

# WHO IS BURDENED BY TAXES IN POLAND?

Jakub Sawulski

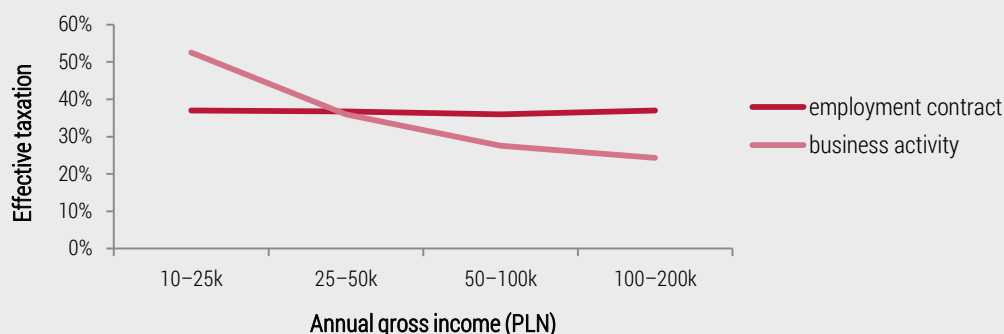
## Abstract

The Polish tax system is regressive: it burdens people on low incomes more than people on high incomes. Consumption is inherently taxed regressively. In order to balance it, most EU countries have progressive taxes on labour (higher taxes for higher income). Poland is an exception: the taxation of labour is linear, i.e. the same for low and high income. In the case of business activity, the more profitable the business, the lower the burden on profits. High-yield companies are taxed significantly lower than employment contracts. This induces high-earning individuals to make bogus claims of self-employment. As a result, these people often pay lower taxes than those with employment contracts on low incomes. At the same time, the share of other taxes on capital (on inheritance, real estate, or stock market profits) in Poland is low. A less regressive tax system can be achieved, for example, by reducing taxes on low incomes, counteracting bogus self-employment, and increasing the role of property taxes.

## Key facts and figures

- **37%** – this is the effective income taxation of the employment contracts in Poland (regardless of the remuneration level).
- **1/3** – the average income taxes from business activity are approximately one third lower than those from employment contracts with annual income ranging from PLN 100k to 200k.
- **8 p.p.** – on average in the EU countries the tax wedge for low incomes is lower than for high-incomes by 8 percentage points. In Poland there is no difference in the tax wedge between low and high earnings.
- **166,000** – this is the estimated scale of bogus self-employment in the Polish economy in 2017. This phenomenon affects nearly every tenth person running their own business (excluding agriculture).

**With high incomes, taxes on business activity are significantly lower than on an employment contract**



*For source and comments see note under Figure 4 on page 5.*

## Introduction

In 2015, public policy in Poland made a turn in the direction of greater role of the state in the economy, including greater activity in social policy. So far, such activities have focused mainly on the benefit policy: it was analysed to whom, how much, and on what rules public funds should be distributed. However, the benefit policy cannot be conducted in isolation from the tax policy. Not only are the directions of spending public funds important, but so are their sources. These two elements should be coherent. It seems that in Polish public policy in the last few years there has been no reflection on from whom the state collects money to carry out its tasks.

**The aim of our study is to find out differences in taxes paid by low earners in comparison to taxes paid by high earners.** According to J. Rawls's theory of social justice, which is a cornerstone of the modern social policy, moving away from equal treatment of citizens is only justified if it benefits the most disadvantaged individuals. The conclusion is that state policy should first and foremost help the weakest. Consequently, if the tax burden on citizens' incomes cannot be equal, it should at least be progressive: lower for people on low incomes than for people on high incomes.

**Our analysis leads to the conclusion that the Polish tax system is regressive:** it imposes a greater burden on people with low incomes than on those with high incomes. This is neither in line with the rules of social policy nor with the trends in other countries. We point to two main reasons for the regressive character of the Polish tax system: linear tax on labour (similar for low and high earnings) and relatively low tax on high-income business activity (which, among other things, induces people on high incomes to make bogus claims of self-employment).

The study consists of six chapters. In chapter one we present the level of the entire tax burden in Poland in comparison to other countries. Chapter two analyses the distribution of consumption taxes, chapter three labour taxes, and chapter four capital taxes. In chapter five, we compare the structure of labour and capital taxes. In chapter six, we summarise the results and propose actions that would reduce the regressive character of the Polish tax system.

### Box 1. What does "regressive tax system" mean?

In this paper we use the category of "effective taxation". Effective taxation is the share of taxes and contributions in total income/ consumption/ remuneration (depending on what we are analysing). For example:

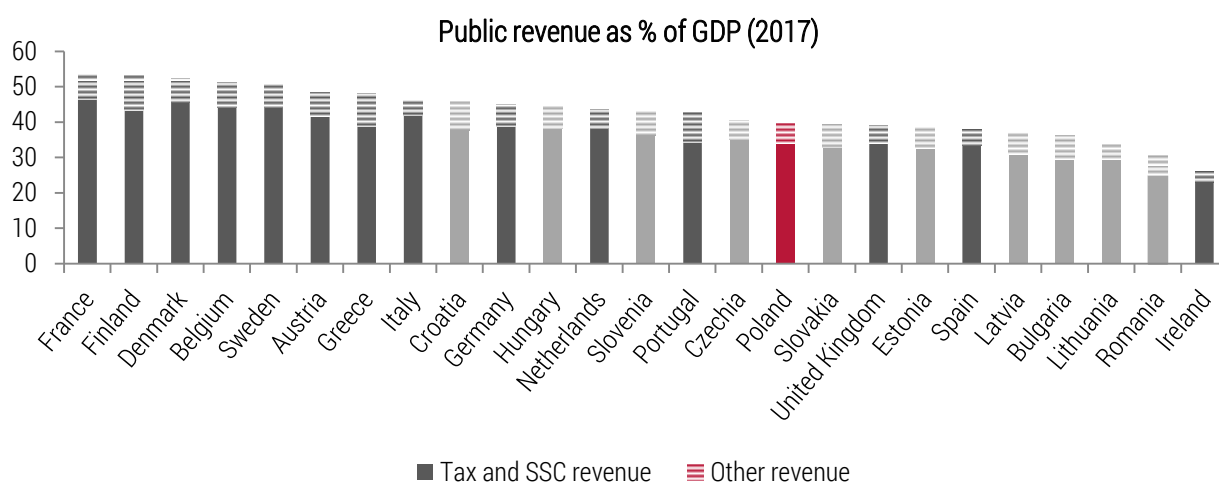
- effective taxation on consumption – share of taxes and contributions in the consumption value,
- effective taxation on labour – share of taxes and contributions in the employer's total cost,
- effective taxation on business activity – share of taxes and contributions in the company's total income.

**We define a tax system as regressive when effective taxation is higher for people with low income than for people with high income (progressive - vice versa).** In this article, for the sake of simplicity, we do not distinguish the burdens between taxes and social insurance contributions.

## 1. Tax burden in Poland and other countries

**Total tax burden in Poland is lower than the average in EU countries.** However, this burden is moderate in comparison with other Central and Eastern European (CEE) countries, i.e. countries that are at a development level similar to Poland (Figure 1). In 2017, income from taxes and contributions in Poland amounted to 34% of GDP. On average, in the countries of our region, this relation was one percentage point lower (33%), but in the richer countries, the so-called old EU-15, it was clearly higher (39%). This phenomenon can be considered natural, since in richer countries the state's share in the economy is usually greater than in poorer countries (which is justified by the so-called Wagner's Law, see: Sawulski 2016). Besides revenues from taxes and contributions, countries also generate revenue from other sources, such as subsidies from the EU or from various fees, which in Poland in 2017 amounted to 6% of GDP, the same as on average in CEE and EU-15 countries.

**Figure 1. In Poland, the share of taxes and contributions in GDP is lower than the EU average, but moderate in comparison with the countries of our region**



*Poland is marked in red, the countries of Central and Eastern Europe in light grey, and the EU-15 countries in dark grey. Cyprus, Luxembourg and Malta have been omitted. Data for 2017.*

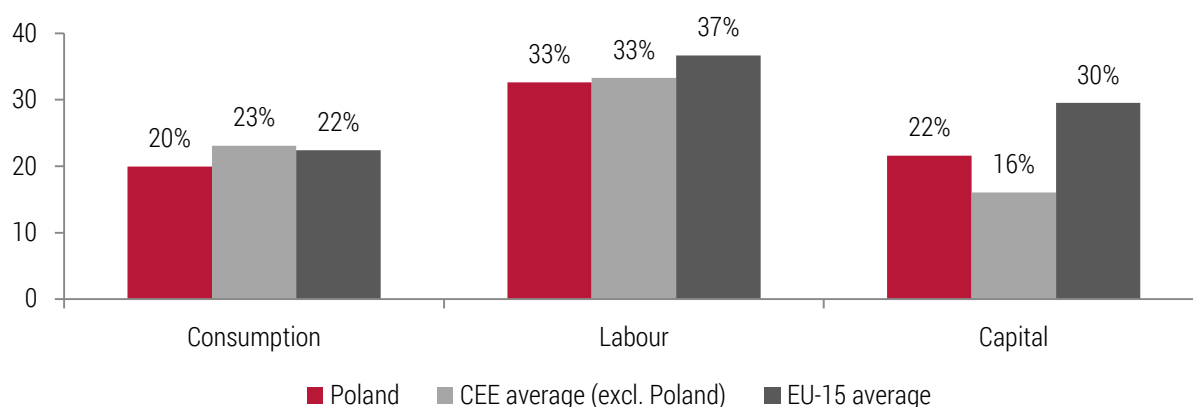
*Source: own elaboration based on Eurostat data.*

In theory, there are three main subjects of taxation: consumption, labour, and capital. The distribution of the tax burden between the three channels has a significant impact on who is taxed (as will be shown later in this paper). The analysis of the tax burden in Poland and other EU countries, broken down by the subject of taxation (Figure 2), leads to the following conclusions:

- **Consumption taxes in Poland are moderate in comparison with both the EU-15 and CEE countries.** In Poland they amount to around 20%, in Western Europe on average 22%, and in the countries of our region on average 23%. However, these data refer to 2016, whereas actions taken in subsequent years aimed at sealing incomes from VAT could raise the statistical burden on consumption in Poland in 2017 or 2018 to a level close to the average in other EU countries.

- **Labour taxes in Poland are moderate in comparison with other CEE countries, but low in comparison with the EU-15 countries.** The state collects about 33% of income from labour in the form of taxes and contributions in Poland and on average in the countries of our region, and about 37% on average in the countries of Western Europe. It is worth noting that the tax on labour is clearly higher than the tax on consumption: this applies not only to Poland, but also to other EU countries and is mainly due to the fact that social insurance contributions are included in the labour tax. These contributions are attributed to each individual taxpayer, so it would be difficult to collect them from consumption or capital.
- **Capital taxes in Poland are higher than in other countries of our region, but still much lower than in the old EU-15.** Countries with a lower level of development, and thus lower capital resources, try to attract capital with relatively low tax rates. Therefore, the average capital tax burden is 16% in the CEE countries and as much as 30% in the EU-15 countries. Poland is between these values, with a capital tax of 22%.

**Figure 2. The effective tax burden imposed on labour is higher than on capital and consumption**



*Effective taxation is the ratio of tax revenue and contributions to the tax base. For example, in the case of consumption, it is the ratio of the state's total revenue from consumption taxes to total household final consumption expenditure. Data for 2016.*

*Source: own elaboration based on: European Commission (2018). Taxation Trends in the European Union – 2018 edition.*

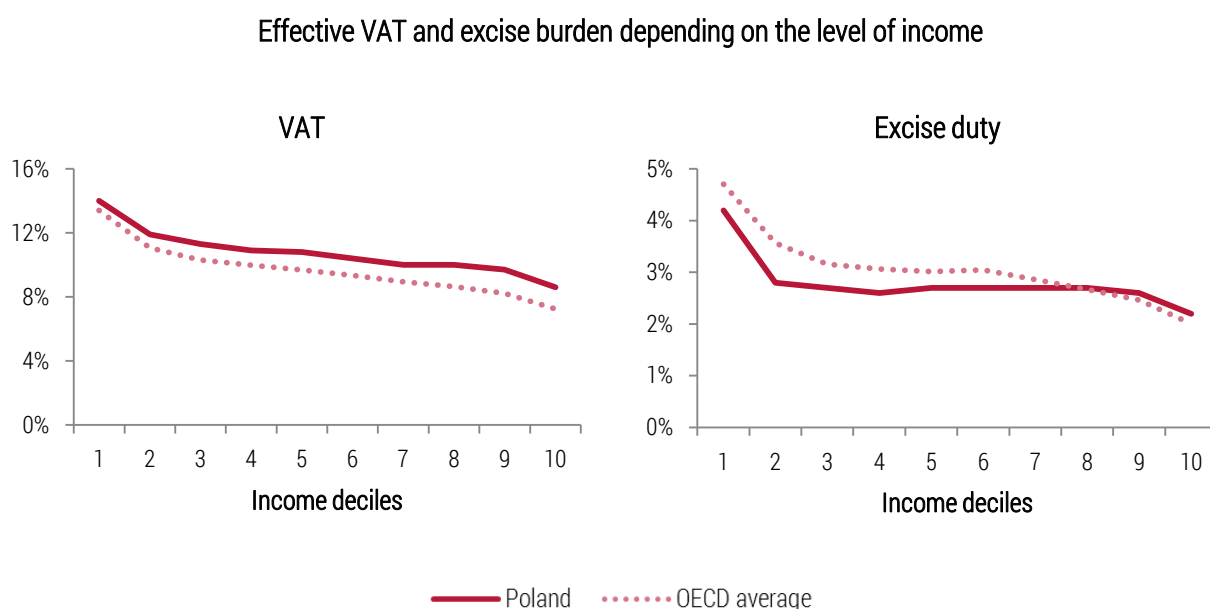
## 2. Structure of consumption taxes

Consumption taxes are inherently regressive: they are a greater burden on low-income people than on those with high-income. The former spend all or almost all of their income on consumption (in contrast to the latter who consume only a part of their income). As a consequence, the share of consumption taxes (first of all VAT and excise duty) in the incomes of low earners is greater than in the incomes of high earners.

In Poland, the share of VAT in the income of the underprivileged is clearly higher than in the income of the wealthy. For the poorest 10% of the Polish population, the effective VAT burden amounts to around 14%, whereas for the richest 10% of Poles, it is around 9% (Figure 3). A similar phenomenon also exists in other OECD countries, which confirms the regressive nature of consumption taxation, as described in the previous paragraph.

**Excise duty tax is regressive too.** The poorest 10% of the Polish population pays around 4% from its income as excise duty, while the richest 10% pays around 2%. For the population which is between the second and ninth income decile in Poland, effective excise duty is in principle linear and amounts to around 2.5% (Figure 3).

**Figure 3. Taxation of consumption is regressive, both in Poland and other OECD countries**



*Income decile 1 means the poorest 10% of the population. Income decile 10 means the richest 10% of the population. The study covered 19 OECD countries.*

*Source: OECD/Korea Institute of Public Finance (2014). The Distributional Effects of Consumption Taxes in OECD Countries. OECD Tax Policy Studies, No. 22, OECD Publishing.*

### 3. The structure of labour taxation

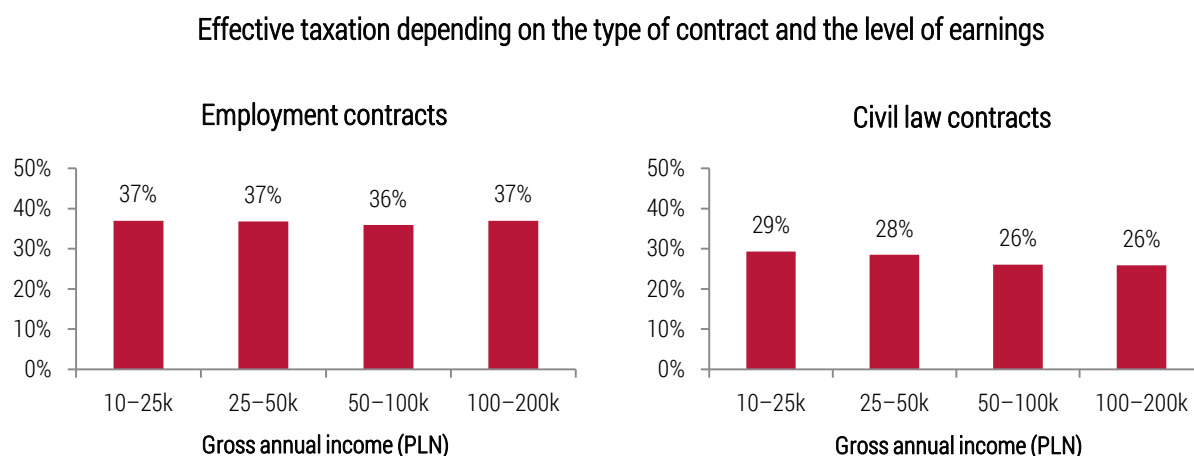
We analyse labour taxation in Poland in terms of employment contracts and civil law contracts. Out of those working in the Polish economy, around 75% are on employment contracts and 6% on civil law contracts. The remaining part of the employment is made up of the self-employed, who for the purpose of tax system analysis, are classified as paying capital taxation (as further elaborated in the next chapter).

**Taxation of employment contracts in Poland is linear, i.e. the same for people with low and high incomes.** Regardless of the income bracket, the effective tax burden in the case of employment contracts amounts to approximately 37% (Figure 4). This part of gross remuneration (plus contributions paid by the employer) is paid in the form of taxes and contributions by both those who receive the minimum remuneration and those whose monthly remuneration exceeds PLN 10,000.

**The linear method of income taxation of employment contracts in Poland is exceptional compared to the European Union.** Most EU countries apply a progressive tax wedge, which means that people on high incomes are more burdened with taxes and contributions than people on low incomes. On average, in other EU countries taxes

on high incomes are eight percentage points higher than the taxation on low earnings (Figure 5). It is worth noting that Western European countries usually apply more progressive taxation of income from employment contracts than the countries of Central and Eastern Europe. In Poland, the difference in taxation of high and low earnings is exceptionally small: it amounts to one percentage point, the lowest, next to Hungary, of EU countries.

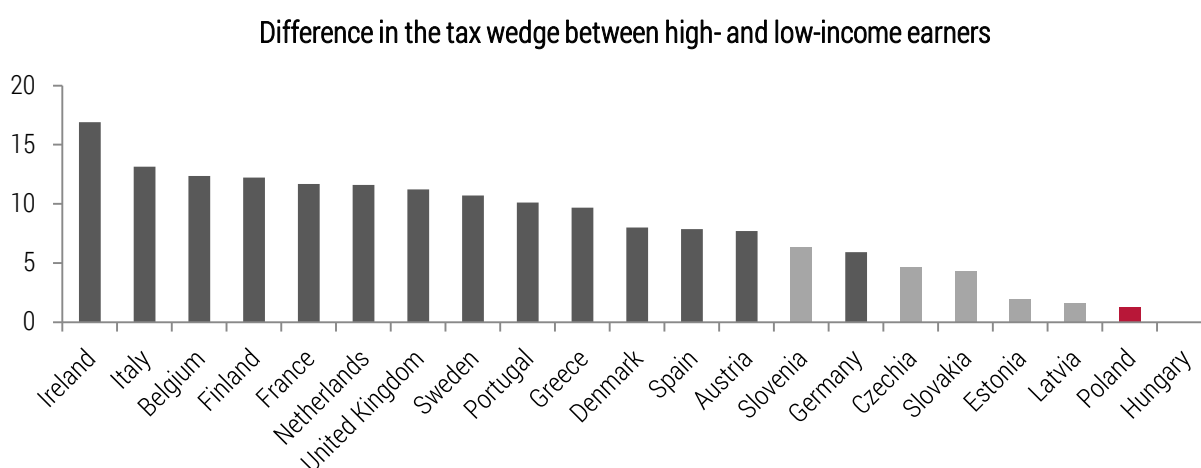
**Figure 4. In the case of an employment contract, an effective tax wedge is linear: the same for low and high salaries**



*For each income bracket, the diagram shows the average ratio of taxes and contributions paid to taxable income increased by social insurance contributions from the employee and the employer. Data for 2016. The calculations were made by the Ministry of Finance employees on the basis of a combined PIT and ZUS (Social Insurance Institution) database.*

*Source: Chrostek, P., Klejdysz, J., Korniluk, D., Skawiński, M. (2019). Wybrane aspekty systemu podatkowo-składkowego na podstawie danych PIT i ZUS 2016. MF Opracowania i Analizy, Ministerstwo Finansów, Warszawa.*

**Figure 5. Equal taxation of low and high salaries in Poland is an exception in the EU – in most countries, people with high incomes pay higher taxes**



*High income defined as the equivalent of 167% of average earnings and low income as 67% of average earnings. Calculations for 2017 for a childless single employee with an employment contract. Data for EU member states belonging to the OECD (without Luxembourg). Poland is marked in red, the countries of Central and Eastern Europe in light grey, and the EU-15 countries in dark grey.*

*Source: own elaboration based on OECD data.*

**In the case of civil law contracts, taxation is linear, similarly as in the case of employment contracts.** What is important is that for each level of income, it is clearly lower than in the case of employment contracts: on average by approximately 10 percentage points (Figure 4). Relatively low tax rates are an important reason for the increasing popularity of civil law contracts on the Polish labour market. The number of people employed in this form increased from 0.6 million in 2002 up to around 1 million in the years 2014–2017. Research indicates that those who work relatively often on civil law contracts are people with a weak position in the labour market, i.e. the young, with low qualifications and low earnings (Lewandowski 2018). For these people, the price for lower taxes are fewer labour rights and a smaller scope of social security, for example no holidays, no notice period, no minimum wage (until 2016), and lower pension contributions.

To sum up, in the case of both employment contracts and civil law contracts, the tax wedge, in principle, does not change as incomes increase. Three factors influence this:

- **Low tax-exempt amount.** The tax-exempt amount becomes more important the lower a person's income is (the proportion of the tax-exempt amount in low income is greater than in high income). Meanwhile, the basic amount of the tax-exempt amount in Poland is only PLN 3,091 per year. From a monthly perspective, this is half the minimum subsistence level.
- **Slight progression in income tax.** Employed persons in Poland pay income tax according to two rates: 18% and 32%. The latter applies to incomes over PLN 86,000 per year, i.e. around PLN 7,000 per month. This threshold level means that only 3.5% of taxpayers pay the higher income tax rate (this does not apply to the self-employed who pay the flat-rate tax of 19%) (Ministry of Finance 2018).
- **Limit of social insurance contributions.** No retirement or disability pension contributions are paid from earnings which exceed two and a half times the average income (around PLN 11,000 per month in 2018). This is justified because it limits the future pensions of people on high incomes. However, this means that the total tax and contribution burden for these persons does not increase despite the higher income tax rate (the higher tax rate raises the tax wedge and no obligation to pay contributions lowers it; these two actions roughly offset each other).

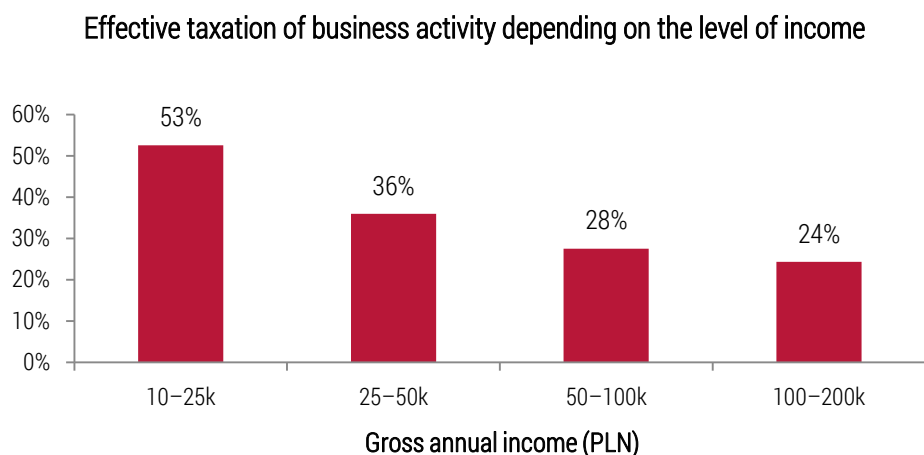
## 4. The structure of capital taxation

The most important parts of capital taxation are taxes and contributions imposed on companies' income. There are two types of corporate taxation: taxation of businesses run by natural persons (individual economic activities) and taxation of companies with their own legal personality (these are usually larger companies; to simplify, we call them corporations).

**Taxation of income from individual business activities is regressive: the more profitable a business, the lower its taxes and contributions.** For low-income enterprises, ranging from gross PLN 10,000 to 25,000 per year, the average effective taxation is high, as it exceeds 50%. This is the result of the flat-rate social insurance contributions that self-employed persons pay at a fixed rate regardless of their income (in 2018 around PLN 1,200 per month). The higher the business's income, the less acute these contributions become, and given the fixed income tax rate (19%), the effective tax and contribution burden is gradually decreasing. Annual income in the range of PLN 100,000 to 200,000 amounts to less than 25% (Figure 6).

**Effective taxation of corporate income is relatively low in Poland.** In 2016 it amounted to 11% (Figure 7), which is less than the EU-15 average (18%), and less than the average in the countries of our region (16%). Low taxation of corporate income is one of the methods to attract the capital of big companies to Poland. However, questions about the cost of the tax preferences applied, and their impact on the competition within the economy, are justified.

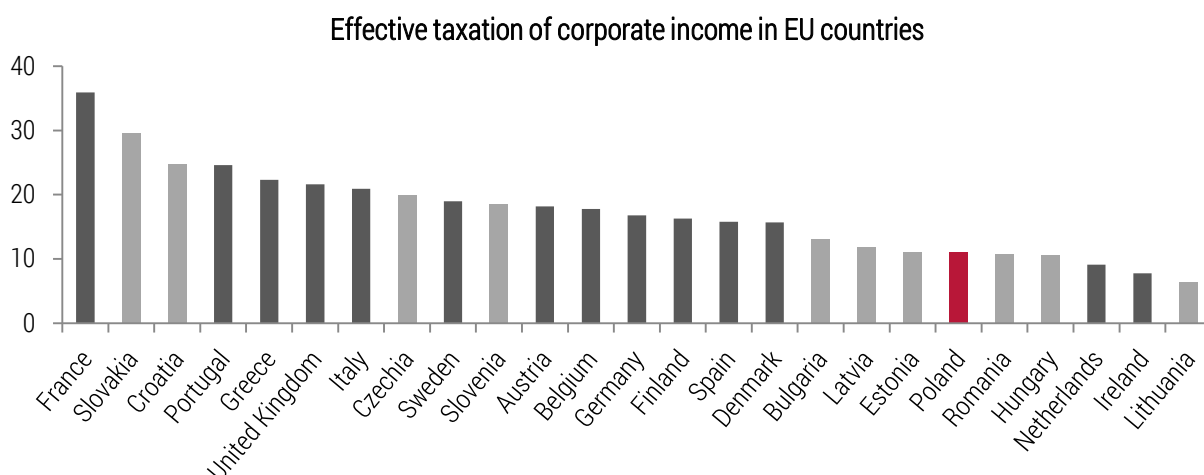
**Figure 6. Taxation of individual business activity is regressive; it decreases with the increase in annual income**



*For each income bracket, the diagram shows the average ratio of taxes and contributions paid to taxable income increased by social insurance contributions. Data for 2016. The calculations were made by Ministry of Finance employees on the basis of a combined PIT and ZUS (Polish Social Insurance Institution) database.*

*Source: Chrostek, P., Klejdysz, J., Korniluk, D., Skawiński, M. (2019). Wybrane aspekty systemu podatkowo-składkowego na podstawie danych PIT i ZUS 2016. MF Opracowania i Analizy, Ministerstwo Finansów, Warszawa.*

**Figure 7. Taxation of corporate income in Poland is low in comparison to other EU countries**



*Poland is marked in red, the countries of Central and Eastern Europe in light grey, and the so-called "old fifteen" countries in dark grey. Cyprus, Luxembourg and Malta have been omitted. Data for 2016.*

*Source: own elaboration based on: European Commission (2018). Taxation Trends in the European Union – 2018 edition.*

**Share of other taxes on capital in the Polish tax system (taxes on inheritance, property or stock market profits) is insignificant.** Of the above, the most significant from the fiscal perspective is property tax. Revenues from this tax are similar to the EU average and amount to around 1% of GDP. In Poland this tax is calculated on the area and not on the value of the property (as in some EU countries). Consequently, the distribution of the property tax burden only depends on income to a small extent (it is possible that the share of this tax in the income of the poor is even higher than in the income of the affluent, however, there are not enough data to confirm this hypothesis).

## 5. The relationship between taxation of labour and taxation of capital

The affluent are more likely to receive income from capital, while the earnings of the less well-off are primarily derived from work. For example, the average per capita income in the households of entrepreneurs is 20% higher than among the households of employed persons (GUS 2018). Entrepreneurs also dominate in the group of millionaires: more than 80% of the persons whose annual income exceeds PLN 1 million run their own business activity (Chądryński 2017). Therefore, the analysis of the relationship between taxation of capital and labour is crucial in assessing the distribution of burdens among different income groups.

**Self-employed persons, whose income is moderate or high, are taxed significantly lower than persons on employment contracts.** As we have shown earlier, the taxation of employment contracts is the same for each level of earnings, i.e. approximately 37%. In the case of an individual business activity, the effective tax and contribution burden is approximately 8 percentage points lower in the income bracket ranging from PLN 50 to 100 thousand per year. It is around 13 percentage points lower in the income bracket ranging from PLN 100 to 200 thousand per year (cf. Figures 4 and 6).

**The question is whether it is justified that taxes on income from business activity are lower than from labour.** Some economists argue that this can be justified by greater risks involved in running an enterprise rather than in the performance of work. It is also worth noting that most EU countries tax capital less than labour (see Figure 2). However, the relatively low level of income tax on business activity is used by high-income individuals to optimise their taxes. These people often set up a business, not in order to actually run and develop it, but to gain tax benefits. This phenomenon is called bogus self-employment and is described in Box 2.

## Box 2. Bogus self-employment in the Polish economy

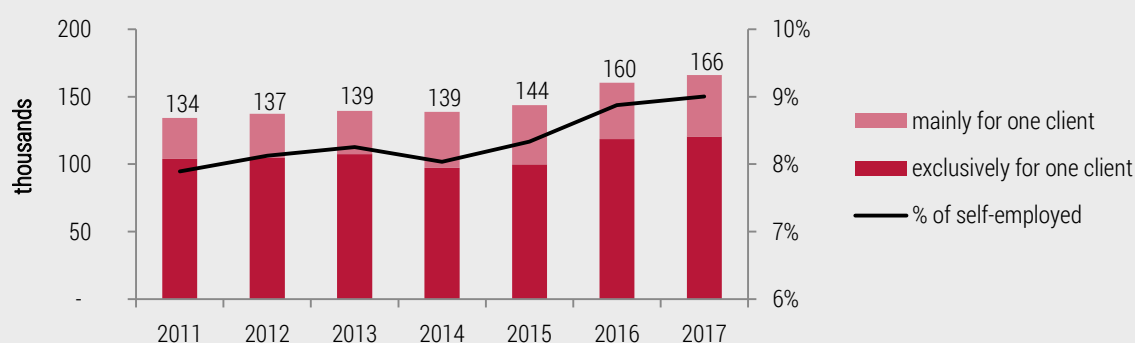
Bogus self-employment takes place when a person performs the duties characteristic of an employment contract within a formally run business activity. The table shows the most important premises for the identification of a given employment relationship as bogus self-employment.

Economic premises	Organisational premises
<ul style="list-style-type: none"> <li>all or a dominant part of the entrepreneur's income comes from a single client</li> <li>the entrepreneur does not employ other workers</li> <li>the entrepreneur does not bear the risks specific to economic activity, for example, does not look for new markets and does not develop products/services</li> </ul>	<ul style="list-style-type: none"> <li>the entrepreneur has no freedom to choose the days and hours of work, and carries out his or her work under regular supervision of the client</li> <li>the client hires employees with similar responsibilities on an employment contract</li> <li>the entrepreneur uses the client's office space, participates in employee meetings, etc.</li> </ul>

It is difficult to determine the scale of bogus self-employment, because the occurrence of any of the indicated premises does not determine its existence yet. We have attempted to estimate this scale, assuming that simultaneous occurrence of the first two economic premises is decisive, namely: no other employees and work exclusively or mainly for one client. We have excluded agriculture from the calculations.

**Bogus self-employment in Poland may concern even every tenth individual running a business activity.** In 2017, the number of persons who conducted business activity, did not employ other staff, and worked exclusively or mainly for one client amounted to 166,000 (see the diagram), which is 9% of all self-employed (except for agriculture).

**Number of self-employed persons who do not employ other staff, and work exclusively or mainly for one client (years 2011–2017)**



*Agriculture is excluded from the calculations.*

*Source: own calculations based on the Labour Force Survey by Statistics Poland.*

**The main cause of fictitious self-employment is significant tax difference between an employment contract and economic activity.** As indicated in Chapter 4, given an income range from PLN 100,000 to 200,000 per year, taxation of economic activities may even be by 1/3 lower than the taxation of the employment contract. This difference increases along with the income, therefore, bogus self-employment mainly concerns people with high incomes. An additional benefit for the fictitiously self-employed (compared to an employment contract) is the possibility of deducting VAT and including in the cost of economic activity expenditure on goods and services used partly for private purposes, such as car, telephone or laptop.

### Box 3. Changes in taxes in 2019 and their impact on the distribution of tax burdens

**Solidarity levy.** From 2019, persons earning more than PLN 1 million per year will pay additional tax in the amount of 4% on the income over PLN 1 million. Solidarity levy includes income from all sources, including but not limited to: employment contracts, business activities, and stock market investments

The scale of the solidarity levy is too small to make the Polish tax system significantly more progressive. This solution covers a small group of taxpayers, who will pay additional tax only on the income over PLN 1 million (for example, if the annual income is PLN 1.2 million, the additional tax will be calculated from the amount of PLN 0.2 million).

**"Mały ZUS".** From 2019, individuals running very small businesses (with monthly income below about PLN 5,000) can pay ZUS contributions from about half of their income (instead of paying contributions with a lump sum). This solution applies to those who previously benefited from the starter's relief and the preferential ZUS contribution levels.

On the one hand, the introduction of small ZUS will reduce taxes from small companies, and in consequence reduce the regressive nature of taxes and contributions levied on individual economic activity, as shown in the chapter 3. On the other hand, small ZUS will make the transition from an employment contract to a business activity beneficial from the tax point of view also for low-earners. Thus, this solution will provide an additional incentive for bogus self-employment. According to the calculations of Lasocki (2018), the small ZUS lowers the break-even point of the transition from employment contract to economic activity from approximately PLN 3,000 per month to approximately PLN 1,200 per month.

## 6. Summary and policy implications

**When shaping social policy, state institutions should focus not only on the benefit policy, but also on the tax policy.** What is important is not only on what the state spends its funds, but also from whom it collects them. These two elements of public policy should be consistent with each other. It seems that public policy in Poland in recent years has paid too little attention to who is burdened by the Polish tax system.

Taking into account the current level of development of the Polish economy, the total tax burden (share of public revenue in GDP) is moderate. However, the distribution of the tax burden among people with different material status is different than in most EU countries. **The Polish tax system is regressive:** it imposes greater burdens on people with low incomes than on people with high incomes. This is neither in line with social policy rules nor the trends observed in other countries.

The tax system in Poland is regressive for the following reasons:

- **Taxes on consumption are regressive** – the relatively poor spend a higher proportion of their incomes on consumption taxes than the rich do. This results from the nature of consumption taxes, and is a feature of taxation not only in Poland, but also in other countries.
- **Taxes on labour are linear**, i.e. the same for people with low and high incomes. Meanwhile, in almost all EU countries, taxation on labour is progressive, i.e. higher for people with high incomes.
- **Taxes on economic activity are regressive**, which means that the larger the company, the lower the share of taxes and contributions in the generated income. Low taxation of medium- and high-yield economic activity, as compared to the taxation of employment contracts, encourages people on high incomes to bogus self-

employment. In this way, people on high incomes often pay lower taxes than those on low incomes. The share of other taxes on capital in the Polish tax system, on inheritance, property or stock market profits, is insignificant.

**To reduce regressivity of the tax system, public policy should focus primarily on reducing taxes on low-income contracts.** This can be done for example, with a significant increase in tax-deductible costs or amount of income tax exemption. This would not only improve the financial situation of the most vulnerable, but would also reduce some negative phenomena in the Polish labour market, such as undocumented employment, or payment of part of earnings outside the official contract.

**The source of funding for this proposal could be higher taxation of high-yield business activity.** State institutions should more effectively counteract the phenomenon of bogus self-employment, treating income from this type of economic activity as income from an employment contract (this type of fraud can be identified using the single control file, introduced in 2016). It is also worth considering increasing the role of property taxes in the Polish tax system, e.g. inheritance tax or property tax, calculated based on value (instead of the surface area).

**An important element of the tax reform should also be reduction of tax differences between different types of employment.** Relatively low taxation of civil law contracts and high-yield business activity (compared to employment contracts) results in the popularity of non-standard forms of employment in the Polish labour market. Public policy should aim for a situation where labour is taxed at the same rate, regardless of the contract under which it is performed.

## References

- Chądzyński, M. (2017). Znów przybyło milionerów. Większość z nich płaci liniowy PIT. [online] <https://gospodarka.dziennik.pl/podatki/artykuly/555392,milionerzy-na-liniowym-pit-samozatrudnieni.html>
- Chrostek, P., Klejdysz, J., Korniluk, D., Skawiński, M. (2019). Wybrane aspekty systemu podatkowo-składkowego na podstawie danych PIT i ZUS 2016. MF Opracowania i Analizy, Ministerstwo Finansów, Warszawa.
- European Commission (2018). Taxation Trends in the European Union. 2018 Edition. Brussels.
- GUS (2018). Budżety gospodarstw domowych w 2017 r. Warszawa.
- Lewandowski, P. (2018). Case study – Gaps in access to social protection for people working under civil law contracts in Poland. Institute for Structural Research, Warsaw.
- Ministry of Finance (2018). Informacja dotycząca rozliczenia podatku dochodowego od osób fizycznych za 2017 rok. Warszawa.
- OECD/Korea Institute of Public Finance (2014). The Distributional Effects of Consumption Taxes in OECD Countries. OECD Tax Policy Studies, No. 22, OECD Publishing.
- Sawulski, J. (2017). Czy Polska jest państwem opiekuńczym? IBS Policy Paper 2/2017, Warszawa.

## Jakub Sawulski

Institute for Structural Research (IBS)  
SGH Warsaw School of Economics  
e-mail: [jakub.sawulski@ibs.org.pl](mailto:jakub.sawulski@ibs.org.pl)

## Additional information

I would like to thank Jan Rutkowski for his helpful comments and remarks. I also thank Aneta Kielczewska for her help in compiling statistical data.

The content of this publication reflects the opinions of the author, which may diverge from the position of the Institute for Structural Research. The usual disclaimers apply.

Independent study based on Eurostat, OECD and Ministry of Finance data. These institutions are not liable for the presented results and conclusions.

## IBS Policy Paper Series

The IBS Policy Paper series makes economic research findings accessible in order to enhance public debate.

Series editor – Jan Rutkowski

## IBS Policy Paper 1/2019

ISSN: 2451-4365

Translation – Urszula Gatecka-Sobiech

## About IBS

The Institute for Structural Research (IBS) is an independent and politically neutral research foundation. Our research studies focus on economic analysis and evaluating the consequences of public policies in the following areas: labour markets, demography, education, family policy, public finance as well as energy and climate. We rely on modern modelling, statistical, econometric and IT tools. We take great care to ensure our research is objective and based on sound methodology.

Since our foundation in 2006, we have conducted almost 200 research projects for such entities as the World Bank, OECD, various ministries, Chancelleries of the Prime Minister and President of the Republic of Poland, the National Bank of Poland, employers' organisations as well as other associations and foundations. The Institute's research findings are generally available, with two series of publications being specifically responsible for their dissemination: IBS Working Paper and IBS Policy Paper. All articles, reports and information about our projects and conferences may be found at [ibs.org.pl](http://ibs.org.pl).

e-mail: [ibs@ibs.org.pl](mailto:ibs@ibs.org.pl)

twitter: [@ibs\\_warsaw](https://twitter.com/ibs_warsaw)