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Ilona Urbanyi-Popiołek

Gdynia Maritime University
e-mail: i.urbanyi@wpit.am.gdynia.pl

Analysis of the development of Polish ferry market in context of selected external determinants

JEL code: R41

Keywords: ferry market, South Baltic, commercial intercourse

Abstract: Polish ferry market is a prime segment of ferry industry in Baltic Sea Region. Services from Polish ports to Sweden play an important role in the carriage of wheeled cargo between Central Europe and Scandinavia. The increase in trade turnover affects the demand for ferry transport. The aim of the article is to analyze the selected determinants influencing the activity of carriers on Polish market. The paper focuses on cargo transportation, the passenger segment is not researched.

Introduction

Ferry shipping operates in many regions of the world. Northern Europe and Mediterranean are the core markets with Baltic Sea being one of the prime segment of ferry industry (Kizielewicz, Urbanyi-Popiołek, 2015, p. 126). Stapford states that ferries transport people, goods and vehicles over short distances by sea (Stapford, 2009, p. 501). Ferry shipping is identified as a segment of short sea shipping (Musso et al., 2010, p. 401). Paixao and Marlow as well as Daduna et al. emphasize the importance of ferry services in multimodal transport chains (Paixao, Marlow, 2009, pp. 1–19, Daduna et al., 2012, pp. 304–319). These connections are an element of road-sea transport systems to and from continental Europe (Musso et al., 2010, pp. 401–410).

It is not possible to precisely estimate the volume of passenger and freight traffic in Baltic Sea Region at present. In previous years, the carriers published the annual and monthly volumes achieved on their routes, so it was possible to accurately estimate the turnover. Since 2015 some operators have stopped publishing data.

On the basis of previous volumes and market trends, the level of ferry traffic in 2016 was estimated, almost 49 mln passengers, 9 mln cars and about 3 ml cargo units were carried on international and main domestic Danish and Swedish ferry lines (e.g. Bornholm and Gotland) (Shippax Market 16, 2016, pp. 178–196).

Three regions of international ferry traffic are distinguished in the Baltic Sea:

- West Baltic – covers the lines between Denmark and Sweden, Norway and Germany, services from Sweden to Norway and Germany and line Germany–Norway; the west market accounts for about 54% of passenger and about 62% of freight traffic,
- East Baltic – composes services from Sweden to Finland and Estonia, lines from Estonia to Finland and Russia; the east market accounts to 37.5% of passenger and about 19% of freight turnover,
- South Baltic/Central Baltic – includes services between Sweden and Poland, lines from Sweden to Latvia and Lithuania and the connections between Germany and Lithuania, Latvia and Finland; the central market constitutes the 8.5% of passenger transport and about 19% of freight.

Baltic ferry business is highly concentrated, 16 major carriers operate on the primary international and domestic markets. Stena Line, Finnlines, Tallink, Scandlines and TT-Line dominate in terms of transport capacity and market share. Some of Baltic carriers utilize only ferries (e.g. TT-Line, Unity Line, Viking Line), a few operate both passenger-cargo and pure ro-ros (e.g. Finnlines, DFDS Seaways).

1. Methodology

The mutual economic connections between the Baltic Sea Region countries as well as between the Baltic States and the countries of West and Central Europe are essential for the development of trade in the region. Most states in BSR and Central Europe trade with neighbors and countries located relatively close. Commercial relations and the size of the international exchange affect cargo flows between continental Europe and Scandinavia.

The principal aim of this paper is to explore the prime determinants influencing the development of Polish ferry shipping and to research how growing demand will affect this market.

The research hypothesis is: the growth of trade between Scandinavia and Central Europe will increase the demand for ferry transport from Polish ports. Detailed research hypothesis is that: ferry services between Poland and Sweden constitute the primary market on the South Baltic and the carriers must increase the capacity to meet the growing demand.

The development of international trade and the demand for transport service are determined by a number of factors (Grzelakowski, 2010, p. 74):

- macroeconomic factors of the economic growth of the Baltic Sea Region and Central and Eastern Regions, expressed in terms of synthetic growth of GDP in these countries, the increase in production and consumption, the dynamics of trade development and its commodity and geographical structure,
- transport conditions determining the ability to handle trade flows between the countries of the region as well as transit cargo,
- regulatory conditions that fall within the scope of EU transport and horizontal policies.

In order to analyze the development potentialities of Polish ferry market and verify the hypothesis, the author of this article has focused on following aspects: international trade volumes between Scandinavia and Central Europe, South Baltic ferry market, potential of Polish ferry market. The author focuses on cargo transportation, the passenger segment is not researched. The research methods are the analysis of original data of trade turnover and ferry operators potential in South Baltic.

2. Analysis of commercial intercourse between Central Europe and Scandinavia

Central Europe and Scandinavia are displaying close commercial relations. However, the mutual turnover shows the difference in volume of exports to and imports from individual states. The highest trading volume is observed with Sweden being the main Scandinavian partner for Central European countries.

Poland is Sweden’s largest trading partner in Central Europe, with a 3% share of total imports and exports of Sweden. This applies to both value and volume turnover. The next are Czech Republic (1% in imports and exports), Hungary and Slovakia (both countries 1% in imports and less than 1% in exports). These states show relatively higher turnover than those located further south (Table 1).

Swedish exports into Central European countries show instability, with large fluctuations in turnover. The most important export partners next to Poland are Czech Republic, Lithuania, Hungary and Slovakia (Table 1).

Further growth in turnover between Sweden and Central Europe is estimated on the basis on turnover figures (see Figure 1), e.g. Sweden’s imports from Poland are expected to rise by 24%, from Czech Republic by 28%, Slovakia by 34% and Hungary by nearly 8%. Exports to Poland show the high dynamics of growth among the countries in the region and till 2020 they will increase by 18%, while exports to Czech Republic show a 16%, to Slovakia nearly 15% and Hungary 22% increase.

Norway’s trade with Central and Eastern Europe is lower in value and volume in comparison with Sweden. Norway’s main partner is again Poland with 3% share in Norwegian imports and 2% share in exports. The Czech Republic and Lithuania occupy 1% of imports and less than 1% of Norway’s exports respectively. The turnover of Norway

Table 1. Exports and imports turnover between Sweden and selected Central and East Europe countries in years 2015–2016

Country	Imports				Exports			
	value SEK (thousand)	value SEK (thousand)	volume (tonnes)	volume (tonnes)	value SEK (thousand)	value SEK (thousand)	volume (tonnes)	volume (tonnes)
	2015	2016	2015	2016	2015	2016	2015	2016
Poland	37,979,991	40,629,897	2,389,957	2,334,118	35,365,845	37,569,338	2,406,277	2,367,854
Czech Republic	16,434,813	16,620,752	297,511	331,521	8,665,088	9,403,232	327,081	360,018
Hungary	8,739,142	9,718,483	112,244	127,768	5,324,402	5,140,639	202,352	216,275
Lithuania	7,436,331	9,244,214	687,328	827,602	7,208,603	7,536,659	457,759	448,685
Slovakia	7,896,713	8,883,938	137,534	140,566	2,609,129	2,639,772	160,921	150,795
Romania	3,703,823	3,716,395	69,181	66,076	2,750,506	2,826,625	112,552	113,719
Slovenia	1,621,488	1,895,742	28,514	31,581	1,081,193	1,219,187	48,801	58,866
Bulgaria	1,207,100	1,399,596	28,440	32,248	1,103,654	1,147,855	32,135	40,158

Source: own elaboration based on SCB Statistic Sweden.

is characterized by imbalance, imports from Central and East Europe exceed exports, with the lowest balance being seen for Poland and Lithuania (Table 2).

The prediction indicates Norway's imports from the region will continue to grow by 2020, with the highest growth rate in Czech Republic (around 18%) and Slovakia (28%). Poland's imports will increase by around 8% (Figure 2). Exports to Poland are predicted to grow by about 23% and to Hungary – by 6%.

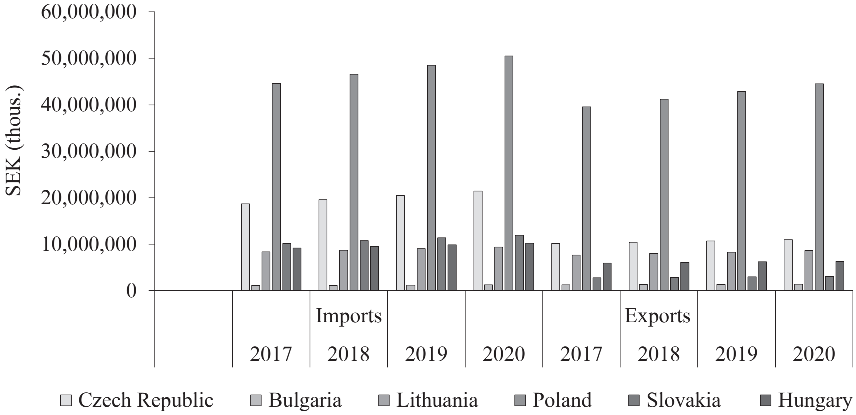

Figure 1. Prediction of commercial intercourse between Sweden and selected countries (SEK)

Source: own elaboration based on SCB Statistic Sweden.

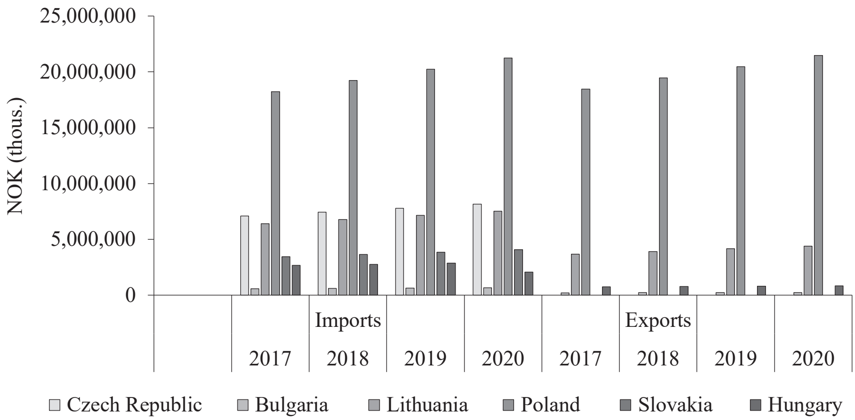

Figure 2. Prediction of commercial intercourse between Norway and selected countries (NOK)

Source: own elaboration based on SSB Statistic Norway.

Table 2. Exports and imports turnover between Norway and selected Central and East Europe countries in years 2015–2016

Country	Imports				Exports			
	value NOK (thousand)	value NOK (thousand)	volume (tonnes)	volume (tonnes)	value NOK (thousand)	value NOK (thous.)	volume (tonnes)	volume (tonnes)
	2015	2016	2015	2016	2015	2016	2015	2016
Poland	18,672,271	21,397,007	896,110	1,084,098	16,160,910	17,431,626	2,687,205	2,118,899
Czech Republic	6,443,504	6,862,502	114,325	120,738	1,452,208	1,855,678	45,136	95,018
Lithuania	6,100,841	6,720,333	407,605	351,373	3,805,186	5,148,941	527,951	1,189,199
Romania	4,062,953	2,909,827	38,531	47,214	1,113,445	761,356	21,448	19,242
Slovakia	2,812,673	3,183,096	48,214	50,859	295,511	324,164	29,670	31,336
Hungary	2,512,201	2,712,695	43,195	46,376	896,822	804,466	25,362	29,221
Slovenia	1,019,454	1,078,533	15,784	16,588	246,521	61,333	53,986	1,889
Bulgaria	579,654	624,611	17,817	20,901	183,779	295,015	20,710	33,657

Source: own elaboration based on SSB Statistic Norway.

Table 3. Exports and imports turnover between Denmark and selected Central and East Europe countries in years 2015–2016

Country	Imports				Exports			
	value DKK (thous.)	value DKK (thous.)	volume (tonnes)	volume (tonnes)	value DKK (thous.) (thous.)	value DKK (thous.)	volume (tonnes)	volume (tonnes)
	2015	2016	2015	2016	2015	2016	2015	2016
Poland	19,135,684	21,970,908	1,450,412	1,643,429	17,173,620	17,115,637	1,061,138	926,360
Czech Republic	8,889,195	9,547,587	201,747	227,520	3,976,621	3,832,182	105,223	197,796
Hungary	4,220,483	4,899,560	99,140	100,044	3,445,544	3,720,356	73,003	125,925
Lithuania	3,833,210	3,412,874	434,637	350,335	2,662,752	2,982,764	130,090	137,104
Slovakia	2,617,898	3,045,868	113,032	121,763	1,622,386	1,357,719	51,873	45,778
Romania	1,513,221	2,399,629	35,706	43,787	1,468,713	1,467,353	49,075	49,342
Slovenia	1,372,196	1,636,252	39,309	35,703	550,003	554,139	12,534	12,735
Bulgaria	808,969	918,275	18,654	21,938	633,768	616,369	34,084	18,162

Source: own elaboration based on SBD Statistic Denmark.

Denmark is the third Nordic commercial partner for Central Europe. As for the other Scandinavian countries, Poland is the main trading partner also for Danish business, with 3% share of total exports and imports. The Czech Republic (2% in import and 1% in export), Hungary (1% in import and export) show relatively high turnover (Table 3). The reciprocal turnover of Poland, Hungary, Bulgaria and Romania shows the greatest balance in terms of value and volume. For the rest, certain disproportion appears, but not as distinct as in Sweden and Norway.

Denmark's imports from the countries of the discussed region will continue to grow by 2020, for example from Poland by 10%, Czech Republic and Slovakia by 22% and Hungary by 24%. Projected exports to Poland will increase by 17% , to Czech Republic by 27%, Slovakia by 43%, Hungary by around 23% (Figure 3).

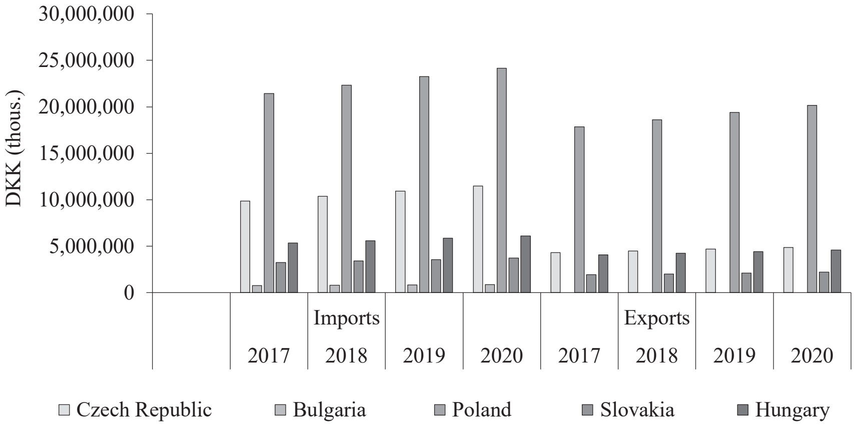

Figure 3. Prediction of commercial intercourse between Denmark and selected countries (DKK)

Source: own elaboration based on SBD Statistic Denmark.

Projection of trade turnover between Scandinavia and selected Central Europe countries for the next four years was based on time series comprising the period 2000–2016 (16 years). The polynomial function was used to estimate the level of exports and imports till 2020. In some cases the projection is not possible as the trend function was not matched to the data.

Presented commercial intercourse is the prime determinant developing the cargo flows in regional transport chains and affecting the demand for ferry shipping.

3. Analysis of competing ferry routes on South Baltic compered to Polish ferry market

The ferry market on the South Baltic includes lines from Germany to Denmark and Sweden, between Sweden and Poland as well as from Sweden to Lithuania. With reference to Polish ferry market, services from Germany in West Baltic are less important. One is the westernmost Puttgarden–Rodby (the “bird’s eye” line), which is the shortest link between Germany and Denmark for Western Europe, for haulers not using Jutland. The second is Travemunde–Trelleborg connecting western part of Germany with southern Sweden.

Competitive environment of the Polish market constitute services connecting eastern coast of Germany with Sweden and Denmark. The greatest potential is concentrated on Rostock–Trelleborg (Table 4). The route is operated jointly by two carriers – TT-Line and Stena Line, offering 3–5 day departures per day. The other is Rostock–Gedser, the short cut alternative for cargo transported from Central Europe via Germany do Denmark. The Klaipeda–Karlshamn is the most East service on the central Baltic, but it is not a strong competitor for the Polish market.

Table 4. Ferry market on South Baltic

Market	Service	Operator	Number of ferries	Remarks
Germany–Denmark	Puttgarden–Rodby	Scandlines	5	Up to 48 departures daily
	Rostok–Gedser	Scandlines	2	8–10 daily departures
Germany–Sweden	Travemunde–Trelleborg	TT–Line	5	3–4 daily departures
	Rostok–Trelleborg	TT–Line	5	3–5 daily departures
	Rostok–Trelleborg	Stena Line	2	3–5 daily departures
	Sassnitz–Trelleborg	Stena Line	1	1–2 daily departures
Lithuania–Sweden	Kłajpeda–Karlshamn	DFDS Seaways	2	1 daily departure

Source: own elaboration based on *Shippax Market 16*, *Shippax Guide 16*.

Rostock–Trelleborg is the most competing for Polish operators. In the first decade of the 21st century, TT-Line and Stena Line used to carry 280–290 thous. cargo units yearly. From 2009 the route has revealed decrease in volumes due to crisis. In subsequent years, the traffic has been gradually recovering. Sassnitz–Trelleborg is demonstrating a fall in cargo volumes. The Scandlines Rostock–Gedser, after the drop in 2009, has been increasing the traffic since 2010. The forecast for both services from Rostock predicts further growth in cargo volumes (Figure 4). The prediction for the other two links is not possible due to the lack of data published by the carriers.

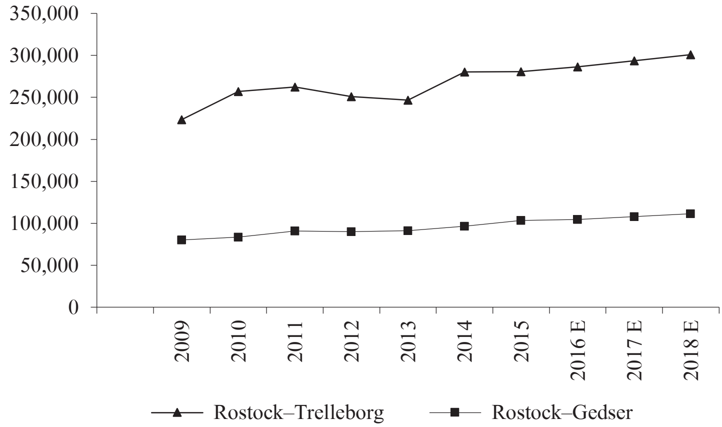

Figure 4. Prediction of cargo traffic on Rostock–Travemunde and Rostock–Gedser (number of standard truck)

Source: own elaboration based on *Shippax Market 16*, *Shippax… 14*, *Shippax… 12*, *Shippax… 10*.

4. Potential of Polish ferry market on South Baltic

The connection between Poland and Sweden is one of the most important in the Baltic Sea Region. Polish ferry market comprises links from ports of Gdynia and Gdańsk located at East Coast and from Świnoujście at West to Sweden. The services are as follows:

- Gdynia–Karlskrona (Stena Line),
- Gdańsk–Nynashamn (Polish Baltic Shipping Company – Polferries),
- Świnoujście–Ystad (Unity Line),
- Świnoujście–Trelleborg (Unity Line),
- Świnoujście–Ystad (Polish Baltic Shipping Company – Polferries),
- Świnoujście–Trelleborg (TT-Line).

Altogether 14 ferries ply these routes. The largest capacity is concentrated on the Świnoujście–Ystad and Świnoujście–Trelleborg, which are operated by 10 ferries. Other services are Gdynia–Karlskrona (3 ferries) and Gdańsk–Nynashamn (1 ferry). It is visible that the most important are connections from Świnoujście, due to the number of services and a relatively high competition between the operators (Table 5).

In the years 2008–2015 ferry connections from Polish ports recorded a steady growth of cargo traffic, average by 2–8% per year depending on the line. Unity Line carried the largest number of cargo units by 2014 – nearly 53%, due to lack of data, it is not possible to unequivocally confirm a similar share of the carrier in 2015–2016 (Table 6). The prediction indicates that the volume of ferry traffic on the Polish market will keep a trend of growth and reach freight traffic of about 545–560 thousand freight units.

Table 5. Fleet operating on services Poland–Sweden

Ferry	Type	Blt	Load line (m)	Service
Polferries				
Masovia	Ro-pax	1996	2,400	Świnoujście–Ystad
Baltivia	Ro-pax	1981	1,408	Świnoujście–Ystad
Wawel	Ro-pax	1980	1,490	Gdańsk–Nynashamn
Unity Line				
Polonia	Cruise/trailer	1995	1,716	Świnoujście–Ystad
Skania	Cruise/trailer	1995	1,675	Świnoujście–Ystad
Wolin	Ro-pax	1986	1,720	Świnoujście–Trelleborg
Galileusz	Ro-pax	1992	1,742	Świnoujście–Trelleborg
Gryf	Ro-pax	1991	1,880	Świnoujście–Trelleborg
Jan Śniadecki	Ro-rail	1988	1,078	Świnoujście–Ystad
Kopernik	Ro-rail	1977	925	Świnoujście–Ystad
TT-Line				
Nils Dacke	Ro-pax	1995	2,400	Świnoujście–Trelleborg
Stena Line				
Stena Vision	Cruise/trailer	1987	2,214	Gdynia–Karlskrona
Stena Spirit	Cruise/trailer	1988	2,214	Gdynia–Karlskrona
Stena Baltica	Ro-pax	2007	2,188	Gdynia–Karlskrona

Source: own elaboration based on *Shippax Market 16*, *Shippax Guide 16*.

Table 6. Cargo units transported by ferries between Poland and Sweden

Service	Operator	2013	2014	2015
Świnoujście–Ystad	Polferries	59,559	58,645	64,549
Świnoujście–Ystad	Unity Line	136,261	129,563	–
Świnoujście–Trelleborg	Unity Line	118,073	110,568	–
Świnoujście–Trelleborg	TT-Line	0	31,617	–
Gdynia–Karlskrona	Stena Line	102,849	116,828	105,561
Gdańsk–Nynashamn	PŻB	8,548	9,263	11,708

Source: own elaboration based on *Shippax Market 16*, *Shippax… 14*, *Shippax… 12*.

Total ferry turnover on Polish market and prediction of cargo units are presented in Figure 5.

Increasing mutual trade will result in growing demand for ferry transport from Continent to Scandinavia. The structure of reciprocal trade (processed goods) is the driving force behind the demand for intermodal transport, which is predisposed to ferry transport. The completion of the basic network of expressways and motorways as well as the modernization of railways to Polish ferry terminals, will improve the access infrastructure. These determinants should result in increased demand for ferry services.

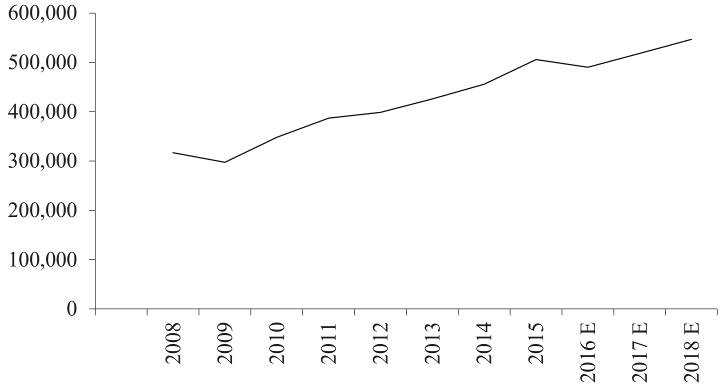

Figure 5. Cargo traffic on Polish ferry markets (number of standard truck)

Source: own elaboration based on *Shippax Market 16*, *Shippax… 14*, *Shippax… 12*, *Shippax… 10*.

The current transport potential on the Świnoujście and Gdańsk/Gdynia lines will be insufficient to cope with growing demand. It is estimated that the use of, e.g. the Gdańsk–Nynashamn loading line in 2016 was about 81%. The similar utilization capacity is observed on Stena Line Gdynia–Karlskrona and on ships operated from Świnoujście.

Conclusion

Commercial intercourse between Central Europe and Scandinavia is showing an upward trend and a further increase in mutual exchange of goods is expected. Increasing trade will result in increased demand for ferry transport from Polish ports. Current tonnage operated on Polish market is insufficient in capacity. Hence carriers to improve their competitiveness and adjust the transport possibilities to the increasing demand has to invest in tonnage. Polferries has purchased another second-hand ro-pax for Świnoujście service and ordered a new building to increase the capacity, Stena Line is planning to put the fourth ship on Gdynia–Karlskrona. Analyses of trends in trade and ferry traffic as well as carriers activities prove the growing role of Polish services on South Baltic.

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SBD Statistic Denmark.

SCB Statistic Sweden.

SSB Statistic Norway.

ANALIZA ROZWOJU POLSKIEGO RYNKU ŻEGLUGI PROMOWEJ W KONTEKŚCIE WYBRANYCH CZYNNIKÓW ZEWNĘTRZNYCH

Słowa kluczowe: rynek promowy, Południowy Bałtyk, wymiana handlowa

Streszczenie: Polski rynek żeglugi promowej jest ważnym segmentem przewozów promowych w regionie Morza Bałtyckiego. Linie z polskich portów tworzą istotne ogniwo w przewozach ładunków tocznych między Środkową Europą a Skandynawią. Wzrost obrotów handlowych generuje popyt na przewozy promowe z polskich portów. Celem artykułu jest analiza wybranych czynników wpływających na wielkość zapotrzebowania na usługi przewoźników promowych. W artykule skupiono się na przewozach ładunków; ruch pasażerski nie był przedmiotem badań.

Cytowanie

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