
The Impact of the Coronavirus and the War in Ukraine on the Development of Logistics Operators in Poland

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Abstract:

Purpose: The purpose of this article is to investigate the impact of coronavirus and war on the development of Polish logistics operators. Do they intend to limit their development, do they plan to invest in modern technologies, and are they examining the risks that have emerged at the moment?

Design/Methodology/Approach: The study used two-stage questionnaires for experts. The study was developed on the basis of the Delphi method. The authors wanted to obtain answers from experts belonging to several groups, therefore they decided to conduct the research in accordance with the interpretation of Hsu and Sandford (2007), the Delphi method facilitates the process of group communication and allows gathering information from many groups. The method assumes the objective judgment of experts by asking questions with feedback in several stages

Findings: It was possible to obtain information that logistics operators have a significant increase in costs, but at the moment mainly related to fuel. They fear that the remaining costs will also increase soon. Increased demand gives them hope for better financial results, which will allow them to invest in the development of enterprises.

Practical Implications: Enterprises continue to focus on development, not less delaying it in time. Only small enterprises have a problem with financial liquidity. The war in Ukraine and the coronavirus epidemic influenced logistics operators and each of them attaches great importance to the risk of running a business in such difficult times.

Originality/Value: This paper primarily analyzes the results of research with experts on logistics operators. It helps to find out about current problems in the logistics industry and talks about their causes. It indicates possible benefits and negative threats for logistics operators

Keywords: Logistics supplier provider, covid, war in Ukraine, grow, risk.

JEL codes: J24, R40, M10, M11, M12.

Paper type: Research article.

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1. Introduction

Due to the coronavirus epidemic and then the war in Ukraine, the global economy has suffered in a significant and long unprecedented way. This was hit hard by the transport industry, including logistics operators in Poland. Enterprises in Poland are imposing more and more price pressure on logistics operators, wanting to minimize the increases in, for example, energy, gas, taxes, and on the other hand, transport and storage is more and more expensive due to the lack of drivers and more and more expensive fuel, electricity, etc.

The fluctuations in exchange rates, the lack of containers, and the mobility package additionally do not have a positive effect on the profitability of the company and probably on their development. The authors of the work try to answer the question of how severely the above factors influenced the functioning of logistics operators in Poland and what impact this has on their future development.

One of the authors in his articles, analyzed the impact of the coronavirus epidemic on the further development of the use of the Logistics 4.0 tool. The research showed that only the market-leading logistics operators will be able to continue financing the implementation of Logistics 4.0 tools. Smaller companies will use the existing processes and at best will improve them with the methods known so far. The article indicated that logistics operators have to find themselves in uncertain times. Such a period creates some opportunities for enterprises, but also threats. In their research, the authors want to deepen the analysis and check whether and which enterprises benefit from social and political instability, and which suffer negative effects and analyze subsequent risks.

2. Theoretical Background

The coronavirus epidemic turned out to be quite unique, as it caused insufficient supplies, increased market demand, and most importantly, data changes manifest themselves over a long period of time (Govindan, Mina, and Alavi, 2020). The war in Ukraine has similar consequences, as there is already a noticeable increased demand for goods that have a limited supplies due to the war. Two drastic and exceptional situations carry different risks and uncertainties.

You can find a lot of studies and research that tackle the issues of risk and uncertainty in the logistics industry. Some studies indicate the identity of given concepts (Wang, 2018), but other authors treat them separately and claim that uncertainty can also have positive effects (Sachs, 2018; Stewart, 2021). Based on many years of professional experience with logistics operators, the authors identify themselves with the second approach. The largest logistics companies in Poland used uncertain periods for development, such as Raben Group when Poland joined the European Union. Uncertainty occurs when many variants are equally probable, and some of these variants are even unknown (Stewart, 2021).

Uncertainty in many cases can give positive values and can help the company achieve its goals (Simangunsong, Hendry, and Stevenson, 2012). All kinds of war, political and social destabilization, market disturbance or epidemic cause uncertainty on the market. Due to the fact that logistics operators provide services for other industries, they are susceptible to all kinds of changes in various branches of business.

The war in Ukraine and the coronavirus epidemic show that this is true and the uncertainty on the market is noticeable. Enterprises do not know what to expect and what the above factors may have on microeconomics and macroeconomics. The indicated factors, such as war or an epidemic, may cause financial risk and the risk of insolvency. Among logistics operators, it is very important to quickly and objectively assess financial risk and insolvency risk (Analysis, Adland and Jia, 2008).

In logistics, apart from the basic concepts of risk, several additional types are distinguished. One of them is the risk of disruptions, which may have a significant impact on problems with maintaining operational continuity (Baghalian, Rezapour, and Farahani, 2013). We can distinguish the risk of disruptions to electricity and the Internet, but also an unstable system for handling orders and performing operational tasks.

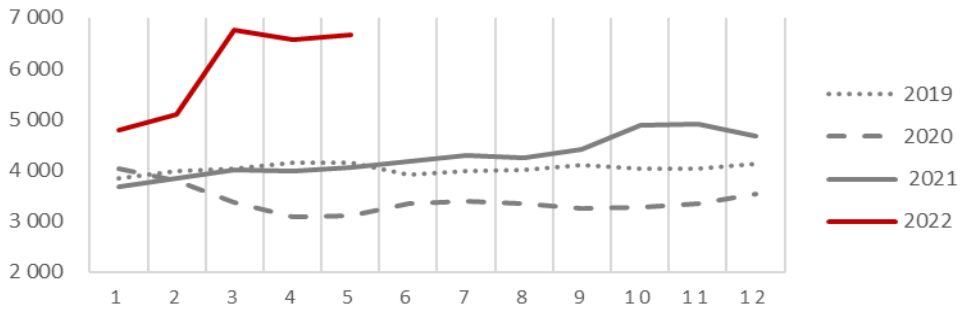
Many researchers wonder how to immunize processes and business against the negative effects of the coronavirus epidemic, and how to protect against further such situations, e.g., by creating new models showing the supply chain during the coronavirus epidemic (Ivanov and Dolgui, 2020). Research is being carried out on how to optimally manage the last mile, which is even more important in pandemic isolation (Choi, 2020).

3. Analysis of Fuel Prices and Exchange Rates

The price of fuel is a significant component of the cost of transportation. It is mostly assumed that in Poland the price of fuel accounts for 35% to 45% of all costs in transport. It is obvious that as fuel prices increase, the share of fuel prices in total fuel costs also increases. The fuel price in 2019-2022 is shown in Figure 1.

After the initial collapse of fuel prices in the first phase of the coronavirus epidemic, the cost per liter began to return to the previous price. Then, after Russia's attack on Ukraine, the fuel price increased by more than 40% compared to January. In 2021, the average price of fuel per cubic meter was PLN 4,270. In 2022, the highest price was PLN 7,704 per cubic meter, and the average for March was PLN 6,762 per cubic meter. The chart with fuel prices is presented below in Figure 2.

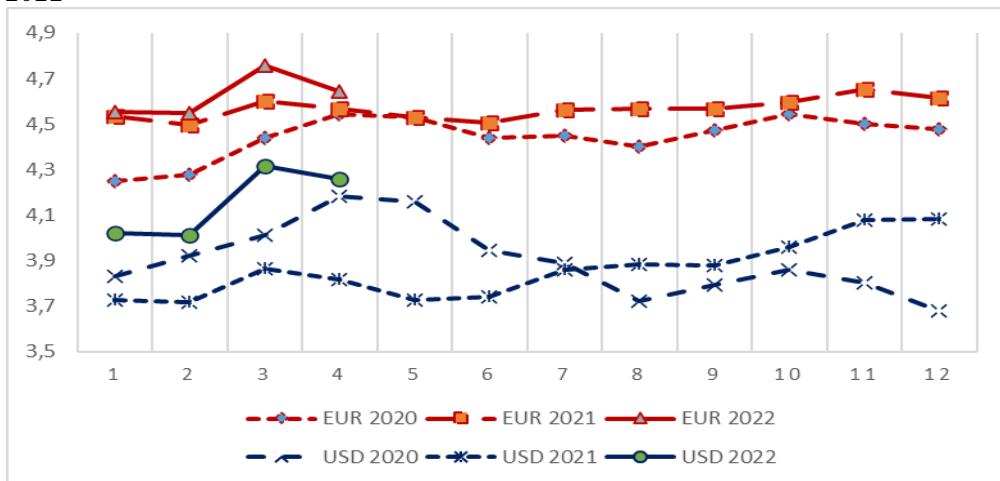
Figure 1. Fuel price in 2019-2022



Source: Own elaboration based on www.orklen.pl

The zloty exchange rates against the euro and the US dollar have significantly weakened due to the coronavirus epidemics and Russia's attack on Ukraine. The depreciation of the zloty against the euro has an impact on the costs of leasing and the purchase of semi-trailers and tractors, and on the relatively higher demand for the work of drivers abroad. The ever more expensive US Dollar affects more expensive shipping, but also increases fuel prices. The EUR and USD exchange rates against PLN are presented below.

Figure 2. Euro and US dollar exchange rate against the zloty in the years 2020 – 2022



Source: Own elaboration based on www.money.pl

Figure 2 shows the EUR exchange rate at which a significant increase in the EUR price is noticeable compared to the previous months and years. Figure 2 also presents the dollar exchange rate, which clearly shows that the dollar strengthened after the outbreak of the war in Ukraine and reached the highest level in years.

4. Research Methodology

The study used two-stage questionnaires for experts. The study was developed on the basis of the Delphi method. The authors wanted to obtain answers from experts belonging to several groups, therefore they decided to conduct the research in accordance with the interpretation of Hsu and Sandford (2007), the Delphi method facilitates the process of group communication and allows gathering information from many groups. The method assumes the objective judgment of experts by asking questions with feedback in several stages. The method, thanks to its multi-stage approach, allows you to be convinced that the questions are precise and that the respondents understand the articulated questions identical to the authors of the article.

In the first stage, after selecting the experts, they were asked questions about the impact of the coronavirus epidemic and the outbreak of war in Ukraine on the provision of logistics operator services. Then, the authors summarized the first stage, passed the conclusions to the respondents and obtained a comment from the authors. In the next stage, the respondents received the same questions again to check whether the answers would change and the questions about the impact on the company's development and the current operational situation of the company were deepened. The Delphi method is a type of collective decision making method (Linstone and Turoff, 2002).

The authors of the study selected 2 groups of experts. One group is business practitioners from large enterprises, leading logistics operators, and the other group are also business practitioners, but currently working for developing logistics operators. The selection of experts allows the topic to be examined from several perspectives. One of the authors in his previous article pointed out that small and medium-sized enterprises are more averse to the risk of investments and will postpone development plans for the use of Logistics 4.0 tools.

In turn, leading logistics operators, despite the uncertain times, are still able to incur capital expenditures in order to further develop Logistics 4.0. Looking at the problem from two perspectives (small and large logistics operator) allows you to build an objective expert opinion (Suklmoski, Hartman, and Krahn, 2007). This allows for an effective assessment of the issue through the use of practical or theoretical competences (Carnall, 2007). The method limits the generalization of the results, but gives the opportunity to deepen the detailed descriptions (Yin, 1994).

Table 1. *Selected experts for the research*

LP	Enterprise	Experience	Posiotion	Department
1	Large	from 10 to 15 years	Manager	Analyst
2	Large	from 10 to 15 years	Director	Operation
3	Large	Above 15 years	Manager	Operation
4	Large	Above 15 years	Manager	Operation

5	Large	Above 15 years	Manager	Operation
6	Large	Above 15 years	Director	Operation
7	Large	Above 15 years	Director	Sales
8	Large	From 5 to 10 years	Manager	Analyst
9	Large	From 5 to 10 years	Manager	Operation
10	Large	From 5 to 10 years	Manager	Sales
11	Small	Above 15 years	Director	Sales
12	Small	From 5 to 10 years	Manager	Operation
13	Small	Above 15 years	Manager	Operation
14	Medium	From 5 to 10 years	Manager	Operation
15	Medium	Above 15 years	Manager	Operation
16	Medium	From 10 to 15 years	Manager	Operation
17	Medium	From 10 to 15 years	Manager	Sales
18	Medium	From 10 to 15 years	Director	Operation
19	Medium	Above 15 years	Director	Sales
20	Medium	Above 15 years	Director	Operation

Source: Own elaboration based on the conducted research.

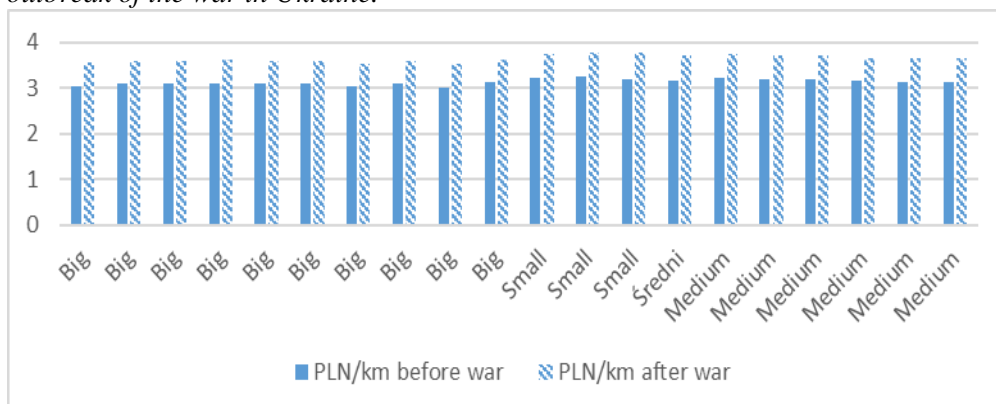
5. Survey Study

In the conducted research, respondents were asked about the impact of the coronavirus epidemic and the subsequent war in Ukraine on profitability. All respondents working for small logistics operators agreed that the above factors had a negative impact. 80% of employees from large logistics operators replied that the impact was partially negative. Each of the respondents replied that after the events related to the coronavirus epidemic in Poland and the outbreak of the war in Ukraine, they pay more attention to risk assessment and try to implement procedures and safeguards that will avoid the negative effects of the above events.

Small and medium-sized logistics operators - with a maximum of 10 warehouses in Poland, agreed that by linking the coronavirus epidemic and the war in Ukraine at one time, stated: "I have to postpone plans for further expansion and only carry out necessary investments or changes in the infrastructure of my company". The situation is related to an increasingly difficult cost situation. Nevertheless, this group of operators notices a greater demand for their services, which may facilitate the expansion of their volume, which in turn will disperse costs and increase profitability.

The above statement is confirmed in surveys with employees of large logistics operators. Operators see the deterioration of operating results, but have funds for investments and most of them (70% of respondents) want to allocate them for further development. Nevertheless, all of the indicated respondents replied that they had increased the rates for their principals for the services provided, because they lost individual customers.

Figure 3. Rates per km for various logistics operators for a set before and after the outbreak of the war in Ukraine.



Source: Own elaboration based on the conducted research.

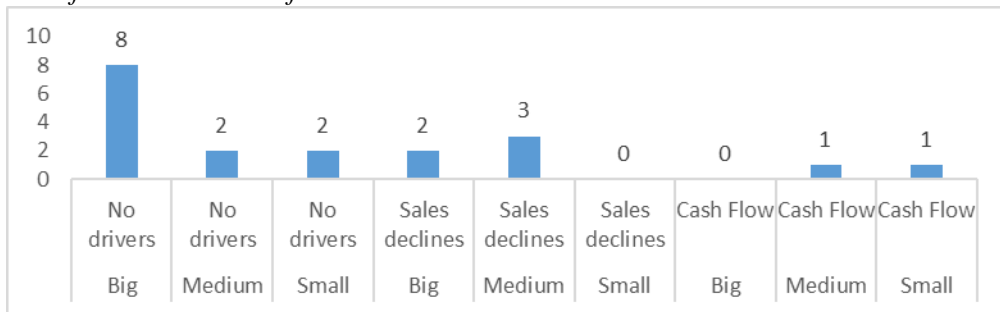
The results of the survey presented in Figure 4 clearly show that the rate for carriers with a set (tractor and semi-trailer) per 1 km increased from the average level of PLN 3.14 per km to PLN 3.65 per km. In the second round of questions, in additional questions, the respondents indicated that the increase in rates is directly related to the fuel price, because they have fuel adjustments for carriers and for their customers, only 20% of respondents indicated that they increased rates for other reasons - a premium for the quality of services. The price increase applies to all respondents.

Logistics operators indicated that the increase in rates also applies to smaller means of transport. The change in rates is related to the fuel correction and Logistics Operators predict a further increase in rates per kilometer. It can be concluded that the cost per km increased proportionally with the same dynamics for most logistics operators. All operators confirmed that the increase in rates was mainly due to the fuel correction, which is also shown by the analyzes carried out.

Fears of a further increase in the rate per km are dictated by the outflow of Ukrainian drivers who have returned to their homeland, and the increasing wage pressure imposed by drivers. 60% of respondents indicated that they are afraid of a further increase in road tolls, which affect the increasingly expensive transport.

Logistics operators handling fresh products and other food saw an increase in broadcast volumes, which resulted in increased sales. In the second stage of the expert study, the experts confirmed the increases, but indicated their fears of a decline in turnover in the following months. Operators are concerned about a reduced supplies of fresh products and other food due to the war in Ukraine. The supplies of raw materials and products from Ukraine, Belarus and Russia may or may not be at risk.

Figure 4. Changes in rates per km for various logistics operators for a set before and after the outbreak of the war in Ukraine.



Source: Own elaboration based on the conducted research.

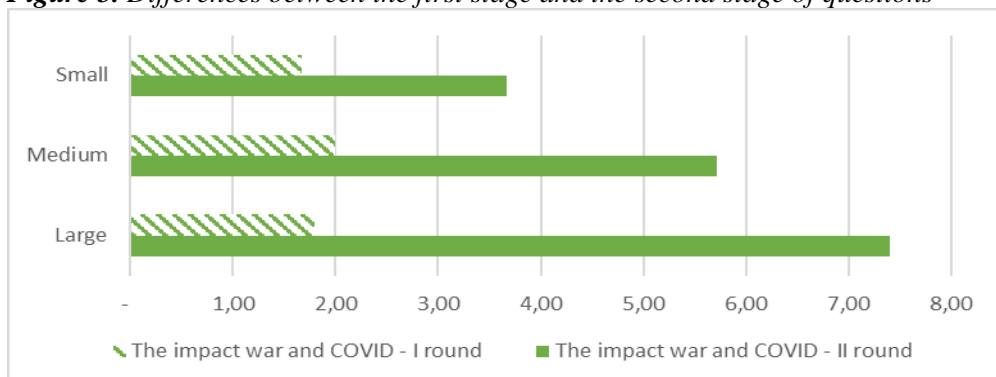
Logistically operators agree that most of the threats may ultimately have positive effects. However, they state that the greatest threat, most likely to have a negative effect, is the lack of drivers and possible drops in the deliveries of products, which can already be seen in the automotive industry, as shown in Figure 4. The above situations may make the transport itself more and more expensive and the logistic service can be provided at a lower and lower level (e.g., delays in deliveries, damage and shortages in transport). In addition, lower supply may result in a greater number of empty kilometers in transport and lower fillings, which will translate directly into higher costs per logistic carrier.

Regulations at customers are a defense against cost increases. Currently, all surveyed logistics operators use the fuel correction and road allowance, but only 80% of respondents had it before the outbreak of the war. In addition, logistics operators admit that they have already indexed their clients' rates and are currently wondering whether another rate regulation will be needed. It can be seen that the market of logistics operators is trying to adapt to the current realities and aims to achieve profitability at a similar level as before the outbreak of the epidemic and the war in Ukraine.

Logistics operators stated that they do not plan to reduce employment, they plan to continue investing in the development of staff. In addition, 35% of the surveyed enterprises continue to invest in modern solutions and use logistics 4.0 tools, 45% plan to resume investments after the currency market and the situation in Ukraine have calmed down, and the rest do not exclude investments in the future, but at the moment, due to many risks, they postpone greater investments over time.

Figure 5 presents the results of the first and second stage studies. Stage II shows a significant improvement in the impact of the coronavirus and the war (1 very negative, 10 very positive). It will be reasonable to say that the experts between the first and the second stage have adapted to the new reality and have realistically assessed the impact of the events on the business.

Figure 5. Differences between the first stage and the second stage of questions



Source: Own elaboration based on the conducted research.

The first stage was conducted in the 9th week of March, and the second stage in the second week of April, which also influenced the experts' assessments. The answers from the 1st and 2nd stage forced the respondents to ask more detailed questions. The standard deviation in the first stage was 0.81, and in the second stage 1.81. The increase is dictated by the fact that large enterprises have started to positively assess the impact of war and the coronavirus on the functioning of their enterprises.

6. Conclusions

Research by 20 experts in the field of logistics and distribution of goods confirmed that logistics operators are intensely active in examining the risks associated with their industry. The research shows that logistics operators closely monitor the drivers' market, as well as the demand of their customers, because it may pose a great risk for them of higher costs per logistic carrier.

In addition, logistics operators see increases in energy costs and road tolls, but they deal with it through the use of fuel and road corrections. Some respondents stated that the above-mentioned self-regulating additives were introduced only after the outbreak of the war in Ukraine. Research confirms that the market is self-regulating and the increase in transport and storage costs is passed on to customers who are willing to pay more for logistics services than before the outbreak of the war.

Logistics operators are convinced that it is worth investing in the development of modern technologies and they want to do it, however some of them, due to higher costs and an uncertain future, plan to postpone investments in time.

Small and medium-sized logistics operators count on increased demand for their logistics services, which should have a positive impact on their financial results and reduce losses related to the outbreak of the coronavirus epidemic and the war in Ukraine.

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