FORMATION OF STATE PROTECTION FOR URBAN PASSENGER TRANSPORT ENTERPRISES

Oleksii Palant
Corresponding author
Doctor of Economic Sciences, Professor*
E-mail: ladirra1104@gmail.com
Denys Zakharov
PhD*
*Department of Entrepreneurship and
Business Administration
O. M. Beketov National University
of Urban Economy in Kharkiv
Bazhanova str., 17, Kharkiv, Ukraine, 61002

This paper considers the task to provide state financial protectionism under the conditions of today's challenges. A model of effective interaction is proposed, which takes into account selective fair financing based on indicators of the investment attractiveness of the i-th region and the priority of the i-th region. The calculations proved the independence of the regional financing priority indicator on the level of investment attractiveness of the region, or vice versa. The methodology was tested on the example of urban passenger transportation entrepreneurship under the conditions of challenges that have arisen. According to the results, those territories that are recognized as the most affected and vulnerable, and the problem of support of which can be solved only with the help of state intervention, are eligible for state protectionism.

The results of the calculations show that the distribution of financial funds in the amount of state finances S=1 allocated to support entrepreneurship is carried out proportionally. A comprehensive approach made it possible to determine the regions for state funding, while the most affected regions receive the largest share of financial investments – Luhansk, Chernivtsi, Kherson, Donetsk, Mykolaiv, and Sumy oblasts, which will receive funding to support urban passenger transportation, in the amount of 17.01 %, 16.89 %, 16.74 %, 16.57 %, 16.55 %, and 16.24 %, respectively.

This study is of practical interest for state management bodies as it provides methodological recommendations for the allocation of funds to support the most affected regions. It is also useful for researchers studying financial provision, protectionism, and public administration, and it is recommended that future research be conducted taking into account the level of socio-economic development of states

Keywords: state financing, state support, entrepreneurship, urban passenger transportation, protectionism of entrepreneurship

1. Introduction

Throughout its historical existence, humanity has experienced numerous turbulent challenges and crises. Such challenges later acted as starting points for the advancement of society, encouraging work towards the development of innovations. First, the COVID-19 pandemic, and then the full-scale military aggression against Ukraine became such tests of modernity. This affected all areas of the economy of all European countries, social and cultural interaction, and the quality of life of the population. These challenges also affected the activities of business enterprises and forced them to devise new methods for conducting it [1, 2] because sometimes it is not only about the survival of the business but also about the survival of regions as a whole. From the beginning of 2020 (the COVID-19 pandemic) until now (the war in Ukraine), Ukrainian entrepreneurs have been experiencing significant difficulties in doing business. After the full-scale invasion, some entrepreneurs were able to adapt to the challenges – they relocated their businesses to other territories, changed their focus, changed the number of employees, etc. But not all enterprises were able to change their territorial and other functioning. For example, the provision of urban passenger transportation cannot be included in this category. The aggravation of the coronavirus pandemic and the war in Ukraine exerted a significant impact on the world economy and continue to affect all types of activity [3, 4] and not only in Ukraine. Restriction of activity at the level of the entire territory or in specific zones creates difficulties not only for the population but also for entrepreneurs, complicates their ability to meet the needs of consumers [5]. All countries of the world apply various precautionary measures under the conditions of turbulent challenges. Among the most common are the introduction of relocation and distancing policies, the closing of enterprises and labor restrictions on a number of parameters. Such preventive measures lead to a significant impact on business, which is an important element of ensuring the recovery of the state in the post-war period [6]. Due to the impossibility of carrying out activities related to the danger to life, the migration of the population to safer places and other unfavorable factors, some entrepreneurs were forced to completely stop their work and eliminate their enterprises [7]. The transport sector is considered one of the most affected. Enterprises of urban passenger transport were the most negatively affected. The first significant challenge for them was the pandemic [8], then the beginning of the full-scale invasion in 2022. The suspension of functioning of the urban passenger transport sector or its only partial use has led to huge losses and catastrophic consequences for the regions. The situation that has developed in the frontline regions for the urban passenger transport sector is as follows: the work of urban public transport has stopped due to the dangers and destruction of rolling stock and transport infrastructure, the outflow of the population (passengers) to other territories, the lack of solvency of the remaining population, a decrease in the solvency of peo-

ple who returned. The implementation of measures for the rehabilitation of entrepreneurship in the field of urban public transport, as a component of the global transport system, is a strategic direction [9] for the recovery of Ukraine. The influence of the development of entrepreneurship in general on transport and urban public transport in particular on the development of individual regions cannot be overestimated. However, in today's challenging era, entrepreneurship in urban public transport needs support, and some researchers believe that the only way to solve this problem is through government intervention. They emphasize the importance of the targeted approach of significant capital investments [10].

Therefore, the issue of devising urgent measures regarding state financial protectionism of entrepreneurship in the field of urban passenger transportation under the conditions of today's challenges is urgent and requires a scientific approach.

2. Literature review and problem statement

The transport sector is extremely important for the economy of every state. Common transport policy is a key element of EU policy [11]. The EU transport sector provides about 11 million jobs and is estimated at 14 % of GDP, which confirms its significance and strategic importance [12]. The domain of urban passenger transportation is singled out, and its development is an urgent task in any country. It is an important component of modern urban infrastructure, which has a significant socio-economic impact on the entire urban economy and the state as a whole. Public transport provides connections inside cities, provides affordable transport services for the population, contributes to the efficient functioning of the economy and affects the everyday life of citizens. Taking into account the external challenges, which today make corrections in all sectors of the economy, a number of states have introduced measures to support entrepreneurship for various sectors of the economy, and transport is no exception. It is logical to search for an answer to the research question: "What components should be taken into account when determining state financial support for entrepreneurship in public transport?". The issue concerns a comprehensive approach and fair distribution of state funds, it is still open and relevant [13].

According to existing methods of financial support, preferences are given to sectors of the economy that have a high degree of attractiveness [14] and pursue a territorial approach [10]. It is unacceptable to talk about full state financing of entrepreneurship, and selective and fair regional financing is within the power of every state. India's experience could be useful. There they devised a complex methodology for the distribution of state finances with the determination of its share for different territories, when the problem of "eliminating regional imbalance" (i.e., supporting backward regions) on the way to innovative development of the state must be solved [15, 16].

Study [17] describes the results of the analysis of modern financing methods. The main idea of the study is as follows: funding should be provided not only by the state but also by local authorities of the regions where state funding is provided. However, in the study there is no information about the specific mechanisms for the distribution of regions according to the criteria of support needs.

In paper [18], a procedure for the distribution of financial flows in the financing of the housing fund is proposed. The adaptation of this methodology to other areas of the economy showed an absolute disregard for the importance of a specific sector of the economy for the functioning of the country's economy as a whole and did not reveal the influence of specific factors on the decision-making process regarding the size and sequence of financing.

Review of published methods of mixed financing showed that a popular indicator on which research is based is the indicator of investment attractiveness [10, 14], which is used for the characteristics of enterprises, regions, sectors of the economy, and the state as a whole.

A theoretical study on the vector of protectionism using elements of investment attractiveness is reported in [17]. The methodology described in it is characterized by a comprehensive approach, its main idea and architecture is based on the index of investment attractiveness with an emphasis on the distribution of money (investments) depending on needs and taking into account the importance of the region for the state. This procedure is focused on the investor, not the recipient. With its help, it is possible to determine the most attractive territories for financing, but the issue of fair distribution of means of protectionism on the part of the state remains neglected.

Study [19] presents the method of applying state protectionism in the business sphere, where attention is focused on the dependence of financing on the object's attractiveness. Research results [17, 19] prove that the higher the level of investment attractiveness of an object, the more attractive such an object is for financing. This can be logical if you stand in the position of an investor. However, we believe that when it comes to state protectionism, the situation should be the opposite. In order to eliminate the regional imbalance in the state in the face of complex challenges, it is necessary to start with the support of the most affected (weak) sectors of the economy and the most affected territories. This is confirmed in work [20], in which 20 priority sectors of the economy of Ukraine are highlighted and the order in which their support from the state should be directed is given.

All the studies analyzed by us have one idea: state financing of entrepreneurship support should be carried out on the basis of a preliminary comprehensive assessment [21]. This is the approach proposed in [10], which presents a method of financial provision based on selective regional financing. However, the methodology does not specify how exactly to carry out the selection and sequence of protectionism in individual sectors of the economy. Returning to the discussion of study [21], we note that it supports the idea of selective state financing as a basis for the development of the region's economy. The authors of paper [22] propose a method of financial protectionism, based on a combination of private and public funds, that is, the research focuses on public-private partnership with an emphasis on determining the share participation of each of the participants in the process, ignoring the issue of fair distribution of public funds based on mathematical calculations and previous of research.

General conclusions from our review of the literature [10, 14–22] indicate that the problem of state protectionism in the field of urban passenger transportation under the conditions of today's challenges has not been covered in detail. Also, in the literature, there is a lack of reported research on the issue of the distribution of state financial support from the point of view of the sequence of its provision to the affect-

ed territories. This predetermines the need to conduct such research and devise the methodology of state financial protectionism of the urban passenger transport business under the conditions of war and post-war challenges.

3. The aim and objectives of the study

The purpose of our study is to devise the methodology of state financial protectionism of entrepreneurship in the field of urban passenger transportation under the conditions of war and post-war challenges in order to support and rehabilitate the most affected areas.

To achieve the set goal, the following tasks were solved:

– to determine the conditions for assigning territories to the category of those that primarily need state financial support for the sustainable operation of urban public transport;

– to determine the territories and priority of distribution of state financial support based on the analysis of indicators of investment attractiveness;

– to determine the share of financing of urban passenger transportation under the conditions of war and post-war challenges.

4. The study materials and methods

The object of our study is entrepreneurship in the field of urban passenger transportation. The subject of the study is the methods of its state protectionism. It is proposed to use the mathematical models presented in [14] as the most viable because only with the help of mathematical modeling methods can you achieve an accurate and unbiased result.

To obtain reliable conclusions, the entire set of primary statistical data should include a limited number of them but be representative, as suggested by the methodology described in [10].

Therefore, within the framework of this study, the hypothesis was put forward that the amount of state financial support does not depend on the indicator of investment attractiveness of the region in direct proportion and should be adjusted using the determined value of the priority of the region.

To model the protectionism of the urban passenger transportation business, two indicators will be needed, which we chose as the most important:

– indicator of investment attractiveness of the region – RIA (or indicator of riskiness if it is considered from the other side of the process). The authors of the studies point to this indicator as the most important [23, 24]. We shall take RIA into account when determining financial capital investments while ensuring protectionism of the urban passenger transport business;

– an indicator of the priority of the region, which is determined by the indicator of investment in various types of economic activity; in this study it is the sector of urban passenger transportation.

Determination of the RIA indicator is based on the procedure described in [25]. There, it is entitled "Methodology for evaluating the work of central and local executive bodies for investment attraction, implementation of measures to improve the investment climate in the relevant sectors of the economy and regions." It should be noted that the calculation according to this procedure is complex. The list of indicators included in the methodology was compiled by the Ministry of Economy of Ukraine. In the methodology, the grouping of 36 indicators (economic base of regions, economic growth parameters, investment volumes, state of fixed assets, demographic situation, and others) was carried out into 4 groups: economic, infrastructure development, human resources, entrepreneurship.

All indicators used are taken from open data of the State Statistics Service of Ukraine [26].

To determine the second indicator – the priority indicator of regions, statistical information on the indicator of investments by types of economic activity [27] and the results of research reported in [28] were used. The initial data for use are represented in units of the monetary currency of Ukraine, and it should be noted that during the course of the study, the NBU exchange rate to the US dollar changed significantly [29].

The initial data for further generalization are summarized and given in Table 1.

Table 1

Investments by oblasts of Ukraine, data for 2022 (summarized by the author based on [29, 30])

Oblast	Investments, UAH thousand
Vinnytsia	14,013,094
Volyn	8,263,244
Dnipropetrovsk	65,469,771
Donetsk	30,072,847
Zhytomyr	9,484,439
Zakarpattia	5,126,333
Zaporizhzhia	18,270,778
Ivano-Frankivsk	8,408,234
Kyiv	35,927,395
Kirovogradska	6,540,378
Luhansk	3,291,761
Lviv	24,041,905
Mykolayiv	8,272,664
Odesa	18,853,678
Poltava	23,808,239
Rivne	6,076,296
Sumy	7,465,009
Ternopil	8,536,591
Kharkiv	19,438,622
Kherson	5,157,946
Khmelnytsk	10,874,810
Cherkassy	9,590,276
Chernivtsi	3,397,187
Chernihiv	8,367,139

So, the results in Table 1 show that certain regions suffer greatly from today's challenges and need priority support from the state in order to eliminate the regional imbalance.

Based on the generalization of the obtained data, which is provided for use in the methodology, a methodology of state financial protectionism of the urban passenger transport business is proposed in order to support its sustainable operation and rehabilitation after the damage suffered. The methodology is complex and built on the basis of indicators of the risk rating of the studied sector of the economy and the priority rating of regions for the state, which was described above.

5. Results of devising the methodology of state financial protectionism of entrepreneurship in the field of urban passenger transportation under the conditions of war and post-war challenges

5. 1. Proposals regarding the choice of conditions for assigning regions to the category of weak (non-priority, unattractive for investment) from the point of view of state financial support of urban passenger transportation

To support entrepreneurship in order to rehabilitate the state economy, it is proposed to introduce indicators of financial capital investments by region. Financial capital investments, within the framework of this study, are proposed to be budgetary financial infusions directed to the relevant region in order to support it according to the indicators of the riskiness of the region and the priority of the region for the state.

For this purpose, we have put forward a hypothesis that the program of state financial protectionism consists of n number of regions that need support for urban passenger transport entrepreneurship. The index of urban passenger transportation, which participates in financing processes, will be marked $i = \overline{1, n}.$ Let the return on investments of the region per unit of spent financial resources be a_i (a_i cannot be <1).

We present a description of the model of effective cooperation between the region and a financial donor (state, investor, etc.), in the following form:

$$Zi(Si, x_i) = \varphi_i(S_i) - y_i = \varphi_i(S_i) - (S_i - x_i), \ i = \overline{1, n}, \quad (1)$$

where S_i is the total amount of funding directed to the development of the region, arbitrary units;

$\varphi_i(S_i)$ is the income of the i-th region, arbitrary units;

x_i – number of financial resources of the region for support – loan funds, piece;

y_i – financial resources of the region, arbitrary units;

z_i – invested investments of a financial donor (state, investor, etc.), where the amount of regional financing is taken into account, arbitrary units;

Z_i – net profit of the region as part of its own financial resources (as part of y_i) , arbitrary units.

If the conditions $\varphi_i(S_i) > x_i + y_i + z_i$ or $\varphi_i(S_i)/(x_i + y_i + z_i) > 1$ are met, the model of cooperation between the region and the financial donor (state, investor, etc.) is considered effective. The use of regional financing in the context of supporting urban passenger transportation optimizes the financing process and contributes to the improvement of the efficiency of the transport business as a whole.

Also, for calculations according to our proposed method, one will need a synthetic (artificial) indicator q_i, which is calculated according to (2):

$$(1 - a_i)/l_i = q_i, \quad (2)$$

where a_i is efficiency, which is estimated by the return from the region per unit of financial resources spent on support;

l_i is the priority.

Substituting into formula (2) instead of the efficiency indicator the RIA indicator for the state – r, and instead of the priority indicator the regional riskiness indicator – R, we shall calculate the artificial (synthetic) indicator q_i according to (3):

$$(1 - r_i)/R_i = q_i, \quad (3)$$

where r_i is the RIA indicator for the state, arbitrary units;

R_i is an indicator of the riskiness of the region, arbitrary units.

In order to determine those regions that can apply for funding in order to support them and eliminate the imbalance of the state, their maximum value n is determined, which would satisfy the following inequality:

$$q_i < Q_n/(n-1), \quad (4)$$

where Q_n is the sum of synthetic indicators q_i, corresponding sectors of the economy n.

When condition (4) is not fulfilled, the calculation ends, and the following regions are excluded from the list of candidates for receiving funding for the purpose of supporting and rehabilitating the latter.

5. 2. Identification of regions for the distribution of state financial support

On the basis of publicly available statistical data [26] and using the methodology [25], RIA is determined.

The information is represented in the form of a summary Table 2.

Table 2

Summary table of RIA indicators (r_i) and riskiness of the region (R_i)

Oblast	r_i, a.u.	R_i, a.u.
Vinnytsia	0.408514	1.6666
Volyn	0.355415	3.3333
Dnipropetrovsk	0.422116	0.3333
Donetsk	0.458794	6.3333
Zhytomyr	0.369553	6.0000
Zakarpattia	0.374684	5.6666
Zaporizhzhia	0.405340	3.6666
Ivano-Frankivsk	0.373391	5.3333
Kyiv	0.406496	0.6666
Kropyvnytska	0.383469	5.0000
Luhansk	0.403544	8.0000
Lviv	0.356200	1.0000
Mykolayiv	0.398673	7.0000
Odesa	0.396466	2.0000
Poltava	0.410794	1.3333
Rivne	0.361749	2.3333
Sumy	0.376327	6.6666
Ternopil	0.352696	4.3333
Kharkiv	0.395974	3.0000
Kherson	0.377155	7.6666
Khmelnytsk	0.363777	2.6666
Cherkassy	0.398636	4.0000
Chernivtsi	0.431203	7.3333
Chernihiv	0.363765	4.6666

Note: data on regions controlled by Ukraine as of 2022

To determine the priority indicator of regions, statistical information [27, 28] was used; the data are given in Table 3.

Based on the received data in Tables 2, 3 and in order to further calculate the share of state financial protectionism of the urban passenger transport business, it is necessary

to proceed to the calculation of the artificial indicator q_i according to formula (3).

Table 3

Indicators (rating) of priority of regions of Ukraine, data on 2022 (summarized by the author on the basis of [27, 28])

Rating	Oblast
1	Dnipropetrovsk
2	Kyiv
3	Lviv
4	Poltava
5	Vinnytsia
6	Odesa
7	Rivne
8	Khmelnytsk
9	Kharkiv
10	Volyn
11	Zaporizhzhia
12	Cherkassy
13	Ternopil
14	Chernihiv
15	Kirovogradska
16	Ivano-Frankivsk
17	Zakarpattia
18	Zhytomyr
19	Donetsk
20	Sumy
21	Mykolayivska
22	Chernivtsi
23	Kherson
24	Luhansk

5. 3. Determining the share of financing of urban passenger transportation under the conditions of today's challenges

To determine the financing rate, the calculation procedure of which is represented by formulas (1) to (4), it is necessary to calculate the synthetic indicator q_i. The initial data for the calculation are given in Table 2.

Calculation of q_i is carried out according to formula (3). When determining the share of financial capital investments by region, according to our proposed methodology, it is necessary to sort the regions from the smallest to the largest according to the value of q_i. The results of our calculations in ascending order are given in Table 4.

The entire algorithm of the procedure for determining the number of regions – candidates for receiving financing according to the urban passenger transport entrepreneurship vector – can be represented by inequality (4).

The fulfillment of the specified condition for a set of obtained q_i values was verified. The check will be performed as long as condition (4) is satisfied. If the condition (4) is not fulfilled, the calculations are stopped, and the following regions are excluded from the list of candidates for receiving funding.

The results of the calculations are given in Table 5.

Since condition (4) is not fulfilled at $n=7$, the calculations are stopped, and all subsequent regions do not participate in further calculations. The regions for receiving funding have been determined. These are the Luhansk, Chernivtsi, Kherson, Donetsk, Mykolaiv, and Sumy oblasts with the values of the preliminary ranking (Table 1) 24–19 places.

Table 4

The values of q_i are in ascending order and Q_n

Oblast	Value of q_i	Value of Q_n
Luhansk	0.074557	0.074557
Chernivtsi	0.077563	0.15212
Kherson	0.081241	0.233361
Donetsk	0.085454	0.318814
Mykolayiv	0.085904	0.404718
Sumy	0.093551	0.498269
Zhytomyr	0.105075	0.603344
Zakarpattia	0.11035	0.713694
Ivano-Frankivsk	0.117489	0.831183
Kropyvnytska	0.123306	0.954489
Chernihiv	0.136336	1.090825
Ternopil	0.149378	1.240203
Cherkassy	0.150341	1.390544
Zaporizhzhia	0.16218	1.552724
Volyn	0.193376	1.746099
Kharkiv	0.201342	1.947441
Khmelnytsk	0.238584	2.186025
Rivne	0.273536	2.459561
Odesa	0.301767	2.761328
Vinnytsia	0.354892	3.11622
Poltava	0.441905	3.558124
Lviv	0.6438	4.201924
Kyiv	0.890256	5.09218
Dnipropetrovsk	1.733654	6.825834

Table 5

Checking if inequality (4) holds

Number of regions, n	q_i	$\sum q_i$ which corresponds to n, Q_n	$Q_n/(n-1)$	Checking the fulfillment of the condition in formula (4)
2	0.077563	0.15212	0.15212	$0.15212>q_2$
3	0.081241	0.233361	0.11668	$0.11668>q_3$
4	0.085454	0.318814	0.106271	$0.106271>q_4$
5	0.085904	0.404718	0.10118	$0.10118>q_5$
6	0.093551	0.498269	0.099654	$0.099654>q_6$
7	0.105075	0.603344	0.100557	$0.100557<q_7$

Next, the calculated values of the shares of financing of urban passenger transportation under the conditions of challenges, with allocated funds equal to 1, are represented in proportion to the obtained $Q_n/(n-1)$. The results are given in Table 6.

Table 6

Financing of urban passenger transportation under conditions of challenges by region with funds allocated for protectionism ($S=1$)

Oblast	Financial investment at $S=1$, fraction of a unit
Luhansk	0.170074
Chernivtsi	0.168867
Kherson	0.167391
Donetsk	0.165700
Mykolayiv	0.165519
Sumy	0.162450

As the calculations showed, 6 regions (namely: Luhansk, Chernivtsi, Kherson, Donetsk, Mykolaiv, and Sumy) will

receive funding to support urban passenger transportation, the amount of which will be 17.01 %, 16.89 %, 16.74 %, 16.57 %, 16.55 %, and 16.24 %, respectively, from 100 % S.

Therefore, the hypothesis that the amount of state financial support does not depend on the indicator of the investment attractiveness of the region in direct proportion and should be adjusted with the help of the determined value of the priority of the region has been proven within the framework of our study.

6. Discussion of results of the methodology development

Quite a large number of funding procedures have been proposed by researchers [10, 14–22]. All analyzed procedures are integrated and complex. Some of them contain a significant number of indicators for calculation, some – on the contrary – few. Unlike the ones analyzed, the procedure of state financial protectionism of the urban passenger transport business that we have proposed, which is also complex, contains an overriding approach – financing the weakest regions. This will allow them to be supported in order to eliminate the imbalance in the state.

The authentic procedure allows us to determine regions for the distribution of financial capital investments based on indicators of the region's investment attractiveness (riskiness) and the priority of the region for the state. This approach is designed to solve the problem of determining the share of financing of urban passenger transportation under the conditions of challenges that have arisen.

Unlike existing methods, this procedure is aimed at supporting individual regions and the state as a whole. The presence of mathematical substantiation of targeted financing of the most unattractive regions (risky, weak from the point of view of financial injections) is also the newest vector in research, this distinguishes it from a number of existing ones.

In order to ensure state financial protectionism of the urban passenger transportation business under the conditions of today's challenges, it is proposed to introduce selective financing. The entire calculation procedure is represented by formulas (1) to (4), according to which the approbation calculation was carried out.

The problem of determining the share of financing of urban passenger transportation under the conditions of today's challenges was solved based on a comprehensive approach based on indicators of the investment attractiveness of the region (riskiness) and priority was determined for 6 regions (Luhansk, Chernivtsi, Kherson, Donetsk, Mykolaiv, and Sumy oblasts); the results are given in Table 6.

It can be confidently stated that the hypothesis put forward in the study has been proven.

The main limitation of the study is the fact that the procedure was not tested on the regional distribution of other countries, except Ukraine, that is, the level of socio-economic development of the country was not taken into account.

This study is of practical interest, first of all, for public administrations, as it provides a methodology for allocating funds to support the most vulnerable regions. It could also be useful for researchers studying financial security, protectionism, entrepreneurship, and public administration.

Future studies will take into account the level of socio-economic development of countries.

7. Conclusions

1. The conditions for assigning regions to the category of weak (non-priority, unattractive for investment) from the point of view of state financial support of urban passenger transportation have been proposed. When calculating according to the proposed algorithm, the value of indicators of the investment attractiveness of the i-th region for the state and the priority of the i-th region were taken into account. A model of effective interaction that takes into account selective fair funding is proposed.

2. The regions for the distribution of financial capital investments were determined based on indicators of the region's investment attractiveness (riskiness) and the priority of the region for the state. Their calculation was carried out, the results of which were used to test the proposed methodology. Calculations show that the indicator of the priority of financing the region does not depend on the level of investment attractiveness of the region or vice versa.

3. The task of quantifying the share of urban passenger transport financing under the conditions of today's challenges by regions that require protectionism from the state has been solved. A ranking of the regions was carried out. The regions for receiving funding have been determined – Luhansk, Chernivtsi, Kherson, Donetsk, Mykolaiv, and Sumy oblasts. The shares of urban passenger transport financing for the regions that were determined were calculated.

Conflicts of interest

The authors declare that they have no conflicts of interest in relation to the current study, including financial, personal, authorship, or any other, that could affect the study and the results reported in this paper.

Funding

Data availability

All data are available in the main text of the manuscript.

Use of artificial intelligence

The authors confirm that they did not use artificial intelligence technologies when creating the current work.

References

1. Puriwat, W., Tripopsakul, S. (2021). Customer Engagement with Digital Social Responsibility in Social Media: A Case Study of COVID-19 Situation in Thailand. The Journal of Asian Finance, Economics and Business, 8 (2), 475–483. https://doi.org/10.13106/jafeb.2021.vol8.no2.0475

2. Chas dlia roboty: yak vidnovliuvavsia ta adaptuvavsia ukrainskyi biznes za rik viyny. Available at: https://www.unian.ua/economics/finance/chas-dlya-roboti-yak-vidnovlyuvavsya-ta-adaptuvavsya-ukrajinskiy-biznes-za-rik-viyni-12154170.html

3. Giones, F., Brem, A., Pollack, J. M., Michaelis, T. L., Klyver, K., Brinckmann, J. (2020). Revising entrepreneurial action in response to exogenous shocks: Considering the COVID-19 pandemic. Journal of Business Venturing Insights, 14, e00186. https://doi.org/10.1016/j.jbvi.2020.e00186

4. Ukraine: what's the global economic impact of Russia's invasion? Available at: https://www.economicsobservatory.com/ukraine-whats-the-global-economic-impact-of-russias-invasion

5. Number of the Day: 18% - The Stark Reality of Ukrainian Business in Wartime. Available at: https://www.linkedin.com/pulse/number-day-18-stark-reality-ukrainian-business-wartime-lippold-9oipe?trk=public_post_main-feed-card_feed-article-content

6. Fomina, T. H., Rohalska, V. V. (2022). Features of the application of preventive measures in the state of war. The Russian-Ukrainian War (2014–2022): Historical, Political, Cultural-Educational, Religious, Economic, and Legal Aspects, 1289–1297. https://doi.org/10.30525/978-9934-26-223-4-162

7. Tverdostup, M. (2023). The Demographic Challenges to Ukraine's Economic Reconstruction. Policy Notes and Reports 71. Available at: https://wiiw.ac.at/the-demographic-challenges-to-ukraine-s-economic-reconstruction-dlp-6620.pdf

8. Alessa, A. A., Alotaibie, T. M., Elmoez, Z., Alhamad, H. E. (2021). Impact of COVID-19 on Entrepreneurship and Consumer Behaviour: A Case Study in Saudi Arabia. The Journal of Asian Finance, Economics and Business, 8 (5), 201–210. https://doi.org/10.13106/jafeb.2021.vol8.no5.0201

9. Po dorozi: ukrainska transportno-lohistychna haluz prokhodyt shliakh vid stuporu na pochatku viyny do intehratsiyi u yevromerezhi. Available at: https://delo.ua/transport/po-dorozi-ukrayinska-transportno-logisticna-galuz-proxodit-slyax-vid-stuporu-na-pocatku-viini-do-integraciyi-u-jevromerezi-411142/

10. Levchenko, I., Britchenko, I. (2021). Estimation of state financial support for non-priority territorial units using the example of bridge construction. Eastern-European Journal of Enterprise Technologies, 1 (13 (109)), 26–34. https://doi.org/10.15587/1729-4061.2021.225524

11. Raczkowski, K., Schneider, F., Laroche, F. (Eds.) (2017). Report: The impact of road transport sector regulation on the entrepreneurship and economic growth in the European Union. Motor Transport Institute. Warsaw-Linz-Lyon. Available at: http://www.konradraczkowski.info/backstage/wp-content/uploads/2017/04/REPORT-ITS-Final-February-2017.pdf

12. Report on logistics in the EU and multimodal transport in the new TEN-T corridors. 2015/2348 (INI). European Parliament. Available at: https://www.europarl.europa.eu/doceo/document/A-8-2016-0384_EN.html

13. Sardak, S., Samoilenko, A. (2014). National Economies Intellectualization Evaluating in the World Economy. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3508400

14. Levchenko, I., Hradovych, N., Borkovska, V., Britchenko, I. (2022). Devising a procedure of state financial protectionism in the agricultural industry in the context of regionalization. Eastern-European Journal of Enterprise Technologies, 2 (13 (116)), 6–14. https://doi.org/10.15587/1729-4061.2022.255045

15. Backward Regions Grant Fund. Available at: https://www.indiastat.com/social-and-welfare-schemes-data/27/backward-classes-schemes/27905/backward-regions-grant-fund-brgf/411976/stats.aspx

16. Backward Region Grant Fund for all Arunachal districts. Available at: https://timesofindia.indiatimes.com/city/guwahati/Backward-Region-Grant-Fund-for-all-Arunachal-districts/articleshow/27236041.cms

17. Snieska, V., Zykiene, I. (2015). City Attractiveness for Investment: Characteristics and Underlying Factors. Procedia - Social and Behavioral Sciences, 213, 48–54. https://doi.org/10.1016/j.sbspro.2015.11.402

18. Muczy ski, A. (2020). Financial flow models in municipal housing stock management in Poland. Land Use Policy, 91, 104429. https://doi.org/10.1016/j.landusepol.2019.104429

19. Akbulaev, N., Aliyev, Y., Ahmadov, T. (2019). Research models for financing social business: theory and practice. Heliyon, 5 (5), e01599. https://doi.org/10.1016/j.heliyon.2019.e01599

20. Top-20 sektoriv ekonomiky, yaki naishvydshe zrostatymut nastupni 10 rokiv. Available at: https://minfin.com.ua/ua/invest/articles/top20-sektoriv-ekonomiki-yaki-nayshvidshe-zrostatimut-v-nastupni-10-rokiv/

21. Angelis-Dimakis, A., Dimaki, K. (2016). Identifying Clusters of Regions in the European South, based on their Economic, Social and Environmental Characteristics. REGION, 3 (2), 71. https://doi.org/10.18335/region.v3i2.81

22. Urbancikova, N., Burger, P. (2014). Financing Clusters from Public Funds in the European Countries. Journal of Applied Economic Sciences, 9 (1 (27)), 148–157. Available at: https://www.researchgate.net/publication/262791406_Financing_Clusters_from_Public_Funds_in_the_European_Countries

23. Vorkut, T., Volynets, L., Bilonog, O., Sopotsko, O., Levchenko, I. (2019). The model to optimize deliveries of perishable food products in supply chains. Eastern-European Journal of Enterprise Technologies, 5 (3 (101)), 43–50. https://doi.org/10.15587/1729-4061.2019.177903

24. Orlowski, L. T. (2012). Financial crisis and extreme market risks: Evidence from Europe. Review of Financial Economics, 21 (3), 120–130. https://doi.org/10.1016/j.rfe.2012.06.006

25. Metodyky otsiniuvannia roboty tsentralnykh i mistsevykh orhaniv vykonavchoi vlady shchodo zaluchennia investytsiy, zdiysnennia zakhodiv z polipshennia investytsiynoho klimatu u vidpovidnykh haluziakh ekonomiky ta v rozrizi rehioniv, reitynhovoi otsinky investytsiynoi pryvablyvosti haluzei, rehioniv ta subiektiv hospodariuvannia i vidpovidnoi formy zvitu. Nakaz ministerstva ekonomiky Ukrainy vid 17 lypnia 2006 r. No. 245. Available at: https://zakon.rada.gov.ua/laws/show/z0459-04#Text

26. Derzhavna sluzhba statystyky Ukrainy. Available at: https://www.ukrstat.gov.ua/

27. Kapitalni investytsiyi. Available at: https://ukrstat.gov.ua/operativ/operativ2020/ibd/kin/arh_kin_ed2020_u.htm

28. Atamas, O. (2023). Investment attractiveness of regions in Ukraine: problems, recommendations, prospects. Acta Academiae Beregsasiensis. Economics, 4, 29–36. https://doi.org/10.58423/2786-6742/2023-4-29-36

29. Official hrivnya exchange rates. Available at: https://bank.gov.ua/ua/markets/exchangerate-chart