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THE SYSTEM OF EVALUATING THE EFFECTIVENESS OF EMPLOYEES MOTIVATION AS A FACTOR OF THE ENTERPRISE SUSTAINABLE DEVELOPMENT

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FINANCING THE GREENING OF ENTERPRISES IN INDUSTRIAL REGIONS OF UKRAINE IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

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Abstract
The work is devoted to the study of improving the environmental situation in industrial regions with metallurgical production in Ukraine. It was revealed that monitoring and purification of air, water environment and land resources requires immediate development and implementation of greening projects. This requires finding additional financial resources that are lacking in local budget deficits. To improve the quality of formation and use of local budgets, a method of monitoring the revenue side of local budgets is proposed, which consists in processing a set of data imported from monthly revenues and processed using predictive analytics tools. The methodology allows to identify significant and insignificant factors in a timely manner, including the environmental tax in the resulting factor - local budget revenues. With the development of analytical systems and the expansion of their application in the greening of industrial regions, the developed methodology will not lose its relevance. The developed methodology for monitoring the environmental tax and other taxes, fees and charges is aimed at identifying additional (indirect) sources of funding for greening projects in industrial regions, including metallurgical production. The method was tested on the revenues of local budgets of cities with metallurgical production – Zaporizhzhya, Dnipro for the period 2018-2020. The use of the methodology allowed to show that the revenues of the environmental tax are the most insignificant. It is also proposed to use the experience of developed countries in the mechanism of calculating the environmental tax in order to increase its amount.

Keywords*: ecological tax, greening projects, local budgets, metallurgical industry*.
JEL Classification*: H7, H20, O47*.

Introduction

The task of greening regions with metallurgical production is to prevent emissions, monitor and clean the air, water environment and land resources from harmful inclusions. In the metallurgical industry of Ukraine, the output of waste exceeds the output of the target product by 6-7 times (Glushchenko, 2021). Considering the crisis phenomena in the economy of Ukraine, the issues of development of greening projects, including innovative technologies for cleaning the atmosphere, processing of industrial waste are especially relevant (Mikelsone et al., 2021). In this regard, the search for sources of funding for the development and implementation of projects for the greening of industrial regions of Ukraine is relevant, especially in the context of acute budget

deficits of emerging communities. These projects will be aimed not only at improving the ecology of the regions, but also at increasing the economic efficiency of this production (Meshram, Pandey, 2019; Kostetska et al., 2021). Some of the projects aimed at waste disposal will expand the resource base of metallurgy for many types of scarce raw materials, such as expensive alloying and rare earth metals.

Bolshina (2012) considered ways to improve the environmental and economic efficiency of metallurgical production. Components of emissions from metallurgical production are presented in table 1. The largest amount of emissions is in coke production. In addition to these pollutants, we can note pyridine bases, aromatic hydrocarbons, phenols, ammonia, 3-4%-benzopyrene, hydrocyanic acid and others.

In world practice, the share of ferrous metallurgy enterprises accounts for 15-20% of total air pollution by industry, which is 3 million tons of harmful substances per year, and areas of large metallurgical plants - up to 50% (Glushchenko, 2021).

Table 1. The main components of emissions from metallurgical production [1, 2]

Emission components	Sinter production, kilog. / t.	Blast furnace production, Kilog. / t.	Steel production, kilog./ t.	Rolling production
Dust	20-25	100-106	13-32	0.7-0.2 kil./ t. of rolled metal
Carbon monoxide	20-50	600-605	04,-0,6	0.7 t / m. of metal surface
Sulfur oxide	3-25	0,2-0,3	0,4-35	0.4 t / m. of metal surface
Nitric oxide			0,3-3,0	0.5 t / m. of metal surface

In order to develop and implement projects aimed at greening industrial regions, especially regions with metallurgical production, it is necessary to identify sources of funding, including indirect funding. According to the Tax Code of Ukraine (2014), one of the sources of funding for greening projects of industrial regions with metallurgical industry in Ukraine may be an environmental tax, which must be paid by all legal entities, if their activities lead to: emissions of harmful substances into the air, including carbon dioxide; discharge of harmful substances into rivers, ponds, lakes, canals, reservoirs, seas or groundwater;

Environmental tax rates, depending on the type of harmful substance, are presented in the Tax Code of Ukraine and depend on the amount of harmful substance (in tons) that enters the air, watercourses or reservoirs. The procedure for calculating each type of pollution or type of harmful substance is as follows. Thus, the amount of tax levied for emissions of pollutants into the atmosphere by stationary sources of pollution, are calculated based on the actual emissions, tax rates by the formula (Tax Code of Ukraine, 2014):

$$P_{VC} = \sum_{i=1}^{n}(M_i * H_{ni}) \quad (1)$$

Where: M_i- is the actual emission of the i-th pollutant in tons (t); H_{ni}- is the tax rate in the current year per ton of the i-th pollutant.

The amount of tax levied for the discharge of pollutants into water bodies (Ps) is calculated quarterly based on the actual amount of discharges, tax rates and adjustment factors by the formula (Tax Code of Ukraine, 2014):

$$P_C = \sum_{i=1}^{n}(M_{ni} * H_{ni} * K_{oc}) \quad (2)$$

Where: $M_{ni}-$ is the volume of discharge of the i-th pollutant in tons (t);

H_{ni} – tax rates in the current year per ton of the i-th type of pollutant;

K_{oc} – is a factor that is equal to 1.5 and is used in the case of discharge of pollutants into ponds and lakes.

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The concept of "environmental tax" in EU countries includes (Korshunov et al., 2012): energy taxes (on coal, petroleum products, electricity, etc.); transport taxes (payments for imports, operation, recycling, sale of vehicles); taxes for environmental pollution (for emissions of pollutants into the atmosphere and water resources); minerals, special water use, etc.).

In EU countries, the main part of environmental tax revenues is formed by energy taxes - 76.9%. In Ukraine, 100% of the environmental tax is payments for environmental pollution. The purpose of environmental taxes is to help reduce the negative impact of business activities on the environment. This goal can be achieved in two forms. The first approach is to set high rates of environmental taxes. In this case, companies will prefer to implement environmental measures to reduce the cost of paying environmental taxes. As a result, the negative impact on the environment will be reduced. The second approach to the use of environmental taxes is to finance environmental measures that can compensate for environmental pollution. In this case, the higher the share of environmental tax used to cover environmental costs, the more efficiently the funds are used (Kvach, Piatka, Koval, 2020).

The collected amounts of environmental tax do not meet the requirements of the environmental situation in industrial regions, including metallurgical production. Thus, in 2017, Ukraine collected 1.7 billion UAH of environmental tax in the state budget, and environmental measures were financed in the amount of 2.8 times more (4.7 billion UAH) (Glushchenko, 2021).

At 1.1% of ecological tax revenues were used to finance environmental protection expenditures in Donetsk oblast, 11.9% in Dnipropetrovsk oblast, and in Zaporizhzhya oblast the efficiency of ecological tax use is close to zero (Glushchenko, 2021). According to Database on Policy Instruments for the Environment, collected by the Organization for Economic Cooperation and Development, the environmental subsidy mechanism in force in the European Union includes: grants; tax rebates; soft loans (Filin et al., 2018). There are no such environmental financing instruments in Ukraine, and the funds are distributed within budget programs. Implemented measures are remotely related to environmental protection.

Thus, in Krivoy Rog the proceeds of the environmental tax were used to conduct research and substantiate measures to control quarantine plants, in Zaporizhzhya for the reconstruction of sewers and clearing the reservoir in the city park, in Lviv region - to develop documentation for peat extraction. However, most of the works reveal only some aspects of the research topic, and therefore, there is no doubt about the need for further study.

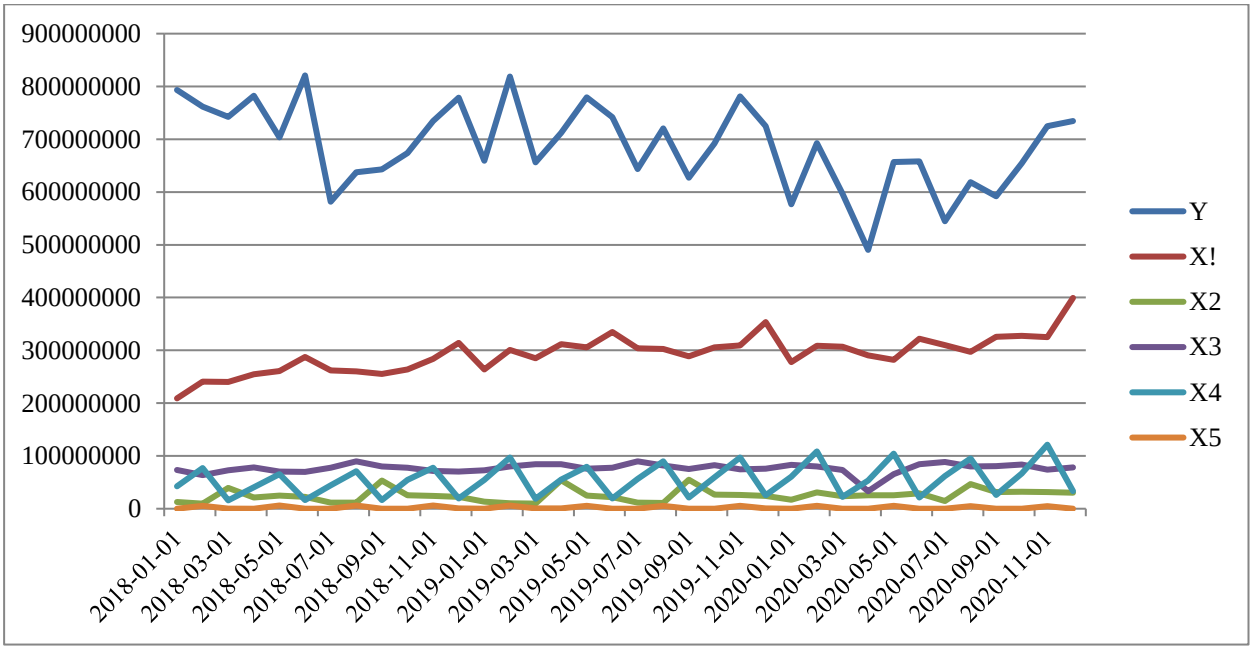
Due to the creation of conditions for innovative activity for industrial enterprises, industrial regions were able to pursue environmental policies (Dotsenko, Ezdina, Mudrova, 2018). Environmental taxation and the use of environmental assets in Ukraine and the EU have common problems with shortcomings: the inefficiency of the organization of budget revenue collection; with a lack of transparency and inefficient use of environmental tools (Jishkariani, 2010; Saxena, Kumar, 2020). Problems are added - inefficiencies in the formation and use of local budgets, which are mostly deficient. In Ukraine, problems of inefficient use of extracted natural resources on the principle of "extracted-processed-discarded" are added. This happens when the methods and principles of innovative methods of economic management - circular economy - are introduced in world practice (Kostetska, Smol, Gaska, 2018; Gubanova et al., 2019; Zhang, Zhang, Wu, Liu, 2021).

Methods

Improving the environmental situation in industrial regions with metallurgical production is associated with the search for additional - indirect sources of funding. For this, the authors propose to process datasets formed from monthly receipts of Openbudget, Opendata. Using the correlation analysis toolkit, the authors found that tax revenues to local budgets of Ukraine are insignificant. The most insignificant is the environmental tax in the revenues of local budgets. The amount of the environmental tax is insignificant for financing projects for the greening of regions with metallurgical production. The most urgent project at the present time is the development of a project for an installation for monitoring and purifying atmospheric air. The project requires additional funding, which is not provided for in the plans of metallurgical plants. The proposed data processing toolkit for Openbudget (Zaporizhzhia City Council, 2021; Dnipro City Council, 2021) and Opendata allows for timely adjustment of the significance of factors - tax revenues to the budgets of the united territorial communities being formed. It is known that the united territorial communities of Ukraine are in dire need. However, with the advent of Openbudget data, Opendata has an opportunity to improve the quality of local budget management. Timely adjust the indicators of input factors (revenues) in the resulting factor - the total revenues of local budgets. To monitor the revenue side of local budgets, the authors used modern analytical systems.

Results and Discussion

Datasets were imported from monthly Openbudget receipts for cities with metallurgical production - Zaporizhzhya, Dnipro. It was revealed that the environmental tax in Zaporizhzhya has an insignificant value and weak growth dynamics over the years (Fig. 1).



Y-all income to the budget of Zaporizhzhia; X1-tribute from income of physical persons. X2-excise tax; X3-tribute for mineo; X4 - One tribute; X5 - ecological tax.

Figure 1. Dynamics of ecological tax (X5) at the budget of the city of Zaporizhzhia, 2018-2020, hryvnia

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The environmental tax (X5) is the smallest in the revenues of local budgets of the city of Zaporozhye for the period 2018-2020. To finance projects on the greening of Zaporizhzhya, there is a need for an increase in the cost of an ecological tax to the budget (Fig. 1). There are several ways to increase the environmental tax: increase the rates of the environmental tax; change the formula for calculating the environmental tax. The proposed methodology makes it possible to monitor revenues, including the environmental tax, to local budgets. The results of monitoring the local budget of the city of Zaporizhzhya are presented in Table 1 and in Fig. 2.

For the organization of monitoring for the appropriate ecologic tribute, in proportion to the incomes of the budget, the budget for the months will be promoted to victorious methods of predictive (predictive) analysis. The value of the ecological tribute and the profitable need for the profitable part of the budget, please, look for the formula (Draper, Smith,2007):

$$r_{xy} = \frac{\sum(x_i-\bar{x})(y_i-\bar{y})}{\sqrt{\sum(x_i-\bar{x})^2 \sum(y_i-\bar{y})^2}} \quad (3)$$

where: x_i - the value of the variable X; y_i- the value of the variable Y; $\bar{x}$- the arithmetic mean of the variable X; y - the arithmetic mean of the variable Y.

In order to optimize the calculations, formula (3) takes the following form (Draper, Smith,2007):

$$r_{xy} = \frac{n\sum xy-(\sum x)(\sum y)}{\sqrt{[n\sum x^2-(\sum x)^2][n\sum y^2-(\sum y)^2]}} \quad (4)$$

The results of the projects are presented in Table 1. - a matrix of correlation factors (X1-X5) with the budget revenues (Y) in Zaporizhzhya for the development of sources of additional (indirect) financing of environmental projects, 2018-2020 (Table 1).

Table 1. Matrix of the correlation factor - ecological tax (X5) with budget revenues in Zaporizhzhya, 2018-2020

	X1	X2	X3	X4	X5
01.01.2018 - 01.01.2019	0,038169541	-0,11055486	-0,61219644	-0,2184213	-0,12295
01.01.2018 - 01.02.2019	0,030171363	-0,05168681	-0,57262106	-0,2379922	-0,07288
01.01.2018 - 01.03.2019	0,171861976	-0,14431357	-0,43217762	0,00306058	0,079316
01.01.2018 - 01.04.2019	0,114195424	-0,07880786	-0,47762688	0,07321552	0,118469
01.01.2018 - 01.05.2019	0,093385024	-0,07906577	-0,45799575	0,07100624	0,120939
01.01.2018 - 01.06.2019	0,153310408	-0,07097338	-0,44942669	0,12703074	0,180609
01.01.2018 - 01.07.2019	0,165922882	-0,07208998	-0,44279794	0,10402955	0,166287
01.01.2018 - 01.08.2019	0,099076848	-0,01668211	-0,49947278	0,08045311	0,201624
01.01.2018 - 01.09.2019	0,098262364	-0,01741263	-0,49192205	0,07736423	0,194495
01.01.2018 - 01.10.2019	0,068603987	-0,15608888	-0,4547481	0,14201696	0,230554
01.01.2018 - 01.11.2019	0,052629095	-0,15894883	-0,45918921	0,1349458	0,238186
01.01.2018 - 01.12.2019	0,094026797	-0,14695876	-0,46415012	0,19847022	0,279557
01.01.2018 - 01.01.2020	0,095066202	-0,14657302	-0,46463832	0,18962757	0,273387
01.01.2018 - 01.02.2020	0,100488288	-0,09402487	-0,49357044	0,14312668	0,304412
01.01.2018 - 01.03.2020	0,090737962	-0,09915388	-0,49556234	0,11011543	0,282203
01.01.2018 - 01.04.2020	0,043099644	-0,09412132	-0,43119522	0,16645125	0,30931
01.01.2018 - 01.05.2020	0,01966745	-0,09322085	0,19190186	0,13955355	0,334406

01.01.2018 - 01.06.2020	0,021321516	-0,09488293	0,20526797	0,09886257	0,302097
01.01.2018 - 01.07.2020	0,000638677	-0,10093006	0,18714963	0,11492464	0,31027
01.01.2018 - 01.08.2020	-0,045063746	-0,05099684	0,09915529	0,09024908	0,332598
01.01.2018 - 01.09.2020	-0,054018642	-0,09775077	0,0870686	0,04651311	0,291354
01.01.2018 - 01.10.2020	-0,09619172	-0,11597883	0,06943813	0,07956764	0,308555
01.01.2018 - 01.11.2020	-0,108310986	-0,12176541	0,05987931	0,07389358	0,313728
01.01.2018 - 01.12.2020	-0,089729241	-0,11304027	0,05617578	0,09934362	0,322905

The values of the correlation coefficient of the environmental tax (X5) with revenues to the local budget of Zaporizhzhya for the period 2018-2020 (Table 1, Fig. 2) are insignificant compared to other (X1, X2, X3, X4) taxes, fees and charges.

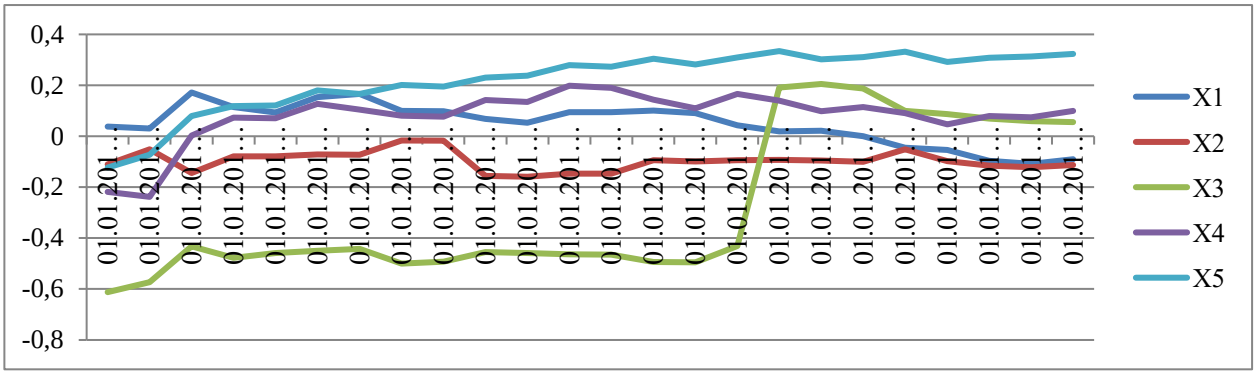

Figure 2. Dynamics of Pearson's correlation coefficients between environmental tax revenues and local budget revenues in Zaporizhzhya, 2018-2020

The dynamics of the Pearson correlation coefficient between the environmental tax, tax revenues and the total values of all revenues to the budget of Zaporizhzhya is insignificant (Fig. 2, Table 1). There is a need to change the mechanism for calculating the environmental tax and the size of rates.

Table 2. Revenues of the environmental tax (X5) to the local budget revenues of the city of Dnipro, 2018-2020, hryvnias

	Y	X1	X2	X3	X4	X5
01.01.2018	941 455 901	296 006 058	23 841 022	135 698 515	104 660 353	48 689
01.02.2018	1 048 435 728	341 758 399	17 726 550	96 568 560	162 033 251	4 008 205
01.03.2018	1 049 484 996	353 954 021	57 877 139	112 354 124	31 994 442	4 871
01.04.2018	1 362 651 107	359 872 041	33 679 822	180 820 082	90 150 617	78 867
01.05.2018	1 048 338 982	356 743 707	38 398 558	120 331 797	134 712 812	5 989 220
01.06.2018	1 032 015 188	411 631 273	36 453 875	128 432 310	33 235 450	14 541
01.07.2018	956 986 515	401 985 740	21 103 126	158 027 333	102 124 566	46 891
01.08.2018	1 129 791 963	373 554 191	21 698 121	135 434 412	141 850 509	4 173 884
01.09.2018	973 781 601	373 432 709	79 108 458	142 614 208	36 189 050	4 034
01.10.2018	1 086 597 344	384 324 355	40 779 166	175 793 777	114 130 489	76 336
01.11.2018	1 257 637 159	391 334 976	39 594 378	155 952 305	162 603 866	3 928 975
01.12.2018	1 216 239 417	484 891 763	36 393 831	145 559 633	44 871 325	-111
01.01.2019	1 011 630 315	374 359 259	24 683 785	162 048 075	126 107 131	205 990
01.02.2019	1 267 934 726	418 202 261	18 944 652	157 518 378	200 960 418	5 553 408

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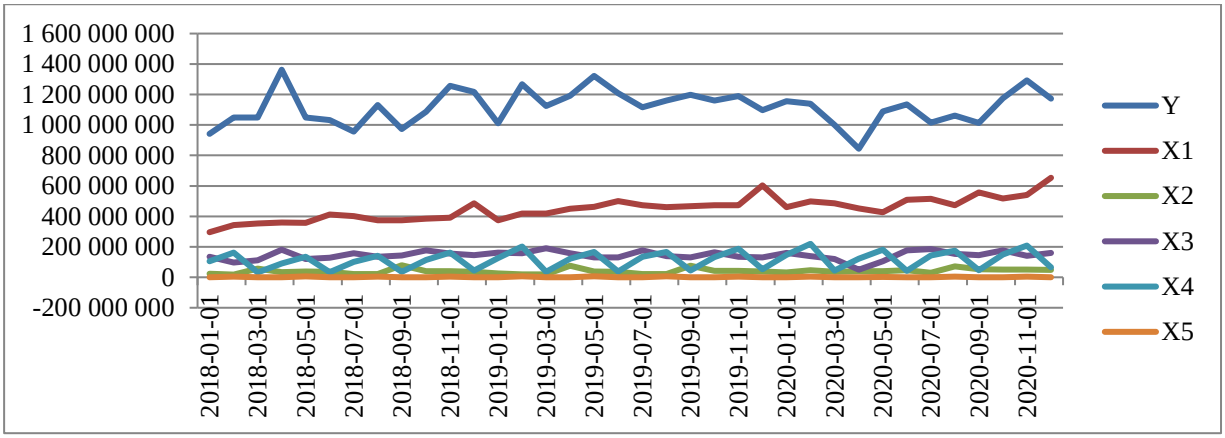
01.03.2019	1 125 117 563	418 366 637	18 388 210	190 503 537	36 637 989	29 893
01.04.2019	1 192 153 899	450 121 702	75 811 382	157 969 921	121 913 641	209 053
01.05.2019	1 323 030 359	461 519 731	38 194 793	131 215 702	165 837 977	5 657 843
01.06.2019	1 208 381 487	501 163 246	34 984 275	130 954 613	38 787 667	-3 103
01.07.2019	1 116 063 506	473 505 434	22 166 362	177 743 858	134 473 453	56 973
01.08.2019	1 160 818 938	459 949 015	22 127 879	138 608 236	167 249 009	5 478 106
01.09.2019	1 198 531 696	466 229 327	75 251 567	131 067 840	43 578 710	34 493
01.10.2019	1 161 046 545	473 301 943	41 589 057	163 913 867	132 841 533	53 062
01.11.2019	1 190 162 516	472 814 436	41 392 527	134 874 067	188 157 204	4 044 016
01.12.2019	1 097 258 832	603 079 867	38 221 455	130 841 535	53 118 854	50 957
01.01.2020	1 155 739 139	461 062 284	31 371 481	159 848 490	147 286 086	53 908
01.02.2020	1 139 619 064	498 898 983	45 910 037	139 542 705	219 872 877	3 403 716
01.03.2020	999 887 489	485 886 786	36 799 992	119 984 670	43 545 398	3 461
01.04.2020	843 859 233	452 155 038	39 372 397	49 913 652	122 095 289	60 728
01.05.2020	1 089 618 587	427 751 279	39 373 213	104 751 550	180 250 832	3 253 032
01.06.2020	1 134 286 954	508 093 255	45 671 385	176 693 799	41 776 733	4 287
01.07.2020	1 014 631 021	515 714 664	30 128 739	184 897 914	143 664 174	53 106
01.08.2020	1 061 742 427	472 631 302	72 227 943	153 215 870	174 908 029	3 608 797
01.09.2020	1 012 730 537	556 782 436	51 975 994	145 925 992	47 046 877	6 258
01.10.2020	1 175 306 306	516 653 441	51 164 641	177 356 325	149 543 495	46 684
01.11.2020	1 293 371 701	539 847 319	50 537 575	140 409 600	208 258 791	3 612 553
01.12.2020	1 173 028 083	653 187 327	47 657 158	160 906 968	65 803 114	29 019

The proposed method of monitoring the environmental tax and other tax revenues to local budgets allowed to obtain the dynamics of revenues to the local budget of Dnipro and the dynamics of the Pearson correlation coefficient between input factors - environmental tax revenues (X5), revenues of other taxes, fees and charges resulting factors. We get a similar option - insignificant values of factor X5, which require adjustment.

This once again demonstrates that the existing rates and mechanism for calculating the environmental tax do not meet modern requirements for improving the ecology of industrial regions (Kvach, Koval, Hrymaliuk, 2018).

Correlation matrix (Table 3) allows you to identify significant and insignificant factors - budget revenues. Minor factors, in particular the environmental tax, are subject to immediate transformation.



Definition: correlation coefficients between variables - revenues of the local budget and -X1-personal income tax; X2-excises; X3 property tax; X4 - a single tax; X5 - environmental tax

Figure 3. Dynamics of the ecological tax (X5) in the budget of the city of Dnipro, 2018-2020, hryvnias

Table. 3 Matrix of correlations of the factor - environmental tax (X5) and others (X1, X2, X3, X4) with the budget revenues of Dnipro, 2018-2020

	X1	X2	X3	X4	X5
01.01.2018 - 01.01.2019	0,3348	-0,0849	0,4716	0,1652	0,1181
01.01.2018 - 01.02.2019	0,3329	-0,0450	0,4070	0,1299	0,1443
01.01.2018 - 01.03.2019	0,3935	-0,1432	0,4357	0,2944	0,2920
01.01.2018 - 01.04.2019	0,3949	-0,1521	0,4100	0,2600	0,2763
01.01.2018 - 01.05.2019	0,4296	-0,0246	0,4213	0,2721	0,2398
01.01.2018 - 01.06.2019	0,5183	-0,0138	0,3175	0,3536	0,3663
01.01.2018 - 01.07.2019	0,5257	-0,0171	0,2853	0,2854	0,3272
01.01.2018 - 01.08.2019	0,4925	-0,0142	0,2678	0,2807	0,3254
01.01.2018 - 01.09.2019	0,4933	-0,0257	0,2610	0,2883	0,3279
01.01.2018 - 01.10.2019	0,5067	0,0376	0,2368	0,2418	0,2999
01.01.2018 - 01.11.2019	0,5040	0,0406	0,2428	0,2465	0,2876
01.01.2018 - 01.12.2019	0,5125	0,0454	0,2283	0,2668	0,3024
01.01.2018 - 01.01.2020	0,3773	0,0447	0,2346	0,2739	0,3080
01.01.2018 - 01.02.2020	0,3795	0,0415	0,2381	0,2771	0,2987
01.01.2018 - 01.03.2020	0,3725	0,0426	0,2369	0,2614	0,2971
01.01.2018 - 01.04.2020	0,3148	0,0433	0,2770	0,3012	0,3187
01.01.2018 - 01.05.2020	0,2485	0,0293	0,4761	0,2515	0,3400
01.01.2018 - 01.06.2020	0,2484	0,0283	0,4724	0,2349	0,3301
01.01.2018 - 01.07.2020	0,2481	0,0307	0,4660	0,2225	0,3234
01.01.2018 - 01.08.2020	0,2006	0,0441	0,4012	0,2019	0,3364
01.01.2018 - 01.09.2020	0,1901	0,0117	0,3940	0,1816	0,3167
01.01.2018 - 01.10.2020	0,1293	-0,0094	0,3868	0,2067	0,3296
01.01.2018 - 01.11.2020	0,1462	0,0031	0,3973	0,2157	0,3139
01.01.2018 - 01.12.2020	0,2025	0,0332	0,3763	0,2737	0,3429

The proposed method of monitoring the processing of data sets, including environmental tax by methods of predictive analysis, allowed to obtain the dynamics of Pearson's correlation coefficients between tax revenues, including between environmental tax and local budget revenues of Dnipro (Table 3, Fig. 4).

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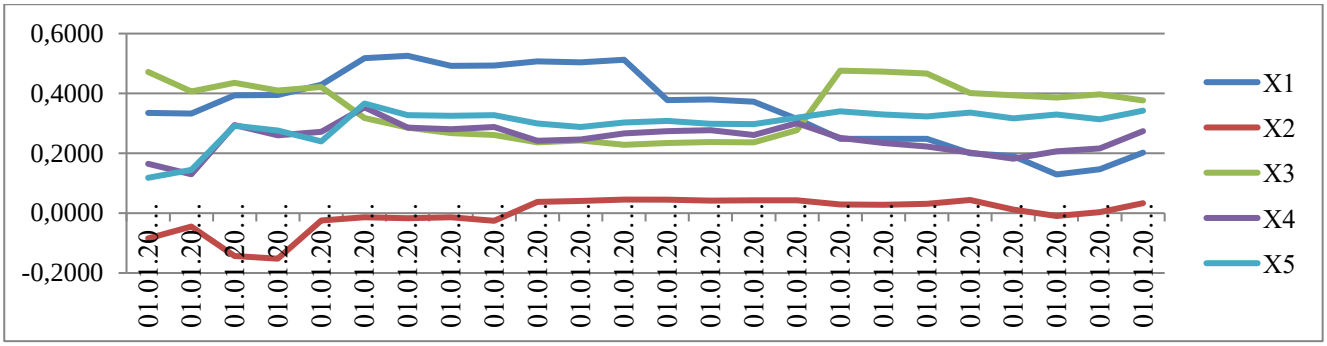

Figure 4. Dynamics of Pearson correlation coefficients between environmental tax revenues and local budget revenues of Dnipro, 2018-2020

Algorithm proposed of the analytical system for managing environmental tax revenues to local budgets (Fig.5).

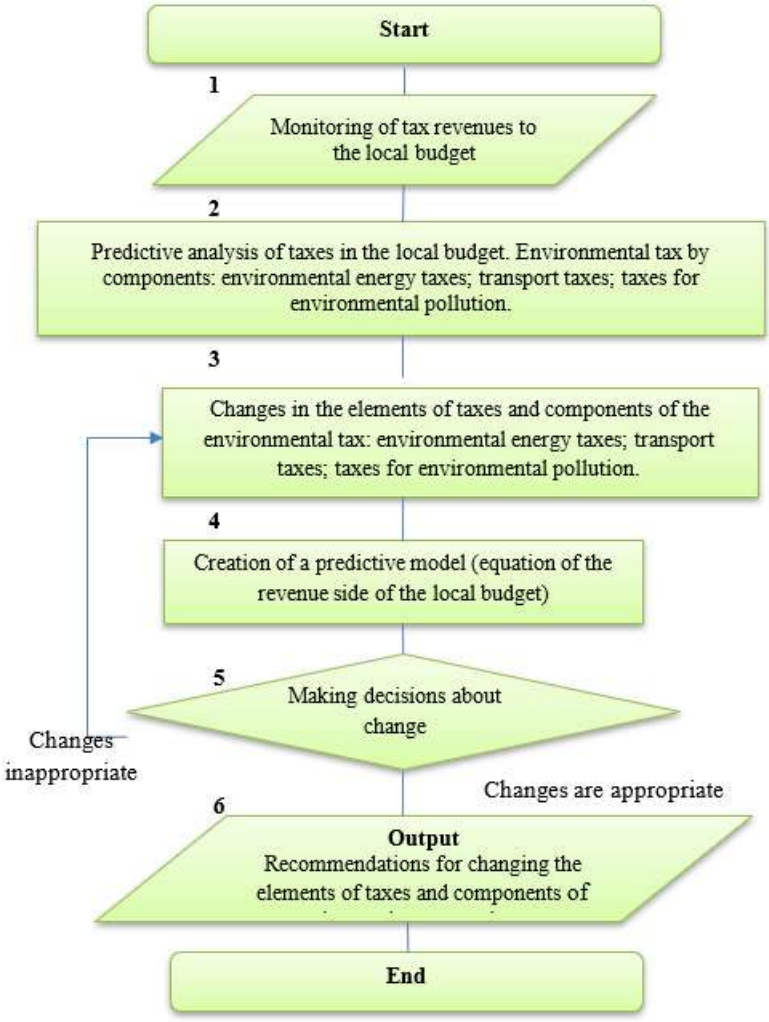

Figure 5. Algorithm of the analytical system for managing the revenues of the environmental tax of enterprises in the industrial regions of Ukraine in the context of sustainable development

It was revealed that the development and implementation of greening projects in industrial regions, especially with metallurgical production, require additional funding, which is not provided for in the plans of metallurgical plants. One of the important projects of greening of regions today is the project on monitoring of structure of atmospheric air, including definition of harmful emissions. For the implementation of this project and subsequent work, it is proposed to reduce costs and improve the quality of management of tax revenues to the revenue side of local budgets. For this purpose, a method of processing data sets from monthly receipts in Openbudget was proposed. A toolkit of predictive analytics - correlation analyzes was proposed to identify significant and insignificant factors - revenues to local budgets. It was suggested either to transform insignificant factors by changing tax rates within the framework of the legislation, or to abandon them. Data processing was performed using analytical systems. The method was tested on the revenues of local budgets of cities with metallurgical production – Zaporizhzhya, Dnipro for the period 2018-2020. The use of the methodology allowed to show that the revenues of the environmental tax are the most insignificant. It is also proposed to use the experience of developed countries in the mechanism of calculating the environmental tax in order to increase its amount.

Conclusions

The ecological situation of industrial regions, including the metallurgical production of Ukraine, requires immediate improvement. It is necessary to develop and implement projects aimed at monitoring and cleaning of air, water and land from pollution. However, the existing rates, the mechanism for calculating the environmental tax does not allow to raise enough funds to implement environmental measures. The quality development and implementation of environmental projects requires sufficient financial resources, the lack of which does not allow for the greening of industrial regions. The paper proposes a method of identifying significant and insignificant factors - revenues in the resulting factor - the total revenue of local budgets. Minor factors can be transformed by changing rates because they are abandoned and replaced by others within the law. The proposed methodology allows for monthly monitoring of local budgets (environmental and other taxes, fees and charges) by processing Openbudget data. Implement a flexible response to the environmental tax by changing the rate within the law. The monitoring methodology will not lose its relevance even after the necessary transformation of the environmental tax.

Data processing was performed using analytical systems. The method was tested on the revenues of local budgets of cities with metallurgical production – Zaporizhzhya, Dnipro for the period 2018-2020. The analysis showed that the most dynamics of the environmental tax to the budget of the city of Dnipro was personal income tax (X1), and to the budget of the city of Zaporozhye personal income tax (X1) and property tax (X3). The use of the methodology allowed to show that the revenues of the environmental tax are the most insignificant. It is also proposed to use the experience of developed countries in the mechanism of calculating the environmental tax in order to increase its amount.

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