Annex A. Methodological notes

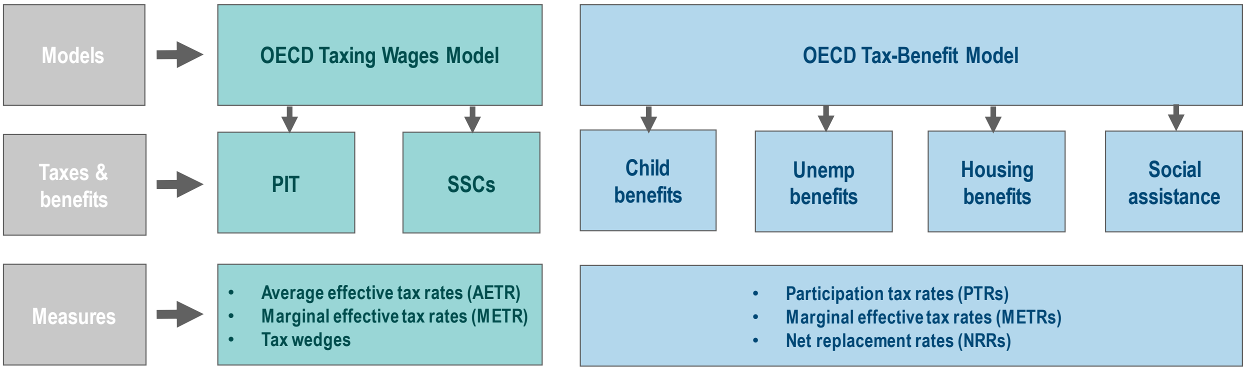
Methodology

Different definitions of the average wage for employee and self-employed are used in the report. For the purposes of this report, the employee annual gross average wage (AW) is EUR 16 844 in Lithuania in 2021 based on OECD Taxing Wages, unless otherwise stated (this AW was provided by Lithuania to the OECD in late 2020 and is approximately representative of the period late 2020 / early 2021). The employee AW is used for comparisons in the self-employment chapter as it is the AW used to calculate the employee tax burden elsewhere in the report. The self-employed AW is calculated as the mean gross monthly self-employment income from the IA and BC regimes respectively based on the sample microdata (see Figure 5.5 and Table 5.4). An official gross monthly AW in Lithuania is published every quarter by Statistics Lithuania.

The microdata in this report is based on an anonymised representative sample of the tax and benefit administrative data in 2019 provided to the OECD by Lithuania as part of this project. The unit of analysis in the microdata are individual taxpayers. The sample data represent 100 616 taxpayers in 46 011 households. The microdata includes a range of variables related to incomes (including employment, self-employment, pensions, financial, dividends, royalties and rental), taxes, benefits and demographics (including age, gender, marital status, and family structure).

The OECD Taxing Wages and Tax-Benefit models are used as part of this report. PIT and SSCs are examined using the OECD Taxing Wages Model (Figure A A.1.). Child benefits, unemployment benefits, housing benefits and social assistance topics are examined under the OECD Tax-Benefit Model. The Taxing Wage model allows for investigating average and marginal effective tax rates and the tax wedge while the Tax-Benefit allows for additional investigations of the participation tax rate (PTR), marginal effective tax rates (METRs) which include the loss of benefits and net replacement rates (NRR).

Figure A A.1. Methodological structure


Models
OECD Taxing Wages Model
OECD Tax-Benefit Model
Taxes & benefits
PIT
SSCs
Child benefits
Unemp benefits
Housing benefits
Social assistance
Measures
Average effective tax rates (AETR)
Marginal effective tax rates (METR)
Tax wedges
Participation tax rates (PTRs)
Marginal effective tax rates (METRs)
Net replacement rates (NRRs)

Source: *Taxing Wages 2021*. OECD Tax-Benefit Models 2020 and 2021.

The tax burden and tax progressivity for different family types is assessed using OECD Taxing Wages models. The OECD Taxing Wages assesses the tax burden using the tax wedge indicator for 8 family types across the income distribution.[1] The tax wedge, the primary indicator in OECD TW, measures the difference between the labour costs to the employer and the corresponding net take-home pay of the employee. It is calculated as the sum of PIT and SSCs paid by employees and employers, minus cash benefits received, as a proportion of the total labour costs for employers as follows: Tax wedge = (PIT + employee SSCs + employer SSCs + payroll SSC - benefits) / (Gross Wage Earnings + employer SSCs + payroll SSCs i.e. labour costs).

The Tax-Benefit model includes several assumptions and limitations. PTRs in TaxBen are calculated on the working-age population currently out of work, not in education, not in receipt of public pensions or maternity benefits for a range of assumed wage levels when working full-time. OECD TaxBen calculates gross and net in-work and out-of-work incomes on a comparable basis across countries. Taxes, benefits and net incomes are determined for a month but shown on an annual basis (i.e. multiplied by 12). The analysis assumes unchanged income over the year. Benefits exclude benefits 'in-kind' such as free school meals, subsidized transport and free health care. The results do not account for the cost of formal child care arrangements and implicitly assume that parents have access to free informal childcare.

Table A A.1. Benefits in Lithuania and comparison countries

Benefits that are contributory, means-tested and taxable respectively (yes/no) and the average wage, Lithuania and selected OECD countries in 2020

	Lithuania	Germany	Estonia	Latvia	Poland	Slovenia	Hungary	Slovak Rep
1.Unemployment ben	Yes, No, No	Yes, No, No	Yes, No, Yes	Yes, No, No	Yes, No, Yes	Yes, No, Yes	Yes, No, Yes	Yes, No, No
2. Social assistance ben	No, Yes, No	No, Yes, No	No, Yes, No	No, Yes, No	No, Yes, No	No, Yes, No	No, Yes, No	No, Yes, No
3. Family ben	No, Yes(1), No	No, No, No	No, No, Yes(2)	No, No, No	No, Yes, No	No, Yes, No	No, No, No	No, No, No
4. Housing ben	No, Yes, No	No, Yes, No	None	No, Yes, No	No, Yes, No	No, Yes, No	None	None
Average wage (EUR)	16 426	52 104	16 637	12 913	13 330(3)	20 424	13 935	13 200

Note: Average wage is based on OECD secretariat calculations in 2020. Table displays some selected main benefits in Lithuania but not all benefits (such as social insurance maternity/paternity benefits, childcare benefits and sickness benefits). Unemployment benefit refers to unemployment insurance benefit. Social assistance refers to unemployment social assistance in Germany and Estonia. Family benefit generally means child benefit. (1) In Lithuania, the additional child benefit is means-tested but the universal child benefit is not. (2) In Estonia, parental benefit is taxable. (3) Poland national currency converted to EUR using 2022 exchange rate. In Germany, unemployment benefit refers to Arbeitslosengeld I and Arbeitslosengeld II and housing benefit comes under unemployment II. In Estonia, unemployment insurance benefit (töötuskindlustushüvitis) is taxable but unemployment assistance benefit (töötutoetus) is not taxable. In Latvia, unemployment insurance benefit (Zasiłek dla bezrobotnych) is taxable but the solidarity allowance (Dodatek solidarnościowy) is not taxable. In Slovenia, unemployment insurance benefit (Zavarovanje za primer brezposelnosti) is taxable and financial social assistance (denarna socialna pomoč) is not taxable. In Hungary, family benefit refers to family allowance (családi pótlék).
Source: OECD TaxBen Models for Lithuania, Germany, Estonia, Latvia, Poland and Slovenia.

The report focuses on the tax wedge indicator to analyse the impact of Lithuania's tax system on work incentives. Lithuania decided to shift virtually all SSCs to the employee coupled with partly financing social insurance pensions through the PIT (see page 62). These changes imply that the net personal average tax rate (NPATR), which takes PITs and employee SSCs into account but not employer SSCs, is similar to the tax wedge, which incorporates all taxes (Box 4.3).[2] Comparative analysis across OECD countries would produce a higher NPATR for Lithuania than for other countries where the mix between employee and employer SSCs is more balanced, which could bias the interpretation of the results. The analysis therefore prioritises the use of the tax wedge over the NPATR. However, given the employee is primarily interested in take-home pay net of taxes, there are cases where the NPATR remains a useful indicator in that it provides a cleaner indication of the labour tax burden and the incentives to participate in the labour market faced by employees.

Lithuania is compared with Baltic countries and some other OECD countries. The Baltic countries of Estonia and Latvia make good comparisons based on a mix of living standards, proximity and the countries' respective tax and benefit systems. Table A.A.1 shows the AW and selected benefits for comparison countries and whether the benefits are contributory, means-tested or taxable (indicated by yes or no).

Financial measures of work incentive

Participation tax rates, replacement rates and marginal tax rates measure the financial disincentive to work produced by the tax and benefit system. To measure the employment and effort margins described in Figure A A.2. , a number of financial incentive measures are useful including PTRs, METRs and NRRs. PTRs measure the financial disincentive to work. Specifically, PTRs measure the proportion of gross earnings lost in tax or reduced benefits as an individual moves from unemployment to work. The PTR calculation (equation 1) is equal to one minus the financial gain to working as a proportion of gross earnings. In equation 1, Y_{netIW} and Y_{netOW} represent net income in-work and out-of-work and $Y_{grossIW}$ and $Y_{grossOW}$ represent gross income in-work and out-of-work. $Y_{grossOW}$ is zero for an unemployed individual because benefits such as unemployment are not captured in $Y_{grossOW}$ so the denominator becomes simply $Y_{grossIW}$. Since the second term calculates the additional income from moving into work (as a share of gross income), one minus this amount is the proportion of gross income lost (through additional taxes or lost benefits). Second, METRs measure the financial disincentive to working more or the effective tax burden to which additional earnings are subject to (equation 2). METRs measures what part of additional earnings is 'taxed away' through the combined effect of increasing tax and decreasing benefit. Comparing equations (1) and (2) shows that the METR is effectively the same as the PTR except that the out-of-work income (which is zero for the unemployed) is now replaced with a lower level of in-work income. The METR then measures the transition from one level of in-work income (state A) to a higher level of in-work income (state B) compared to the PTR that measures the transition from out-of-work to in-work. The structural similarity of the equations is useful in considering the most appropriate inclusion of employer SSCs in PTRs and METRs (see Box 4.3). Third, the NRR measures an individual's out-of-work income as a share of their in-work-income (equation 3).

Figure A A.2. Financial incentive measures

$$(1) PTR = 1 - \frac{Y_{netIW} - Y_{netOW}}{Y_{grossIW} - Y_{grossOW}} \qquad = 1 - \frac{Y_{netIW} - Y_{netOW}}{Y_{grossIW}}$$

$$(2) \quad METR = 1 - \frac{Y_{netB} - Y_{netA}}{Y_{grossB} - Y_{grossA}}$$

$$(3) \quad NRR = \frac{Y_{netOW}}{Y_{netIW}}$$

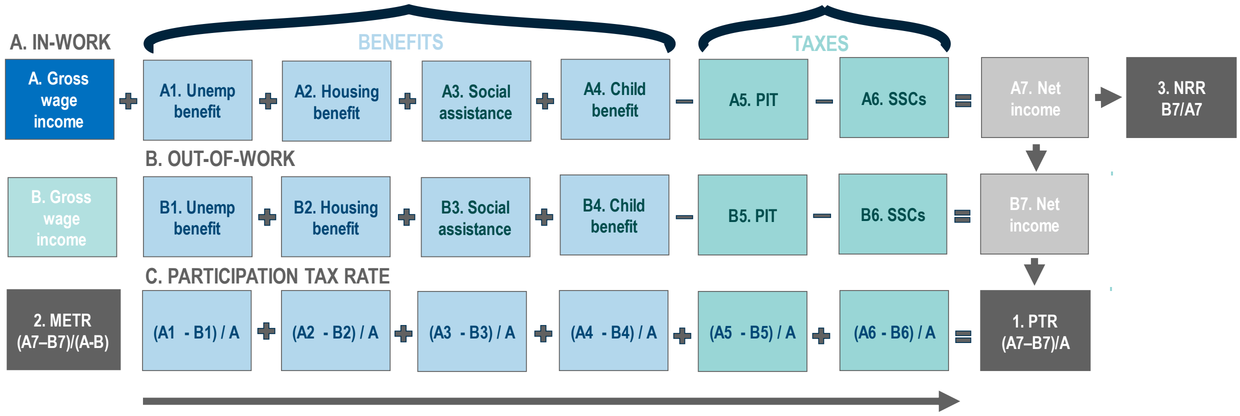
Interpreting participation tax rates

The participation tax rate measures the incentives to enter work produced by the tax and benefit system. Figure A A.3. provides a diagrammatic illustration for calculating the financial measures in Figure A A.2. . Figure A A.3. shows that PTRs can be conceptualised as the difference between net income in-work and out-of-work as a share of gross wage income. The PTR can be further decomposed into tax and benefit components as a share of gross wage income. The PTR tell us about the role of the tax and benefit system in individual incentives by measuring how much is taxed away and lost in benefits as an individual moves from unemployment to work (or perhaps more simply the proportion of gross earnings lost in more tax and less benefits). Since PTRs are calculated as a share of wages, PTRs will only accurately represent the incentives faced by unemployed individuals that, as part of their decision to enter work, incorporate what they could hypothetically earn if they were in work. However, if an unemployed individual adopts as a conceptual benchmark their net out-of-work income (and disregards their hypothetical in-work gross income), then the incentive they respond to would be better measured by a straightforward proportion of the additional net income that they would gain from working (for further discussion and an example, see Figure 4.21). Figure A A.3. also illustrates how the NRR can be calculated as net income out-of-work as a share of net income in-work and the METR by replacing out-of-work gross income with a lower level of in-work income.

Work attractiveness as measured by the PTR is only increased by tax and benefit cuts that widen the gap between net income in-work and out-of-work. Since the PTR measures the difference in net income in and out of work, lower taxes or reduced benefits will not increase work incentive if they are provided equally for the employed and unemployed. For example, universal child benefit or housing benefit provided to families regardless of employment status will have no impact on incentives as measured by the PTR. Instead, work attractiveness will only increase if the gap between net income in-work and out-of-work is widened.

PTR and METR financial measures have caveats including that they do not examine dynamic affects and so complementing them with mobility analysis is important. To what extent are low paying job stepping stones to better careers? The static nature of financial measures such as PTRs and METRs is that they do not capture dynamic effects such as whether a low-paid job may be seen as a steppingstone to a better career . While policymakers are rightly concerned about high at-risk-of-poverty rates for some groups, it is often wrongly assumed that the same individual stay poor. On the contrary, in many countries the membership of the so-called poor is in constant flux – that poor people this year are not necessarily the poor people next year. The extent of this flux is captured by income mobility (who moves up and down the income ladder over time), which is then an important complement to such financial measure analysis. In addition, it could be that certain policies affect the pattern of mobility by acting as a ‘mobility lever’ to help move lower income workers up the income ladder over time ((Mitnik et al., 2015[1])). For example, extending the duration of unemployment benefit could provide low-income workers with more time to find a job that matches skills that then leads to a better job and upward mobility. Such a dynamic process is not captured in what would be measured as a high PTR and a low work incentive. A further dynamic process not captured by these financial measures is that individuals may respond differently to time-limited incentives. Building further on the unemployment benefit example described above, the incentive to work is unlikely to remain constant (as predicted by a PTR) over time-limited unemployment spells durations. In Lithuania, the PTR is the same during unemployment durations between 6 and 9 months, although the likelihood and intensity with which the unemployed try to find a job likely increases during those final months.

Figure A A.3. A diagrammatic illustration for calculating financial measures


A. IN-WORK
BENEFITS
TAXES
A. Gross wage income
A1. Unemp benefit
A2. Housing benefit
A3. Social assistance
A4. Child benefit
A5. PIT
A6. SSCs
A7. Net income
3. NRR B7/A7
B. OUT-OF-WORK
B. Gross wage income
B1. Unemp benefit
B2. Housing benefit
B3. Social assistance
B4. Child benefit
B5. PIT
B6. SSCs
B7. Net income
C. PARTICIPATION TAX RATE
2. METR (A7–B7)/(A-B)
(A1 - B1) / A
(A2 - B2) / A
(A3 - B3) / A
(A4 - B4) / A
(A5 - B5) / A
(A6 - B6) / A
1. PTR (A7–B7)/A

Source: OECD analysis.

Avenues of future research in the tax microdata

1. **Investigate the extent of switching between the SE regimes caused by tax-induced incentives using longitudinal microdata.** There may be an incentive for the lowest income self-employed to be in the IA regime and then switch to the BC regime at higher incomes. Various SSC floors create relatively high tax burdens on the lowest income SE (in both regimes) and employees, which discourage entry to formal employment. Many SE earn very low incomes. At low incomes, the tax burden on IA taxpayers is below that of the BC (due to the BC SSC floor) which might induce SE to opt for the IA at low incomes and switch to the BC as incomes rise (when then BC is more lightly taxed).
2. **Investigate the extent of switching between part-time employment and the IA regime caused by tax-induced incentives using longitudinal microdata.** If taxpayers responded to the net personal average tax rate, they would face a tax-induced incentive to be employed at incomes up to about 1/4 of the AW and to enter the IA regime once income increased beyond that. The income distribution data show significant shares of part-time (PT) employees in this income range. Although a high share of PT employees report low very low incomes, this does not necessarily imply that they face poverty risks as they have high incomes on per month basis. For example, it could be speculated that some employees intentionally work PT and report low incomes to avail of a lower tax burden and then switch to more lightly taxed SE when income rises. Such an organisational arrangement is made possible by the tax rules which allow individuals to simultaneously be employed, be in the BC regime and the IA regime. However, the extent of this arbitrage behaviour remains unclear in the absence of a more comprehensive analysis of switching between organisational forms using longitudinal microdata. We leave this for future work.
3. **The extent to which the sector eligibility restrictions produce inequity could be measured using the microdata.** Horizontal inequity could be investigated by applying propensity score matching techniques to identify, compare and track an artificial control group of ineligible IA regime taxpayers conducting similar activities to eligible BC taxpayers.
4. **An evaluation of profits in the IA regime could be undertaken in the microdata to support setting appropriate taxes rates and to strengthening information for enforcement, but such an evaluation would face challenges.** An evaluation of profitability and the ability to pay might be challenging given the high take-up of the presumptive cost deduction which, from the perspective of data availability, implies that the tax admin likely has limited tax record information on the costs of business operations in the IA regime.

5. **Track the poverty risks of elderly families** following the death of a spouse over time using the tax microdata given the old-age gender gap and retirement income cliff.

Undertake analysis to establish why two-thirds of registered unemployed are not receiving benefits and whether it is attributable to insufficient SSC contributions, incorrect records or other factors.

References

Mitnik, P. et al. (2015), “New Estimates of Intergenerational Mobility Using Administrative Data”. [1]

Notes

[1] The OECD Taxing Wages Family Types are as follows: Single no children 67 (% AW); Single no children 100 (% AW); Single no children 167 (% AW); Single 2 children 67 (% AW); Married 2 children 100-0 (% AW); Married 2 children 100-67 (% AW); Married 2 children 100-100 (% AW); Married no children 100-67 (% AW).

[2] The personal average tax rate is the term used when the personal income tax and employee social security contributions are expressed as a percentage of gross wage earnings. The net personal average tax rate corresponds to the above measure net of cash benefits.

From:

OECD Tax Policy Reviews: Lithuania 2022

Access the complete publication at:

https://doi.org/10.1787/53952224-en

Please cite this chapter as:

OECD (2022), “Methodological notes”, in *OECD Tax Policy Reviews: Lithuania 2022*, OECD Publishing, Paris.

DOI: https://doi.org/10.1787/c66ea345-en

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document, as well as any data and map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area. Extracts from publications may be subject to additional disclaimers, which are set out in the complete version of the publication, available at the link provided.

The use of this work, whether digital or print, is governed by the Terms and Conditions to be found at http://www.oecd.org/termsandconditions.