Mathias Dolls, *Florian Dorn*, *David Gstrein* and *Max Lay*

Income and Tax Burden of the Middle Class in Europe*

A strong middle class is important for political stability in democracies and can be an anchor against political extremism (Dorn et al. 2020). With their consumption and labor input, middle class households make a significant contribution to economic growth and a prosperous society. With their taxes and other levies, the middle-income groups also contribute significantly to revenues and thus to the government budgets and the financing of EU welfare states. At the same time, the middle class has come under pressure in many countries in recent years (OECD 2019). In many European countries, it is therefore questionable whether and to what extent the middle class will be able to bear further fiscal and financial burdens during the current crises and to meet the state's additional financing needs to cope with major challenges such as climate change, the energy transition, the security policy shift, or demographic change. If financial burdens become too high, they can curb incentives to work, innovative strength, and dampen economic prosperity—and even jeopardize political stability in Europe. In this article we provide an overview of the middle class situation in Europe, by making a comparison of their income and tax burdens across the EU member states.[1]

KEY MESSAGES

- **Middle class incomes in the EU are highest in Luxembourg, Denmark, Finland, Austria, and Sweden, and lowest in Eastern European countries. The middle class in Bulgaria and Romania are at the bottom of EU nominal incomes, but their living costs are just half of the EU average**
- **When accounting for differences in purchasing power in the EU, the middle class in Luxembourg, Austria, Germany, and Finland can buy the most with their income. The purchasing power of the middle class in Eastern Europe is the lowest, but inequality in incomes of the middle class in different EU member states is less pronounced when cost of living is considered**
- **The tax burden of the EU middle classes differs depending on the household's country of residence. The effective tax rates follow a progression in all countries. Lower-middle incomes are taxed less, while upper-middle ones are taxed the most**
- **Families are generally less burdened by the tax and transfer system than singles with the same gross incomes. However, countries differ in whether families with single-earner households are more likely to enjoy tax advantages, or families with equal earners**
- **In general, the middle class in Denmark, Belgium, Germany, Finland, Lithuania, Slovenia, and the Netherlands is taxed the most. Among others, France, Poland, Italy, Luxembourg, Sweden, and Austria, impose average tax burdens on their middle classes. The middle classes in Spain, Greece, Estonia, Portugal, Cyprus, Bulgaria, and Romania all rank below the average tax burden in the EU**

INCOMES OF THE MIDDLE CLASS IN EUROPEAN COMPARISON

Who belongs to the middle class varies from country to country and depends on the underlying definition. We use the OECD measure to statistically delineate which households are middle-income. According to the OECD definition, membership to an income class depends on the ratio of income to the median household income in the country. Accordingly, households belong to the middle class if they have 75 percent to 200 percent of the country's median household income at their disposal. Those sitting between 75 percent and 100 percent of the median income belong to the lower middle class; those with an income between 100 percent to 150 percent belong to the middle class, and those with an income between 150 percent to 200 percent of the median belong to the upper middle class. Income is taken as the means-weighted disposable household income (= net income plus transfers received). The number and age of household members are taken into account for weighting households according to the OECD definition. The calculations are based on the EU Statistics on Income and Living Conditions (EU-SILC[2]), the most comprehensive European

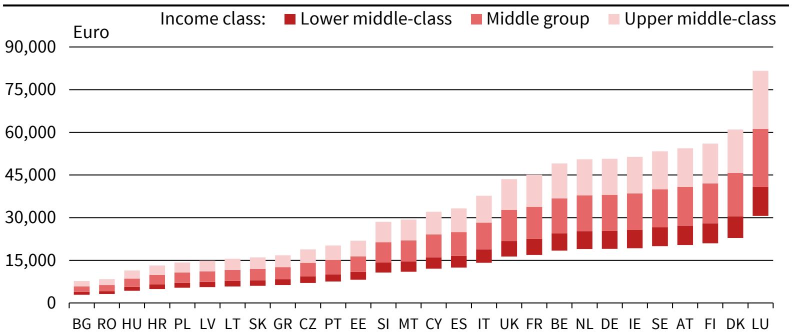
* The article is largely based on a chapter written in German for a study commissioned by the Hanns-Seidel Foundation (Dolls et al. 2023). The study examines the distribution of income and effective tax burden of the middle class in Germany and in an EU comparison (Ferber 2023).

[1] The European comparison made here uses data on household finances prior to 2020. The UK was still a member of the EU at that time. The UK's exit from the EU occurred on January 31, 2020, and since we have comparable UK data for income and price levels, the UK was included. The comparison with the UK as one of the major economies in Europe is interesting. The UK has an economic output per capita that is at a similar level to that of Germany or France.

[2] We are grateful for access to microdata from the EU Statistics on Income and Living Conditions (EU-SILC) provided by Eurostat under contract RPP 331/2017-EU-SILC-LFS. The results and their interpretation are the responsibility of the authors.

Figure 1

Disposable Income of the Middle-class in Europe, 2019



Notes: Data basis EU-SILC, own calculations. Income thresholds are based on means-weighted disposable household incomes. Countries are sorted according to the upper income limit of the middle class. Household incomes in the UK are only available up to 2017 and have been uprated according to the Harmonized Index of Consumer Prices (HICP).
Source: Authors' calculations. © ifo Institute

household survey for income and distribution analyses. The EU-SILC wave used is based on survey data from 2020, with the information on income requested therein referring to the previous year, i.e., 2019.

Who has the Highest Nominal Disposable Incomes, Who the Lowest?

Figure 1 shows the nominal disposable income thresholds of the EU middle class and of the lower, middle, and upper middle-class subcategories in 2019.[3] In a European comparison, the middle class in Luxembourg had the highest disposal income in 2019 (between €30,618 and €81,649).[4] This is no surprise, as Luxembourg's median household income and GDP per capita are also the highest in the EU. Even compared to second-placed Denmark, a household with lower-middle income in Luxembourg would already belong to Denmark's middle-income group. At the bottom end, Bulgaria has the lowest average household income in the EU, where households having a means-weighted disposable income of between €2,908 and €7,755 formed the middle class in 2019. Disposable incomes are only slightly higher in Romania. The middle classes of other Eastern European countries are also in the bottom third in Europe, as are the middle classes in Portugal (18th rank) and Greece (20th).

In the top quarter of the EU's ranking for middle class disposable household income according to EU-SILC data are Finland (rank 3rd), Austria (4th), Sweden (5th), Ireland (6th), Germany (7th), the Netherlands (8th), and Belgium (9th). According to EU-SILC data, in Germany, for example, households with a means-weighted disposable income of between €19,013 and €50,701 belong to the middle class. France, the UK, and Italy follow at a slight distance, on ranks 10th-12th.

Who has the Highest Purchasing Power, Who the Lowest?

More income does not automatically mean that one can afford more, as the cost of living varies among European countries (Dolls et al. 2023). In other words, even with similar income levels, households can consume a different amount of goods and services in different countries. The cost of living in Italy corresponds to the EU average. By contrast, life is cheaper than the EU average in Spain, Cyprus, Portugal, and Greece, among others. In these countries, more goods and services can be consumed with the same disposable income than in countries such as Germany, France, the UK, or the Scandinavian countries. The most expensive countries in the EU to live in are Denmark, Ireland, and Luxembourg. The cheapest places to live are Bulgaria and Romania, where the cost of living is only about half as high as the EU average.

Because of these price differences, the nominal incomes do not show which middle class has the highest and which the lowest purchasing power given their disposable incomes. Figure 2 shows income thresholds of the EU middle class and its subcategories (lower, middle, upper middle class) in 2019 at Purchasing Power Standards (PPS).[5] PPS is an artificial currency that eliminates the effect of cross-country differences in price levels, offering a way to compare the income thresholds directly between member states.

Overall, income inequality among the middle classes becomes lower when the respective purchasing power is considered, leading some countries to be ranked better or worse than in terms of nominal income. The middle class in Luxembourg, despite having some of the highest price levels in Europe, still enjoyed the highest purchasing power in 2019, about one-third higher than

[3] The following should be noted in Figure 1: In countries where the euro is not the national currency, the conversion to euros is made at the average exchange rate in 2019. These include Bulgaria, Romania, Hungary, Croatia, Poland, Czech Republic, the UK, Sweden, and Denmark.

[4] Luxembourg can hardly be considered as a benchmark in terms of price levels, income, and wealth. With a population of just under 640,000, Luxembourg is smaller than several major cities and regions in other countries.

[5] Income thresholds in PPS are calculated using purchasing power parities (PPP).

Mathias Dolls

is Senior Economist and Deputy Director of the Center for Macroeconomics and Surveys at the ifo Institute, Head of Research in Inequality and Redistribution, and CESifo Research Network affiliate.

Florian Dorn

is Director of EconPol Europe, Senior Secretary to the President at the ifo Institute, and an Economist at the ifo Taxation and Fiscal Policy Research Group. He is a Lecturer in Economics at the University of Munich and a CESifo Research Network affiliate.

that of the middle classes in Austria and Germany, the second- and third-placed countries, and about twice as high as the EU average. The middle classes in Austria and Germany, in turn, enjoy about a 40 percent higher purchasing power than the EU average. In the top quarter of the ranking for purchasing power of middle-class disposable household income according to EU-SILC data are Finland (rank 4th), the Netherlands (5th), Sweden (6th), Denmark (7th) and Belgium (8th), all with a purchasing power between 25 percent and 30 percent above the EU average. France, Ireland, Italy, and the UK follow at a slight distance, on ranks 9th-12th, with a purchasing power close to EU average (between 7 percent and 16 percent). There is a relatively clear drop in purchasing power between roughly the upper and lower half of middle-class incomes between Slovenia and Estonia. The middle classes of Eastern European countries occupy the bottom quarter, as does the middle class in Greece (22nd). Although the gap to other countries is smaller in terms of purchasing power, Bulgaria and Romania still have the lowest average household incomes in the EU, barely above 50 percent of the EU average in 2019.

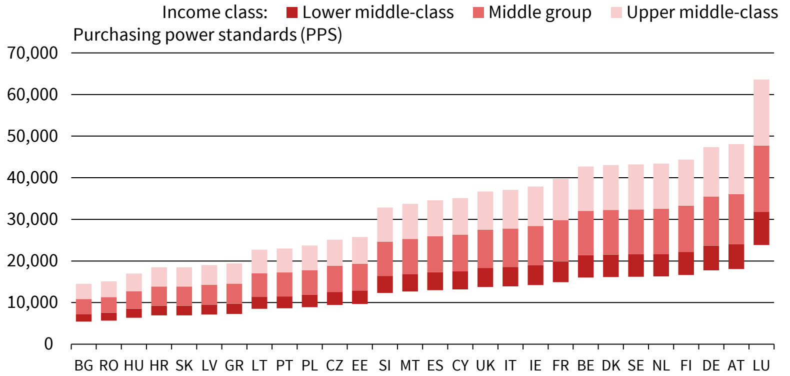
EFFECTIVE TAX BURDEN OF THE MIDDLE CLASS IN THE EU

Having shown how the middle classes compare in terms of income and purchasing power in the EU, this section analyzes the effective tax burden of middle-class households, which includes income taxes, statutory social security contributions, and social transfers received. For the calculation of the effective tax burden, we rely on the European Commission's EUROMOD microsimulation model.[6] EUROMOD contains all information on the tax and transfer systems of the member states, so that disposable income after deduction of all taxes and contributions as well as social benefits can be calculated for all households in the EU-SILC data. The calculation of the effective tax burden is based on the legal status in force in the EU member states in 2019. On the one hand, the analysis of the effective tax burden is thus consistent with the analysis of income distribution (i.e., the rules of the simulated tax and transfer systems and the household incomes are each based on 2019), and on the other hand, we consider the legal status before the Covid-19 pandemic. Numerous temporary measures were introduced during the pandemic, the current Ukraine crisis and the ensuing high inflation rates, most of which

[6] The results presented here are based on EUROMOD I4.0+. Originally maintained, developed, and managed by the Institute for Social and Economic Research (ISER), EUROMOD has been maintained, developed, and managed since 2021 by the Joint Research Centre (JRC) of the European Commission in collaboration with EUROSTAT and national teams from EU countries. We are indebted to the many individuals who have contributed to the development of EUROMOD.

Figure 2

Purchasing Power of Disposable Income of the Middle-class in Europe, 2019



Notes: Data basis EU-SILC and Eurostat, own calculations. Income thresholds are based on means-weighted disposable household incomes in PPS. Countries are sorted according to the upper income limit of the middle class. Household incomes in the UK are only available up to 2017 and have been uprated according to the Harmonized Index of Consumer Prices (HICP).
Source: Authors' calculations.

are also included in EUROMOD and could thus potentially distort our results in international comparisons due to one-off effects.

For the European comparison, the average tax burden is calculated for two household types using the EUROMOD microsimulation model, once for a single household and once for a family with two adults and two children.[7] For the disposable income of the family with two children, we again consider two different assumptions. In the first, we assume a household in which one adult (as single wage-earner) generates the entire household (labor) income. In the second assumption, we consider a household in which both adults earn the same income. The average effective tax burden is calculated as follows:

(1) (Total tax payments + Total social security contributions - Total social benefits received) / Gross household income.

To obtain a more differentiated picture of the average burden on the middle class, this is calculated for the three median incomes of the respective middle-class subcategories. This makes it possible to examine how progressive individual tax and transfer systems are in Europe, i.e., to what extent the burden of higher taxes

[7] In Germany, for example, this increases the splitting advantage for income tax. The average tax and contribution burden in Germany is higher for families with two incomes.

David Gstrein

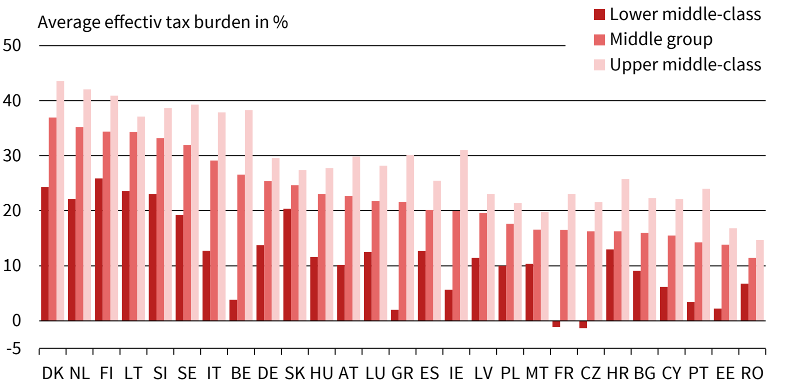
is a Doctoral Student and Junior Economist at the ifo Taxation and Fiscal Policy Research Group.

Max Lay

has been a Specialist at the ifo Center for Macroeconomics and Surveys since 2021.

Figure 3

Single-Earner Family: Average Effective Tax Burden of the Middle-Class in Europe, Two Adults with Two Children, 2019



Note: Own calculations with EUROMOD for the countries of the EU27, excluding the United Kingdom. Countries are sorted in descending order according to the tax and contribution burden of the middle. Assumption: One adult (as sole wage earner) generates the entire household income.
Source: Authors' calculations.

and social security contributions increases with higher income and whether the relief provided by lower social benefits received decreases with higher income. The results show for all countries that tax and transfer systems are progressive, i.e., the average burden is lowest for households in the lower middle and highest for those in the upper middle categories.

How High is the Tax Burden for Middle-Class Families in Europe?

First, the average effective tax burden of a family with two adults and two children is mapped for each middle-class income bracket in 2019. In Figure 3 a single-earner household is assumed, in which one adult generates the total gross labor income. Lower middle income families with two children in France and the Czech Republic are net transfer recipients and thus experience a negative burden (net relief) from the tax and transfer system. This means that these families receive more social benefits that more than offset their tax payments and social security contributions.[8] In many other European countries, the average burden for the lower middle class is also relatively low. State benefits for families, especially child benefit payments, account for a significant portion of gross income. On average, the lower middle class family pays just below 11.5 percent in taxes and social security contributions. In Germany, too, the burden on the lower middle class is still moderate compared with the rest of the middle class, with almost 14 percent effective taxation of gross household income going. In a European comparison, Germany is thus in the top third (9th place). With just below 13 percent, the lower middle class in Italy, Croatia, and Spain has a similarly high effective tax burden. In 16 countries, the average effective tax burden of the lower middle class is below 13 percent. The tax burden for lower middle-class families in the seven countries in the top group ranges from 19 percent in Sweden to 26 percent in Finland (Figure 3).

On average, European middle-class families face an effective tax burden of almost 23 percent, varying from around 11 percent in Romania and 14 percent in Estonia and Portugal, to just under 35 percent and 37 percent in the Netherlands and Denmark, respectively. With an effective tax burden for the middle class of around 25 percent, and around 30 percent for the upper middle class, Germany ranks as average. For families in the upper middle class, the greatest possible splitting advantage in income tax under the assumption of a single-earner household has a particularly tax-reducing effect in Germany. Since many EU countries apply individual taxation rather than spousal splitting (what the OECD calls "standard marital status reliefs"), families where the spouses earn unequal income have no tax advantage from spousal splitting like they have in tax systems like Germany's. On average among European countries, the ratio of effective tax burden for upper middle-class families in a single-earner household is just below 29 percent. Even for the upper middle-class, the highest effective tax burden rate occurs in Finland (41 percent), the Netherlands (42 percent) and Denmark (44 percent), while Romania (15 percent) and Estonia (17 percent) have the lowest effective taxes and net burden for families.

Figure 4 shows how the ranking of countries' average tax burden changes when families with two equal incomes (dual earners) and two children are considered. On average, the tax burden of such families is just under 6 percent for the lower middle class in an EU comparison, 17 percent in the middle, and 24 percent in the upper-middle-class group. Lower-middle-income families receive net benefits, on average, in Belgium, France, Greece, Ireland, and Estonia. Middle-class families in Denmark and Slovenia, in turn, have the highest effective tax burden, with the lower middle classes having an average effective tax burden of 29 percent and 22 percent, the middle group 34 percent and 30 percent, and the upper middle classes 37 percent and 35 percent, respectively. The tax burden on equal-income families is also above average in Lithuania, Finland, and Germany. In Germany, for example, the average effective tax burden for dual-earner families is higher than for single-earner families, as the splitting advantage in income taxation is reduced and even disappears when the spouses earn the same income. The effective tax burden for middle-class families with similarly high incomes of both partners is thus above average in Germany in an EU comparison.

Overall, the effective tax burden for families with two children varies within the middle class in a European comparison and depends on whether single- or dual-earner households are considered. The coun-

[8] It should be mentioned again that the figures show the average burden for the respective median gross income of the income distribution group. In reality, therefore, there are likely lower middle-income households that are net taxpayers in France and the Czech Republic.

tries with the highest effective tax burdens for all middle-class groups include Denmark, Sweden, and Finland, as well as Slovenia. While in the Netherlands single-earner families bear higher tax burdens, in Germany it is the dual-earner families with two equal incomes that bear some of the highest tax burdens in an EU comparison. In contrast, middle-class families in Romania, Portugal, and Estonia enjoy comparatively low tax burdens. Italy and France occupy the middle of the country rank.

How High is the Tax Burden for Middle-Class Singles in Europe?

Single households generally receive fewer social benefits than families because of the absence of such family-related transfer payments as child benefits. In terms of taxes, families have also more potential for taxation relief through joint spousal assessment (i.e., spousal splitting, applied to married couples) and child allowances. That is why single households in all European countries are burdened on average more than families across the entire middle class (Figure 5). In the lower-middle-class segment, the average tax burden as a single person in the EU is 26 percent, which is 15-20 percentage points higher than the effective tax burden on families with two children. Denmark (38 percent), Slovenia (36 percent), and Germany (35 percent) have the highest average effective tax burdens for singles in the lower middle-class.

The picture is similar for the middle and upper middle class: Belgium and Denmark tax single households in the middle (43-44 percent) and upper middle (47-49 percent) the most. Germany ranks third in terms of the average tax burden on singles in the middle and upper middle class. In the upper middle, 44 percent of gross household income goes to the state as taxes and social security contributions, while in the middle it is 41 percent. The effective tax burden in other European countries is lower, averaging about 32 percent for the middle group of the middle-class, and around 35 percent for the upper middle class. In France, the tax burden for single households is roughly at the EU average for all three middle-class subcategories. Italy, Austria, Finland, and the Netherlands all rank above average in terms of the tax burden for single households, while Greece, Spain and Portugal are consistently below average. At the lowest end of the ranking are single middle-class households in Cyprus, Estonia, Romania, Malta, and Bulgaria (Figure 5).

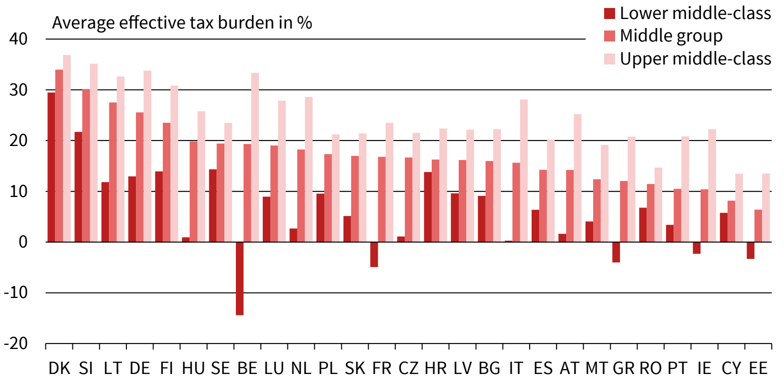
CONCLUSION AND POLICY IMPLICATIONS

The net burden from tax and transfer systems differs across the EU, as well as across the different income groups. The effective tax burden follows a progression in all countries, with lower-middle-income households being taxed less, while upper-middle-income households are taxed the most. In some countries, such as Belgium, effective tax burdens vary significantly across the middle-class segments. Families are generally less burdened by government taxes than single households. However, countries differ as to whether single-earner or dual-earner households are more likely to enjoy higher tax advantages.

What policy conclusions follow from this comparison of the income and the effective tax burden of the EU middle-classes? The comparison of the income levels shows that differences between middle-class incomes become smaller when national price levels and purchasing power are considered. Moreover, the tax burden of the middle-class is already quite high in many countries. Denmark, Belgium, Germany, Finland, Lithuania, Slovenia, and the Netherlands all lie at the high or above-average levels, depending on household type and income class. The upper middle class of these countries sometimes pays more than one-third of their income to the state in taxes and levies. France, Poland, Italy, Luxembourg, Sweden, and Austria impose average tax burdens on their middle class, while Spain, Greece, Estonia, Portugal, Cyprus, Bulgaria, and

Figure 4

Dual-Earner Family: Average Effective Tax Burden of the Middle-Class in Europe, Two Adults with Two Children, 2019



Note: Own calculations with EUROMOD for the countries of the EU27, excluding the United Kingdom. Countries are sorted in descending order according to the tax and contribution burden of the middle. Assumption: One adult (as sole wage earner) generates the entire household income.
Source: Authors' calculations.
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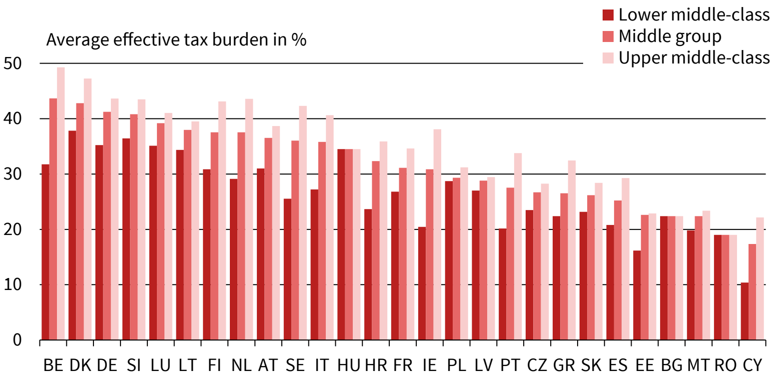
Figure 5

Single Households: Average Effective Tax Burden of the Middle-Class in Europe, 2019



Note: Own calculations with EUROMOD. Countries are sorted in descending order according to the tax and contribution burden of the middle.
Source: Authors' calculations.
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Romania tend to impose a below-average or low tax burden. Governments in the latter group of countries seem to have more leeway as regards their tax policies, although income levels of the middle class are also lower in an EU comparison.

In addition, households in many of the higher-taxed countries also receive offsetting benefits from the state if, for example, the welfare state or provision of public goods are more generous. As a result of their robust welfare states, Scandinavian and Continental European countries seem to be more resilient during crises (Dolls and Lay 2023). That said, many (social) transfers and subsidies, by dint of not being targeted contribute to a higher tax burden and an inefficient use of taxes.

If the state needs more revenue to cope with the multiple challenges expected to arise in the coming years, policymakers need to consider a trade-off between spending cuts in other (social) areas, raising taxes at the costs of a higher burden to the taxpayers, or issuing higher public debt at the cost of future generations. The optimal strategy to address future fiscal demands will necessarily vary across EU member states, depending on their existing effective tax and public debt levels.

REFERENCES

Dolls, M., F. Dorn, D. Gstrein and M. Lay (2023), "Die Lage der Mittelschicht im europäischen Vergleich", in M. Ferber (ed.), *Gerechtigkeit für die Mitte? Die Verteilung der Steuer- und Abgabenlast in Deutschland und im EU-Vergleich*, Hanns-Seidel-Foundation, Munich, 70-98.

Dolls, M. and M. Lay (2023), "The Role of Income Support Systems as Income Stabilizers in Times of Crisis", *EconPol Policy Brief* 52.

Dorn, F., C. Fuest, L. Immel and F. Neumeier (2020), "Economic Deprivation and Radical Voting: Evidence from Germany", *ifo Working Paper* 336.

Ferber, M. (ed., 2023), *Gerechtigkeit für die Mitte? Die Verteilung der Steuer- und Abgabenlast in Deutschland und im EU-Vergleich*, Hanns-Seidel-Foundation, Munich.

OECD (2019), *Under Pressure: The Squeezed Middle Class*, OECD Publishing, Paris.