

Edyta MAZUREK
Wroclaw University of Economics

The Influence of Personal Allowance on Financial Situation of Households and on Public Finance

Summary: The amount of tax-free personal allowance is one of the most significant parameters of income tax system in Poland. It has been equal PLN 3,089 unchanged since 2008 until 2016. The Constitutional Tribunal predicated that the regulation of the act on PIT specifying the amount of personal allowance violates the article 2 and the article 84 of the Constitution of the Republic of Poland as regards the lack of facility to provide a mechanism adjusting the amount of tax reduction, that would guarantee at least the minimum subsistence. At present its level is specified at the level of more than twofold personal allowance. Therefore, the tax system must be amended. This paper aims at a statistical comparative analysis of gains and losses expected for budgets of both taxpayers and government under prospective various tax systems scenarios. The statistical analysis considers fundamental characteristics of a tax system, i.e. average and marginal tax rates, and tax progression.

Keywords: personal allowance, progression, redistribution.

Introduction

Personal allowance represents one of the elements of a tax system and denotes the threshold of personal income at which an individual does not have to pay income tax. The Commissioner for Human Rights pointed out that the tax-free amount of PLN 3,089 implies the taxation of incomes insufficient to secure the minimum subsistence [12]. This limit is legally set at the level of PLN 6,504 annually, i.e. more than twofold personal allowance currently. The Ombudsman calls for consideration whether persons living under the poverty line are able to carry the tax burden. In other words, it turns out that persons with incomes securing the minimum subsistence cannot afford basic life necessities, because they have to pay income taxes to governments.

Personal allowance used to be indexed to be consistent with the social minimum, but the last indexation took place in 2006. Since then personal allowance remained constant and was one of the lowest worldwide.

The Commissioner for Human Rights raised objections against current regulations in this area, and filed a motion before the Constitutional Tribunal. According to the sentence by the Constitutional Tribunal promulgated on 28 October 2015 (K 21/14), the provisions concerning personal allowance were declared incompatible with the Constitution of the Republic of Poland. The Tribunal adjudicated that "The article 27, paragraph 1 of the act on personal income tax violates the article 2 and article 84 of the Constitution of the Republic of Poland as regards the lack of facility to provide a mechanism adjusting the amount of tax reduction, that would guarantee at least the minimum subsistence" [<http://trybunal.gov.pl/s/k-2114>].

This sentence implies a task of adjusting Poland's tax system, i.e. more precisely connecting the amount of personal allowance with particular financial conditions in Poland. Following the necessity to amend personal income tax system, this paper aims at a statistical comparative analysis of gains and losses expected for budgets of both taxpayers and government under prospective various tax systems scenarios. The statistical analysis considers fundamental characteristics of a tax system, i.e. average and marginal tax rates, and tax progression.

Minimum subsistence and financial situation of families in Poland

The Constitutional Tribunal determined that the act on personal income tax fails to provide clauses stipulating a level of personal allowance to secure at least the so-called minimum subsistence.

Minimum subsistence is a measure of extreme economic poverty [1], [2] and specifies a minimum level of incomes indispensable to secure basic needs at a minimum level. Human life and development are biologically jeopardized below this level. Minimum subsistence in Poland is estimated by the Institute of Labour and Social Issues [6] with data provided by the Department of Social Statistics of the Central Statistical Office (GUS), available for particular types of families [3], [4]. The 2015 minimum subsistence estimates for selected types of families by number of persons in a household, age of dependent children and financial conditions are presented in Table 1.

The abbreviations used in Table 1 denote respectively: M – a man aged 25–26, K – a woman aged 26–60, (M+K)/2 – average expenditures per one person in a household composed of a man and a woman, D preschool – a child aged 4–6, D school – a child aged 13–15. The data shown in Table 1

mean that the minimum subsistence for a family with two dependent children amounts to PLN 464 monthly, or PLN 5,568 annually. The greatest average amount of money annually is needed by a family of two persons, with no children (PLN 6,552), while the smallest – by a family composed of three persons (a man, a woman, and a child aged 4-6 (PLN 5,292). These estimates imply that indeed, personal allowance at the level of PLN 3,089 that was in force until 2016 is significantly smaller than the minimum subsistence in 2015 for each type of a family. It follows therefore that the increase in the amount that has been unchanged for eight years seems justified. In order to secure basic needs, families necessitate from PLN 5,292 to PLN 6,552.

Table 1. The level of minimum subsistence in 2015

Type of family	Monthly [PLN]	Annually [PLN]
(M+K)/2	546	6552
M+K	458	5496
M+K+1D (preschool/school)	441/482	5292/5784
M+K+2D (preschool and school)	464	5568
M+K+3D (preschool, 2 school)	478	5736

Source: own elaboration based on estimates from the IPISS.

Table 2 presents data on net wages per one person in a household by type of a family, illustrating a general financial situation of families in Poland.

Table 2. Average net wages per one person by type of a family

Type of family	Average	Median	Mode	Minimum subsistence (2015)
	Wages [PLN]			
	2,929	2,360	1,786	
Net wages per one person [PLN]				
(M+K)/2	2,929	2,360	1,786	546
M+K	2,929	2,360	1,786	458
M+K+1D (preschool/school)	1,953	1,573	1,191	441/482
M+K+2D (preschool, school)	1,465	1,180	893	464
M+K+3D (pre-school, 2 school)	1,171	944	714	478

Source: own elaboration based on data from the GUS.

The worst financial situation concerns families with three children, as their mode is less than twofold minimum subsistence estimated for this type of families. Households comprising two persons are most well-off, as their modal net wage equals almost four-fold minimum subsistence. However, considering the fact that the minimum subsistence is an estimated amount of money to ensure the most basic needs at a minimum level, the financial situation of all families in Poland requires serious debates for the purposes of government's family policy. The above-mentioned calculations disregard the recent "500 plus" programme, which significantly enhanced the financial situation of families, especially families with three and more children.

Tax-free allowance in selected EU countries

The amount of tax-free allowance is a major factor affecting the final income tax paid. The higher the allowance, the less taxes transferred to the state treasury, and more disposable income in taxpayers' hands. Majority of current tax systems include tax-free allowances, but the amount of allowances varies a lot among respective countries, and is often associated with tax rates. When comparing the amount of tax-free allowances in various European countries, one can distinguish the three groups. The first group comprises countries where no allowances are used, with Bulgaria and Hungary belonging here, among others. The second group is made up of countries where the amount of allowance depends on income gained. Lithuania and Slovakia belong to this group among others, and since 2017, Poland has also joined this group. The third group comprises countries where the binding amount of allowance is fixed.

Table 3 presents the amounts of tax-free allowance in euros and as a percentage of mean income.

Table 3. Tax-free allowance in selected European countries

Country	Allowance [EUR]	Allowance as % of mean income	Progressive tax rates [%]
Malta	11,900	76	15, 25, 35
Spain	17,707	73	7 thresholds, 52
Cyprus	19,500	71	20, 25, 30, 35
Greece	5,000	46	22, 32, 42
⋮	⋮	⋮	⋮
Poland	706	6	18, 32

Source: own elaboration based on data from PwC [10].

The greatest amount of tax-free allowance is offered in Cyprus amounting to as much as EUR 19,500 or 71 per cent of mean wages, while in Spain the allowance of EUR 17,707 is equivalent to 73 per cent of mean wages. In Malta, even if the allowance is not very large, with EUR 11,900, it is equivalent to the greatest portion of mean wages (76 per cent). Finland also offers a significant tax-free allowance of EUR 16,100 (40 per cent of mean wages), and in the United Kingdom the tax-free threshold is established at the level of EUR 12,000 (38 per cent of mean wages). The allowance in Poland before 2016 amounted to merely EUR 738 (just 6 per cent of mean wages). After the sentence of the Constitutional Tribunal there emerged some drafts of new regulations concerning the modification of tax-free allowance, which are demonstrated in Figure 1. The president's proposal includes a one-time-only increase in an allowance up to the annual level of PLN 8,000. The Ministry of Finance prefers a gradual increase in a tax-free allowance from PLN 3,000 in 2017 up to PLN 8,000 in 2021.

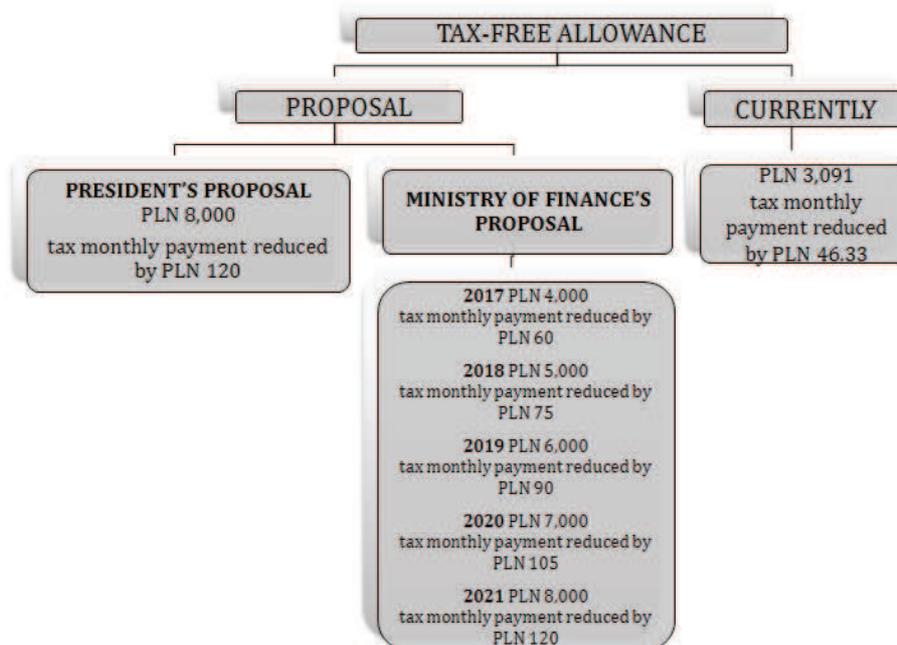


Fig. 1. Drafted modifications of tax-free allowance

Source: own elaboration based on <http://biznes.onet.pl/podatki/wiadomosci/kwota-wolniod-podatku-jakie-plany-ma-rzad-pis> [5].

Hereinafter an analysis will be conducted of basic systemic factors affecting a country's financial situation and a taxpayer's financial situation under different proposed scenarios regarding the amount of tax-free allowance.

Investigating the shift in financial situation of households and government budget under different scenarios of tax-free allowance

The progression of taxation system results in offsetting income inequalities of taxpayers and also affects the tax revenues of government budget. Therefore a conclusion follows that the higher progression of taxation system, the higher level of offsetting inequalities observed in the distribution of taxpayers' incomes. A similar relationship concerning revenues of government budget is not observed because of heavy impact of the taxpayers' structure on this relationship. It is worth noting at this point that the definition of a progressive taxation system is ambiguous, that may be confusing in political debates. A typically applied definition of progression is based on an average tax rate, which indicates the share of tax paid by a taxpayer in his total income. If an average tax rate increases along with income increases [9], then the tax system is progressive. In the reverse case, we deal with a regressive system. Thus progressiveness can be written in the form:

$$x_i > x_j \Rightarrow a_i > a_j \quad (1)$$

where

x_i – denotes the income of the i^{th} taxpayer,

$t(x)$ – the tax due of the taxpayer with income x ,

$a(x) = \frac{t(x)}{x}$ – the average tax rate for income x ,

If the tax $t(x)$ as the function of income is differentiable, then the progression defined by (1) can be written as:

$$\frac{d}{dx} \frac{t(x)}{x} = a'(x) > 0 \text{ for every } x. \quad (2)$$

Hence, the progression understood in this way indicates *de facto* the progression of tax rates. It is not enough that better-off taxpayers pay more amounts of taxes, they also have to be taxed at a higher tax.

Another definition of a progressive tax system employed in the literature is based on a marginal tax rate. The marginal tax rate is the increase in tax caused by the increase in income by one unit [8] and can be expressed by the formula:

$$m(x) = t'(x) \quad (3)$$

Figures 3 and 3 illustrate the relationships between the average and the marginal tax rates, respectively, and two boundary amounts of tax-free al-

allowance emerging in scenarios: PLN 3,089 and PLN 8,000. The graphs for remaining proposed allowances from the interval (3089;8000) are located between the presented graphs. As can be seen from Figure 2, the greatest financial gains following the increase in the tax-free allowance to PLN 8,000 are realized by taxpayers with low incomes, annually amounting to PLN 20,000 and below. Next, the difference between the average tax rate under the two presented scenarios decreases as the gross income increases. The difference becomes stable at the level of just one percentage point beginning with thirtyfold projected gross income, when payments of premiums to the state pension insurance system and to social insurance system are not compulsory. Therefore commonly arguing that first of all the most well-off taxpayers will gain from the increase in tax-free allowance is not justified.

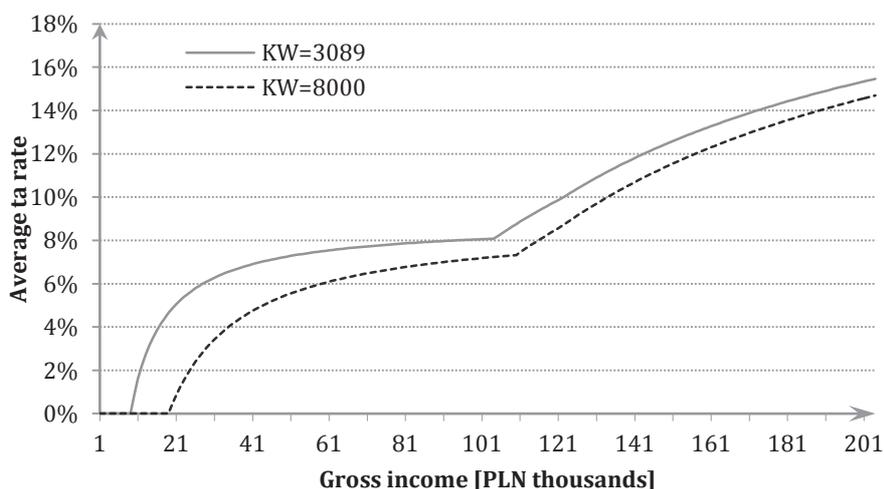


Fig. 2. Relationship between an average tax rate and gross income

Source: own elaboration and presentation.

Based on a marginal tax rate, a progressive tax system is defined as an increase in the marginal tax rate accompanying an increase in income. As seen from Figure 3, the tax understood in this way is a piecewise linear function. The differences in the marginal tax rate resulting from the increase in tax-free allowance to PLN 8,000 emerge only in a narrow group of taxpayers from certain income brackets.

In order to estimate the losses to government budget resulting from the increase in tax-free allowance, the information about the structure of taxpayers is needed. The structure presented in Table 4 is based on publications of Ministry of Finance concerning personal 2015 income tax returns.

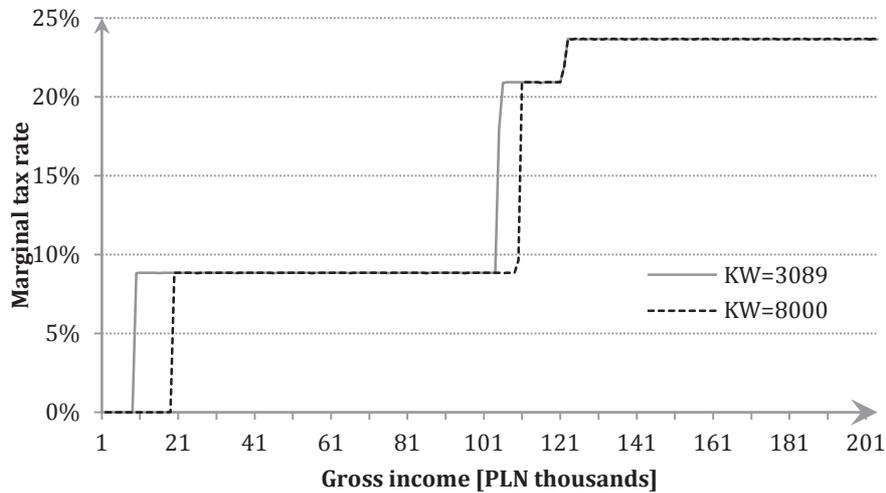


Fig. 3. Relationship between a marginal tax rate and gross income

Source: own elaboration and presentation.

Table 4. Structure of taxpayers by taxation scales (2015)

Income brackets [PLN]	Number of taxpayers	Structure [%]
Less than or equal to 85,528	23,879,889	97.11
More than 85,528	710,471	2.89
Total	24,590,360	100.00

Source: own elaboration based on [7].

More than 97 percent of taxpayers file their income tax returns according to the first tax scale. Therefore the population of taxpayers is concentrated on annual incomes under PLN 85,528. Any modifications of taxes in this income bracket will concern almost all taxpayers. The second tax scale is applied by less than 3 percent of taxpayers, but incomes in this bracket are very high, and consequently, even a small increase in the average tax rate can involve a significant reduction of tax revenue of the government budget.

Poland's system of social insurance based on the Act of law of 13 October 1998 (Dz.U. of 2009, no 205, para 1585 with further amendments) includes compulsory payments of premiums to retirement plans, disability pensions, paid sick leaves and social security disability insurance. Formally they are not parts of taxation system, but as compulsory premiums linked to the level of income they can be considered taxes. In agreement with articles 15 and 22 of the Act on social security system, interest rates applied to premiums paid to retirement plans, disability pensions and paid sick leaves are equal for all insured payers. Premiums to social security disability in-

insurance since 1 January 2003 are subject to different interest rates depending on an occupational hazard in the workplace and its consequences.

The guidelines to the determination of interest rates applied to social insurance disability insurance in Poland are specified by the Act of law of 30 October 2002 on social insurance covering workplace accidents and occupational diseases (Dz.U. of 2009, no 167, para 1322), and the ordinance of the Minister of Labour and Social Policy of 29 November 2002 on differentiating the interest rate of premiums to social insurance covering workplace accidents. Figure 4 presents a scheme of contributions paid from gross wages by a taxpayer.

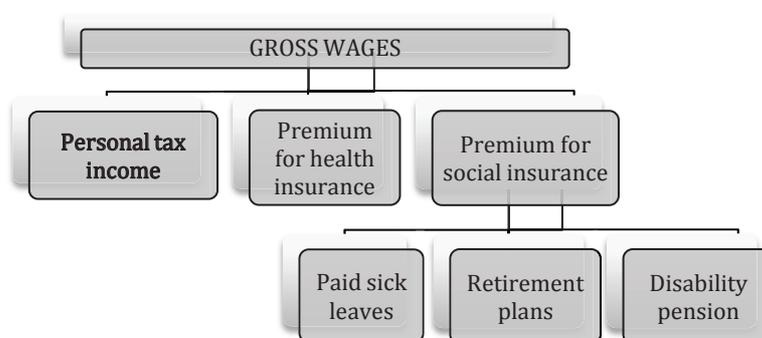


Fig. 4. Scheme of premiums paid from gross wages

Source: own presentation based on [11].

The analysis of financial effects of modifications to tax system consists in comparing the distribution of taxpayers' incomes before and after taxation. Indirectly the analysis is provided by measures presented in this paper: the average tax rate and the marginal tax rate. In view of the fact that personal income tax is merely one component of subtractions from gross wages, it is also worth considering social insurance and health insurance premiums paid by taxpayers. Figure 5 and Table 5 present calculations performed for both scenarios, based on information from 2005 personal income tax returns.

Income tax burden alone is much smaller than all subtractions resulting from PIT returns. The average tax rate for all taxpayers in 2015 amounted to 8.6 percent, while the average rate of all subtractions from gross wages equalled 24.5 percent. Taxpayers experience much more burden resulting from social insurance contributions. Debating on modification of tax-free allowance concerns only a small part of deductions. The results of simulations with average tax rate measuring effects of different proposed tax-free allowances are presented in Tables 6 and 7. The simulations assumed the taxpayers' structure observed in 2015 personal income tax returns from individuals.

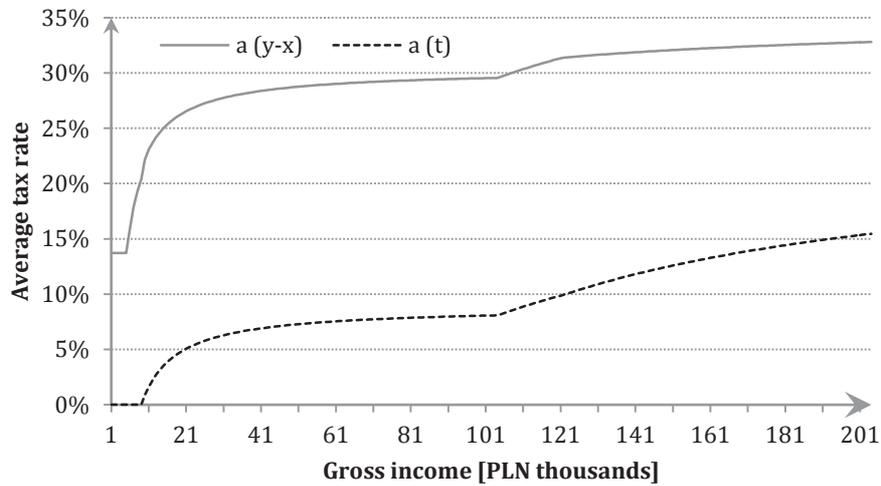


Fig. 5. Average tax rate $a(t)$ and average rate of all subtractions $a(y-x)$ versus income

Source: own elaboration and presentation.

Table 5. Average tax rate and average rate of all subtractions in 2015 PIT returns

Income brackets [PLN]	Number of taxpayers	Average tax rate	Average rate of all subtractions
	[%]	[%]	[%]
Less than or equal to 85,528	97.11	7.6	23.8
More than 85,528	2.89	14.9	29.4
	100.00	8.6	24.5

Source: own elaboration based on [7].

Table 6. Average tax rate for proposed tax-free allowances and average income from 2015 PIT returns

Income brackets [PLN]	Average gross in- come [PLN]	Average tax rate			Maximum reduc- tion [percentage points]
		KW = 3089	KW = 6000	KW = 8000	
Less than or equal to 85,528	27,326	5.90	3.95	2.62	3.28
More than 85,528	150,771	12.59	11.97	11.55	1.04

Note: KW denotes a tax-free allowance.

Source: own elaboration based on [7].

Table 7. Average rate of deductions for proposed tax-free allowances and average income reported in 2015 PIT returns

Income brackets [PLN]	Number of taxpayers [thousands]	Taxpayer's average gain [PLN]			Maximum average loss in budget [PLN thousands]
		KW = 3089	KW = 6000	KW = 8000	
Less than or equal to 85,528	23,880	0	533	896	21,403,372
More than 85,528	710	0	935	1568	1,114,031

Note: KW denotes a tax-free allowance.

Source: own elaboration based on [7].

The computations demonstrate that taxpayers below the first tax threshold were taxed on average at 5.9 percent rate and the tax-free allowance equal PLN 3,089 that was sued, while at the greatest proposed tax-free allowance (PLN 8,000) the average tax rate was 2.69 percent. The maximum gain for a taxpayer who is subject to the first taxation threshold, amounts to 3.28 percentage points. Taxpayers with income above PLN 85,528 gain at the maximum 1.04 percentage points. The increase in the tax-free allowance up to PLN 8,000 is followed by taxpayers' gains, but tax revenues to government budget from PIT returns are smaller. For the unchanged structure of taxpayers in 2015, simulated losses for government budget are presented in Table 7. Much more losses in the budget, equal PLN 21,403,372, result from the fact that most of taxpayers are subject to the first taxation threshold. Even though less than 3 percent of taxpayers fall into the second tax bracket, but because of high incomes in this group of taxpayers, the simulated losses of the budget exceed PLN 1,000,000,000.

Summary

The tax-free allowance represents a component of a tax system, that allows to keep taxpayers out of misery zone. Tax-free allowances are applied in most of taxation system worldwide. The amount of the allowance in individual countries is significantly differentiated. There are some countries where no tax-free allowance is used, but even then taxpayers can enjoy other types of relief schemes and exemptions.

The Institute of Labour and Social Issues estimated the minimum subsistence in 2015 at the level of more than PLN 5,000. Thus, a household needs a disposable income between PLN 5,138 and PLN 6,000 to pay for basic

needs. But the official tax-free allowance was equal just PLN 3,089 – significantly less.

The opponents of the increase in this amount erroneously claimed in political debates that the increase will favour better-off taxpayers first of all. In addition, the presented simulations prove that taxpayers are more burdened with social security and health insurance premiums than with income tax itself. The increase in the tax-free allowance up to PLN 8,000 will result in a taxpayer's gain from 3.28 to 1.04 percentage points of the average tax rate. Taxpayers' gains result in smaller PIT revenues of government budget, which amount to PLN 22,517,403 when the tax-free allowance equals PLN 8,000.

Acknowledgements

The authors are grateful to an anonymous referee for their constructive comments and suggestions. Any errors are solely those of the authors.

References

- [1] Deniszczuk L., Kurowski P., Styrz M., *Progi minimalnej konsumpcji gospodarstw domowych wyznaczane metodą potrzeb podstawowych. Rodzaje, oszacowania i zastosowania w polityce społecznej*, IPiSS, Warszawa 2007.
- [2] Deniszczuk L., Sajkiewicz B., *Kategoria minimum socjalnego*, [w:] Golińska S., *Polska bieda II. Kryteria – Ocena – Przeciwdziałanie*, IPiSS, Warszawa 1997.
- [3] GUS, *Informacja o sytuacji społeczno-gospodarczej kraju w 2015 r.*, GUS, Warszawa 2016.
- [4] GUS, *Biuletyn statystyczny (nr 1)*, GUS, Warszawa 2016.
- [5] <https://zus.pox.pl/pit/kwota-wolna-od-podatku-przestanie-obowiazrywac-jeszcze-w-tym-roku.htm> [dostęp: 10.02.2017].
- [6] IPiSS, *Wysokość i struktura progu Interwencji Socjalnej. Raport weryfikacyjny*, red. P. Broda-Wysocki, Raport IPiSS dla MPiPS, Warszawa 2015.
- [7] *Informacja dotycząca rozliczenia podatku dochodowego od osób fizycznych za rok 2015*, Departament Podatków Dochodowych, MF, Warszawa 2016.
- [8] Kakwani N.C., *Measurement of tax progressivity: an international comparison*, „Economic Journal of Political Economy” 1977, Vol. 81, ss. 71–80.
- [9] Lambert P., *The Distribution and Redistribution of Income, A Mathematical Analysis*, Manchester University Press, Manchester – New York 1993.

- [10] Praca w Unii Europejskiej – podatki i składki, PwC, Kwiecień 2014 r.
- [11] Ustawa z dnia 13 października 1998 r. o systemie ubezpieczeń społecznych, Dz.U., nr 137, poz. 887 z późn. zm.
- [12] Ustawa z dnia 26 lipca 1991 r. o podatku dochodowym od osób fizycznych, Dz.U. 1991, nr 80, poz. 350.

Wpływ kwoty dochodu wolnej od podatku na sytuację finansową gospodarstw domowych oraz państwa

Synopsis: Jednym z ważniejszych parametrów systemu podatku dochodowego jest kwota wolna od podatku, która od 2008 r. do 2016 r. w Polsce nie uległa zmianie i wynosiła 3089 złotych. Trybunał Konstytucyjny orzekł, że przepis ustawy o PIT wskazujący wysokość kwoty wolnej od podatku w zakresie, w jakim nie przewiduje mechanizmu korygowania kwoty zmniejszającej podatek, gwarantującego co najmniej minimum egzystencji, jest niezgodny z art. 2 i art. 84 Konstytucji Rzeczypospolitej Polskiej. Obecnie prawo określa minimum egzystencji na poziomie ponad dwukrotnie wyższym od obowiązującej kwoty wolnej od podatku. Konieczna jest zatem korekta systemu podatku dochodowego. Celem artykułu jest przeprowadzenie statystycznej analizy porównawczej strat i zysków zarówno dla budżetu podatników, jak i budżetu państwa, przy różnych scenariuszach proponowanego systemu podatkowego. W analizie statystycznej uwzględnione zostały podstawowe charakterystyki systemu podatkowego, jakim jest średnia i krańcowa stopa podatkowa oraz progresja. Porównania natomiast dotyczą nowo proponowanych rozwiązań zmian w zakresie kwoty wolnej od podatku.

Słowa kluczowe: kwota wolna od podatku, progresja, redystrybucja.