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Better Located Municipalities: Comparing Frontier Communities in Brazil and Ukraine

Abstract

The *objective* of the present paper is twofold: firstly, to reveal the differences between the economic status of frontier and non-frontier communities; and secondly, to verify the assumption that border municipalities and provinces do have more opportunities and capacities for local development compared to remote and isolated areas. The related tasks are to study frontier communities considering their economic and social status, to compare key items of the budgets, and to differentiate the communities. *Methodology.* The study has drawn upon a sample of municipalities and provinces in Paraná state, Brazil, and communities (hromadas) in Lviv Oblast, Ukraine. A comprehensive comparison has been undertaken of key financial indicators of municipal budgets and local economies, including revenues, expenditures, funds, subsidies, transfers, taxes, and GDP per capita. The calculation of correlation coefficients was undertaken to facilitate the comparison of values for the border and non-border units. The study has also drawn upon a comprehensive database, which includes detailed profiles of the communities, municipalities and provinces included in the study. *Results.* The study revealed that border communities typically have superior economic status and greater opportunities for local development compared to non-border communities. This finding is subsequently corroborated by a comparison of key financial indicators on local budgets, GDP and taxes. In the Brazilian context, the frontier communities demonstrate higher GDP, revenues, and local budgets in comparison to the sample mean. In the Ukrainian context, the findings indicate that transit frontier communities exhibit higher levels of revenue, capital expenditure, and subsidisation in comparison to isolated frontier communities. Concurrently, in both instances, the disclosed relations are not sufficiently stringent, and certain remote and non-frontier communities exhibit superior economic status. While the geographical proximity of a community to its bordering location does contribute to its financial capacity, this influence is minimal. *Practical implications.* The development strategy for a community varies significantly depending on its economic status, financial capacities, and spatial location. The research results identify the key adjustments to the development strategy, thereby facilitating the formulation of local policy. While the study validates that frontier communities (hromadas) possess superior economic resources and capabilities, it does not elucidate the underlying motivations and interrelationships between community localisation and economic efficiency. The necessity to ascertain the dependency in question is best fulfilled by conducting in-depth interviews with representatives of local authorities and public administration personnel. *Value / Originality.* The research conclusion regarding the correlation between economic efficiency and financial capacity of frontier communities has been substantiated through comprehensive comparisons and an inter-cultural approach.

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Keywords

community, municipality, frontier area, spatial development, local economy

JEL: H72, R51, Z32



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1 Introduction

The development strategy of communities is subject to variation depending on economic, social status, and spatial location. It is evident that border and peripheral regions tend to be more economically prosperous. This is due to the fact that direct neighbourhoods adjacent to other countries and those in close proximity to oceans and seas have a considerable impact on local economies. The spatial neighborhood fosters favourable economic and social interrelations and interconnections between frontier communities of both or more countries. Proactive people usually take the opportunity to work abroad because of higher salaries and better jobs. In this way, migrant workers share in the prosperity of neighbouring countries and learn about the values of the other society. Remarkably, the pendulum migration increases impulsively despite the daily entry and exit, long distances and passport control procedures. On the other hand, this informal economic integration, accompanied by an obvious and specific cultural rapprochement, creates many problems and inconsistencies for the home countries and local authorities. Indeed, the worldwide cross-border mobility of people engenders complications for national authorities as well. While scholars have traditionally concentrated on the social and economic challenges associated with border regions, the potential of special administrative tools and policies to enhance the quality of life in frontier communities remains underestimated. In this regard, scholars have asserted that the oversight of the impact of geographical location on the economic capacity of communities can impede their future development.

Further research is required on frontier communities to support economic policy on transborder cooperation and regulations of illegal activities. The challenges posed by factors such as extensive employee outflow, constrained budgets, the diversity of stakeholders' interests, and the underestimation of communities' opportunities associated with their frontier location are addressed through comprehensive policy measures. The objective of the present study is twofold: firstly, to reveal any differences between the economic status of frontier and non-frontier municipalities; and secondly, to verify the conclusion that border communities do have more opportunities for local development compared to remote areas. The related tasks are to study frontier communities, reveal their economic and social status, compare key items of the budgets, and differentiate the communities. The second objective is to formulate recommendations for the policy on the development of frontier communities. To this end, a number of municipalities in Paraná state, Brazil, and communities (hromadas) in Lviv Oblast, Ukraine, have been selected for the study. Specifically, a comparative analysis of financial

indicators within local budgets has been undertaken to ascertain which locales offer more favourable conditions for frontier communities.

2 Theoretical Foundations and Research Methodology

The theoretical underpinnings of the research are chiefly rooted in the findings of scholars who specialise in the economic dimensions of local communities. In Ukraine, prominent scholars such as Gryshchenko and Gorbata have explored the economic and social resilience of communities (Gryshchenko, Gorbata, 2024), Bilotserkivska has investigated the establishment of a robust public environment for Ukraine's European Union integration (Bilotserkivska, 2023), and Kachan has proposed strategies to address the shortage of employees (Kachan, Koshil, 2023). Pak and others consider local budgets and conclude that attracting investments, supporting entrepreneurship, and improving logistics are key factors for communities to achieve prosperity and resilience (Pak, Gos, Yuskovets, 2024). Yarema and Zamora's contributions include the establishment of a comprehensive pattern of local budget administration, the enhancement of administrative staff skills, and the alignment of communities' expenditures with revenues (Yarema, Zamora, 2021). Ivanov develops the differential approach to the spatial development of municipalities and proposes tolls for the redistribution of subsidies (Ivanov, Ivanova, 2022). Furthermore, Ivasiuk (2024) explores the public administration framework for the communities of the Carpathian micro-region of Europe and verifies that financial tools can strengthen the financial capacity and support the development.

Poliakova (2021) assesses the financial capacity of communities and the distribution of their funds by indicators of total revenues and expenditures per inhabitant, administrative staff salaries, the ratio of salaries to a community's fund, the share of salaries in community expenditures, subsidies, the level of budget subsidisation, and capital expenditures per inhabitant. Karim and others selected analogous indicators for the analysis of village budgets (Karim, Ruslan, Burhanuddin, 2023). The scholars primarily conducted a comparative analysis of the values of locally generated revenues (comprising local taxes, regional retribution, regional wealth redistribution, and other local incomes) and transfer incomes (consisting of tax and non-tax revenue sharing funds, general and special allocation funds, transfers to regional and village funds, and other transfers by the national government). Chaidir (2022) utilised the established criteria for the comparative analysis of village funds and concluded that the limited number of village administrative personnel is a significant impediment to enhanced management. Hilmavan et al. (2023)

corroborated this finding by examining the modelling impact of village funds on rural development.

Zabel and Kwon evaluated programmes funding urban development in Germany, separating the observed areas by size, namely big, medium, and small cities, rural communities, big-city areas, and outside big-city areas (Zabel, Kwon, 2021). The scholars also observed that the financing programs are usually too complicated, and the administration staff is overloaded. As a result, municipalities still lack financial resources and have fewer opportunities to start the application process. The above-mentioned obstacles objectify the need to imperfect many steps of local budget compilation, and special attention must be paid to social equity budgeting in a spatial framework (McDonald, McCandless, 2025).

Brazilian scholars who explore local budgets pay more attention to their participatory component (Peres, 2020). The underlying belief is that the participatory municipal budgeting not only fosters enhanced democratic principles in public management, but also ensures greater alignment between local budgets and broader societal needs (Gonçalves, Duarte, Bernardes, 2023). This is particularly salient when considering the relative autonomy of Brazilian municipalities in terms of the redistribution of expenditures across various budget items (Marenco, Cate, 2021). A comparative analysis of Brazilian municipal budgets, as well as of Brazilian and Portuguese municipal budgets, reveals similar approaches to budgeting and ways to achieve the sustainability of public finances within Brazilian municipalities (Scalante, Nogueira, 2021).

The overview of key approaches to budgeting for local communities discloses the paucity of research on the differences for frontier and non-frontier communities. The objective of the research is to address this lacuna by undertaking a comparative analysis of general and special items of budgets, which have been compiled for border and inland communities. It is anticipated that the findings will contribute to the advancement of current local policies and approaches to budgeting, leading to the fostering of more sustainable and prosperous communities. A cross-cultural and comprehensive consideration of local communities (hromadas) in the Lviv Oblast of Ukraine and municipalities in the Paraná state of Brazil has been selected. The budget items to be compared throughout include total budgets, budgets per capita, revenues, expenditures, funds, subsidies, and transfers.

The database of the study comprises records of the National Statistics Agency of Ukraine, regional administrations, and official information portals such as profiles of communities and districts (Lviv region, 2025) for the Ukrainian case and profiles of municipalities (IPARDES, 2025) for the Brazilian case.

3 Brazilian Case: Frontier Municipalities of Paraná State

Paraná State constitutes one of 27 federative units of Brazil. It is located in the southern region of the country and is the fifth most populous state, with a population of 11.44 million inhabitants. The state's population density of 57.4 people per square kilometre places it as the twelfth most densely populated state in Brazil. The state is further subdivided into 399 municipalities. The most populous cities are Curitiba (the capital), Londrina, Maringá, Ponta Grossa, Cascavel, São José dos Pinhais and Foz do Iguaçu. In 2022, Paraná was the fourth richest state by GDP, with 614 611 000 billion reais (119 295 995 billion USD), representing 6.1% of the national GDP. In 2021, the United Nations Development Programme (UNDP) classified the Human Development Index (HDI) of Paraná as high, with an index score of 0.769, placing it seventh among all Brazilian states (IPARDES, 2025).

Research method and the sample

The comparative research method and the following economic and financial values per capita have been selected for the purpose of studying the economic efficiency of municipalities in Paraná state:

- The Municipal Participation Fund is comprised of financial transfers allocated to Brazilian municipalities. The Fund's financial resources are derived from revenues originating from income taxes and taxes on industrialised products. The Fund's financial resources are of paramount importance to municipal budgets, as they provide financing for essential services and investments that are vital to communities. The distribution of the Fund lump is based on federal taxes and is allocated proportionally to each municipality's share of the total revenue. Municipalities with larger populations and economic activity tend to receive a larger share of the Fund. The Fund is a significant source of revenue for municipalities; however, it is not adequate to fully meet all local demands and needs. While it is a reliable and regularly anticipated financial contribution to local budgets, it does not directly mirror a municipality's economic prosperity. This is because the Fund's allocation typically stems from the redistribution of federal revenues to the population and economic activity within the respective municipalities.
- Municipal Revenues, including: taxes levied on properties and economic activities, transfers from the state or federal government; revenues from supply of public services like water supply, public transportation, and so forth; contributions to municipalities like donations made by people or entities; fees charged by municipalities such as licensing fees, use of public spaces, and so on;

urban property and land tax; tax on services; and tax on the transfer of real estate.

- Municipal Expenditures for public services like: health (maintenance of health clinics, hospitals, purchase of medical equipment and medicines); education (maintenance of schools, purchase of teaching materials for public schools); infrastructure (construction of public roads, maintenance of basic sanitation), social services and programs; and administration (maintenance of places where public services are provided, payments of salaries for personnel).
- The Circulation of Goods and Services Tax is the largest source of revenue for the Brazilian states and represents transactions related to the circulation of goods, the provision of transport and communication services and imports. The tax rate usually varies between 17% and 19%, and 25% of the total tax revenue goes to municipal budgets.
- Gross Value Added is a metric used to measure the total value created by a municipality's companies. It is calculated by subtracting the expenditure for production from the prices of intermediate consumption.
- Value Added Tax, indicating the wealth generated by a municipality's companies and calculated based on the difference between the price of sold goods and services and expenditures for their production (Silva & Costa, 2022).

The municipalities and provinces of Foz do Iguacu, Cascavel, Londrina, Ponta Grossa, and Guaira constituted the sample for the study. The population size of Foz do Iguacu, Cascavel, Londrina, and Ponta Grossa was a defining factor in the selection of the sample, as these cities are the largest in the

state of Paraná, with a population of over 170,000 inhabitants in each. It is noteworthy that Foz do Iguacu and Guaira, while constituting part of the sample, are frontier municipalities, in contrast to the rest of the sample units, which are situated in remote locations.

Key findings

The obvious point is that revenues and expenditures are interdependent (correlation index is 0.986). Revenues and Municipal Participation Fund as well are interdependent (0.646). Circulation of goods and services tax is reversely interdependent with revenues and expenditures (-0.784 and -0.778 respectively). In the sample revenues per capita to Foz do Iguacu and Guaira municipal and province budgets are the highest, and it proves the hypothesis about the favorable position of bordering communities (Table 1).

The findings of this study are supported by the analysis of deviations of the sample's public finances values from the state's values, which verify the conclusion. The analysis reveals the highest GDP value for Foz do Iguacu municipality (26 112 BRL) and Guaira province (6 466 BRL). A similar observation can be made with regard to revenues: Foz do Iguacu and Guaira stand as the sole cities within the sample that have surpassed the mean revenue score of 141 BRL and 944 BRL, respectively, in municipal and provincial budgets. Furthermore, the Municipal Participation Fund is better balanced in border communities (see Table 2).

As would be anticipated, the values of gross value added (GVA) in trade and services and in public administration are inversely related (the correlation index is -0.823). A similar relationship is observed for the values of GVA in public administration

TABLE 1 Public finances per capita, R\$

City	Revenues (2023)	Expenditures (2023)	Circulation of goods and services tax (2023)	Municipal Participation Fund (2023)	GDP (2021)
Foz do Iguacu: municipality	6 435	6 125	824	403	73 534
province	6 887	6 522	788	656	64 839
Cascavel: municipality	5 545	5 309	2 506	331	46 976
province	6 248	5 947	1 742	908	50 609
Londrina: municipality	6 135	6 318	1 842	207	40 637
province	6 024	5 904	2 021	646	42 725
Ponta Grossa: municipality	3 871	3 955	3 691	321	54 317
province	4 893	4 864	2 845	708	51 390
Guaira: municipality	7 238	6 940	345	1 129	34 033
province	7 502	6 912	976	1 113	53 888
Paraná state	6 294	6 002	3 803	1 051	47 422

Source: author's compilation based on data (IPARDES, 2025)

TABLE 2 Deviations of the public finances' values per capita from Paraná state values, BRL

City	Revenues (2023)	Expenditures (2023)	Circulation of goods and services tax (2023)	Municipal Participation Fund (2023)	GDP (2021)
<i>Foz do Iguacu:</i>					
municipality	141	123	-2 979	-648	26 112
province	593	520	-3 015	-395	17 417
<i>Cascavel:</i>					
municipality	-749	-693	-1 297	-720	-446
province	-46	-55	-2 061	-143	3 187
<i>Londrina:</i>					
municipality	-159	316	-1 961	-844	-6 785
province	-270	-98	-1 782	-405	-4 697
<i>Ponta Grossa:</i>					
municipality	-2 423	-2 047	-112	-730	6 895
province	-1 401	-1 138	-958	-343	3 968
<i>Guaira:</i>					
municipality	944	938	-3 458	78	-13 389
province	1 208	910	-2 827	62	6 466

Source: author's compilation based on data (IPARDES, 2025)

and taxes (-0.818) and the values of GVA in public administration and value added tax (VAT) in trade and services (-0.614). The direct dependence of GVA and VAT is evident in the trade and services sector, with a correlation rate of 0.814 (see Table 3).

The analysis of production and tax values per capita reveals that the economic efficiency of frontier municipalities, such as Foz do Iguacu and Guaira, is comparatively inferior to that of non-frontier municipalities (see Table 4). For instance, the deviation of GVA in trade and services is -2,476 BRL in Foz do Iguacu and -3,051 BRL in Guaira. A comparison with the municipalities of Cascavel and Londrina reveals that the latter have significantly more

favourable positions, with scores of 3,685 BRL and 3,610 BRL respectively. This tendency is also evident in the values of taxes and VAT in trade and services. In contrast, GVA in public administration for frontier cities exhibits a marked increase relative to the state average of Paraná. The deviations from the mean values are -4,643 BRL and -4,937 BRL for Foz do Iguacu and Guaira, respectively, and 4,586 BRL for Cascavel.

The study provides partial verification for the hypothesis that frontier communities, defined as those located in close proximity to national borders, exhibit higher levels of economic efficiency and possess greater financial capacity. The evidence indicates

TABLE 3 Production and taxes per capita, BRL

City	Gross value added in basic prices in trade and services (2021)	Gross value added in basic prices in general government (2021)	Taxes (2021)	Value added tax (2022)	Value added tax on trade and services (2022)
<i>Foz do Iguacu:</i>					
municipality	17 083	5 346	3 323	38 872	10 161
province	16 812	5 383	3 781	44 499	10 820
<i>Cascavel:</i>					
municipality	23 244	4 668	6 363	35 600	19 390
province	20 151	4 970	5 710	47 842	16 182
<i>Londrina:</i>					
municipality	23 169	5 051	5 467	25 561	17 309
province	20 744	5 141	5 710	38 590	19 932
<i>Ponta Grossa:</i>					
municipality	21 467	4 703	9 056	42 435	12 818
province	18 292	5 038	7 606	56 702	14 435
<i>Guaira:</i>					
municipality	16 508	5 490	3 412	23 674	9 867
province	19 474	5 167	5 507	71 020	13 417
<i>Paraná State</i>	19 559	5 153	6 587	44 944	14 804

Source: author's compilation based on data (IPARDES, 2025)

TABLE 4 Deviations of the production and tax values per capita from Paraná state values, BRL

City	Gross value added in basic prices in trade and services (2021)	Gross value added in basic prices in general government (2021)	Taxes (2021)	Value added tax (2022)	Value added tax on trade and services (2022)
Foz do Iguacu: municipality	-2 476	193	-3 264	-6 072	-4 643
province	-2 747	230	-2 806	-445	-3 984
Cascavel: municipality	3 685	-485	-224	-9 344	4 586
province	592	-183	-877	2 898	1 378
Londrina: municipality	3 610	-102	-1 120	-19 383	2 505
province	1 185	-12	-877	-6 354	5 128
Ponta Grossa: municipality	1 908	-450	2 469	-2 509	-1 986
province	-1 267	-115	1 019	11 758	-369
Guaira: municipality	-3 051	337	-3 175	-21 270	-4 937
province	-85	14	-1 080	26 076	-1 387

Source: author's compilation based on data (IPARDES, 2025)

that the frontier Foz do Iguacu and Guaira municipal and province budgets are significantly higher in the sample. The GDP values for Foz do Iguacu municipality and Guaira province are also the highest in the sample, and the revenues in the municipal budgets of the frontier cities exceed the mean average. Furthermore, the Municipal Participation Funds of the border communities are better balanced. Conversely, analysis of production and tax values indicates that the economic efficiency of Foz do Iguacu and Guaira is comparatively inferior to that of non-frontier municipalities. This is particularly evident in the context of all taxes and VAT on trade and services. Consequently, GVA in the public administration of the frontier cities is much higher compared to the average score of Paraná state.

4 Ukrainian Case: Lviv Oblast
on the Ukrainian-Polish Border

The national strategy for regional development presents border communities as areas where different cultures merge and long-term transnational economic and social interactions take place. Border areas are highly dependent on ongoing political events, and the war in Ukraine objectifies studies of border regions and communities as they are most sensitive to external influences. The state border between Ukraine and the Republic of Poland extends for a total of 535 kilometres. The border oblasts of Ukraine are Volyn, Zakarpattia and Lviv. Volyn is home to two border communities (hromadas), Zakarpattia has one, and Lviv Oblast has 12. Within the jurisdiction of Lviv Oblast, a mere six out of the twelve designated border communities are

equipped with customs facilities and border crossing points (see Table 5).

The inhabitants have been shown to fully perceive the advantages of resettlement in border communities. Specifically, these communities offer employment opportunities and the potential to purchase goods from abroad. Concurrently, these communities experience diminished economic prospects. The outflow of labour, with the majority of employees working abroad, has a considerable impact on the financial capacity of these communities, given that the principal revenues of local budgets are personal income taxes. The local labour market supply exacerbates the situation, given that the border regions of Ukraine, as well as those of other EU Member States, exhibit significantly inferior social indicators and economic investment. Border areas are confronted with the challenge of competing with European goods and services, economic disadvantage, and suboptimal management. Local budgets are characterised by a higher subsidisation rate, greater dependence on transfers, lower revenues, and an excessive share of management costs (Ilina, Shpyliova, 2024).

Research methods and the data

The aim of the research is to verify that the opportunities of a border community depend to a large extent on its location, i.e., whether or not there is an international customs and border control checkpoint on its territory. It is hypothesised that the location of a border crossing point favours the economic life, financial capacity and overall development of a border community. The border communities were divided into transit (through or with customs and border control checkpoints) and isolated (remote, peripheral or without checkpoints).

TABLE 5 Border communities (hromadas) of Lviv Oblast of Ukraine in 2022

Community (hromada)	Area, sq.km	Population, inhabitants			Number of settlements, units	Border crossing points, units
		total	urban	rural		
Belzka	465	14 466	3 130	11 336	24	-
Borynska	638	23 141	1 375	21 766	33	-
Dobromylska	294	19 618	5 836	13 782	37	1
Mostyska	437	31 700	9 103	22 597	63	-
Rava-Ruska	319	25 536	8 494	17 042	46	3
Sokalska	677	51 397	23 985	27 412	60	1
Starosambirska	336	20 931	7 514	13 417	26	-
Strilkivska	320	14 202	-	14 202	21	-
Turkivska	399	22 328	6 925	15 403	25	-
Khyrivska	218	15 067	4 104	10 963	25	2
Shehynivska	265	10 649	-	10 649	30	1
Yavorivska	835	51 698	15 892	35 806	82	2

Source: author's compilation based on data (Lviv region, 2025)

Presumably, transit communities would have better economic and financial indicators because of the habitual movement of residents through the area, the operation of customs centres and the congestion of roads. Conversely, the absence of the checkpoints would mean that a community could be depressed because there is little movement of people, goods and services. Isolated communities become impoverished and the only drivers of economic life are the residents. Several per capita economic and financial indicators were selected to compare transit and isolated border communities. These are total budget expenditure, budget grants, earned income, capital expenditure and its share, and salaries of administrative staff and its share.

Key findings

The study confirms a certain correlation between the financial capacity of municipalities and their localisation status. For example, the transit municipalities of Yavorivska and Shehynivska have the highest expenditures (29 800 UAH and 14 700 UAH, respectively). These two municipalities

also have much better figures for earned income, capital expenditure, the share of salaries paid to administrative staff and the level of subsidisation. Conversely, the isolated municipality of Strilkivska has the worst indicators for budget subsidies and earned revenues – 62% and 2074 UAH per capita, respectively. As illustrated in Table 6, the EPC abbreviation denotes a community's total expenditures per capita. The SL acronym, meanwhile, indicates the level of a budget's subsidisation. The ERPC symbolises a community's earned revenues per capita, while the CEPC represents capital expenditures per capita. The SCETE symbolises the share of capital expenditures in total expenditures, and the SPSTE denotes the share of administrative staff salaries in total expenditures. The EPPC symbolises expenditures for personnel per capita, and the SEPTF indicates the share of expenditures for personnel in total tax and fee revenues.

It is noteworthy that the prescribed correlation is not strict enough. The transit Khyrivska community has the smallest share of expenditures for personnel in total expenditures (75%), with a total expenditure

TABLE 6 Local budgets of border communities (hromadas) of Lviv Oblast in Dec 2023

Community (hromada)	EPC (UAH)	SL (%)	ERPC (UAH)	CEPC (UAH)	SCETE (%)	SPSTE (%)	EPPC (UAH)	SEPTF (%)
Belzka	10 322	14.7	5 864	1 845	17.9	61.6	1 156	20.5
Borynska	9 627	42.3	3 170	1 392	14.5	68.7	1 170	43.8
Dobromylska	7 925	49.6	2 832	965	12.2	64.3	776	29.2
Mostyska	11 436	23.5	5 546	1 244	10.9	62.3	1 108	21.7
Rava-Ruska	11 058	22.2	5 974	687	6.2	68.2	1 052	21.0
Sokalska	9 893	12.1	5 873	582	5.9	62.4	4 258	10.8
Starosambirska	11 811	22.9	5 922	1 814	15.4	63.0	1 361	23.6
Strilkivska	9 148	62.1	2 074	1 282	14.0	65.7	1 013	36.0
Turkivska	12 717	33.1	4 301	1 652	13.0	58.8	1 059	28.3
Khyrivska	9 365	47.2	2 980	681	7.3	74.8	1 107	38.5
Shehynivska	14 706	6.9	13 742	2 741	18.6	54.5	2 006	15.6
Yavorivska	29 839	-29.2	23 383	13 745	46.1	23.3	1 045	5.0

Source: author's compilation based on data (Lviv region, 2025)

of 9,365 UAH and 2,980 UAH of the earned revenues per capita. The subsidization level is also high (47%). However, a comparison of the average values of the aforementioned financial indicators for the isolated and transit communities does support the hypothesis. As demonstrated in Table 7, for transit and isolated communities, the group average values of local budgets' total expenditures deviate from the overall average value by 12%, of earned revenues by 34%, of capital expenditures by 36%, and of expenditures for personnel by 20%.

Given that the indicators per capita have been selected for analysis, it can be concluded that the average values are less representative than ordinal. Consequently, the rankings of border communities have been determined based on the indicators of local budgets. The ranks of each community have been estimated, and the aggregated scores have been calculated, where the minimum scores are 10 points (meaning the best position of a community) and the maximum scores are 80 points (the worst position). The indicator of capital expenditures is ambiguous,

and it was excluded from the final estimation phase. However, the final estimation range remains unchanged, with the highest rank of the community being 10 points and the lowest being 80 points for every indicator (see Table 8).

The following formula has been applied for that:

$$\frac{x - x_a}{x_b - x_a} = \frac{y - y_a}{y_b - y_a} .$$

(1)

Using the factual data with the equation (1), where $x_a=8$, $y_a=10$, $x_b=49$, $y_b=80$, one gets the equation (2) of the line with an angle coefficient:

$$y = (1,7x - 3,66) .$$

(2)

The findings of the present study demonstrate that, whilst the location of a community does contribute to its financial capacity, this is only to a minor extent. The exclusion of certain financial indicators, such as capital expenditures per capita and the share of capital expenditures in total expenditures, serves to strengthen the validity of the hypothesis.

TABLE 7 Average values of local budget indicators for border communities (hromadas) of Lviv Oblast

Indicators	Isolated communities	Transit communities	Border communities in total	Deviation from the total mean
Total expenditures per capita (UAH)	10 844	1 3797	12 320	1477
Subsidisation level (%)	33.1	18,1	25,6	8
Earned revenues per capita (UAH)	4 480	9 131	6 805	2326
Capital expenditures per capita (UAH)	1 538	3 234	2 386	848
Share of capital expenditures in total expenditures (%)	14.3	16.1	15.2	0.9
Share of personnel salaries in total expenditures (%)	63.3	57.9	60.6	3
Expenditures for personnel per capita (UAH)	1 144	1 707	1 426	281
Share of expenditures for personnel in total sum of taxes and fees (%)	29	20.02	24.51	4

Source: author's compilation based on data (Lviv region, 2025)

TABLE 8 Ranking of the border communities (hromadas) of Lviv Oblast according to the local budgets' indicators

	Including capital expenditures			Excluding the expenditures		
	Community	Rank	Community's type	Community	Rank	Community's type
1	Yavorivska	10	Transit	Yavorivska	10	Transit
2	Shehynivska	26	Transit	Shegynivska	30	Transit
3	Belzka	39	Isolated	Turkivska	44	Isolated
4	Starosambirska	46	Isolated	Rava-Ruska	46	Transit
5	Turkivska	47	Isolated	Belzka	48	Isolated
6	Rava-Ruska	54	Transit	Mostyska	51	Isolated
7	Mostyska	54	Isolated	Starosamburska	51	Isolated
8	Sokalska	60	Transit	Sokalska	56	Transit
9	Dobromylska	69	Transit	Dobromylska	71	Transit
10	Strilkivska	69	Isolated	Strilkivska	77	Isolated
11	Borynska	70	Isolated	Borynska	78	Isolated
12	Khyrivska	80	Transit	Khyrivska	80	Transit

Source: author's compilation based on data (Lviv region, 2025)

5 Conclusions

The study revealed the prior hypothesis that border communities tend to be more prosperous, since the neighbourhood with other countries gains considerable benefits for local economies. The study did not seek to provide an explanation for the relationship between economic efficiency and financial capacities on the one hand, and the advantageous location of frontier communities on the other. The wide range of suggestions provided indicates that people in border communities have extra opportunities for working abroad, which in turn can result in higher salaries and better occupations. Conversely, border communities frequently encounter a significant outflow of employees, constrained budgets, illegal activities, and a plethora of uncertainties and threats. The external employment of these individuals typically results in diminished economic prospects for the home communities, as it leads to a diminution in the revenues of major municipalities, such as personal income taxes. Consequently, local budgets may exhibit a higher rate of subsidisation, greater reliance on transfers, and a greater proportion of expenditures allocated to administration.

Notwithstanding the aforementioned precautions, the study corroborates the hypothesis that frontier communities have superior economic status and more opportunities for local development in comparison to non-frontier units, particularly with regard to key financial indicators, local budgets, and production and tax values. The selection of frontier and non-frontier local communities in the Lviv Oblast of Ukraine and municipalities in the Paraná state of Brazil was undertaken to facilitate a comparative analysis of total budgets, budgets per capita, revenues, expenditures, funds, subsidies, transfers, GDP and taxes. This analysis was conducted to verify the conclusion that different communities possess disparate economic status, efficiency and capacities for development and well-being.

For the Brazilian case, the study partially confirms the hypothesis of the more favourable position of the border municipalities – Foz do Iguacu and Guaira – which are more economically efficient and have surplus financial capacity for local development. In particular, the municipal and provincial budgets of the border municipalities of Foz do Iguacu and Guaira are much higher in the sample of six units. The GDP values of the municipality of Foz do Iguacu

and the province of Guaira are also the highest in the sample, and the revenues of the municipal budgets of the border cities are above average. Concurrently, border municipalities demonstrate comparatively diminished economic efficiency, as evidenced by their lower production and tax values. This is further compounded by the significantly lower levels of taxation and VAT in trade and services. Consequently, expenditures for public administration in frontier cities exceed the average expenditures in Paraná state.

For the Ukrainian case, the border municipalities were differentiated as transit or isolated units. The comparative analysis of local budget expenditures, subsidies, revenues and salaries of administrative staff confirmed some correlation between the financial capacity of municipalities and their localisation status. For example, transit municipalities have the highest expenditures, and they also have better figures for revenues, capital expenditures, the share of administrative staff salaries, and the level of subsidies. Conversely, some of the isolated municipalities have the worst indicators for budget subsidies and revenues. At the same time, the correlation described is not strict enough, and some transit municipalities have the lowest expenditure and revenue per capita.

The comprehensive approach to the study provides further evidence to support the hypothesis. For the group of transit communities, the mean value of local budget expenditure deviates by 12% compared to the group of isolated communities, and by 34% and 36% for revenue and expenditure on personnel, respectively. The aggregation of communities according to their local budget indicators reveals that the transit location of a community contributes to its financial capacity, albeit to a minor extent. The exclusion of certain financial indicators, such as capital expenditures per capita and the share of capital expenditures in total expenditures, serves to enhance the validity of the hypothesis.

Whilst the study validates the hypothesis that frontier communities have superior economic positions and capacities, it does not provide an explanation for the underlying incentives and the relationship between the communities' localisation and economic efficiency. Undoubtedly, further research is required to ascertain the dependence, and in-depth interviews appear to be a more efficacious research technique to achieve this objective.

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