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The importance of the New Silk Road for the development of rural and municipal commune of Terespol

Abstract. One of the key factor for local development is an advantageous localization in terms of transportation, especially along or on the crossroads of major transport corridors. One of such corridor on the Eurasian continent is the New Silk Road which crosses Polish-Belarusian border in Terespol, where in Małaszewicze complex of intermodal terminals is located. The aim of this study was to verify the impact of this corridor on the evolution of the TFL sector in the Terespol rural and municipal communes in relation to theirs socio-economic growth. Conducted analysis confirmed sings of that the New Silk Road may be consider as a driving force for development in local scale.

Key words: New Silk Road, TFL, local development

Introduction and the aim of the study

The importance of transport infrastructure and transport services provided on the transport network have long been the subject of scientific research (see for example Zakrzewski and Nowacki, 2016). Ensuring adequate transport accessibility is treated as one of the important factors determining development both on global and regional and local scale (Ratajczak, 2000; Rietveld and Bruinsma, 1998; Rietveld and Nijkamp, 2001). In the context of the administrative division of Poland, the process taking place at the level of voivodships is considered to be regional development, and the process taking place at the level of poviats and communes as local (Szewczuk el al., 2011, p. 14). Only the right level of the environment, which includes elements of the transport system, can be the foundation for development (Rolbecki, 2009, Szewczuk, 2011). This is reflected in many theories of regional and local development (Szajnowska-Sitek and Sitek, 2015). In the case of cargo transport, the correct use of the infrastructure is possible only if services are provided that are sufficient in terms of both quantity and quality. The full use of the development potential of infrastructure is therefore closely related to the functioning of the TFL sector (Transport, Forwarding, Logistics). It has been known for

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Table 1. Estimated number of trains and dynamics of change in their number (year to year) on the New Silk Road

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
No. of trains	17	42	80	308	815	1 702	3 673	6 376	8 225	12 406	15 000
Year to year change [%]		247,06	190,48	385,00	264,61	208,83	215,80	173,59	129,00	150,83	120,91

Source: own work based on Eurasian Railway Alliance, RailFreight.com.

centuries that places located along and at the intersection of the most important transportation routes have a special potential for development based on the handling of transport processes. This potential may be increased by locating at the boundary of the areas where customs have to be handled or some other special operations are required. Terespol communes, rural and municipal, are situated in Poland, in the Lublin voivodship, in the Bialski powiat. Their eastern borders are at the same time the borders of country and European Union (EU). In these communes one of the most important road and rail border crossing for both Poland and EU are located. These two crossings are handling every year a significant part of the trade between Poland and the EU with the Commonwealth of Independent States (CIS) and since few years also with the Far East countries via the New Silk Road (NSR). The communes are also close to the north-south transport corridor from the Baltic States to the Balkans being the one of the major transport axis in this part of Europe.

On the Polish side, both communes have good transport connections with the rest of the country and Europe. The main road link is the A2 highway which is a part of E30 route. This corridor stretches from Omsk in Russia to Cork in Ireland, crossing Poland latitudinally. The aforementioned motorway crosses in Międzyrzec Podlaski, city located 60 km to the west of Terespol, with the S19 expressway (*Via Carpatia*), which starts in Klaipeda in Lithuania, then runs longitudinally along the eastern border of Poland, to reach Saloniki in Greece. These two roads connect both of the Terespol communes to the road network of Poland and Europe. Although significant flow of wheeled vehicles may suggest focusing on the role of road transport in the development of Terespol communes, the NSR initiative, which has been developing in recent years, encourages to take a special look at the importance of rail transport. From Moscow in Russia to Berlin in Germany via Terespol crosses E20 rail corridor. The Moscow railway junction, on the other hand, is a point enabling the connection via Kazakhstan with China. Since 2013, when the New Silk Road project entered the implementation phase, intermodal terminals in Małaszewicze began to receive more and more rail transports from and to China. In a few years, this new direction changed the previous purpose of the terminals, which was the service of traffic to and from CIS countries. As data published by Eurasian Railway Alliance shows (Table 1), every subsequent year from then more and more trains is going in both directions. Some reports say that the capacity of the track infrastructure has been used to its limit.

However, there is still an unmet demand for transport services on the railroad route from China to Europe. Striving to handle it forces the development of infrastructure and services supporting transport, in which the TFL sector plays a key role. In order to emphasize the special role of Małaszewicze, it should be mentioned that in Małaszewicze there is a point for changing bogies from 1452 mm, standard for Poland and most of the European Union countries, to 1520 mm which is the standard for the CIS countries. Such a significant role in the emerging transport corridor of the NSR, related to the unique location, naturally predisposes Terespol communes to attract the TFL sector investments. Significant investments may become a driving force for local development. Thus the aim of this study is to try to capture whether there is a link between the NSR and the local development of both communes. Bearing in mind that it is difficult to show the direct impact of infrastructural investments on the local economy, the author notes that the research is aimed at identifying certain areas in which there are signs of such relationships rather than determining the exact strength and scope of them.

Methodology

Although the first trains under the NSR were operating since 2013, and the actual beginning of a stable operating activity on a larger scale begins in between 2015–2016 the general time frame of the analysis was 2010–2020/2021. Considering the modest size of this study, the author is aware that its scale will not allow to explain the entirety of the studied problem in full and detailed terms, but rather to indicate its main aspects. Although the complex of intermodal terminals functioning under the NSR is located in a rural commune, taking into account the close relationship between a rural and an urban commune, both were included in the study.

Various sources of quantitative and qualitative information were used to gather all required data to analyze the influence of the TFL sector on communes development. Analysis of the content of strategic documents published by communes authorities should give an opportunity to show the self-awareness of these bodies and whether they recognize the NSR, and consequently the related TFL sector, as a driving force for their socio-economic growth. In addition, the data published by the Office of Rail Transport should allow to present the state of the hard infrastructure of railway terminals, which are the main element of the TFL sector related to NSR located in Terespol communes.

To show the importance of development on a micro scale, the author focused on the Local Data Bank (LDB, *Bank Danych Lokalnych*), which allows access to selected information at the level of individual voivodships, poviats and communes. Using the generally accepted in Poland classification of economic activities (PKD – Polska Klasyfikacja Działalności), the author focused on the section on transport and storage (Section H). The study covered only divisions 49 (land and pipeline transport), 52 (warehousing and service supporting transport) and 53 (postal services), omitting sections 50 (water transport) and 51 (air transport) because the types of economic activity assigned to these two divisions do not exist in the Terespol communes (Rozporządzenie, 2007).

Among the available data, the ones that seem to be the most suitable to capture the relationship between the TFL sector and the development of the communes were selected. The following indicators have been selected:

- number of entities operating in the TFL sector,
- unemployment rate and working people per 1,000 population,
- share in corporate tax.

Results

Strategic documents of local government authorities

Adopting any strategic guidelines at the local commune level should be consistent with the guidelines adopted at higher levels of local government administration, including powiat [powiat (Rada Powiatu w Białej Podlaskiej, p. 57) and voivodship (Zarząd Województwa Lubelskiego, 2021, p. 26)] and the national level (Ministerstwo Infrastruktury 2019, p. 51, 56, 76). In the latter case, the need to develop Eurasian rail connections is clearly indicated. Mentioned documents should be a significant incentive for the authorities of Terespol municipalities to use the transport potential for their own development. Unfortunately, the last strategic document available on the commune's websites comes from 2008 and concerns the perspective until 2020 (Urząd Gminy Terespol, 2008). Nevertheless, that document is referring to the significance of the commune's location in relation to Polish and European Union border in combination with the existing network of transport corridors, including international rail corridor which is a part of the NSR. The role of the TFL sector is well recognized by the local authorities. Both communes are consequently set their plans towards its development. The use of an advantageous location with the support of local authorities may be an incentive for the placement of enterprises, which should translate into the development of both communes, visible, for example, in increased employment or higher tax revenues. At the same time, however, the documents show certain threats resulting from excessive traffic volume on transport networks and the noise and pollution associated with it. Moreover Zwolińska and Ciechańska (2012) showed that local authorities viewed infrastructure in a broad sense, also taking into account development needs in terms of social infrastructure, etc.

Rail terminals

There are four intermodal terminals located in Terespol rural commune. All of them are placed within Małaszewicze cargo station. Basic information about the terminals are presented in Table 2. All these terminals have been in operation for at least ten years. Every one of them is capable to handle container operations however they also have their minor specializations (for example, Adampol is strongly focused on the transport of vehicles, while Agrostop has a significant share of loose goods). Each of the terminals takes part in the handling of transports under the NSR. The successive annual increase in the serviced volume contributes to the implementation of further infrastructure investments (for example, the expansion of the PKP Cargo terminal). Gathering potential of all four terminals makes them one of the biggest terminal group in Poland in terms of

annual throughput capacity of TEU handled (excluding sea ports in Gdańsk and Gdynia). The dry port in Małaszewicze together with the Central Communication Port (CPK – *Centralny Port Komunikacyjny*) under construction and the deep-water container terminal in Gdańsk (DCT Gdańsk) are to be elements of the so-called the Triport (*Trójpport*) being the backbone of the Polish future transport system of supranational importance. Recognizing the importance of Małaszewicze in national development plans should translate into increased profits for Terespol communes resulting from investments supported by the central authorities.

Table 2. Intermodal terminals in Terespol rural commune

Terminal owner	Adampol S.A.	Agrostop Sp. z o.o.	Cargotor Sp. z o.o.	CL Europort Sp. z o.o.	Sum
Annual throughput capacity [TEU]	140 000	100 000	223 830	80 000	543 830
Storage area [TEU]	10 000	10 000	2 000	1 300	23 300

Source: own work based on Office of Rail Transport; <https://dane.utk.gov.pl/sts/transport-intermodalny/mapa-terminali/18573,Dane-o-terminalach-intermodalnych.html> (access: 20.06.2022).

Enterprises from the TFL sector

Based on the data obtained from the LDB, it can be stated that the companies from the section H in the analyzed period accounted for approximately 17–18% of all entities operating in the municipal and rural commune. There were no entities from division 50 and 51 – water and air transport respectively. The number of companies in the analyzed period increased in both communes, but in the case of a rural commune, that increase was slightly higher. The most noticeable division is 49, which also had the highest growth in the period under review. Taking into account the total number of companies in section H in the rural commune, there are higher number of them than the average for communes in the Bialski powiat and slightly more than the average for communes in the Lublin voivodship. In the case of an municipal commune, the number of companies in section H is slightly higher than the average for communes in the Bialski powiat and noticeably lower than the average for communes in the Lublin voivodship. The growth dynamics in rural commune in the analyzed period was 140% while in municipal it was slightly lower at 130%. These dynamics were higher than the average dynamics for communes in the Lublin voivodship (almost 120%) but noticeably lower than the average dynamics for communes in the Bialski powiat (almost 160%). Although the TFL sector is developing throughout the Lublin voivodship, the extremely high increases in the entire Bialski powiat seems to result from a favorable infrastructure layout, in particular E30 and S19 routes and the international rail connections including the NSR.

Unemployment rate and working per 1,000 population

Data showing the state of the labor market in the rural and the municipal commune of Terespol in comparison to the Bialski powiat and the Lublin voivodship are presented in Table 4 (unemployment) and Table 5 (employees per 1,000 inhabitants). Studying the presented data, it can be concluded that the general employment situation in both

Table 3. Entities by sections and divisions of PKD 2007 and ownership sectors (Dimensions: Ownership sectors; Sections and divisions according to PKD 2007) in Terespol rural and municipal communes in comparison to general situation in Bialski county and Lublin voivodeship

Section/ /division	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
R – S. H	47	49	50	52	50	49	51	58	61	61	62	66
R – S. H / d. 49	23	26	27	28	29	26	27	32	34	34	35	38
R – S. H / d. 52	24	23	23	24	21	22	23	25	26	26	26	27
R – S. H / d. 53	0	0	0	0	0	1	1	1	1	1	1	1
M – S. H	48	54	51	53	60	52	55	55	59	64	61	63
M – S. H / d. 49	32	33	32	34	34	32	36	36	39	43	44	45
M – S. H / d. 52	15	20	18	19	25	19	19	19	20	21	17	18
M – S. H / d. 53	1	1	1	0	0	0	0	0	0	0	0	0
B – S. H	27	29	31	33	33	34	34	37	39	40	41	43
B – S. H / d. 49	24	24	25	26	26	27	27	30	30	33	34	35
B – S. H / d. 52	4	5	5	6	6	6	6	6	6	7	6	7
B – S. H / d. 53	0	0	1	1	1	1	1	1	1	1	1	1
L – S. H	54	52	53	54	54	55	56	57	59	61	63	64
L – S. H / d. 49	50	49	48	48	48	49	50	51	53	54	55	56
L – S. H / d. 52	3	3	4	5	5	5	5	5	6	6	6	6
L – S. H / d. 53	1	1	1	1	1	1	1	1	1	1	1	2

Notes:

S – section,

d – division,

H – transport and warehouse management,

M – municipal commune,

d. 49 – land and pipeline transport,

R – rural commune,

d. 52 – warehousing and service supporting transport,

B – average for all communes in Bialski powiat,

d. 53 – postal and courier services,

L – average for all communes in Lublin voivodeship.

Source: own work based on Local Data Bank, Statistics Poland, <https://bdl.stat.gov.pl/bdl/start> (access: 20.06.2022).

communes improved significantly in the analyzed period. The deterioration of the situation in 2019 and 2020 was most likely caused by the COVID-19 pandemic. Despite the fact that in particular years declines in employment can be observed, the general trend should be described as rising and the situation of the pandemic as its temporary disturbance. Comparing both communes, the improvement is slightly higher in the case of a rural commune. Significantly the labor market in both communes is also much better than in the Bialski powiat or the Lublin voivodeship. The data concern employment in communes in general, not directly referring to employment in the TFL sector. Knowing, however, that this sector is the one of the main driving forces of the local economy of

Table 4. Share of the registered unemployed in the working age population – Terespol rural and municipal communes in comparison to Bialski powiat and Lublin voivodship

Administrative unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total change
Rural	9,9	10,6	10,7	11,1	9,7	8,5	7,4	6,1	5,5	6,4	6,9	-3,0
Rural – year to year change [pp]		+0,7	+0,1	+0,4	-1,4	-1,2	-1,1	-1,3	-0,6	+0,9	+0,3	
Municipal	9,4	10,2	10,3	9,6	8,5	7,7	7,4	6,3	5,4	6,2	7,2	-2,2
Municipal – year to year change [pp]		+0,8	+0,1	-0,7	-1,1	-0,8	-0,3	-1,1	-0,9	+0,8	+1,0	
Bialski powiat	8,5	9,5	10,0	10,0	9,2	8,1	7,7	6,5	6,5	6,2	7,1	-1,4
Bialski powiat – year to year change [pp]		+1,0	+0,5	-	-0,8	-1,1	-0,4	-1,2	-	-0,3	+0,9	
Lublin voivodship	8,7	8,9	9,6	9,9	8,7	8,1	7,3	6,3	5,8	5,5	6,1	-2,6
Lublin voivodship – year to year change [pp]		+0,2	+0,7	+0,3	-1,2	-0,6	-0,8	-1,0	-0,5	-0,3	+0,6	

Source: own work based on Local Data Bank, Statistics Poland, <https://bdl.stat.gov.pl/bdl/start>(access: 20.06.2022).

Table 5. Working people per 1,000 population – Terespol rural and municipal communes in comparison to Bialski powiat and Lublin voivodship

Administrative unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total change
Rural	212	208	233	218	249	247	254	232	281	306	318	+106
Rural – year to year change [pp]		98	112	94	114	99	103	91	121	109	104	150%
Municipal	248	262	260	292	256	271	291	309	353	326	324	+76
Municipal – year to year change [pp]		106	99	112	88	106	107	106	114	92	99	131%
Bialski powiat	117	121	120	126	124	124	129	134	141	150	148	+31
Bialski powiat – year to year change [pp]		103	99	105	99	100	104	104	105	106	99	126%
Lublin voivodship	169	170	169	172	174	175	180	183	187	191	189	+20
Lublin voivodship – year to year change [pp]		101	99	102	101	101	103	102	102	102	99	112%

Source: own work based on Local Data Bank, Statistics Poland, <https://bdl.stat.gov.pl/bdl/start>(access: 20.06.2022).

both communes having also a significant potential for the further development (see strategic documents mentioned before), it can be concluded that its dynamic development (not only the increase in the number of entities but also the increase in the scale of their operations) is a factor decisive for the improvement of the situation on the labor market.

Share in corporate tax

As shown in Table 6, the rural commune in the entire analyzed period had a greater share of corporate income tax per one inhabitant in taxes constituting the state budget revenues than the municipal commune, but from 2017 on, this difference was significantly deepened. With regard to the value per capita in a rural commune, the amount of inflows increased almost fourfold, while it increased two and a half times in the municipal commune. This may be partially explained by the size of economic entities operating in the rural area (large intermodal terminals) and a large amount of free investment space allowing for the implementation of extensive projects related to the TFL sector. Although the data for the Bialski powiat and Lublin voivodship, cannot be treated as an direct point of reference, by comparison to them it can be confirmed that the results of both Terespol communes are very good. Although the analyzed data do not allow for an unequivocal link between the TFL industry and the increase in the presented values on local taxes, however, bearing in mind the previously quoted data on the number of companies (Table 3) and the common knowledge about the strength of TFL in the communes of Terespol, this relationship seems to be certain, although its strength requires further, more detailed research.

Table 6. Own revenue in PLN of a Terespol rural and municipal commune per one inhabitant in comparison to Bialski powiat and Lublin voivodship, excluding cities with powiat rights (shares of corporate income tax in taxes constituting the state budget revenues)

Administrative unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Municipal	24,72	18,53	20,25	19,82	17,31	26,85	26,07	52,71	65,39	70,69	64,54
Rural	31,44	37,07	37,17	39,81	100,27	35,33	32,16	72,79	80,64	111,46	120,89
Bialski powiat	8,99	7,93	8,70	11,26	14,41	9,72	10,67	16,51	17,71	23,22	27,56
Lublin voivodship	11,00	16,76	17,54	17,22	17,60	14,93	15,70	17,00	17,38	20,18	20,39

Source: own work based on Local Data Bank, Statistics Poland, <https://bdl.stat.gov.pl/bdl/start> (access: 20.06.2022).

Discussion and conclusions

The data used in the study do not allow for the presentation of a complete picture of the relationship between the growing, due to the existence of the NSR, TFL sector and the local development of the municipal and rural commune of Terespol. The general development trend can be captured, but it is more difficult to extract the impact of the specific sector and investments. The role of TFL for Terespol communes is well known

which can be confirmed by the entries in the strategic documents mentioned before. The lack of precise data, although it makes it difficult to give precise infer, does not prevent giving the overview. The author recommends, however, to look at this study from a general perspective to avoid any misinterpretations.

The importance of the border location and the TFL sector, although allow for development, on the other hand, constitute a kind of its limitation. As noted by Guzal-Dec et al. (2021), the specificity of the above-mentioned factors strongly limits the possibilities of development in other directions, making it monofunctional. Thus, although for the analyzed variables there is an improvement in individual parameters (for example number of entitles assigned to TFL sector), looking through a broader socio-economic prism, the development of the analyzed communes may be lower than estimated and not diverse enough to fulfill all of the needs of the local community. At the same time from a macro perspective, the concentration on transport activities and the forced monofunctionality of Terespol municipalities may be a desirable state due to the role these communes are to play – the main transport node on the eastern border of Poland and the European Union.

There is also a clash of the expectations of the local community with the overwhelming interest of the national or even international community. The specific role of Terespol communes means that there is a widespread expectation from the outside that the commune will first respond to the need to satisfy these external needs, putting its local needs somewhat further. Therefore, this pressure may be the reason for the consolidation of the aforementioned monofunctional direction of development. On the other hand, if the Terespol communes did not have their own unique features, their national or international utility could be significantly lower, preventing them from achieving even such a limited monofunctional development.

Despite the above reservations, the conducted research showed that the TFL sector driven, at least partly, by the NSR plays an important role in the development of Terespol communes. Taking advantage of the location on international and national transport routes, and the location on the border between Poland and the European Union and Belarus, and the CIS community, the Terespol commune naturally attracts investments related to the TFL industry. However, it is only from the moment of the development of the NSR that the profits from this position begin to play a significant role. The rapid increase in transport led to an increased demand for TFL services, which in turn translated into the economic development of the commune, visible in the taxes collected from enterprises or the improvement of the situation on the local labor market.

Finally, it is also necessary to refer to the current geopolitical events of the armed conflict between Ukraine and Russia. Both on the demand and supply sides, there are ethical doubts and risk analysis whether the transport corridor through Russia and Belarus should be used. Certainly, that situation has a negative impact on the demand for services on the NSR. At the moment, however, there are no operational conditions that would reduce the transport capacity of the NSR. The Chinese side guarantees its stability. Obviously, the fall in demand means lower profitability of the implemented investment projects. This decline, if it were to last for a longer period of time, would mean the

weakening of the main factors determining the development of the TFL sector, reducing its importance for the development of municipalities. On the other hand, however, 2021 showed that the traffic via Małaszewicze was close to the maximum infrastructure capacity. The periodic drop in the volume of traffic can be used as an opportunity to carry out the necessary investment processes extending infrastructure capacity, which, after hopefully soon finished conflict, will allow for more efficient implementation of transport operations on the NSR with even further increased freight volume.

Important note

This article is an excerpt of the part of the doctoral dissertation prepared by the author, under the working title *Economic effects of the functioning of the railway infrastructure of the New Silk Road for Poland*. The author invites readers to contact and cooperate.

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