

The taxation of high-income earners

An international comparison

Alexander Fritz Englundⁱ and Jacob Lundbergⁱⁱ

The effective marginal tax rate is the total tax on the last euro earned, taking into account income tax as well as social contributions and consumption taxes. Considering only income taxes does not provide the whole picture of the distortionary effects of the tax system.

This paper presents a unique compilation of effective marginal tax rates on top incomes in 31 developed countries.

Sweden tops the list, at 75 percent. Slovakia has the lowest effective tax rate at 36 percent. Most western European countries are in the range 55 to 70 percent. The American top effective marginal tax rate is estimated to be 48 percent.

High marginal tax rates drive a wedge between private and social returns to economic activity and thus hurt incentives to work.

Introduction

The marginal tax rate is the proportion of tax paid on the last euro earned. It is the relevant tax rate when deciding whether to work a few extra hours or accept a promotion, for example. As most income tax systems are progressive, the marginal tax rate on top incomes is usually also the highest marginal tax rate. It is an indicator of how progressive and distortionary the income tax is. For these reasons the top marginal tax rate is of considerable interest to policy discussions.

The income tax alone does not provide a complete picture of how the tax system affects incentives to work and earn income. Many countries require employers and/or employees to pay social contributions. It is not uncommon for the associated benefits to be capped while the contribution itself is uncapped, meaning it is a de facto tax for high-income earners. Even those social contributions that are legally paid by the employer will in the end be paid by the employee as the employer should be expected to shift the burden of the tax through lower gross wages.

One must also take value-added taxes and other consumption taxes into account. Consumption taxes reduce the purchasing power of wage-earners and thus affect the return to working. In principle, it does not matter whether taxation takes place when income is earned or when it is consumed, as the ultimate purpose of work is consumption.

The income tax alone does not provide a full picture of the actual tax burden, value-added taxes, social security contributions and other consumption taxes also need to be considered.

Taking all these taxes into account, one can compute the effective marginal tax rate. This shows how many cents the government receives for every euro of additional employee compensation paid by the firm. In theory, all labour and consumption taxes could be replaced by an income tax where the marginal tax rate is equal to the current effective marginal tax rate for each income level.

Despite the fact that the effective marginal tax rate is a fairer measure of the distortionary burden of the tax system, it is not commonly reported. As far as the authors know, this is the only cross-country comparison of effective marginal tax rates in recent years. The OECD provides statistics on tax wedges but these do not include consumption taxes and do not pertain to the very highest incomes. Piketty et al. (2014) calculate effective marginal tax rates for high incomes in a smaller set of countries. That list is also older.

Effects of high marginal tax rates

The effective marginal tax rate shows the proportion of an individual's additional production that goes to the government. If the top effective tax rate is 75 percent, as in Sweden, a person who contributes 100 additional euros to the economy will only be allowed to keep 25 euros while 75 euros are appropriated by the government. The tax system thus drives a wedge between the social and private return to work. The effective marginal tax rate can therefore also be called the tax wedge.

In his metaphor of the invisible hand, Adam Smith noted that a person who acts in his own self-interest will also act in the interests of society at large. High marginal tax rates disconnect the private and social returns to economic activity and thereby the invisible hand ceases to function. For this reason, taxation causes distortions and is costly to society.

The effective marginal tax rate is the proportion of an individual's additional production that goes to the government.

High marginal tax rates make it less worthwhile to supply labour on the formal labour market and more worthwhile to spend time on household work, black market activities and tax avoidance. Therefore, the tax system punishes specialization, which is the foundation of a modern economy.

A comparison of top marginal tax rates

Effective marginal tax rates for high-income earners in 31 developed countries are shown in the diagram below. The countries studied are the EU15, the G7 and some other advanced economies. The highest effective tax rates – more than 70 percent – are found in Sweden, Belgium, Portugal, Slovenia and France. The Netherlands, the United Kingdom, Germany and Italy have tax rates between 55 and 60 percent. In Spain, Switzerland and the United States, about one half of high-income taxpayers' additional earnings are paid in taxes. This implies that they get to keep twice as much of a raise than Swedish high-income earners do. The lowest marginal tax rate is found in Slovakia, at 36 percent.

The highest effective marginal tax rate is found in Sweden – where 75 euros out of every 100 additional euros go to the government – whereas Slovaks, who have the lowest rate in the EU, get to keep 64 euros out of every additional 100 they earn.

The average effective marginal tax rate in this sample of countries is 58 percent. The top income tax rate is only 44 percent on average. This is what is commonly reported in international comparisons of tax rates. Such lists thus do not provide the whole picture.

The countries that top the list have high payroll taxes – also called employers' social security contributions – in common. In most countries, there are no or low payroll taxes on high incomes, due to the fact that social contributions usually are tied to social insurance schemes that have an earnings cap.

The highest consumption tax rates are found in the Nordic countries, Hungary and Luxembourg. This is mostly due to high VAT rates, but excise taxes on petrol and energy also contribute.

The assumptions and sources that underlie the calculations are discussed in detail below. The calculations have consistently used the same method for all countries to ensure comparability, but data on particular countries should be interpreted with some care. Tax systems are complex and the consumption tax rate can only be calculated approximately. Here we use a simple method that puts total VAT and excise tax revenues in relation to total consumption expenditure. It is thus assumed that the consumption tax rate facing high-income earners is the same as the one paid by the general population.

About the table

Tax rates for the very highest tax bracket in each country are shown. Local tax rates are the national average unless stated otherwise. Solidarity surcharges, extraordinary surtaxes etc. are shown in the column "Surtaxes". Payroll taxes and social contributions are only included if they are uncapped and apply to all incomes. Income tax and social contributions rates are for 2015 or 2016.

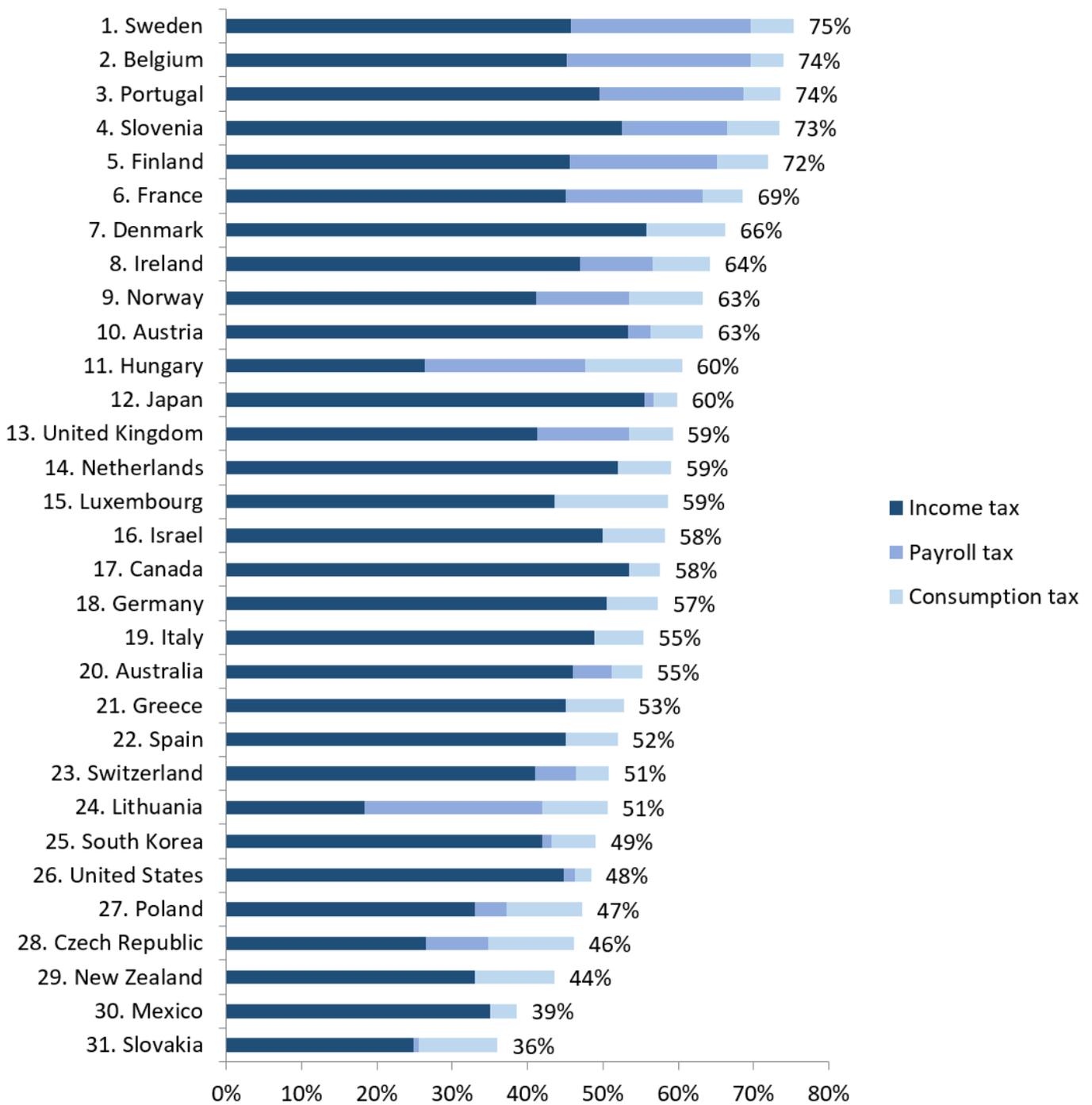
The consumption tax rate is obtained from OECD data using the well-used formula proposed by Mendoza et al. (1994): (general sales taxes + excise duties) / (private consumption expenditure + government consumption expenditure – government employee compensation). This takes into account the fact that some consumption taxes are paid by the government to itself. The data is from 2014, or 2013 in a few cases. No data for employee compensation was available for Canada, Mexico and New Zealand. In these cases the government's compensation of employees was assumed to make up half of government consumption expenditures, which is the average of all countries.

The effective marginal tax rate is computed in this way:

$$\tau_E = \frac{\tau_I + \tau_{SN} + \tau_{SD}(1 - \tau_I) + \tau_C(1 - \tau_I - \tau_{SN} - \tau_{SD}(1 - \tau_I)) + \tau_P}{1 + \tau_P},$$

where τ_I is national and local income tax and any surtaxes, τ_{SN} and τ_{SD} are non-deductible and deductible employee social contributions, respectively, τ_C is the average tax on consumption and τ_P is the top payroll tax rate.

Table. 1 Effective marginal tax rates on high incomes in 31 countries



The colours indicate the contribution of income taxes (including employees' social contributions), payroll taxes and consumption taxes, respectively, to the effective marginal tax rate.

Table 2. Tax rates on high incomes in 31 countries

| Country | Income tax | | | Employees' social contributions | | Payroll tax | Consumption tax | Effective marginal tax |
|----------------|------------|-------|----------|---------------------------------|------------|-------------|-----------------|------------------------|
| | Central | Local | Surtaxes | Non-deductible | Deductible | | | |
| Australia | 45% | | | 4% | | 5% | 8% | 55% |
| Austria | 55% | | | | | 3% | 16% | 63% |
| Belgium | 50% | 4% | | | 13% | 32% | 14% | 74% |
| Canada | 33% | 13% | 7% | | | | 9% | 58% |
| Czech Republic | 16% | | 8% | 5% | | 9% | 17% | 46% |
| Denmark | 52% | | | | 8% | | 24% | 66% |
| Finland | 32% | 20% | | 2% | 6% | 24% | 20% | 72% |
| France | 45% | | 4% | 3% | 6% | 22% | 15% | 69% |
| Germany | 45% | | 6% | | | | 14% | 57% |
| Greece | 45% | | | | | | 14% | 53% |
| Hungary | 15% | | | 19% | | 27% | 25% | 60% |
| Ireland | 40% | | 8% | 4% | | 11% | 17% | 64% |
| Israel | 50% | | | | | | 16% | 58% |
| Italy | 43% | 4% | 2% | | | | 13% | 55% |
| Japan | 45% | 10% | 1% | | 1% | 1% | 7% | 60% |
| Lithuania | 15% | | | 9% | | 31% | 15% | 51% |
| Luxembourg | 40% | | 4% | | | | 27% | 59% |
| Mexico | 35% | | | | | | 5% | 39% |
| Netherlands | 52% | | | | | | 15% | 59% |
| New Zealand | 33% | | | | | | 16% | 44% |
| Norway | 14% | 25% | | 8% | | 14% | 21% | 63% |
| Poland | 32% | | | 2% | | 4% | 16% | 47% |
| Portugal | 48% | | 9% | | 11% | 24% | 15% | 74% |
| Slovakia | 25% | | | | | 1% | 14% | 36% |
| Slovenia | 50% | | | | 22% | 16% | 21% | 73% |
| South Korea | 38% | 4% | | 1% | | 1% | 10% | 49% |
| Spain | 23% | 23% | | | | | 13% | 52% |
| Sweden | 25% | 32% | 3% | | | 31% | 19% | 75% |
| Switzerland | 12% | 28% | | | 6% | 6% | 8% | 51% |
| United Kingdom | 45% | | | 2% | | 14% | 12% | 59% |
| United States | 40% | 4% | | 2% | | 1% | 4% | 48% |

Sources: European Union (2015), KPMG (2016), PWC (2016), OECD, national sources (see country notes).

Country notes

Australia: Payroll tax is the simple average of state tax rates.

Belgium: The average local tax rate is 7.54 percent of the national income tax.

Canada: Provincial tax rate for Ontario. Ontario also levies a surtax of 56 percent of the provincial tax.

Czech Republic: The income tax base includes employer's social contributions. Income tax rates are therefore multiplied by 1.09.

Denmark: The sum of central and local tax rates is capped at 52 percent.

Italy: Local tax rate for Rome. The solidarity contribution of 3 percent is adjusted for the fact that it is deductible from central income tax.

Japan: The surtax is 2.1 percent of the central tax liability.

Lithuania: Consumption tax data from Eurostat.

Luxembourg: The solidarity surcharge is 9 percent of the income tax liability.

Norway: Income tax rates from the Norwegian Tax Administration (2016).

Portugal: Employees' social contributions are deductible according to the Portuguese Tax and Customs Authority (2010). An extraordinary surtax of 3.5 percent and a solidarity surcharge of 5 percent apply.

Slovenia: Employees' social contributions are deductible according to email communication with the Slovenian Ministry of Finance.

South Korea: The local tax is 10 percent of the national tax.

Spain: Regional tax rate for Madrid.

Sweden: The surtax refers to the phase-out of the earned income tax credit for incomes between 600,000 and 1,500,000 SEK. More than 90 percent of top-bracket taxpayers are in this interval.

Switzerland: Local tax rate for Zurich. The cantonal tax rate is 13 percent and the municipal tax rate is 1.19 times the cantonal tax rate.

United States: Average state income tax from Diamond & Saez (2011). It is adjusted for the fact that it is deductible from federal income tax.

References

Diamond, Peter & Saez, Emmanuel (2011), "The Case for a Progressive Tax: From Basic Research to Policy Recommendations", *Journal of Economic Perspectives*, 25 (4).

European Union (2015), "Taxation trends in the European Union: Data for the EU Member States, Iceland and Norway". Luxembourg: Publications Office of the European Union.

KPMG (2016), "Individual income tax rates table" <https://home.kpmg.com/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/individual-income-tax-rates-table.html> Accessed 2016-08-17.

Mendoza, Enrique G., Razin, Assaf & Tesar, Linda L. (1994), "Effective tax rates in macroeconomics: Cross-country estimates of tax rates on factor incomes and consumption", *Journal of Monetary Economics*, 34 (3).

Piketty, Thomas, Saez, Emmanuel & Stantcheva, Stefanie (2014), "Optimal Taxation of Top Labor Incomes: A Tale of Three Elasticities", *American Economic Journal: Economic Policy*, 6 (1).

Norwegian Tax Administration (2016), "Calculation of Norwegian Income Taxes – Income Year 2016". <https://www.skatteetaten.no/globalassets/taxnorway/2016/temabrev/2016-09-utregning-av-norsk-inntektsskatt-eng.pdf>

Portuguese Tax and Customs Authority (2010), "The Tax Code – Income and Gains of Individuals, Decree-law No- 442-A/88, of 30 november". Translated by William Cunningham. http://info.portaldasfinancas.gov.pt/NR/ronlyres/FA120865-C4A3-4383-AA12-63C97A94DB2A/0/IRS_code_with_OE2010_PEC_changes.pdf

PWC (2016), "Worldwide Tax Summaries Online" <http://taxsummaries.pwc.com/> Accessed 2016-08-17.

ⁱ Alexander Fritz Englund is pursuing a master's degree in economics at the Stockholm School of Economics.

ⁱⁱ Jacob Lundberg is a PhD student in economics at Uppsala University, specializing in public economics. He is also a fellow at the Swedish think-tank Timbro.