



## Changes in the development of tourism in Polish port cities as a challenge to the planning of city logistics

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### Abstract

This study discusses the results of research into changes in the tourist traffic in port cities, which may pose challenges to the planning of city logistics. The analysis draws on the statistical data on tourism. The study sample includes four cities located in Poland's two coastal areas at the Baltic Sea: Szczecin and Świnoujście (West Pomeranian region), and Gdańsk and Gdynia (Pomeranian region). Covering the years 1995–2022, the analysis has been complemented with a review of the literature on the role of city logistics in solving problems caused by the development of tourism. The rapid growth of tourism generates an increased flow of people, goods, and information, which may be detrimental to the smooth functioning of a city. Insights into the development of tourist traffic over the years may facilitate the planning of city logistics and reconcile the function of a tourist destination with that of a port, which the cities have to perform. It may also support efforts that aim to ensure the sustainable development of port cities.

### Introduction

In view of pursuing a national policy, coastal cities are strategic logistic hubs. Ports play a pivotal role in international trade as well as manufacturing and transport systems and benefit the functioning of cities. As noted by Chen and Lam, services rendered in ports stimulate business growth on the one hand and pose challenges to other functions of the city on the other (Chen & Lam, 2018). Owing to their location, many coastal cities are important tourist destinations (Hącia, 2012; Skrzyszewska, 2015). The port and tourism-related functions of coastal cities are inextricably intertwined owing to the development of water tourism, including, without limitations, cruising and ferry tourism (Łapko & Panasiuk, 2019; Cui, 2020). To ensure

equivalence of the city, it is necessary to coordinate the services rendered in ports with those rendered for the benefit of tourists in a manner that allows their peaceful coexistence, and guarantees that they do not affect the life of residents or the natural environment (Russo et al., 2020; Łapko, Hącia & Wiczorek, 2021).

The list of services in demand that accompany the development of tourism is endless and depends on tourists' individual needs. Restaurant and accommodation services are the most obvious ones, but there are many others, such as commercial (shops), transport (including, without limitation, passenger transport), health care services, etc. (Hącia, 2019; Ram, Gal-Tzur & Rechavi, 2021). Demand for these services depends on the type of activities in which tourists participate. Increased demand for deliveries

of goods and waste disposal must be met in a manner that does not affect the daily life of the city (Łapko et al., 2018). In many port cities, harbor services are the main cause of intensified traffic. A city that simultaneously performs both port and tourism-related functions faces extensive challenges to its logistics (Mrnjavac & Ivanovic, 2007; Ciacci et al., 2023; Pietrzak, Pietrzak & Montwiłł, 2023). Coordinating the two functions must be based on reliable planning, otherwise intense tourist traffic may cause increased air and water pollution and compromise the tourist appeal of the city. Moreover, increased tourist traffic may disrupt the daily life of residents, causing hostility toward tourists, which may negatively affect the tourism-related function of the city and cause economic damage (Xu & Hu, 2021). When planning the tourism-related function, the prevailing trends must be considered since demand for tourism-related services depends on the number of incoming tourists.

This work discusses the results of research into changes in the numbers of incoming tourists in port cities, which may pose challenges to city logistics. The study sample includes four cities located in Poland's two coastal regions at the Baltic Sea: Szczecin and Świnoujście (West Pomeranian region), and Gdańsk and Gdynia (Pomeranian region). Their harbors are of fundamental importance to the national economy (Wagner, Kotowska & Pluciński, 2022). Both regions, as well as the cities under analysis, are considered attractive and are characterized by large numbers of incoming tourists. An analysis

of tourism in the cities under investigation has been performed for the years 1995–2022. The objective of the analysis is to show changes in regional tourism over the longest possible time period. Therefore, the period for the analysis has been selected based on the availability of the statistical data. The four cities function as tourist destinations as well as ports, and Świnoujście is additionally a popular health resort. In terms of the international passenger traffic in Poland's ports, Świnoujście is an absolute leader. In 2022, it received circa. 60 % of incoming traffic by sea. It is followed by the port of Gdynia, which receives half of the incoming traffic volume for Świnoujście. A rapid growth of tourism in the regions generates an increased flow of people, goods, and information, which may affect the way the cities function. An insight into the development of tourism in the regions may facilitate the planning of city logistics and reconciliation of the port and tourist-related functions.

### Tourism in Poland's port cities

Tourism in the port cities under analysis is on a constant upward trend, although the growth is not equal across the cities, nor is it observed in all aspects of tourism. The discrepancies can be illustrated based on the number of incoming tourists. Figure 1 shows the number of tourists using accommodation facilities in the cities under analysis for 1995–2022. All four cities saw an increase in the number of incoming tourists. The growth was most

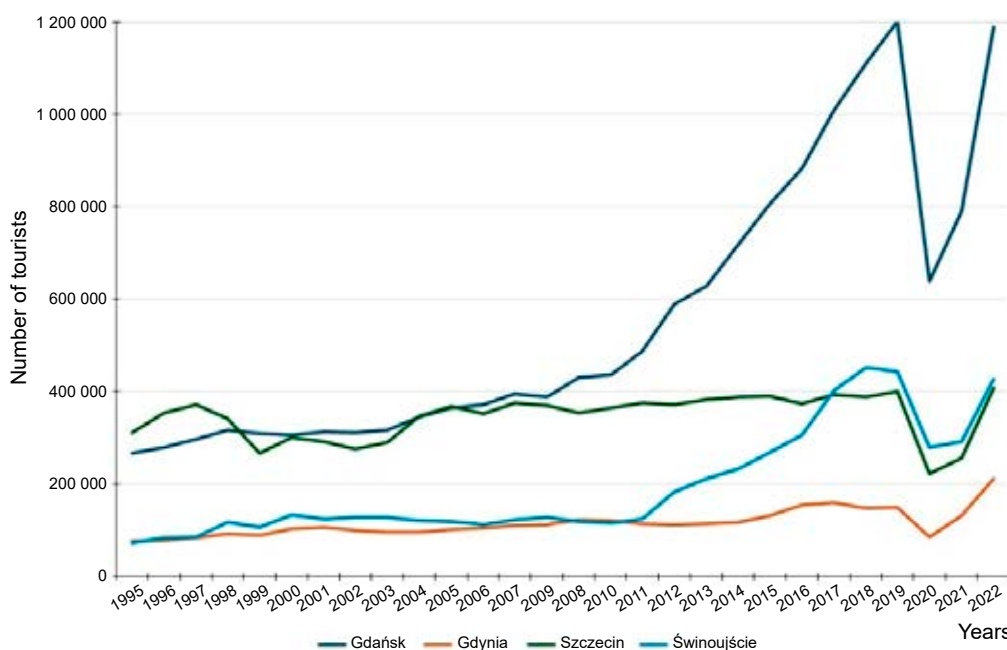


Figure 1. Tourists stays at tourist accommodation establishments in Szczecin, Świnoujście, Gdańsk, and Gdynia in the years 1995–2022 (own study based on (BDL, 2024))

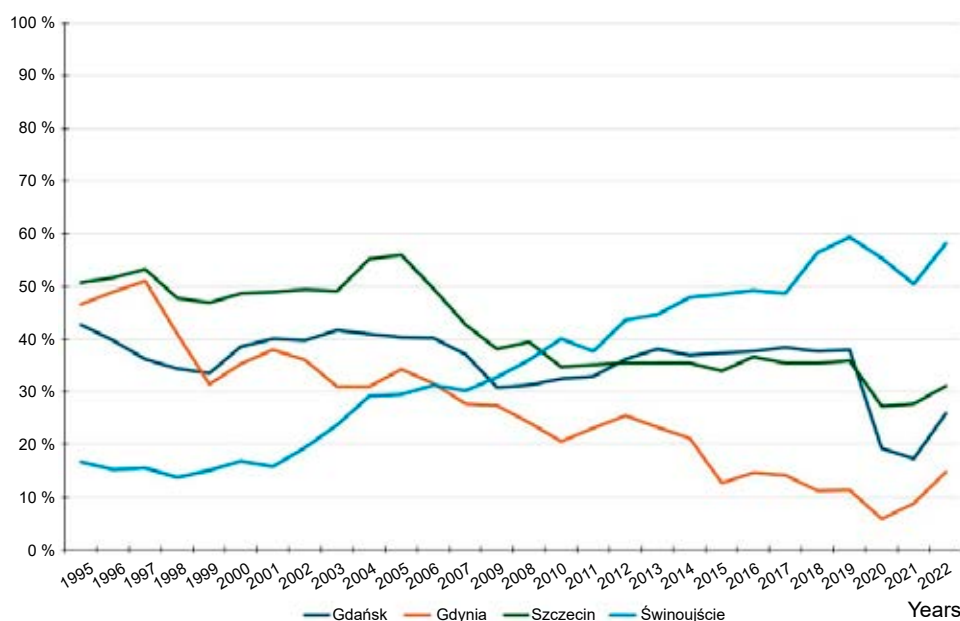
pronounced in Świnoujście (up by 491 %), followed by Gdańsk (up by 346 %) and Gdynia (up by 182 %), and exceeded that recorded for the whole country (an increase of 141 %). The figure was incomparably smaller for Szczecin, at a mere 31 %. It is worth noting here that in 2020, the COVID-19 pandemic caused a major drop in the number of incoming tourists compared with the previous year, which was similar in Gdańsk, Szczecin, and Świnoujście (down by 47 %, 45 %, and 43 %, respectively), and smaller in Świnoujście (a decrease of 37 %). In the following years of 2021–2022, the number of tourists grew year-on-year. As a result, in 2022, the number of tourists was close to that recorded for 2019 in three of the cities under analysis, and higher by as much as 42 % for Gdynia.

The period under analysis spans 28 years of major changes in Poland's tourism. Following the accession to the EU and the Schengen zone, visiting Poland became much easier. As a result, interest in Poland's tourist destinations has increased, and the number of foreign tourists using the accommodation facilities in the region is growing year-on-year. On account of the pandemic, the period under analysis has been divided into two shorter periods, i.e., 1995–2019 and 2020–2022. In 2019, the number of foreign tourists in Poland doubled compared with 1995. However, the changes took place at a varied pace. The same applies to the port cities under analysis. A spike in overnight stays was observed in Świnoujście (up by 2071 %), the growth was significantly lower in Gdańsk (299 %), Szczecin recorded a slight increase of 9 % whereas, in Gdynia, the number of foreign tourists saw a plummet of as much as 52 %. The drop in 2020 amounted to 70 % countrywide. The changes observed in Gdańsk and Gdynia were at a comparable level (down by 72 % and 73 %, respectively), while Szczecin and Świnoujście saw a smaller decrease of 58 % and 41 %, respectively. Due to the fact that the pandemic-related restrictions regarding foreign travel remained in force after those regarding domestic travel had been lifted, the year-on-year growth in the number of foreign tourists in 2021–2022 failed to reach the level from before the pandemic. On the national scale, 2022 saw a 22 % drop in foreign tourists compared with 2019. The numbers recorded for the cities under analysis are more optimistic. Only Gdańsk saw a significant decrease of 33 %, with Szczecin down by 11 % and Świnoujście down by a mere 5 %. The best result was recorded for Gdynia, which in 2022 outperformed itself compared with 2019 by as much as 84 %.

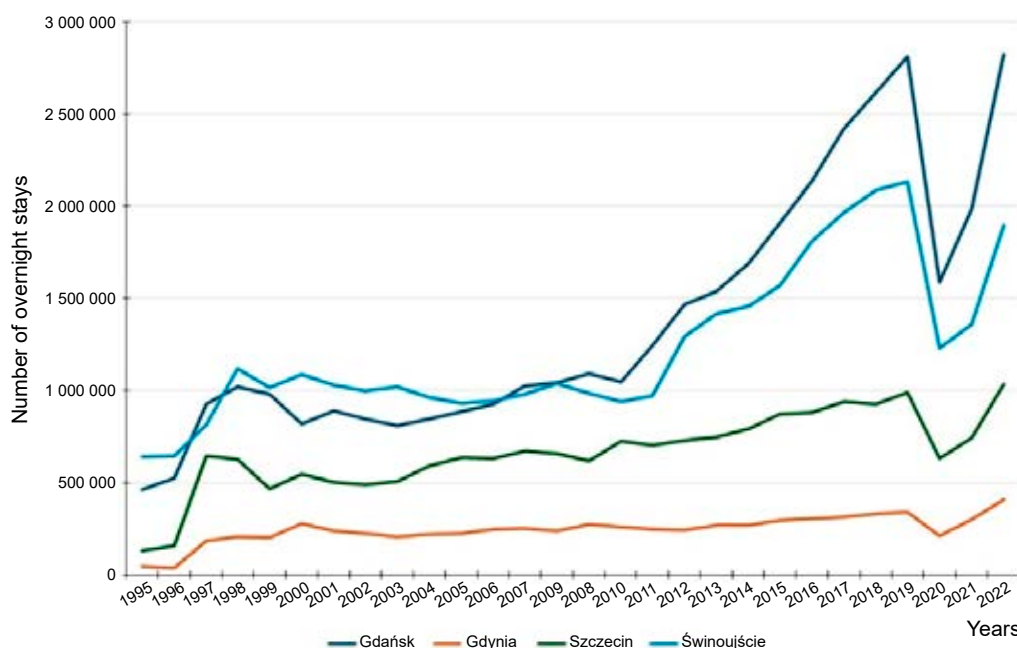
The port cities under analysis operate passenger ferry terminals used by many foreign tourists, mainly from Scandinavia. As mentioned before, the highest volume of incoming passenger traffic is observed in Świnoujście. This is one of the benefits brought into the region by a combination of the port- and tourism-related functions of the city. The same is not the case for the port of Gdynia. Although it also receives a considerable volume of passenger traffic, many foreign tourists arriving in the region by sea stay in the nearby Gdańsk, which offers five times more accommodation spaces than Gdynia. This is possible owing to the proximity of the cities, which generates a flow of people between them. It is noteworthy that apart from the port- and tourism-related functions, Gdańsk is also the capital of the region. This fact is a determinant of growth in the tourism traffic in the region, especially in business-related areas.

An analysis of changes in the structure of tourists in port cities in the years under investigation helps understand the significance of fluctuation in the number of foreign tourists in comparison to the total number of incoming tourists. Figure 2 shows the share of foreign tourists relative to the total number of tourists in accommodation facilities. In 1995, the share for three of the cities under analysis was comparable, with Świnoujście far behind them with 17 %. However, it is Świnoujście that records the greatest growth in the years under analysis, by as much as 42 pp. A reverse trend is observed for the other cities, with the largest drop for Gdynia at a level of 32 pp. The greatest share of foreign tourists relative to the total number of incoming tourists in the period under analysis is recorded for Świnoujście, which in 2019 reached 59 %.

Figure 3 shows the number of overnight stays in accommodation facilities in the port cities under analysis in 1995–2022. In the first half of the period, Świnoujście recorded the largest number of overnight stays, closely followed by Gdańsk. In the second half of the period, Gdańsk was in the leading position with growth in overnight stays in 2022, up by 512 % compared with 1995. The growth was even larger in Szczecin and Gdynia – up by 685 % and 770 %, respectively. In 2022, the number of overnight stays in Świnoujście was found to be 195 % higher than in 1995, and only here it failed to reach the level from before the pandemic (down by 11 % compared to 2019). It may be attributed to the fact that, since 2010, the share of foreign tourists relative to the total number of tourists in Świnoujście has been larger than in the other cities under analysis.



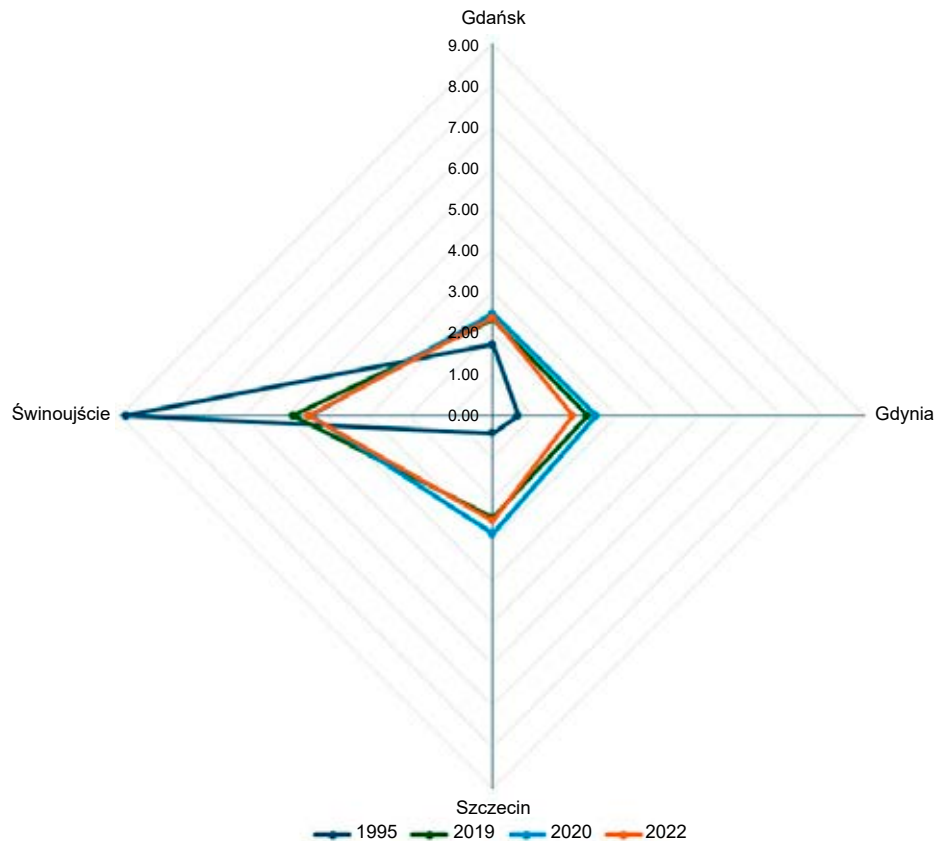
**Figure 2. Percentage of foreign tourists relative to the total number of visitors accommodated in facilities in Szczecin, Świnoujście, Gdańsk, and Gdynia in the years 1995–2022 (own study based on (BDL, 2024))**



**Figure 3. Number of overnight stays at tourist accommodation establishments in Szczecin, Świnoujście, Gdańsk, and Gdynia in the years 1995–2022 (own study based on (BDL, 2024))**

A comparison of the number of overnight stays with the number of tourists can help determine the average duration of stay of a single tourist (i.e., the average number of overnight stays by a single tourist). Figure 4 shows this number for the beginning (1995) and the end (2022) of the period under analysis, as well as the year preceding the pandemic (2019) and the first year of the same event (2020). An analysis of the entire period shows the greatest change (growth) for Szczecin. The average stay in accommodation facilities is also longer in Gdańsk.

However, the growth is smaller compared with Szczecin. In Gdynia, although the average stay duration has increased, it remains the shortest compared with the other cities under analysis. The longest stays are recorded for Świnoujście (which is visited more frequently than the other cities since it is a popular holiday and health resort), although the average duration of a stay in 2022 was halved compared to the beginning of the period. The growth in the number of overnight stays in Świnoujście is much slower than that for the number of tourists



**Figure 4.** Average duration of stay at tourist accommodation establishments in Szczecin, Świnoujście, Gdańsk, and Gdynia in the years 1995, 2019, 2020, and 2022 (own study based on (BDL, 2024))

(196 % and 491 %, respectively); hence, the considerably reduced average duration of stay. Nevertheless, the average duration of stay in accommodation facilities in Świnoujście is longer than that for all accommodation facilities in Poland. Considering the drop in the number of tourists and the resulting reduction in the number of overnight stays in 2020, the average duration of stay remained fairly stable.

The length of stay in accommodation facilities is a parameter with important implications. Both short and long stays have an impact on the visited city. A short stay in Gdynia may be part of a longer trip with multiple destinations, such as nearby cities that include Gdańsk. Such stays generate tourist traffic in the city and drive the demand for transportation services. Gdynia may also be a stop-over point before further journey by sea. Longer stays, such as those in Świnoujście, generate demand for other services required by tourists at the destination. One type of them is food services (catering), which require foodstuffs supplies to outlets, many of which are situated in the most crowded parts of the city.

In order to picture changes in the significance of tourism in the examined cities, an analysis was performed of the share that each of the cities had

in terms of tourism for the entire region at the beginning and end of the analyzed period. The percentage shares of tourists and overnight stays in tourist accommodation establishments in Szczecin, Świnoujście, Gdańsk, and Gdynia in relation to the total number for the region in the years 1995 and 2022 are presented in Tables 1 and 2, respectively. The shares of the number of tourists in Szczecin and Gdańsk at the beginning of the period were similar, with a level of 25 %, which is significantly higher than those of the other two cities. For Szczecin, the share was at a level of 20–25 % until 2012, only to decline to below 20 % and continually decrease, year-on-year, to reach 13 % in 2022. As mentioned before, the number of tourists in Szczecin increased; however, the growth in the entire West Pomeranian region was much higher. Another trend is observed for Gdańsk, where the growth in the number of tourists in the examined period was higher than that in the entire Pomeranian region. Hence, the significance of the city on a scale of the region increased, with its share up by 11 pp. The growth in the number of tourists staying in Gdynia is comparable with that in the entire Pomeranian region. Hence, the significance of the city remained unchanged throughout the period under analysis. Similar to Gdańsk,

**Table 1. Tourists and overnight stays in tourist accommodation establishments in Szczecin, Świnoujście, Gdańsk, and Gdynia in 1995 [%] (own study based on (BDL, 2024))**

Specification	Voivodeship	City	Number of tourists accommodated total	Number of foreign tourists accommodated	Number of overnight stays total	Number of overnight stays of foreign tourists
Share in the entire region	West Pomeranian region	Szczecin	25	59	2	8
		Świnoujście	6	5	8	14
	Pomeranian region	Gdańsk	25	49	9	25
		Gdynia	7	15	1	1

**Table 2. Tourists and overnight stays in tourist accommodation establishments in Szczecin, Świnoujście, Gdańsk, and Gdynia in 2022 [%] (own study based on (BDL, 2024))**

Specification	Voivodeship	City	Number of tourists accommodated total	Number of foreign tourists accommodated	Number of overnight stays total	Number of overnight stays of foreign tourists
Share in the entire region	West Pomeranian region	Szczecin	13	17	7	13
		Świnoujście	13	34	13	33
	Pomeranian region	Gdańsk	36	73	28	67
		Gdynia	6	7	4	6

the share of Świnoujście in the West Pomeranian region increased by 7 pp. All four cities recorded a similar trend in the number of tourists using accommodation facilities. However, the changes are on a greater scale. The share of Gdańsk increased by 24 pp to reach a record of 73 % in 2022. The significance of the city in the entire Pomeranian region gradually rose to become more pronounced in the last ten years of the period under analysis. Gdynia recorded a drop of 8 pp. The greatest change is observed for Szczecin, whose share in the region at the beginning of the period was 59 % (the highest value in 1995), only to plummet by 42 pp. This drop in the number of foreign tourists in the city was accompanied by a rise of the same amount for the entire West Pomeranian region. Świnoujście increased its share by 29 pp, showing the most dynamic change since 2012.

Examining the number of tourists accommodated, all four cities increased their shares in the respective regions, both in terms of the total number of tourists and the number of foreign tourists. Analyzing the number of overnight stays in total, in 1995, the shares of Gdańsk and Świnoujście in the respective regions were similar and considerably higher than those of the other cities. The greatest change was recorded for Gdańsk (up by 19 pp). Looking at the number of overnight stays of foreign tourists, the change observed in Gdańsk was also the most pronounced – up by as much as 44 pp to

67 % (the greatest share in 2022). Considering the specific characteristics of stays in Świnoujście, the number of overnight stays of foreign tourists is higher than in Gdańsk, although Gdańsk outperforms Świnoujście in the number of foreign tourists. The share of Świnoujście in the West Pomeranian region enhanced by 19 pp to 33 %. It is noteworthy here that the West Pomeranian region records three times more overnight stays of foreign tourists than the region of Pomerania. The shares of Szczecin and Gdynia also increased slightly by 5 pp.

Many various indicators can be applied to the analysis of tourist traffic, some of which indicate the intensity rate. Schneider's rate is the most popular. It is measured in terms of the number of tourists accommodated per 100 residents (Warszyńska & Jackowski, 1979). The spatial analysis uses other indicators, such as the number of tourists per 1 sq. km (Kurek & Mika, 2007), also referred to as the tourist traffic density rate.

Figures 5 and 6 show the intensity rate and the density rate, respectively, in the cities at the beginning and end of the period under analysis. In terms of the number of tourists per 100 residents, Świnoujście, with the smallest population, is an absolute leader. All four cities recorded a rise in the intensity of tourist traffic; however, Świnoujście hit a record of 550 %. The same indicator shows the smallest growth for Szczecin at 40 %. It is worth mentioning here that the two cities reduced their population

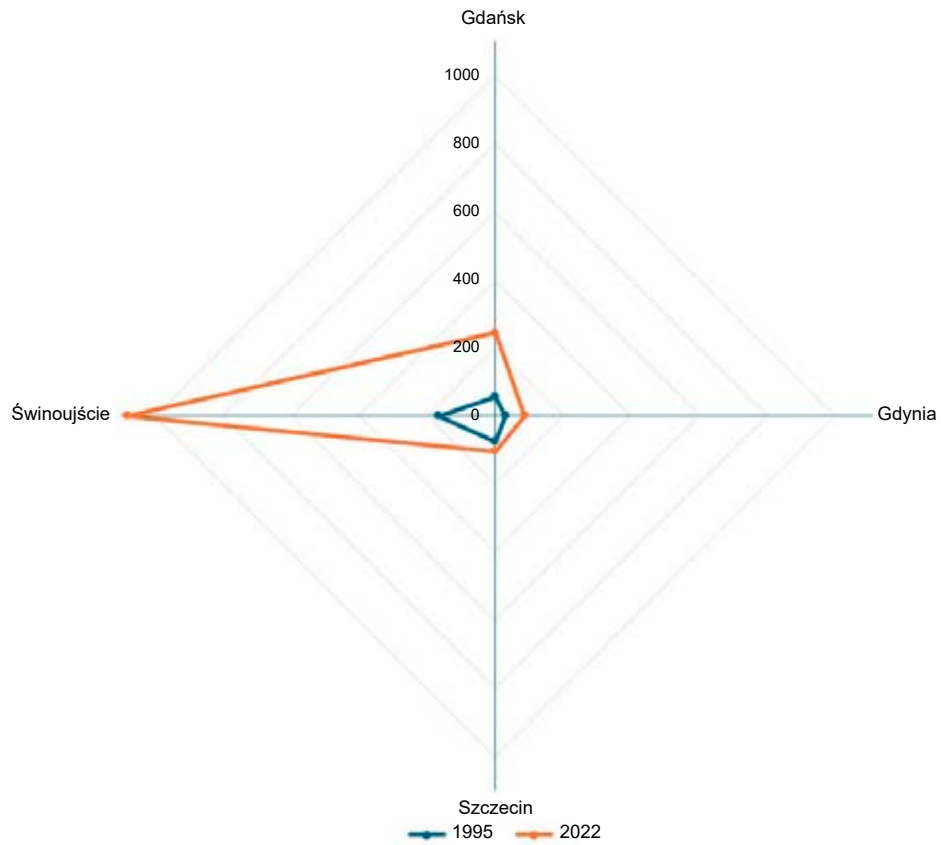


Figure 5. Tourist traffic intensity rate in Szczecin, Świnoujście, Gdańsk, and Gdynia in the years 1995 and 2022 (own study based on (BDL, 2024))

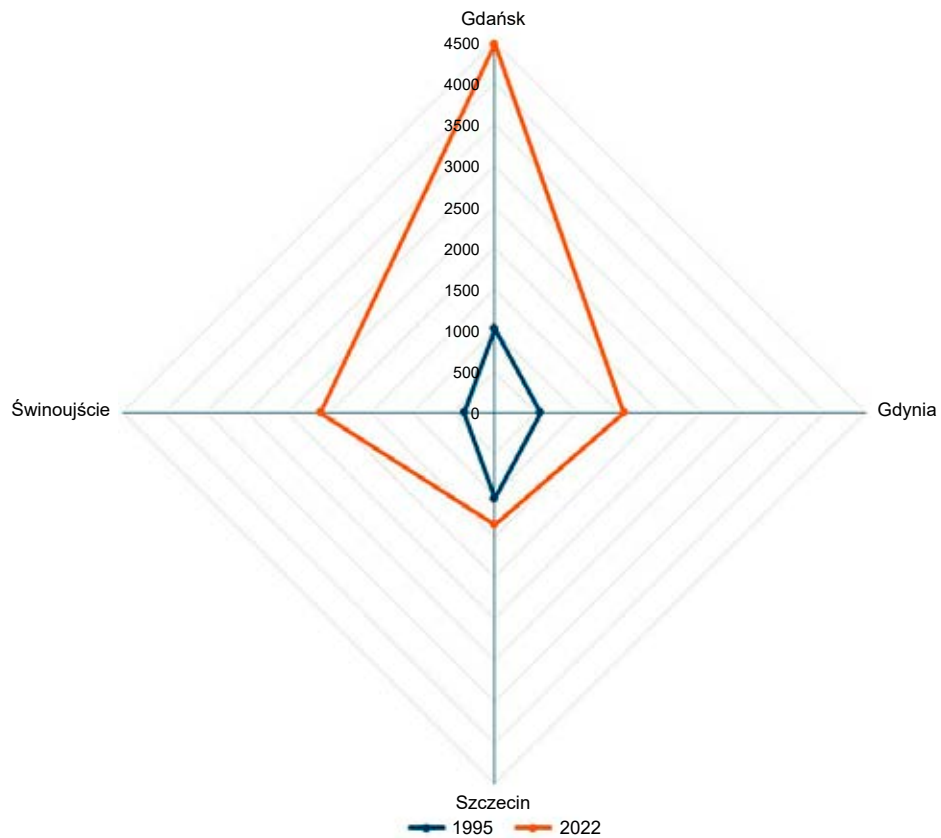


Figure 6. Tourist traffic density rate in Szczecin, Świnoujście, Gdańsk, and Gdynia in the years 1995 and 2022 (own study based on (BDL, 2024))

in the period under analysis, with a larger drop of 9 % in Świnoujście.

A well-pronounced growth in the tourist traffic density rate has been observed for the cities under analysis, with Gdańsk in the leading position. In 1995, the rate was at a comparable level of circa. 1000 tourists per 1 sq. km for Gdańsk and Szczecin. However, in 2022, the rate for Gdańsk was at 4471 (up by 339 %) and for Szczecin at 1353 (up by 31 %). Świnoujście recorded the highest growth of the tourist traffic density rate at 470 % (up from 370 to 2110). In Gdynia, which has the smallest square kilometer area of all the four cities, the rate grew by 184 % (up from 552 to 1568), and its growth was the highest compared with the level before the COVID-19 pandemic (2019) – up by 149 %. This may be attributed to the fact that, during the pandemic, tourists tended to look for less-visited destinations and avoided overcrowded places.

The changes in intensity and density of tourist traffic in the years under analysis, represented by the calculated rates, are considerable. Tourism has grown in importance in the investigated cities, accompanied by expansion of the related infrastructure, which stimulates further development. Sufficient services for the ever-higher number of tourists that occupy the same space must be provided by the business entities that operate on the same limited territory.

### **The role of city logistics in tackling problems related to the development of tourism**

City tourism is characterized by high specificity. Considering the multiple functions of a city, tourist traffic generates demand for different services since tourists undertake varied activities. According to Hall and Page, it is possible to develop a variety of parallel and common forms of tourism within the urban space. The main reasons for visiting the city in their spare time include sightseeing, participation in cultural and sporting events, participation in religious ceremonies, entertainment, shopping, personal errands, visiting family and friends, education, and participation in business meetings, trade shows, and conferences (Hall & Page, 2014). Seaside cities additionally offer sea-related activities, such as going to the beach, bathing, water sports, water leisure activities, and water tourism.

The development of tourism can largely benefit the city and the entire region, provided that it is sustainable (Hącia, 2014). Otherwise, it may

bring negative environmental, social, and economic consequences. The development of the tourism infrastructure can cause damage to the shoreline and natural values of seaside areas. Intense tourist traffic causes air and noise pollution (Ferreira, Castro & Gomes, 2021), as well as increased production of sewage and municipal waste (Baloch et al., 2023). Combined, all these factors may affect the local wildlife and the tourism appeal of the destination. They are also likely to disrupt the daily life of residents and cause them to take a hostile attitude toward visitors.

Increased tourist traffic generates higher demand for food and other products (and services), which in turn drives the demand for transport services that produce exhaust emissions and air pollution (Ferrari, Mondéjar-Jiménez & Secondi, 2018; Vantola et al., 2021). Air pollution can undermine the health and well-being of local communities (Gray et al., 2011). Moreover, residents of tourist resorts may face difficulties resulting from traffic congestion, insufficient parking spaces, and increased noise (Mandić, 2021). The development of tourism can also lead to an increased delinquency rate, which can, in turn, disrupt the lives of residents and threaten their sense of security (Krajňák, 2021). In economic terms, the development of tourism may result in the creation of a tourist monoculture, where the local economy depends on the touristic values of the region, which often constitute its only natural resource (Conti & Perelli, 2004). It should be noted here, however, that this phenomenon will not affect port cities operating commercial harbors. Nevertheless, ensuring sustainable development of tourism in port cities may be even more challenging, considering the fact that their functions in this area must be coordinated with those related to the operation of a commercial harbor.

Harbor operation requires cargo carriage from and to the harbor, with many transit routes leading through urban areas (Browne et al., 2017). The resulting possible congestion caused by harbor operations and tourist traffic may hinder the performance of the two functions and disrupt the daily life of residents. Congestion caused by vehicles carrying cargo to and from harbors is a source of air pollution. Therefore, the implementation of measures in the area of city logistics and seeking cargo carriage solutions to streamline the performance of all city functions is absolutely necessary. The research carried out so far in this area suggests various solutions, including e.g., night-time deliveries (Koutoulas, Franklin & Eliasson, 2017) and urban



consolidation centers (Chwesiuk, Kijewska & Iwan, 2010). In recent years, Intelligent Transport Systems (ITS), which enable efficient traffic management, have been growing in importance (Małecki, 2016; Mazurkiewicz, 2021). The systems are based on rational use of the transport infrastructure by combining advanced telecommunications, IT, measurement, automation, and other technologies with management methods (Tomaszewska, 2022). They facilitate appropriate routing of transport operations and quick response in emergencies, streamlining the flow of goods and passengers.

Moreover, the implementation of ITSs in city logistics enhances the safety of road and urban space users (Pawłowski & Michalski, 2022). Optimal solutions selected for a particular city must take into consideration its specific character. City logistics applied in port cities, which are also tourist destinations, must take into consideration the interests of the various stakeholders and be based on solutions that reconcile and foster the development of both port- and tourism-related functions of the city.

## Conclusions

Coastal cities that function both as ports and tourist destinations face serious logistic challenges. The two roles enacted simultaneously can generate a conflict of interests and be detrimental to each other. Bearing in mind that they both are of great importance to the national economy, solutions in the area of city logistics are required that enable the city to thrive on a multifunctional level. It is especially difficult to coordinate the transportation of goods to meet the demand generated by both tourism and the harbor. Congestions leading to compromised safety of road traffic participants and the life comforts of residents are just some of the challenges.

The research results show that, save for the period of the COVID-19 pandemic, the tourist traffic in the cities under investigation has been on a constant upward trend (the fastest growth is observed in Świnoujście, the slowest in Szczecin). Generating increased demand for products and services contributes to a rise in the number of means of transport in the city. These aspects must be taken into consideration when planning the development of cities and undertaking actions aimed at streamlining their functioning. Actions taken in the area of city logistics can help create solutions that reconcile the development of tourism with the operation of harbors and ensure the sustainable development of port cities.

To summarize, based on this study, actions are recommended in the area of city logistics that aim to streamline the flow of goods through tourist destinations. This objective can be achieved through skillful planning, relying on efficient transfer of information among all stakeholders. ITS tools can also be useful. For the purpose of mitigating the negative impact of tourist traffic on air quality, it is advisable to promote electromobility. Some supporting concepts may include the expansion of the network of electric car charging stations and the introduction of certain organizational solutions exclusively for electric car owners, such as free parking spaces, permitted use of bus lanes, etc. Electromobility will also reduce noise pollution, with a positive effect on the lives of residents. The introduction of customized logistic solutions may ultimately support the tourism-related function of the city, increasing the safety of tourists and maintaining the city's touristic values.

## References

- BALOCH, Q.B., SHAH, S.N., IQBAL, N., SHEERAZ, M., ASADULLAH, M., MAHAR, S. & KHAN, A.U. (2023) Impact of tourism development upon environmental sustainability: a suggested framework for sustainable ecotourism. *Environmental Science and Pollution Research* 30 (3), pp. 5917–5930, doi: 10.1007/s11356-022-22496-w.
- BDL (2024) Local Data Bank, Statistics Poland. [Online]. Available from: <https://bdl.stat.gov.pl/bdl/start> [Accessed: February 29, 2024].
- BROWNE, M., WOEXENIUS, J., DABLANC, L., CHERRETT, T. & MORGANTI, E. (2017) Port cities and urban logistics. In: LRN 2017 Papers. The 22nd Annual Conference of The Chartered Institute of Logistics and Transport, Logistics Research Network (LRN), 06–08.09.2017, Southampton, UK. The Chartered Institute of Logistics and Transport.
- CHEN, C. & LAM, J.S.L. (2018) Sustainability and interactivity between cities and ports: A two-stage data envelopment analysis (DEA) approach. *Maritime Policy & Management* 45 (7), pp. 944–961, doi: 10.1080/03088839.2018.1450528.
- CHWESIUK, K., KIJEWSKA, K. & IWAN, S. (2010) Urban consolidation centres for medium-size touristic cities in the Westpomeranian Region of Poland. *Procedia – Social and Behavioral Sciences* 2 (3), pp. 6264–6273, doi: 10.1016/j.sbspro.2010.04.036.
- CIACCI, A., IVALDI, E., MANGANO, S. & UGOLINI, G.M. (2023) Environment, logistics and infrastructure: the three dimensions of influence of Italian coastal tourism. *Journal of Sustainable Tourism* 31(7), pp. 1583–1607, doi: 10.1080/09669582.2021.1876715.
- CONTI, G. & PERELLI, C. (2004) Seaside tourism monoculture versus sustainability. The erosion of the social contract in the Rimini model. *Rivista Planum, Sociology, Business* 11, pp. 1–16.
- CUI, H. (2020) Design of cruise tourism competitiveness evaluation system in port city. In: Yang, Y., Mi, C., Zhao, L. and Lam, S. (eds). *Global Topics and New Trends in Coastal Research: Port, Coastal and Ocean Engineering. Journal of Coastal Research*, Special Issue 103(sp1), pp. 1075–1078, doi: 10.2112/SI103-224.1.

9. FERRARI, G., MONDÉJAR-JIMÉNEZ, J. & SECONDI, L. (2018) Tourists' expenditure in Tuscany and its impact on the regional economic system. *Journal of Cleaner Production* 171, pp. 1437–1446, doi: 10.1016/j.jclepro.2017.10.121.
10. FERREIRA, F.A., CASTRO, C. & GOMES, A.S. (2021) Positive and negative social-cultural, economic and environmental impacts of tourism on residents. In *Advances in Tourism, Technology and Systems: Selected Papers from ICOTTS20*, Volume 1 (pp. 288–298). Springer Singapore.
11. GRAY, D.L., CANESSA, R.R., KELLER, C.P., DEARDEN, P. & ROLLINS, R.B. (2011) Spatial characterization of marine recreational boating: Exploring the use of an on-the-water questionnaire for a case study in the Pacific Northwest. *Marine Policy* 35 (3), pp. 286–298, doi: 10.1016/j.marpol.2010.10.005.
12. HĄCIA, E. (2012) Uwarunkowania rozwoju turystyki w regionach nadmorskich w Polsce. *Logistyka* 3, pp. 779–786.
13. HĄCIA, E. (2014) The development of tourist space in Polish port cities. *Procedia-Social and Behavioral Sciences* 151, pp. 60–69, doi: 10.1016/j.sbspro.2014.10.008.
14. HĄCIA, E. (2019) The role of tourism in the development of the city. *Transportation Research Procedia* 39, pp. 104–111, doi: 10.1016/j.trpro.2019.06.012.
15. HALL, C.M. & PAGE, S.J. (2014) *The Geography of Tourism and Recreation: Environment, Place and Space*. Routledge.
16. KOUTOULAS, A., FRANKLIN, J.P. & ELIASSON, J. (2017) Assessing night-time deliveries in Stockholm, Sweden. *Transportation Research Record* 2605 (1), pp. 54–60, doi: 10.3141/2605-05.
17. KRAJŃÁK, T. (2021) The effects of terrorism on tourism demand: A systematic review. *Tourism Economics* 27 (8), pp. 1736–1758, doi: 10.1177/1354816620938900.
18. KUREK, W. & MIKA, M. (2007) Turystyka jako przedmiot badań naukowych. In: W. Kurek (Ed.) *Turystyka*. Warszawa: PWN.
19. ŁAPKO, A., HĄCIA, E. & WIECZOREK, R. (2021) Collection of waste from passenger ships and its impact on the functioning of tourist port city Świnoujście. *Sustainability* 13 (4), 2133, doi: 10.3390/su13042133.
20. ŁAPKO, A. & PANASIUK, A. (2019) Water tourism as a recipient of transport services on the example of Szczecin. *Transportation Research Procedia* 39, pp. 290–299, doi: 10.1016/j.trpro.2019.06.031.
21. ŁAPKO, A., STRULAK-WÓJCIKIEWICZ, R., LANDOWSKI, M. & WIECZOREK, R. (2018) Management of waste collection from yachts and tall ships from the perspective of sustainable water tourism. *Sustainability* 11(1), 121, doi: 10.3390/su11010121.
22. MAŁECKI, K. (2016) The importance of automatic traffic lights time algorithms to reduce the negative impact of transport on the urban environment. *Transportation Research Procedia* 16, pp. 329–342, doi: 10.1016/j.trpro.2016.11.032.
23. MANDIĆ, A. (2021) Optimization of tourism development in destinations: an approach used to alleviate the impacts of overtourism in the Mediterranean region. In: A. Spenceley (Ed.), *Handbook for Sustainable Tourism Practitioners: The Essential Toolbox*, pp. 347–365. Edward Elgar Publishing.
24. MAZURKIEWICZ, G. (2021) Inteligentne systemy transportowe i ich znaczenie dla koherencji łańcuchów dostaw. *Przedsiębiorczość i Zarządzanie* 22 (2), pp. 227–239.
25. MRNJAVAC, E. & IVANOVIC, S. (2007) Logistics and logistics processes in a tourism destination. *Tourism and Hospitality Management* 13 (3), pp. 531–546, doi: 10.20867/thm.13.3.1.
26. PAWŁOWSKI, A. & MICHALSKI, K. (2022) Ocena działania Inteligentnych Systemów Transportowych w zakresie poprawy bezpieczeństwa w wybranych miastach Polski. In: M. Roman, J. Domagała & A. Górecka (Eds), *Logistyka wczoraj, dziś i jutro. Kierunki zmian, innowacje i perspektywy rozwoju sektora transportu i logistyki*, pp. 6–16. Warszawa: Wyd. SGGW.
27. PIETRZAK, K., PIETRZAK, O. & MONTWILL, A. (2023) A study on the effects of applying cargo delivery systems to support energy transition in agglomeration areas – an example of the Szczecin agglomeration, Poland. *Energies* 16 (24), 7943, doi: 10.3390/en16247943.
28. RAM, Y., GAL-TZUR, A. & REHAVI, A. (2021) Identifying attributes of public transport services for urban tourists: A data-mining method. *Journal of Transport Geography* 93, 103069, doi: 10.1016/j.jtrangeo.2021.103069.
29. RUSSO, F., CALABRÒ, T., IIRITANO, G., PELLICANÒ, D.S., PETRUNGARO, G. & TRECOZZI, M.R. (2020) City logistics between international vision and local knowledge to sustainable development: The regional role on planning and on public engagement. *International Journal of Sustainable Development and Planning* 15 (5), pp. 619–629, doi: 10.18280/ijstdp.150504.
30. SKRZESZEWSKA, K. (2015) Wybrane aspekty rozwoju turystyki nadmorskiej i morskiej krajów regionu Morza Bałtyckiego. *Przedsiębiorczość i Zarządzanie* 16 (4.2), pp. 43–60.
31. TOMASZEWSKA, E.J. (2022) Korzyści wdrożenia inteligentnego systemu transportowego w mieście. *Academy of Management* 6 (3), pp. 333–362, doi: 10.24427/az-2022-0046.
32. VANTOLA, R., LUOMA, E., PARVIAINEN, T. & LEHIKONEN, A. (2021) Sustainability manifesting as a multi-material and-sited network effect: How boat-sourced sewage management facilities serve as governance artefacts advancing sustainability in nautical tourism. *Marine Pollution Bulletin* 173, Part B, 113114, doi: 10.1016/j.marpolbul.2021.113114.
33. WAGNER, N., KOTOWSKA, I. & PLUCIŃSKI, M. (2022) The impact of improving the quality of the port's infrastructure on the shippers' decisions. *Sustainability* 14 (10), 6255, doi: 10.3390/su14106255.
34. WARSZYŃSKA, J. & JACKOWSKI, A. (1979) *Podstawy geografii turystyki*. Warszawa: Polskie Wydawnictwo Naukowe.
35. XU, S. & HU, Y. (2021) How do residents respond to negative environmental impacts from tourism? The role of community participation in empowering residents' environmentally responsible behavior. *International Journal of Tourism Research* 23 (6), pp. 1099–1111, doi: 10.1002/jtr.2471.

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