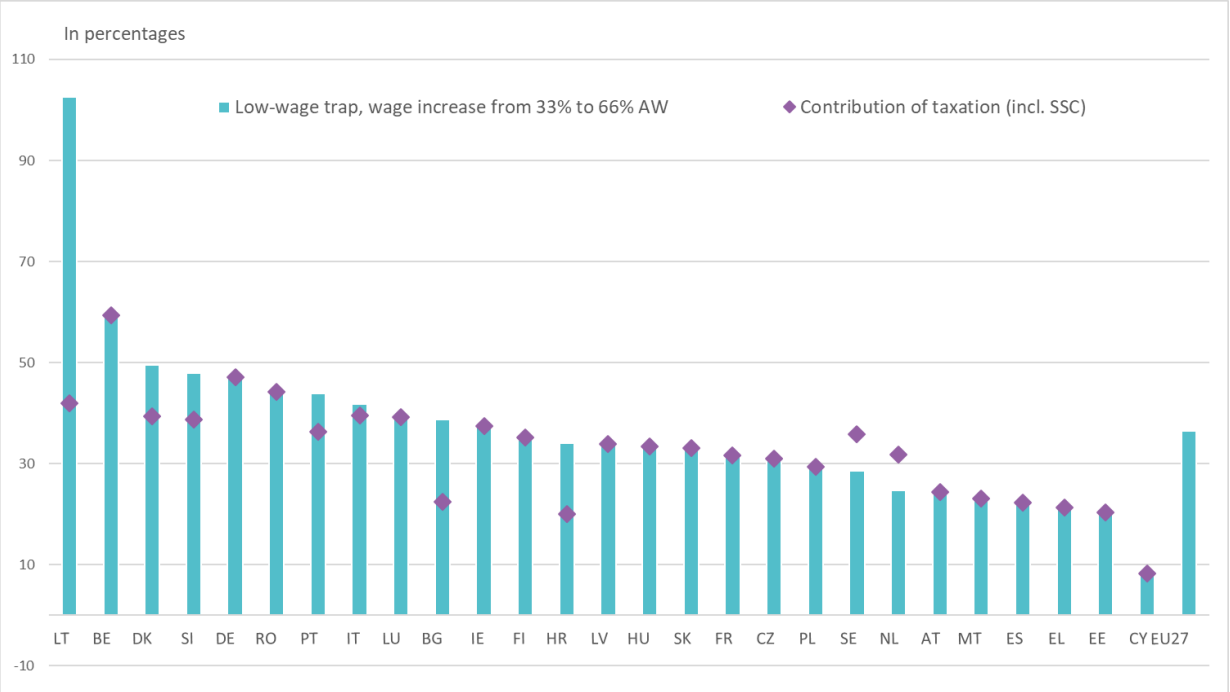


Source: European Commission, DG ECFIN, Tax and benefits database, based on OECD tax/benefit model (updated March 2021).

Notes: (1) The data are for a second earner on 67 % of the average wage in a two-earner family with two children; the principal earner is on the average wage.
(2) 'Contribution of taxation (including SSCs)' refers to the percentage of additional gross income that is taxed away due to taxation and SSCs (other elements contributing to the low wage trap are withdrawn unemployment benefits, social assistance and housing benefits).
(3) The second earner on 67% and the principal earner on 100% of average wage with two children

A 'low-wage trap' disproportionately affects women if the rate at which taxes are increased and benefits withdrawn is too steep when earnings rise. For second earners, as with the inactivity trap, taxation plays a key role in determining the level of the low-wage trap, in most Member States. This differs from the inactivity trap in that they are active but working part-time. Graph 50 shows the percentage of additional earnings 'taxed away' when second earners increase their earnings from a third to two thirds of average wage, if they increase their hours of work. On average second earners can lose around a third of their incremental earnings across the EU, rising to 60 % in Belgium and Slovenia. As above, the availability of affordable and good quality care services, as well as a wide range of well-designed work-life balance policies, can influence people's decisions on whether to work longer hours. The low wage trap for second earners is highest in Belgium and Slovenia, where the contribution of taxation is also most pronounced.

GRAPH 50. LOW WAGE TRAP FOR SECOND EARNERS, 2020



Source: European Commission, DG ECFIN, Tax and benefits database, based on OECD tax-benefit model (updated Mar 2021).
Note: A second earner whose wages increase from 33 % to 66 % and the principal earner is on 100 % of AW, with two children

2.4.4 Inequalities and social mobility in the EU

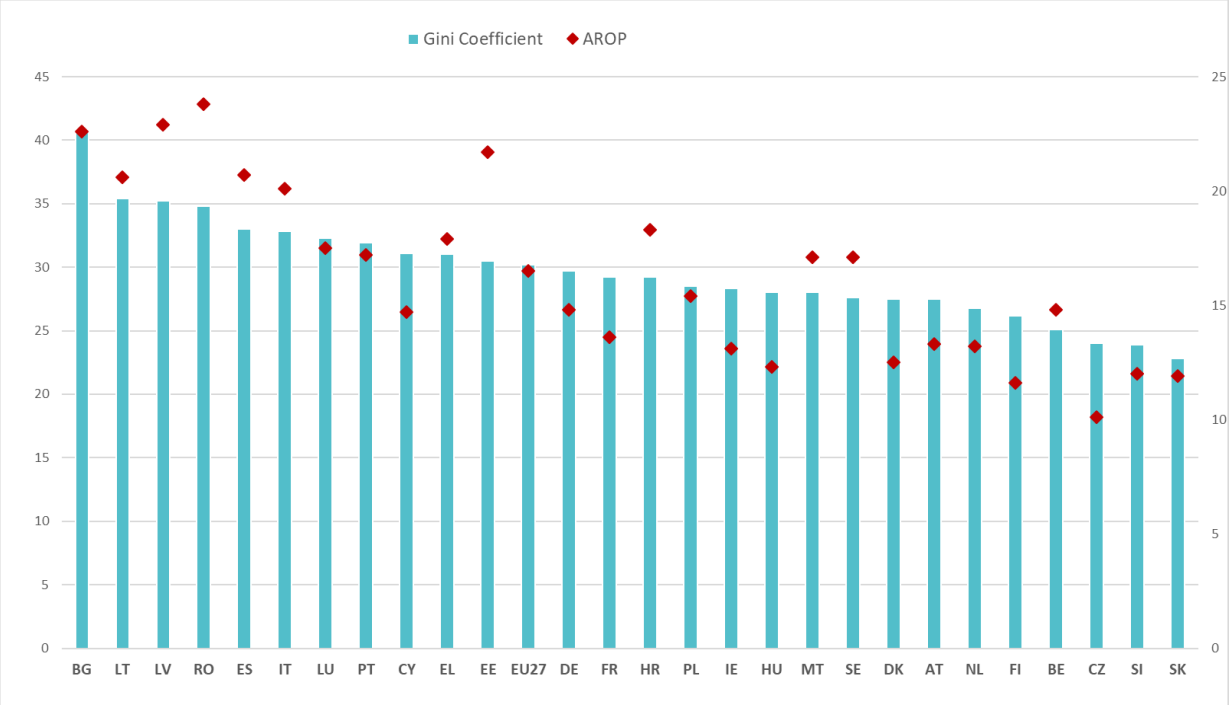
This section takes a closer look at how taxation can be designed to address inequality and foster social mobility. It examines how equal EU societies are and the extent to which social mobility is enabled by the tax system. It also considers the impact on inequality of different Member States' tax systems.

After dropping considerably between the early nineties to 2008, income inequalities in the EU largely stabilised. The decline and stabilisation have been attributed partly to the success of automatic stabilisers primarily at national level, mainly (an increase in the coverage and/or duration of) unemployment benefit schemes. Interestingly, these had an important role during financial and economic crises to mitigate the impact of the crisis on poverty levels and inequality. In the current crisis, the temporary Support to mitigate Unemployment Risks in an Emergency (SURE)[117] was made available providing supranational support and may also help mitigate the negative impact of the crisis on income and its distribution. The EU-level picture hides huge variation in the evolution of inequality for Member States over the period. Between 2008 and 2019, inequalities widened significantly in 10 Member States, in particular Bulgaria, Luxembourg, Sweden, Denmark, Cyprus and Italy. Conversely, 13 Member States managed to reduce inequalities, in particular Portugal, Poland, Belgium, Greece and Latvia.

Poverty and inequalities in the EU are considered comparatively low on a global level, aided by a relatively healthy social welfare system (Filauro S, 2019)**.** However, there is still significant income inequality. Graph 51 highlights the correlative relationship of indicators of poverty and income inequality. The Gini index of income inequality (disposable income after taxes and transfers) descends fairly uniformly with the population at risk of poverty (AROP), showing the overall positive correlation between poverty and inequalities in EU Member States.

[117] See: https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/financial-assistance-eu/funding-mechanisms-and-facilities/sure_en

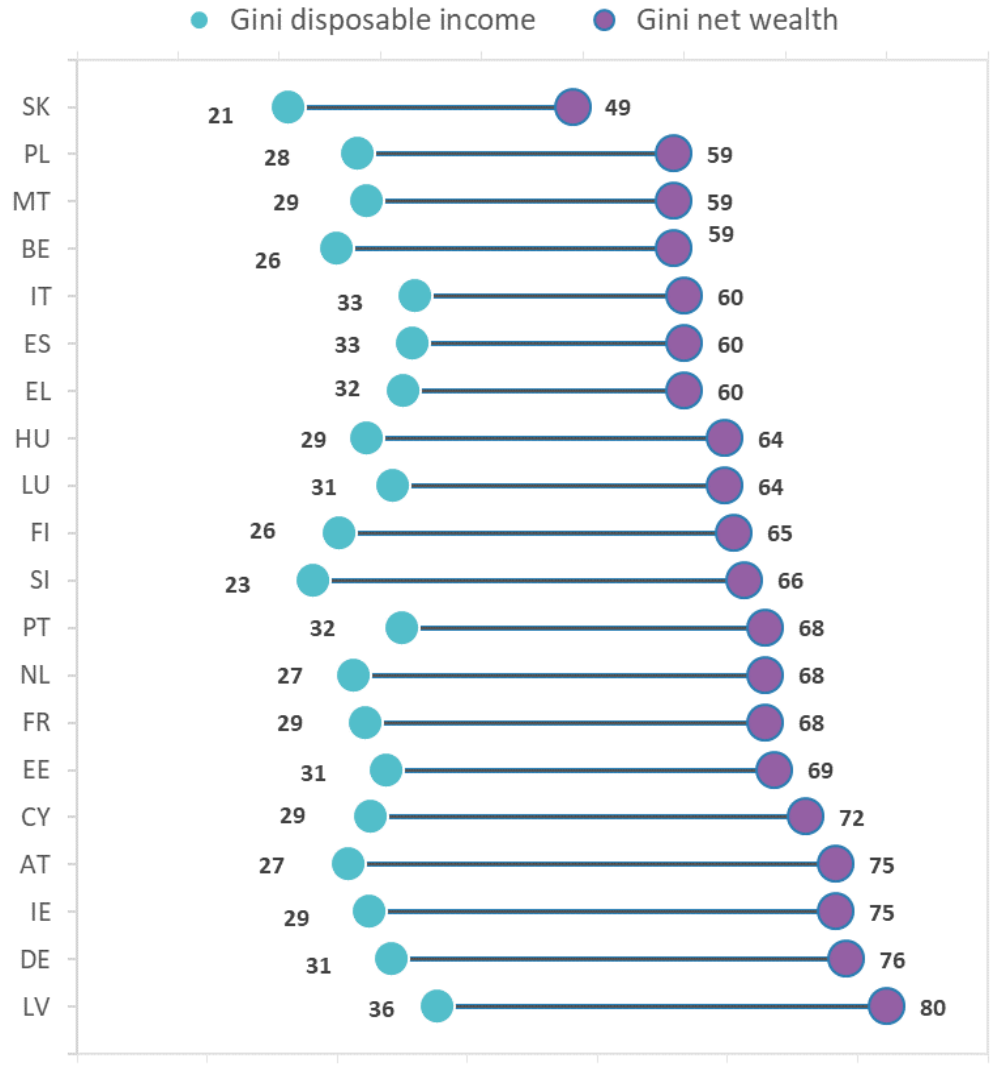
GRAPH 51. INCOME INEQUALITY, 2019



Source: Eurostat, EU-SILC (online data codes: ilc_li02 and ilc_di12).
Notes:
(1) Lhs: Gini coefficients (scale of 0 to 100). The value 0 corresponds to perfect equality (same income for everybody), while 100 corresponds to maximum inequality (all income distributed to one person and the others have nothing);
(2) Rhs: 'at risk of monetary poverty rate' as percentage of the total population. The indicator shows the proportion of the population earning less than 60% of the median equivalised income after transfers and taxes;
(3) EU-27 average is calculated as the population-weighted average of individual national figures.

Wealth inequality is also important as lack of wealth makes it more difficult to access credit, which has implications for skills formation and consequently labour income. However, wealth inequality is difficult to measure and analyse, as wealth data is not easily available. Wealth inequality in the EU based on the latest data available (see Graph 52) is greater than income inequality. It ranges from 49 on the Gini index for Slovakia, which also has the lowest (Gini of 21) income inequality, up to 80 on the Gini index for Latvia, which also has the highest income inequality (Gini of 36) in the data. The way Member States tax various aspects of wealth differs across the EU and, together with other elements such as property ownership, may contribute to the observed differences in the wealth Gini, or why and by how much this is higher than income inequality.

GRAPH 52. INCOME EQUALITY (2018) AND WEALTH INEQUALITY (2014)

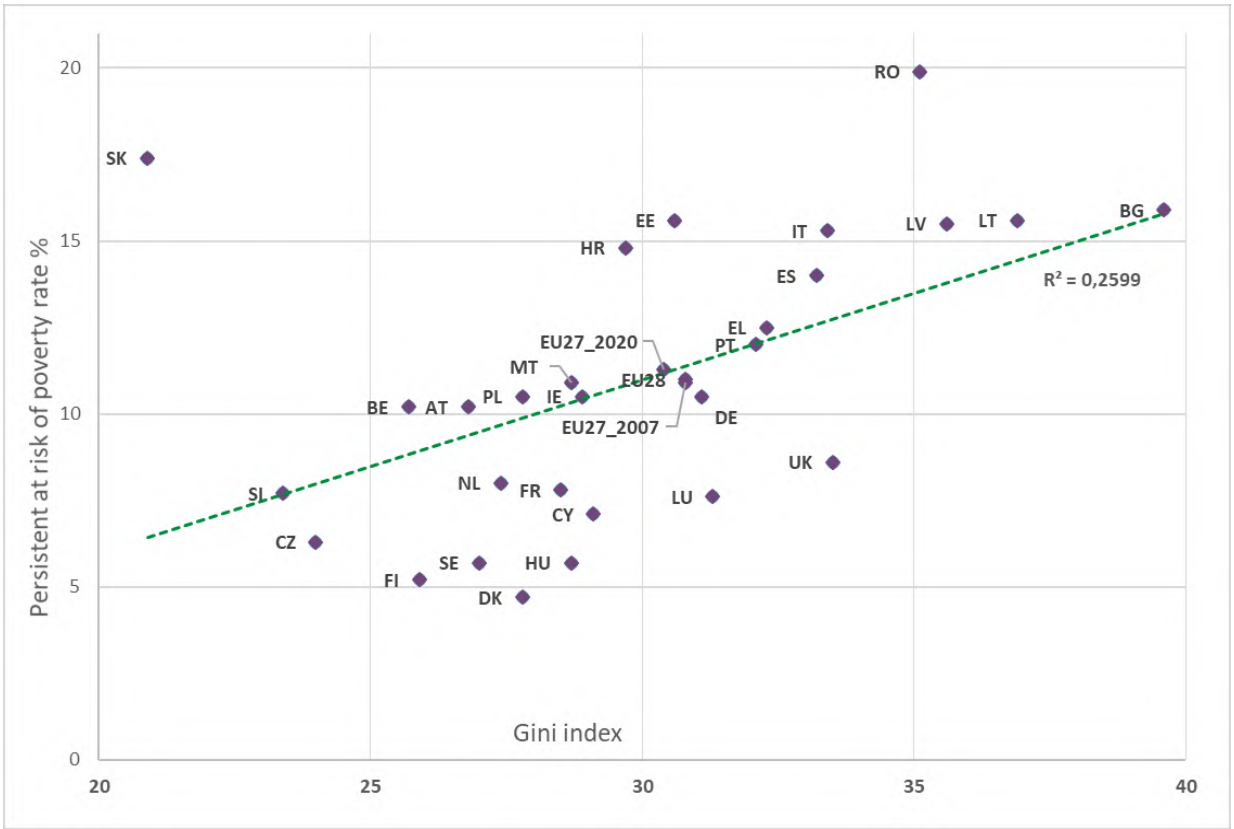


Source: European Commission computations based on ECB, 2016b and Eurostat, EU-SILC 2017 ilc_di12.
Notes: No comparable data available for BG, CZ, DK, HR, LT, SE and RO; EU-SILC 2018 data are based on income generated in 2017 (except IE, where they are based on income generated in 2017).

Fairness is associated with the potential for upward social mobility made possible through equality of opportunity for all. Social mobility refers to an individual's likelihood of changing their socio-economic status by moving either up or down the income distribution[118]. Earning a low income perpetuates economic disadvantage, restricts social mobility and carries on across generations. To examine intergenerational mobility, the persistent at risk of poverty (PAROP) is an indicator used as a proxy and combined with the Gini index (see Graph 53). Graph 53 shows the strong positive correlation between the two indicators, suggesting that greater inequality limits the intra-generational mobility potential in a society.

[118] Absolute social mobility, measures whether living standards have increased overall from one generation to the next.

GRAPH 53. INEQUALITY AND AT RISK OF POVERTY, 2018



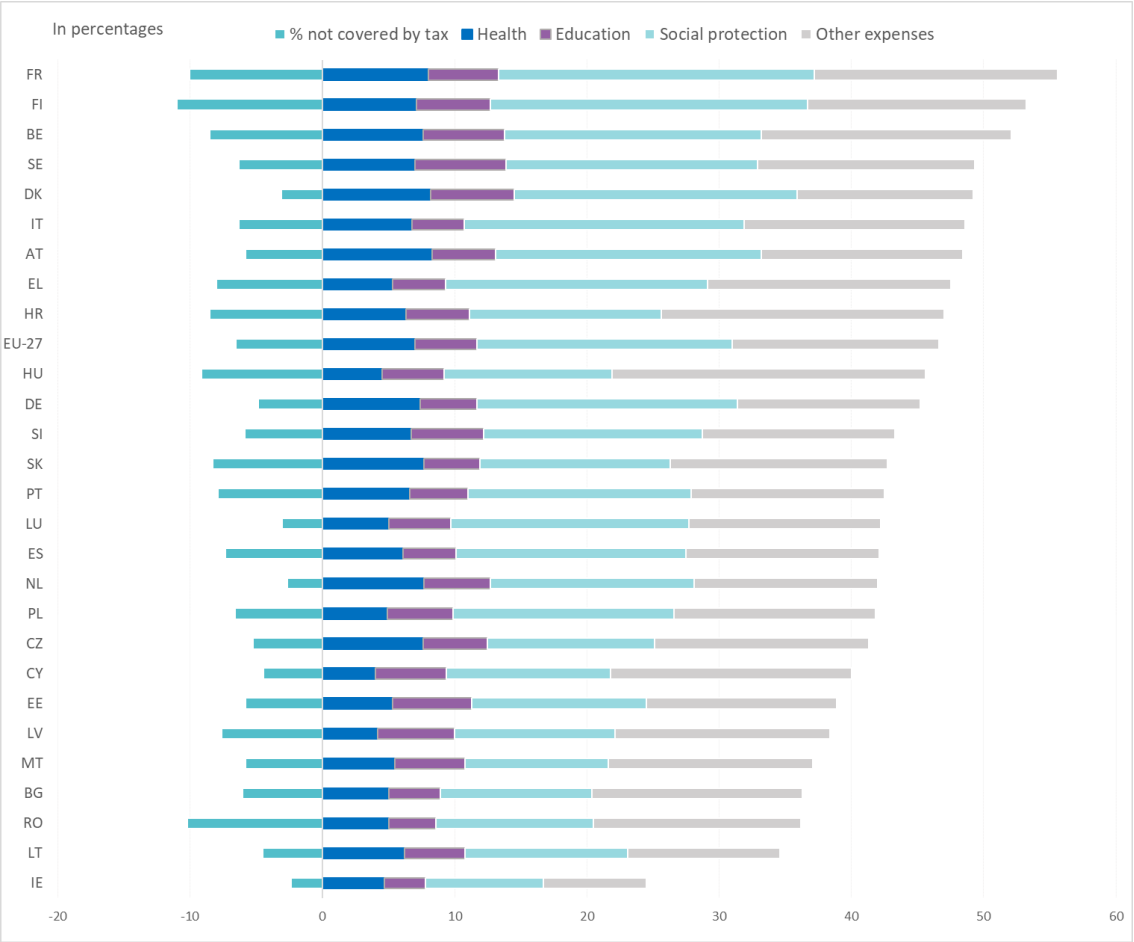
Source: Eurostat, EU-SILC, 2018, (online data codes:ilc_di12 and ilc_li21).
Notes: EU-27 average is calculated as the population-weighted average of individual national figures;
(1) The scale of Gini coefficients ranges from 0 to 100. A value of 0 corresponds to perfect equality, while 100 corresponds to maximum inequality.
(2) The 'persistent at risk of poverty' rate is defined as the percentage of the population living in households where the equivalised disposable income was below the 'at risk of poverty' threshold for the current year and at least 2 of the preceding 3 years.
(3) For SK, 2016 data for the 'at persistent risk of poverty' indicator are not yet available. For this graph, we used 2016 data for both the 'at persistent risk of poverty' indicator and the Gini index.
(4) The EU-27 average is calculated as the population-weighted average of individual national figures.
(5) EU-SILC 2018 data are based on income generated in 2017except for IE.

Groups at the lower end of the socio-economic distribution are more exposed to a wide range of disadvantages. These include environmental health hazards (e.g. air pollution, noise) or increased socio-economic vulnerability, as seen in the COVID-19 pandemic. Other global developments, such as climate change, automation or population ageing also disproportionately affect the lower socio-economic groups and are more likely to affect certain regions, business sectors and populations. Therefore, when policies aimed at addressing environmental degradation (including environmental taxation) are being designed, their distributional impacts should be carefully assessed. In that regard, policy packages need to be holistic and sustainable in their response to economic, social, and environmental challenges.

2.4.5 The role of taxation in fostering social mobility

National tax and benefit systems seek to redistribute income, and to a lesser extent wealth, to reduce inequality and foster equality of opportunity, notably by funding public services for citizens. Graph 54 shows education, social protection and other spending in Member States as a proportion of GDP. Access to affordable healthcare and education including early childhood education and care are seen as particularly important early life stage investments that deliver high returns. They have the potential to increase educational attainment levels, strengthen labour market attachment and prevent or minimise, costly health issues.

GRAPH 54. GOVERNMENT EXPENDITURE AND TAX REVENUE, 2019



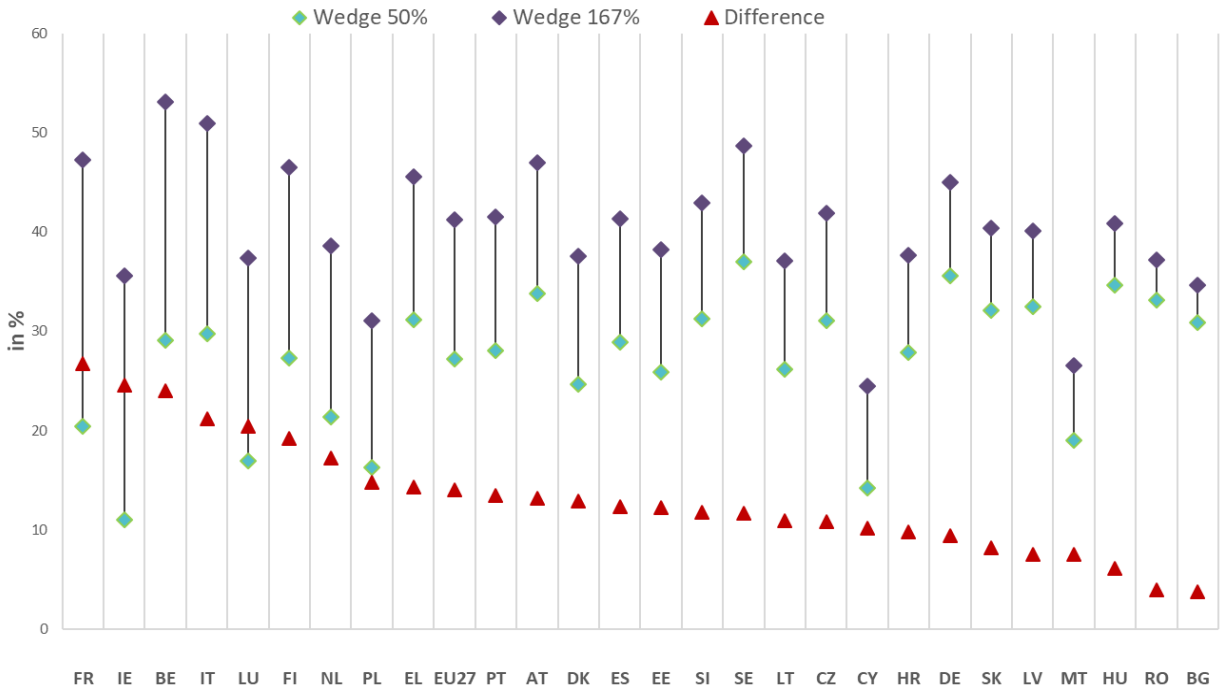
Source: European Commission, DG Taxation and Customs Union, based on Eurostat data COFOG and gov_10a_exp
Note: The tax-to-GDP ratio shows the total receipts from taxes and compulsory actual SSCs. Other sources of revenue, e.g.; sales of goods and services (issuance of licences, rental of produced assets), property income (interests, dividends, rent income), other current transfers (from international institutions), other subsidies on production, and other capital transfers and investment grants, are not shown. Besides financing through revenue, government expenditure can also be financed by running a deficit (financed by incurring liabilities or selling financial assets).

The progressivity of a taxation system refers to the extent to which it varies tax levied according to income levels. Progressivity in a taxation system can contribute to alleviating poverty and inequality, through a mix of measures such as graduated tax brackets, tax credits, tax exemptions, benefits and social services. The progressivity of personal income tax is an important measure of the redistributive effect of tax and benefit systems. However, the incorporation of progressive elements in a taxation system must guard against excessively reducing incentives to work and invest, which could in turn hamper job creation and so the fight against poverty and inequalities.

The degree of progressivity of labour income taxation can be approximated by comparing the tax wedges of high (167 %) vs low (50 %) income earners (percentages

of the average wage). Graph 55 compares tax wedges for these two earnings levels using six family compositions (single person, one earner couple and two earner couples, in each case with either two children or none) weighted according to their prevalence in the Member State. At the EU level, there is a 14 pp difference between the high vs. low income earner tax wedge. France, Ireland and Belgium show the highest labour income progressivity, whereas Bulgaria, Romania and Hungary have the lowest. The progressivity is theoretical, based on hypothetical households with standardised earnings. As such, it reflects Member States' policy choices (levels of social contributions, family allowances and benefits, etc.).

GRAPH 55. TAX PROGRESSIVITY: THE DIFFERENCE BETWEEN THE TAX WEDGE AT HIGH (167 %) AND LOW (50) EARNINGS (AVERAGE OF SIX FAMILY TYPES), 2019



Source: European Commission services based on Eurostat and OECD data.
Notes: (1) The indicator is based on tax wedge data for a variety of family compositions (single person, one-earner couple, two-earner couples, all three with two children and with none) weighted according to their prevalence in each MS.
(2) A two-earner couple is assumed to be someone earning 67 % of the average wage and the other earning 50 % or 167 % of AW.
(3) Recent data for Cyprus are not available.
(4) Countries are ordered in descending order by the size of the difference between the tax wedges at 167 % and 50 % AW.

Complementing the progressivity indicator, graph 56 shows the extent to which tax and benefit systems reduce income inequality. It is based on actual income data and compares market and disposable income inequality at four stages expressed by the Gini index:

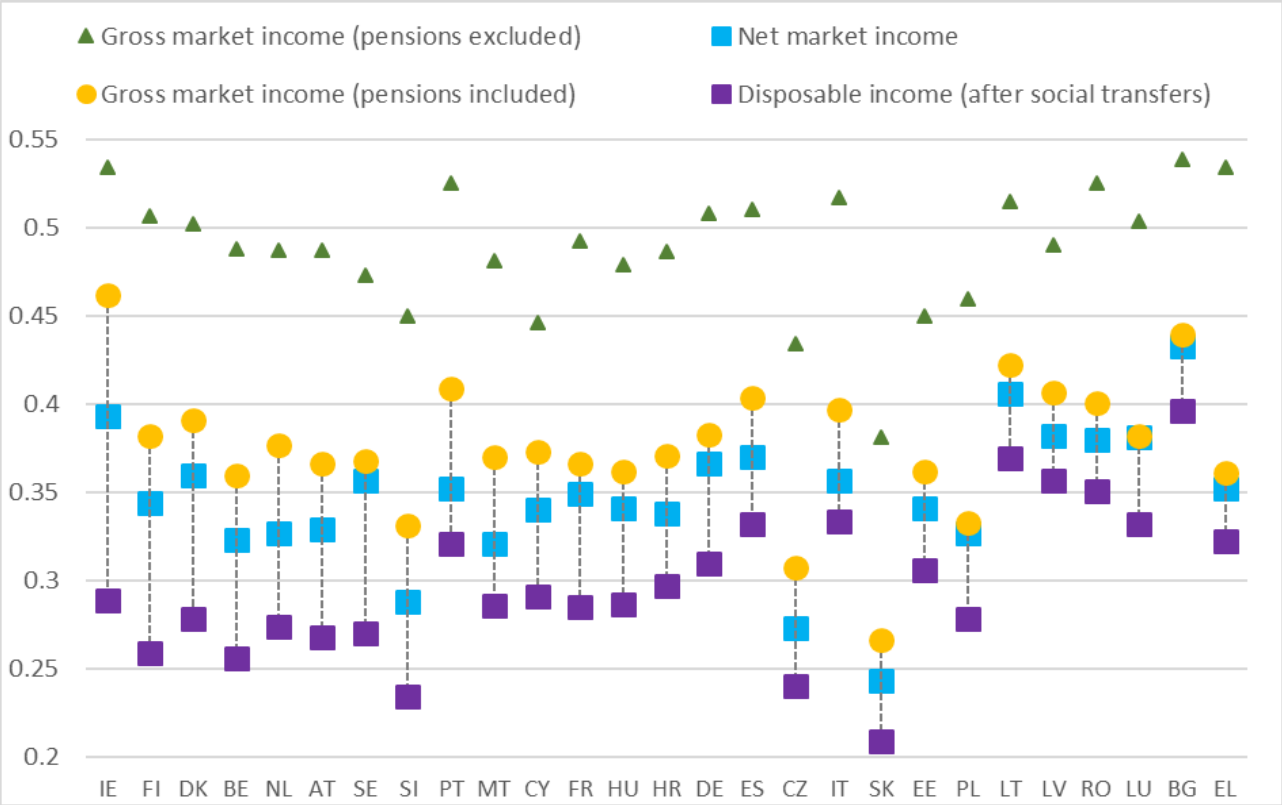
- market income inequality (excluding pensions from market income);
- market income inequality (including pensions in market income)[119];
- disposable income inequality (after social transfers)[120]; and
- disposable income inequality.

[119] Pensions are sometimes considered a *social transfer*, in which case households that rely solely on pension income have a market income of zero; this somewhat artificially inflates the level of market income inequality. For that reason and because pensions are often linked to some extent to lifetime social contributions, for the purpose of this analysis we prefer to consider pension income as *market income*.

[120] i.e. unemployment, family, sickness and disability benefits, and education related allowances.

The difference between b) and c) shows the redistributive impact of taxes on income inequality, while the difference between c) and d) shows the extent to which social transfers reduce it. Tax and benefit systems mitigate income inequality to varying degrees in Member States as shown in the graph. Taxation contributes more to redistribution in some Member States (e.g. Ireland, Portugal, Malta, Slovenia and the Netherlands), while transfers contribute more in others (e.g. Ireland, Finland and Sweden). Income inequality remains high in certain Member States, including some where the redistributive effect of taxes and benefits is relatively low.

GRAPH 56. CORRECTIVE POWER OF TAX AND BENEFIT SYSTEMS (GINI INDEX), 2018



Source: European Commission calculations based on EU-SILC data.
Notes:
(1) Income data are adjusted for household size (equalisation). The scale of Gini coefficient is 0 to 1. The value 0 corresponds to perfect equality (same income for everybody), while 1 corresponds to maximum inequality (all income distributed to one person and all others have nothing);
(2) EU-SILC 2019 data are based on income generated in 2018

Well-designed inheritance/gift and capital gains taxes can address wealth inequality with acceptable levels of administrative complexity (OECD, 2018b). Inheritance/gift and capital gains taxes mainly affect the middle classes as very wealthy households are more likely to have greater estate planning and avoidance opportunities[121][122]. In addition, the treatment of cross border inheritances may be problematic, especially if Member States apply different valuation methods for the same property. Moreover, the overall tax revenue from these taxes is moderate to low in the EU. Many of these concerns can be addressed through proper design. For a more detailed discussion, see 2018 edition of this report (European Commission, 2018a). Table 6 provides an overview of inheritance taxes across the EU.

[121] See: https://ec.europa.eu/taxation_customs/sites/taxation/files/tax_policies_in_the_eu_survey_2020.pdf

[122] See: https://www.oecd-ilibrary.org/taxation/the-role-and-design-of-net-wealth-taxes-in-the-oecd_9789264290303-en;jsessionid=RyYJqPmH3iafE5MyUfvX5r-J.ip-10-240-5-92

TABLE 6. INHERITANCE TAXES

Member State	Inheritance tax?	Flat or progressive?	Min. - max. rate in %	Special regimes for family-owned business in certain cases?
BE	✓	Progressive	3% - 80%	✓
BG	✓	Flat	0 - 3,6%	×
DK	✓	Progressive	0 – 36.25%	✓
DE	✓	Double Progressive	7% - 50%	✓
IE	✓	Flat	33%	✓
EL	✓	Progressive	1% - 40%	×
ES	✓	Progressive	7,65% - 34%	✓
FR	✓	Double Progressive	20 - 60%	✓
HR	✓	Flat	0 - 4%	×
IT	✓	Flat	4% - 8%	✓
LT	✓	Progressive	0 - 10%	×
LU	✓	Progressive	0 - 48%	×
HU	✓	Flat	0 - 18%	×
NL	✓	Progressive	10% - 40%	×
PL	✓	Progressive	3% - 20%	×
SI	✓	Progressive	5% - 39%	×
FI	✓	Double Progressive[123]	10% - 33%	✓
CZ, EE, CY, LV, MT, AT, PT, RO, SK, SE	×			

Source: Commission services
Note: Exemption thresholds are provided, in particular for spouses and children.

[123] Double progressive means that the higher value of the inheritance the higher the rate and the more distant the blood relation between the deceased and their family member, the higher the rate.