CONCEPTUAL BASIS OF TAX POLICY FORMATION IN THE GLOBALIZATION CONDITIONS

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Abstract. The purpose of the article is to analyze the tax systems of the countries of the European Union and Ukraine, the impact of individual indicators of the tax system on the economies development, study the possibility of applying the accumulated experience. The subject-matter of the study is the methodological and conceptual foundations of the tax policy-making process of the EU and Ukraine. Methodology. Based on the analyzed scientific literature on tax policy formulation of countries, the methodological principles of this study provide for the joint application of a set of well-known general scientific and special methods of research in economics. In particular, the dialectical method, the method of scientific abstraction, the method of systematic analysis, economic and mathematical modeling were used. Results. The article analyzes the individual indicators of the tax system functioning of 28 countries of the European Union and Ukraine; and the impact of these indicators on the economy development. In particular, the following indicators were studied: customs and other import duties, firms expected to give gifts in meetings with tax officials; firms that do not report all sales for tax purposes; firms visited or required meetings with tax officials; labor tax and contributions; net taxes on products; other taxes; other taxes payable by businesses; profit tax; tax payments; tax revenue; taxes on exports; taxes on goods and services; taxes on income, profits and capital gains; taxes on income, profits and capital gains; taxes on international trade; time to prepare and pay taxes; total tax rate. The dependence of foreign direct investment on profit tax, tax revenue; taxes on income, profits and capital gains; time to prepare and pay taxes and total tax rate have been studied. The study shows that, on average, tax revenue affects foreign direct investment, net inflows with the same strength as time to prepare and pay taxes, but almost twice as much as taxes on income, profits and capital gains. Practical implications. The article contains a set of tools and rules for reviewing approaches, guidelines and criteria for the effectiveness of Ukraine’s tax policy in line with the global development concept. Value / originality. The conceptual criteria for the formation and implementation of the tax policy of the state are determined, it is carried out the comparative analysis of the tax policy of Ukraine and the EU countries within the framework of the European economic integration, which occurs simultaneously with the globalization of the world economy.

Key words: tax, labor tax, tax rate, profit tax, tax revenue.

JEL Classification: C51, E62, F63

1. Introduction

Being a coherent system, the economic system of a country combines the various, often conflicting interests of its members. At the same time, the process of tax regulation is also free of conflicts, since the interests and local goals of its participants do not coincide.

Exacerbation of conflicts arising in the process of tax policy development of the state occurs during periods of downturn, increased competition and in times of economic crisis. This fact necessitates the search for the concept of the tax policy of the state aimed at the maximum reduction of conflict situations in order to
preserve the stability and integrity of society, reduce social tension.

European economic integration, which occurs at the same time as the globalization of the world economy, updates tax policy studies not only at the level of the state, which, in particular, seeks to reap the benefits of engaging in global economic ties and participation in integration processes, but also at the level of integration (supranational level). Moreover, these two tax policy makers develop it to achieve positive shifts in socio-economic development, but set different goals depending on their priorities for functioning and development. A taxpayer state aims primarily to pursue its own national interests under specific internal and external socio-economic and institutional conditions (including, depending on whether it seeks to improve the functioning of its economy as one of the world leaders in terms of economic development), is geared to growing economic development by reducing the gap between world leaders). At the same time, the tax policy of integration education presupposes balancing of often conflicting national interests in order to create favorable conditions for the development of integration education as a whole and its participants in particular. Sometimes this requires the latter's consent to the deterioration of certain economic conditions for other benefits in the near future as well as in the future.

The aim of the article is to analyze the tax systems of the countries of the European Union and Ukraine, the impact of individual indicators of the tax system on the economies development, to study the possibility of applying the learned lessons.

2. Previous research review

Naidenko O. (2019) writes that the socio-economic processes that take place in the country affect the welfare of the population. Rating estimates of recent years indicate deterioration in the level of well-being, human wealth and social development of the population in Ukraine, global wealth.

Hrysenko M., Pryiatelchuk O. and Shvorak L. (2019) argue that the social market economy is the dominant economic system for industrialized countries. In addition to creating economic and technological conditions, the active participation of the state is a key factor in the effective functioning and sustainable development of the economy. Glushchenko J. and Kozhalina N. (2019) consider local taxation, its problematic aspects and trends. Economic independence of any community is not possible without sufficient financial resources, relative independence of tax and other mandatory payments.

Uwuigbe O. R., Omoiyola A., Uwuigbe U., Lanre N. and Ajetunmobi O. (2019) write that taxation is a very important tool in any country. It is a macroeconomic tool, very necessary for the functioning of the state.

Oladipo O. A., Iyoha F., Fakile A., Asaley A.J. and Eluyela D. F. (2019) rightly argue that taxation is a sustainable and genuine source of government revenue, a tool for macroeconomic policy and fiscal management.

3. Modern trends in tax policies of Ukraine and the European countries

Conceptual criteria for the formation and implementation of state tax policy are the following:

1. Compromise. It is necessary to balance the interests of the state, business sector and citizens, so that all subjects of redistribution relations are satisfied with the results of redistribution approximately equally. Government expenditures should ensure the optimal combination of social measures and measures to promote GDP growth.

2. Complementarity of tax changes. Tax innovations should be well coordinated with other legislation, provide for measures to influence the informal level of the institutional environment, and be positively assessed by society.

3. Rejection of radical tax initiatives. Significant changes in taxation are often associated not so much with the positive economic effect and expansion of the tax base, but with the fiscal losses that have to be offset by government borrowing.

4. Stability and flexibility. The tax policy should, on the one hand, correspond to the directions of modification of the tax system and the system of contributions to state social funds defined in its concept, and on the other hand, to respond to changes in the reproductive and fiscal processes quickly.

For a more detailed explanation of the study topic, let us analyze the individual indicators of the tax system functioning of 28 countries of the European Union and Ukraine; and the impact of these indicators on the economy development. Thus, let us compare the indicators related to the tax system in the EU countries and Ukraine, in particular the following indicators will be analyzed: customs and other import duties (% of revenue); firms expected to give gifts in meetings with tax officials (% of firms); firms that do not report all sales for tax purposes (% of firms); firms visited or required meetings with tax officials (% of firms); labor tax and contributions (% of commercial profits); net taxes on products (current US$); other taxes (% of revenue); other taxes payable by businesses (% of commercial profits); profit tax (% of commercial profits); tax payments (number); tax revenue (% of GDP); taxes on exports (% of tax revenue); taxes on goods and services (% of revenue); taxes on goods and services (% value added of industry and services); taxes on income, profits and capital gains (% of revenue); taxes on income, profits and capital gains (% of total taxes); taxes on international trade (% of revenue); time to prepare and pay taxes (hours); total tax rate (% of commercial profits).
Having analyzed Table 1, we can draw the following conclusions. Labor tax and contributions is highest in France (51.82% of commercial profits), in Belgium (48.55% of commercial profits), in Italy (41.52% of commercial profits); and the lowest one is in Denmark (3.11% of commercial profits), in Malta (10.84% of commercial profits), in the United Kingdom (11.16% of commercial profits). In Ukraine, this figure is at 40.57% of commercial profits. In terms of other taxes payable by businesses (% of commercial profits), it can be said that the highest level is in France (10.49%), the lowest one is in Norway (0.03%), and in Ukraine it is 0.91%.

Tax revenue refers to compulsory transfers to central government for public purposes. Tax revenue in% of GDP is the lowest in Germany (11.22%), the highest one is in Malta (38.43%), and in Ukraine it averages to 16.96%. Taxes on goods and services include general sales and turnover or value added taxes, selective excise taxes on goods, selective taxes on services, taxes on the use of goods or property, and some others. Taxes on goods and services in% of revenue is highest in Croatia (46.25%), lowest one is in Italy (22.79%); in Ukraine this indicator is at the level of 32.98%.

The continuation of the analysis of the tax system functioning indicators of the EU and Ukraine is shown in Table 2.

After analyzing such indicators: customs and other import duties (% of tax revenue), firms expected to give gifts in tax officials meetings (% of firms), firms that do not report all sales for tax purposes (% of firms), firms visited or required meetings with tax officials (% of firms), it can be said that in many studied countries this data is missing. In Ukraine, they are at 6.43; 46.65; 31.90; 59.15 respectively. The highest value of the first indicator was recorded in Slovenia (2.22); the lowest one was in Greece (0.02). The second indicator, firms expected to give gifts in meetings with tax officials (% of firms) ranges from 28.80 in Greece to 0.30 in Sweden. Firms that do not report all sales for tax purposes (% of firms) ranges from 5.19 in Greece to 18.33 in Spain. Firms visited or required meetings with tax officials (% of firms): the highest one was in Bulgaria (64.77) and the lowest one was in Sweden (8.90).
Taxes on income, profit and capital gains are deducted from the actual or projected net income of individuals, from the profits of corporations and enterprises, as well as from capital gains. Taxes on income, profits and capital gains in% of revenue are the highest in Denmark (40.81%) and the lowest are in Croatia (7.87%). In Ukraine this indicator is at the level of 12.90%.

Taxes on income, profits and capital gains in% of total taxes are the highest in 58.35%, the lowest are in Croatia 14.14%.

GINI index (World Bank estimate) is the highest in Romania (36.58); the lowest one is in Slovenia (24.95); in Ukraine this indicator is at the level of 26.50.

Enterprise tax payments are the total amount of taxes paid by businesses, including the submission of electronic materials. The tax is considered paid once a year, even if it is more frequent.

Tax payments number, according to Table 4, decreased by 2-3 times in 2019 compared to 2005 in the countries of Bulgaria, Croatia, the Czech Republic, Finland, France, Greece, Latvia, Poland, Romania, the Slovak Republic, Slovenia. This decrease is considered a positive trend. In Ukraine, tax payments number decreased from 147 in 2005 to 5 in 2019. This is a very significant decrease.

Tax preparation and payment time is the time in hours per year for which you need to prepare, file and pay three main types of taxes: corporate income tax, value added tax or sales tax, and labor taxes. A very significant decrease in time to prepare and pay taxes is observed in Ukraine more than five times, from 2085 hours in 2005 to 327 hours in 2019. This is a positive trend. The surveyed EU countries also show a decrease in this indicator.

Table 2

The average value of the tax system functioning of the EU and Ukraine for the period 2001-2019

| Country Name             | Taxes on income, profits and capital gains (% of revenue) | Taxes on income, profits and capital gains (% of total taxes) | Taxes on international trade (% of revenue) | Time to prepare and pay taxes (hours) | GINI index (World Bank estimate) | Total tax and contribution rate (% of profit) |
|--------------------------|----------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------|--------------------------------------|----------------------------------|------------------------------------------|
| Austria                  | 27.61                                                    | 47.01                                                         | 0.00                                       | 154.13                               | 30.27                            | 51.87                                    |
| Belgium                  | 35.84                                                    | 58.35                                                         | -141.53                                   | 28.43                                | 57.73                            | 30.73                                    |
| Bulgaria                 | 15.56                                                    | 25.59                                                         | 0.41                                       | 508.73                               | 35.47                            | 30.73                                    |
| Croatia                  | 7.87                                                     | 14.14                                                         | 1.48                                       | 202.53                               | 32.14                            | 20.55                                    |
| Cyprus                   | 24.99                                                    | 38.10                                                         | 0.63                                       | 139.75                               | 32.62                            | 22.17                                    |
| The Czech Republic       | 15.98                                                    | 35.63                                                         | 0.95                                       | 412.47                               | 26.42                            | 46.57                                    |
| Denmark                  | 40.81                                                    | 48.98                                                         | -133.27                                   | 26.70                                | 26.73                            | 50.57                                    |
| Estonia                  | 20.36                                                    | 35.93                                                         | 0.08                                       | 73.13                                | 33.25                            | 66.67                                    |
| Finland                  | 17.87                                                    | 32.35                                                         | 0.00                                       | 159.53                               | 27.56                            | 41.95                                    |
| Germany                  | 25.07                                                    | 47.58                                                         | -0.01                                      | 134.87                               | 32.09                            | 66.67                                    |
| Greece                   | 15.97                                                    | 40.58                                                         | -209.93                                   | 30.85                                | 47.88                            | 48.87                                    |
| Hungary                  | 18.68                                                    | 33.22                                                         | 0.66                                       | 296.67                               | 29.79                            | 49.78                                    |
| Ireland                  | 38.66                                                    | 51.53                                                         | -77.83                                    | 32.62                                | 25.72                            | 36.32                                    |
| Italy                    | 32.39                                                    | 53.81                                                         | -283.20                                   | 34.40                                | 65.87                            | 44.25                                    |
| Latvia                   | 10.92                                                    | 20.59                                                         | 0.36                                       | 219.20                               | 36.03                            | 36.32                                    |
| Lithuania                | 20.72                                                    | 36.88                                                         | 0.76                                       | 156.42                               | 35.50                            | 44.25                                    |
| Luxembourg               | 28.81                                                    | 46.96                                                         | -57.00                                    | 31.61                                | 20.29                            | 20.29                                    |
| Malta                    | 30.40                                                    | 45.14                                                         | 1.40                                       | 139.00                               | 29.11                            | 42.54                                    |
| Norway                   | 28.55                                                    | 52.26                                                         | 0.20                                       | 84.60                                | 27.22                            | 39.85                                    |
| Poland                   | 12.98                                                    | 26.05                                                         | 0.56                                       | 334.67                               | 33.88                            | 41.40                                    |
| Romania                  | 18.62                                                    | 33.35                                                         | 0.86                                       | 189.67                               | 36.58                            | 42.65                                    |
| Slovak Republic          | 17.17                                                    | 36.23                                                         | 0.20                                       | 241.47                               | 26.73                            | 49.03                                    |
| Slovenia                 | 12.62                                                    | 25.05                                                         | 1.07                                       | 234.27                               | 24.95                            | 33.62                                    |
| Spain                    | 39.20                                                    | 47.18                                                         | -198.57                                   | 34.54                                | 52.06                            | 52.06                                    |
| Sweden                   | 14.36                                                    | 17.62                                                         | -122.00                                   | 27.42                                | 51.51                            | 51.51                                    |
| Ukraine                  | 12.90                                                    | 26.28                                                         | 3.58                                       | 804.60                               | 26.50                            | 52.64                                    |
| The United Kingdom       | 35.84                                                    | 48.71                                                         | -104.27                                   | 34.11                                | 33.51                            | 33.51                                    |

Source: compiled by authors based on World Bank data
Table 3

Profit tax, % of commercial profits

| Country Name                  | 2005 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2019 to 2005 ratio |
|-------------------------------|------|------|------|------|------|------|------|-------------------|
| Austria                       | 21.2 | 16.8 | 16.8 | 16.9 | 17   | 17.1 | 17.1 | 80.66             |
| Belgium                       | 9.8  | 8.3  | 8.4  | 9.1  | 10.3 | 10.9 | 10.3 | 105.10            |
| Bulgaria                      | 7    | 5    | 5    | 5    | 4.9  | 4.9  | 70.00          |
| Croatia                       | 0    | 0    | 0    | 0    | 0    | 0    | -              |
| Cyprus                        | ..   | 9.5  | 9.3  | 9.6  | 8.1  | 8.1  | 8.3  | -                |
| The Czech Republic            | 7.2  | 5.6  | 5.6  | 5.1  | 5.1  | 5.2  | 5.2  | 72.22             |
| Denmark                       | 27.9 | 19.6 | 18.1 | 18.4 | 17.1 | 17.1 | 17.1 | 61.29             |
| Estonia                       | 11.2 | 8.2  | 8.2  | 7.8  | 7.8  | 7.8  | 7.7  | 68.75             |
| Finland                       | 19.1 | 14.6 | 11.8 | 11.7 | 11.7 | 11.9 | 12.1 | 63.35             |
| France                        | 6.8  | 5.4  | -0.2 | 0.2  | 1    | 0.3  | 0.2  | 2.94              |
| Germany                       | 21.4 | 23.3 | 23.2 | 23.2 | 23.2 | 23.2 | 23.2 | 108.41            |
| Greece                        | 21.5 | 19   | 19.7 | 22.4 | 23   | 23   | 23   | 106.98            |
| Hungary                       | 5.9  | 11.8 | 11.8 | 9.9  | 9.9  | 9.1  | 9.4  | 159.32            |
| Ireland                       | 11.9 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 104.20            |
| Italy                         | 30.6 | 19.9 | 19.5 | 17   | 16.8 | 14.6 | 14.6 | 47.71             |
| Latvia                        | 6.8  | 4.9  | 6.3  | 6.3  | 6.3  | 6.4  | 7.8  | 114.71            |
| Lithuania                     | 5.7  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 5.9  | 103.51            |
| Luxembourg                    | ..   | 4.6  | 4.6  | 4.6  | 4.2  | 4.2  | 4.2  | -                |
| Malta                         | ..   | 30.2 | 30.2 | 32.4 | 32.3 | 32.3 | 32.3 | -                |
| Norway                        | 25.2 | 24.5 | 23.6 | 23.6 | 21.8 | 20.8 | 20.8 | 79.37             |
| Poland                        | 14.8 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 97.97             |
| Romania                       | 17.2 | 10.7 | 10.9 | 12.3 | 12.3 | 12.3 | 15.6 | 90.70             |
| The Slovak Republic           | 8    | 8.4  | 9.4  | 9.5  | 9.5  | 9.1  | 9.1  | 113.75            |
| Slovenia                      | 14.3 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 88.81             |
| Spain                         | 23.4 | 21.7 | 13.4 | 12.5 | 10.6 | 10.6 | 10.6 | 45.30             |
| Sweden                        | 16.6 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 78.92             |
| Ukraine                       | 12.3 | 9.5  | 9    | 8.7  | 11.9 | 11   | 10.2 | 82.93             |
| The United Kingdom            | 21.8 | 20.6 | 19.2 | 18.3 | 18.1 | 17.3 | 16.6 | 76.15             |

Source: compiled by authors based on World Bank data

Table 4

Tax payments, number

| Country Name                  | 2005 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2019 to 2005 ratio |
|-------------------------------|------|------|------|------|------|------|------|------|-------------------|
| Austria                       | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 100.00            |
| Belgium                       | 11   | 11   | 11   | 11   | 11   | 11   | 11   | 11   | 100.00            |
| Bulgaria                      | 29   | 14   | 14   | 14   | 14   | 14   | 14   | 14   | 48.28             |
| Croatia                       | 40   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 30.00             |
| Cyprus                        | ..   | 31   | 30   | 28   | 28   | 28   | 28   | 27   | 16                |
| The Czech Republic            | 27   | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 29.63             |
| Denmark                       | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 100.00            |
| Estonia                       | 7    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 114.29            |
| Finland                       | 20   | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 40.00             |
| France                        | 21   | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 42.86             |
| Germany                       | 12   | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 75.00             |
| Greece                        | 19   | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 42.11             |
| Hungary                       | 13   | 12   | 11   | 11   | 11   | 11   | 11   | 11   | 84.62             |
| Ireland                       | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 100.00            |
| Italy                         | 14   | 13   | 13   | 14   | 14   | 14   | 14   | 14   | 100.00            |
| Latvia                         | 29   | 7    | 7    | 7    | 7    | 7    | 7    | 7    | 24.14             |
| Lithuania                     | 11   | 11   | 11   | 11   | 11   | 11   | 10   | 10   | 90.91             |
| Luxembourg                    | ..   | 23   | 23   | 23   | 23   | 23   | 23   | 23   | -                |
| Malta                         | ..   | 7    | 7    | 7    | 8    | 8    | 8    | 8    | -                |
The GINI index measures the extent to which the distribution of income among individuals or households within the economy deviates from a uniform distribution. Thus, the GINI index of 0 represents perfect equality, while the index of 100 indicates perfect inequality. According to the GINI index (Figure 1), Ukraine ranks the 26th in the 2005-2019 average compared to the EU countries. According to the UN, more than 60% of the population lives below the poverty line in Ukraine, but according to the World Bank, the figure is 25%).

One of the areas that needs to be improved is tax policy, since tax revenues form a large revenue part of the state budget. The total tax rate measures the amount of taxes and mandatory contributions paid by businesses after accounting for allowable deductions as a proportion of commercial income.

Let us compare in more detail three countries of approximately the same area: Ukraine (579290 sq. Km), Spain (499564 sq. Km), and France (547557 sq. Km).

### Table 5

| Country Name               | 2005 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2019 to 2005 ratio |
|----------------------------|------|------|------|------|------|------|------|------|------|------------------|
| Austria                    | 170  | 170  | 166  | 131  | 131  | 131  | 131  | 131  | 131  | 77.06            |
| Belgium                    | 156  | 131  | 135  | 135  | 136  | 136  | 136  | 136  | 136  | 87.18            |
| Bulgaria                   | 598  | 436  | 436  | 436  | 453  | 453  | 453  | 453  | 441  | 73.75            |
| Croatia                    | 232  | 196  | 196  | 208  | 206  | 206  | 206  | 206  | 206  | 88.79            |
| Cyprus                     | ..   | 146  | 146  | 146  | 145  | 127  | 127  | 122  | 119  | -                |
| The Czech Republic         | 866  | 230  | 230  | 230  | 222  | 222  | 236  | 230  | 230  | 26.56            |
| Denmark                    | 135  | 130  | 132  | 132  | 132  | 132  | 132  | 132  | 132  | 97.78            |
| Estonia                    | 81   | 81   | 81   | 81   | 81   | 56   | 50   | 50   | 50   | 61.73            |
| Finland                    | 269  | 93   | 93   | 93   | 93   | 93   | 93   | 90   | 90   | 33.46            |
| France                     | 132  | 132  | 137  | 137  | 137  | 139  | 139  | 139  | 139  | 105.30           |
| Germany                    | 196  | 207  | 218  | 218  | 218  | 218  | 218  | 218  | 218  | 111.22           |
| Greece                     | 264  | 202  | 193  | 193  | 193  | 193  | 193  | 193  | 193  | 73.11            |
| Hungary                    | 340  | 277  | 277  | 277  | 277  | 277  | 277  | 277  | 277  | 81.47            |
| Ireland                    | 75   | 79   | 79   | 79   | 81   | 81   | 81   | 81   | 81   | 81,5             |
| Italy                      | 340  | 269  | 269  | 269  | 269  | 240  | 238  | 238  | 238  | 108.67           |
| Latvia                     | 280  | 224  | 224  | 193  | 193  | 168  | 168  | 168  | 168  | 60.18            |
| Lithuania                  | 166  | 175  | 175  | 171  | 171  | 171  | 109  | 99   | 95   | 57.23            |
| Luxembourg                 | ..   | 59   | 55   | 55   | 55   | 55   | 55   | 55   | 55   | -                |
| Malta                      | ..   | 139  | 139  | 139  | 139  | 139  | 139  | 139  | 139  | -                |
| Norway                     | 87   | 87   | 83   | 83   | 83   | 83   | 83   | 79   | 79   | 90.80            |
| Poland                     | 420  | 286  | 286  | 286  | 269  | 269  | 258  | 334  | 334  | 79.52            |
| Romania                    | 192  | 218  | 202  | 161  | 161  | 161  | 163  | 163  | 163  | 84.90            |
| The Slovak Republic        | 325  | 207  | 207  | 207  | 188  | 192  | 192  | 192  | 192  | 59.08            |
| Slovenia                   | 248  | 233  | 233  | 233  | 233  | 233  | 233  | 233  | 233  | 93.95            |
| Spain                      | 298  | 167  | 167  | 167  | 158  | 152  | 152  | 147  | 143  | 47.99            |
| Sweden                     | 122  | 122  | 122  | 122  | 122  | 122  | 122  | 122  | 122  | 100.00           |
| Ukraine                    | 2085 | 488  | 386  | 346  | 346  | 355  | 327  | 327  | 327  | 15.71            |
| The United Kingdom         | 100  | 105  | 105  | 105  | 105  | 105  | 105  | 114  | 114  | 114.00           |

Source: compiled by authors based on World Bank data
### Table 6
**Total tax and contribution rate, % of profit**

| Country Name                      | 2005  | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  | 2019 to 2005 ratio |
|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--------------------|
| Austria                           | 57.2  | 51.9  | 51.7  | 51.7  | 51.6  | 51.8  | 51.5  | 51.4  | 89.86              |
| Belgium                           | 60.1  | 58    | 58.4  | 58.4  | 58.7  | 57.1  | 57.7  | 55.4  | 92.18              |
| Bulgaria                          | 45.2  | 27    | 27    | 27    | 27    | 27.1  | 27.7  | 28.3  | 62.61              |
| Croatia                           | 20.8  | 19.3  | 18.4  | 20    | 20.9  | 20.6  | 20.5  | 20.3  | 98.56              |
| Cyprus                            | ..    | 21.9  | 22.5  | 24    | 24.2  | 22.7  | 22.2  | 22.4  | -                  |
| The Czech Republic                | 48.7  | 45.6  | 46.5  | 46.5  | 46.1  | 46.1  | 46.1  | 46.1  | 94.66              |
| Denmark                           | 32.6  | 25.6  | 25.4  | 23.9  | 24.4  | 23.8  | 23.8  | 23.8  | 73.01              |
| Estonia                           | 50.4  | 49.6  | 49.2  | 49.2  | 48.5  | 48.5  | 48.5  | 47.8  | 94.84              |
| Finland                           | 49.5  | 39.9  | 40.1  | 37.9  | 38.1  | 38.4  | 37.3  | 36.6  | 73.94              |
| France                            | 68.3  | 69.8  | 71.3  | 64.9  | 64.1  | 62.6  | 60.4  | 60.7  | 88.87              |
| Germany                           | 47.7  | 49.1  | 48.8  | 48.8  | 48.9  | 48.9  | 49    | 48.8  | 102.31             |
| Greece                            | 54    | 44    | 50.7  | 49.6  | 50.7  | 51.7  | 51.9  | 51.9  | 96.11              |
| Hungary                           | 53.6  | 49.2  | 47.9  | 48.2  | 46.3  | 46.4  | 40.3  | 37.9  | 70.71              |
| Ireland                           | 25.4  | 25.9  | 26    | 26    | 26    | 26    | 26.1  | 26.1  | 102.76             |
| Italy                             | 76.7  | 65.6  | 65.2  | 64.8  | 62    | 48    | 53.1  | 59.1  | 77.05              |
| Latvia                            | 36.2  | 35    | 35    | 35.9  | 35.9  | 35.9  | 35.9  | 36    | 105.25             |
| Lithuania                         | 51.2  | 42.9  | 42.4  | 42.6  | 42.6  | 42.7  | 42.6  | 42.6  | 83.20              |
| Luxembourg                        | ..    | 20.4  | 20.6  | 20.6  | 20.8  | 20.5  | 20.5  | 20.4  | -                  |
| Malta                             | ..    | 41.4  | 41.5  | 41.5  | 43.8  | 43.9  | 44    | 44    | -                  |
| Norway                            | 41.1  | 40.7  | 40.4  | 39.5  | 39.5  | 37.7  | 37    | 36.2  | 88.08              |
| Poland                            | 43.2  | 40.1  | 40.1  | 40.3  | 40.4  | 40.5  | 40.7  | 40.8  | 94.44              |
| Romania                           | 55.8  | 43.2  | 43.2  | 43.2  | 42    | 40    | 40    | 40    | 20                 |
| The Slovak Republic               | 50    | 48.7  | 49.4  | 50.4  | 50.1  | 49.7  | 49.7  | 99.40             |
| Slovenia                          | 39.2  | 31.4  | 31    | 31    | 31    | 31    | 31    | 31    | 79.08              |
| Spain                             | 60.4  | 56.9  | 57.9  | 49.8  | 48.7  | 46.9  | 47    | 47    | 77.81              |
| Sweden                            | 54.1  | 52.1  | 49.1  | 49.1  | 49.1  | 49.1  | 49.1  | 49.1  | 90.76              |
| Ukraine                           | 57.3  | 54.4  | 52.7  | 52.2  | 52.3  | 37.8  | 41.7  | 45.2  | 78.88              |
| The United Kingdom                | 34.7  | 34.7  | 33.5  | 32    | 30.9  | 30.7  | 30    | 30.6  | 88.18              |

*Source: compiled by authors based on World Bank data*
Therefore, Ukraine needs further tax reform, which should emphasize:
1) simplification of tax legislation, elimination of contradictions and shortcomings in it;
2) simplification and automatization of tax administration, improving the system of risk-oriented tax control (including the introduction of indirect tax control methods), improving relations between tax authorities and taxpayers, taking into account the experience of the EU countries.

With the shift in socio-economic development, the shading of economic relations and the further resolution of fiscal problems in Ukraine, tax policy of the EU and its Member States should increasingly be taken into account the experience of other countries. Research on the performance of the tax system in dynamics should be used to create an effective tax system to prevent mistakes and miscalculations that adversely affect the economic development of states.

### 4. Results

Next, there was studied the dependence of foreign direct investment, net inflows (% of GDP) ($Y$) on profit tax (% of commercial profits) ($X_1$), tax revenue (% of GDP) ($X_2$); taxes on income, profits and capital gains (% of revenue) ($X_3$); time to prepare and pay taxes (hours) ($X_4$) and total tax rate (% of commercial profits) ($X_5$). In order to test the hypotheses, data from three countries for 2001-2019 were obtained by the sampling method.

| Indicator                                    | Spain     | France    | Ukraine   |
|----------------------------------------------|-----------|-----------|-----------|
| Population, total                           | 46723749  | 66987244  | 44622516  |
| Land area (sq. km)                          | 499564    | 547557    | 579290    |
| Foreign direct investment, net inflows (% of GDP) | 3.15      | 2.15      | 1.89      |
| GDP growth (annual %)                       | 2.35      | 1.72      | 3.34      |
| Inflation, GDP deflator (annual %)          | 1.09      | 0.79      | 15.41     |
| Interest payments (% of expense)            | 12.10     | 3.63      | 9.78      |
| Trade (% of GDP)                            | 67.52     | 66.45     | 99.02     |
| Net acquisition of financial assets (% of GDP) | 2.59      | 4.62      | 2.89      |
| Imports of goods and services (% of GDP)    | 32.40     | 32.11     | 53.81     |
| Exports of goods and services (% of GDP)    | 35.12     | 31.34     | 45.21     |
| Researchers in R&D (per million people)     | 2873.41   | 4441.07   | 994.08    |

Source: compiled by authors based on World Bank data

![Figure 2 Dynamics of change “time to prepare and pay taxes” indicator in three studied countries, hours](image-url)
Several equations can be used to describe the regression, the most important of which is the Fisher’s criterion. The Fisher’s test is used for verification of different hypotheses. If the hypothesis about the significance of the chosen regression model is tested, its empirical value is calculated:

$$F = \frac{1}{n} \left( \frac{\sum (Y_i - \bar{Y})^2}{n - m - 1} \right),$$

where $m$ is the number of factor features of the model.

The multiple regression model should include factors that are strongly correlated with the resultant variable and not strongly correlated with each other. Multicollinearity is an undesirable phenomenon. For the selection of factors to be included in the regression model, all elements of the matrix of paired correlation coefficients are calculated.

The matrix of double correlation coefficients is symmetric: the values of the correlation coefficients above and below the principal diagonal (ie $r_{ij} = r_{ji}$ etc.). The values of the elements on the main diagonal of the matrix are always equal to one. The results of the calculations of the coefficients are given in Table 8.

The analysis of the matrix shows that there is a strong internal correlation between the factor variables $X_1$ and $X_2$ and the correlation coefficient is 0.96268. Of these, the factor variable $X_1$ (correlation coefficient 0.97342) has a slightly stronger effect on the resultant indicator. Therefore, we exclude the factor variable $X_1$ from further consideration. The matrix of paired correlation coefficients for the remaining variables is as follows (Table 9).

There are no factor variables in this matrix, which are closely related with a correlation coefficient of more than 0.8.

Thus, to further investigate the impact on Foreign direct investment, net inflows ($Y$), it should be left four factor variables: Tax revenue (% of GDP) ($X_3$); Taxes on income, profits and capital gains (% of revenue) ($X_4$); Time to prepare and pay taxes (hours) ($X_5$), and Total tax rate (% of commercial profits) ($X_6$).

The multivariate correlation analysis evaluates the link strength of the investigated variables and the multiple regression model to describe the factor link it is selected a multivariate statistical model. It is necessary to build a linear regression model with $m$ independent (factor) variables:

$$\hat{Y}_i = a_0X_{i0} + a_1X_{i1} + a_2X_{i2} + a_mX_{im} + \epsilon_i,$$

where $X_{i0}$ – are the factor variables observed on the $i$th object;

$i$ – number in the order of the object under study,

$i = 1, 2, ..., n$;

$\epsilon_i$ – a random error that has a mathematical reading of 0 and a variance $\sigma^2$;

$X_{i0}$ is a dummy variable equal to 1 in all observations.

The parameters $a_i$ to be evaluated are unknown in this model.

On the basis of the previous paired correlation-regression analysis, it is established the dependence of foreign direct investment, net inflows ($Y$) on four indicators: Tax revenue (% of GDP) ($X_3$); Taxes on income, profits and capital gains (% of revenue) ($X_4$); Time to prepare and pay taxes (hours) ($X_5$) and Total tax rate (% of commercial profits) ($X_6$).

All factor variables have not multi-linear relationships. The multivariate regression model is assumed to be linear:

$$\hat{Y}_i = a_0X_{i0} + a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4 + a_5X_5,$$

To estimate the parameters, we use data previously considered for three countries without a factor $X_1$. The output to estimate the regression model parameters is supplemented by a dummy variable $X_6$. It is found the vector of the regression model parameters

Table 8

| Variables | $Y$ | $X_1$ | $X_2$ | $X_3$ | $X_4$ | $X_5$ |
|-----------|-----|-------|-------|-------|-------|-------|
| $Y$       | 1.00000 |       |       |       |       |       |
| $X_1$     | 0.97185 | 1.00000 |       |       |       |       |
| $X_2$     | 0.97342 | 0.96268 | 1.00000 |       |       |       |
| $X_3$     | 0.59370 | 0.40481 | 0.56789 | 1.00000 |       |       |
| $X_4$     | 0.72654 | 0.74487 | 0.77043 | 0.06234 | 1.00000 |       |
| $X_5$     | 0.84128 | 0.86542 | 0.66342 | 0.78329 | 0.70376 | 1.00000 |

Table 9

| Variables | $Y$ | $X_1$ | $X_2$ | $X_3$ | $X_4$ | $X_5$ |
|-----------|-----|-------|-------|-------|-------|-------|
| $Y$       | 1.00000 |       |       |       |       |       |
| $X_1$     | 0.97342 | 1.00000 |       |       |       |       |
| $X_2$     | 0.59370 | 0.56789 | 1.00000 |       |       |       |
| $X_3$     | 0.72654 | 0.77043 | 0.06234 | 1.00000 |       |       |
| $X_4$     | 0.84128 | 0.66342 | 0.78329 | 0.70376 | 1.00000 |       |
It was written the regression model using the numerical values of the regression parameters

\[
\hat{Y}_i = -2,341+4,1598X_{i5} - 1,9615X_{i3} - 1,7167X_{i4} + \text{1,3401 } X_{i5}
\]

and it is defined the area of factor variables change

\[
4,56 \leq X_3 \leq 2,099 \quad 0,93074 \leq X_4 \leq 1,69878 \quad 2,29689 \leq X_5 \leq 3,54427 \quad 2,35746 \leq X_5 \leq 5,41386
\]

Positive signs of model parameters indicate that an increase in the relevant factors leads to an increase in the performance indicator, and negative signs of the model parameters indicate that an increase in the corresponding factors leads to a decrease in the performance indicator.

Thus, in the research above, increases in tax revenue (% of GDP) \( (X_{i5}) \) and total tax rate (% of commercial profits) \( (X_{i4}) \) cause an increase in the resultant variable, whereas growth in taxes on income, profits and capital gains \( (X_{i3}) \) and time to prepare and pay taxes (hours) \( (X_{i5}) \) cause a decrease in the output variable: Foreign direct investment, net inflows in 1.9 times (0.76242 / \( \beta_3 \)) .

Also, temporary elasticity coefficients \( E_j \) are used to make the regression coefficients comparable. The coefficient \( E_j \) shows the magnitude of the change in the result factor in the values of the root mean square error when changing the factor sign \( X_j \) by one standard error:

\[
\beta_j = a_j \left( \frac{\sigma_{X_j}}{\sigma_Y} \right)
\]

where \( a_j \) is the regression coefficient at the \( X_j \) factor, \( j = 1, 2, ..., m \).

The \( \beta_j \) coefficients that characterize the impact of Tax revenue \( (\beta_5) \), Taxes on income, profits and capital gains \( (\beta_4) \), Time to prepare and pay taxes \( (\beta_4) \) and Total tax rate \( (\beta_1) \) on Foreign direct investment, net inflows in the model are calculated:

\[
\hat{Y}_i = -2,341+4,1598X_{i5} - 1,9615X_{i3} - 1,7167X_{i4} + \text{1,3401 } X_{i5}
\]

Mean square deviations of the variables:

\[
\sigma_Y = -2,447,1 \quad \sigma_{X_i} = 448,6 \quad \sigma_{X_i} = 0,2023531 \quad \sigma_{X_i} = -0,360497 \quad \sigma_{X_i} = 0,7440662
\]

To calculate beta coefficients we use the formula

\[
\beta_j = a_j \left( \frac{\sigma_{X_j}}{\sigma_Y} \right)
\]

We obtain the following values:

\[
\beta_2 = 0,76242 \quad \beta_3 = 0,16221 \quad \beta_4 = 0,02524 \quad \beta_5 = 0,407687
\]

From here it was seen that the most significant impact on Foreign direct investment, net inflows is made by Tax revenue \( \beta_5 = 0,76242 \), Total tax rate \( \beta_5 = 0,407687 \).

In doing so, Tax revenue affects Foreign direct investment, net inflows in 1.9 times (0.76242 / 0.407687) stronger than Total tax rate.

Also, temporary elasticity coefficients \( E_j \) are used to estimate the degree of influence of factor traits, relative \( X_j \):

\[
E_j = \frac{\partial Y}{\partial X_j} \frac{X_j}{Y} \quad \text{or} \quad E_j \approx a_j \cdot \frac{X_j}{Y} \cdot \frac{\partial Y}{\partial X_j}
\]

where \( \frac{\partial Y}{\partial X_j} \) is a derivative of a regression on a variable \( X_j \).

The coefficient \( E_j \) shows how many percent the result will change if the factor is changed by one percent when...
the values of other factors are fixed at any level. The coefficients of elasticity, $E$, that characterize the impact of Tax revenue (\(E_1\)), Taxes on income, profits and capital gains (\(E_2\)), Time to prepare and pay taxes (\(E_3\)) and Total tax rate (\(E_4\)) on Foreign direct investment, net inflows in the model are calculated

\[
\hat{Y}_t = -20,341 + 4,1598 X_1 - 1,9615 X_2 - 1,7167 X_3 + 1,3401 X_4
\]

\[
E_1 = 0.9768 \\
E_2 = 0.5041 \\
E_3 = 0.0857 \\
E_4 = 0.9612
\]

Comparison of the coefficients shows that on average Tax revenue affects Foreign direct investment, net inflows with the same strength as Time to prepare and pay taxes (\(E_3 = 0.9768; E_4 = 0.9612\)), but almost twice as much as Taxes on income, profits and capital gains (\(E_2 = 0.5041\)).

This conclusion does not coincide with the conclusion obtained using beta coefficients. It is accepted that a more accurate conclusion is the use of beta coefficients. However, elasticity coefficients have a better economic interpretation. Thus, using a correlation-regression analysis, a regression equation is constructed that can be applied in calculating the projected value of foreign direct investment into the country.

5. Conclusions

Therefore, tax policy and its tasks within a systematic approach can be formulated as a concept of "economic development priority", which implies in the conflict situations the search and implementation of those solutions that are optimal for most participants in economic relations. The concept of "economic development priority" is based on the laws of interaction between the part and the whole, and takes into account the concept and methods of forming optimal decisions in order to increase efficiency.

In the article it is examined the dependence of foreign direct investment, net inflows (% of GDP) (\(Y\)) on profit tax (% of commercial profits) (\(X_1\)), tax revenue (% of GDP) (\(X_2\)); taxes on income, profits and capital gains (% of revenue) (\(X_3\)); time to prepare and pay taxes (hours) (\(X_4\)) and total tax rate (% of commercial profits) (\(X_5\)). Thus, in a study with a 1% increase in the factor variable \(X_3\), the foreign variable investment (net inflows) will increase by 4,1598%, and with the 1% increase in the factor variable \(X_4\), the foreign variable investment will increase by 1,3401%. An increase in the other two factor variables leads to a decrease in the resultant variable.

The coefficients of elasticity that characterize the impact of tax revenue, Taxes on income, profits and capital gains, time to prepare and pay taxes, and time to prepare and pay taxes on foreign direct investment, net inflows in the model have been calculated. Comparison of ratios shows that on average tax revenue affects foreign direct investment, net inflows with the same strength as time to prepare and pay taxes (\(E_3 = 0.9768; E_4 = 0.9612\)), but almost twice as much as taxes on income, profits and capital gains (\(E_2 = 0.5041\)). Thus, using a correlation-regression analysis, a regression equation is constructed that can be applied in calculating the projected value of foreign direct investment into the country.

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