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Diversification of demand for selected forms of tourism organized by PTTK in selected Polish voivodeships (using fuzzy relations)

Abstract: The study used fuzzy relations to examine the demand for different forms of tourism in six Polish voivodeships. Data collected by PTTK were analyzed in the scope of 12 forms of tourism in five defined research areas (A1 – mountain tourism; A2 – tourism for advanced users; A3 – water tourism; A4 – walking; A5 – extreme tourism). The analyses showed that over the years studied (2010-2022), there was no increased dynamics in the demand and supply of tourism organized by the voivodeships of the eastern and western walls. Nevertheless, in the Podlaskie and Lubuskie voivodeships (but mainly the former), significant fluctuations can be observed in the organization of events and people participating. In general, in the studied regions, the highest demand was observed for hiking and advanced tourism in the number of trips and participants.

Keywords: sustainable forms of tourism; environment; tourism; fuzzy logic

1. Introduction

The modern world, characterized by an accelerated pace of life, reasons constant care for the mental and physical well-being of a person. A vital role in this respect is played by appropriately selected forms of spending free time - those that provide satisfaction, a sense of fulfillment, and allow for rest (Dzwonkowska, 2011).

Tourism is one of the manifestations of human activity, realized in the form of temporal and spatial migrations. It is a vital element of modern lifestyle - a way of getting to know the world, nature, people, and culture. It provides the opportunity to rest, relax, regain strength, and improve health. At the same time, it promotes the economic and social

development of tourist regions (Gołembski, 2002). According to the definition of the Central Statistical Office, tourism means activities undertaken by people visiting places located outside their everyday environment for a period of less than a year, regardless of the principal purpose of the trip - whether business, leisure, or personal - provided that it does not include employment by an entity based in the visited place (Turystyka, 2024).

In recent years, special attention has been paid to sustainable tourism, the importance and popularity of which have been systematically growing. This tourism not only ensures environmental and economic balance and rational use of natural and cultural resources

but also preserves their potential for future generations (Delia, 2018). The importance of a sustainable approach to tourism is emphasized by the UN Tourism (a specialized agency of the United Nations). UN Tourism emphasizes that "sustainable tourism should also maintain presented similar observations. Ryniejska-Kiełdanowicz (2022) presented a broad approach to sustainable tourism. It can, therefore, be assumed that the development of sustainable tourism is a promising direction; however, it must be comprehensively understood and perceived more effectively (Niewiadomski and Brouder, 2024). The role of the Polish Tourist and Sightseeing Society (PTTK) in popularizing tourism, including sustainable tourism (e.g., hiking), cannot be overestimated. The Society's statute (Article 8, item 1, subparagraph 3) indicates that one of its tasks is the promotion of tourism culture, encouraging the cognitive, recreational, and health importance of hiking (<https://pttk.pl/>).

In recent years, changes in the supply and demand for various forms of tourism have been observed. As Majchrzak-Jaszczyk (2014) notes, residents of European countries are increasingly choosing domestic destinations. This trend is caused by both economic and political conditions, as well as the increasing needs of contemporary and future consumers (Niezgoda and Nawrot, 2019). It is also worth noting that the COVID-19 pandemic may have influenced the forms and directions of tourist destinations, which, according to Agarwal et

a high level of tourist satisfaction and ensure a meaningful experience for the tourists, raising their awareness of sustainability issues and promoting sustainable tourism practices amongst them" (<https://www.unwto.org>). Ekka et al. (2023) and Varazzani et al. (2023) al. (2024), require analysis from a comparative perspective "before and after the pandemic."

In connection with the above, this study aims to compare the demand for various forms of tourism organized by PTTK in voivodeships located in the eastern and western parts of Poland. The choice of these administrative units was dictated by both their geographical location and the specific development of border areas in the historical context. Using the method of fuzzy relations, the authors examined which forms of tourism organized by PTTK in the analyzed regions have the most significant interest and how demand for these services was shaped over the twelve years. It should be emphasized that the diverse development of the tourist space, including the availability of natural values, in border areas may affect the asymmetry of demand, also directed at offers not organized locally by PTTK. It may also be the result of individual preferences of buyers of tourist services. The choice of this study was also dictated by the desire to examine how the oldest tourist organization in Poland copes with the contemporary services market and whether its offer is sufficiently diversified.

2. Study area

The study included six provinces of the country, namely West Pomerania, Lubuskie, Lower Silesia (western wall), Podlaskie, Lublin, and Subcarpathia (eastern wall). There are PTTK branches in each province, and 84 were recorded in the research area (in western provinces - 50 and eastern - 34), constituting 29.9% of 9 (290) operating in the country (Tab. 1). The organizational units of a branch are circles or clubs. The branch may construct

committees, councils, and teams according to existing needs and interests, appoint members, and adopt their regulations (Oddziały PTTK). The office of the Main Board of PTTK is located in Warsaw.

Applying geographical regionalization (Kondracki, 2009), the studied areas show various surface features, geological structures, climatic conditions, and plant and animal world. In the western part of the country (going

Table 1. Zone: the city centre, Wyspa Młyńska (left), Ku Młynom str. (right). Source: authors' estimations.

No	Voivodeships	Number of PTTK branches	Number of locations	Cities with locations
1.	Zachodniopomorskie	17	12	Choszczno, Darłowo, Drawsko Pom., Koszalin, Międzyzdroje, Nowe Czarnowo, Świdwin, Świnoujście, Wałcz, Kołobrzeg (2), Stargard (2), Szczecin (4)
2.	Lubuskie	10	10	Gorzów Wlkp. (2), Gubin, Krosno Odrzańskie, Międzyrzecz, Nowa Sól, Sulęcín, Zielona Góra, Żagań, Żary
3.	Dolnośląskie	23	20	Brzeg Dolny, Głogów (2), Jawor, Jelenia Góra, Kamienna Góra, Kłodzko, Kunice, Lądek-Zdrój, Legnica, Lubań Śląski, Lubin, Międzygórze, Prochowice, Stronie Śląskie, Strzelin, Świdnica, Wałbrzych, Wrocław (4), Ząbkowice Śląskie
4.	Podlaskie	6	6	Augustów, Białowieża, Białystok, Bielsk Podlaski, Łomża, Suwałki
5.	Lubelskie	12	11	Biłgoraj, Chełm, Dęblin, Kazimierz Dolny, Krasnystaw, Lublin (3), Puławy, Radzyń Podlaski, Włodawa, Zamość
6.	Podkarpackie	16	13	Jasło, Krosno, Łańcut, Mielec, Nowa Sarzyna, Przemyśl (2), Przeworsk (2), Ropczyce, Rzeszów (3), Sanok, Tarnobrzeg, Ustrzyki Dolne

from north to south), among the physiogeographic units, we can distinguish, among others, the Szczecin Coast, the Lubuskie Lake District, the Zielona Góra Upland, the Silesian-Lusatian Lowland, and the Western Sudetes Foothills. The eastern part of the country contains the Lithuanian Lake District, the North Podlasie Lowland, Western Polesie, the Lublin Upland, the Sandomierz Basin, and the Wooded Beskids. The geographical regions of Poland have their features, but their environmental elements are interconnected and have a uniform genesis. In connection with the above, their values attract the development of various forms of tourism. However, it is impossible to ignore the socioeconomic factors that have a decisive impact on the development of the regions and, thus, the destinations. According to Guza (2017), Poland is no longer divided into Western and Eastern, i.e., the prosperous west and the poor east. He

emphasizes that no miracle happened in the Lublin region, Podlasie, and Podkarpacie (still the poorest regions of the country), but others (especially the northern ones) are reducing their distance from them and moving away from the western ones. The eastern wall, which has been receiving additional investment, benefiting from EU regional programs, e.g., the Eastern Poland program for 2014-2020, has, according to Guza (2017), developed faster, which enhances its image and investment potential. Such activities stimulate the possibilities of organizing various forms of tourism in these areas, including qualified tourism, which has enjoyed great interest in recent years. PTTK organizes numerous trips and events in its 13 forms (mountain hiking; lowland horse riding, mountain horse riding, kayaking, cycling, motorcycling, skiing, lowland hiking, sailing, scuba diving, orienteering, speleological; and others), but

over twelve years (2010-2022) a significant decrease of 7.923 has been observed. It also translates into a drop in the number of people

participating in them (a reduction of 294.964). In the surveyed voivodeships, these trends are illustrated in Figure 1.

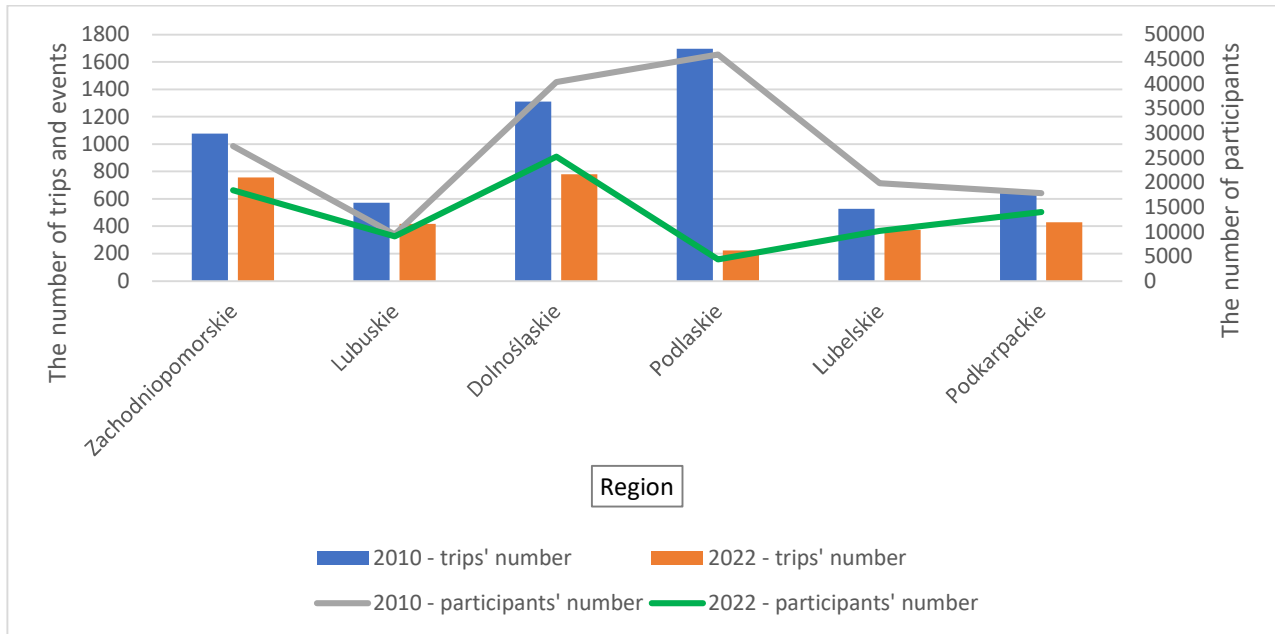


Figure 1. Zone: the city centre, Wyspa Młyńska (left), Ku Młynom str. (right)

In the Podlaskie and Dolnośląskie Voivodeships, we noted a considerable decrease in the forms of tourism organized by PTTK and the people taking part. Generally, in all the regions studied, we notice significant changes in supply and demand, which may be dictated by various factors (social or economic). However, this requires conducting deeper analyses. The authors will want to examine these issues in detail in the future. Nevertheless, this state of affairs may be influenced, on the one hand, by the desire to organize one's leisure without the help of travel agencies or other organizations. This trend is confirmed by statistical research because, for example, over 80% of Poles organize their foreign trips completely independently or together with friends (Kamińska, 2024). In this respect, the age structure of buyers of tourist

services also plays an important role. Older people are more willing to participate in organized leisure than young people or middle-aged tourists, as Banach and Gierat write (2013).

To sum up, it is worth emphasizing the considerable involvement of PTTK branches in organizing various forms of qualified tourism, organizing tours not only in their regions or all of Poland but also in neighboring countries. In addition, having licensed tourist guides and tour leaders in their resources helps organize tours and events so the associations' offers are prepared professionally and worth using. In the era of free-time culture evolving in the modern world, and according to Tanaś and Welskop (2016), there are many ways to spend free time.

3. Material and methods

The study used data from the Central Statistical Office (GUS). When conducting a study on the

shaping of demand for qualified tourism in Poland, data on Turystyka w 2022 (2023) were

used. We defined five research areas in this regard: A1 - mountain tourism, A2 - tourism for advanced users, A3 - water tourism, A4 - walking tourism, and A5 - extreme tourism, and we analyzed twelve forms of tourism organized by PTTK in individual voivodeships of our country. They are marked in the work as follows: Q1 – mountain walking, Q2 – lowland horse riding, Q3 – mountain horse riding, Q4 – canoeing, Q5 – cycling, Q6 – motor, Q7 – skiing, Q8 – lowland walking, Q9 – sailing, Q10 – diving, Q11 – on orientation, Q12 – speleology.

Considering three spaces X , Y , and Z with two fuzzy relations $R1 \subset X \times Y$ and

$$R3(x, z) = S_{y \in Y}(T(R1(x, y), R2(y, z))), x \in X, z \in Z, \quad (1)$$

where T and S are one pair of the t-norm and relevant co-norm (Rutkowski, 2023). In the

$$T(a, b) = a \cdot b, S(a, b) = a + b - a \cdot b \quad (2)$$

Let X be the space of defined research areas, then $X = \{A1, A2, \dots, A5\}$. Let Y be a space of forms of tourism organized by PTTK so $Y = \{Q1, Q2, \dots, Q12\}$. Therefore, let $R1 \subset X \times Y$ be a fuzzy relation such that $R1(Ai, Qj)$ determines the level of connecting the form of tourism Qj with research area Ai ($i = 1, 2, \dots, 5; j = 1, 2, \dots, 12$). Table 2 shows the values of this relation.

Let X be the space of defined research areas, then $X = \{A1, A2, \dots, A5\}$. Let Y be a space of forms of tourism organized by PTTK so $Y = \{Q1, Q2, \dots, Q12\}$. Therefore, let $R1 \subset X \times Y$ be a fuzzy relation such that $R1(Ai, Qj)$ determines the level of connecting the form of tourism Qj with research area

Because defined research areas (A1 –A5) contain parts or whole forms of tourism indicated by PTTK, the study applies fuzzy relations presented by Zadeh (1965). Thus, let $X \neq \emptyset$ be a space and let $A \subset X$. We call the set A fuzzy if it is a set of pairs $\{(x, \mu_A), x \in X\}$ with a membership function $\mu_A: X \rightarrow [0, 1]$ of set A , which determines the level of the membership of point x belonging to set A . Let X and Y be two non-empty spaces, R be a subset of $X \times Y$ and $\mu_R: X \times Y \rightarrow [0, 1]$ be a membership function of set R , then we call R a fuzzy relation.

$R2 \subset Y \times Z$, the third relation $R3 \subset X \times Z$ is calculated as follows:

study, because of the effortlessness of the calculations, we choose the following norms:

Ai ($i = 1, 2, \dots, 5; j = 1, 2, \dots, 12$). Table 2 shows the values of this relation.

Let Z be a space of Polish voivodeships, so $Z = \{Z1, Z2, \dots, Z16\}$. The relation $R2 \subset Y \times Z$ presents the trip/event demand measured by the trip/event number or the participants' number in voivodeships in 2010, 2015, 2017, 2018, 2020, 2021, and 2022. Since the number of trips/events and participants is usually exceeds 1, we normalized the analyzed data for each voivodeship and year. Thus, $R2(Qj, Zk)$ denotes the normalized number of trips/events or participants of the Qj form of tourism organized by PTTK in the voivodeship Zk in the studied year.

The authors (experts in this study) determined levels of correspondence of individual forms of tourism organized by

PTTK to defined research areas. The research area A1 (mountain tourism) covers (to a different level) forms of tourism in the mountains. The next one, A2, requires some advanced training expected from participants. Research area A3 demands some water equipment, and A4 covers all kinds of walking trips/even. The last research area, A5, requires thorough participants' preparation. For example, $R1(A1, Q1) = 0.2$, so experts

estimated that 20% of mountain hiking trips/events are connected with mountain tourism.

We calculated demand levels for a defined type of tourism ($A1, A2, \dots, A5$) by applying rules (1) and (2). Hence, the value of $R3(Ai, Zk)$ means the demand level (a number belonging to interval $[0,1]$) for the kind of tourism Ai in the Zk voivodeship in the studied year.

Table 2. Fuzzy relation R1 values between research areas and forms of qualified tourism organized by PTTK (Cichowska et al., 2024). Source: authors' estimations.

Form of tourism \ Research area	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
	1	2	3	4	5	6	7	8	9	0	1	2
A1	0.2		0.3	0.3			0.5					0.3
A2		0.4	0.6	0.3	0.4	0.3	0.4		0.4	0.5		0.5
A3				0.4					0.4	0.4		
A4	0.3							0.5			0.5	
A5							0.3			0.5		0.4

4. Results and discussion

The analyses show that in the voivodeships located in both the western and eastern parts of the country, the demand for hiking tourism (A4) is dominant (Fig. 2 and 3). In Podlasie, the first one was diagnosed as the one for advanced (A2), followed by an equal choice of activities related to hiking (A4) and water tourism (A3). At the same time, in the Podlaskie voivodeship, the authors observed a lower interest in purchasing services (trips/events) associated with A1 and A5. Podlaskie PTTK Branches often organize a series of guided walks (with a specific principal theme, e.g., Culinary Siedlce as part of the series "You praise others, you don't know your own") or motorcycle rallies. Hiking tourism - more environmentally friendly - is

supported here by numerous trails (62) with a length of over 2000 km. They include, among others, areas of national parks: Białowieża, Biebrza, Narew, and Wigry. Advanced tourism (A2) is accompanied by prepared motor/car trails (e.g., approx. 90 km in the Białowieża Forest Region), as well as activities related to sailing, kayaking, skiing (e.g., those organized in the Suwałki Region). Over the years 2010-2022, the demand for A1-A5 in Podlasie was characterized by the most significant dynamics (of all the provinces studied) (Fig. 2). In the pandemic year of 2020, there was a noticeable decrease in the organization of events and hiking trips (A4) and extreme trips (A5) in favor of A1, A3 and A2.

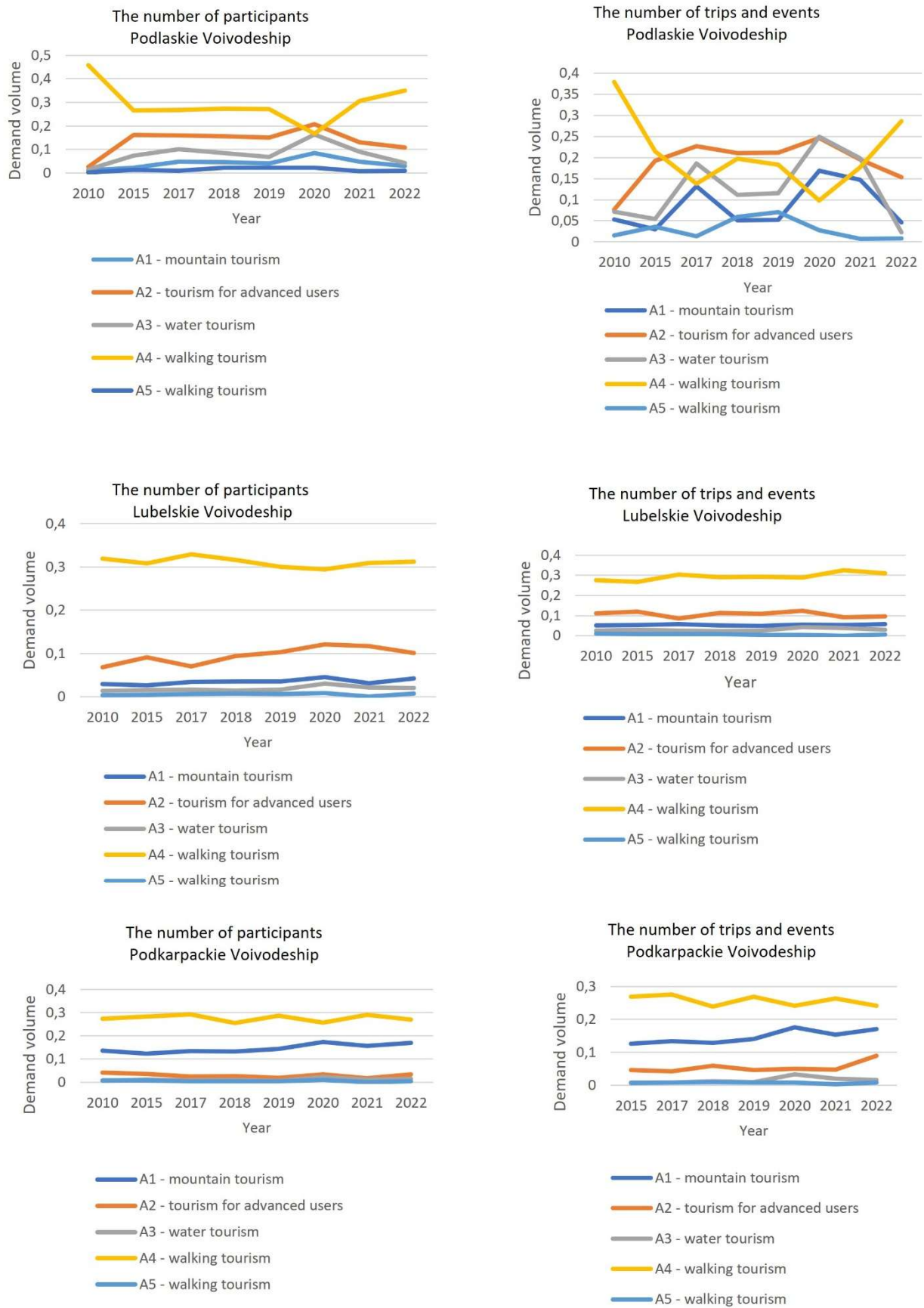


Figure 2. The demand for types of tourism based on the number of trips/events and their participants in the Podlaskie, Lubelskie, and Podkarpackie Voivodeships in 2010-2022. Source: own work based on conducted research.

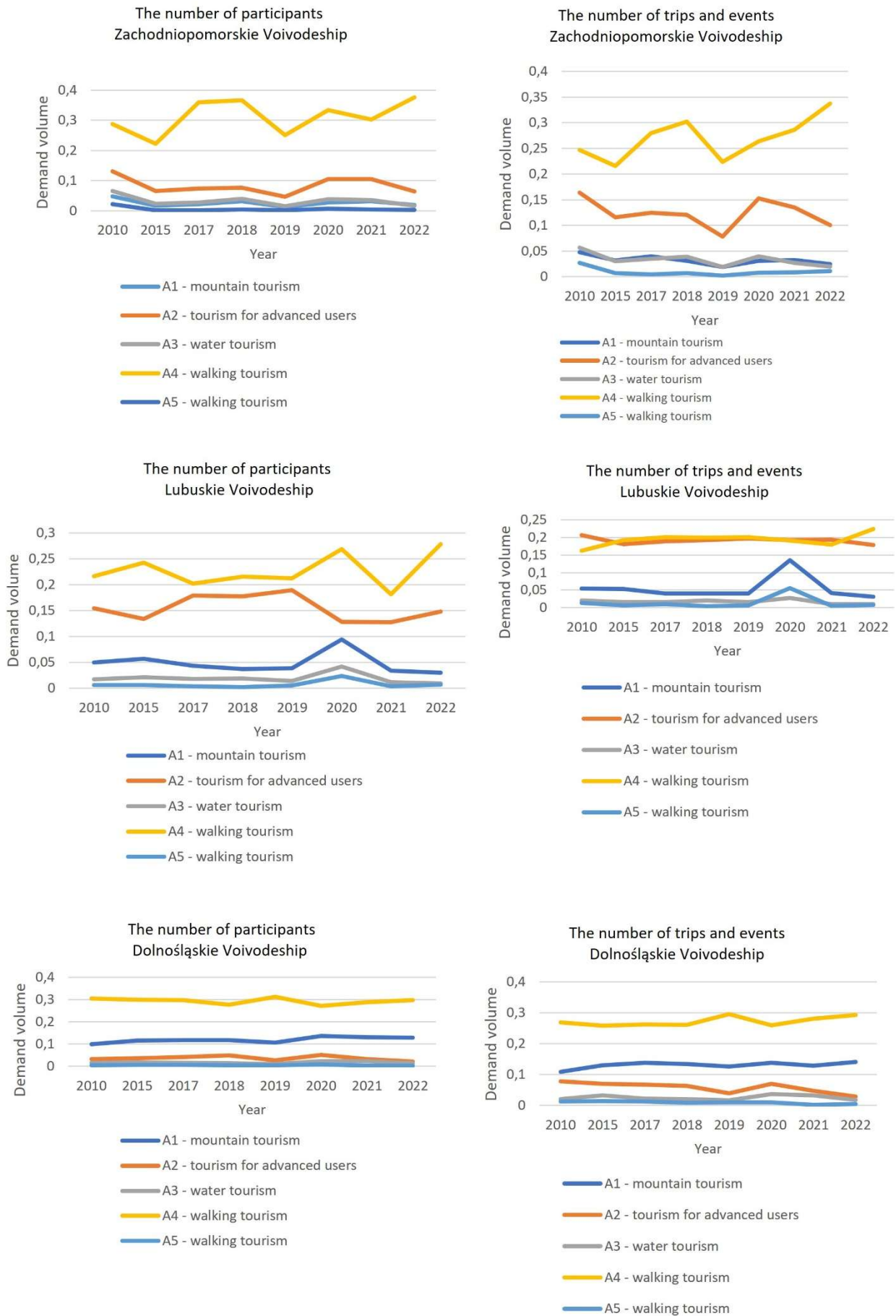


Figure 3. The demand for types of tourism based on the number of trips/events and their participants in the Zachodniopomorskie, Lubuskie, and Dolnośląskie Voivodeships in 2010-2022. Source: own work based on conducted research.

Nevertheless, the following years show that the trend towards A4 continued, and the number of people participating in this research area increased significantly. In the Lublin region, which borders the Podlasie Province, the demand for A4, A2, and A1 dominated, and they recorded the most significant number of participants. The varied terrain here is conducive to hiking along 42 marked trails with a total length of 1.430 km. Although the picturesque landscape of the Lublin Upland, Roztocze, and Polesie National Parks allows for organizing trips and events in the region, the proximity of mountain ranges means destinations outside the province are also popular with buyers. At the same time, the number of participants in the A1 (especially since the pandemic) shows (although small) upward trends. The Lublin region is an area of high natural and landscape values resulting from a little-transformed environment (among others, the Roztocze Transboundary Biosphere Reserve was created here - inscribed on the UNESCO list). Suitable hypsometric conditions are conducive to practicing winter sports here (Strategia rozwoju..., 2021). Podkarpacie, which closes the eastern wall from the south, is characterized by demand - in addition to the A4 - for A1 and A2, with a noticeable upward trend in 2022 towards the latter two forms of tourism. Most participants choose mostly one of the three types of tourism: A1, A2, and A4; however, they prefer A4 and A1 (Fig. 2).

The Podkarpackie Province stands out by valuable natural values on a national scale by serving sustainable tourism. Noteworthy are, among others, the Bieszczady and Magura National Parks and numerous landscape parks (e.g., San Valley Landscape Park, Słonne Międzyodrze region are worthy of attention here. Both individuals and organized groups can use the services of PTTK (PTTK) (e.g., participate in the cyclical rallies of the Kołobrzeg Greenery Trail named after Antoni

Mountains Landscape Park, or Przemyskie Foothills Landscape Park). In addition, the Bieszczady and Low Beskids encourage tourism from the A4 area and A1 and A2. Looking at the number of people participating in events/trips organized here by PTTK, their clear advantage concerns the A4 and A1 research areas (Fig. 2).

PTTK branches focus primarily on organizing walking activities that should also popularize and promote the tourist and sightseeing values of individual regions of Poland. Buyers' attention to historical events results in meetings with outstanding experts and sometimes scientific sessions. Popularization of historical content in walking events often causes the organization of commemorating events from the past (Turystyka piesza).

In the case of the Zachodniopomorskie Voivodeship, in addition to walking events/trips (A4), forms of tourism related to water and advanced (A2 and A3) dominate because of the proximity of the Baltic Sea, which, for example, favors the demand for practicing water sports. In addition, the rivers, lakes, reservoirs, and the Pomeranian Bay that are part of the landscape of West Pomerania encourage the organization of various water-based activities. Due to the considerable distance of the province from mountain ranges, the A1 organization occurs less frequently (similarly to the Podlaskie Province), which translates into a decrease in the number of buyers of this form of tourism (Fig. 3). The post-glacial terrain of the West Pomeranian province, with its valuable natural values, enables the development of pedestrian activities (A4). The Drawa River valley, the cliff coast on Wolin Island, and the Szarmach or in occasional trips, e.g., to Vilnius).

In turn, the PTTK branches from the Lubuskie and Dolnośląskie provinces are already recording an increased demand for A1, dictated by the proximity of the mountains.

Although in the first province, this form of tourism is noted in third place after A4 and A2; in Dolnośląskie, on the other hand, because the mountains occupy its southern part - A1 is right after A4. Lowland areas have marked tourist walking trails with a length of approx. 1000 km, thus encouraging us to know the region's peculiarities. These are natural values (Oder Valley or Dolnośląskie Forests) and numerous monuments on a national scale. The supply of A4 and A1 translates into demand because most buyers choose them among these organized activities. In the third voivodeship of the western wall of the country, Lubuskie Voivodeship, until 2019, the participants' interest in activities related to A4 and A2 remained at a virtually similar level. In the pandemic year, we observe an upward trend in other forms of tourism: A1, A5, and A3 (Fig. 3).

The organization of services on the part of PTTK noted a decline in the direction of A4; however, tourists favor this form of tourism here. Lubuskie has a well-developed, marked network of tourist walking trails conducive to organizing numerous activities, and forty of them have been marked out, with a total length of 1456 km. It is a region of forests, lake districts, and glacial valleys with historical parts of Dolny Śląsk, Dolne Łużyce, and Lubuskie Land (Szlaki turystyczne). To sum up, the growth of walking tourism in the Zachodniopomorskie Voivodeship is caused by the values of the natural and cultural environment. Interest in A4 (realized, among others, by walks on dunes, beaches, historic cities or towns), tourism for advanced (e.g., people practicing water sports such as windsurfing, kitesurfing, diving, running) or activities giving the possibility of a different contact with water (through swimming, sailing or sunbathing) - is confirmed by the conducted research. Cichowska et al. (2024) observed the most demand for these research areas, i.e., A4, A2, and A3. The proximity of the mountains favors the implementation of qualified tourism in the Dolnośląskie and Podkarpackie Voivodeships (in the A2 and A1 areas). These

regions are attractive in terms of the prepared base for the tourists; therefore, they willingly visit and propagate them in the country. For example, in the Podkarpackie Province, forms of tourism from the A2 research area were much less frequently chosen, perhaps due to their seasonality. The offer from the Lubuskie and Lubelskie Provinces is also focused on organizing trips/events related to mountain tourism (A4, A2, and A1) - due to the proximity of the Sudetes and the Carpathians, respectively.

Activities in the Lubuskie Province can primarily use large forested areas and water bodies (mainly lakes). Tourists practice primarily ecotourism here, such as geotourism, photo safari, birdwatching, Silva tourism, and horse tourism. The wine potential (related to the cultivation of vineyards) is also developing, which is slowly becoming a tourist product of this region. Similarly, the developed concept of trips along the Lublin vineyard trail has become an attraction for the Lubelskie Region. The Lubelskie culinary trail and natural and cultural attractions are conducive to trips/events that can be carried out, for example, within the defined A4 research area. The most dynamics and diversity in the demand for trips and events organized within the scopes from A1 to A5 can be observed in the case of the eastern wall of the country, mainly the Podlaskie Voivodeship. We should remember that Podlaskie is one of the most diverse areas of the country, with above-average natural values a large share of forests (29.2%), green areas (19.8%), marshes (3%) and waters (3%) (Podlaskie w liczbach), but many external and internal factors may determine the demand and supply in the A1-A5 area. From 2010 to 2020, the demand for walking tourism decreased here, which may be dictated by the political situation in Ukraine. At the same time, the recorded declines in the organization of trips/events were probably related to the appearance of COVID-19 in our country (Cichowska et al., 2024). The European Travel

Commission (ETC) (Encouraging Sustainable..., 2021) emphasizes the COVID-19 pandemic has brought global tourism down to 83% in 2020 compared to 2019. It has, therefore, become crucial to build a tourism sector that is economically, socially, and environmentally attainable in the long term by implementing more sustainable and robust models.

Comparing the forms of tourism organized by PTTK in the western and eastern parts of the country, one can notice the dominance of hiking (A4). The natural and landscape values of these regions, as well as their cultural and ethnic richness, are particularly conducive to the development of this form of activity, on which the activities of local PTTK branches focus. However, to develop hiking in a harmonious way (and other forms of tourism), it is necessary to shape them in a planned and controlled manner, applying the principles of sustainable development, causing the local community's needs to be satisfied, the growing expectations of tourists met, the durability of tourist demand ensured, and the natural environment and cultural heritage protected.

It is worth emphasizing that almost every form of tourist activity can, and even should,

be carried out in a sustainable manner (Friendly Tourism..., 2009). It also applies to more demanding forms, such as advanced tourism, including motor tourism. In this case, it is advisable to introduce solutions at various levels: technological, organizational, regulatory, and educational. These solutions include the modernization of transport means, route planning, and traffic management, the creation of appropriate legal regulations, and integration with other forms of tourism and educational activities. Tourism of this type must undergo a qualitative transformation – not only minimizing the negative impact on the environment but also introducing added value for local communities and ecosystems. The key roles here are played by technology, spatial planning, education, and cooperation with local authorities.

Sustainable tourism should not be perceived as a separate branch of tourism or a set of niche products but as the foundation for the functioning of the entire tourism sector. The market should strive for greater environmental, social, and economic equilibrium. In this context, both supply and demand should function in a responsible manner (Sustainable Tourism..., 2013).

5. Conclusions

The conducted analysis allows formulating the following conclusions:

1. The research method used in the paper allowed for defining more complex forms of tourism than those proposed by PTTK and analyzing the demand for them using fuzzy relations.
2. The offer of events and trips organized by PTTK Branches in the western and eastern provinces of the country does not differ significantly from each other. Activities related to the A4 area (walking tourism) (and then A2 (tourism for advanced users) and A1 (mountain tourism)) clearly dominate in the scope of the number of people participating. Only in the case of the Podlaskie Province was a different situation observed. Here, the demand for trips/events in A2 (tourism for advanced users) prevailed, but fewer participants recorded than in A4 (walking tourism).
3. The choice of activities from the A3 (water tourism) and A5 (walking tourism) areas is definitely smaller because it most often concerns people who want to use more active routes, giving them the opportunity to experience vital sensations, e.g., as part of participation in car or motorcycle rallies or high mountain climbing. Their supply is also determined by seasonality. They

pandemic year of 2020.

4. The potential of PTTK activities could be better used by strengthening promotion and cooperation with other industries in this sector to reach a wider audience and acquire new members. PTTK branches in the surveyed provinces prepare offers, among which hiking takes a special place – a form of activity that ideally corresponds to the principles of ecological and social balance. The proximity of natural resources undoubtedly affects the demand for this type of tourism in the analyzed regions.
5. Each of the discussed forms of tourism – with appropriate organization and conscious participants' attitudes – can become more environmentally friendly and

fit into the trend of sustainable tourism. In the case of more advanced tourism – such as motor tourism, high mountain tourism, or extreme tourism – it is necessary to introduce certain restrictions and rules. This results from the greater impact of these forms of activity on the natural environment, as well as the need to ensure the safety and sustainable use of space. Adapting these offers to the requirements of sustainable development should take place through regulations, appropriate infrastructure, and educational activities that support conscious participation in tourism.

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