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## **COMPARISON OF THE ECONOMIC RESULTS AND OWNERSHIP STRUCTURES OF REGIONAL AIRPORTS IN CENTRAL EUROPEAN COUNTRIES (V4)**

**Summary.** Airports were originally built as publicly owned organizations, and their main role was to provide services in the public interest. Over the years, the traditional ownership structure began to change and new models of ownership began to emerge. The main aim of the present work is to compare the relationship between the economic results of the regional airports in selected central European countries focused on the Visegrad Group (V4) and their ownership structure to determine whether changes in ownership structures have significantly benefited some airports. The issue of changes in ownership structures has also affected regional airports in recent years because their economic situation is complex due to ineffectiveness. Recently state governments have begun changing their state politics; development strategies and the results of this research can help them to prepare a new approach for this purpose.

### **1. INTRODUCTION**

Regional airports have been causing problems for their owners for more than twenty years. These are persistent issues stemming from high fixed operating costs and low revenues. The operation of a regional airport is investment-intensive, and if a business in any area does not bring the required profit in the long term, the company is likely to go bankrupt. Connecting the issue with regional airports reveals that the owners of regional airports have been facing the serious issue of maintaining this type of airport.

In practice, the owners of regional airports are either states, self-governing regions, or cities. Some regional airports that have gone through the privatization process and welcomed private shareholders into the ownership structure have an advantage. It is known that such regional airports generally manage their operations better than other airports, especially in terms of funding. In this way, it can be said that the financing of a regional airport by a private entity is advantageous.

However, in the case of the regional airport, the situation did not change even after the European Union approved a new regulation in 2017, which included several categories of state aid. These funds were intended to help regional airports prosper, but this EU initiative has not had the desired effect, as regional airports faced financial problems again. Some industry experts have even claimed that the sustainability of these airports will not be possible in the long term and that many of them will be closed in the future.

From our point of view, the closure of regional airports is a radical step, so it is necessary to pay more attention to this issue and examine the problem from many points of view. Based on our

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previous research, we have found that there is no study so far that has examined the comprehensive ownership structures of regional airports in connection with their achieved economic results in Visegrad Group (V4) countries (i.e., Czechia, the Slovak Republic, Hungary, and Poland). These countries aim to cooperate with each other in various aspects of interest but also to cooperate with all other countries.

In this paper, we are focused on regional airports in the countries that comprise the V4. We examine their ownership structures and, especially, their impact on the economic performance of regional airports over time. The results can help state governments prepare for and apply the new approach for developing these airports.

## 2. LITERATURE REVIEW

Many experts have dealt with the issue of airport ownership. However, most studies do not examine airport ownership and its structure, even though there is always a connection between ownership issues and other factors. For example, the ownership structure of an airport affects airport efficiency, prices, capacity, and economic performance. Based on the findings of this research, the most optimal ownership structure is determined. One of the most recent research works, conducted in 2021, showed how airport ownership structure influences airport prices and capacities. According to the results of Basso (2021), privately owned airports are too small, especially in terms of their operation and capacity. In airports that are to be privatized, it is important to make changes to the entire airport system. If this is not done, the situation of the airport is likely to worsen [1].

Kutlu and McCarthy (2016) focused on the ownership structures of airports located in the public sector, connecting airport ownership with efficiency. Based on the findings, it can be concluded that the form of ownership is significant in terms of cost-effectiveness [2]. Budd and Ison (2020) showed that the trend of the full ownership of airports in the private sector has changed. There has also been a change in that local authorities have started to cooperate more intensely with private investors to invest in airports together [3]. Fasone et al. (2014) focused on Italian airports and confirmed that privately owned airports outperformed publicly owned airports in terms of financial indicators related to operating revenues [4]. This conclusion was also confirmed by Ballart and Güell (2015) among Spanish airports, where the government decided to retain public control over the airports.

Public ownership of airports has been assessed as obsolete, and there is a need to change it [5]. This fact was refuted by Aulich and Hughes (2013), who focused on the performance of Australian airports after their privatization. Based on the results, private airports were assessed as risky. The combination of public-private ownership seems to be less risky and to enhance airport performance [6]. A similar idea was presented by Vasigh et al. (2014), who declared that the involvement of the private sector in airport ownership structure does not always bring positive economic results.

Thus, it can be said that, when determining which type of airport ownership is best, several factors must be considered. Privatization is not a panacea for airports that are currently operating at a loss. The transfer of ownership from public to private may not guarantee higher airport productivity and efficiency [7]. The public ownership of airports has also been successfully presented in other cases. Segri et al. (2020) highlighted that the public airport shareholder system in Italy has become crucial to increasing the efficiency of small airports [8]. The impact of ownership on airport efficiency was confirmed by Gitto and Mancuso (2012), according to whom the main sources of airport efficiency can be obtained from the airports' main activities and the inflow of private capital through company ownership (concession agreements) [9].

Oum et al. (2008) had a similar idea and aim of examining the impact of ownership on airport efficiency. They did not recommend public ownership of airports and proposed transferring most of the ownership to the private sector. It is also important to avoid the combined ownership of airports with majority public ownership, as the efficiency of airports can only be promoted through privatization [10]. Benny (2012) studied two airports separately in terms of their public ownership and possible privatization. The results showed that public ownership does not always have a positive effect on prosperity and that the best option is privatizing airports [11]. Adler and Liebert (2014) confirmed

that private, regulated airports are more efficient under monopoly conditions, while completely publicly owned and private-owned airports operate equally efficiently in the context of regional competition [12].

The issue of airport ownership in Europe is also addressed by ACI EUROPE. According to Sadler (2016), the number of private investors interested in European airports is growing every year. This change is attributed to thoughtful political decisions, limited state budgets, and the need to support connectivity by investing in airport infrastructure development. The results of Sadler's survey showed that 41% of European airports have a private shareholder, compared to only 22% in 2010. Approximately 79 airports are wholly privately owned, while 126 airports have combined ownership (public-private partnership) [13].

Heymann and Karollus (2015) studied regional airports in Germany from various aspects (political and economic pressure). According to the results, these regional airports showed operating losses during the reviewed period. In this context, regional airports are a burden for public authorities because almost all regional airports are owned by Lander or municipalities. The German government has tried to involve private investors, but most of these attempts have been unsuccessful in the long term, precisely because private owners have resigned (e.g., Fraport AG sold its shares in Hahn airport in 2009 to the federal state of Rhineland-Palatinate). There is no expectation that the airport ownership structure will change [14].

In the case of regional airports in Norway, Mathisen, and Solvoll (2012) showed that the publicly owned company Avinor owns and operates a total of 46 airports throughout Norway. In addition, there are six privately owned airports with commercial transport. In recent years, the operating costs of regional airports in Norway have increased significantly, mainly due to investments in security and safety. From another point of view, airports are facing the departure of passengers to larger airports that offer lower ticket prices and better connections. The financial problems of airports led the authors to question their preservation. According to the results, closing most non-profit airports in Norway, together with investments in existing airports and the construction of new ones, would partially solve several problems, thus reducing Avinor's operating costs. On the other hand, it is important to realize that reducing the number of airports may weaken parts of the existing hub and spoke system [15].

Finally, Novák Sedláčková et al. (2019) reported that the public ownership of regional airports dominates the Slovak Republic; the only partially successful privatized airport was Košice Airport. The airport M.R. Štefánik in Bratislava, which is considered to be the largest international airport in the Slovak Republic, has experienced unsuccessful privatization [16].

### 3. METHODOLOGY

Based on the literature review, it can be concluded that most of the published scientific papers or studies have focused on airport ownership structures in general, while no one study has focused especially on the regional airports of the V4 states, which have similar political histories and social and economic backgrounds. It is useful to compare the approaches of these states and evaluate their differences, especially in the context of the creation of state governments' strategies for the policy for air transport, especially airports. This issue is indeed wide-ranging, especially in view of the various existing combinations of airport ownership. Therefore, it is necessary to focus on a narrower sample represented by regional airports in this case. As a criterion for the selection of a sample of regional airports, we have chosen the passenger border, which is based on Commission Regulation (EU) 2017/1084 of 14 June 2017 amending Regulation (EU) No. 651/2014 as it regards aid for port and airport infrastructure. Under this regulation, a regional airport is defined as "an airport with an average annual capacity of up to 3 million passengers" [17]. Regional airports in the countries of the V4 were attractive to us in the sample of selection because few studies have dealt with the regional airport ownership structures in these countries.

A limiting factor in the selection of regional airports was the availability of data. In the case of the Slovak Republic, six regional airports were selected, which are part of the strategic development plan within the national policy of the Slovak Republic: M. R. Štefánik in Bratislava, Košice Airport,

Poprad Airport, Sliač Airport, Piešťany Airport, and Žilina Airport. In Czechia, four regional international airports were selected: Brno Airport, Leoš Janáček Airport Ostrava, Pardubice Airport, and Karlovy Vary Airport. The following airports in Poland were selected: Łódź Airport, Bydgoszcz Ignacy Jan Paderewski Airport, Szczecin-Goleniów Airport, Zielona Góra Airport, and Poznań-Lawica Airport. Finally, in Hungary, Debrecen International Airport, Győr-Pér International Airport, Hévíz-Balaton Airport, and Pécs-Pogány Airport were selected.

The methodology consisted of several phases. In the first phase, it was necessary to collect all the necessary data, and different combinations of sources were used. For regional airports in the Slovak Republic, we used data from the FinStat database, focusing on profit and loss statements. As part of the acquisition of information about ownership structure, a publicly accessible business register of legal entities in the Slovak Republic was used. For regional airports in Czechia, Poland, and Hungary, we searched for the annual reports of the regional airports and relevant financial statements, which provided us with input data. Any data that are not listed in the tables were not available. We directly contacted the relevant regional airport management to obtain the missing data, but we did not receive an answer. Data related to the number of handled passengers, operating revenues and operating costs, cost-efficiency indicators, and ownership structure were significant for the present analysis. The number of handled passengers is an important indicator that shows whether an airport can be defined as a regional airport according to Commission Regulation (EU) 2017/1084.

After that, we calculated the differences in operating revenues and operating costs to verify the profitability of regional airports. We also calculated the cost-effectiveness indicator. The cost-effectiveness indicator represents the cost (in euro cents) per 1 euro (€) of sales. It indicates the financial health of company. In this way, this indicator makes it possible to see whether a company has the right system of financing and investing in place (with lower percentages being more favorable). The last types of data we looked for were ownership structure and percentages of shares. Regarding the extensive amount of data on revenues and costs of the entire sample of regional airports, Tabs. 1–4 show the economic results, the cost-effectiveness indicator, the number of carried passengers, and the ownership structure.

In the second phase, we compared the situation of regional airports in terms of the economic results achieved during the reviewed period (2016–2019) and ownership structure. One of the basic objectives of this paper is to examine whether ownership structure has an impact on an airport's economic performance. Another objective is to verify whether regional airports that have combined ownership (public-private ownership) achieve better economic results than publicly owned regional airports. In the end, we provide recommendations for the strategic state development of policies for airports and for optimizing airports, which is important, especially in the Slovak Republic, where airports became part of the Government Statement Program in April 2022.

#### 4. RESULTS AND DISCUSSION

Based on the determined approach (see Section 3), the following results were obtained (presented in Tabs. 1-4). Tab. 1 shows the regional airports in the Slovak Republic and their achieved economic results, cost-effectiveness indicator, ownership structure, and number of passengers handled for better interpretation. In the case of regional airports in the Slovak Republic, positive results are visible at Košice Airport, and the cost-effectiveness indicator is at the level of 77%. In the reviewed period, this airport generated increasing profits. In our opinion, this economic result is influenced by the ownership structure, as 34% of the shares are owned by the Ministry of Transport of the Slovak Republic, and 66% of the shares are owned by a private consortium of foreign shareholders of KSC Holding. Another regional airport that partially generates profits is Sliač Airport. This airport is used for civilian operations as well as military operations, which significantly affects its economic results. This airport is owned by the Ministry of Defence of the Slovak Republic, which fully finances operations and investments. In 2020, the airport announced the cancellation of civilian operations due to extensive reconstruction. After the reconstruction, the airport would serve only the Slovak army. However, in January 2021, the Slovak government announced that after the reconstruction, the civilian

operation of this airport would be resumed, and the airport would also receive a subsidy of 800,000 euros. Other Slovak airports have generated losses, and their cost-effectiveness indicators are around 100%, though Piešťany Airport had a cost-effectiveness ratio of 225.4% in 2016, which we can declare as the year of the worst investments. Efforts to privatize the M. R. Štefánik Airport in Bratislava, which is the main international airport in the Slovak Republic, were very strong. However, privatization is a very complex process in this case. The Government of the Slovak Republic has been dealing with this issue for several years.

The regional airport in Žilina changed ownership in 2020. The Žilina self-governing region became the majority owner of the airport (65.99%), and the remaining shares (34.01%) belong to the Ministry of Transport and Construction of the Slovak Republic. Despite this fact, the situation of this regional airport is negative. This airport has not operated any scheduled flights for many years, and it has long-term existential problems. However, it recently presented a new development plan for scheduled flights. The airport could start operating once COVID 19 safety measures are lifted.

Piešťany Airport also achieved negative results throughout the reviewed period. However, the results are significantly affected by the fact that the airport was without regular flights from 2016–2019. The airport also had financial difficulties and many debts. The airport's management team considered closing it and prepared to liquidate the company, though this did not happen.

Table 1  
Economic results and ownership structures of regional airports in the Slovak Republic (later denoted as SR) (Source: finstat.sk, orsr.sk, annual reports [18])

Slovak Republic						
Airport	Reviewed period	Economic result (in €)	Number of handled PAX	(Total cost/total revenues) *100	Public ownership	Private ownership
Bratislava Airport	2019	-3.682.000	2.290.242	111.8%	100% SR	x
	2018	-1.165.000	2.292.712	103.6%		
	2017	-3.972.000	1.942.069	113.9%		
	2016	-8.325.000	1.756.808	133.5%		
Košice Airport	2019	3.365.892	558.064	76.0%	34% SR	66% KSC Holding
	2018	3.277.429	542.026	75.4%		
	2017	2.356.012	496.708	79.3%		
	2016	1.918.892	436.696	79.0%		
Poprad Airport	2019	-297.338	94.249	110.7%	97,61% SR, 1.67% City of Poprad, 0.72% City of High Tatras	x
	2018	-221.400	88.387	107.9%		
	2017	-216.300	80.140	108.6%		
	2016	-520.100	84.030	122.9%		
Sliač Airport	2019	-178.162	40.624	108.0%	100% SR	x
	2018	27.173	41.866	98.8%		
	2017	107.336	34.827	95.6%		
	2016	-89.408	22.511	104.2%		
Piešťany Airport	2019	-237.834	10.498	116.8%	20.65% SR, 59.31% Trnava Region, 20.04% City of Piešťany	x
	2018	-343.372	768	138.7%		
	2017	-321.213	1.294	148.7%		
	2016	-630.125	912	225.4%		
Žilina Airport	2019	-95.556	349	114.2%	34.01% SR, 65.99% Žilina Region	x
	2018	-44.615	523	105.5%		
	2017	-144.171	421	120.2%		
	2016	-137.190	286	119.4%		

Tab. 2 shows data for the regional airports in Czechia that were examined. Their economic results, cost-effectiveness indicator, number of handled passengers, and ownership structure are presented. The situation of regional airports in Czechia is very similar to the situation in the Slovak Republic. All regional airports are under public ownership, where the owner is a self-governing region or city. In terms of economic results, regional airports generated losses throughout the reviewed period. There is only one airport that seems to be making a profit: Brno Airport. This positive result may be influenced by the ownership structure that the airport currently has. It is publicly owned, but it is unique in that there is a long-term lease and operation agreement with a private company called Accolade Group. This airport generates a profit with a cost-effectiveness ratio of 92%, which is positive for the airport. Other regional airports have cost-effectiveness indicator values of around 120%.

Table 2

Economic results and ownership structures of selected regional airports in Czechia (later denoted as CR) (Source: annual reports, justice.cz [19])

Czechia						
100 CZK = 3.89 EUR						
Airport	Reviewed period	Economic result (in CZK)	Number of handled PAX	(Total cost/total revenues) *100	Public ownership	Private ownership
Brno Airport	2019	-	543.633	-	100% South Moravian Region	Accolade Group (lease and operation agreement)
	2018	-	500.727	-		
	2017	-	470.285	-		
	2016	13.581.000	417.725	92.7%		
Ostrava Airport	2019	-4.943.000	323.320	101.7%	100% Moravian-Silesian Region	x
	2018	-8.182.000	377.936	103.0%		
	2017	-15.236.000	324.116	106.3%		
	2016	-88.739.000	258.223	140.0%		
Pardubice Airport	2019	-34.344.000	102.206	151.7%	66% city of Pardubice, 34% Pardubice Region	x
	2018	-15.911.000	147.064	116.1%		
	2017	-5.220.000	88.490	107.1%		
	2016	-10.668.000	31.174	122.1%		
Karlovy Vary Airport	2019	-17.856.800	62.434	154.7%	100% Karlovy Vary Region	x
	2018	-9.130.600	45.003	121.1%		
	2017	-15.367.800	21.404	152.0%		
	2016	-14.934.500	25.235	148.5%		

(-) – Unpublished data

Tab. 3 identifies the achieved economic results, cost-effectiveness indicators, numbers of handled passengers, and ownership structures of regional airports in Hungary. These regional airports achieve positive economic results. Three of the four regional airports mentioned are profitable and have a balanced economy. The public ownership of regional airports dominates, but in one case, there is public-private ownership, where a private company also has some percentage. Debrecen Airport is the only one that generated a loss during the monitored period. The owner of this airport was the Debrecen Property Management Company (25.02%), the city of Debrecen (49.96%) and the Holding of smaller companies owned by City of Debrecen named “Debrecini Holding”, which were together declared as Airport Debrecen Holding. In January 2022 the Hungary’s state acquired 51% share of the airport company operator. This airport was also supported by a direct grant from the EU in 2017. However, the situation is not good because there is an expectation of negative developments in the coming years.

Gyor-Pér Airport achieved positive economic results, which are mainly influenced by the airport’s advantageous geographical location but also by its ownership structure. The airport is under public-private ownership, in which the Hungarian state (12%), the city of Győr (40%), and Audi Hungaria

(48%) participate. Audi Hungaria has fully supported the development and construction of this airport since 2002.

Hevíz-Balaton Airport generated a profit throughout the reviewed period. The owner of the airport is the city of Hevíz. Pécs-Pogány Airport is also under public ownership. It made a profit during the first three years of the study period, but the year 2019 was critical because it created a loss. In this case, the public ownership of regional airports appears to be successful in Hungary, especially in the case of Hevíz-Balaton and Pécs-Pogány. These two airports show that public ownership of airports should not be criticized and that privatization may not always be desirable. In this case, the public sector, within the management and operation of these airports, confirms that these airports have a well-established business model, and the prosperity of the region and passenger satisfaction are priorities for owners. The positive economic results and successful business practices are beneficial for owners.

Table 3

Economic results and ownership structures of selected regional airports in Hungary  
(Source: financial reports, ceginformacio.hu [20])

Hungary						
100 HUF = 0.28 EUR						
Airport	Reviewed period	Economic result (in HUF)	Number of handled PAX	(Total cost/total revenues) *100	Public ownership	Private ownership
Debrecen Airport	2019	-289.786.000	-	113.0%	49.96% City of Debrecen, 25.02% Debreceni Holding, 25.02% Debrecen Property Management Company	x
	2018	-428.246.000	381.391	124.4%		
	2017	-211.932.000	318.184	112.9%		
	2016	-237.524.000	284.965	118.9%		
Győr-Pér Airport	2019	-5.542.000	-	100.8%	12% Hungarian State, 40% City of Győr	48% Audi Hungaria
	2018	13.240.000	20.076	98.2%		
	2017	2.362.000	-	99.6%		
	2016	2.287.000	21.454	99.5%		
Hevíz-Balaton Airport	2019	10.728.000	9.123	97.7%	100% City of Hevíz	x
	2018	1.988.000	11.466	99.5%		
	2017	8.987.000	13.229	97.9%		
	2016	1.263.000	17.663	99.7%		
Pécs-Pogány Airport	2019	-16.842.000	5.983	108.3%	58.80% City of Pécs, 41.20% Hungarian State	x
	2018	377.000	5.345	99.8%		
	2017	21.895.000	4.595	89.0%		
	2016	82.984.000	3.644	67.8%		

The data collected for regional airports in Poland are listed in Tab. 4. According to the results, the regional airports in Poland have negative economic results, as most of them are operated at losses over the study period. In Poland, the biggest differences were observed between airports and their management. Public ownership dominates when the owners are regions, cities, or state enterprise named "Polish Airports".

In the case of Bydgoszcz Airport, the ownership structure is more complicated. The owners of this airport consist of regions and cities, as well as private companies and even individuals. Despite the ownership structure, the economic results of this airport are negative. The best-performing is Zielona-

Góra Airport, with a profit during the period and the best cost-effectiveness ratio of 23.4%. This airport is owned by the Lubuskie region. This airport is small, but the system of management is good.

The situation is satisfactory at Poznan-Lawica Airport. The biggest losses were generated by Lublin Airport and Łódź Airport.

Table 4

Economic results and the ownership structures of the selected regional airports in Poland  
(Source: Financial Reports, rejestr.io [21])

<b>Poland</b>						
100 ZLT = 21,86 EUR						
Airport	Reviewed Period	Economic result (in ZLT)	Number of handled PAX	(Total cost/total revenues) *100	Public ownership	Private ownership
Lublin Airport	2019	-37.607.890,25	357.366	391.7%	52.3604% City of Lublin, 44.8570% Lublin Region, 2.7772% City of Świdnik, 0.0054% Swidnik District	
	2018	-39.018.296,34	455.188	369.0%		
	2017	-42.868.485,77	430.346	542.3%		
	2016	-36.010.730,53	377.606	572.1%		
Lodz Airport	2019	-29.773.127,14	241.707	360.8%	95.509% City of Lodz, 4.489% Lodz Region, 0.002% Aeroclubs	
	2018	-29.839.131,83	217.014	374.2%		
	2017	-39.177.689,87	204.676	485.8%		
	2016	-51.053.600,32	241.076	573.8%		
Bydgoszcz Airport	2019	-10.351.567,97	425.230	153.4%	71.4161% Kuyavian-Pomeranian Region, 22.9132% City of Bydgoszcz, 4.8673% State Enterprise "Polish Airports", 0.0355% City of Toruń, 0.0065% City of Inowroclav	0.6905% P.P.U. Nordtechnik 0.0017% Targi Pomorsie, 3 persons with a share of 0.0008%
	2018	-9.780.493,70	413.245	149.5%		
	2017	-11.969.201,97	331.300	164.0%		
	2016	-13.750.889,96	337.556	179.3%		
Szczecin-Goleniów Airport	2019	-	576.037	-	40.10% State Enterprise "Polish Airports", 37.97% City of Szczecin, 21.93% West Pomeranian Region	x
	2018	-5.322.351,84	598.971	126.8%		
	2017	-5.213.637,73	578.691	132.2%		
	2016	-3.963.252,68	467.877	125.4%		
Zielona Góra Airport	2019	95.446,25	33.783	42.4%	100% Lubuskie Region	x
	2018	100.436,22	21.934	23.4%		
	2017	91.296,60	17.702	27.9%		
	2016	21.908,69	9.443	50.2%		
Poznan-Lawica Airport	2019	3.760.810,00	2.379.635	95.8%	38.99% State Enterprise "Polish Airports", 36.99% City of Poznan, 24.02% Wielkopolskie Region	x
	2018	6.384.920,87	2.476.304	92.9%		
	2017	-5.860.465,77	1.852.655	108.3%		
	2016	-	1.710.116	-		

(-) – Unpublished data



Based on the results, it can be said that the ownership structure of regional airports in the counties of V4 is diverse. Public ownership of regional airports dominates, the main owners are regions, cities or state. In this case, the owner also can be a region, city, or municipality. From another point of view, our sample did not contain any regional airports that are under full private ownership. The combination of public-private ownership was confirmed at the following regional airports: Airport Košice, Győr-Pér Airport, and Bydgoszcz Airport.

In Czechia, we encountered a unique ownership structure at the regional airport in Brno, as this airport is owned by the region while a private company fully operates it on the basis of a lease and operation agreement. The economic situations of regional airports are not favorable, which is visible from their economic results. Negative numbers dominate, which indicates the generation of losses.

The regional airports that made a profit during the reviewed period are the following: Košice Airport, Sliach Airport, Brno Airport, Győr-Pér Airport, Hevız-Balaton Airport, Pécs-Pogány Airport, Zielona-Góra Airport, and Poznań-Lawica Airport. The cost-effectiveness indicator also varied, but the worst results (i.e., extremely high values) were recorded for regional airports in Poland. For other airports, the cost-effectiveness indicator was below 100% in some cases and slightly higher in other cases (around 100–150%). Regional airports that have achieved low values of the cost-effectiveness are the following: Košice airport, Sliach Airport, Brno Airport, Győr-Pér Airport, Hevız-Balaton Airport, Pécs-Pogány Airport, Zielona-Góra Airport, and Poznań-Lawica Airport.

## 5. CONCLUSION

One of the objectives of this paper was to examine the impact of airport ownership on economic performance. Another objective was to verify that regional airports with combined ownership achieve better economic results than publicly owned regional airports. Our results have shown that public ownership of regional airports dominates in the V4 countries, and the economic situation of these airports is unfavorable and unsustainable in the long term. Publicly owned airports have had negative economic results in many cases, on the basis of which we can confirm that public ownership is not always entirely satisfactory.

However, this fact can be refuted by the example of regional airports in Hungary. The regional airports of Hevız-Balaton and Pécs-Pogány confirmed that even a supposedly obsolete traditional ownership model can be effective owing to good management and properly set up funding.

Meanwhile, Polish airports that are fully publically owned by regions or cities have been generating losses for a long time even though these airports are supported by state and European funds. The regional airports under public-private ownership have achieved positive economic results, confirming that combined ownership is advantageous.

Based on the results of the research, it is not possible to confirm with certainty the impact of an airport's ownership structure on its economic results. Positive economic results were achieved by regional airports under public-private ownership, as well as some regional airports under public ownership. Nevertheless, we recommend that individual states reconsider their approach to their ownership of these entities, as it is important to make this change from a national policy perspective. State budgets are limited, and the inclusion of the private sector in ownership structures could be a solution to the situation, and states should be open to this change. It is important to communicate with potential private investors who can bring new ideas and thoughts on how to increase the profitability of the aviation sector. The saved public finance could be invested in the development of other regional airports.

The results and conclusions of this paper can provide information for the creation of new strategies for the future development of regional airports or the revaluation of current strategies within the national policies of individual counties of the V4 Group. New strategies should include a reassessment of airport ownership structures, from the benefits of historical airport ownership models to the benefits of new ownership models with the participation of the private sector. This research can extend to cluster analyses of significant factors and indicators of the central European regional airports' models.

In this way, it would be possible to obtain a more comprehensive overview of regional airports in Central European countries, especially the V4 countries.

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