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Ewa Mińska-Struzik
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# Contents

# Foreword

It is no exaggeration to say that with the outbreak of the COVID-19 pandemic, the world came to a standstill. The economic consequences resulting from closing borders and keeping workers at home, including disrupted transportation, supply chains, and shrinking trade in goods and services, were very distressing, but still hardly even comparable to the immensity of human suffering resulting from a disease taking a deadly toll. As early as the end of 2020, progressive work on a vaccine brought hope for defeating the virus, and the expansion of digital technologies for overcoming problems in economic processes. However, most economists agreed that we are not returning to the pre-pandemic starting point, but rather heading toward a new normal.

In the monograph *Toward the "new normal" after Covid-19 – a post-transition economy perspective*, published in 2021, a team of researchers from the PUEB's Institute of International Business and Economics presented the results of the first studies on the economic consequences of the pandemic. With successive waves of COVID-19 still hitting, some chapters contained thoughts and hypotheses that could only be fully verified in subsequent years. We knew that the research needed to be continued and that as the 'new normal' set in, its diagnosis and description would become more precise. However, convinced we were that we would not lack topics for research, none of the members of our institute community's intuition went so far as to predict that the 'new normal' before we could recognise and tame it for good, would be disrupted by the Russian invasion of Ukraine. The global impact of the war is already being felt for the second year, and at the time of putting this book into print, the end of the conflict in Ukraine is still hard to predict.

Therefore, in the title of the monograph, we pose the question of whether any 'new normal' even exists. And however the world of VUCA, disruptions and shocks is simply impossible to get used to, as researchers we believe that in such circumstances knowledge becomes particularly valuable. Defining, studying and describing turmoils and their consequences make it possible, if only to some extent, to control them. The aim of the research presented in our book is the identification and exploration of challenges "the new normal reality" revealed at the

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supranational and national level, created for business sectors, industries, companies and consumers. Focusing on those challenges we got the chance to deeply and broadly investigate the multidimensional impact of the pandemic shock on the business reality. Doing that we hoped to collect valuable foundation for the formulation of resilience policy which to be effective must respect the peculiarity of national economies, industries, firms and consumers.

This monograph is divided into three parts corresponding to the different levels of the economy: macro, meso and micro, consisting of a total of eleven studies authored by scholars and doctoral students of the PUEB's Institute of International Economics. The individual chapters address various issues, differ in methodology and length, but all of them are devoted to the diagnosis of the transformations that occurred in economic processes impacted by the COVID-19 pandemic.

The first part of the monograph focuses on the challenges posed by the pandemic at the national and supranational level. This part of the book is a bird's-eye view of the pandemic-induced transformations in various spheres of the economies of selected countries or groups of countries, such as the European Union. In the first chapter, which is conceptual in nature, **Galit Palzur** introduces and organizes the various concepts and approaches in the natural disaster literature, aiming to place the COVID-19 pandemic among them. **Tadeusz Kowalski** in the second chapter empirically analyses the macroeconomic implications of the pandemic in six European economies, the US and Japan, taking into account not only the short-term direct consequences, but also the effects of policy tools aimed at shielding the economy from the pandemic crisis. **Justyna Majewska and Szymon Truskolaski** in the third chapter continue the empirical approach by focusing on a specific measure—tourists arrivals. The authors examine it in four European countries, comparing the effects caused by the pandemic with those caused by other types of crises. The COVID-19 pandemic and the subsequent war in Ukraine significantly affected the global trading system. In the fourth chapter, **Grzegorz Mazur** identifies the resulting major challenges for the European Union's Common Commercial Policy. Another area in which there is no shortage of challenges is people migration. The effects of pandemic border closures in the context of the inflow of foreign labor to the EU are analysed by **Judyta Cabańska** in the fifth chapter. This chapter crowns the first part of the monograph, which presents the effects of the COVID-19 pandemic in macroeconomic terms.

The second part of the book consists of four studies of issues at the level of sectors particularly affected by the shock of the pandemic outbreak and its accompanying lockdown. In the sixth chapter, **Piotr Banaszyk and Waldemar Budner** diagnose the changes in the geography of the logistics of consumer goods that have taken place in Poland in 2020–2022. The seventh chapter **Piotr Banaszyk**, together with **Sylwia Konecka and Anna Maryniak**, devoted to the presentation

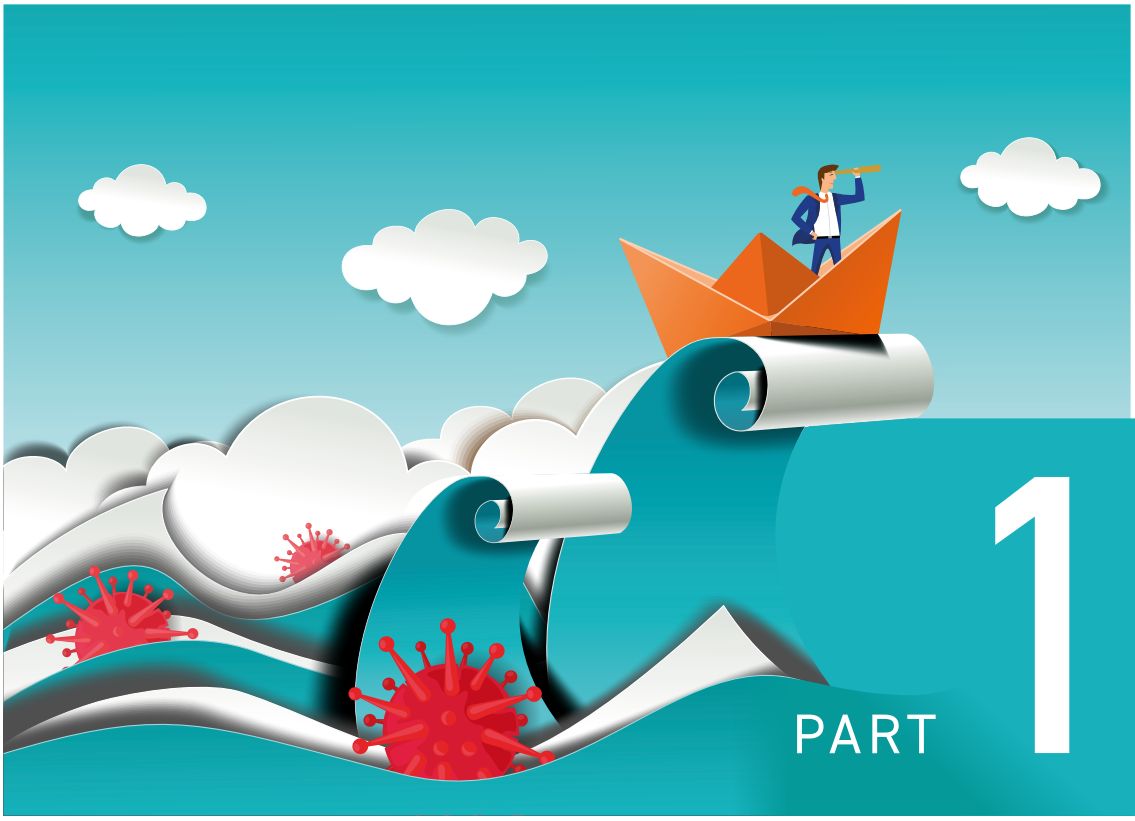
of the results of research on the competitiveness of Polish road carriers, which has been significantly affected not only by the pandemic and the legislative changes implemented to mitigate its effects, but also by rising fuel prices and environmental and technological challenges. **Marcin Jurczak**, in the eighth chapter, continues these considerations with regard to public transportation. The ninth chapter, by **Agnieszka Niezgoda and Ewa Markiewicz**, contains the results of the authors' research on the substitution effect in the travel services market that could be observed as a result of the outbreak of the COVID-19 pandemic.

The third part of the monograph includes three studies on the challenges posed by the pandemic to companies and consumers. In the tenth chapter, **Marian Gorynia and Piotr Trąpczyński** discuss the behavior of Polish exporters in 2020–2021. In the eleventh chapter, **Łukasz Małys and Rafał Jabłoński** present a case study to illustrate the impact of the pandemic on sustainable business practices. Since the case study involves the international logistics company, the study is a microeconomic complement to the conclusions of the seventh chapter. **Wiktoria Rakowska and Zakaria Talouni** devoted the final twelfth chapter to the issue of trust in sharing economy platforms. The acceleration of digital transformation due to the COVID-19 pandemic has resulted in the development of digital services confronting not only companies by also consumers with new challenges.

We hope that the inquiries of a wide range of researchers from PUEB's Institute of International Economics and Business will, on the one hand, sort out what we have known so far about the new normal, and, on the other hand, will be an interesting inspiration for further research no longer only on the reality of VUCA, but BANI (brittle, anxious, non-linear, incomprehensible). Maybe the findings will stimulate our readers to discuss how companies, industries and, further, entire economies can function under conditions of permacrisis caused by Brexit and Russian invasion of Ukraine among others, and the deepening complexity of the global economy. We hope that the debate facilitated by reading this monograph will accelerate the identification of new strategies and growth paths to confront the key global challenges.

And last but not least let us as the Editors express our great gratitude to the Authors who accepted our invitation to publish together and provided great contributions.

*Ewa Mińska-Struzik*
*Barbara Jankowska*



PART 1

# CHALLENGES AT THE SUPRANATIONAL AND NATIONAL LEVEL

# 1. The COVID-19 pandemic in the disaster and economic discourses

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## Abstract

**Purpose:** The chapter aims to compare how the disciplines of economics and disaster research use terminology related to the long-term impacts of disasters and crises and particularly to discuss the overlaps in the use of the concepts "economic scarring" and hysteresis from the economics literature with the concepts of resilience, "bouncing back" or "bouncing forward" from the disaster discourse.

**Design/methodology/approach:** By using a comparative literature review, the chapter compares the terms used in the economic literature with those used in the disaster literature and applies these concepts to the context of the COVID-19 pandemic, considering it a global disaster with significant economic implications.

**Findings:** While earlier literature showed similarities in the use of the terms hysteresis, scarring, resilience, and bouncing back, a comparison of COVID-19 studies reveals divergences in operational definitions. The economic discourse still uses single indicators like GDP, output or unemployment to measure economic scarring and hysteresis, while the disaster discourse utilises more often multi-indicator operational definitions or indices, which demonstrate the multi-dimensional characteristics of the concept of resilience.

**Originality and value:** This chapter seeks to identify potential differences in how two disciplines approach the study of disasters, crises, or shocks and aims to foster interdisciplinary dialogue and understanding. The chapter provides a resource for scholars in disaster and crisis research, helping to frame the concepts and relevant literature into groupings and assists a better selection of concepts for research in the field.

**Keywords:** disasters, resilience, bouncing back, economic hysteresis, economic scarring.

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## Introduction

Natural disasters, when they occur, affect almost all aspects of our lives. These horizontal effects of disasters also translate into the academia, where disasters are studied across different disciplines and analysed from different angles. Discourses on natural disasters in different fields create many parallel terms and notions, each reflecting a certain facet of the phenomenon or its effects. As natural disasters have become a multidisciplinary field of study, and more so following the onset of the COVID-19 pandemic, which was caused by the SARS-CoV-2 virus, the terms used by different scholars to describe the effects of the pandemic on national economies have raised a simple question: do the terms used in different disciplines to describe the long-term impacts of natural disasters on the economy have similarities? Other subsequent questions are: How do the terms relate to one another and whether there are any overlaps in relation to their meaning or uses?

The chapter aims to compare how two academic disciplines view and use terminology on the long-term impacts of natural disasters. These long-term impacts will be discussed, on the one hand, from an economic point of view, specifically with reference to the terms "economic scarring" and hysteresis, and on the other hand, from the point of view of the disaster research, which focuses on terms such as resilience and "bouncing back" or "bouncing forward" (Tierney, 1997).[1] In recent years there has been a certain convergence between the disciplines and several scholars have addressed and studied the relationship between the economic and disaster discourses, which will be discussed in this chapter as well.

One may ask why we compare terms such as "resilience" and "hysteresis", as the former addresses a property of a certain entity, i.e. a firm or country can have resilient properties, and the later refers to a state or condition which will be defined below, i.e. depicting the persistence of a phenomenon (Boukraine, 2021). In addition, resilience is considered a positive property (Palekiene et al., 2015), while hysteresis is viewed, at least in economic terms, as a negative condition (Martin, 2012). It would be more logical to relate hysteresis with vulnerability, as one may suggest that the more vulnerable a country's economy is, the more probable it is that the economy will experience adverse negative effects such as hysteresis. The literature on the relationship and the differences between resilience and vulnerability is extensive and there is no clear answer which notion is more relevant to discuss the properties of a system or entity following a disaster (Beesley et al., 2023; Briguglio, 2014; Noy & Yonson, 2016, 2018; Yellman & Murry, 2013).

[1] It should be noted that while the disaster discourse uses the terms *disasters* and *hazards*, the economic discourse tends to focus on terms such as *crisis* or *shocks*, regardless of their sources (natural or others). This issue will be discussed later.

Given the fact that this chapter aims to illustrate how two disciplines use the terminology on the long-term impacts of natural disasters, resilience as a concept was chosen here mostly because it is used to a greater extent in the economic dialogue than the concept of vulnerability.

Another introductory question would be why it is of interest to apply these concepts to the COVID-19 pandemic. Under the definition of the International Federation of Red Cross and Red Crescent Societies (IFRC),[2] biological hazards such as diseases and viruses can lead to natural disasters (Mohamed Shaluf, 2007) and the case of COVID-19 is one example of such a disaster on a global scale. The COVID-19 pandemic has been viewed by Peleg et al. (2021) as both qualitatively and quantitatively different from other disaster types, given its global scope and the number of people affected. Already at the beginning of the COVID-19 pandemic, Barua (2020) recognised its potential to shock the global economy through the channels of supply and demand, the supply chain, trade and investments, prices, exchange rates, the financial stability and financial risks associated with the pandemic, economic growth as well as international cooperation. Eventually, the effects of COVID-19 were so widespread that scholars (e.g., Ahmad et al., 2021; Antipova, 2021; Phan & Wood, 2020) have debated whether it can be considered a black swan event, which, according to Taleb (2007), is an unanticipated event that has significant and widespread consequences. Alcántara-Ayala et al. (2021) refer to the COVID-19 pandemic in essence as a global disaster which transcended ecological regions, national borders, economies and societies. As such, COVID-19 has been addressed by scholars in numerous academic fields, reflecting different perspectives and notions. However, despite the division into different disciplines, sometimes these disciplines have overlapping concepts and rationales.

It is at this exact junction of overlapping concepts that the chapter seeks to review whether the economic and disaster discourses are considerably different when investigating a certain disaster, crisis or shock. Such an exercise can facilitate a mutual dialogue between these different academic fields and allow better interdisciplinary understanding and research of natural disasters. In addition, scholars seeking to study the field of disaster will find this chapter useful, as it may help them select the most relevant concepts for their research needs and interests.

For these purposes, the remainder of the text is divided into three parts. The first section will introduce the economic discourse on the long-term impacts of natural disasters, or disasters in general, by creating economic downturns, economic depressions, and what is known as economic scarring and hysteresis. The second section will focus on the concept of macro-economic resilience, which by some definitions, is measured by the ability of the economy to bounce back, or bounce

[2] https://www.ifrc.org/our-work/disasters-climate-and-crises/what-disaster

forward, relatively to the situation prior to the disaster. The third section will present how these notions from the two disciplines have been used in the academic literature to describe the long-term effects of the COVID-19 pandemic on the economy.[3]

## 1.1. Economic discourse on the long-term impacts of disasters—hysteresis and scarring

In the economic discourse, disasters, including natural disasters, are characterised by extreme adverse impacts on the economy. They are mostly referred to as shocks or crises, which are caused by some sort of a triggering event. Such disasters are sometimes also labelled as economic depressions when they are more long-term (Eslake, 2009), economic collapses, breakdowns, crashes or meltdowns (Oliynyk & Shevchenko, 2016). According to Cerra et al. (2021), these are caused by various triggering events, including exogenous shocks to the economic system, such as financial, political or health-related triggers like COVID-19. In the immediate aftermath of the shock, there is usually a sharp decline in the economic activity, as measured in terms of income or hours of work. One can discuss either the short-term or long-term effects of these shocks; yet, when one wants to discuss the persistent effects of an economic shock, there is one particular strand of literature that focuses on these enduring consequences and it utilises the concepts of hysteresis and scarring.

Boukraine (2021) explains that hysteresis refers to the persistence of a phenomenon even though the factors that have led to it have already disappeared. The concept of hysteresis in economics is used to describe conditions that can occur in every market (Göcke, 2002). Phelps (1972), Blanchard and Summers (1986) and Sachs (1986) used the term in the field of labour economics to describe conditions related to employment and unemployment. Bell et al. (2020) refer to scarring effects as the "long lasting negative future labour market consequences directly related to the impact of economic crises". Others use hysteresis or economic scarring to describe the persistence of recessional effects on GDP and output (Michl, 2021), total factor productivity (TFP) (Tervala & Watson, 2022), capital accumulation, R&D and innovation as well as international trade (Denadai & Teles, 2016; Kemp & Wan, 1974). Baldwin and Lyons (1994) addressed the issue of exchange rate hysteresis which is linked to hysteresis in the trade balance.

[3] This is despite the fact that our perspective today cannot fully detail or analyse the long-term effects of COVID-19 on the economy. This is because the time that has passed since the decline of COVID-19 following the introduction of large-scale vaccinations in 2021 does not allow a long-term retrospect.

Before describing the channels through which economic hysteresis manifests itself, it is useful to mention that the theoretical and applied usages of economic hysteresis stem from the field of economic growth and business cycles. Cerra et al. (2020) focus on the business cycle aspects of hysteresis and explain that the period of high inflation in the 1970s brought about the development of macroeconomic models which emphasised the distinction between the long-run trends of economic growth and the business cycle. Dosi et al. (2018) explains that the persistence in these deviations from the equilibrium paths is what constitutes situations of hysteresis. According to standard economic theory and conventional business cycle models, which do not take hysteresis into consideration, the long-term linear trend is determined by components of the supply side, such as technological advances, labour supply and human capital (Amador, 2022). Based on this perspective, business cycles are short-term fluctuations that are considered as temporary deviations from the upward long-term stable growth path. While the upward trend is determined particularly by supply-side variables, the business cycles or short-term fluctuation are influenced mainly by demand shocks and monetary policy (Amador, 2022).

Other scholars believe that there are also supply-side determinants of hysteresis, which can include sunk adjustment costs of changing the market access or the supply quantity (Göcke, 2002). In short, hysteresis can be viewed as a phenomenon stemming both from supply-side and demand-side factors.

Cerra et al. (2021) describe the channels through which economic hysteresis can manifest itself: unemployment in the labour market, slowdown of investment in capital, technology or R&D, all of which cause permanent reduced productivity. Furthermore, in unique circumstances, trade patterns and international supply chains can also have a permanent hysteresis effect. Diggle and Bartholomew (2021) add some other hysteresis transmission channels in addition to labour market scarring and hysteresis. This includes policy errors caused when there are insufficient stimulative demand-side policies or insufficient responsive supply-side policies aimed to improve the ability of markets to react and the ability of workers to acquire necessary skills. They also add belief scarring and psychological damage, balance sheet repair and "zombification", as well as structural repair momentum as other transmission channels through which long-term damage can occur following a large negative shock.

The interconnectedness of markets suggests that hysteresis or scarring in the labour market can spill over to hysteresis in output and productivity (Arulampalam et al., 2001; Bell et al., 2020; Brownbridge & Canagarajah, 2021). Yet even without any spillover effects, as mentioned above by Cerra et al. (2021), the second channel through which economic hysteresis can manifest itself is through a reduction in production and economic growth, halt of investments in

general, and particularly in R&D, as companies may delay or reduce spending on R&D (Irons, 2009). Barišić and Kovač (2022) discuss how shocks can have scarring effects on the economy since fluctuations in GDP can be persistent and address the need to counteract low aggregate demand to return the economy to full working capacity.

**Table 1.1. Use of hysteresis and economic scarring following shocks in economic literature**

| Hysteresis and scarring in labour markets | Hysteresis and scarring in GDP, output, TFP, productivity | Hysteresis and scarring in trade, R&D and innovation | Studies which address two or more of the channels listed to the left |
|---|---|---|---|
| Blanchard and Summers (1986)<br>Boukraine (2021)<br>Phelps (1972)<br>Sachs (1986)<br>Bell et al. (2020)<br>Amable et al. (1995)<br>Gustavsson and Österholm (2007)<br>Gustavsson and Österholm (2010)<br>Akdoğan (2017)<br>Arulampalam et al. (2001)<br>Stockhammer and Sturn (2012) | Michl (2021)<br>Tervala and Watson (2022)<br>Cerra and Saxena (2008, 2018)<br>Ball (2014)<br>Suphaphiphat and Shi (2022)<br>Amador (2022) | Kemp and Wan (1974)<br>Denadai and Teles (2016)<br>Baldwin and Lyons (1994)<br>McClausland (2000)<br>Göcke (2001)<br>Baldwin (1990)<br>Campa (2004)<br>Dixit (1992) | Göcke (2002)<br>Cerra et al. (2020, 2021)<br>Dosi et al. (2018)<br>Reifschneider et al. (2015)<br>Diggle and Bartholomew (2021) |

Source: own work.

The third channel through which economic hysteresis is demonstrated is international trade and supply chains. Göcke (2001) defines hysteresis in foreign trade as "the persisting consequences of temporary exchange rate shocks on the quantities and prices in foreign trade". Baldwin (1990) explains that there are sunk market entry costs associated with foreign trade, which affect the ability of foreign firms to adjust to changes in the exchange rate. Table 1.1 summarises different approaches in studies on hysteresis and economic scarring. In addition, it is worth mentioning Irons (2009) who addresses the economic scarring of recessions in several fields. He mentions the effects of unemployment and income losses on educational achievements and on the opportunities of individuals and families. Recessions can also affect private investments and entrepreneurial activities, as they hamper new business formation, innovation, R&D and new start-ups.

## 1.2. Disaster discourse on the long-term impacts of disasters—economic resilience and bouncing back

The literature on resilience has evolved and widened immensely in recent decades and has taken diverse meanings. This is even more so true if one considers the use of the term in the different scientific disciplines, such as ecology, physics, engineering (Holling, 1973; and more recently, Ganin et al., 2016) and many fields of the social sciences, such as economics, psychology, sociology, anthropology, public health, geography, organisational studies and disaster management (Demiroz & Haase, 2019; Shim & Kim, 2015; Tierney, 2003). Today, as it is used in different disciplines, resilience is put into practice to describe a desirable property of both materials and natural systems (Manyena et al., 2011). Rubber, e.g., is a popular example of a material with extremely high modulus of resilience, as it is flexible and capable of recovering from various stresses back to its original shape or form. Human systems like communities, organisations and countries have also been subject to the question whether they possess resilient properties (Klein et al., 2003; McAslan, 2010).

Some scholars consider resilience as a fuzzy concept which lacks a clear definition and is difficult to operationalise (Davidson et al., 2016). Pozhidaev (2021) describes resilience as an essentially contested concept (ECC) which suffers from the "catch-all syndrome" (ESCAP, 2019). This is most probably due to its transfer from the ecological science to social contexts. Nevertheless, despite the many definitions of the term, resilience can be generally defined as the capacity of a system to cope or bounce back from an unanticipated danger (Wildavsky, 1988). Martin (2012) uses the plucking model of economic fluctuations (Friedman, 1993) to visualise the bouncing back concept of resilience. Other scholars have emphasised the circumstances allowing a system to be resilient. For instance, in Dovers and Handmer's (1992) view, the circumstances are not only external to the system but also internal. They discuss three types of resilience: 1) resistance to change and maintenance of the status quo, 2) adjustment or change at the margins, and 3) flexibility and openness in response to change. They suggest that societies that rely on the first two types of resilience may find it difficult to adapt to totally different circumstances, as reactive measures are not always enough. Therefore, rather proactive measures and the use of planning ahead to confront hazards is necessary. Rose (2004, 2007) and later Cutter et al. (2008) stress the variance that exists between inherent resilience, which refers to the existing ability to deal with crises, and adaptive resilience, which refers to the ability during a crisis to make the changes required to absorb the impacts of an extreme event. This view has also been put forward by Tierney and Bruneau (2007) who mention the issue of disaster resistance and stress the need to practice pre-disaster mitigation measures to reduce the losses of an ensuing disaster.

According to Rus et al. (2018), there are two dominant theoretical perspectives on the issue of resilience with respect to urban systems and in the context of natural disasters: either the socio-ecological perspective, which considers resilience as a process-oriented phenomenon (a dynamic concept), or the engineering perspective, which views resilience as a result-oriented concept (a static premise). This distinction is important when considering the ways to enhance resilience, as the socio-ecological perspective represents the ability to achieve adaptive resilience; one can recover and adapt to new conditions. In the engineering approach, resilience is the ability to bounce back to the same condition before the adverse event.

A much-used definition of the term resilience is that of the 2009 UNISDR Terminology on Disaster Risk Reduction (UNISDR, 2009), which defines resilience as "the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions". The use of definitions that incorporate both adaptation actions (Comfort, 1999) and vulnerability have been developed as well (Paton & Johnson, 2001). Other researchers have described resilience as the opposite or the other side of vulnerability (Graveline & Grémont, 2017) or have described resilience and vulnerability as opposite sides of the same coin (Twigg, 2007). Manyena (2006) describes both concepts as two sides of the same equation on one continuum. Sheffi and Rice (2005) explain that by reducing vulnerability, a business can reduce the likelihood of a disruption and can increase its resilience.[4]

The theme of "bouncing back" with reference to resilience is understandably a positive characteristic which a system should have following extreme events or shocks. The question is: What does "bouncing back" mean in economic terms in the disaster literature? To answer this question, one must address the meaning of "economic resilience". Scholars such as Rose (2004), Rose and Liao (2005), Briguglio et al. (2009), Graveline and Grémont (2017), Rose and Krausmann (2013), and Hallegatte (2014) have all addressed this issue. The research on economic resilience aims to quantify the economic impact of a disaster on a system, either before a disaster strikes, by simulating the impacts with modelling, or following a disaster, to calculate the system's resilience. The emphasis is on the economic indicators of the system, i.e. costs of damage and revenue losses due to business interruption.

Rose (2004) defines economic resilience as "the inherent and adaptive responses to disasters that enable individuals and communities to avoid some potential losses". Rose (2004, p. 482) also explains that in economic terms, resilience

[4] For further elaboration on the evolution of the term resilience and its different definitions see Manyena (2006), de Bruijne et al. (2010), Bhamra et al. (2011), Hosseini et al. (2016), and Bergström et al. (2015).

can take place either at the microeconomic level (i.e. households and firms), the mesoeconomic level (specific economic sectors or industries); and the macroeconomic level (i.e. aggregate total of the economy). McAslan (2010) also addresses the issue of how resilience is different for each level of analysis. For an individual, resilience relates to a person's mental or physical health state; for communities resilience is "dependent on social interaction and collective action based on networks of relationships, reciprocity, trust and social norms"; for organisations, resilience involves having the ability to adapt supply chains, products and workers to different circumstances while retaining agile organisational structures; and lastly, for countries, McAslan suggests that resilience relates to the notion of national security, but departs from the concept to include other characteristics as well.

According to Tierney (2003), economic resilience refers to the capacity of both firms and local, regional and national economies to "absorb, contain or reduce both direct and indirect economic losses resulting from disasters". Hynes, Trump, Kirman et al. (2022) propose to strengthen the capacity of systems to "anticipate, absorb, recover from and adapt to a wide array of systemic threats". They term this capacity as the systemic resilience of economies, which is achieved by balancing between systemic resilience by design (RBD) and systemic resilience by intervention (RBI). Hynes, Trump, Kirman et al. (2022) suggest that an effective recovery from the COVID-19 pandemic requires not only promoting systemic resilience in economies but also promoting systemic resilience in underlying subsystems and connected human and environmental systems, as the economy is a system of interconnected institutions and markets where small perturbations in one area can have cascading effects on other parts of the system.

Noy et al. (2020) discuss how to measure the economic risk of COVID-19, which includes the four components of risk: hazard, exposure, vulnerability and resilience. In their study, resilience is an index of several components which allow the economy to bounce back from the initial shock of the pandemic. They conceptualise and quantify resilience as the ability of the economy to bounce back, given the magnitude of the shock and taking into consideration the hazard, exposure and vulnerability of the situation. They state that the degree of resilience in an economy is a function of the speed at which the recovery process occurs and the system returns to its pre-shock level. Jiang, Wang et al. (2022) also agree that the speed at which an economic system recovers from a severe shock to an ideal state indicates its degree of economic resilience. With regards to the literature on regional economics, Di Pietro et al. (2021) also point out that the speed of the recovery to the pre-shock steady state equilibrium is what defines how resilient a region is, relatively to other regions which have experienced the same external disturbance.

Martin and Sunley (2015) in their discussion on the notion of regional economic resilience usefully differentiate between three types of resilience as they appear

in the literature on the subject. The first type of resilience is defined as bouncing back from a shock. This definition is interpretated as a rebound or return of the system to the pre-shock state or path, and the emphasis is on the speed and extent of the recovery. The second type of resilience is the ability of the system to absorb the shock, which focuses on the stability of the system to face and tolerate the shock. The last type of resilience is what is known as "positive adaptive resilience" which suggests that, given the capacity to do so, a system can not only bounce back to its pre-shock state but it can also bounce forward to a better path.

To compare the concepts of economic resilience and bouncing back with hysteresis and economic scarring, it is important to address the issue of how scholars measure economic resilience. Table 1.2 presents different indices identified in the literature. The next part of the chapter will introduce different studies that have been conducted in both the disaster discourse and the economic discourse on the long-term effects of COVID-19.

**Table 1.2. Operationalisation of economic resilience and bouncing back/forward in disaster literature**

| Labor market indicators for economic resilience and bouncing back | Output or growth indicators for economic resilience and bouncing back | Models and indices with several indicators |
|---|---|---|
| Martin (2012)<br>Faggian et al. (2018)<br>Fingleton et al. (2012)<br>Augustine et al. (2013) | Cellini and Torrisi (2014) | Rose (2004, 2007, 2017)<br>Rose and Krausmann (2013)<br>Hallegatte (2014)<br>Briguglio et al. (2009)<br>Noy et al. (2020)<br>Pozhidaev (2021)<br>Xie et al. (2018)<br>Martin and Sunley (2015) |

Source: own work.

## 1.3. Use of disaster and economic discourses in the context of COVID-19 pandemic

The COVID-19 pandemic has been both a global supply and demand shock. According to Barišić and Kovač (2022), the COVID-19 pandemic affected both supply and demand at the same time. It started as a supply shock where essentially, to contain the spread of the virus, drastic measures, such as strict lockdowns and a halt in the economic activity, were required simultaneously around the world. These measures created disruptions in production and supply chains

and drastically reduced demand, especially in sectors reliant on the movement of people, like tourism, travel and hospitality services (IMF, 2020). Once aggregate demand fell, output was also down, causing a rise in unemployment. Barišić and Kovač (2022) also explain that as aggregate demand falls and forecasts of lower long-term growth of output become overly pessimistic, this can potentially have a negative impact on the economy through underinvestment or loss of innovation potential. This is because once demand decreases, firms have less capital to spend on investments; therefore, they tend to cut back on their investment (Fornaro & Wolf, 2020). This, in turn, generates an endogenous drop in productivity growth and future potential output, which sequentially induces another drop in demand, which spirals again to reduce investment and growth. Fornaro and Wolf (2020) call this phenomenon a supply-demand doom loop. Benigno and Fornaro (2018) refer to situations of protracted periods with low growth and high unemployment as stagnation traps. These traps are caused by low aggregate demand that generates low profits for firms, hence limiting their investment in innovation.

Several studies have confirmed this potential negative effect for COVID-19. In a study on Chinese firms, Shen et al. (2021) found that that COVID-19 has had a significant negative effect on the performance of listed Chinese companies by decreasing their investment scales and reducing their total revenue. In another study on listed Chinese firms, Jiang et al. (2021) confirmed the hypothesis that the COVID-19 outbreak has caused a significant reduction in investment, which was more pronounced geographically in the large, state-owned firms located in eastern China. Pessimistic sentiments regarding the duration of the COVID-19 shutdowns were also found to be a factor influencing firm behaviour. Buchheim et al. (2022), who discussed how sentiment-driven expectations affect firms' business decisions, used a large panel of German firms to illustrate how firms that anticipated the shutdown to last longer were more likely to implement strong measures like layoffs or cancelling investments.

If we look at the use of the concepts of economic scarring and hysteresis with reference to the COVID-19 pandemic, Barrett et al. (2022) discuss possible scarring effects from the COVID-19 pandemic where scarring is defined as persistent output losses. They suggest there are several channels (capital, labour and productivity) through which scarring can occur on the supply side. Similarly, Bodnár et al. (2020) discuss the impact of the COVID-19 pandemic on the euro area potential output and illustrate how the pandemic had negatively affected output by comparing the euro area potential growth following the shock with pre-crisis output estimates. Their article shows that the level of euro area potential output is expected to remain below the path suggested by the pre-crisis projections. Another study which analysed the effects of COVID-19 in the EU in terms of growth potential or the level of potential output is that of Halmai (2021). Furthermore, Barrett

et al. (2022) also explained how, during the COVID-19 pandemic, the supply-side components of output can potentially cause scarring by leading to persistent output losses. Cerra et al. (2021) also address the economic implications of COVID-19 pandemic and explain that the lockdowns have caused a large and sudden decrease in employment, while travel bans, apprehension about person-to-person contact and stay-at-home orders have all slowed down the labour market recovery. This situation has also left workers unemployed for relatively longer periods of time, which is exactly what constitutes hysteresis in employment. They reiterate that the longer it takes the economy to return to pre-crisis levels, the more likely it is that the pandemic will have long-lasting impacts. Long-term unemployment due to the decrease in employment during lockdowns can cause hysteresis. These consequences can become persistent; therefore, the authors suggest several ways how fiscal and monetary policies can minimise the scarring effects of COVID-19. Cerra et al. (2021) have a similar view on the subject to Syverson and Mauro (2020) who emphasise how job detachments and long protracted periods of unemployment may erode workers' skills and lead to deterioration of job matches.

Portes (2020) claims that during COVID-19 the term "scarring" was used many times in the economic literature to refer to several different ways in which "transitory economic conditions can negatively affect the long-run level or growth of output". He distinguishes between several scarring channels through which COVID-19 can potentially impact GDP, including unemployment, capital, investment and education.

Lockett-Morse (2021) presents several indicators that can determine the long-term scarring effects of the COVID-19 pandemic on an economy. By monitoring key recession indicators such as the Yield Curve, the Consumer Confidence Index (CCI), employment data, Leading Economic Index (LEI) and GDP, one can assess whether an economy has the potential of falling into a recession due to the pandemic.

Barišić and Kovač (2022) address possible hysteresis effects of COVID-19. They present their assessment of the economic damage that the ongoing COVID-19 crisis has done and test whether the fiscal measures taken by the governments of 26 EU countries (they exclude Luxembourg) have been effective in minimising possible hysteresis effects in the long-run. The study presents possible implications of the fiscal measures on potential output and GDP growth from 2021 to 2023 and suggests possible hysteresis effects if policymakers do not undertake the necessary fiscal measures. In such an instance, cyclical fluctuations of GDP could have a negative and permanent effect on the growth of potential GDP. In a similar manner, in their study, Caporale et al. (2022) assess the degree of unemployment persistence in the 27 European Union (EU) member states and try to address the question of whether the COVID-19 pandemic had affected it. The results of their analysis, which used fractional integration methods on figures from

the first quarter of 2000 to the fourth quarter of 2020, overall, point to high levels of persistence in the unemployment rates of all the 27 EU economies following the initial COVID-19 shock, hence supporting the hysteresis hypothesis. Caporale et al. (2022) suggest that there is also a divergence in the adjustment towards the long-run equilibrium, and some countries like Belgium, Luxembourg and Malta recover faster than the EU average.

Not knowing what we know today regarding the COVID-19 pandemic, when writing their article in the summer of 2021, Diggle and Bartholomew (2021) presented several channels of long-term damage from the crisis. They suggested labour market scarring and hysteresis, mentioning that the labour market had experienced a very meaningful shock in almost all economies. They stressed that the characteristics of the European labour market presented a challenge, as skill depreciation could occur during extended periods of furlough or reduced hours, where jobs simply would not reappear as the economy re-opened. Structural changes or firm defaults may very well lead to an eventual increase in unemployment and the associated labour market hysteresis. Other factors mentioned by Diggle and Bartholomew influencing how bad the effects of COVID-19 on the economy could be included: policy errors, belief scarring balance sheet repair and "zombification" as well as structural reform momentum.

Zhang et al. (2021) tested the validity of employment hysteresis, as opposed to unemployment hysteresis, in the United States in the onset of the COVID-19 crisis, using daily employment data between January 8, 2020, and May 30, 2020. Using nonlinear unit root test models, the study observed significant evidence of the validity of the employment hysteresis hypothesis during COVID-19, as employment in the United States was significantly influenced by the COVID-19 shock. It would be useful to note that despite these conclusions, as explained earlier in this article, hysteresis usually refers to long-term outcomes following a shock. As Zhang et al. (2021) test their hypothesis on a five-month span in the beginning stages of the pandemic, it is highly doubtful this study can reach conclusions regarding any permanent effects of COVID-19.

Another study, which has a longer view of the effects of the pandemic on the US economy (as of mid-2022) is that of Fernald and Li (2022). They assert that before COVID-19, the US economy was on a slow-growth path, and that according to their forecast, the longer-run GDP growth prospects following the COVID-19 crisis will not be very different from the pre-pandemic pace. In addition, they suggest that the behaviour of aggregate labour productivity is "in line with pre-pandemic cyclical patterns". The trends of both productivity and output indicate that COVID-19 has had limited aggregate scarring effects on the US economy.

Tervala and Watson (2022) state that the COVID-19 pandemic has initiated a global recession. As recessions can lead to total factor productivity (TFP)

hysteresis and output hysteresis, which is defined by the two authors as "a permanent or highly persistent fall in the levels of output relative to pre-recession trends", it is important to place the correct macroeconomic policy measures to respond to the crisis. They analyse the output and welfare consequences of the recession caused by COVID-19 and suggest that in such a situation, timely fiscal stimulus can help limit the negative consequences of recessions on TFP and potential output.

Before looking into the academic literature on economic resilience with reference to the COVID-19 pandemic, it would be interesting to point out a note by Highkin and van Leemput (2022) from the Federal Reserve, who address the economic resilience to the COVID-19 pandemic in terms of economic activity, and specifically changes in real GDP. Both Kim et al. (2022) and Papaioannou (2023) assess whether economies with better information and communication technology (ICT) infrastructure were more economically resilient in the face of COVID-19. The former authors define economic resilience in terms of economic (GDP) growth while the latter uses output losses in terms of cyclical GDP to measure economic resilience.

Another reference to economic resilience using an indicator which has not yet been suggested above was found in the urban resilience literature. Urban resilience includes several components, one of which is economic resilience. In the urban setting, Chen and Quan (2021) decide to measure economic resilience with seven indicators, one of which is the proportion of tertiary industry in GDP. They explain that cities with an insufficient economic base need to rely on the tertiary industry to maintain a certain level of activities and services for the inhabitants. As COVID-19 affected the tertiary industry harder than most other sectors, the greater the proportion of tertiary industry is in a certain city, the greater the impact caused by the pandemic. Therefore, Chen and Quan (2021) used the proportion of tertiary industry in GDP to represent a negative effect on economic resilience as part of their urban resilience indicator. Since this definition is part of another composite, it will not be included in the discussion later in the chapter.

The rest of the academic studies reviewed below in this chapter have not used a single indicator to operationalise economic resilience following the COVID-19 pandemic. These studies measured economic resilience by using an index or several variables. There have been several studies to date which discuss economic resilience in the light of COVID-19 using a composite of indicators. For instance, Lee et al. (2022) assessed the economic resilience of 52 economies in the early stage of the COVID-19 pandemic. The authors constructed an overall indicator for economic resilience using 16 indicators in the dimensions of government, enterprises and the public, and applied an output-oriented data envelopment analysis (DEA) model to measure and compare the economic resilience scores across

economies. For the government dimension, sub-indicators of fiscal policy, transparency, efficiency, news media and public participation were taken, while for the enterprise dimension, the issues of finance, financial services, financial stability, digital transformation, reaction and flexibility were taken as sub-indices. For the public dimension, savings, mobile communication, education and use of internet were utilised. Lee et al. (2022) found that 23 of the economies included in their study were situated at the efficiency point, meaning they had no room for further improvement in the overall economic resilience performance at the beginning of the pandemic, relative to the other economies. As this study was relevant for the very early stages of the COVID-19 pandemic, it would be interesting to see how resilient the economies were according to their model in later stages of the pandemic.

In addition, Asongu et al. (2021) also write about the difference between countries with a focus on the relationship between health vulnerability and economic resilience. They claim such a link can shed light on which countries are more exposed to the effects of COVID-19 and which are able to face the pandemic with some effectiveness. For this purpose, Asongu et al. (2021) develop a health vulnerability index (HVI) using ten variables, and for operationalising economic resilience they use an existing economic resilience index (ERI) which includes the following nine variables: agriculture, forestry and fishing, value-added; government effectiveness; regulatory quality; control of corruption; external debt stocks; consumer price index; unemployment; fiscal deficit; the Human Development Index (HDI). Four scenarios were formulated to illustrate different outcome possibilities: "low HVI-low ERI", "high HVI-low ERI", "high HVI-high ERI" and "low HVI-high ERI". Asongu et al. (2021) suggest that the countries in the 'low HVI-high ERI' category have robustly fought the pandemic. Their study found that most European countries, along with Rwanda, Japan, China, South Korea, Thailand, USA, Canada, Uruguay, Panama, Argentina and Costa Rica are placed in the low HVI-high ERI quadrant, making them more resilient and less vulnerable, hence better able to hedge the pandemic shock.

Noy et al. (2020), in their attempt to measure the economic risks from COVID-19, utilise a conceptual disaster risk model which includes the exposure, vulnerability and resilience of the local economy to the shock caused by the pandemic. Resilience is defined here as "the ability of the economy to bounce back [*sic*] given the magnitude of the shock that is generated by the intersection of the hazard, exposure and vulnerability". When operationalising resilience in their study of economic risks of COVID-19, Noy et al. (2020) include such indicators which enable the economy to bounce back from the initial shock of the pandemic. They use the following indicators: internet access, cellular use, public and private debt, government expenditure as well as socio-cultural disparity. Faggian and Modica (2020) also take note of the four components of risk (hazard, socio-economic

exposure, vulnerability and resilience) and explain that on the regional level, the ability of sub-national actors to absorb, bounce back and adapt to shocks shapes the region's outcomes and prospects to recover.

Diop et al. (2021) discuss the development of economic vulnerability and economic resilience indexes with regards to the COVID-19 pandemic. They use Noy and Yonson's (2018) definition of resilience, i.e. the capacity of a country to recover quickly from the effects of a shock, and propose several variables to include in both the economic vulnerability and economic resilience indexes. In the economic resilience index alone they include nine variables: agriculture, forestry and fishing, value added (per cent of GDP), government effectiveness, regulatory quality, control of corruption, external debt stocks (per cent of GNI), consumer price index (CPI), total unemployment (per cent of total labour force), fiscal deficit (per cent of GDP), and the Human Development Index (HDI). The results of their regression analysis of 150 countries confirms their hypothesis that a higher degree of resilience is synonymous to a low economic impact by the COVID-19 pandemic. The study operationalises the economic impact of the pandemic as the difference between macroeconomic projections made before the COVID-19 pandemic and the revised 2020 macroeconomic projections provided by the IMF.

Jiang, Wang et al. (2022) use a macroeconomic "Resilience Index" to check China's economic recovery following the COVID-19 shock. Their conclusion is that though the Chinese economy was highly affected by COVID-19, the speed at which the economy recovered from the initial shock illustrates how China is economically resilient. Hynes, Trump, Lovel et al. (2020) also suggest a resilience approach to dealing with COVID-19 and future shocks. They discuss the impact of COVID-19 on socioeconomic systems while focusing on resilience and suggest that there is a need to move from the "bouncing back" aspect of resilience to the concept of "bouncing forward".

Though not focusing specifically on economic resilience, another study worth mentioning because of its use and different categorisation of variables is that of Pileggi (2022), who built a national holistic resilience index to measure the expected resilience of different countries to a global pandemic like COVID-19. The study combined 11 different indicators grouped in five categories, one of which is the economy. The other categories included in the index were healthcare infrastructure, health, demography and society. Unemployment was included as an indicator for society, while the economic variables included GDP per capita and the GINI Index for inequality.

Table 1.3 summarises the use of different indicators in the economic and disaster literature, specifically with reference to the COVID-19 pandemic, according to three divisions: single indicators focusing on the labour market or on growth and output as well as several indicators used in models or in indices.

**Table 1.3. Summary of the use of indicators in economic and disaster literature with reference to COVID-19**

| | Labor market indicators | GDP, output or TFP, growth indicators | Models and indices with several indicators |
|---|---|---|---|
| Literature on hysteresis and economic scarring | Cerra et al. (2021)<br>Syverson and Mauro (2020)<br>Lockett-Morse (2021)<br>Caporale et al. (2022)<br>Zhang et al. (2021) | Barrett et al. (2022)<br>Barišić and Kovač (2022)<br>Fernald and Li (2022)<br>Tervala and Watson (2022)<br>Moder and Martin Fuertes (2021)<br>Bodnár et al. (2020)<br>Portes (2020)<br>Halmai (2021) | |
| Literature on economic resilience and bouncing back | | Kim et al. (2022)<br>Papaioannou (2023) | Lee et al. (2022)<br>Noy et al. (2020)<br>Asongu et al. (2021)<br>Diop et al. (2021)<br>Jiang, Wang et al. (2022) |

Source: own work.

It is likely that the studies included in Table 1.3 do not reflect all the studies conducted in the field in recent years. However, given the studies included, the table seems to depict a clear picture of the issue. While in the theoretical literature on hysteresis, scarring, resilience and bouncing back the concepts have been in some cases operationalised with the same variables, when looking at COVID-19 studies as an example, it is quite clear that there is a distinction between the operationalisation of the concepts. There are two studies (Kim et al., 2022; Papaioannou, 2023), which operationalise economic resilience as a singular variable focusing on GDP. Their studies focus on whether information and communication technology (ICT) infrastructure has influenced the economic resilience of countries during the COVID-19 pandemic. Other than that, the operational definitions of economic resilience and bouncing back in studies conducted on COVID-19 have adopted more complex models or indices, which departs from the definitions of hysteresis and economic scarring.

The measurement of economic resilience has evolved in recent years from an end-result to a process which expresses the multidimensional characteristics of the term resilience. As Martin and Sunley (2015) state, "Resilience is not an either/or feature or outcome, but a complex process that admits of many possible

combinations of change and continuity". This might explain the evolution of the literature on economic resilience, transitioning from singular indicators, as illustrated in Table 1.2, to the increased utilisation of indices and models in recent years. Resilience today is seen as a wider term which encompasses not only true economic indicators but also general attributes to the economic system, such as the variables included in the economic resilience index used by Diop et al. (2021) (government effectiveness, regulatory quality, control of corruption, CPI, HDI, etc.).

## Conclusions

This chapter has discussed the terms used in two academic disciplines to describe the long-term impacts of natural disasters on the economy. The economic literature focuses on the concepts of hysteresis and scarring while the disasters literature revolves around terms such as resilience and bouncing back. Given the fact that both disciplines draw their attention to large-scale disasters, such as COVID-19, and try to shed some light on their effects, the question which arose was how the terms relate to one another and whether there are any overlaps in relation to their meaning or uses.

In the theoretical literature and studies conducted in earlier years, there seemed to be similarities between how the two disciplines used the terms hysteresis, economic scarring, economic resilience and bouncing back. However, a simple and initial comparison between the use of the concepts in studies on COVID-19 found divergence between the operational definitions. The divergence found in this chapter is of importance for several target audiences: (1) illustrating which indicators have been used in the COVID-19 literature can help scholars in both the fields of economics and disaster research choose in future studies their terminology according to the purposes of their research; (2) the studies reviewed in this chapter illustrate the evolution in the operationalisation of economic resilience and can help refine the indicators used in the discipline to articulate what it means to have or attain economic resilience; and (3) in the field of economics, where economic scarring and hysteresis are still seen in terms of a singular indicator, this review can raise the question of whether the indicators used are sufficient to encompass correctly the long-term effects of natural disasters on an economy.

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# 2. Macroeconomic implications of the COVID-19 revisited

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## Abstract

**Purpose:** The chapter identifies channels of COVID-19's impact on the economy. The empirical part presents and assesses the consecutive reactions of inflation, industrial production, the unemployment rate, Gross Domestic Product (GDP) growth rate and shifts in GDP expenditure structure on the COVID-driven disturbances and policies designed and implemented. A new research dimension covers the central banks' monetary policy, long-term bond yields and real effective exchange rates.

**Design/methodology/approach:** A complete standard Keynesian macroeconomic model is used as the conceptual framework of revisited studies on the adverse shocks triggered by the pandemic. In the empirical part, comparative analyses of reactions of the same group of six European countries, namely France, Germany, Italy, Spain, Hungary and Poland and two major large open economies of the USA and Japan are done.

**Findings:** The real shocks transmitted to the demand and supply sides were mostly neutralised; countries protected their levels of employment and consumption. However, the real economy's restored stability was achieved at a significant cost of inflation, higher public debt and hikes in the cost of debt servicing.

**Practical implications:** The analytical framework and empirical analyses have a potential value as a case study in economic policy design and appraisal.

**Originality and value:** The original empirical analyses extended to the monetary policy domain offer a comprehensive perspective on the real and nominal disturbances and policies implemented to stabilise the economies.

**Keywords:** complete macroeconomic model, COVID-19 vs demand and supply shocks, macroeconomics of the COVID-19 disturbances, anti-crisis economic policy.

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## Introduction

The chapter aims to revisit and enhance the study (Kowalski, 2021). It discusses and assesses the two years of COVID-19's economic impact. For the sake of continuity and comparison it uses the same analytical framework as implemented in Kowalski (2021, pp. 16–18).

Empirical analyses focus on macroeconomic developments in four pairs of countries. These are Italy and Spain, Germany and France, Poland and Hungary and Japan and the US. The first two are southern EU members that suffered severely in the first months of the pandemic. Germany and France are the key EU economies with relatively well organised and developed health services. The first four countries belong to the EMU. Hungary and Poland, also the EU members have a similar institutional heritage. They chose to stay outside the EMU. Japan and the US are the key large open economies with national currencies of a global importance.

The economic shock triggered by the pandemic was the fourth in the 21st century. The first was the dot.com bubble but it had a limited US range and mild implications for the global economy. The second was the 9/11 shock with long-lasting monetary policy and global finance implications. They planted seeds for the third crisis of 2007–2009, already global and acute. For a long time, it was felt the most by developed countries of the European Union. The 2007–2009 crisis was the first significant blow to globalisation. It was mirrored in a transitory drop in flows of capital and trade. Finally, the fourth shock began in March 2020 and was the most extensive global macroeconomic crisis since the Great Depression of 1929–1933. The COVID-19 shock faded at the beginning of 2022 and was phased out by the February 24th outbreak of the Russian Federation invasion of Ukraine.

The pandemic although universal, had asymmetric implications for individual economies. The universality meant that it hit all economies and struck both the demand side and—after a very short time lag—the supply side as well. The supply-side disturbances unveiled vulnerabilities of sectors and whole national economies to global delivery chains. Particular economies, despite their interconnectedness maintained notable structural differences and showed divergent resilience to the shock. In order to show the morphology of these compound reactions and compare the efficacy of economic policies, a standard complete macroeconomic Keynesian model is used. It is a framework allowing to distinguish real and nominal shifts caused by COVID-19 disturbances. It also shows the implications of fiscal and monetary measures to stabilise the economy.

The chapter is divided into five sections. The first section presents and discusses the COVID-19 pandemic death toll. The second outlines the macroeconomic framework used to study the morphology of COVID-19 shock. The thirds section

is devoted to economic policy counter-shock measures implemented on national levels. The fourth section analyses the response trajectories of eight national economies on COVID-19 shock and stabilisation policy measures. It focuses on seven macroeconomic indicators. These are inflation, 10-year bond yields, industrial production, unemployment rate, GDP growth rate, shifts in GDP expenditure structure and real effective exchange rates. The last section concludes the chapter.

## 2.1. The COVID-19 pandemic cumulative death toll

The COVID-19 pandemic began in Wuhan in the People's Republic of China (PRC) and then, in the first quarter of 2020, spread to other parts of the world (Kowalski, 2021, pp. 14–15). The death toll was the most dramatic outcome of the pandemic. This chapter focuses on the evolution of the pandemic shock up to the first quarter of 2022. Two reasons justify the focus on the first months of 2022. The first is that the pandemic, although still extant, was no longer seen as an existential threat. The second reason was the February 24th Russian invasion of Ukraine. It marked new military, political and economic shocks that pushed the SARS-CoV-2 danger to the background.

The death toll was the most dramatic outcome of the COVID-19 pandemic. Not only during the pandemic people die infected with SARS-CoV-2, but due to lack of tests or personnel some sick people could never be tested. Many suffering from other diseases were deprived of proper, timely diagnoses or treatments. Moreover, those tested and who died from COVID-19 often simultaneously suffered from other accompanying diseases. In addition, because of developmental and institutional differences and divergent national ways of information collecting and processing it is impossible to establish globally a precise number of deaths caused directly by SARS-CoV-2.

To solve the problem of a lack of precise data the concept of *excess death* is used as the proxy for the actual pandemic death toll (The pandemic's true, 2023).[1] According to *The Economist* the excess deaths figure "is the gap between how many people died in a given region during a given time, regardless of cause, and how many deaths would have been expected if a particular circumstance (such as a natural disaster or disease outbreak) had not occurred" (The pandemic's true, 2023).[2] These metrics unveil a considerable gap between the official number of

[1] For other estimates see: Mathieu et al. (2020). See also the most recent estimates in Dattani (2023).

[2] The tool used by *The Economist* is a machine-learning model fed with all available data for individual countries. It can estimate the number of excess deaths daily.

COVID-19 deaths globally—6.9 million—and *The Economist* model's estimate, which is 21.8 million.[3]

Table 2.1 shows a cumulative official and estimated excess death toll recorded at the end of the first quarter of 2022. Globally, according to national authorities' aggregated data, over 6 million people died due to COVID-19. Regionally the highest numbers were recorded in Europe and Latin America & the Caribbean—well over 1.7 and 1.6 million respectively. Following the official data the highest death toll per 100,000 inhabitants was noted in North America, Latin America & the Caribbean and Europe. Due to the aforementioned specific differences in the classification of cases, the concept of excess deaths is more reliable and informative. What is striking is the magnitude of the discrepancy; the total world number of estimated excess deaths was 2.8 times higher than the officially recorded cases. The highest regional discrepancies were estimated in Africa and Asia: 7.2 and 6.2 million, respectively. The highest estimated excess death toll per one hundred thousand people (410 cases) was recorded in Europe. Both Americas also noted very high incidents of 380 and 320 people respectively.

**Table 2.1. Global cumulative official COVID-19 deaths and estimated excess deaths across regions as of March 28, 2022**

| The world and regions | Official COVID-19 deaths | Per 100,000 | Estimated excess deaths | Per 100,000 |
|---|---|---|---|---|
| World | 6,152,000 | 77 | 17,360,000 | 220 |
| Africa | 253,000 | 18 | 1,830,000 | 130 |
| Asia | 1,404,000 | 30 | 8,770,000 | 190 |
| Europe | 1,783,000 | 239 | 3,060,000 | 410 |
| Latin America & Caribbean | 1,691,000 | 256 | 2,500,000 | 380 |
| North America | 1,011,000 | 268 | 1,190,000 | 320 |
| Oceania | 9,897 | 22 | 10,600 | 23 |

Source: (The pandemic's true, 2023).

At the beginning of 2022 the global dynamics of the death toll decreased but it still signalled that the threat was not over. Table 2.2 shows cumulatively both official COVID deaths and estimated excess deaths data for the sample of eight

[3] According to *The Economist* model at the time of writing (April 8, 2023), there is a 95% chance that the true figure is between 17.1 million and 29.6 million additional deaths.

countries in the first three months of 2022. Table 2.2 indicates that official COVID deaths increased in February with the highest rates in the US and Spain (7.2% and 6.9% respectively). In March in all countries except Germany, the dynamics of official COVID death cases decreased. The best situation in this respect was recorded in Spain. A closer inspection of cumulative excess deaths' estimations capturing a broader spectrum of COVID-19 pandemic implications in terms of mortality reveals that in February the situation improved only in Germany and Spain. Developments in March in comparison with February were diverse; the growth rate decreased in all countries except Germany, Italy and Spain. The data shown in Table 2.2 signals that the shifts towards improvement were unevenly distributed. The data also indicate that the pandemic became more controlled after two years but still was not fully overcome.

**Table 2.2. Cumulative COVID-19 death and excess deaths cases* till the first quarter of 2022 (in thousands)**

| Country | 2022_Q1 | | | | | |
|---|---|---|---|---|---|---|
| | January 31 | | February 28 | | March 28 | |
| | official COVID deaths | reported excess deaths | official COVID deaths | reported excess deaths | official COVID deaths | reported excess deaths |
| France | 127,773 | 103,987 | 135,056 | 104,755 | 138,497 | 105,664 |
| Germany | 122,202 | 116,230 | 128,757 | 113,399 | 135,857 | 115,597 |
| Hungary | 41,105 | 42,191 | 43,949 | 42,920 | 45,342 | 43,559 |
| Italy | 146,147 | 200,555 | 154,560 | 203,558 | 158,782 | 208,092 |
| Japan | 331,349 | 1,114,005 | 351,660 | 1,200,200 | 367,686 | 1,200,000 |
| Poland | 105,198 | 179,231 | 111,318 | 182,819 | 114,828 | 183,534 |
| Spain | 97,207 | 112,933 | 101,947 | 112,558 | 103,583 | 112,904 |
| The US | 884,056 | 1,117,686 | 947,738 | 1,151,929 | 973,862 | 1,152,824 |

* Since the country's first 50 COVID deaths.
Source: (The pandemic's true, 2023).

Table 2.3 shows the cumulative COVID-19 deaths and excess death cases per 100,000 people at the end of the two-year pandemic. Two European countries: Hungary and Poland recorded the worst outcome. Hungary had the highest number of official COVID death cases—almost 455 people per 100,000 inhabitants. Poland led in terms of excess death cases with over 460 death cases. The lowest COVID

death toll, twenty times lower than in Hungary, was recorded in Japan. Its excess death toll was over twelve times lower than that in Poland (Table 2.3).

**Table 2.3. Cumulative COVID-19 death and excess deaths cases per 100,000 people* at the end first quarter of 2022 (in thousands)**

| Country | March 28 2022 | |
|---|---|---|
| | official COVID deaths | reported excess deaths |
| France | 204,23 | 155,79 |
| Germany | 162,96 | 138,66 |
| Hungary | 454,91 | 436,81 |
| Italy | 268,95 | 352,47 |
| Japan | 22,45 | 36,33 |
| Poland | 288,10 | 460,48 |
| Spain | 217,80 | 237,40 |
| The US | 287,88 | 340,78 |

* Since the country's first 50 COVID deaths.
Source: (The pandemic's true, 2023).

In France, Germany and Hungary the reported cumulative excess deaths were lower than the official COVID deaths (Table 2.3). This paradox means that the number of COVID-related deaths was compensated by a much lover mortality stemming from the imposed prolonged lockdown. It meant social distancing and lower mobility were effective in reducing deaths caused by seasonal diseases such as 'flu'or traffic accidents.

At the time of writing (the first quarter of 2023) SARS-CoV-2 no longer presents an existential threat to the world population. The rushed development of vaccines, efforts to expand access to them (Moore et al., 2022) and standard precautionary measures implemented and often coordinated at the supranational level, first made the pandemic controllable and then led to its resolution. Despite that the COVID-19 pandemic is still debated. Its sources are being studied and there are several theories as to its origin and proliferation (Fang, 2022; Mancini, 2023a).

There are controversies regarding the institutional and political implications of the pandemic. They mostly follow the north-south divide. They range from such an important matter as the stalemate in the negotiations of the WHO-sponsored treaty on pandemics, through problems of vaccine sharing and inequality, calls

of developing countries for access to pandemic countermeasures, the removal of intellectual property restrictions on COVID-19 tests, vaccines and drugs, the efficacy of wearing masks and the vaccines and finally to the open question as to the origins of the virus. The latest is linked to the rules regarding unrestricted access of international medics and investigator teams to places of infectious disease outbreaks that are contested by some authoritarian countries (Mancini, 2023b, 2023c; Moore et al., 2022).

## 2.2. The morphology of COVID-19 macroeconomic shock

The outburst of the COVID-19 pandemic caused shockwaves in the social, economic and political life in all countries. The most immediate and directly felt were shocks of a medical and existential nature. They created uncertainty and deep concerns about the most essential aspects of life and survival. These disturbances triggered precautionary administrative actions limiting or banning mobility. Due to their nature, they adversely impacted both the demand and supply sides of economies. The supply-side disturbances were further magnified by local and global supply chain holdups, which became the main channel of contagion. In reaction, fiscal and monetary policy countermeasures were implemented to reduce the demand-side disturbances and were also targeted on the supply side.[4] The digital economy, mainly e-commerce, was in the front line of defence and displayed swift reaction to the new economic and social environment.

These were both real and nominal shocks from the mainstream perspective of the real business cycle domain (Long & Plosser, 1983; Plosser, 1989). In the reality it was a time of near simultaneous disturbances in the supply and demand for labour, access to components and raw materials and actual shifts in consumption and saving patterns. Therefore, they are mirrored in the production function (supply-side), whereas the latter influenced the demand-side. Nominal shocks stemmed from central banks' actions led to sizable changes in the money supply. They were passed through the interest rates channel to the demand and supply sides of the economy and finally were mirrored in the price level.

As already noted *we were all Keynesians especially at the time of the pandemic outburst*.[5] The scale of the negative economic shock stemming from COVID-19 and the accompanying uncertainty was such that a consensus emerged about the need

[4] For the comprehensive analyses of the COVID-19 global implications see: Aliber et al. (2023).

[5] This is a paraphrase of "we are all monetarist now" that reflected popularity of Milton Friedman's monetarist revolution that took minds of many macroeconomists in the 1970s. The phrase became broadly used thank to Laidler's article about monetarism (1981, pp. 1–28).

for a massive intervention in national economies with the use of fiscal, monetary and direct control instruments (Chomsky, 2020; Gopinath, 2020; Kowalski, 2020, p. 42).

In this chapter following Kowalski (2021) a macroeconomic comprehensive Keynesian SRAS/LRAS/AD model is applied to present and discuss real and nominal shocks that hit the economies. The model is also useful in showing the implications of the use of stabilisation fiscal policy measures.[6] The SRAS/LRAS/AD framework also enables the capture the real economy implications and the developments in the level-of-price domain. The model corresponds to the IS/LM/BP concept (Abel et al., 2016; Kowalski, 2013, pp. 20–22, 37–64). It also lets thinking about economic policy design along with the approach introduced by Tinbergen (1952). The advantages of the SRAS/LRAS/AD model are such that it combines short and long-term considerations that are easily expressed in a graph.

In Figures 2.1, 2.2, 2.3 and 2.4 P stands for the level of prices and Y represents output whereas Yn is the full-employment level of output and ($P_0$) is the pre-COVID price level. The LRAS is the long-term aggregate supply. The LRAS schedule represents the normal level of output being a function of labour, capital and natural resources and total factor productivity. If any of these factors increase it will shift the LRAS schedule to the right.

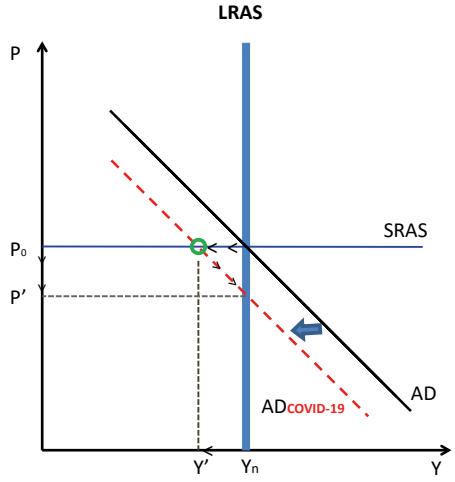


**Figure 2.1. The first run reaction of the model economy to the COVID-19 shock**

Source: based on standard macroeconomic literature.

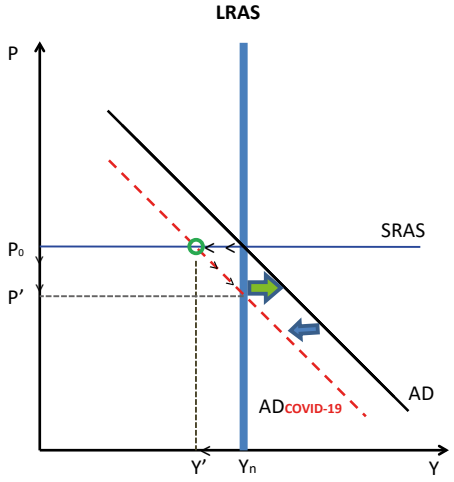


**Figure 2.2. A perfectly fine-tuned stabilisation policy**

Source: own work.

[6] There are other models that can be used to study economic policy options and challenges. A good example is Robert Mundell's concept of *effective market classification or the Salter-Swan model.* See: (Kowalski, 2013, pp. 53–55; Schmitt-Grohé & Uribe, 2021).

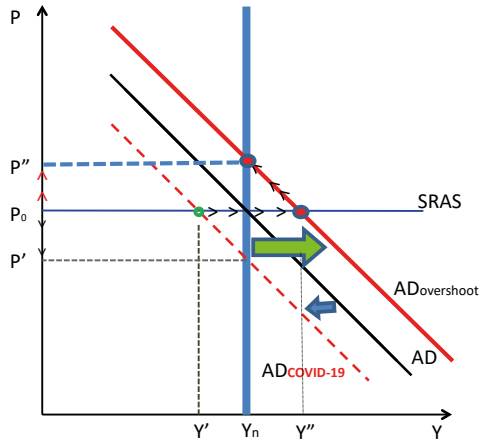


**Figure 2.3. A case of the oversized stabilisation policy package**
Source: own work.

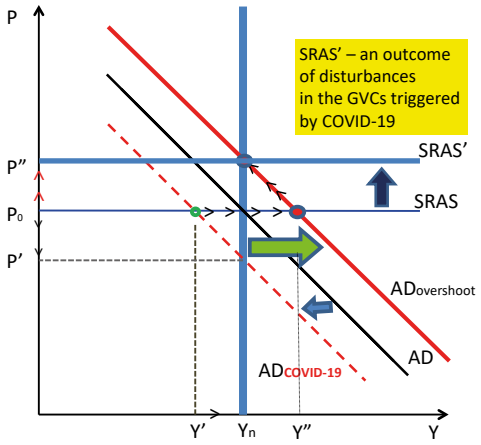


**Figure 2.4. The completed cycle of the shocks and policy countermeasures**
Source: own work.

SRAS stands for short-run aggregate supply. For the sake of simplification it reflects a standard assumption that in the short-run, ceteris paribus, prices are fixed and firms within their capacity are able to produce and offer as much as their customers demand. The aggregate demand (AD) shows relationships between output demanded by agents, ceteris paribus, and the price level. Any negative event or change for worse in customer expectations will shift the AD to the left.

Figure 2.1 shows the initial simultaneous equilibrium between long-term and short-term output and aggregate demand. The equilibrium price level ($P_0$) and the natural level of output (Yn) signal also that there is no new information that would change economic agents' expectations. Figure 2.1 also contains the reaction of the model economy to a negative shock stemming from COVID-19. The growing number of cases and the lockdown imposed to stop the disease reduced mobility of people and transitory shrank consumer demand. Soon a sizable part of the demand for staples and other goods migrated to the Internet and they were delivered to final consumers through e-commerce channels. In the beginning of COVID-19 the reduction of consumer demand was noticeable. The pandemic, due to the health considerations and preventive anti-COVID-19 measures, contributed to a slower pace of manufacturing as well. As Figure 2.1 shows the shift of AD to the left that moved the economy out of the pre-COVID conceptual position.

The reduced demand meant that the current output was lower (Y') than the natural level. If the economy is left without the anti-shock economic policy measures it would go through painful price and cost adjustments for an unknown time

lag to return to its original equilibrium. The prolonged functioning below the Yn level would also mean a higher than natural unemployment rate.

Figure 2.2 presents a perfect economic policy scenario. It implies that the timing, structure and the size of fiscal stabilisation policy measures and the accommodative (appropriate) monetary policy counter-balanced the COVID-19 negative shock. To realise how difficult it is to achieve such an economic policy design and implementation, if indeed this is possible, it is necessary to consider at least how fragile agents' expectations can be, the uncertainty accompanying any economic policy action, especially in pandemic, and the scale of international interdependence.

Figure 2.3 outlines a scenario in which the combined fiscal and monetary policy measures were oversized or unnecessary reached sectors that did not require such a scale of a state help (Wolf 2020). These measures could lead to an exceedingly expansionary policy overshooting the original effect and its induced negative shock. In such a scenario the stabilisation policy could destabilise not only output but also could lead to an increase in the price level. In the first months of stabilisation policy actions triggered by the COVID-19 the inflationary outcomes were barely seen.[7] Figure 2.4 combines all stages and presents the outcome of the cycle; negative shocks—policy actions—full pattern of the economy reactions. The cycle is complemented by the upward shift of the SRAS schedule mirroring cost-price adjustments triggered by the real and nominal shocks. It needs to be emphasised that the model presents a highly simplified pattern of the pandemic-triggered disturbances. It neglects differences between economies and their sectors' resilience to shocks. For the sake of simplicity it also assumes separate shifts of the AD and SRAS, whereas in the reality the shifts could happen simultaneously.

Due to the almost simultaneous pandemic impact on the demand and supply sides of the economy the analyses were focused on the short run. What must be remembered is that such a pandemic inevitably had and will have impact on the size and structure of private investments. The scale of current public expenditures aimed at emergency help led to an unprecedented increase in public debt thus reducing the scope of public investments in the future. Both these trends will have an impact on the growth rate of Yn.

## 2.3. Economic policy counter-shock measures

In the first stage of the pandemic countries focused on supporting the continuity of business operations and maintaining household income—the key element determining consumption expenditure (Table 2.4). They used fiscal policy measures

[7] The only exceptions were two countries: Hungary and Poland (see section 4).

to extend cash transfers, enhanced coverage and extended the duration of unemployment benefits (Porcher, 2023). Small businesses, particularly in the service sector hit severely by lockdowns, received temporary deferrals of taxes and social security payments. Such additional spending or foregone revenue varied between 11.8% of GDP (the US) to 3.8% (the case of Spain). It must be emphasised that only a small fraction of the spending was channelled to the health sectors (IMF, 2023b; Kowalski, 2021, p. 19). Fiscal measures also included liquidity support directed mainly to big business. These were equity injections, loans, asset purchases and debt assumptions (Table 2.4). Potentially the costliest were guarantees. The Italian government distinguished itself by extending guarantees of 32.8% of GDP! It was followed by Germany, France and Spain: 24.8%, 14.8% and 13.2%, respectively (Kowalski, 2021, p. 19).

**Table 2.4. Synopsis of selected country fiscal measures in response to the COVID-19 envisaged at the beginning of pandemic**

| Countries | Above the line measures | | | Liquidity support | | |
|---|---|---|---|---|---|---|
| | additional spending or foregone revenue | | accelerated spending/ deferred | below the line measures: equity injections, loans, asset purchase or debt assumptions | contingent liabilities | |
| | health sector | non-health sector | | | guarantees | quasi-fiscal operations |
| France | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Germany | ✓ | ✓ | | ✓ | ✓ | |
| Hungary | ✓ | ✓ | | | | |
| Italy | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Japan | ✓ | ✓ | ✓ | | ✓ | ✓ |
| Poland | ✓ | ✓ | | ✓ | ✓ | |
| Spain | ✓ | ✓ | | ✓ | ✓ | ✓ |
| The US | ✓ | ✓ | ✓ | ✓ | ✓ | |

Source: based on (Fiscal Monitor, n.d.).

These emergency measures aimed at maintaining both the economies' demand and short-run supply. Their general scope and timing depended on the civil service quality in particular countries and the local perception of the existential and economic threat to the countries' performance. The ad hoc fiscal measures

implemented at the outset of the pandemic and then later more careful actions were mirrored in the general government overall balance (GGOB) as a percentage of GDP (Table 2.5). In 2019—the last year of pre-COVID-19 normality—only Germany had its GGOB in surplus. As Table 2.4 shows in the next three consecutive years all analysed countries recorded profound annual GGOB deficits. In 2020 the deepest deficits were reported in the US, Spain and Italy: –14.0%, –10.1% and –9.7%, respectively (Table 2.5). Already in 2021 they were able to improve the budgetary situation. Table 2.5 also shows that the US implemented the most activist fiscal policy. High deficits were also recorded in Spain, Italy and Japan.

**Table 2.5. General government overall balance in 2019–2022 (% of GDP)**

| Country | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| France | –3.0 | –9.0 | –6.5 | –4.9 |
| Germany | 1.5 | –4.3 | –3.7 | –2.6 |
| Hungary | –2.0 | –7.5 | –7.1 | –6.1 |
| Italy | –1.5 | –9.7 | –9.0 | –8.0 |
| Japan | –3.0 | –9.1 | –6.2 | –7.8 |
| Poland | –0.7 | –6.9 | –1.8 | –3.1 |
| Spain | –2.8 | –10.1 | –6.9 | –4.5 |
| The US | –6.3 | –14.0 | –11.6 | –5.5 |

Source: (IMF, 2023a).

The most straightforward, overall headline measure of fiscal prudence is the general government gross debt as a percentage of GDP (GGGD) is shown in Table 2.6. Already in 2019 there were considerable differences between the countries' indebtedness. The highest GGGD level was recorded in Japan: 236.4% of GDP, Italy, the US, France and Spain also had high levels of debt. In contrast Poland, Germany and Hungary recorded a lower GGGD. Due to cyclical reasons and emergency discretionary fiscal reactions (see Table 2.4 & 2.5) the GGGD rocketed in 2020. The US, Japan and Spain implemented the most expansionary fiscal policy packages. They were transformed into significant rises of GGGD as a percentage of GDP by 24.8, 22.3 and 22.2 percentage points respectively (Table 2.6). Other

countries implemented milder fiscal stimuli.[8] In subsequent years all countries except Japan reduced the public debt burden (Table 2.6).

**Table 2.6. General government gross debt (% of GDP) 2019–2022**

| Country | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| France | 97.4 | 114.7 | 112.6 | 111.1 |
| Germany | 58.9 | 68.0 | 68.6 | 66.5 |
| Hungary | 65.3 | 79,3 | 76.8 | 76.4 |
| Italy | 134.1 | 154.9 | 149.8 | 144.7 |
| Japan | 236.4 | 258.7 | 255.4 | 261.3 |
| Poland | 45.7 | 57.2 | 53.8 | 49.6 |
| Spain | 98.2 | 120,4 | 118.4 | 112.0 |
| The US | 108.7 | 133.5 | 126.4 | 121.7 |

Source: (IMF, 2023a).

It is worth mentioning that the first IMF estimations of the future debt levels were published in October 2020. They underestimated the debt in 2020–2022 only for Hungary and the US. In all other cases and for all years the 2020 IMF projections based on national data were overestimated. It reflects the pessimism at national and IMF levels prevailing at the pandemic's beginning. In times of uncertainty this cognitive bias was almost universal and significantly contributed to the oversized scale of fiscal stimuli implemented.

Table 2.7 presents central banks' policy measures implemented and kept operational during COVID-19. The European Central Bank was the only bank that did not change its reserve stance. All analysed banks followed the quantitative easing policy providing liquidity to their banking systems and fiscal authorities. In all cases, the most important were lending operations and asset purchases. These policies (Table 2.7), together with the interest rate policy (Figure 2.5), were expansionary, adding stimuli to the activist fiscal policies.

The central bank policy rate is the rate set by the central bank to signal its policy stance. It is the rate at which the central bank lends funds (typically short-term) to commercial banks (Moessner & Nelson, 2008). Figure 2.5 shows that in 2020–2022Q1 Bank of Japan (BOJ) and the European Central Bank (ECB) kept their policy rates unchanged at –0.5% and 0.0%, respectively. It meant that both institutions ran expansionary monetary policy. In March 2020, the first month of

[8] In some EU Member States such as Poland and Hungary the scale of actual fiscal expenditure required attention because even before COVID-related spending sizable public expenditure was not recorded within the public finance framework.

**Table 2.7. Synopsis of central banks' policy measures in 2020 (March)–2022 (March)**

| Central banks | Reserve policy | Lending operations | Asset purchases | Foreign exchange |
|---|---|---|---|---|
| Bank of Japan | ✓ | ✓ | ✓ | ✓ |
| Central Bank of Hungary | ✓ | ✓ | ✓ | ✓ |
| European Central Bank | | ✓ | ✓ | ✓ |
| Federal Reserve | ✓ | ✓ | ✓ | ✓ |
| National Bank of Poland | ✓ | ✓ | ✓ | ✓ |

Source: (BIS, 2023).

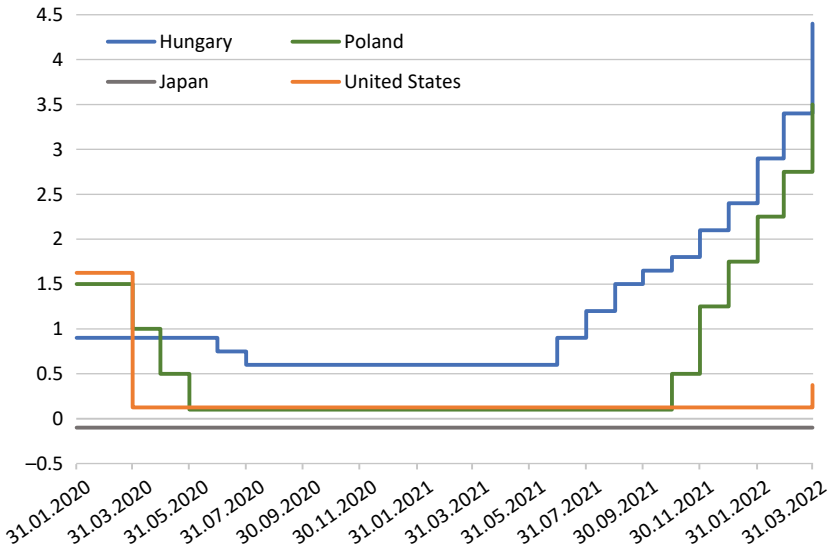


**Figure 2.5. Central bank policy in 2020–2022Q1. Monthly, end period**

Source: (BIS, 2023).

the pandemic affecting most countries, the US Federal Reserve (FED) reduced its policy rate to 0.125 and maintained that level until March 2022, when it was increased to 0.375% (Figure 2.5). The National Bank of Poland (NBP) began its series of rate reductions in March 2020 down to 1.0% and continued lowering the rate to 0.1%. In the face of inflationary pressures, NBP changed its policy stance

and began increases in October 2021. In March 2022, the NBP policy rate reached 3.5%. The Hungarian bank began mild reductions in June 2020 but, due to the rising inflation, was the first to begin tightening its monetary policy in June 2021. At the end of 2022Q1, its interest rate was 4.4% (Figure 2.5).

Fiscal and monetary policy measures designed and implemented to overcome the negative shock caused by the pandemic were unprecedented in modern peaceful times (Kowalski, 2022). Sharma (2021) estimated that in the USA, the actual scale of anti-crisis fiscal packages (as a percentage of GDP) in 2020 alone amounted to as much as 13% (for comparison: during the Great Depression, it was 4%, and in 2007–2009 the packages reached 7%). According to Sharma's preliminary estimates, combined fiscal and monetary stimuli could reach the equivalent of 28% of GDP in the US and in other developed economies, an average of 40%. The reactions of fiscal authorities and central banks should be seen in the context of economic globalisation, which was vital for low inflation in the pre-COVID time. The pandemic was the second blow to globalisation in eleven years, forcing policymakers and businesses to reconsider their strategies.

## 2.4. Reactions of national economies

The empirical analyses of the two years of reactions of the eight economies to COVID-19 and the stabilisation policy measures are focused on seven dimensions. These are inflation, industrial production and the unemployment rate—all expressed by monthly data. The other three dimensions: GDP growth rate and shifts in GDP expenditure structure are analysed quarterly. The real effective exchange rate, a simple proxy of international competitiveness, complements the analyses of the economies' reactions. The time series (Figures 2.6, 2.7, 2.8, 2.9, 2.10, 2.11 and 2.12) are embedded in the SRAS/LRAS/AD framework discussed in Section 2.

As follows from the model (Figures 2.1 & 2.2), in 2020, the expansionary economic policies did not transform into higher consumer price inflation. It is particularly evident in the case of four EMU countries (Figures 2.6a & 2.6b). In Hungary and Poland, the inflation dynamic was different (Figure 2.6c). In earlier years, the Polish government and central bank followed expansionary fiscal and monetary policies that led to a revival of inflation expectations and finally to higher inflation. In a certain sense, that was also the case in Hungary. The inflationary pressure gathered in 2021 and continued in 2022. The COVID-19 disruption did not change Japanese behaviour of prices, whereas, in the US, its rate sharply declined in reaction to COVID-19-related disturbances and then began to grow[9] (Figure 2.6d).

[9] See the recent studies of Ball et al. (2022) and Harding et al. (2023).

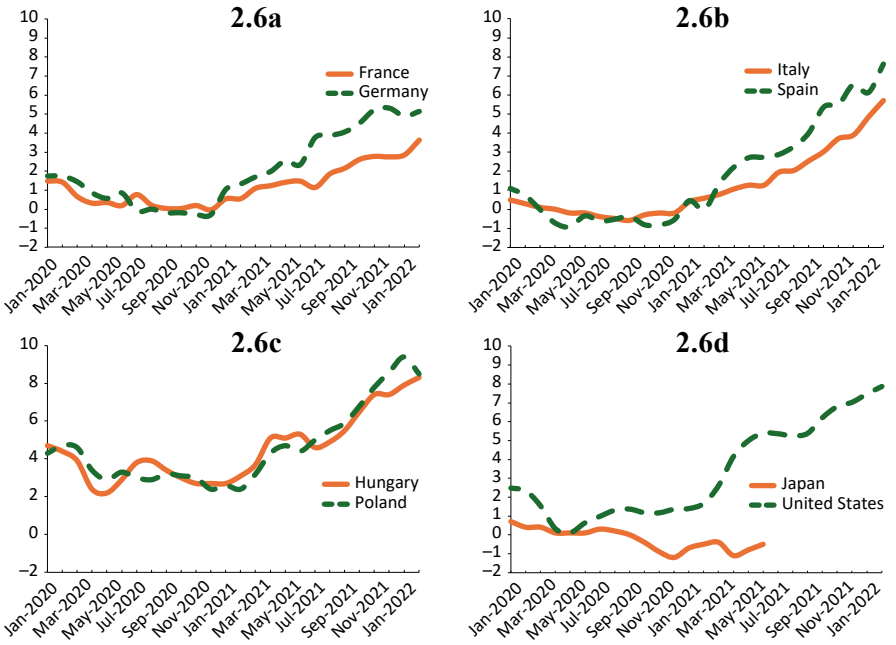


**Figure 2.6 (a–d). Consumer prices in 2020 (January)–2023 (March), monthly. Growth on the same period of the previous year**

Source: based on (OECD, 2023).

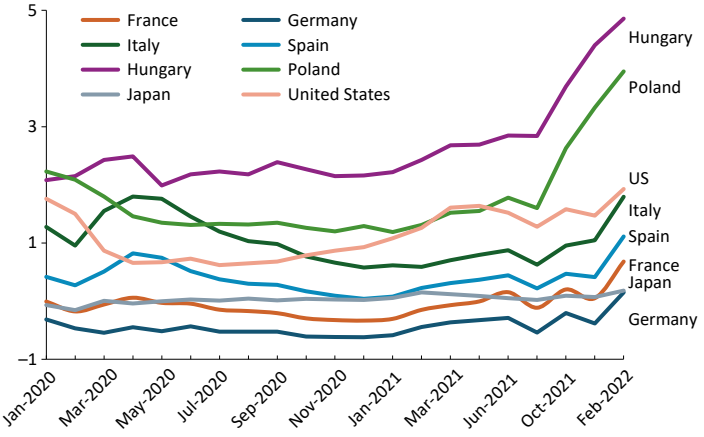


**Figure 2.6e. 10-year bond yield in 2020 (January)–2022 (February)**

Source: (OECD, 2023).

The dynamic changes in inflation were reflected in shifts in 10-year bond yields (Figure 2.6e). They represent market long-term interest rate and reflect agents' expectations of the future inflation. Up to August 2021 they were stable, but later, due to new information of inflation hikes the yield increased the most for the Hungarian and Polish bonds. The dynamics of market long term interest rates signals the yields that market requires purchasing Treasury bonds. It also shows the power of credibility that can only be earned by deeds. In Figure 2.6e it is marked by the gap between T-Bonds issued by Germany and French, Spanish or Italian T-bonds.

All European economies had troughs and industrial dynamics peaks in the same months. After the trough in March 2020, all recorded volatile growth (Figures 2.7a, 2.7b & 2.7c). German, Polish and Spanish industrial production dynamics showed a similar pattern (Figures 7a, 7b & 7c)—their volatility was milder than in France, Italy and Hungary. Analysing the reaction of industrial production, it needs to be noticed that Japan and the US had the lowest variance (Figure 2.7d). It could be linked to how Japan coped with the pandemic (section 1). A relatively


**Figure 2.7. Industrial production in 2020 (January)–2023 (March), monthly. Growth on the same period of the previous year**

Source: based on (OECD, 2023).

smooth pattern of US production might be attributed to the large territory and domestic market.

Monthly unemployment data is presented in Figures 8a, 8b, 8c and 8d. During two years of the pandemic—three economies, namely Japan, Poland, and Germany—proved COVID-resistant in terms of their unemployment rates (UR). They enjoyed the lowest UR in the sample of the studied countries. France's UR displayed transitory frictions up to September 2020, then steadily declined and in February 2022 reached 7.3%. In Italy, the UR declined to reach its lowest point (7.3%) in April 2020. Since May, it began to increase and, up to April 2021, stabilised at around 10%. Spanish UR displayed a similar to the French pattern of changes but at a higher level. In the summer and autumn of 2020, UR in Spain stabilised at over 16%. Since then, the UR decreased, reaching 13.3% in February 2022. The US labour market entered 2020 with a very low UR of 3.6% and 3.5% in January and February, respectively (Figure 2.8d). It increased by a 0.9 percentage point in March and rocketed by 10.3 percentage points to 14.7% in April. This shift reflects the nature of American labour market relations, where labour is treated as an asset swiftly adjusted to the current economic

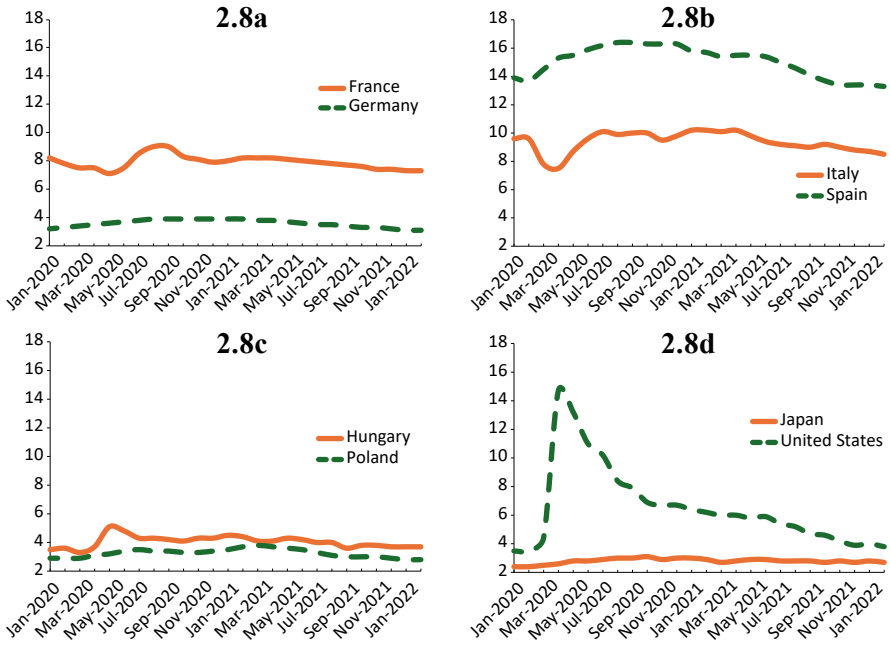


**Figure 2.8. Unemployment rate in 2020 (January)–2023 (March), monthly**

Source: based on (OECD, 2023).

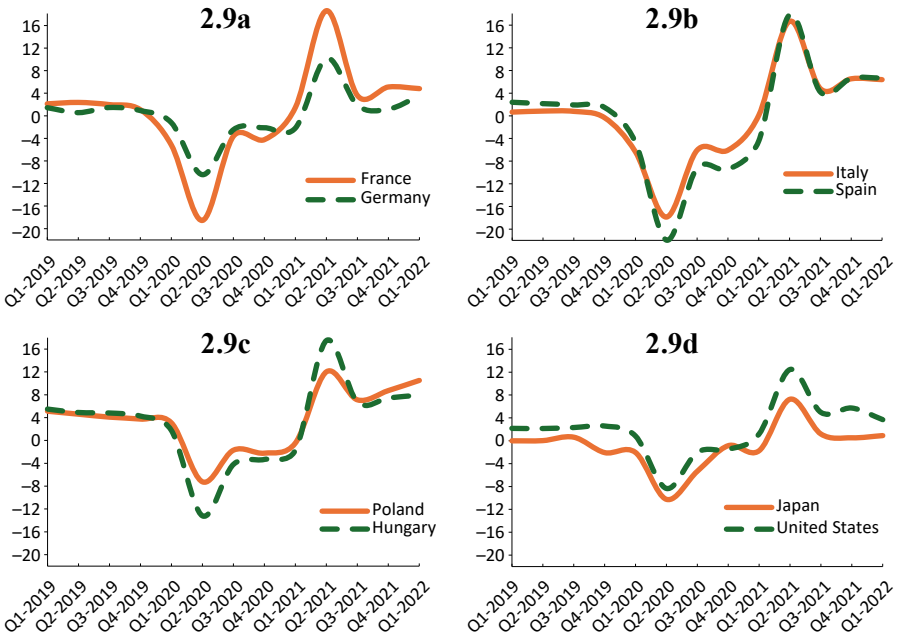


**Figure 2.9. GDP in 2020Q1–2022Q1, quarterly, growth rate the same period previous year, seasonally adjusted**
Source: based on (OECD, 2023).

situation. The sharp decline of the US UR (to 3.8% in October) proves this American regularity.

GDP presents a broader picture of the overall economic dynamics. Figures 2.9a, 2.9b, 2.9c and 2.9d show GDP dynamics during the two years of the pandemic. In the pre-COVID 2019 quarters, the EMU economies grow slowly. The first two quarters of 2020 saw negative growth rates, with 2020 Q2 record slump of 11.25%. The third quarter in Germany was better (but still minus 4.23%). All countries recorded the most profound GDP drop in 2020Q2, and all retained negative GDP dynamics despite improvement in 2020Q3. In the first three quarters of 2020, Spain, Italy, France and Hungary noted the most significant growth volatility. In the rest of the two years, all countries displayed a similar pattern of GDP dynamics proving how the open economies are interdependent. The USA, Japan, Poland, and Germany had relatively more stable GDP dynamics.

Figure 2.10 shows shares of private final consumption expenditure in gross domestic product. Fiscal, monetary and regulatory measures implemented in response to the pandemic shock aimed at protecting business activity and thus output, employment and consumption. Due to path dependence, countries differ

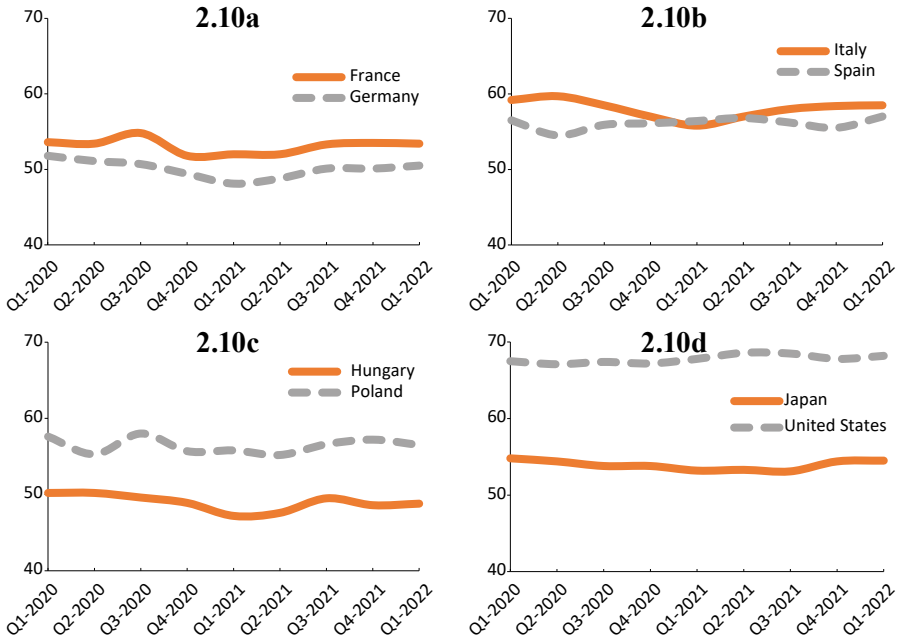


**Figure 2.10. Share of private final consumption expenditure in GDP in 2020Q1–2022Q1, per cent of GDP, quarterly**
Source: based on (OECD, 2023).

regarding the share of private final consumption expenditure in GDP (Figures 2.10a, 2.10b, 2.10c & 2.10d). Despite the severe shock, the analysed countries maintained the pre-COVID level of final consumption with relatively low variability. Italy had the highest level of consumption (55.8%–59.7%) and the highest volatility (Figure 2.10b). Paradoxically Poland displayed the second, after Italy's share level of consumption expenditure (Figure 2.10c).

Figure 2.11 presents the share of gross fixed capital formation expenditure in GDP. There are profound differences between the economies. The highest share but relatively volatile was investment expenditure in Hungary. The high and stable share had investments in Japan (Figure 2.11d). The most stable share was achieved in the US. Poland distinguished herself by the lowest share of GFCF in GDP, varying between 16.7%–18.4%.

The real effective exchange rate is a simple, price-based measure of shifts international competitiveness (Van Marrewijk, 2004). It mirrors cost-price adjustments in the face of competition in international markets for goods and services. In countries having their national currencies (Hungary, Poland, Japan and

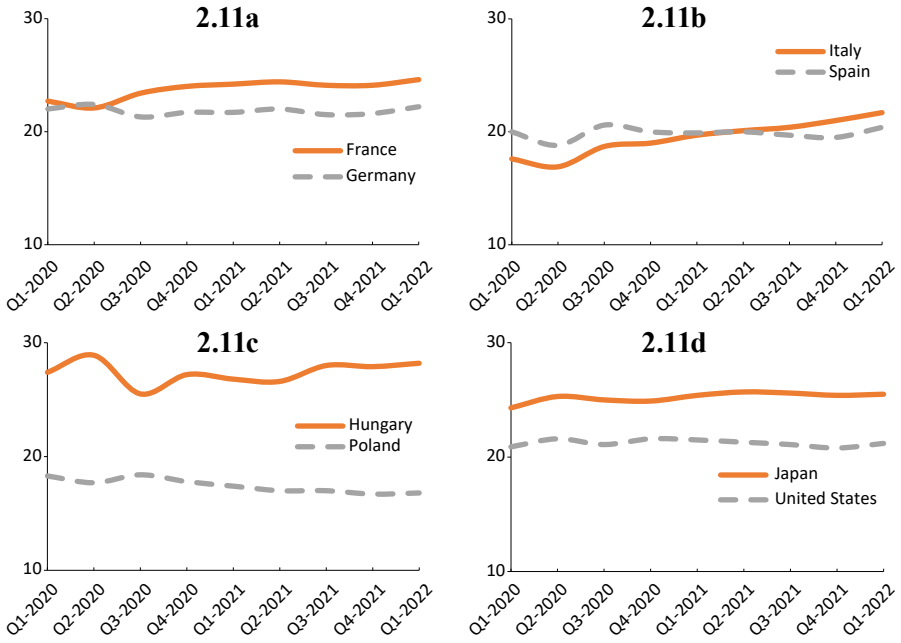


**Figure 2.11. Share of Gross Fixed Capital Formation (GFCF) in GDP in 2020Q1–2022Q1, per cent of GDP, quarterly**

Source: based on (OECD, 2023).

the US), the shifts might also stem from fluctuations in their nominal exchange rates. Figure 2.12 shows that during the two years of the pandemic international competitiveness of France, Germany, Italy, and Spain was relatively stable. In the mid of the pandemic, however, France and Italy recorded decreases in REER and, thus, upward shifts in their international competitiveness. REERs of Poland and Hungary recorded similar changes, but the cost-price competitiveness of the Hungarian economy was higher than Poland's. Japan and the US entered the pandemic, showing sizable differences in international price-cost competitiveness. The gap in favour of Japanese traded goods and services widened (Figure 2.12).

The above survey of macroeconomic policies designed and implemented to overcome the pandemic-triggered shock and the reactions of the economies prove that governments and central banks provided relatively high stability in the key components of GDP. The real shocks transmitted to the demand and supply sides were mostly neutralised; countries protected their employment and consumption levels. However, the restored real economy's stability was achieved at a significant cost of inflation, higher public debt and hikes in the cost of debt servicing.

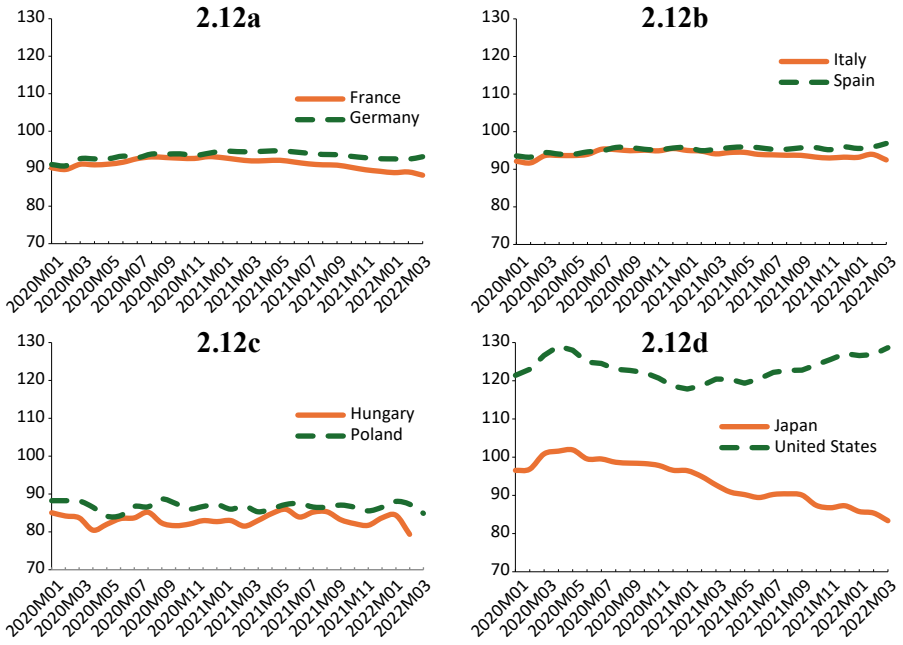


**Figure 2.12. REER in 2020 (January)–2023 (March), monthly**
Source: based on (OECD, 2023).

## Conclusions

In 2020 some European economies still did not fully recover from the consequences of the 2007–2009 financial crisis. That crisis undermined prevailing earlier optimism concerning globalisation. The new pandemic-triggered crisis was a consecutive blow to globalisation and added existential threats. It caused a significant shock to national economies and changed other aspects of social and political life. The pandemic forced lawmakers, politicians, business leaders and men in the street to reconsider their plans and attitudes. The dire existential and economic challenges prompted the legislatures, governments and central banks to work out and implement anti-crisis measures speedily, not devoid of mistakes.

There was a prevailing certitude that the circumstances required massive fiscal, monetary, and regulatory actions. Policymakers at national levels focused their attention and economic policy measures on the labour market's actual and potential adverse developments. It reflected standard, short-term social, and economic welfare concerns. The orchestrated demand-side stabilisation policy soon added inflationary impulses to already tight labour market conditions that stemmed from long-term structural-demographic trends.

The combined economic policy stimuli were more substantial than those implemented to overcome the Great Depression. In some countries, in the regulatory domain, there were cases of efforts and actual actions to introduce special prerogatives and legal acts, including exemptions from legal liability of politicians and civil service engaged in anti-pandemic activities. They undermined the principles of the rule of law.

Based on available data, most countries overcome the negative pandemic-driven shock in the real economy. It was achieved, however, at a high cost of inflation and public debt. The trial time brought to light the scale of inter-sectoral and international interdependencies and the scope of vulnerabilities that are difficult to control nationally. Instead of multilateral coopetition it revived the idea of national industrial policies and enhanced protection. If not staggered, they will further reduce the advantages of open trade and capital flows and contribute to an upward shift of cost and prices.

The fading threat of the pandemic was abruptly replaced by a new geopolitical, military and economic shock caused by the 24th February 2022 Russian Federation's invasion of Ukraine. The economies entered a new global crisis with over-expansionary fiscal and monetary policies. The latest economic and political environment and the need to continue zero-emission economic reforms require orchestrated multilateral efforts. The COVID-triggered economic crisis and the war in Ukraine show the utmost importance of international cooperation. It also proves the need to accumulate financial resources and to work out new monitoring standards for economic, political, and environmental threats. This new trial time will be far more demanding than all previous crises.

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# 3. Resilience of Poland's economy to external shocks: A comparative study of tourist arrivals in relation to Lithuania, Spain, and Portugal

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## Abstract

**Purpose:** The chapter explores the resilience of Poland's economy to external shocks, focusing on the tourism sector. It aims to compare the impact of various crises, such as the financial crisis, sovereign debt crisis, COVID-19 pandemic, and the war in Ukraine, on tourist arrivals in Poland, Lithuania, Spain, and Portugal.

**Design/methodology/approach:** Employing a Vector Autoregression (VAR) model and Impulse Response Functions (IRFs), the study analyses the effects of these crises on Gross Domestic Product (GDP) and foreign tourist arrivals (ARR). Data from the Eurostat Dissemination Database, spanning from Q1 2006 to Q4 2022, is used, with adjustments for seasonality and crisis-specific dummy variables.

**Findings:** The research reveals notable differences in how these economies, with varying tourism dependencies, respond to external shocks. Tourism-dependent countries like Spain and Portugal exhibited greater sensitivity in their GDP and ARR to these shocks compared to less reliant countries like Poland and Lithuania.

**Research limitations/implications:** The study's scope is limited to four European countries and specific crises, suggesting the potential for broader future research.

**Practical implications:** The findings offer valuable insights for policymakers and tourism industry stakeholders, aiding in the development of strategies for crisis mitigation.

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**Social implications:** The chapter underscores the importance of resilient economic structures and policies in mitigating the broader social and economic impacts of crises.

**Originality and value:** This chapter provides unique insights into economic resilience in the tourism sector during crises. Its comparative analysis across different European countries offers valuable perspectives for economists, policymakers, and researchers in understanding the dynamics of economic resilience and crisis management in tourism-dependent economies.

**Keywords:** external shocks' economy resilience, COVID, war in Ukraine, VAR.

## Introduction

The concept of economic resilience, particularly in the face of external shocks, has gained significant attention in recent years as the number, the frequency and the importance of exogenous shocks and following crises increased (Keller, 2021). The COVID-19 crisis has had a profound impact on global tourism, an industry reliant on the movement and gathering of people. The pandemic, first identified in late 2019, spread rapidly worldwide, prompting countries to implement drastic measures such as border closures, quarantines, and lockdowns to contain the virus. These measures, although necessary for public health, brought tourism to a near standstill. Before the SARS-CoV-2-19 pandemic the international tourism growth was considered somehow robust (resilient) from the occasional exogenous shocks. However, the pandemic questions this in situation when tourists cannot travel if governments close the tourism system.

This paper aims to examine the resilience of the economies of Poland, Lithuania, Spain, and Portugal to various crises, including the financial crisis, the sovereign debt crisis, the COVID-19 pandemic, and the war in Ukraine, based on vulnerability of tourism arrivals to external shocks. Using Vector Autoregression (VAR) models and Impulse Response Functions (IRFs), the paper analyses the impact of these shocks on Gross Domestic Product (GDP) and foreign tourist arrivals (ARR), two key indicators of economic health and openness. The paper builds on the work of Briguglio et al. (2009), Blake et al. (2003), and Martin et al. (2018), among others, to provide a nuanced understanding of economic resilience and its determinants.

Subsequent sections of this paper are structured as follows: an exploration of the theoretical underpinnings of economic resilience, a detailed exposition of the empirical methodology employed, a presentation of the findings from the VAR analysis, and a discussion section that contextualizes the results within the broader framework of economic resilience. The final section of the paper encapsulates the conclusions drawn from the study, highlighting their implications for policy and future research trajectories.

## 3.1. Literature review

### 3.1.1. Tourism's vulnerability, economic resilience and its determinants

Economic resilience, defined as an economy's ability to withstand or recover from shocks, has been a focal point in economic literature. Briguglio et al. (2009) provide a comprehensive framework for understanding economic resilience, arguing that it is not merely a function of economic structure but also of policies and institutions that enable adaptation and recovery. They further posit that the resilience of small economies, in particular, is influenced by their openness, concentration, and the extent of their shock-absorbing potential.

The role of tourism in economic resilience has been explored extensively. Tourism is often seen as a double-edged sword; while it can contribute significantly to economic growth, it can also make economies vulnerable to external shocks (Blake et al., 2003). This vulnerability stems from the fact that tourism demand is highly sensitive to changes in economic conditions, natural disasters, and geopolitical events. However, the sector's ability to adapt to changing circumstances and the diversification of tourism markets can contribute to economic resilience (Alegre & Sard, 2015).

In the context of financial crises, research has shown that tourism-dependent economies tend to recover faster than non-tourism-dependent economies. This resilience is attributed to the adaptive capacity of the tourism sector and the diversification of tourism markets (Alegre & Sard, 2015). However, the authors caution that the long-term sustainability of this resilience may be compromised if the underlying structural vulnerabilities are not addressed.

The impact of pandemics on economies, particularly through the lens of tourism, has gained attention in recent years. Gössling et al. (2020) discuss the profound impacts of the COVID-19 pandemic on global tourism, highlighting the need for resilience and adaptation in the face of such unprecedented shocks. They argue that the pandemic has exposed the vulnerability of the tourism sector and underscored the need for more sustainable and resilient tourism practices.

Several factors can contribute to an economy's resilience. These include the diversity and complexity of the economy, the flexibility of its institutions and markets, the strength of its social networks and communities, and the effectiveness of its policy responses. Economies that are more diverse and complex tend to be more resilient because they are less dependent on any single sector or industry. If one sector is hit by a shock, other sectors can continue to function and support the overall economy. Flexible institutions and markets can help an economy to adapt

to shocks. For example, flexible labor markets can help to mitigate unemployment during economic downturns by facilitating the movement of workers from declining sectors to growing ones. Strong social networks and communities can provide a form of social insurance that helps to buffer individuals and households against economic shocks. For example, during times of economic hardship, families and communities often provide support to their members in the form of shared resources, mutual aid, and emotional support. Effective policy responses can play a crucial role in enhancing economic resilience. Martin et al. (2018) argue that this includes both proactive policies that aim to reduce the risk and impact of shocks, and reactive policies that aim to facilitate recovery after shocks have occurred. They further suggest that resilience-building policies should be context-specific, taking into account the unique characteristics and vulnerabilities of each economy.

During the COVID-19 pandemic period, various government responses were undertaken in different countries to support tourism system as the most severely affected sector. The government interventions took different forms that can be divided in three groups: fiscal, monetary and jobs and skills (Vanhove, 2022). The response of governments to the economic consequences of SARS-CoV-2 was, e.g., the subject of the AIEST report (Airey et al., 2020), that includes both cross-cutting and tourism-specific measures.

Resilience can be viewed from two main perspectives: static and dynamic. Static resilience refers to the ability of an economy to withstand a shock without changing its structure or behavior, while dynamic resilience refers to the ability of an economy to adapt and evolve in response to shocks, potentially leading to a new equilibrium state that may be more efficient or desirable than the original state.

Static resilience, which refers to the ability of an economy to withstand a shock without changing its structure or behavior, can be associated with the VAR model. The VAR model, by capturing the interdependencies among multiple time series, can help in understanding how a shock to one variable (e.g., an external shock to the economy) affects other variables in the system (like GDP or unemployment rate) at the same point in time. This can provide insights into the immediate or static response of an economy to shocks.

On the other hand, dynamic resilience, which refers to the ability of an economy to adapt and evolve in response to shocks, can be associated with IRFs. IRFs, derived from the VAR model, trace out the response of variables in the system to shocks over time. This can provide insights into the dynamic response of an economy to shocks, including how quickly and effectively it recovers from them.

Therefore, the VAR model and IRFs can be valuable tools for analysing both static and dynamic resilience of economies. They allow for a nuanced understanding of how economies respond to shocks both immediately and over time, which is crucial for designing effective policies to enhance economic resilience.

## 3.1.2. Crises in 2006—2022

### 3.1.2.1. Financial crisis

The financial crisis of 2007–2008 had a significant impact on European economies, with the effects of the crisis unfolding over several quarters. While the crisis originated in the United States due to the subprime mortgage market's collapse, its consequences quickly spread to Europe and other parts of the world.

It is challenging to pinpoint the exact quarters when the financial shock occurred in Europe, as the effects of the crisis varied across countries and financial institutions. However, some key events and periods can help provide a general timeline for the financial shock's duration in Europe:

- The beginning of the crisis in Europe is often associated with the troubles faced by German banks in mid-2007, particularly IKB Deutsche Industriebank, which experienced severe losses due to its exposure to U.S. subprime mortgage-backed securities. This marks the start of the crisis in Europe around Q3 2007.
- The crisis intensified in 2008, with multiple European banks facing liquidity issues, solvency concerns, and government interventions. Notable events include the nationalization of Northern Rock in the UK (Q1 2008), the collapse of Lehman Brothers (Q3 2008), and several European governments announcing bank rescue packages (Q4 2008).
- Throughout 2009, the crisis continued to affect European economies, with many countries experiencing deep recessions, rising unemployment, and worsening fiscal positions. This period marked the transition from a financial crisis to a broader economic crisis and eventually led to the European sovereign debt crisis.

While the financial shock's most acute effects occurred between Q3 2007 and Q4 2008, the crisis's aftermath continued to impact European economies in the following years. The European sovereign debt crisis, which began in late 2009 and continued into the early 2010s, was a direct consequence of the 2007–2008 financial crisis and its effects on European governments' fiscal positions.

### 3.1.2.2. Sovereign debt crisis

The Sovereign Debt Crisis, also often referred to as the European Debt Crisis, was a financial calamity that struck several European nations in the aftermath of the 2008 global financial crisis, and it spanned roughly from 2009 to 2012.

The crisis had its roots in the significant fiscal imbalances that had built up in the years leading up to 2008. Many European nations had accumulated substantial government debt, fueled by low-interest rates and robust economic growth in the early 2000s, coupled with the perceived guarantee of Eurozone membership.

However, when the global financial crisis hit in late 2008, it exposed these fiscal imbalances, leading to a sharp rise in borrowing costs for affected countries. By late 2009, Greece had revealed that it had been understating its deficit figures, and by early 2010, the country was shut out from borrowing in the financial markets, marking the beginning of the sovereign debt crisis.

In May 2010, the European Financial Stability Facility (EFSF) was established to tackle the growing crisis, and it granted loans to Ireland, Portugal, and Greece over the next two years. Despite this, borrowing costs for these and other countries remained high, and economic conditions worsened. Many countries were forced to implement strict austerity measures, which led to widespread social and political unrest.

By 2012, the European Central Bank (ECB) announced its Outright Monetary Transactions (OMT) program, which helped to assuage markets by providing a backstop for Eurozone countries. This announcement was a significant turning point, and it brought some relief to the crisis-stricken nations.

#### 3.1.2.3. COVID-19 crisis

The outbreak of the SARS-CoV-2 pandemic started in China on the end of 2019 and its rapid spread across the globalized world in early 2020, showing a strong global economic impact. The United Nations World Tourism Organization (UNWTO) reported a drop of 74% in international tourist arrivals in 2020 compared to 2019, the worst year in tourism history. Destinations reliant on international tourism, particularly those in developing countries, were hit hardest. The aviation, hospitality, and event sectors also suffered substantial losses. Travel restrictions, health concerns, and economic uncertainty discouraged travel, even when restrictions were temporarily eased. Tourism businesses, many of them small and medium-sized enterprises, faced severe financial strain, and millions of jobs within the sector were at risk.

The crisis has also accelerated the shift towards more sustainable and resilient tourism. There has been a renewed focus on local tourism, outdoor activities, and digitalization. The crisis has underscored the need for greater cooperation and coordination within the industry, more flexible business models, and stronger policies to support the sector (Laesser et al., 2021).

Despite the rollout of vaccines, recovery remains uncertain due to factors such as uneven vaccine distribution, emergence of new virus variants, and changing

travel restrictions. The COVID-19 crisis has reshaped tourism, with long-lasting impacts that are still unfolding (Butler, 2021).

#### 3.1.2.4. War in Ukraine crisis

The conflict in Ukraine has had significant impacts on tourism in Poland. Geographically located near the conflict zone, Poland has seen a decrease in tourist arrivals due to concerns over personal safety. For example, in 2023, the number of tourists visiting Poland decreased by 25% in the early part of the year. This decrease was mainly due to the conflict in Ukraine, which raised safety concerns among potential visitors. Moreover, it was observed that the decrease in tourism was sharper in regions of Poland closer to Ukraine, suggesting a direct impact of the conflict on tourist behavior.

Despite the unfortunate circumstances, there has been a gradual recovery in the tourism sector. By the second quarter of 2023, Poland saw an uptick in the number of visitors. The conflict in Ukraine and its impact on tourism in Poland exemplify how geopolitical events can significantly influence tourism trends.

## 3.2. Data sources and data description

The empirical analysis in this study relies on a rich dataset retrieved from the Eurostat Dissemination Database, an official data portal of the European Union. This dataset offers a comprehensive range of social and economic statistical data that covers all EU member states. For the purpose of this study, we focus on two pairs of countries: an Eastern European pair consisting of Poland and Lithuania (located on the border with countries of armed conflict, with low importance of tourism in GDP), and a westernmost European pair consisting of Spain and Portugal (located far from countries of armed conflict, with high importance of tourism in GDP).

The time series data utilised in this research spans from the first quarter of 2006 to the fourth quarter of 2022, providing a detailed longitudinal view of key economic and social indicators in these countries. The variables that we have incorporated into our analysis include:

- Arrivals at Tourist Accommodation Establishments: This variable reflects the tourism activity in each country, which is an important contributor to their respective economies.
- Gross Domestic Product (GDP): GDP (mln EUR) is used as a comprehensive measure of overall economic activity within the countries.

- Final Consumption Aggregates: This measure provides insight into the total spending of households, non-profit institutions serving households, and general government final consumption expenditure.
- Harmonized Unemployment Rates: This variable provides a measure of the unemployment situation in the countries under study.
- Crises Dummy: A dummy variable is incorporated to account for any major economic or financial crises during the observed period.

In order to ensure that the data analysis is not affected by seasonal fluctuations, the data were seasonally adjusted using seasonal differences. This adjustment enables us to focus on the underlying trends and cycles in the data, providing a clearer picture of the key dynamics at play. The seasonal differences method is particularly useful for dealing with highly seasonal data. A seasonal difference is defined as a difference between a value and a value with lag that is a multiple of the seasonal period. This method of seasonal differencing removes the seasonal trend and can also get rid of a type of nonstationarity associated with a seasonal random walk.

The upper panel of Figure 3.1 shows the level of seasonality of our data, in case of tourist arrivals to Poland over the period 2006–2020. The lower panel of Figure 3.1 shows the data on tourist arrivals to Poland in 2006–2020 after adjusting for seasonality using the seasonal differences method.

Based on the data collected, the response of GDP to shocks in ARR for the four countries included in our study: Poland, Lithuania, Spain, and Portugal during various crises varies, as shown in the table below. The crises considered include the financial crisis, the sovereign debt crisis, the COVID-19 pandemic, and the war in Ukraine. The response is measured in terms of standard deviations, with the shock to foreign tourist arrivals (ARR) and the corresponding response of GDP presented for each country during each crisis.

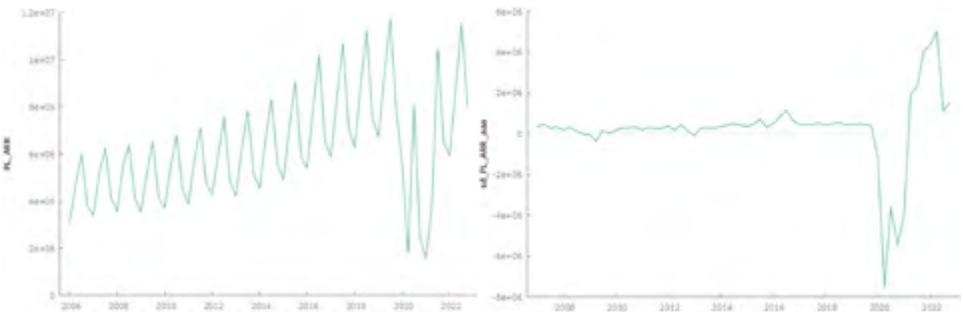

**Figure 3.1. Seasonally unadjusted and adjusted data on tourist arrival to Poland in 2006–2020**

Source: own work.

**Table 3.1. Impact of various crises on Foreign Tourist Arrivals (ARR) and Gross Domestic Product (GDP) in Poland, Lithuania, Spain, and Portugal**

| Country | Crisis | Shock to ARR (in standard deviations) | Response of GDP (in standard deviations) |
|---|---|---|---|
| Poland | financial crisis | 0.924 | 0.310 |
| | sovereign debt crisis | 1.049 | 0.366 |
| | COVID-19 | 1.011 | 0.459 |
| | war in Ukraine | 0.225 | 0.457 |
| Lithuania | financial crisis | 0.800 | 0.289 |
| | sovereign debt crisis | 0.722 | 0.123 |
| | COVID-19 | 0.992 | 0.515 |
| | war in Ukraine | 0.234 | 0.189 |
| Spain | financial crisis | 1.477 | 0.733 |
| | sovereign debt crisis | 1.436 | 0.867 |
| | COVID-19 | 0.956 | 1.619 |
| | war in Ukraine | 0.453 | 0.778 |
| Portugal | financial crisis | 1.210 | 0.626 |
| | sovereign debt crisis | 1.288 | 0.545 |
| | COVID-19 | 2.446 | 0.963 |
| | war in Ukraine | 0.506 | 0.146 |

Source: own work.

The magnitude of the foreign tourist arrivals (ARR) shock represents the severity of the impact on foreign tourist arrivals during the crisis, while the GDP response gives an indication of the overall economic reaction to this shock. Hence, the table allows for a comparative analysis of the resilience of the four economies during these crises, offering insights into the impact of external shocks on both the tourism industry (via ARR) and the broader economy (via GDP). The data reveals considerable variation across different crises and countries, illustrating the complex interplay between external shocks and national economic responses.

## 3.3. Method and model specification

This section outlines the methodological approach adopted in this study to analyse the impact of external shocks, such as the 2007–2008 financial crisis, sovereign debt crisis, the COVID-19 pandemic, and the war in Ukraine, on the tourism sector performance and GDP changes in Poland, Lithuania, Spain, and Portugal. The choice of external shocks is motivated by their potential to significantly influence tourism sector performance and GDP in the selected countries.

We employ the Vector Autoregression (VAR) method to compute the Impulse Response Functions (IRFs) for explaining the effects of these shocks on the endogenous variables: GDP, foreign arrivals, unemployment, and consumption. Seasonal differences are incorporated to reduce strong seasonality in the data. Crises are introduced as external variable dummies.

The VAR model is a multivariate time series econometric model that captures the linear interdependencies among multiple time series variables (Lütkepohl, 2005). It has been widely used in macroeconomics to analyse the dynamic interactions between economic variables, policy analysis, and forecasting (Sims, 1980; Stock & Watson, 2001). The VAR model is appropriate for this study due to its ability to capture the complex relationships among GDP, tourism sector performance, and external shocks (Enders, 2015).

The VAR model can be represented by the following equation:

$$\Delta Y_t = A_1 \Delta Y_{\{t\text{-}1\}} + A_2 \Delta Y_{\{t\text{-}2\}} + \ldots + A_p \Delta Y_{\{t\text{-}p\}} + B_1 X_{\{1t\}} + B_2 X_{\{2t\}} + B_3 X_{\{3t\}} + \varepsilon_t$$

where $\Delta Y_t$ is a vector of endogenous variables (seasonally differenced real GDP, and foreign arrivals), $A_i$ ($i = 1, 2, \ldots, p$) are matrices of coefficients to be estimated, $X_{\{1t\}}$, $X_{\{2t\}}$, and $X_{\{3t\}}$ are the dummy variables representing the 2007–2008 financial crisis, COVID-19 pandemic, and war in Ukraine, respectively, $B_i$ ($i = 1, 2, 3$) are coefficient vectors associated with the external shocks, and $\varepsilon_t$ is a vector of error terms.

The VAR model is estimated using the ordinary least squares (OLS) method. The optimal lag length for the VAR model is determined using information criteria such as Akaike Information Criterion (AIC) and Schwarz Bayesian Criterion (SBC) (Lütkepohl, 2005). Diagnostic tests, including serial correlation tests (Breusch-Godfrey test), heteroskedasticity tests (White test), and tests for normality of residuals (Jarque-Bera test), are conducted to ensure the model's validity and robustness (Enders, 2015).

After estimating the VAR model, we compute the Impulse Response Functions (IRFs) to analyse the dynamic responses of the endogenous variables (seasonally differenced real GDP, foreign arrivals, and number of nights spent) to one standard deviation shocks in the external dummy variables representing the 2007–2008

financial crisis, sovereign debt crisis, COVID-19 pandemic, and war in Ukraine. The IRFs provide insights into the magnitude, direction, and persistence of the impact of these shocks on the tourism sector performance and GDP changes in Poland, Lithuania, Spain, and Portugal.

To ensure the robustness of our findings, we perform several robustness checks. First, we experiment with alternative lag lengths for the VAR model. Second, we test the sensitivity of our results to different specifications of the external shock dummy variables. Lastly, we assess the stability of the VAR model by examining the roots of the characteristic polynomial, ensuring that they lie inside the unit circle (Lütkepohl, 2005).

The robustness of our findings was thoroughly scrutinised to ensure the validity and reliability of our results. We experimented with alternative lag lengths for the Vector Autoregressive (VAR) model, which allowed us to assess the sensitivity of the model to changes in the time frame considered for previous values. This procedure ensures that the chosen lag length provides the most accurate representation of the relationships within the data. Furthermore, we tested the sensitivity of our results to different specifications of the external shock dummy variables. This was crucial in understanding how changes in the measurement or coding of these variables could potentially alter the results of the analysis.

In addition to these checks, we assessed the stability of the VAR model by examining the roots of the characteristic polynomial. In a stable VAR system, all the roots of the characteristic polynomial should lie within the unit circle, which is a key condition for the model's applicability. In our analysis, all dots representing the roots were indeed within the unit circle, indicating that our model is stable and valid. The final results, visualised in Figure 3.2, show the roots of the characteristic polynomial for Poland, Lithuania, Portugal, and Spain from left to right. The dots within the unit circle in these diagrams represent the roots of the characteristic polynomial for each country's VAR model, thus illustrating the stability of these models.

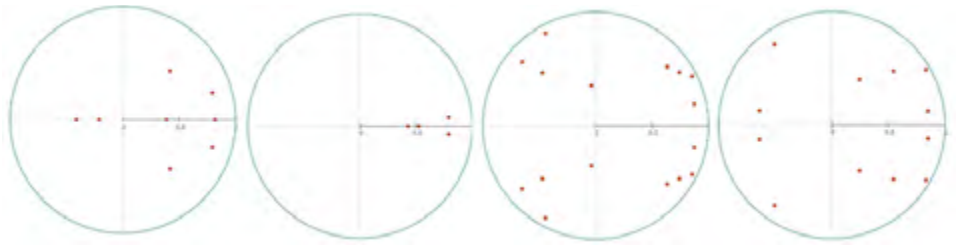

**Figure 3.2. Stability of the VAR models: Roots of the characteristic polynomial for Poland, Lithuania, Portugal, and Spain**

Source: own work.

## 3.4. Results

### 3.4.1. Poland

In case of Poland we built the following model taking GDP (mln EUR) as an endogenous variable (Table 2.2).

**Table 3.2. VAR system, lag order: 1, equation: seasonal differences of GDP (Poland)**

| | **Coefficient** | **Standard error** | ***t*-ratio** | ***p*-value** |
|---|---|---|---|---|
| const | 748.999 | 1083.25 | 0.6914 | 0.4921 |
| sd_PL_ARR_1 | 0.00117179 | 0.000402833 | 2.909 | 0.0052 *** |
| sd_PL_GDP_1 | 0.984544 | 0.422756 | 2.329 | 0.0234 ** |
| sd_PL_UNP_1 | 329.781 | 513.875 | 0.6418 | 0.5236 |
| sd_PL_CONS_1 | −0.446958 | 0.657178 | −0.6801 | 0.4992 |
| CRISIS | 3702.36 | 1718.49 | 2.154 | 0.0354 ** |

| | | | | |
|---|---|---|---|---|
| Mean dependent variable | 5925.416 | | S.D. dependent variable | 8214.654 |
| Sum squared residual | 1.89e+09 | | S.E. of regression | 5765.459 |
| *R*-squared | 0.547131 | | Adjusted *R*-squared | 0.507406 |
| *F*(5, 57) | 13.77285 | | *p*-value(*F*) | 8.07e-09 |
| rho | 0.142563 | | Durbin-Watson | 1.684308 |

Source: own work.

The model, as a whole, appears to be statistically significant based on the F-statistic and the corresponding *p*-value. The *F*-statistic tests the overall significance of the model. In this case, $F(5, 57) = 13.77285$ with a very small *p*-value (8.07e-09), which is less than 0.05, indicating that the model as a whole is statistically significant at the 5% level. This means that the independent variables in the model jointly have a significant effect on the dependent variable, i.e. GDP („sd_PL_GDP").

The variable tourist arrivals with lag 1 („sd_PL_ARR_1") is statistically significant, the former with p-values less than 0.01 is significant at 1% level, while GDP with lag 1 („sd_PL_GDP_1") and dummy variable crisis („CRISIS") which have *p*-values less than 0.05, indicate that they are statistically significant at the 5% level. The other variables: unemployment with lag 1 („sd_PL_UNP_1"), and

consumption with lag 1 („sd_PL_CONS_1") do not appear to be statistically significant, as their *p*-values are greater than 0.05.

The *R*-squared value of the model is 0.547131, which means that about 54.71% of the variation in the dependent variable, „sd_PL_GDP", is explained by the independent variables in the model. The adjusted *R*-squared value takes into account the number of predictors in the model and can be a more accurate measure when comparing models. In this case, it is 0.507406, which indicates that about 50.74% of the variation in „sd_PL_GDP" is explained by the model, taking into account the number of predictors.

The Durbin-Watson statistic is used to detect the presence of autocorrelation (a relationship between values separated from each other by a given time lag) in the residuals from a regression analysis. The Durbin-Watson statistic ranges from 0 to 4, with a value around 2 suggesting no autocorrelation. The statistic in this model is 1.684308, which suggests that there is a slight positive autocorrelation, but it is not strong.

Afterwards, we calculated IRF (Impulse Response Function) showing response of „sd_PL_GDP" to a shock in „PL_ARR" which was chosen as a GDP change to external shocks affecting tourist arrivals and the main measure of economies' resilience to shocks as stated earlier. The IRF is shown in Figure 3.3.

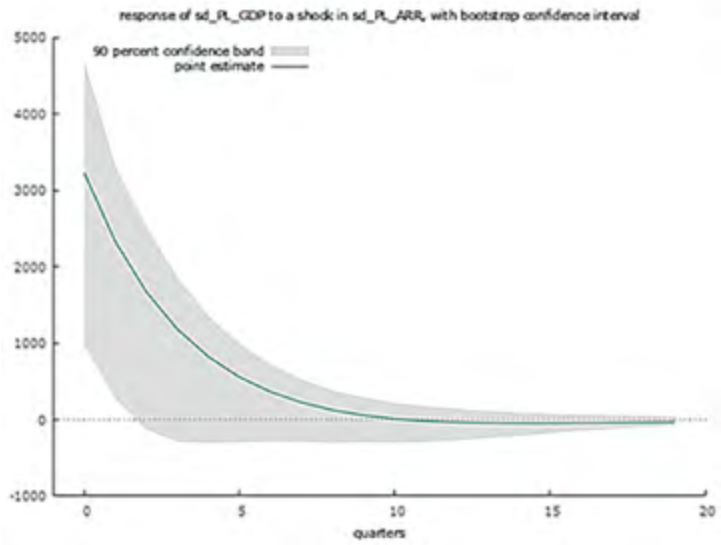


**Figure 3.3. Response of GDP in mln EUR (seasonal differences) to a shock in Foreign Tourist Arrival (seasonal differences) for Poland**

Source: own work.

The IRF for „sd_PL_GDP" in response to a shock in „PL_ARR" converges to 0 after 10 quarters from the upper side of the chart, what means that the effect of the shock in „PL_ARR" on „sd_PL_GDP" gradually diminishes and becomes insignificant after 10 quarters. This suggests that the impact of changes in „PL_ARR" on „sd_PL_GDP" is temporary and fades out over time, taking about 10 quarters to do so.

The IRF is essentially providing a dynamic view of the impact of a „PL_ARR" shock on „sd_PL_GDP", which is consistent with what the VAR model is suggesting. The VAR model shows that „sd_PL_ARR" has a significant positive impact on „sd_PL_GDP" in the next period. And the IRF shows how this impact evolves over time - it starts significant but gradually fades out and becomes insignificant after about 10 quarters. Therefore, both analyses are consistent with each other.

In addition, both the VAR model and the IRF show that „sd_PL_GDP" is influenced by „PL_ARR" (as per the VAR model) and that this impact fades over time (as per the IRF). This indicates that any policies or interventions targeting „PL_ARR" would have a temporary impact on „sd_PL_GDP".

This suggests that the Polish economy, as represented by „sd_PL_GDP", is able to absorb shocks in „PL_ARR" over time. The initial impact is positive but it gradually diminishes. So, we could interpret this as the economy being resilient to shocks in „PL_ARR" in the long run, as any changes in „PL_ARR" are not permanently affecting „sd_PL_GDP".

### 3.4.2. Lithuania

In case of Lithuania we built the following model taking GDP (mln EUR) as an endogenous variable (Table 3.3).

The model, as a whole, appears to be statistically significant based on the F-statistic and the corresponding *p*-value. The *F*-statistic tests the overall significance of the model. In this case, $F(9, 52) = 31.00030$ with a very small *p*-value (7.30e-18), which is less than 0.05, indicating that the model as a whole is statistically significant at the 5% level. This means that the independent variables in the model jointly have a significant effect on the dependent variable, „sd_LT_GDP".

The variables „sd_LT_GDP_1", „sd_LT_UNP_1", and „sd_LT_UNP_2" are statistically significant with *p*-values less than 0.01, indicating that they are statistically significant at the 1% level. The „CRISIS" variable has a *p*-value just slightly above 0.05, which suggests that it may be statistically significant at the 5% level, although this would typically be considered borderline. The other variables („sd_LT_ARR_1", „sd_LT_ARR_2", „sd_LT_GDP_2", „sd_LT_CONS_1", „sd_LT_CONS_2") do not appear to be statistically significant, as their *p*-values are greater than 0.05.

**Table 3.3. VAR system, lag order: 2, equation: seasonal differences of GDP (Lithuania)**

| | **Coefficient** | **Standard error** | ***t*-ratio** | ***p*-value** |
|---|---|---|---|---|
| const | 70.3763 | 71.9492 | 0.9781 | 0.3325 |
| sd_LT_ARR_1 | 0.000161091 | 0.000658892 | 0.2445 | 0.8078 |
| sd_LT_ARR_2 | −0.0003327 | 0.00055338 | −0.6013 | 0.5503 |
| sd_LT_GDP_1 | 0.971198 | 0.244442 | 3.973 | 0.0002 *** |
| sd_LT_GDP_2 | −0.321578 | 0.283523 | −1.134 | 0.2619 |
| sd_LT_UNP_1 | −225.061 | 49.2443 | −4.570 | <0.0001 *** |
| sd_LT_UNP_2 | 185.893 | 50.4154 | 3.687 | 0.0005 *** |
| sd_LT_CONS_1 | −0.421663 | 0.537257 | −0.7848 | 0.4361 |
| sd_LT_CONS_2 | 0.673413 | 0.477496 | 1.410 | 0.1644 |
| CRISIS | 300.973 | 150.740 | 1.997 | 0.0511 * |

| | | | | |
|---|---|---|---|---|
| Mean dependent variable | 653.2516 | | S.D. dependent variable | 871.7541 |
| Sum squared residual | 7282654 | | S.E. of regression | 374.2339 |
| *R*-squared | 0.842902 | | Adjusted *R*-squared | 0.815711 |
| *F*(9, 52) | 31.00030 | | *p*-value(*F*) | 7.30e-18 |
| rho | −0.065786 | | Durbin-Watson | 2.107672 |

Source: own work.

The *R*-squared value of the model is 0.842902, which means that about 84.29% of the variation in the dependent variable, „sd_LT_GDP", is explained by the independent variables in the model. The adjusted *R*-squared value takes into account the number of predictors in the model and can be a more accurate measure when comparing models. In this case, it is 0.815711, which indicates that about 81.57% of the variation in „sd_LT_GDP" is explained by the model, taking into account the number of predictors.

The Durbin-Watson statistic is used to detect the presence of autocorrelation in the residuals from a regression analysis. The Durbin-Watson statistic ranges from 0 to 4, with a value around 2 suggesting no autocorrelation. The statistic in this model is 2.107672, which suggests that there is minimal autocorrelation, indicating a good model fit.

Afterwards, we calculated IRF (Impulse Response Function) showing response of „sd_LT_GDP" to a shock in „LT_ARR" which was chosen as a GDP

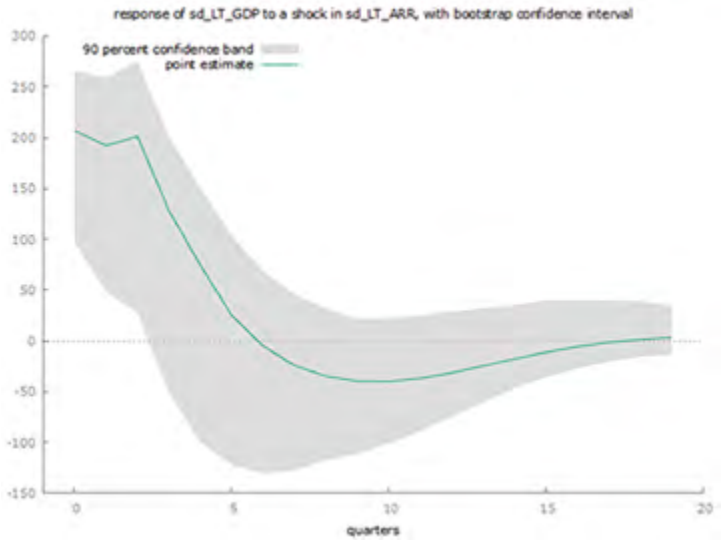


**Figure 3.4. Response of GDP in mln EUR (seasonal differences) to a shock in Foreign Tourist Arrival (seasonal differences) for Lithuania**
Source: own work.

change to external shocks affecting tourist arrivals and the main measure of economies" resilience to shocks as stated earlier. The IRF is shown in Figure 3.4.

The IRF suggests that a shock to „LT_ARR" initially leads to a positive effect on „sd_LT_GDP" which crosses to the negative side after 5 quarters and eventually becomes insignificant after about 20 quarters. This indicates that shocks to „LT_ARR" have a temporary and diminishing impact on „sd_LT_GDP", with the effects essentially disappearing after about 20 quarters. The model's coefficients for „sd_LT_ARR_1" and „sd_LT_ARR_2" are not statistically significant, suggesting that „LT_ARR" does not have a significant impact on „sd_LT_GDP" in the short term. The lack of significance in the model aligns with the IRF's finding of the temporary nature of the effect.

Based on the VAR model and the IRF, it appears that the Lithuanian economy shows some resilience to shocks in „ARR". Shocks to „ARR" have a temporary impact on „sd_LT_GDP" that fades out over time.

### 3.4.3. Spain

In case of Spain, we built the following model taking GDP (mln EUR) as an endogenous variable (Table 3.4).

**Table 3.4. VAR system, lag order: 3, equation: seasonal differences of GDP (Spain)**

| | **Coefficient** | **Standard error** | ***t*-ratio** | ***p*-value** |
|---|---|---|---|---|
| const | 979.056 | 2201.51 | 0.4447 | 0.6586 |
| sd_SP_ARR_1 | −0.00066874 | 0.000825627 | −0.8100 | 0.4220 |
| sd_SP_ARR_2 | 0.000411014 | 0.000791302 | 0.5194 | 0.6059 |
| sd_SP_ARR_3 | −0.00175075 | 0.000613299 | −2.855 | 0.0064 *** |
| sd_SP_GDP_1 | −0.490385 | 0.730647 | −0.6712 | 0.5054 |
| sd_SP_GDP_2 | −0.238363 | 0.723632 | −0.3294 | 0.7433 |
| sd_SP_GDP_3 | 0.550329 | 0.620679 | 0.8867 | 0.3798 |
| sd_SP_UNP_1 | −5117.29 | 3348.70 | −1.528 | 0.1332 |
| sd_SP_UNP_2 | 4399.43 | 5676.50 | 0.7750 | 0.4422 |
| sd_SP_UNP_3 | −533.790 | 3117.25 | −0.1712 | 0.8648 |
| sd_SP_CONS_1 | 1.51070 | 0.940157 | 1.607 | 0.1148 |
| sd_SP_CONS_2 | 0.287409 | 0.968817 | 0.2967 | 0.7680 |
| sd_SP_CONS_3 | 0.120291 | 0.890260 | 0.1351 | 0.8931 |
| CRISIS | −27.8930 | 4145.28 | −0.006729 | 0.9947 |

| | | | | |
|---|---|---|---|---|
| Mean dependent variable | 4440.803 | | S.D. dependent variable | 16302.02 |
| Sum squared residual | 6.66e+09 | | S.E. of regression | 11901.02 |
| *R*-squared | 0.582524 | | Adjusted *R*-squared | 0.467051 |
| *F*(13, 47) | 5.044708 | | *p*-value(*F*) | 0.000018 |
| rho | −0.025781 | | Durbin-Watson | 2.045900 |

Source: own work.

The VAR model for Spain's GDP („sd_SP_GDP") provides a comprehensive look at the influences on economic output. An overall *F*-statistic of 5.044708 and the corresponding *p*-value of 0.000018 strongly suggests the model as a whole is statistically significant at the 5% level. This indicates that the variables in the model jointly have a meaningful effect on the dependent variable, „sd_SP_GDP".

Examining individual coefficients, only „sd_SP_ARR_3" is statistically significant, as its p-value of 0.0064 is less than 0.01, making it significant at the 1% level. The rest of the coefficients including „CRISIS", all lags of „sd_SP_GDP", „sd_SP_UNP" and „sd_SP_CONS" are not statistically significant at the 5% level, as their *p*-values are all greater than 0.05.

The *R*-squared value of this model is 0.582524, suggesting that approximately 58.25% of the variation in „sd_SP_GDP" can be explained by the variables in the model. However, the adjusted *R*-squared, which takes into account the number of predictors in the model, is substantially lower at 0.467051, indicating that about 46.70% of the variation in „sd_SP_GDP" can be explained when considering the number of predictors.

The Durbin-Watson statistic, used to detect autocorrelation in the residuals, is 2.045900, which is close to 2, suggesting there is little autocorrelation. This implies that the model does a good job capturing the time-dependent structure of the data.

In terms of the *F*-tests of zero restrictions, only all lags of „sd_SP_ARR" are statistically significant at the 5% level, with a *p*-value of 0.03. This suggests that the changes in arrivals („sd_SP_ARR") at all lags are jointly significant in predicting „sd_SP_GDP". Other variable groups are not significant. The „CRISIS" variable is not statistically significant, which suggests that the „CRISIS" variable does not significantly affect Spain's GDP within this model.

As in case of previous countries, we calculated IRF showing response of SP_GDP to a shock in SP_ARR. However, unlike the previous cases the IRF oscillates around zero and doesn't converge to zero during twenty quarters after the shock (Figure 3.5).

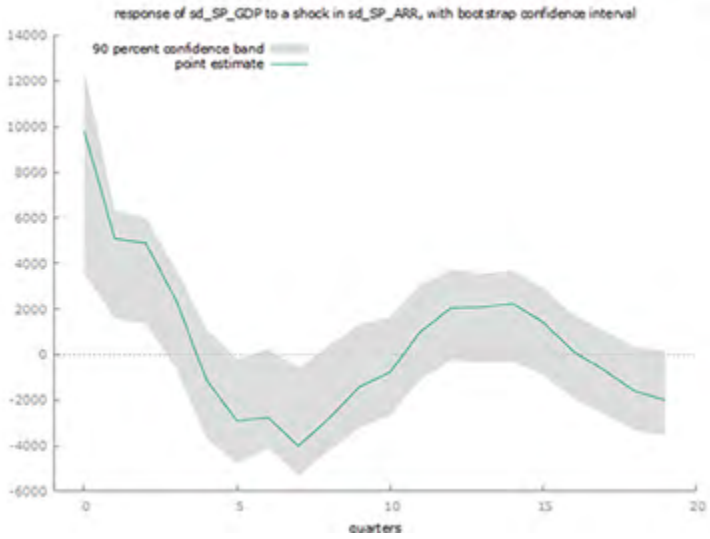


**Figure 3.5. Response of GDP in mln EUR (seasonal differences) to a shock in Foreign Tourist Arrival (seasonal differences) for Spain**

Source: own work.

The observed oscillatory behavior indicates that a shock to „SP_ARR" creates disturbances in „SP_GDP" that persist and fluctuate around zero rather than converging smoothly towards zero. This suggests that changes in „SP_ARR" have an ongoing, alternating impact on „SP_GDP" over the examined period of 20 quarters, instead of a gradual fading effect observed in the previous countries.

Comparing the IRF to the VAR model's results, the third lag of „SP_ARR" („sd_SP_ARR_3") is statistically significant in the model. This is consistent with the IRF's indication of ongoing effects, as this significant lagged effect might contribute to the persisting influence of „SP_ARR" shocks over multiple periods.

In terms of resilience to crises, the coefficient for „CRISIS" in the VAR model is not statistically significant, suggesting that within the model's structure and data, crises don't significantly impact „SP_GDP". However, it's worth noting that real-world resilience to crises is multifaceted and may not be fully captured by this model.

In terms of resilience to shocks in „ARR", the persistence of effects in the IRF suggests that Spain's economy shows some sensitivity to such shocks. Yet, the oscillatory response implies a pattern of adjustment and adaptation, possibly indicating some level of resilience in managing these shocks over time.

### 3.4.4. Portugal

In case of Portugal we built the following model taking GDP (mln EUR) as an endogenous variable (Table 3.5).

The Portuguese GDP model („sd_PT_GDP") shows a few notable statistical relationships, but most of the variables in the model are not statistically significant based on their respective *p*-values being greater than 0.05.

Starting with the overall model significance, the *F*-statistic of $F(17, 42) = 5.056726$ and its corresponding p-value of 9.50e-06 suggests that the model is statistically significant at the 1% level. This means that jointly, the independent variables significantly affect the dependent variable, „sd_PT_GDP".

Among the independent variables, only „sd_PT_GDP_1" has a *p*-value less than 0.05 (*p*-value = 0.0465), indicating it"s statistically significant at the 5% level. This implies that the first lag of the Portuguese GDP has a significant effect on the current period Portuguese GDP.

Most of the other variables including all lags of „sd_PT_ARR", „sd_PT_GDP" (except the first lag), „sd_PT_UNP", „sd_PT_CONS", and „CRISIS", are not statistically significant at the 5% level as their *p*-values are greater than 0.05.

The model's *R*-squared value is 0.671784, meaning that about 67.18% of the variation in the dependent variable, „sd_PT_GDP", can be explained by the independent variables in the model. The adjusted *R*-squared value is 0.538934,

**Table 3.5. VAR system, lag order: 4, equation: seasonal differences of GDP (Portugal)**

| | Coefficient | Standard error | *t*-ratio | *p*-value |
|---|---|---|---|---|
| const | 350.722 | 306.894 | 1.143 | 0.2596 |
| sd_PT_ARR_1 | −0.00064589 | 0.000561493 | −1.150 | 0.2565 |
| sd_PT_ARR_2 | 0.000848235 | 0.000603202 | 1.406 | 0.1670 |
| sd_PT_ARR_3 | −0.00046779 | 0.000666929 | −0.7014 | 0.4869 |
| sd_PT_ARR_4 | −0.00015510 | 0.000546419 | −0.2839 | 0.7779 |
| sd_PT_GDP_1 | 1.08072 | 0.526730 | 2.052 | 0.0465 ** |
| sd_PT_GDP_2 | −0.815572 | 0.572311 | −1.425 | 0.1615 |
| sd_PT_GDP_3 | 0.00175079 | 0.563612 | 0.003106 | 0.9975 |
| sd_PT_GDP_4 | −0.0494147 | 0.531340 | −0.09300 | 0.9263 |
| sd_PT_UNP_1 | −13.8409 | 682.697 | −0.02027 | 0.9839 |
| sd_PT_UNP_2 | −974.455 | 1127.77 | −0.8641 | 0.3925 |
| sd_PT_UNP_3 | 1392.95 | 1063.23 | 1.310 | 0.1973 |
| sd_PT_UNP_4 | −807.179 | 554.721 | −1.455 | 0.1531 |
| sd_PT_CONS_1 | −0.0590159 | 0.620232 | −0.09515 | 0.9246 |
| sd_PT_CONS_2 | 0.594476 | 0.588925 | 1.009 | 0.3186 |
| sd_PT_CONS_3 | 0.0705422 | 0.585432 | 0.1205 | 0.9047 |
| sd_PT_CONS_4 | −0.244595 | 0.597262 | −0.4095 | 0.6842 |
| CRISIS | 418.058 | 645.074 | 0.6481 | 0.5205 |

| | | | | |
|---|---|---|---|---|
| Mean dependent variable | 1062.833 | | S.D. dependent variable | 2556.241 |
| Sum squared residual | 1.27e+08 | | S.E. of regression | 1735.735 |
| *R*-squared | 0.671784 | | Adjusted *R*-squared | 0.538934 |
| *F*(17, 42) | 5.056726 | | *p*-value(*F*) | 9.50e-06 |
| rho | 0.056040 | | Durbin-Watson | 1.882748 |

Source: own work.

implying that after adjusting for the number of predictors in the model, about 53.89% of the variation in „sd_PT_GDP" can be explained. The Durbin-Watson statistic, used to detect autocorrelation in the residuals, is 1.882748, indicating that there may be some slight positive autocorrelation present, but it isn't strong.

To summarise, based on the VAR model for Portugal, the first lag of Portuguese GDP („sd_PT_GDP_1") significantly impacts the current GDP. The overall model is statistically significant, but most variables do not individually significantly affect Portuguese GDP. Furthermore, the Durbin-Watson statistic suggests that the residuals may have slight positive autocorrelation (Figure 3.6).

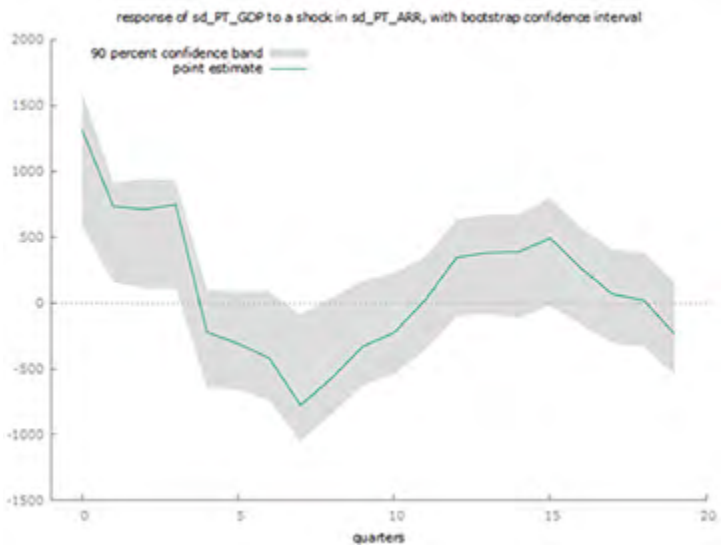


**Figure 3.6. Response of GDP in mln EUR (seasonal differences) to a shock in Foreign Tourist Arrival (seasonal differences) for Portugal**
Source: own work.

Given the Impulse Response Function (IRF) analysis of „PT_GDP" to shocks in „PT_ARR", it is observed that the response does not stabilise over a period of twenty quarters. The oscillation around the zero-line without convergence suggests a persistent impact of shocks on Portuguese GDP, although the response is relatively low in magnitude, given the IRF oscillations close to zero.

Referring to the VAR model above, this finding is congruent with the statistical insignificance of „sd_PT_ARR" lags on „sd_PT_GDP". None of the lags for „sd_PT_ARR" has a *p*-value less than 0.05, indicating that they are not statistically significant at the 5% level. This suggests that changes in ARR do not have a significant immediate impact on GDP, aligning with the observed oscillations around zero in the IRF.

As for the resilience of the Portuguese economy to shocks in „CRISIS", the „CRISIS" variable is not statistically significant in the VAR model (*p*-value =

0.5205), which suggests that crises do not have a statistically significant impact on Portuguese GDP. Therefore, based on this analysis, the Portuguese economy may be seen as resilient to shocks in „CRISIS".

However, resilience to shocks in „ARR" is less clear. Given that the IRF of „PT_GDP" to shocks in „PT_ARR" oscillates without stabilising, it indicates that such shocks may have a continued effect on „PT_GDP". Although these shocks are not statistically significant in the VAR model, the IRF suggests that they may have a lingering effect on „PT_GDP". This suggests that while the Portuguese economy may be resilient to immediate shocks in „ARR", it may still feel the impact of such shocks over time.

## 3.5. Discussion

In the study examining the impact of crises on countries' economic growth, foreign tourist arrivals were used as a metric. This is because the international travel and tourism industry is more susceptible to exogenous shocks and crises compared to other industries, as noted by Keller (2021). This approach differs from other studies on the impact of external shocks on the Polish economy. Here, the response to the crisis impulse is much quicker, and the effect dissipates faster as well (within 10 quarters). In contrast, Sznajderska's (2021) study on the impact of demand-driven trade shocks on the Polish economy found that the growth of the effect (positive) lasts for a relatively short period (several years) and then diminishes over a much longer period (40 quarters). Furthermore, when comparing the results of this study with the negative effects of large-scale wars or pandemics from a historical perspective (Stefański, 2020), it appears that the negative impacts on the economy are immediate, while recovery spans years. However, this pattern is typical of large-scale crises, such as the "Black Death" or World War II, where it took decades to restore the labor force and capital.

In our study, we observed varying degrees of resilience to external shocks in economies, depending on their economic reliance on the tourism sector. Economies dependent on tourism are among the most affected by crises and take longer to recover compared to those less dependent on tourism. This is supported by studies focusing on specific crises, such as the pandemic (Behsudi, 2020; EFTA, 2022). It should also be noted, based on previous studies, that the pandemic revealed domestic tourism to be more robust or resilient to crises, even in the worst-case scenarios of supply shocks, particularly in emerging and developed countries (Keller, 2021). The extent to which domestic overnight stays have compensated for the loss of foreign ones (EFTA, 2022) is significant. The varying importance of domestic versus foreign tourism in the group of countries analysed in this chapter

may also explain the differential GDP responses to the shock of a decline in foreign tourist arrivals. Moreover, Vanhove (2022) suggests that the recovery period will be highly unequal across different segments of the tourism sector. Additionally, Keller (2021) highlights potential differences in economic recovery depending on the type of external shock: demand or supply. Therefore, it is crucial to conduct further in-depth assessments of the impact of external shocks, in the form of various crisis phenomena, on the economic growth of individual countries and to identify the sources of their resilience to crises.

## Conclusions

The paper presents a detailed analysis of the resilience of the economies of Poland, Lithuania, Spain, and Portugal to external shocks. Using VAR models and IRFs, the paper studies the response of GDP and ARR to various crises. The results show that the Polish and Lithuanian economies demonstrate remarkable resilience to these shocks, recovering more quickly than Spain and Portugal. The paper argues that this resilience can be attributed to a combination of factors, including economic diversity, institutional and market flexibility, and effective policy responses. The paper contributes to the literature on economic resilience by providing empirical evidence of the differential impacts of shocks on different economies and by highlighting the role of tourism in shaping these impacts. The findings have important implications for policymakers, suggesting that enhancing economic resilience requires a multifaceted approach that takes into account the unique characteristics and vulnerabilities of each economy.

Based on the Vector Autoregression (VAR) models and Impulse Response Functions (IRFs) calculated for Poland, Lithuania, Spain, and Portugal, our study offers several observations. Firstly, the analysis highlights a remarkable resilience of the Polish and Lithuanian economies to external shocks, notably stronger than those of Spain and Portugal. The data suggests that both the Polish and Lithuanian economies recover more quickly from shocks, indicated by lower standard deviations in their response to shocks. Secondly, the magnitude of both the financial and sovereign debt crises were more pronounced in Spain and Portugal, which is reflected in more fluctuating IRFs. It's plausible that the larger magnitudes of these crises necessitated a longer period for these economies to absorb the shock and stabilise.

However, the study also exposes limitations in the use of VAR models and IRFs for analysing crises, especially when dealing with overlapping crises like the financial and sovereign debt crises or the COVID-19 pandemic and the war in Ukraine. While these tools offer valuable insights, they may not capture the full

complexity of these situations. To garner a more comprehensive understanding of economic dynamics during crises, it's beneficial to consider additional analytical methods. These can include stress tests, scenario analysis, and Structural Vector Autoregression (SVAR) modeling (see, e.g., Kilian & Lütkepohl, 2017).

Nevertheless, a critical caveat in employing SVAR models is the need for sufficiently long time series data. Particularly in the case of the war in Ukraine, there is a lack of extensive data which may hinder the construction of a meaningful Cholesky C matrix, a key component in SVAR models. Hence, while SVAR modeling is a promising approach, its applicability depends largely on the quality and quantity of available data.

To conclude, our analysis underscores the robustness of the Polish and Lithuanian economies in the face of external shocks compared to Spain and Portugal. However, these insights should be complemented with other robust analytical methods to fully understand the resilience of economies and their responses to crises.

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# 4. The European Union's Common Commercial Policy in times of turmoil

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## Abstract

**Purpose:** The general aim of the chapter is to identify the main challenges for the EU's Common Commercial Policy in the context of post-pandemic and war's experiences as well as future trade-related challenges.

**Design/methodology/approach:** The chapter is based on literature/EU official documents, studies, and statistical analysis of the EU's merchandise trade. It has been structured into two general sections. The first one presents recent trends in the EU's external merchandise trade caused by the pandemic's economic repercussions. This is followed by a short analysis of trade disruptions from the Russian-Ukrainian war and trade reactions to the new situation from the EU.

**Findings:** The European Union faces challenges of a fundamental political and economic nature and the Common Commercial Policy is among the main policies defining the EU's role in the dynamically changing global environment. The COVID-19 pandemic has brought dramatic instabilities to EU economy and trade and the new strategy of the Common Commercial Policy addressed some of the challenges of the evolving global trading system, revealed by the pandemic-related turbulences. Moreover, the Russia–Ukraine war with its geoeconomic and geopolitical consequences has exposed the CCP to new challenges and necessary adjustments. The latest strategy of the EU's CCP, grounded on open strategic autonomy, emphasises a strong necessity of defending the interests and values of the EU and requires making the trade policy an important engine of green and digital transformation of EU economy. The renewed CCP must also address important trends in the geopolitics of trade and distortions of the global system that have symptomised already before the pandemic and the war.

**Originality and value:** The chapter is addressed to students, scholars, and policymakers by contributing to the ongoing debate on the current changes in the global trading system and reactions to those changes from the EU's Common Commercial Policy.

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**Keywords:** EU, Common Commercial Policy, trade policy, COVID-19, Russia–Ukraine war, open strategic autonomy.

## Introduction

The COVID-19 pandemic and Russia–Ukraine war have brought tremendous and dynamic changes to global trading system. Both processes and its implications have strongly influenced EU economy and forced to finding new strategies and alternatives for previous models of trade and economic co-operation and dependencies. Some of disruptions had short-term and limited effects and responsive policy decisions had to be undertaken immediately, sometime by the week or the month. At the same time those trade disruptions have triggered processes of fundamental nature and—in the consequence—started to redefine previous trade relations and their character.

In 2021 the European Commission presented the renewed strategy of the EU's Common Commercial Policy (CCP) entitled "Trade Policy Review—An Open, Sustainable and Assertive Trade Policy". In the document the Commission defined main challenges and priorities for the EU in developing trade and economic relations with the outside world in the coming years. While the strategy has been shaped on the basis of first pandemic's experiences and consequences for international trading system, it was released in February 2021—a year before the Russian aggression on Ukraine—and as such does not include any references to the new geopolitical situation in the nearest neighborhood of the EU. The war, similarly to the COVID-19 pandemic, has tremendous long-term consequences for the EU's external trade relations as well as the global trading system and as such triggers many questions about the future international trade patterns. The general aim of the chapter is to identify the main challenges for the EU's Common Commercial Policy in the context of ongoing changes, post-pandemic and war's experiences as well as future trade-related challenges.

## 4.1. Lessons for the EU's external trade in the post-pandemic global trading system

The COVID-19 pandemic brought unprecedented repercussions for international trade in the form of trade restrictions, broken global supply chains and the historic fall of global merchandise trade (Mazur, 2021). The first months of the pandemic have brought mostly export restrictions and requisitions of domestic supplies of essential goods (BDI, 2020), that were the response to the unprecedent increase in

demand for pandemic-related products (personal protective equipment, medical devices, and pharmaceuticals), the shortcomings of 'just-in-time' production, and high dependence on a limited number of suppliers. The EU countries were among first traders that launched mentioned trade restrictions that sometimes assumed even the form of direct interventions and requisitions of medical products. Moreover, they were applied not only to extra-EU partners, but also—especially at the beginning of the pandemic—to other EU countries. In consequence the EU market faced trade and supply disruptions from both global and EU suppliers (Pirker, 2020). This situation required decisive steps undertaken by the EC in the first half of 2020 to 'europeanise' those actions (export restrictions) as the individual EU countries' decisions might have eroded the rules of the Common Commercial Policy and EU's Single Market, and in more horizontal perspective even the further developments of the European project (Hoekman et al., 2020; Mazur 2021).

While the mentioned distortions and uncertainties shaped the situation of global trade mostly in 2020, next months and quarters had brough some stabilisation of supplies and strong increase of trade volumes (Figure 4.1 and 4.2). However, the economic recovery and growth of global merchandise trade in 2021 have not veiled important questions about the pandemic's long-term aftermath for the global trading system. In this context, general concerns include growing trade protectionism and the accompanying lack of transparency in trade policies of individual traders. Those two elements result in higher instability of trading system embodied in price volatility, retaliatory actions from trade partners, panic buying, hoarding and speculation. The pandemic and accompanying problems with the supply of (mostly)

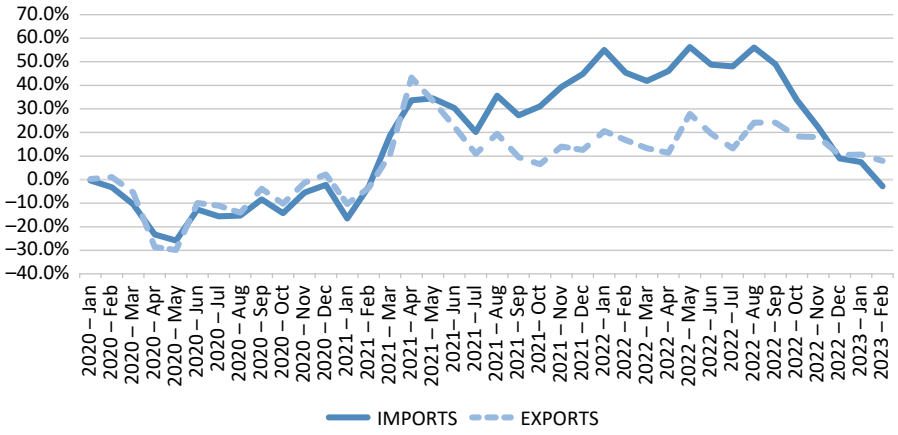


**Figure 4.1. Extra-EU-27 exports and imports (monthly change (%) to previous year, January 2020–February 2023)**
Source: (Eurostat, 2023).

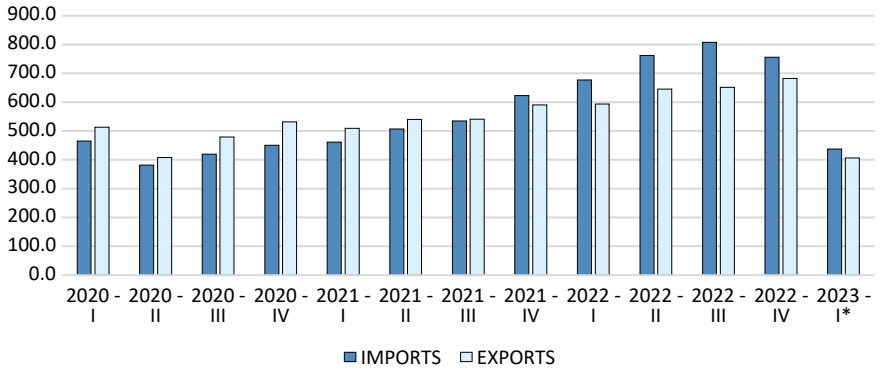


**Figure 4.2. Extra-EU-27 exports and imports in 2020–2023 (quarterly, bn EUR)**
*January–February 2023
Source: (Eurostat, 2023).

medical and protective products, have triggered a discussion on the security of supplying the strategic products and reallocation of production and distribution. In this context many countries, including the EU, have stressed the importance of reducing overdependence on the small number of suppliers by providing multiple suppliers as well as developing domestic production for the price of economies of scale (Mazur, 2021).

The pandemic's experience and mentioned developments in trade relations have required to address new challenges and redefine some of the EU's priorities. While some of those processes had already started over previous years, the pandemic crisis has already accelerated some of them and highlighted to strategic debate. The third decade of the current century has put the EU and its CCP in front of such strategic challenges in global trading system as the surge of protectionism, managed trade and state intervention, state capitalism distortion and the crisis of multilateral trade system (Macyra, 2020; Mazur, 2021). Although the re-newed trade strategy presented in 2021 attempted to address some of those challenges, the redefinition of the EU's position in global trading system and strategic reform of the EU's CPP are questions of the future.

## 4.2. Russia–Ukraine war and its trade implications for the EU

The Russian invasion of Ukraine in February 2022 has initiated significant geopolitical and economic turmoil in the nearest neighborhood of the EU. The war has brought dramatic consequences for the EU's relations with one of the biggest trade

partners and destabilised trade in many sectors crucial to the European and global economy. The conflict has affected not only bilateral EU–Russia trade through economic sanctions imposed by the EU over the past year, but also triggered a strategic shift in the EU's external trade relations and dependence on import of energy sources.

From the beginning of the conflict the EU has played an important role in trade and economic retaliation against Russia. The first package of sanctions, including those directly related to trade (prohibitions on exports and imports of selected goods), was adopted already in February 2022 and the EU has so far approved 10 packages of sanctions against Russia (as of March 2023). Although the first sanctions against Russia have been progressively imposed since March 2014, initially after the illegal annexation of Crimea and Sevastopol and the deliberate destabilisation of Ukraine, the EU massively expanded the sanctions after the Russian aggression of 24 February 2022 (EC, 2023a). Since the beginning of the conflict the EU was not only an active advocate on a global stage for imposing sanctions on Russia, but the Union itself has implemented over 5,000 of the 10,971 economic sanctions currently in place (as of March 2023) on that country (Sharma & Zilli, 2023).

The EU's trade sanctions on Russia include a long list of products prohibited for export to reduce the country's access to military, industrial and technological items and limit the ability to develop Russian defense and security sector. Those include i.a. dual-use goods to target sensitive sectors in military industrial complex, and limit Russia's access to crucial advanced technology (Table 4.1). The total estimated value of export restrictions and bans on goods and technologies is estimated at ca. 43.9 billion EUR, that represents almost a half of the EU's exports before the war (EC, 2023b). The imposed sanctions include also prohibitions of import of products that take a lion's share in Russian production and export and have provided a significant part of Russian budget incomes from export. Those sanctions are designed to diminish the country's ability to finance the war. On the import side, almost 60% of pre-war imports are covered by the measures, representing more than 90 billion EUR. Moreover, since 15 March 2022 the European Union, together with G-7 countries and other like-minded partners, has stopped applying to Russia a most-favored nations clause within the WTO framework, that deprives Russia of fundamental advantages from WTO membership (EC, 2023b).

The imposed sanctions and developments of global trading system resulting from the conflict (price volatility, uncertainty and instability in selected sectors, political pressure to stop economic co-operation with Russia) have significantly influenced EU–Russia trade over the last year. Implemented restrictions have resulted in falling bilateral merchandise trade volume. Rereferring to import from Russia, skyrocketing prices of energy sources during first weeks and months of

**Table 4.1. Products sanctioned in EU-Russia trade (as of April 2023)**

| Prohibitions on EXPORTS of | Prohibition on IMPORTS of |
|---|---|
| • quantum computing, advanced semiconductors, sensitive machinery, transportation and chemicals<br>• goods for use in the oil industry<br>• maritime navigation goods<br>• luxury goods<br>• coal including coking coal, specific electronic components (found in Russian weapons), technical items used in the aviation sector<br>• drone engines, camouflage gear, additional chemical/biological equipment, riot control agents<br>• toy/hobby drones, complex generator devices, laptop computers and computing components, printed circuits, radio navigational systems, radio remote control apparatus, aircraft engines and parts of engines, cameras and lenses<br>• heavy trucks, semi-trailers, and special vehicles such as snowmobiles<br>• electric generators, binoculars, radars, compass<br>• construction goods such as bridges, structures for buildings tower-like, fork-lifts trucks, cranes, etc.<br>• goods that are critical for the functioning and enhancement of Russian industrial capacity (electronics, machine parts, pumps, machinery for working metals, etc.)<br>• complete industrial plants<br>• goods used in the aviation industry (turbojets) | • coal<br>• iron and steel<br>• cement, rubber products, wood, spirits, liquor, high-end seafood<br>• seaborne crude oil<br>• gold<br>• finished and semi-finished steel products (subject to a transition period for some semi-finished), machinery and appliances, plastics, vehicles, textiles, footwear, leather, ceramics, certain chemical products, and non-gold jewellery<br>• bitumen and related materials like asphalt<br>• synthetic rubber and carbon blacks |

Source: based on (EC, 2023a).

the conflict have even increased the value of EU imports (Table 4.2). That situation had its roots in several strategic trade dependencies between the EU and Russia. The effects of imposed import sanctions and stabilising global fuel prices have been visible since the 4th quarter of 2022, when the total value of EU imports from Russia felt by one-third. Even more significant drop of imports was recorded in the first months of 2023, when imports diminished by two-thirds, including dramatic fall for mineral fuels (–67.2%).

Similar downfall has been also recorded in EU exports to Russia, although consequences of sanctions revealed already in first months of the war. After a year from the Russian invasion, EU exports to Russia felt by a half, and in sections such as manufactured goods or machinery and transport equipment—that are critical for future abilities of Russia's industrial sector—the drop was even at ca. three-quarter to the previous year (Table 4.2).

**Table 4.2. EU-Russian merchandise trade by SITC sections (quarterly change (%) to previous year)**

| IMPORTS | | | | | |
|---|---|---|---|---|---|
| | **2022–I (%)** | **2022–II (%)** | **2022–III (%)** | **2022–IV (%)** | **2023 (01/02) (%)** |
| 0 Food and live animals | 58.1 | 16.5 | –0.3 | –3.2 | –5.8 |
| 1 Beverages and tobacco | 38.9 | –36.5 | –60.6 | –86.2 | –84.2 |
| 2 Crude materials | 35.8 | –34.7 | –47.9 | –55.9 | –58.0 |
| 3 Mineral fuels | 132.9 | 78.8 | 35.6 | –24.7 | –67.2 |
| 4 Animal and vegetable oils | 468.0 | 177.4 | –27.9 | –52.2 | –78.7 |
| 5 Chemicals | 112.9 | –10.1 | –15.0 | –33.4 | –77.8 |
| 6 Manufactured goods | 56.2 | 7.5 | –44.8 | –54.7 | –61.8 |
| 7 Machinery and transport equipment | –2.1 | –40.3 | –31.0 | –56.7 | –62.0 |
| 8 Miscellaneous manufactured articles | 11.7 | –20.4 | –42.7 | –55.2 | –77.6 |
| TOTAL IMPORTS | 108.0 | 56.5 | 9.9 | –34.6 | –66.0 |
| **EXPORTS** | | | | | |
| | **2022–I (%)** | **2022–II (%)** | **2022–III (%)** | **2022–IV (%)** | **2023 (01/02) (%)** |
| 0 Food and live animals | 2.0 | –24.3 | 1.6 | 12.8 | 4.8 |
| 1 Beverages and tobacco | –13.2 | –41.1 | 16.6 | 34.5 | 47.7 |
| 2 Crude materials | 8.1 | –17.4 | –26.9 | –21.6 | –44.5 |
| 3 Mineral fuels | 1.4 | –66.0 | –42.9 | –37.4 | –86.8 |
| 4 Animal and vegetable oils | –11.9 | –49.1 | 4.9 | –15.2 | –8.5 |
| 5 Chemicals | 8.2 | –15.2 | –11.8 | –15.4 | –22.3 |
| 6 Manufactured goods | –3.6 | –51.9 | –54.8 | –56.1 | –65.8 |
| 7 Machinery and transport equipment | –22.5 | –67.5 | –71.5 | –70.1 | –76.3 |
| 8 Miscellaneous manufactured articles | –11.5 | –51.1 | –37.4 | –41.5 | –40.6 |
| TOTAL EXPORTS | –9.7 | –49.4 | –45.9 | –44.5 | –50.4 |

Source: (Eurostat, 2023).

The political situation and adopted sanctions against Russia influence directly bilateral trade patterns and volumes. Those processes, new and dynamic in their form, must be analysed in the broad context of strategic geopolitical tensions and supply shortages triggered by the Russian invasion. Decisions undertaken by the EU over last months have been foretastes of strategic shifts and new challenges in global trading system that must be addressed by the EU within its trade policy. In this context, the EC underlines the need of strategic economic autonomy and higher diversification in trade co-operation, e.g., by reinvigorating trade negotiations on new FTAs with selected partners (e.g., India). The latest geopolitical situation requires to ask questions about reliable economic and political partners for the EU. Some strategic redefinition of the EU's trade policy was already presented in 2021. Higher economic autonomy and trade diversification were presented as antidotes for trade turbulences caused by the pandemic. Russian aggression on Ukraine in 2022 only reinforced the necessity of those aspects. In the context of geopolitical tensions, it should be expected that the EU takes more assertive position in protecting its interests and values (EC, 2021; Noyan, 2022).

## Conclusions—towards 'new' Common Commercial Policy

Presented in 2021 the renewed strategy should be seen as a first step towards a new model of the EU's trade and economic relations with the world. While the strategy, as the previous ones, is an attempt to provide a strategic framework for the CCP for the next five years, it should be read in a broad context of the evolving global trading system. As such, the presented document is more than just a regular revision of the policy. While in many aspects the document might have been disappointing due to a shortage of specific policy suggestions and triggers more further questions than delivers answers, it should be read as a preview of more fundamental changes of the EU's trade policy. In accordance with the title of the strategy, the CCP should be grounded on the "Open Strategic Autonomy". That means the EU will still follow global rules and stick to commitments to open and fair trade, but at the same time it emphasises the EU's ability to make its own choices and use all trade tools that would reflect its strategic interests and values. In this context, the European Commission highlights the necessity of the adoption of a first set of reforms of the WTO (a.o. in the area of sustainable development and distortions of competition due to state intervention) and the need to restore an effectively-functioning WTO dispute settlement. Moreover, the renewed CCP should support green and digital transition as well as trade in services through closer regulatory cooperation with like-minded partners as well as the conclusion of an ambitious and comprehensive WTO agreement on digital trade. The document highlights also strongly that the

EU is ready to act assertively in defending its interests and defines more openly than ever before the threats to its trade, economic, and political interests. This should be achieved a.o. by concluding negotiations and ratifying agreements with key growth regions (Asia Pacific, Latin America) as well as further development of tools and instruments (e.g. anti-coercion instrument) supporting EU business and protecting it from unfair competition (EC, 2021; Keane et al., 2023). An important part of the EU's response to current trends and challenges is also a comprehensive reform of the EU Customs Union, including the creation of a new EU Customs Authority and EU Customs Data Hub, presented by the EC in May 2023 and to be implemented in the coming years (EC, 2023c).

The COVID-19 pandemic and the war in Ukraine have brought dramatic instabilities to EU economy and trade. While the new strategy was published in 2021, it addressed some of the challenges of the evolving global trading system exposed by the pandemic-related turbulences. The Russian invasion and its geoeconomic and geopolitical consequences for obvious reasons could not be included in the analysis and the strategy. However, the global trade ecosystem had already started to change deeply even before the war and the pandemic, and important new trends in the geopolitics of trade and distortions of global system have symptomised already in recent years. Here should also be mentioned distortive practices in China's trade policy together with growing US-China trade and political tensions. While in some aspects the latest trade policy review suggested higher diversification of trade partners and nearshoring (mostly with the Balkans and Middle Eastern and North African countries), the geopoliticisation of trade accelerating world's economic decoupling will reshuffle global trade patterns more decisively (Fabry, 2022). The European Union faces challenges of fundamental political and economic nature and the Common Commercial Policy is among main policies defining the EU's role in dynamically changing global environment.

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# 5. The impact of the COVID-19 pandemic on migration in Europe

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## Abstract

**Purpose:** The COVID-19 pandemic has brought unprecedented restrictions to travel and mobility at global level. Limitations of migration flows resulted in problems in countries with a large share of immigrants on the labor market. The aim of the chapter is to examine the impacts of COVID-19 pandemic on migration flow in Europe. In addition, the impact of changes in migration flows during the COVID-19 pandemic on the labor market in Europe is also presented.

**Design/methodology/approach:** The following research methods were used in the work: cause and effect analysis, statistical analysis of quantitative data, descriptive statistics methods. The analysis used statistical data from Eurostat, Frontex, OECD and the International Organization for Migration (IOM).

**Findings:** From the analysis, it can be concluded that restrictions on migration to Europe contributed to reducing the influx of migrants to EU countries, which was reflected in the situation on the labor market. Increasing labor shortages in critical sectors leads to a slowdown in the post-pandemic recovery of economies. The lifting of pandemic restrictions in 2021 made it possible to partially resume travel. Labor markets have recovered surprisingly rapidly, as vaccination levels have risen markedly and mobility has normalised.

**Research limitations:** The possibilities to determine the impact of restrictions related to the COVID-19 pandemic on migration flows are limited, as the timeliness and frequency of data collection are not sufficient to provide adequate information on this subject.

**Practical implications:** The European Union should support the opening of legal migration channels. Making legal migration more difficult for people in developing countries will encourage more people to attempt irregular migration. It is necessary to pursue an effective immigration policy tailored to the needs of the labor market of EU Member States in conjunction

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with development policy. During the pandemic, it was possible to observe how much some sectors of the economy are dependent on workers from other countries.

**Originality and value:** This chapter attempts to contribute to the literature on international migration delivering results of analysis of impact of COVID-19 pandemic on the migration flows in Europe.

**Keywords:** migration, labor market, COVID-19.

## Introduction

The effects of COVID-19 are noticeable in many sectors of the economy. Restrictions related to preventing the spread of the SARS-CoV-2 virus caused difficulties in, among others, in international migrations. Restrictions in migration flows resulted in problems in countries with a large share of immigrants on the labor market. International migrations are becoming more and more important in the economies of countries that are struggling with a shortage of workers. The aim of this chapter is to determine the impact of the COVID-19 pandemic on migration flows in Europe. The chapter consists of three main parts, preceded by an introduction and ended with conclusions. The first part of the chapter discussed restrictions on migration flows during the COVID-19 pandemic. The next part of the chapter presents the results of the analysis of migration flows in Europe during the COVID-19 pandemic. In the last main part of the chapter the impact of changes in migration flows during the COVID-19 pandemic on the labor market in Europe is presented. The chapter ends with a summary presenting conclusions. The analysis used statistical data from Eurostat, Frontex, OECD and the International Organization for Migration (IOM). This chapter attempts to contribute to the literature on international migration delivering results of analysis of impact of COVID-19 pandemic on the migration flows in Europe.

## 5.1. Restrictions on migration flows during the COVID-19 pandemic

Due to the high rates of contagiousness and mortality of the coronavirus, state authorities decided to introduce a number restrictions to stop the development of the pandemic. The travel rules introduced by the authorities of many countries during the COVID-19 pandemic have limited international passenger traffic. According to the International Organization for Migration, by July 2021, a total of almost 110,000 various travel restrictions have been introduced in all countries. At the same time, 980 exceptions allowing limited movement have been

proposed in more than 200 countries and territories (McAuliffe & Triandafyllidou, 2022).

In the analysis of international mobility restrictions conducted by IOM, covering the first year of the pandemic, three phases of introducing restrictions were indicated: lockdowns, reopening, reaction to new mutations of the virus. The first phase included restrictions on movement between countries from January to May 2020. In the first three months of the year, many countries completely blocked entry to their territory or banned travel from countries with the highest number of infections. The scale of restrictions on movement was unprecedented—even in the countries of the Schengen area, i.e. an area without internal borders, temporary borders between countries were restored. The next stage of the response to the pandemic covered the period from June to September 2020. During this period, travel bans were replaced by the obligation to present certificates of negative test results for the SARS-CoV-2 virus. The last stage of introducing restrictions on movement in 2020 included actions in response to new mutations of the coronavirus. On the one hand, countries tried to replace travel restrictions with health certificates, on the other hand, they struggled with the next wave of the pandemic (Benton et al., 2021).

In 2021, as a result of the introduction of COVID-19 vaccines, mobility restrictions were gradually lifted. International travel has become available in many European countries upon presentation of the EU COVID Certificate (UCC).

## 5.2. Migration flows in Europe during the COVID-19 pandemic

The COVID-19 pandemic has stopped the upward trend of international migration. In 2020, the number of migrants in the world stopped at a similar level as in the previous year, 281 million, which, however, meant a decrease by 2 million compared to the pre-pandemic estimates. Although the pandemic was initially expected to be limited to 2020, the constantly emerging new strains of coronavirus have made COVID-19 a long-running global problem, testing the resilience of societies and economies (McAuliffe & Triandafyllidou, 2022).

The number of migrants in the world in 2020 stopped at a similar level as in the previous year: 281 million. However, Before the pandemic it was forecast that the number of migrants would increase by 2 million. Permanent migrations to highly developed countries, concentrated in the OECD, decreased by over 30% to 3.7 million in 2020. The restrictions affected the largest group of economic migrants to a lesser extent, and migrations due to combining families or international protection to a greater extent (Kugiel, 2021).

Europe has been a popular destination for migrants for many years. On 1 January 2022, 23.8 million citizens of non-member countries were residing in a EU Member State, representing 5.3 % of the EU population. In addition, 13.7 million persons living in one of the EU Member States on 1 January 2022 were citizens of another EU Member State. In absolute terms, the largest numbers of non-nationals living in the EU Member States on 1 January 2022 were found in Germany (10.9 million), Spain (5.4 million), France (5.3 million) and Italy (5 million). Non-nationals in these four Member States collectively represented 71 % of the total number of non-nationals living in the EU (Eurostat, 2023b).

Analysing the impact of the pandemic on the size of migration flows in the EU, it should be noted, that in 2020, an estimated 1.9 million immigrants to the EU from non-EU countries and 1.2 million people previously residing in one EU Member State migrated to another Member State. About 956,000 people emigrated from the EU to a country outside the EU. To compare, in 2019 there were 2.7 million immigrants to the EU from non-EU countries and about 1.2 million emigrants from the EU to a country outside the EU. In 2021, 2.3 million immigrants came to the EU from non-EU countries and 1.4 million people previously residing in one EU Member State migrated to another Member State. On the other hand, about 1.1 million people emigrated from the EU to a country outside the EU and more than 1.2 million moved from an EU country to another EU country in 2021 (Figure 5.1)

Among non-EU nationals residing in the EU with a valid residence permit at the end of 2021, the majority had residence permits issued for family or professional

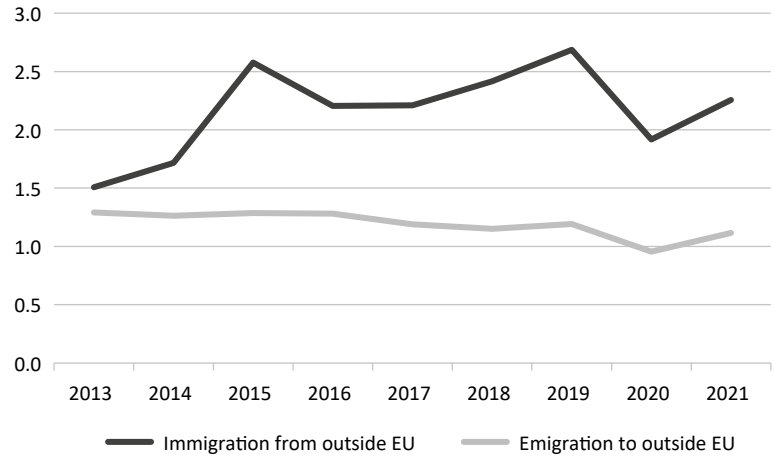


**Figure 5.1. Immigrants from outside EU and emigrants to outside EU, EU, 2013–2021 (million)**

Source: (Eurostat, 2023b).

reasons. Analysing the first residence permits issued in 2020, we can observe a decrease in their number to 2.25 million compared to 3 million issued in 2019. This decline is due to the travel restrictions put in place to limit the spread of the COVID-19 virus. In 2021, 2.95 million first residence permits were issued in the EU, which is almost the number before the outbreak of the COVID-19 pandemic. The pandemic had a particularly negative impact on residence permits for educational reasons—their share decreased from 13% in 2019 to 11% in 2020. In 2021, there was a particularly large increase in the number of permits for professional reasons, the share of which increased from 39% in 2020 to 45% in 2021. The reasons for issuing the first residence permits in 2020 and 2021 are presented in Figure 5.2.

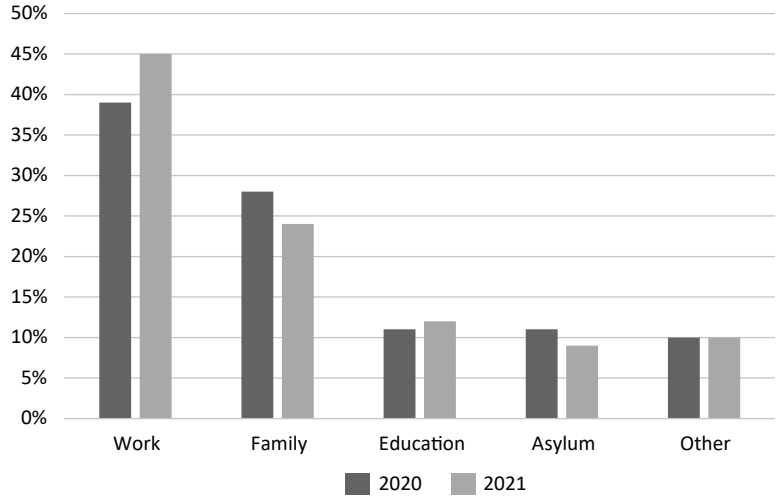


**Figure 5.2. Reason for issuing the first residence permit in the EU in 2020 and 2021**
Source: based on (European Commission, 2023).

The largest number of first residence permits in 2020 were issued to citizens of Ukraine—their number decreased compared to 2019: from 756,574 to 601,227. However, in 2021 the number of first residence permits exceeded the pre-pandemic number and reached 875,783.

The COVID-19 pandemic has had a particularly significant impact on refugees. The number of new asylum applications submitted in 2020 in OECD countries decreased by 31%. It was the biggest drop since the beginning of the 1990s. In the case of the EU, this meant limiting new applications to 416.6 thousand. (214.7 thousand less than in 2019) and a return to the pre-2015 level (Kugiel, 2021). In 2021, 632.3 thousand applications were submitted in the EU. applications, of

which 537.3 thousand applications were submitted for the first time. This represents an increase of 34% compared to 2020, but a decrease of 10% compared to 2019, before the COVID-19 pandemic (European Commission, 2023).

Moreover, pandemic restrictions prompted UNHCR to halt the resettlement of refugees from camps to safe third countries. As a result, in 2020 the least people were resettled in history: 34.4 thousand (down by 64% from 120,000 in 2019). At the same time, the pandemic has not reduced the number of forcibly displaced people. According to the UNHCR Office, the number of people forcibly displaced in 2020 has increased to 82.4 million, of which 26.4 million are refugees. At the end of 2020, 10% of the population lived in the EU. all refugees in the world. Due to less help from the countries involved in the fight against the pandemic, refugees felt the greatest health and economic effects of the pandemic (Torre, 2020).

The COVID-19 pandemic turned out to be a factor limiting irregular migrations. According to Frontex's data, the number of detected illegal attempts to cross the EU's external border in 2020 was 125.1 thousand. This represents a decrease of 12% compared to 2019 and the lowest percentage in seven years (Frontex, 2021). In April 2020, when the strictest restrictions were in force in the EU countries, less than 1.5 thousand were detected. border crossings, and in May 4.6 thousand. This number began to grow as restrictions were lifted (Kugiel, 2021). In 2021, 199,900 cases of illegal border crossings were recorded (increase of 58% compared to 2020). In 2022, around 330,000 irregular border crossings were detected at EU's external border, according to preliminary calculations. This is the highest number since 2016 and an increase of 64% from the previous year. After the pandemic-induced low in 2020, this was the second year in a row with a steep rise in the number of irregular entries (Frontex, 2023).

## 5.3. Impact of migration flows on the labor market in Europe during the COVID-19 pandemic

The pandemic caused socio-economic problems that affected communities, companies and organizations around the world, affecting financial markets and the global economy. Reducing migration has negatively affected the economies of the host countries, especially those sectors that exploit the mobility of people. Countries with a high proportion of migrants faced labor shortages in sectors such as healthcare (e.g., 33% of doctors in the UK are foreigners), agriculture (in Italy 11% of workers are migrants) and services (18% of those employed in Germany) (Kugiel, 2021).

In 2020, 189.1 million people aged 20 to 64 were employed in the EU internal market. 4.6 percent of all employed people were from outside the EU (8.6 million).

The employment rate in the EU among the working-age population was higher in 2020 for EU citizens (73.3%) than for non-EU citizens (57.6%). Many non-EU nationals are "essential workers". In 2020, non-EU nationals were over-represented in some sectors of the economy, such as: accommodation and food services (employment of non-EU nationals was 11.4% vs. 3.8% of EU nationals), office administration and support activities (7.1% vs. 3.7%), household work (6.5% vs. 0.7%) and construction (8.6% compared to 6.4%). In terms of occupations, non-EU nationals were over-represented in the following occupational groups: cleaners and helpers (non-EU nationals employed 11% vs. 3.1% of EU nationals), personal service workers (9% vs. 4.2%), personal care workers (5.1% vs. 2.9%), construction workers (5.8% vs. 3.6%), auxiliary workers in mining, construction, industry and transport (5.6% vs. 2.4%) (European Commission, 2023). The functioning of these sectors was particularly threatened during the period of greatest restrictions on people's mobility.

The global health and economic crisis that began in 2020 put an end to a decade of progress for migrants in the labor market. In a study conducted by OECD, in Q2 2020, on average across the 28 countries considered (including European countries, Canada, United States), employment (as a proportion of the working age population) fell relative to the same quarter of the year before by 3.3 percentage points for the foreign-born and 2.3 percentage points for the natives. Declines (for both migrants and natives) were generally smaller in European countries than in Canada and US, because they relied heavily on job retention schemes. Nevertheless, migrants saw large drops in employment in some European countries as well. In Spain, e.g., where migrants are particularly overrepresented in temporary jobs, their employment fell by more than 8 percentage points—against a drop of just over 3 percentage points for the native-born. In Italy, the considerable use of job retention schemes (and a ban on layoffs) did not prevent employment of foreign-born from falling 4 percentage points, against 1 percentage point for natives (OECD, 2021).

In general, in the EU, in the year of the beginning of the pandemic, i.e. 2020, we can observe an increase in unemployment among people with citizenship of a non-EU country (Figure 5.3). However, when it comes to the level of employment, there is a noticeable decrease in 2020 compared to previous years (Figure 5.4).

Part of the overexposure of migrants to the crisis is explained by their higher concentration in sectors hit harder by the crisis, such as domestic services and hospitality. In the EU, immigrants account for more than a quarter of employment in the hospitality industry (OECD, 2020).The number of migrants in the EU employed in hospitality dropped by nearly 15% between 2019 and 2020, compared with 12.5% for the native-born (OECD, 2021). Besides their sectoral concentration, migrants face a number of additional vulnerabilities in the labour market. They

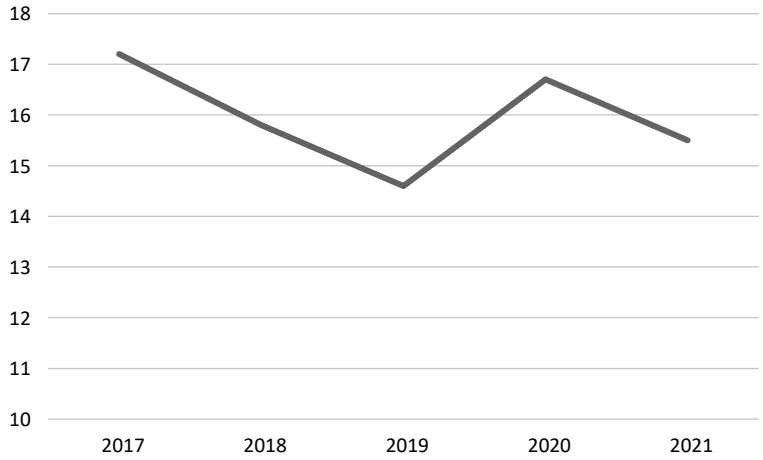


**Figure 5.3. Unemployment rate in the EU among non-EU citizens (%)**
Source: based on (Eurostat, 2023c).

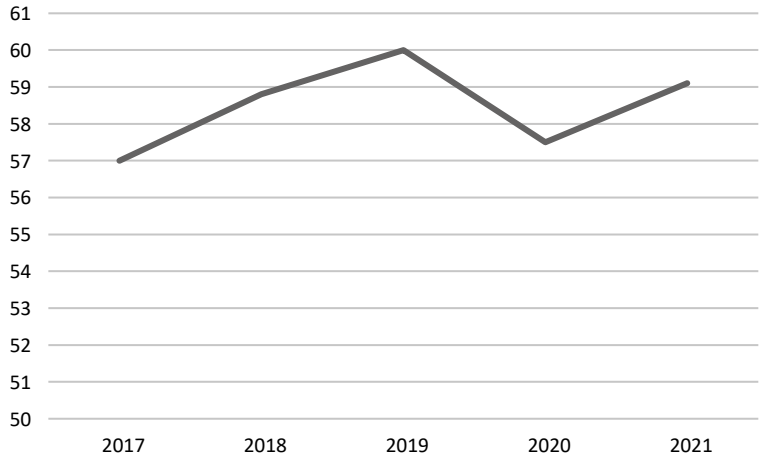


**Figure 5.4. Employment rate in the EU among non-EU citizens (%)**
Source: based on (Eurostat, 2023a).

are overrepresented among employees with temporary contracts and low wages and typically have fewer networks to rely upon in times of economic downturn. (OECD, 2020, 2021).

Most of the decline in employment at the beginning of the pandemic translated into an increase in inactivity for both migrants and the native-born. This

is largely due to the fact that workers were discouraged from searching for new opportunities due to sanitary restrictions and the general fall in economic activity as measures to contain the spread of the virus were introduced in all countries (OECD, 2021).

Another potential consequence of migrants' limited employment opportunities for sending countries was a decline in the value of remittances to developing countries. However, globally there was no collapse in the value of remittances to developing countries—they fell in 2020 by only 1.6%, to USD 540 billion. An example is a slight decrease in transfers from Ukrainian labor migrants working in Poland. This was due to the gradual opening of economies and the economic rebound in the world in the second half of the year (Kugiel, 2021).

## Conclusions

In the globalized world and in the face of the growing world population, an intensification of migration movements should be expected. Migration processes can no longer be treated as a state of emergency that will reach saturation and then migration absorption will return to equilibrium (Kałabunowska, 2020). The European Union should support the opening of legal migration channels. Making legal migration more difficult for people in developing countries will encourage more people to attempt irregular migration. In addition, attention should be paid to the issue of global cooperation in the field of public health. Health systems in less developed countries, where many infectious diseases are likely to be present, should be an area of particular interest. It is therefore necessary to pursue an effective immigration policy tailored to the needs of the labor market of EU Member States in conjunction with development policy. During the pandemic, it was possible to observe how much some sectors of the economy are dependent on workers from other countries. It should be noted that the possibilities to determine the impact of restrictions related to the COVID-19 pandemic on migration flows are limited, as the timeliness and frequency of data collection are not sufficient to provide adequate information on this subject. However, from the analysis, it can be concluded that restrictions on migration to Europe contributed to reducing the influx of migrants to EU countries, which was reflected in the situation on the labor market. Increasing labor shortages in critical sectors leads to a slowdown in the post-pandemic recovery of economies. The lifting of pandemic restrictions in 2021 made it possible to partially resume travel. Labor markets have recovered surprisingly rapidly, as vaccination levels have risen markedly and mobility has normalised. Domestic and external demand have started to recover as consumer and business confidence has improved, and contact-intensive services have started

adapting to the "new normal" making the activity less sensitive to lingering containment measures and social distancing (Ando et al., 2022). More recently, labor market conditions have improved remarkably rapidly compared to previous economic cycles, with the EU low unemployment rate and labor force participation and employment rates also at record highs in some countries. In the future, it is necessary to analyse to what extent the European labor market is dependent on migration flows. It is important to conduct constant analyses of the economy's resilience in the event of disturbances in population flows resulting from various types of crises.

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# CHALLENGES FOR BUSINESS SECTORS AND INDUSTRIES

PART 2

# 6. The geography of consumer goods logistics in Poland—a diagnosis of the period since the COVID-19 pandemic

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## Abstract

**Purpose:** The aim of the work is to find answers to four research questions. What is the geography of: 1) consumer goods production centers in Poland? 2) centers of consumption of consumer goods in Poland? 3) transport corridors used to move consumer goods? 4) what is the location system of logistics hubs supporting the movement of goods?

**Design/methodology/approach:** The study used quantitative data mainly from public statistics Statistics Poland—LOCAL DATA BANK, supplemented with information from consulting companies on the logistics real estate market. The analysed locations are urban complexes. The time scope of the study covers the year: 2020 to indicate GDP and average expenditure per person; 2021 for the number and size of logistics facilities. The analysis used: desk research, web research, simple statistical indicators, cartographic methods and deductive logical reasoning.

**Findings:** As the analysis shows, there are very large economic inequalities in Poland, which are deepened by the concentration of production. The best developed regions are voivodeships with the greatest socio-economic potential concentrated in its main center, i.e. in the agglomerations of Warsaw, Poznań, Wrocław, Kraków, Łódź, Tricity and the Silesian conurbation. The share in consumption of the seven largest urbanised areas in Poland is 41.8%, which is much less than the total share in GDP generation (50.8%). The activities of production centers are closely related to broadly understood warehouse management.

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**Originality and value:** The existing spatial economic and demographic pattern influenced the formation of consumption centres. The share of the designated 16 metropolitan centres in household expenditure was 57.0%, correspondingly less than GDP (65.6%). The factors determining the location of major hubs are primarily: geographical location near the urban agglomeration, transport accessibility, which is determined by the transport infrastructure (road and rail, but also proximity to airports and seaports) and the absorptive capacity of the local market in terms of the services offered.

**Keywords:** geography, logistics, consumer goods, Poland, COVID-19.

## Introduction

In recent years, the so-called TFL (transport, forwarding, logistics) sector has been developing dynamically all over the world, including Poland (Zysińska, 2019). This process should not come as a surprise if one takes into account the evolution of contemporary economic conditions, especially the advancing globalisation and digital transformation. The accelerating factor was undoubtedly the COVID-19 pandemic, which saw a surge in e-commerce sales volumes and the spread of IT infrastructure to facilitate them. Consumers' shopping habits changed in a revolutionary way (Olszowy et al., 2022). The pandemic has completely changed the picture of e-commerce in the world, also in Poland. For example, the value of the Polish e-commerce market increased from PLN 50 billion in May 2019, already surpassing PLN 100 billion in the pandemic year 2020, and 77% of internet users were shopping online, i.e. 15 percentage points more than even a year earlier. At the same time, the number of online sellers has almost doubled from 30,000 (in 2019) to more than 55,000 (end of 2022) (Cushman & Wakefield, 2022). The consequence of this transformation is the growing importance of the logistics industry. There is a growing assessment of the progressive logisticsisation of the economy globally and in Poland (Fabbe-Costes & Rouquet, 2019; Gołembska, 2022).

In the most general terms, the task of logistics is to connect producers (sellers) of various goods with users (consumers) in an economically efficient, reliable and practically effective manner. In addition to traditional distribution channels (single channel), increasingly sophisticated electronic channels are gaining in importance. So-called omnichannel distribution channels are currently gaining the most popularity among retailers (Hickman et al., 2020). Omnichannel is a combination of the previous supply chain models: multichannel and crosschannel, i.e. blurring the boundaries between sales channels. In addition to the need to move goods from manufacturers to retailers, there is an increasing need to move them from retailers to final consumers. Undoubtedly, these practices positively influence the degree of competitiveness of modern markets. This process sometimes prompts assessments that markets are now hyper-competitive (Obłój, 2005), which influences the

intensity of the search for sources of sustaining and increasing competitiveness by managers of manufacturing enterprises.

In Poland, demand for consumer goods is regionally differentiated. The main factors creating it are the size of the population and its wealth. Cultural factors do not significantly influence the content of the shopping basket, as Poland is a relatively homogenous country from this point of view. Empirical studies show that the geographic variation in Poles' wealth creates centres of higher consumption. As in the case of production areas, the general conclusion concerning consumption centres is that large cities and the metropolitan areas surrounding them are the centres of this concentration. Areas of the so-called eastern wall are positioned below the average (Domański, 2018; Laskowska & Darska-Borsiak, 2018).

In view of the above, this study poses the following research questions:

- What is the geography of the centres of production of consumer goods in Poland?
- What is the geography of the centres of consumption of these goods in Poland?
- What is the geography of the transport corridors used to move these goods and the location pattern of the logistics hubs serving this movement?

Finding answers to these questions is the research objective. Establishing the regularity of the flow of goods, will allow to build of a spatial model of consumer goods logistics in Poland. The realisation of the objectives will be achieved by using methods such as literature studies (*desk research*, *web research*), statistical data analysis, cartographic methods and deductive logical reasoning.

The study uses quantitative data mainly from the GUS's system of public statistics—the Local Data Bank—supplemented by data and information from other sources. Primarily data from logistics real estate consultancies were used: Newmark, Cushman & Wakefield, Colliers International and Jones Lang Lasalle. The data obtained can be considered complete and allowing to draw reliable inferences.

All analysed locations are treated as urban complexes—large agglomerations or the Silesian and Tricity (Trójmiasto) conurbations. From the statistical point of view, they are made up of cities with their surrounding counties. Simplifying and due to the availability of data, the study refers to them as NUTS3 sub-regions (as at 1.01.2018). Average monthly household expenditure, as a measure of wealth, was collected on regional basis (NUTS2) and converted to the number of inhabitants of the NUTS3 territorial units analysed. The temporal scope of the study is determined by the availability of the most recent data possible. Data from the years: 2020 to indicate GDP and average expenditure per person; 2021 for the number and size of logistical facilities.

The study consists of several parts. The first is the diagnosis of the concentration of production centres of consumer goods and of the demand for them in

Poland. Against this background, we aim at the identification of the main transport corridors taking into account the dominant modes of transport and then identification of key logistic hubs with expediting, absorbing and intermediary functions[1]. The last part contains the conclusions and final findings.

## 6.1. Diagnosis of the concentration of production and purchasing centres for consumer goods

The geographical diversity of production centres in Poland will be considered first. Naturally, the most synthetic possible measure of this production will be used for this purpose. It is the achieved level of gross domestic product (GDP). According to the Central Statistical Office (GUS, 2022), one of the definitions of GDP—formulated from the production side—indicates that it is the sum of gross value added of individual institutional sectors or individual branches increased by taxes on products and decreased by subsidies on products. Put differently, GDP is "the total monetary value of what has been produced (...) over a specified period of time. GDP is measured by the value added of output, i.e. its value less intermediate inputs used" (Chang, 2015, p. 180).

According to the latest data on the development of GDP in Poland by region, only four voivodeships: Lower Silesia, Warsaw (the Capital Region), Wielkopolskie and Silesia have achieved GDP above the national average. More than 90% of the national average was produced in Łódzkie, Małopolskie and Pomeranian. In total, these seven regions produced 67.9% of the value added, or more than 2/3 of the GDP of the Polish economy in general. It can therefore be assumed that these seven regions are the main production areas in Poland and that key expediting hubs to other regions and abroad should be located in these areas.

Even greater economic inequalities and concentration of production can be observed looking deeper into the relationship between a province and its main city. The best developed regions are those with the greatest socio-economic potential concentrated in their main centers, i.e. in agglomerations: Warsaw, Poznań, Wrocław, Cracow, Łódź, the Tricity and the Silesian conurbation. These seven centres alone account for more than 50% of Poland's GDP. These centres are the main poles of national and regional growth (Table 6.1).

[1] A logistics dispatch hub is a link in the supply chain responsible for the dispatch of goods. An absorption hub is a link in the supply chain responsible for the final distribution of goods to retail units or directly to final consumers. An intermediary hub is a link in the supply chain responsible for the consolidation transshipment of goods.

**Table 6.1. Gross domestic production by region in Poland in 2020**

| Voivodeships | Total | | | Per capita | |
|---|---|---|---|---|---|
| | PLN million | in percentage terms | previous year = 100 | in PLN | Poland = 100 |
| Poland | 2 337 672 | 100.0 | 102.1 | 61 231 | 100.0 |
| Lower Silesia | 195 646 | 8.4 | 103.5 | 67 104 | 109.6 |
| Kujawsko-pomorskie | 102 446 | 4.4 | 104.1 | 50 246 | 82.1 |
| Lubelskie | 87 493 | 3.7 | 101.5 | 42 370 | 69.2 |
| Lubuskie | 50 026 | 2.1 | 102.1 | 50 209 | 82.0 |
| Łódzkie | 144 450 | 6.2 | 104.6 | 59 529 | 97.2 |
| Małopolskie | 189 463 | 8.1 | 102.3 | 55 138 | 90.0 |
| Mazovia Region | 121 968 | 5.2 | 101.0 | 53 288 | 87.0 |
| Opolskie | 46 872 | 2.0 | 101.0 | 48 834 | 79.8 |
| Podkarpackie | 89 287 | 3.8 | 99.8 | 42 501 | 69.4 |
| Podlaskie | 52 595 | 2.2 | 103.5 | 45 345 | 74.1 |
| Pomeranian | 136 028 | 5.8 | 100.3 | 57 680 | 94.2 |
| Silesia | 272 936 | 11.7 | 98.7 | 61 641 | 100.7 |
| Świętokrzyskie | 53 970 | 2.3 | 102.3 | 44 789 | 73.1 |
| Warmińsko-mazurskie | 60 675 | 2.6 | 104.3 | 43 662 | 71.3 |
| Warsaw Capital Region | 414 048 | 17.7 | 103.1 | 128 118 | 209.2 |
| Wielkopolskie | 233 474 | 10.0 | 103.1 | 66 499 | 108.6 |
| Zachodniopomorskie | 86 294 | 3.7 | 102.5 | 51 790 | 84.6 |

Source: (GUS, 2022).

In turn, the main centres of consumption can be identified as the regions generating the highest demand. If household expenditure per capita is taken as a synthetic indicator, it developed as in Table 6.2.

As can be seen in Table 6.2, expenditure above the national average is realised in seven regions, i.e. Warsaw (capital region), Lower Silesian, Pomeranian, Łódź, Opole, Silesian and West Pomeranian.

However a different picture emerges, when we take into account the overall share of households in expenditure calculated in each metropolitan centre. The

**Table 6.2. Value of average monthly expenditure per person in households in relation to the national average in 2020**

| Voivodeships | Value in PLN | Value in % |
|---|---|---|
| Poland | 1 210.00 | 100.0 |
| Lower Silesia | 1 355.29 | 112.0 |
| Kujawsko-pomorskie | 1 168.59 | 96.6 |
| Lubelskie | 1 132.57 | 93.6 |
| Lubuskie | 1 157.30 | 95.7 |
| Łódzkie | 1 225.52 | 101.3 |
| Małopolskie | 1 041.52 | 86.1 |
| Mazovia Region | 1 066.65 | 88.2 |
| Opolskie | 1 287.33 | 106.4 |
| Podkarpackie | 930.94 | 77.0 |
| Podlaskie | 1 020.37 | 84.4 |
| Pomeranian | 1 328.72 | 109.8 |
| Silesia | 1 270.85 | 105.1 |
| Świętokrzyskie | 994.00 | 82.2 |
| Warmińsko-mazurskie | 1 073.42 | 88.7 |
| Warsaw Capital Region | 1703.86 | 140.9 |
| Wielkopolskie | 1 123.35 | 92.9 |
| Zachodniopomorskie | 1 242.53 | 102.7 |

Source: (GUS, 2022; Local Data Bank).

two largest consumption centres in Poland are the Silesia and Warsaw regions (including the capital). Their share of total expenditure is 12.7% and 12.0% respectively. This is a result of the highest population concentration (total population of nearly 7,650 million) and above-average spending resulting from the higher affluence of these citizens. The combined share of the other five urban agglomerations (Poznań, Cracow, Wrocław, Łódź and the Tricity) is slightly above 17%. This means that the share in household expenditure of the seven largest urbanised areas in Poland is 41.8%. This is significantly less than the total share in GDP generation (50.8%) (Table 6.3).

**Table 6.3. Household expenditure and GDP in Poland in 2020; selected areas (share in %)**

| Agglomerations/conurbations (NUTS3) | Share of household expenditure in total expenditure in Poland | Share in Poland's GDP |
|---|---|---|
| Silesia | 12.7 | 11.7 |
| Warsaw Capital Region | 12.0 | 17.7 |
| Tricity | 4.0 | 3.9 |
| Wrocław | 3.8 | 4.6 |
| Cracow | 3.5 | 4.8 |
| Poznań | 3.0 | 4.9 |
| Łódź | 2.8 | 3.1 |
| Lubuskie Region | 2.5 | 2.1 |
| Szczecin | 2.4 | 2.3 |
| Bydgoszcz-Toruń | 2.0 | 2.1 |
| Lublin | 1.7 | 1.7 |
| Olsztyn | 1.7 | 1.2 |
| Kielce District | 1.6 | 1.5 |
| Rzeszów | 1.3 | 1.4 |
| Bialystok | 1.1 | 1.1 |
| Opole District | 0.7 | 1.4 |
| Total: | 57.0% | 65.6% |

Source: based on (GUS, 2022; Local Data Bank).

The branch structure of transport in Poland in 2020 is illustrated in Table 6.4. Data in Table 6.4 clearly show that road transport is dominant in Poland. Its implementation requires a developed logistics infrastructure, both linear and point-to-point. The state of this infrastructure in September 2022 is illustrated in Figure 6.1.

The green colour indicates existing automotive transport corridors – dark green are roads that have been completely built and light green are roads that have not yet been completed. When confronted with the expected freight flows resulting from the spatial gap between production and consumption centres, a kind of infrastructural white spot can be identified in Wielkopolska at the interface between this voivodship and the Pomeranian voivodship and towards the Silesian voivodship.

**Table 6.4. Transport work by mode in Poland in 2020 (in million tonne-kilometres)**

| Specification | Value in PLN | Share in % |
|---|---|---|
| Total | 540 515 | 100.0 |
| Rail transport | 51 096 | 9.5 |
| Road transport | 461 582 | 85.4 |
| Pipeline transport | 20 435 | 3.8 |
| Maritime transport | 6 658 | 1.2 |
| Inland waterway transport | 517 | 0.1 |
| Air transport | 227 | 0.0 |

Source: (GUS, 2022).


**Figure 6.1. Current and target state of the main motorway network in Poland (in September 2022)**

Explanation: red line – under construction, green line – existing, pink line – projected.

Source: (Wikipedia, n.d.).

The activities of production centres are strongly linked to warehouse management in the broadest sense. On the one hand, the concept of warehouse management refers to the construction of functional storage facilities, equipped with the necessary machinery and equipment and in accordance with accepted standards. This activity thus forms the stock of the warehousing market, also referred to as warehousing. On the other hand, the concept of warehousing management includes a number of mainly operational, technical, economic and organisational issues implemented on an enterprise scale. In this sense, warehouse space is used for the temporary storage of material goods, necessary for all phases of the economic process carried out in the enterprise: procurement, production, distribution and sales (Rożej et al., 2014, p. 70), but also for the implementation of such logistical processes as ordering, receipt/release of inventory, packaging, parcel sorting, completion and intermodal handling, forwarding, administrative processes. Warehouses are thus an essential link in the chain and in the supply network, and the functions performed by warehouse facilities influence the technologies and organisation of work used in them as well as their locations (Majchrzak-Lepczyk & Maryniak, 2020; Szymonik & Chudzik, 2018).

In warehousing and logistics companies, transport accessibility is the most typical location factor. Transport should even be considered prior over other factors. However, the fact that the entire logistics chain is important for manufacturing companies must also be taken into account. Often logistics and manufacturing companies operate in close proximity, forming clusters. Hence, typical location factors for most companies in the logistics sector are, in addition to transport, the proximity and size of the sales market, as well as stocks and labour costs.

The analysis of supply chain operating costs allows to conclude that transport is the largest component of logistics costs (about 50%). It is understood as the sum of all expenses incurred to make a good or service available on the market, mainly to the final consumer. The share of other cost factors is much lower and is as follows: 22%: *inventory carrying costs*, including the maintenance of goods in inventory (e.g., capital costs, storage, depreciation, insurance); 10%: *labour* costs, including the physical handling of goods, packaging and labelling, etc.; 8%: customer service, includes the receipt and delivery of goods and services. 8%: customer service, which includes taking and processing customer orders; 4%: rent, which is determined by the location and type of warehouse, but is also a function of supply and demand in the warehouse market as well as land price and construction costs (Exchange, n.d.).

Such a high share of transport costs in total costs means that, despite the significant reduction in transport costs, the role of transport as a location factor is even determinant with regard to the logistics industry. Transport costs depend on

the length of transport routes, which determines the location of warehouses. Their location, as transport hubs in relation to production and distribution sites, aims to increase the utility of time and space in the supply of products. The increase in utility is mainly influenced by the (previously mentioned) costs of transport, storage, labour and service levels.

The warehouse market in Poland has been developing very dynamically since the beginning of the 21st century, especially since 2004, the year of Poland's accession to the European Union (Budner, 2020). The most noticeable and unprecedented growth in the dynamics of warehouse facilities and space has been recorded since 2017. The development dynamics of the warehouse market in Poland is not inferior to, and even exceeds, that of e-commerce. The high demand for warehouse space is due to both the need to diversify the logistics network adapted to the needs of the e-commerce market and the congestion still evident in global supply chains, which is prompting many companies to increase their inventory levels (Cushman & Wakefield, 2022, p.11). Demand for different types of warehouses is reported by companies in the following sectors: retail and e-commerce (distribution and returns centres, urban warehouses), logistics and courier (courier hubs), manufacturing and automotive (large distribution centres).

Without going into detail about the range of functions of individual logistics facilities, it is important to note certain regularities related to their location. These facilities rarely operate in isolation. They often operate in close proximity, in groups referred to as parks. At the end of 2019 there were 386 such parks offering commercial warehouse space. They were created and successively developed by developers (Cresa, 2019). Their number is steadily increasing reaching 615 in 2021. (Cushman & Wakefield, 2022).

Although Poland's settlement structure is characterised by a polycentric moderate concentration, the demand for warehouse space is highly concentrated. The analysis of the distribution of warehouse and industrial parks shows that as much as 75% of them (i.e. 461) are located in five main locations. These are: Warsaw and the region (39 and 91), the Silesian conurbation (89), the Wrocław agglomeration (84), Łódź (60) and Poznań (54). These five locations are complemented by several emerging markets: Tricity, the Lubuskie Region concentrated mainly along the S3 route, the Cracow and Szczecin agglomerations (Figure 6.2).

The layout of the distribution of warehousing facilities in the dominant Big 5 corresponds to the concentration of warehouse space. The scale of the concentration of space is even higher in this case—slightly over 80%. A common feature of all areas with a high concentration of warehousing space is the considerable potential demand for warehousing services. For this reason, the most favourable locations for this type of facility are usually large urban agglomerations, where economic services justify the operation of large warehouses.

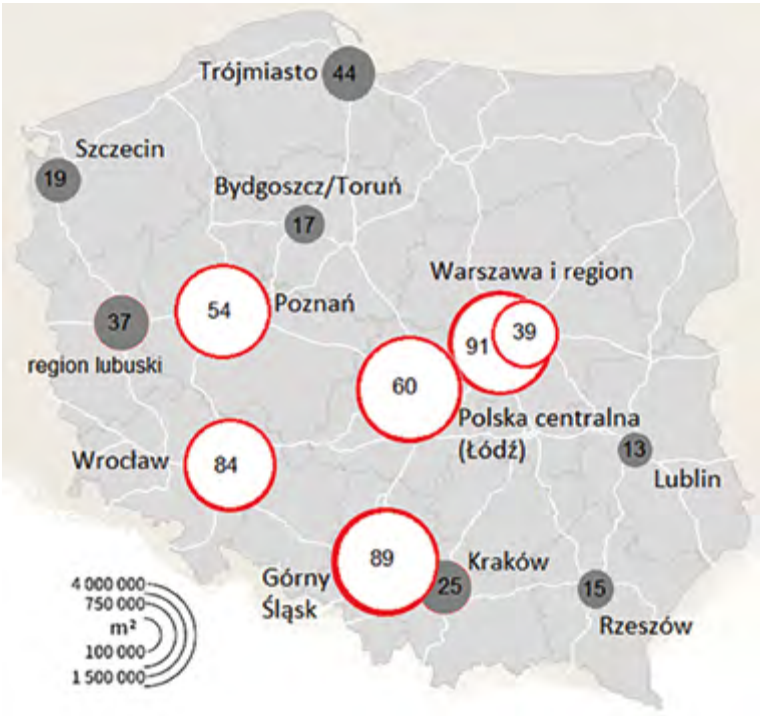


**Figure 6.2. The most important warehouse markets in Poland (2021)**

Notes: light circles: major warehouse markets (the so-called 'big five'); dark circles: emerging warehouse markets; the numbers in the circles indicate the number of warehouse parks.

Source: based on (Cushman & Wakefield, 2022).

The COVID-19 pandemic revealed the dangers of long-term global expansion and excessive concentration of production in just one country. The dependence of the global economy (partly also of Poland) on the situation in China has triggered a reflection on the security of countries,[2] as it may lead to decrease in the resilience of the economy. As a consequence, in the long term there may be a tendency to move production to new, closer locations. This is in line with a shift in the supply chain strategy of some companies moving their operations back to their home country (*backshoring*, *reshoring*) or locating their new manufacturing investment there (*onshoring*). In 2022, the latest term *friendshoring*, a variant of

[2] A similar reflection was triggered by Russia's invasion of Ukraine in 2022, which, together with sanctions on Russia, caused a collapse of the fuel market (oil, gas and coal) in the European Union and the rest of Europe.

offshore outsourcing involving locating orders in politically friendly countries with low economic risk, emerged.[3] Such moves will primarily aim to minimise liquidity risks in supply chains by shortening them. The expansion of manufacturers through supplier networks and the consumer market will further increased demand for logistics real estate.

## 6.2. Regional dynamics influenced by the demands and constraints of logistics geography

Although the development gap between Poland and the EU average is systematically decreasing, the internal differentiation in Poland is becoming more and more noticeable (a process of regional divergence is clearly emerging). This state is sustained by regional economic system that is characterised by a high degree of permanence (this is due to its structural nature). In Poland, there is a significant and increasing divergence of socio-economic development (measured by GDP/inhabitant on a regional [NUTS2] and sub-regional [NUTS3] scale), and what is related to this, a divergence of wealth. The regional spread of GDP per capita (in 2019) is as high as 209.2 in the Warsaw Capital Region to 69.2 in the Lublin Region, i.e. 140 pp. In comparison, this ratio in 2007 was as: 160.1 to 67.5 respectively, i.e. 92.6 pp. In the case of sub-regional units [NUTS3], the scale of differences is even greater and amounts to 284.0 to 51.7, i.e. as much as 232.3 pp. (Table 6.5).

**Table 6.5. The scale of regional disparities in Poland [GDP per capita, Poland = 100]**

| Statistical units | Year | Minimum | Maximum | Difference pp |
|---|---|---|---|---|
| NUTS 2 | 2007 | 67,5 | 160,1 | 92,6 |
| NUTS 2 | 2019 | 69,2 | 209,2 | 140,0 |
| NUTS 3 | 2019 | 51,7 | 284,0 | 232,3 |

Source: (GUS, 2022; Local Data Bank).

Wealth differentials are accompanied by different levels of wealth consumption (measured by household expenditure per person). The expenditure spread on a regional scale is not as significant as in the case of differences in GDP. In 2020, it amounted to PLN 772.92, or 83 pp.

[3] The term was introduced by Janet Yellen in April 2022 (Kollewe, 2022).

In the existing spatial economic and productive system, the main role is played by 7 agglomerations (metropolitan centres): Warsaw, the Silesian conurbation, Poznań, Wrocław, Cracow, the Tricity and Łódź, concentrating 51% of the Polish GDP share. The key importance should be attributed to the capital region of Warsaw and the Silesian conurbations (together almost 30% of GDP). The centres and areas (regions) of eastern Poland have by far the smallest share. All (16) metropolitan centres distinguished in the analysis jointly produce nearly 2/3 of GDP (65.6%).

The existing spatial economic and demographic pattern influenced the formation of consumption centres. The share of the designated 16 metropolitan centres in household expenditure was 57.0%, correspondingly less than GDP (65.6%). What is more, the share of the seven key economic areas in expenditure is correspondingly even lower (41.8%) than GDP (50.8%). This demonstrates, on the one hand, the greater affluence of metropolitan residents and, on the other hand, the fairly even satisfaction of consumption needs across the country.

The share of the value of goods and services produced in each centre is mostly similar to the share of consumer spending. A significant discrepancy was recorded in the Warsaw Capital Region (share ratio: 17.7 / 12.0); the Poznań subregion (4.9 / 3.0) and the Cracow subregion (4.8 / 3.5). This may indicate a strongly export-oriented production in these areas.

Poland's dynamic GDP growth (up to 2021) is encouraging the growth of even more dynamic warehouse space resources. They constitute logistics hubs serving the distribution of goods. Their location pattern largely corresponds to the distribution of the main production centres. These are therefore (in descending order of share): Warsaw and its region (21.6%), the Silesian conurbation (18.2%), Central Poland–Łódź (15.8%), the Wrocław agglomeration (14.3%) and Poznań (11.0%). These five locations (referred to in the language of the industry as the «big five») account for approximately 80% of the total stock of modern warehouse space in Poland. They are supplemented by emerging markets: the Tricity, Szczecin, the Bydgoszcz–Toruń duopoly and the Lubuskie region.

The factors determining the location of major hubs are primarily: geographical location near the urban agglomeration, transport accessibility, which is determined by the transport infrastructure (road and rail, but also proximity to airports and seaports) and the absorptive capacity of the local market in terms of the services offered. These factors prove to the key role of the opportunities created by operating in the vicinity of an urban agglomeration. The attractiveness of the infrastructure, the large and absorbent market and the services offered attract new investment, thus acting as an investment multiplier in the area. The creation of a logistics property such as a warehouse/logistics park is usually associated with the city's investment in transport infrastructure (e.g., expansion or reconstruction

of roads, construction of ring roads, expressways, bridges, tunnels). In addition, logistics parks, as new forms of urban development, themselves increase the investment attractiveness of the area, strengthen its competitiveness and improve the image and logistic efficiency of the region.

## Conclusions

Key factors for building competitiveness are usually derived from economies of scale and agglomeration effects. The importance of economies of scale was raised as early as the 1960s by the Boston Consulting Group (Stern & Deimler, 2012). The essence is that any economic activity results in both variable costs and fixed costs. An increase in scale of operation does not affect unit variable costs, but it does affect unit fixed costs. The latter decrease in proportion to the increase in the volume of production (the numerator remains constant and the denominator increases, i.e. the value of the fraction decreases). As a result, lowering the unit cost makes it possible to reduce the unit price of the good and thus make it more competitively attractive in the eyes of final buyers. The winners are therefore those producers who are able to rapidly increase the scale of their business. This means that a process of production concentration is set in motion, i.e. there emerge relatively few production centres which are locationally (geographically) concentrated and supply vast market areas.

The agglomeration effect, is mainly based on appearance of the benefits of geographically concentrated and highly skilled labour resources (Budner, 2022, p. 11). These aspects were already pointed out by the precursor of industrial location theory, A. Weber (1909). These ideas were later developed by, among others: Lösch (1940), Hoover (1948), Isard (1956). Agglomeration advantages and the existence of a large producer induce the location of other enterprises oriented towards cooperation with this producer nearby. In this way, a so-called business cluster is formed, which becomes an autonomous driver of regional development in both the economic and socio-cultural system (Budner, 2022, pp. 35–38). Thus, over time, relatively geographically compact production centres develop, which, with their large production capacities, supply goods to area-wide markets. These are usually large urban centres together with metropolitan areas. As a measure of the potential of these centres, the value of GDP can be taken as the main macroeconomic aggregate and the main measure in the system of national accounts depicting the final result of the activities of all entities in the national economy. This text points to the changes taking place in the Polish economy and highlights further potential developments in this area.

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# 7. Determinants of competitiveness of Polish road carriers

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## Abstract

**Purpose:** The study aims to investigate how economic, legal, geopolitical, and technological factors impact the competitiveness of Polish road hauliers both immediately after and three years after the pandemic.

**Design/methodology/approach:** The study relies on primary research conducted through a questionnaire survey, secondary research from existing literature, and an analysis of statistical data and consulting companies' insights.

**Findings:** The study found several key points, including the market favoring freight forwarders during turbulent times, opportunities in digitalization due to difficulties in reducing costs related to fuel, energy, and wages, successful adaptation to legislative changes (especially the mobility package), and the need for market consolidation based on operators' financial health.

**Research limitations/implications:** The study acknowledges the unique nature of the COVID-19 pandemic, making it challenging to compare it to future crises. However, it provides valuable insights into the impact of the pandemic on various aspects of competitiveness, such as rates, volumes, legal protection, profitability, and new challenges.

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**Practical implications:** The collected data can help stakeholders better understand the behavior of the road freight industry during times of crisis, which has implications for product prices, environmental impact, and societal purchasing power.

**Social implications:** The condition of the road transport industry not only affects business but also has broader societal and environmental consequences. Understanding the industry's behavior can shed light on these aspects.

**Originality and value:** The study stands out for its multifaceted approach to understanding competitiveness in times of crisis within the road freight industry. It's noted as one of the few studies on this specific topic and is valuable for its comparison of the author's findings with those of other researchers and industry opinions. Overall, your text provides a clear and comprehensive overview of your study, making it easy for readers to grasp the purpose, methodology, findings, and implications of your research.

**Keywords:** COVID, transport, logistics, competition, crisis.

## Introduction

Immediately after the first wave of the COVID-19 pandemic, questionnaire surveys and literature studies were conducted to identify the impact of the pandemic on selected aspects of the business of road haulage (Banaszyk et al., 2021). At the time, it was found that in April and May 2020, there was a 37.5% drop in orders in the transportation and warehousing industry. In fact, it may have been much larger in the transportation industry alone. The decline in the transportation and warehousing industry also resulted in order declines in other industries, such as accommodation and food service: 63.15%, retail trade: 31.55%, construction: 26.45%, industrial processing: 25.05% and wholesale trade: 25.15%. The financial standing of Polish road transport companies deteriorated radically. This was a significant threat to their existence, since the sector is characterised by a high degree of dispersion and consists mostly of small enterprises. Given that many small carriers did not have the so-called "financial cushion", and the means of transportation used were financed largely through loans (leasing), a change in the sector's entity structure was expected. Relatively the best performers were large companies. Based on these findings, a forecast of consolidation of the road transport sector was formulated.

Another important determinant of the sector's evolution is the Mobility Package, in force within the European Union since August 2020, successively introducing changes in the regulations governing various areas of transport companies' operations until mid-2026. The changes resulting from the Mobility Package which were introduced in 2022 concerned control of the sector pay and possession of road transport licenses, financial security, registration of company headquarters for vehicles from 2.5 tonnes GVW (Directive (EU) 2020/1057). Therefore, they affect administrative and operational personnel costs.

In turn, geopolitical changes have affected changes in economic indicators, the consequences of which are reflected in the demand for goods and services, as well as in fuel costs and fleet prices. In 2021, new events emerged that have strongly affected road transport companies. Of particular importance is the so-called Fit for 55 package prepared by the European Commission, tightening the permissible $CO_2$ emission standards for cars. It is presumed that the transformation of this sector will largely consist of a rapid and profound replacement of the transport fleet, thanks to the replacement of hydrocarbon-based drive units with electric-powered ones (battery and hydrogen engines). There are hypotheses that about three-quarters of vehicles will be affected by this change (Suraj, 2022).

The purpose of this study is to determine the impact of current economic, legal, geopolitical and technological conditions on the competitiveness of Polish road carriers, as after three years of dealing with the COVID-19 pandemic it is worth re-diagnosing the road transport sector in Poland. The former hypothetical forecasts were also verified in the light of the results of studies conducted by other researchers in the area of the impact of the COVID-19 pandemic on road haulage, with a particular focus on Poland. In the following section, conclusions are made as to the expected economic and financial requirements of the necessary investments of transport companies incurred to ensure the implementation of the legislation relating to the Mobility Package and the Fit for 55 package. The importance of the informatisation of the sector in question is also briefly discussed.

## 7.1. The impact of the COVID-19 pandemic on Polish road transport in the light of empirical studies

The introduction already pointed out the main conclusions of the authors' research done in the first half of 2020. In addition to the areas indicated, the studies included: the volume of orders and the structure of transport, demand for transport, problems with payment of transport operators and their contractors as well as financing of transport companies' assets in terms of credit, leasing and investment. Among the findings there was a major slump in road freight, which became dynamic at the end of the third decade of 2020, and then slowed down again at the end of the year. It was also noted that, as time went on, payment problems in transportation were reduced faster than in other industries. Despite the positive developments noted, the situation was very difficult, especially among smaller transport operators. It was predicted that continued difficulties in repaying lease and loan instalments or enforcing payments for services rendered for these entities could even end in the termination of their operations.

In order to verify the conclusions of the own research, a review of scientific literature on a similar topic was made. The bibliometric analysis started with defining the scope of the analysis, which was road freight transport during COVID-19. Next, based on this scope, combinations of keywords were used to search for the related literature in a scientific database. These keywords were road freight transport without quotation marks and "road freight transport" as one phrase as well as "COVID". After generating the combination of keywords, the Scopus, Web of Science, Science Direct and Google Scholar databases were selected due to their updated and wide coverage of existing literature on the proposed topic. We extracted documents only in English and only from the last three years (2021, 2022, 2023), i.e. documents published after the outbreak of the pandemic.

In the Science Direct (Elsevier) database, entering road freight transport without quotation marks yielded 19053 records, while entering the phrase with quotation marks limited the result to 1077 records. As part of the search within these results, the search term "COVID" was entered, resulting in 57 articles that were finally analysed. When searching subsequent databases, the same pattern was followed. Finally, 85 articles from the Scopus database were reviewed, as well as 53 from the Web of Science. As many as 1290 articles were received from the Google Scholar database, which is why they were limited by adding the entry "Poland", which still showed 383 articles. However, no detailed review was made in this case, and the analysis was limited only to those titles that were available in the full text version. It shall be noted that the search results were downloaded in a CSV file, which included each article's title, abstract, author list, funding details, etc. The bibliometric analysis ended with the filtering process, which comprised screening the articles' titles and reading their abstracts to eliminate irrelevant research papers. The database prepared in this way was cleared of repeated results.

The articles found largely focused on specific geographic areas: countries—Colombia, France, Greece, Denmark, Italy, Slovakia, Ireland, Argentina, Austria, China (three times), Germany, Russia, India and Brazil (two times each), as well as cities: New York, Budapest, Bologna and London. There were six articles on Poland that were the most relevant to the subject of the authors' research, and only two of them concerned the impact of the COVID-19 pandemic on Polish road carriers in the light of the authors' own research (Łącka & Suproń, 2021; Nicodeme, 2023; Osińska & Zalewski, 2023; Romanow & Frąś, 2022; Świtała & Łukasiewicz, 2021).

Osińska and Zalewski (2023), in their empirical analysis based on survey data made in July 2020 on 500 road transport enterprises, showed that this specific branch, which is very sensitive to changes in global trade, suffered much from the COVID-19 pandemic because:

- the lockdown, which in Europe began on March 10, 2020, resulted in border crossing restrictions and sanitary restrictions,

- demand for transportation services, measured as the number of transport orders, decreased significantly due to production and trade limitations,
- the prices of freight per 1 km were lower.

Additionally, costs in the transportation industry are increased by leasing instalments for using the newest generations of vehicles. These reasons caused transport enterprises, which mostly belong to micro, small and medium-sized enterprises, to face the risk of bankruptcy. The negative phenomena in the transportation market were accompanied by positive changes (cost reduction) observed on the fuel and currency markets. Global prices of fuel fell due to lower global demand. The Polish currency (PLN) was depreciated against the euro. However, these factors could not fully mitigate the decreased demand, which was observed in most sectors of the economy. Therefore, road transport enterprises widely used the anti-crisis aid offered by the Polish government (Osińska & Zalewski, 2023).

Świtała and Łukasiewicz (2021) stated that respondents (from their own research) indicated a high and very high negative impact of the pandemic on transportation operations, regardless of their employment level, origin of capital and scope of operations. As a result of the COVID-19 restrictions, 80% of the survey participants reported a decrease in demand for transportation services, which in turn resulted in negative consequences in the form of significant difficulties in maintaining financial liquidity. For most transport providers, the decrease in demand for transportation during the first months of the pandemic exceeded 40%. The group of small companies was more likely to experience financial difficulties and take corrective actions than medium-sized and large companies. The relationship found seems quite obvious: in the case of small road carriers, due to the small scale of their operations, there is often a dependence on one link in the supply chain or on a large logistics service provider, which can lead to serious financial difficulties in the face of uncertainty and changing market trends. They also noted that in road transport the only way for supply to adjust to falling demand is for the fleet to be decommissioned, with a simultaneous reduction in the workforce (Paprocki & Letkiewicz, 2020). However, the research shows that carriers did not opt for this measure in most cases.

Comparing the results of our own research and those of other scientists conducted at the same time, it can be unequivocally stated that although their scope was different (substantially smaller than in our own research), the indicated conclusions fully coincided with our own predictions. Among all the analysed studies on the impact of COVID-19 on road freight transport, there was one involving a literature review based on bibliometric and scientometric analyses. The authors (Karam et al., 2022) selected 68 studies on the impact of COVID-19 on freight transport, which makes their work similar to our original analyses.

## 7.2. The impact of the economic situation on the competitiveness of Polish carriers

Based on the authors' survey results from a sample of 87 trucking companies of all sizes, it was found that shortly after the pandemic outbreak the respondents pointed to a drastic decrease in transportation (Figure 7.1), which was the result of decline in orders. In total, over 80% of respondents recorded a decrease in transport, including a significant decrease marked by over 50% of them.

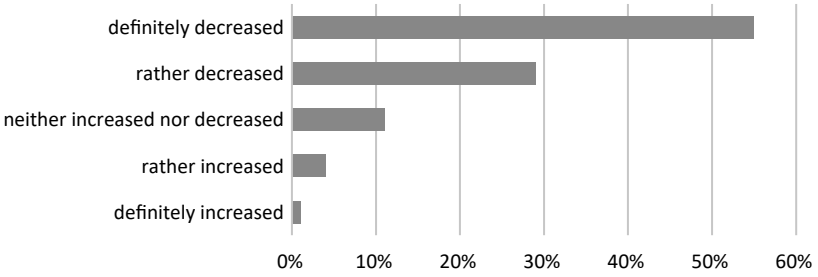


**Figure 7.1. Change in the volume of transport by Polish road carriers just after the outbreak of the pandemic**
Source: own work.

The difficult market situation related to a smaller number of orders was aggravated by problems resulting from provisions in commercial contracts and general regulations. This applies both to the financial obligations of transport operators and their debtors. The authors' own research showed that the law does not sufficiently protect carriers against situations of failure to comply with the contract of carriage (or its implementation with a delay) due to emergency situations such as a pandemic.

Over 80% of respondents claimed that the law does not sufficiently protect carriers in a situation where the contract cannot be performed. This is related to financial penalties and solvency problems. Due to the fact that the previous crises were of a different nature, there were also no relevant clauses in contracts. Transport companies regularly signal huge problems with payment unreliability of their business partners. The report of the Economic Information Bureau (BIG) stated that representatives of this industry had the greatest problem with arrears exceeding 60 days (44.1%) (BIG InfoMonitor, 2020).

Referring to the current research (SPOTDATA, 2022),[1] which also covers Polish road transport companies operating in foreign and Polish markets, it should be

[1] A total of 83 units of various sizes were surveyed, including micro enterprises which account for more than 80% of the market share.

noted that despite the pandemic crisis and the subsequent difficult challenges related to legislative changes and the war in Ukraine, Poland is the leader of the European road transport market in terms of the volume of transport work performed. Since 2010, there has been particularly strong growth in orders performed in the mode of cabotage and cross-trade transport (SPOTDATA, 2022). In both types of transport, Poland's share is about 40%. More than 60% in terms of tonnage and more than 80% in terms of the value of cargo exported from Poland is transported by road. Thus, the road transport market has steadily increased despite temporary slumps caused by the outbreak of the COVID-19 pandemic, introduction of successive provisions of the Mobility Package or the outbreak of war in Ukraine. This is illustrated in Figure 7.2, taking into account the number of kilometres travelled by Polish carriers. It can be concluded that the dynamics of the increments would have been much higher in other geopolitical and economic circumstances.

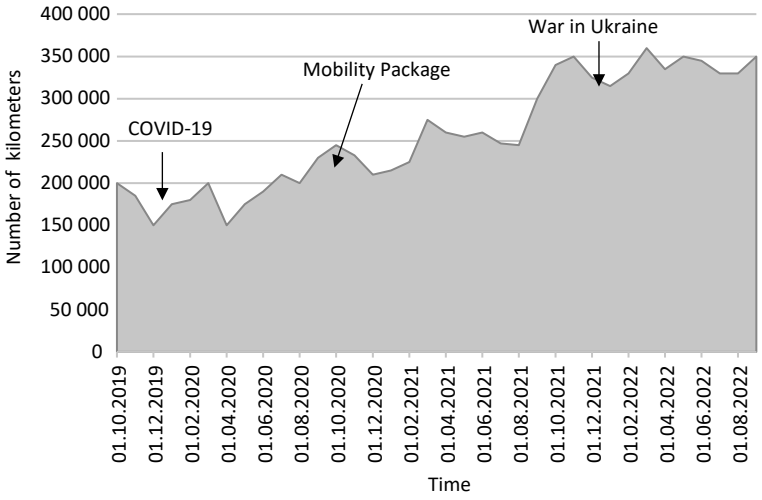


**Figure 7.2. Transport operations of the Polish TSL industry based on data from the GBox and 4Trans systems**

Source: based on data from Inelo Group's 4Trans 2022 system database (PITD, 2023, p. 8).

In 2020–2021, the volumes of cargo transported and freight work performed were at similar levels. Nevertheless, taking into account previous years, an increase in dynamics in both areas under discussion is noticeable. Given that after the outbreak of the pandemic in Poland, many sectors of the economy slowed down in March 2020, the transport industry did not see similar increases as in previous years; yet, there were no drastic declines either.

International transports by Polish carriers in Russia, Ukraine and Belarus accounted for a negligible percentage. As a result, recent geopolitical events have not significantly affected the volume of transport performed.

In Europe, the growth rate of freight work is estimated to slow to 0.7% per year in domestic traffic and 2.1% in international traffic (Oflakowski, 2023). The slowdown in order volumes will be accompanied by inflationary pressures, even though inflation is currently slowing down. The average annual inflation in 2022 was 14.4% (Statistics Poland). According to various sources, this figure is likely to fall to around 10%–13.5% in 2023. Despite improvement in some economic indicators (Figure 7.3) and good long-term prospects, freight demand is currently held back by consumer purchasing power.

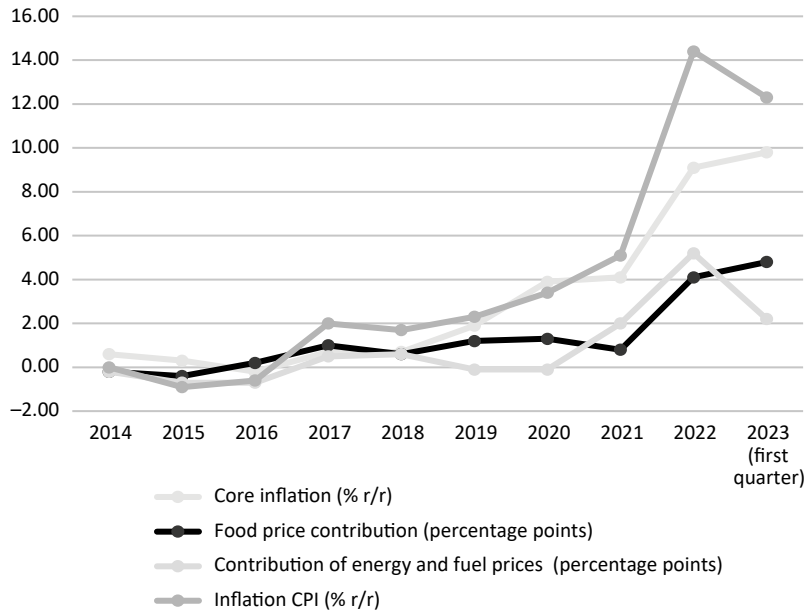


**Figure 7.3. Inflation in Poland, food, energy and fuel prices**
Source: based on (PKO Bank Polski, 2023).

It is estimated that producer inflation has already peaked, however, consumer inflation will peak in the first quarter of 2023, and the rate will remain in double digits until the end of 2023 (AXI IMMO, 2022; European Commission, 2023). Ultimately, this is expected to translate into weaker freight dynamics. It can be concluded that the Polish economy has avoided entering a technical recession at the beginning of 2023. According to Nicodème (2023) the Polish economy was

growing significantly before the pandemic, recording an increase of 4.7% of its GDP in 2019. The COVID-19 pandemic made the GDP fall by 2.7% in 2020, but a strong rebound was forecast for the upcoming years: +4% in 2021 (in reality it was 6.8%) and +5.4% in 2022 (in reality it was 4.9%). In addition, it is positive that the market for warehouse space in Poland remains at a stable, high level. This is influenced by the price as well as geographic and quality attractiveness of this market segment compared to Europe. The current more than 50% share of speculative space may decrease slightly in the future, due to higher requirements for pre-let contracts. Nevertheless, regardless of the internal structure of this type of space, its supply is growing, which generates demand for warehouse services and, consequently, for transportation. This trend is also expected to be reinforced by the trend of reshoring (i.e. the practice of transferring the organization's production capacity to the same market where the end product is used or sold), and thus shortening supply chains (Hadwick, 2022). This should result in some freight work being shifted to trucking in the future. According to a Reuters report (Hadwick, 2022), Poland, next to Germany, has the most to gain from shortening the supply chains due to its strategic location in Europe and access to other markets (the Schengen area and EU).

## 7.3. Costs of transport activities

The authors' primary research just after the outbreak of the pandemic indicated that the vast majority of companies at the time were settling at 3%–4% profitability. Only a few entities indicated profitability of more than 10%. Based on supporting data from Santander (2022) it may be noted that despite the economic turmoil, profitability was more slowly increasing among larger entities (Figure 7.4).

Current research conducted by SGH Warsaw School of Economics and published in the form of annual reports shows that in times of crisis, regardless of the reasons, freight companies and small businesses have the hardest time in the transport, shipping and logistics (TSL) sector. The situation is different for larger entities. In the freight market, twenty largest companies registered in Poland (led by Hegelmann Transporte, GEFCO, Adampol S.A., SKAT Transport sp. z o.o. sp.k., Fresh Logistics Polska sp. z o.o.) reported revenue growth ranging from 7% to 76% in 2021 compared to a year earlier, with more than half reporting revenue growth of up to 20% (27. edycja rankingu firm TSL, 2022). Considering that the largest company at that time of the year had revenue of 1,283,438,673 PLN, these are high increases.

Due to the increase in fuel prices, wage costs, energy costs and fleet purchases, companies were forced to raise freight rates during the period under review,

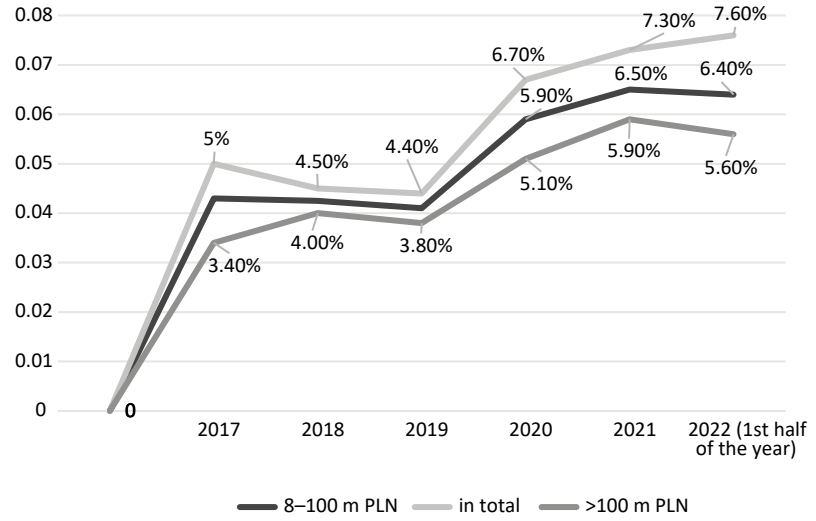


**Figure 7.4. Operating profitability of carriers employing more than 9 people in Poland by revenue**
Source: (Santander Bank Polska, 2022).

as evidenced by the latest survey conducted by Inelo and the Polish Institute of Road Transport using the CAWI (Computer-Assisted Web Interview) method on a sample of 89 respondents (PITD, 2023). For example, the price of diesel fuel in Q4 2020 was PLN 4.15 per litre, and in Q4 2022 it was already PLN 7.99, 192.5% up from the initial price (Transcash, 2023).

It is worth pointing out that the spot market reacts faster to the aforementioned changes in the economic situation than the contract market. Therefore, it can be predicted that with the declining purchasing power, spot prices will fall first. In the PITD survey (2023), 44% of respondents indicated that they expected spot rates to increase relative to contract rates, and 40% indicated that they did not anticipate such an increase. Thus, opinions in this area are divided. Increasing competitiveness in the freight market is difficult, in the first place, for the companies which largely concentrate their turnover on the spot market. In the situation of contract or fixed haulage, where there are no formal long-term contracts and the routes in question are traditionally operated by specific carriers, these companies are in a more favourable position despite lower rates.

There is a perception in the transportation community that freight increases have not been sufficiently adequate to match real increases in operating costs (Figure 7.5). This situation is also described by Poliak et al. (2021) who cite much earlier sources and refer to the European Union policy. They write that carrier costs increase faster than the price of transport (Ross, 2015, za: Poliak

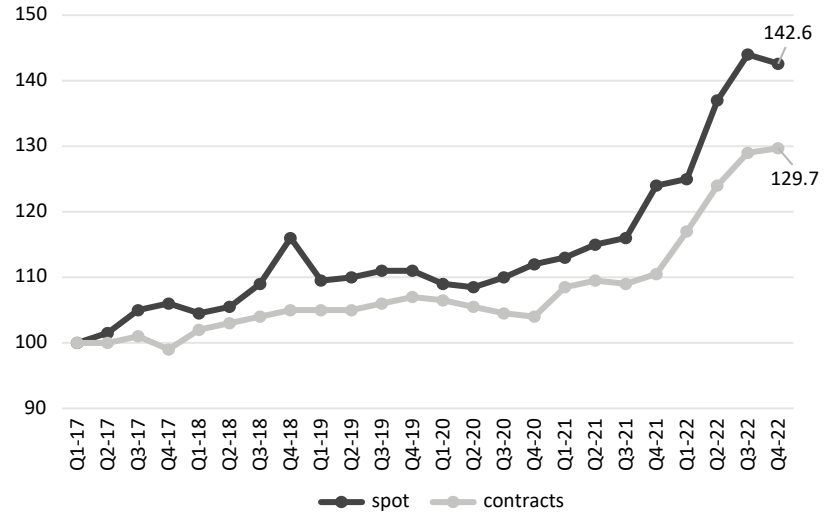


**Figure 7.5. Index of spot and contract rates in road freight transport in Europe (Q1 2017 = 100)**
Source: based on (Ti&Upply&IRU, 2023).

et al., 2021; Rushton et al., 2010, za: Poliak et al., 2021). The increase in transport prices grows significantly slower compared to costs. This situation has led several carriers to violate the EU law by subcontracting (Rotondo, 2013, za: Poliak et al., 2021). The carriers wanted to gain a competitive advantage despite violating the regulations (Osterloh & Debus, 2012, za: Poliak et al., 2021). To maintain uniform market access conditions, the EU adopted regulations aimed at harmonising the conditions in 2009 (Regulations (EC) No 1071/2009 and 1072/2009). Despite these regulations, various market distortions occur, e.g., the MiLoG German Minimum Wage Act. The EU aims to eliminate these market distortions (Regulation (EU) 2020/1054). Although the provisions were not to come into force until 2022, there were several views from carriers that it would not be achieved by the specified time, and that even after 2022, there will be no uniform conditions for all carriers operating in the EU common market. However, there is still strong competition. The transport price within the EU remained almost unchanged between 2000 and 2019 (Ferrari, 2016; Jourquin, 2019), but costs changed significantly, with labour, toll and fuel costs growing the most. Transportation companies seek to gain a competitive advantage by optimising their costs (Krasnyanskiy & Penshin, 2016). In order to achieve this, they use cost calculations which divide the costs into variable and fixed costs, calculating each transport separately but taking into account only the costs connected with transport (Ferrari, 2016; Kovacs, 2017).

At industry meetings, it is pointed out that the current winners are companies that have not adapted to the changes resulting from the legislation. Theoretically, the ability to charge untaxed and non-contributed business travel benefits was eliminated. As a consequence of these changes, it is estimated in the industry circles that this resulted in an increase of up to 40% in driver payroll costs. However, the increase in rates is not proportionately reflected in higher insurance revenues. The inadequate level of control on the roads and the complicated billing system means that there is still the so-called "grey area" in this field. In the market, smaller carriers in particular are driving at undervalued prices. However, it is difficult to estimate how much of this is due to companies not counting costs accurately, and how much is due to a deliberate strategy of entering into unfair price competition. Furthermore, it also seems difficult to forecast to what extent digitalisation will affect the ability to detect unfair practices. It can therefore be predicted that the number of bankruptcies will be higher in the long term.

Reducing fraudulent behaviour in the industry may be influenced by the obligation to report (as of February 2, 2022) in the Internal Market Information System (IMI). This obligation applies to the implementation of cabotage and cross-trade (and does not apply to bilateral and transit traffic). Diverse systems have been used to date. For example, in Germany—the MiLoG system, and in France—SIPSI. Another good idea, according to practitioners, is to average the per diems at 60 euros per day, and transfer wages in two tranches to make the billing system simpler. Some hopes of incurring competitive fairness from the cost side are also associated with the introduction of tachographs, which will increase transparency in the calculation of wages, and the use on a larger scale of telematics applications coupled with tachographs and other devices. They make it possible to reduce costs by, among other things, analysing drivers' driving styles, measuring tire pressure, recording border crossings as well as optimising routes and refuelling.

Shortly after the start of the pandemic, respondents in the authors' original study (Banaszyk et al., 2022) indicated a reduction in freight levels, but nevertheless this was associated with a drastic reduction in orders and disruption of many supply chains. At the beginning of 2023, some companies were already beginning to feel the drop in freight prices. Their final level will be affected by two opposing trends—the first one related to the slowdown in the economy caused by geopolitical changes and consequent inflation, and the second one related to the Mobility Package and fuel prices, which also relate to geopolitics.

Similarly, new social regulations implemented in the European Union have a negative impact on the economic condition of transport companies. In general, different countries have different rates of motor insurance. In Poland, they are not as expensive as in the countries of the so-called Old Union (consisting of the EU15). A new regulation in this area is to impose an obligation to insure drivers

and vehicles in the countries of the dominant source of commercial turnover and the longest drivers' working hours. Polish transport companies execute orders precisely in the Old Union, which means that another factor increasing the cost of their business is to be expected (PZPM, 2023).

At present, it can be said that with the increase in the cost of doing business, the market for carriers is weakening, while the market for freight forwarders has strengthened. Additionally, in connection with this, greater competitive pressure is expected from price-competitive Belarusian and Ukrainian carriers. Thus, in the future, one can expect penetration into the Polish market not only by resources from the East in the form of drivers, whose share is growing (Santander Bank Poland, 2022), but also in the form of companies.

## 7.4. Technology and digitalisation in transportation

The European Parliament's Committee on Transport and Tourism (TRAN) prepared a document with an overview of the repercussions of the COVID-19 pandemic on EU freight transport as well as policy recommendations to address the challenges emerging from the crisis. Two main conclusions interconnected with digitalisation have emerged: 1) the digital transformation of the industry accelerated during the pandemic in order to comply with recommendations to reduce physical contact and to capitalise on the demand for online shopping, and 2) the EU and national policy makers should continue to incentivise digital innovation as well as provide a clear legal framework for the use of disruptive vehicles such as drones and digital technologies (Rodrigues et al., 2021).

Digitalisation is seen as raising the competitiveness of the industry in question due to the fact that costs related to fuel, energy and wages are difficult to reduce. The development of digitisation is simultaneously supported by processes of computerisation and automation. This can range from the integration of Enterprise Resource Planning (ERP) and Warehouse Management (WMS) systems enabling dynamic management of delivery windows for transported goods, automation of administrative transport processes using bots and the use of autonomous vehicles in the longer term.

The digitalisation of processes manifests itself primarily in the platformisation of the sale of transportation services, e.g., through the use of transportation exchanges like Trans.eu (Witkowski, 2019). Additionally, solutions connecting transportation companies with other market participants in various business models are offered, e.g., by GoLorry, Cargomatic, CargoBr, Convoy or Cargomatic (Möller et al., 2019). Another form of digitalisation is the implementation of smart solutions in the area of transportation management systems (TMSs) or the use of real-time

transportation visibility platforms. The omnipresence of digital platforms (DPs) across industries yields platform-based business concepts that disrupt the road freight market, enabling the digitalisation of road freight transport management (RFTM). However, the data-driven service capabilities of DPs in supporting RFTM are manifold, and platform research provides opportunities to explore the emerging digital business concepts following the core process of TMSs. This, in particular, results from road freight operators (engaged in the transportation management process) who are increasingly forced to provide customer-centric RFTM via DPs to remain profitable and competitive within the fragmented business environment (Heinbach et al., 2022).

Research carried out by Webfleet shows that the use of mobile applications is also important in the digitisation of transportation operations (Webfleet, 2021). The survey was conducted on a sample of 1,050 respondents making decisions in the area of delivery fleets from France, Germany, the UK, Italy, the Netherlands, Spain and Poland, where Poland was represented by 150 respondents.

The authors of the analysis based on the survey data obtained from 164 road freight transport enterprises in Poland indicate that the management of enterprises' relationships with customers is profoundly determined by the deployment of Intelligent Transportation System ( ITS). They propose selected ITS applications as an advancement of logistics customer service in road freight transport enterprises, divided into a group of six applications which are critical within the area of vehicle support, improving the support efficiency of transport and reducing the negative impact of transport on the natural environment, reducing transport time but increasing connectivity and comfort, as well as a group of ten different applications chosen as crucial for general management support and increasing accessibility, cohesiveness and control in management processes in road freight transport enterprises (Kadłubek et al., 2022).

According to PwC researchers (2019), in a report on the outlook for road transport in Poland, advanced software-based technologies and telematics will be a natural extension of the solutions being implemented in the area of digitalisation, but they may prove difficult for smaller carriers to access. Technologies such as the Internet of Things and artificial intelligence are receiving special attention from carriers. In contrast, there is little interest in blockchain-based technologies.

Based on Inelo's system data collected from databases in GBox and 4Trans as well as Metrix indicators from the Trans.eu exchange, it can be concluded that among the so-called 4.0 technologies in the transportation industry, the largest number of companies use cloud technologies (Figure 7.6) (PITD, 2023). The survey was conducted jointly by Inelo and PITD on a sample of nearly 90 respondents.

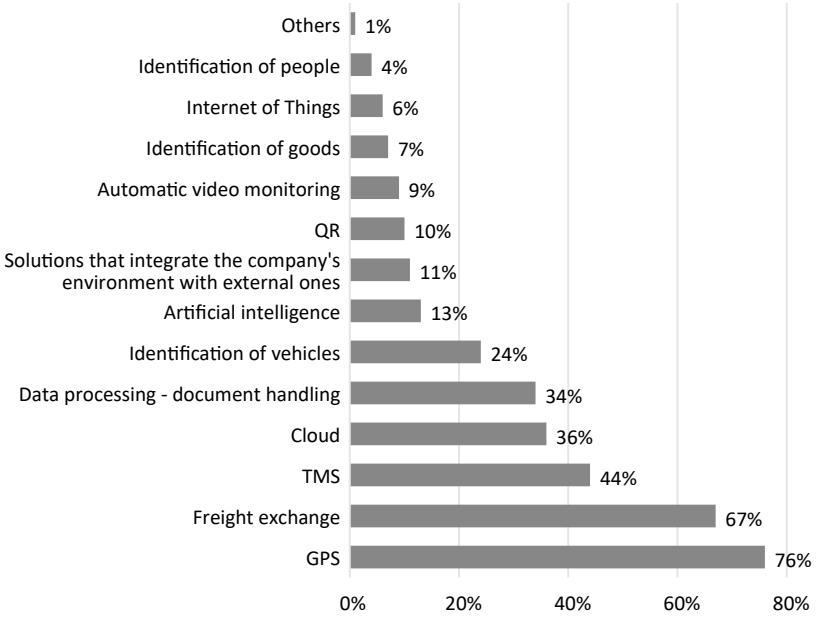


**Figure 7.6. Modern technologies used by Polish companies in transportation industry**
Source: (PITD, 2023).

Transportation processes are characterised by specific needs, and the level of technology saturation in them is not the same as the needs of other supply chain processes. Among other things, it is shown that technologies such as the Internet of Things, big data, blockchain and artificial intelligence as well as cloud computing have the greatest potential for application in the chain (Agrawal & Narain, 2023). In addition, a number of other technologies are also indicated to be useful (Zekhnini et al., 2020). However, some technologies, such as blockchain, which are also suitable for tracking processes (Pournader et al., 2020), are not available to many carriers for financial and competence reasons.

Based on surveys of industry organisations and exchanges at meetings of business practitioners, it can be concluded that the digitisation potential that lies in the e-CRM functionality is particularly little known among Polish entities (PITD, 2021). It fits in with the content of Regulation (EU) 2020/1056 of the European Parliament and of the Council of 15 July 2020 on electronic information on freight transport. The electronic exchange of freight transport regulatory information (eFTI) in machine-readable format via ICT-based platforms is to be controlled by the Commission on the basis of records of operations until August 2027 and every five years thereafter. Interestingly, based on a survey of a sample of

422 respondents, where 379 entities represented the transportation area (carriers, freight forwarders and distributions), 70% do not know that the use of FTI will be effective from August 2024 (PITD, 2021). Thus, there seems to be poor awareness of the eFTI as a place to register e-CRM. According to PITD's research, currently more than 50% of waybills are issued manually. Despite the imminent adoption of this technology, one-fifth of respondents are not familiar with it, and more than 60% of respondents have said they are not prepared for e-CRM implementation or do not know if they are prepared (PITD, 2021).

It is significant that carriers mainly use digitisation solutions which are not typical 4.0 technologies but IT solutions coupled with the Internet, applications and telematics. In the future, the digitisation of documentation will play a big role offering various types of functionality, e.g., regarding employee acceptance of the use of the Internet of Things to monitor the work of truck drivers (Woźniak, 2020). Another future solution is also the use of smart phone freight application services (Apps) to reduce $CO_2$ emissions in road freight transport and to identify the core problems for improvements (Li & Yu, 2017).

## 7.5. Fit for 55 and the Mobility Package and their implications for transport companies

The competitiveness of road transport is also affected by the European Commission's environmental policy. The European Union intends to reduce freight transportation by 30% by 2030 and by 50% by 2050 for shipments exceeding 300 kilometres. In 2019, transport generated almost 955 megatonnes of CO2 equivalent (MtCO2eq) in the European Union (EU) and the United Kingdom (UK). Of this, 36% (344 MtCO2eq) was generated by light-duty trucks and heavy-duty vehicles (HDVs). Taking into account the number of road vehicles in use in Europe, road freight transport seems to be having a disproportionate impact on transportation greenhouse gas (GHG) emissions. The perceived need to make road freight transport cleaner has increased among policymakers in recent years (Gómez et al., 2022). An intensive investment effort is needed to achieve this goal, and it is pointed out that this includes both technological and non-technological investments. The former focus primarily on changing the propulsion units of means of transportation, and the latter on more efficient organisation of transportation (Mavi & Mavi, 2021). These investments in the field of road transport are necessary because of the benefits associated with this field and the high resistance to shifting freight to other branches. This is because it is characterised by a very high degree of flexibility relating both to cargo capacity and convenience associated with the realisation of the door-to-door principle.

The drive to create zero-emission road transportation is forcing the use of alternative fuels in power units. The European Commission suggests focusing attention on and developing such fuels as (*Alternatywne paliwa*, 2023):

- Electricity: road vehicles powered by this energy source do not emit any greenhouse gases. The problem of sources of electricity needs to be solved, as its production can be a source of greenhouse gases. This depends on the so-called energy mix. In parallel, it is required to change the structure of this mix towards developing sources of green energy. In addition, a gradual shift away from the use of hydrocarbon-based drive units enables the use of hybrid vehicles in the transition period, which will reduce the amount of hydrocarbons consumed and reduce the volume of greenhouse gas emissions.
- Hydrogen: road vehicles using this energy source are electrically powered. Electricity, however, is generated by hydrogen cells installed in these vehicles. This technology is still at an early stage of development, as the acquisition of hydrogen poses a difficult problem to overcome. It can be derived from water as a result of the electrolysis process, which, however, proves to be energy inefficient and is itself associated with carbon dioxide emissions.
- Ammonia: this is a long-established combustion technology and the harmful effects of using ammonia as fuel have not been demonstrated. In addition, hydrogen can be extracted from ammonia without emitting carbon dioxide.

The review of the literature conducted by Inkinen and Hämäläinen (2020) shows that the reduction of emissivity can take place not only by changing the sources of power for vehicles. There are three categories: 1) fuels and engine innovations; 2) other innovations and methods to lower emissions and 3) infrastructure: route, spatial planning, controls. The studied articles exposed several environmentally friendly solutions, which are reasonable and executable in the near future. However, some of the solutions might be easier and faster to implement while some need slower incremental implementation.

Poland has the largest fleet in the EU in terms of the number of vehicles, followed by Germany in the second place. In 2020, Poland's and Germany's fleets amounted to 18.3% and 14.3% of the total EU fleet, respectively (see: Eurostat Statistics Explained, Road freight transport by vehicle). Thus, efficient pro-environmental regulations aiming at the reduction of greenhouse gas emissions by diesel engines will have the greatest positive impact on the environment throughout Europe. Undeniably, the major determinants and criteria of regulatory decisions are the costs and benefits of the regulation – both of a social nature and those perceivable by economic entities. Therefore, it is important to select appropriate instruments for the implementation of pro-environmental policy in enterprises to effectively activate the practices and activities of entities in this respect. Large

enterprises may become leaders in environmental protection practices, which results both from their higher awareness of the impact they make on the environment (Kovac et al., 2020) and from the scope of legal regulations. Caring for the environment should be perceived by enterprises as a measurable financial benefit (Żelazna, Bojar & Bojar, 2020), not only in terms of avoidance of potential costs of non-compliance with pro-environmental regulations but also in terms of the benefits related to lower fuel consumption or lower depreciation costs. Therefore, the factors to which enterprises will theoretically show the greatest sensitivity are particularly important from the point of view of the Green Deal policy. The factors determined during the research of Letkiewicz et al. (2023) are the following: fleet renewal programs (tax reduction, subsidies), introducing taxation systems that are based on vehicle exhaust emissions and investments in road infrastructure.

Certainly, gradual transition to alternative drive units will require considerable investment. This task may prove too difficult in Polish transport companies strained by the COVID-19 crisis and the slowing economy.

## Conclusions

In the light of the bibliometric analysis conducted in order to identify studies on the subject of the impact of COVID-19 on the road haulage industry in Poland, it can be said that there is little research on this topic, so it is difficult to conduct a broader benchmarking with original research. It should be noted that only two research teams took the trouble to conduct surveys among companies, with other research focusing on analysing the literature. In shall be noted that the conclusions of our own research and that of the other two teams coincided. Furthermore, it should be emphasised that only the research conducted by the authors of this chapter undertook hypothetical forecasting, not just determining the status quo in the pandemic. Therefore, the objective of determining the level of competitiveness of Polish road hauliers in the post-pandemic period was realised based not only on the scientific literature but also on industry research reports.

Currently, due to the implementation of the next phases of the Mobility Package, high lease payments, high fuel and electricity prices, pro-environmental requirements, rising wages and road infrastructure fees, the main beneficiaries of the market are freight forwarders and logistics operators, who find it easier to maintain cash flows by flexibly switching subcontractors. As inflation eases and the market recovers, and macroeconomic indicators generally improve, these trends can be expected to change in favour of carriers.

In the long term, one can foresee market reshuffling and more bankruptcy for small freight companies, which will have to make freight rates more realistic with

increased scrutiny and adjust their accounting to current legislative policies. Currently, smaller trucking companies are agreeing to lower rates in order to drive at all. This is especially true for companies that are not bound by a contract and that previously, during the time of the carrier market, captured attractively priced spots.

According to the study by PITD (2023), companies in the new market conditions, in addition to changes in freight, are trying to seek more profitable contractors (88% of those surveyed) and at the same time diversify revenues (67%). This is in line with the authors' findings from a study conducted within a short time of the pandemic outbreak (Banaszyk, Konecka & Maryniak, 2021). Companies are protecting themselves by entering other industries and other lines of service.

In general, it can be said that the negative impact on costs and, at the same time, the competitiveness of Polish carriers was more due to geopolitical changes in energy and fuel prices, and thus weakening purchasing power, than due to internal, legal EU policies.

The need to invest in modern pro-environmental rolling stock and cutting-edge technologies as well as the need to increase the transparency of operations through digitisation will result in greater bankruptcy dynamics and market concentration. The TSL sector is already in arrears amounting to PLN 1.13 billion, and 70% of this debt is attributable to companies run as sole proprietorships (*Rząd bierze się*, 2023). Practitioners also suggest looking for savings in optimising drivers and car usage (Ołdak, 2022). Admittedly, revenues of TSL companies are higher than in previous years, but this is not evidence of market growth. These revenues have not grown as a result of an increase in the volume handled but rather an increase in freight rates which include indexed fuel costs. Thus, the industry is entering a period of lower market dynamics with a very high cost base.

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# 8. Dilemmas of organising public transport in COVID-19 and post-COVID-19 times

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## Abstract

**Purpose:** The chapter aims to identify the most important challenges related to public transport organisation during COVID and post-COVID times. The author asks several questions: How have the restrictions affected (and still affect) public transport? Can economically efficient public transport services be offered in COVID and post-COVID times? And finally: Is public transport safe for users, and will it be safe in the future?

**Design/methodology/approach:** The chapter is based on the literature review and examination of selected case studies. The analysis is carried out in urban transport, regional and interregional rail transport and international transport (particularly air transport).

**Findings:** The chapter specifies the "dilemmas", of which the most important is a contradiction between the essential requirement for the operation of public transport (to transport many people in a small space) and the basic principle of minimising the increase in COVID infections (the avoidance of large crowds of people).

**Research limitations:** Quantitative methods could further develop and confirm the study.

**Practical implications:** The chapter diagnoses the main challenges related to the organisation and operation of public transport systems in (socially and economically) uncertain times that lie within areas of interest of both managers and local government authorities.

**Originality and value:** The study contributes to the ongoing discussion on improving public transport.

**Keywords:** public transport, pandemia, social services, public management.

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## Introduction

Public transport in the COVID and post-COVID era is becoming an interesting area of research. From different perspectives: social and economic. In economics: from the point of view of efficiency but also marketing or microeconomics. The main aim of the chapter is to present selected solutions applied in public transport within the framework of prevention and fight against the COVID-19 pandemic. The title of this paper contains word "dilemmas": a fundamental contradiction between the basic assumption for the way of functioning public transport (concerning the transport of many people in a small space) and the key principle of minimizing the growth of infections (avoiding large crowds of people). Technical and economic challenges associated with this dilemma were the main research problem. Research methods used by author were: case study analysis and literature review.

## 8.1. Organisation of the public transport

In general, public transport is based on the transport of passengers in an organised way. The specificity of this form of transport is related to the transport of a large number of people in a short time, in the perspective of short (city, agglomeration) or longer (rail or air) distances. Public transport therefore covers a wide range of different areas of human social and economic functioning.

Increasing mobility needs is the result of, among others, economic development, and mobility is the basis for participation in socio-economic life and determines independence (Kauf, 2013, p. 57). The way public transport operates is, among other things, a derivative of changes in mobility, often defined as sustainable mobility. These changes include, among others, the need to shorten journey times, to make journeys independently, to increase the share of forms of mobility other than passenger cars, to improve the efficiency of vehicle use or urban space (Banister, 2008, pp. 73–80, as cited in Wyszomirski, 2017, p. 29).

These elements form the basis for the functioning of public transport systems. With the emergence of the pandemic, the fundamental pillars of the system were shaken, prompting serious reflection on the future shape of public transport systems.

### 8.1.1. Public transport in COVID-19—literature analysis

To diagnose the current state of knowledge, the literature of the subject was analysed. Practically since the beginning of the pandemic the topic has been present in the scientific research of both domestic and foreign researchers. These publications

were created, among other things, as the results of observations and analyses of how to fight the pandemic in different countries. Publications include publications addressing the issue from the perspective of challenges observed in different countries, including China (Shen et al., 2020, Tairachini & Cats, 2020); Sweden (Jenelius & Cebecauer, 2020), Finland (Tiikkaja & Viri, 2021), Spain (Awad-Núñez et al., 2021), Great Britain (Vickerman, 2021), Germany (Eisenmann et al., 2021) and Australia (Beck et al., 2020; Hensher et al., 2021). We also have some publications about COVID-19 in public transport in Poland (Przybyłowski et al., 2021; Wielechowski et al., 2020).

In 2020, Ceder (2020) and Koehl (2020) have written about the challenges and future of transport in the perspective of the pandemic. There are also more and more publications about separate problems connected with public transport, such as: public transport planning (Gkiotsalitis & Cats, 2020), satisfaction related to the use of public transport (Dong et al., 2021), safety in public transport (Dzisi & Dei, 2020), shift from public to private transport (Das et al., 2021), or more widely: challenges related to the implementation of public transport services (Gutierrez et al., 2021).

Analysing the above mentioned items, it can be concluded with certainty that the literature of the subject is already quite extensive today. These include publications with approach to the topic in selected countries, case studies on selected cities, but also articles relating to selected problems (such as safety, user satisfaction).

### 8.1.2. Perfomance measurement

Efficiency of action is the basis of the essence of the functioning of the system, the imperative of its functioning (Leśkiewicz, 1994, pp. 199–200, as cited in Ejdys, 2014, p. 49). According to Bertalanffy's general concept of systems, it should be noted that a system has a certain composition, environment and structure, and the individual elements of a system have relations—both among themselves and with the environment, and in the context of social systems, that the components of systems form a system with properties that the elements of systems do not have on their own (Bertalanffy, 1984, as cited in Sękowski, 1988).

Regardless of the above, it is possible to define how to understand efficiency in the context of public transport services. The economic efficiency of public transport has remained an area of interest for many years, among others on the basis of critical analysis of transport operations (Diana & Daraio, 2014), increasing the efficiency of the service provided (Carvalho et al., 2015; Daraio et al., 2016; Georgiadis et al., 2014) or efficiency in the social sense (Tzvetkova, 2017). There are variables that can be considered to increase efficiency, such as: proportion of

drivers, average vehicle age, the presence of tramlines in the city, total vehicle kilometers and population density (Fitzova et. al., 2018).

The main challenge for the efficiency of transport during the pandemic was the sharply reduced demand for transport. The closure of schools and many workplaces has resulted in a significant reduction in the number of passengers. In addition, many companies (as far as technical and business-specific possibilities) switched to remote work. Reduced demand for transport was also associated with the closure of commercial, sport and recreational facilities. All this translated into a global drop in supply, observed both on working days (including peak traffic) and on holidays.

In urban transport, number of passengers and ticket revenues declined by several dozens of percent. In Warsaw: –39.1% and –38.7%, in Krakow: –46.8% and –33.6%, in Poznań: –32.7% and –29.3% (Zajfert, 2021, p. 10). In Warsaw, in March 2020, the number of passengers on public transport fell by 80%, in April the number of tickets sold fell by 92% (Bryniarska & Kuza, 2021, p. 12).

An important area related to the functioning of public transport concerns the broad scope of the analysis of "transport costs". As a public service, transport has an important social role: it is a good accessible to all concerned, it supports the mobility of the economically disadvantaged, and it is therefore seen as a social policy tool. Thus, the cost structure of public transport should be analysed widely.

Wyszomirski (2002) points out, among the structure of urban transport costs, both own costs (of transport organizer and carriers) and transport infrastructure costs (state or local government costs), but also external costs and time costs—as cost groups for residents and society as a whole (Wyszomirski, 2002, p. 101). It should therefore be noted that the operation of public transport is of general social importance and implies a reduction of the negative impact of transport and cannot therefore be considered solely on the basis of revenues and costs within the meaning of the financial account of the carrier or transport operator.

### 8.1.3. Technical dilemmas

One of the technical solutions implemented as part of the first stages of the fight against the pandemia was to separate drivers from passengers. This was supposed to increase the safety of people driving vehicles, as they are particularly vulnerable to infection. They naturally have contact with hundreds of strangers every day. This usually meant physically separating the vehicle cabin. However, the enclosure of the cabin proved to be insufficient, which is why the first doors were additionally disabled. Depending on the type of vehicle, this required

interference with the electrical system (e.g., by deactivating the fuse) or the software controlling the door operation (to "deactivate" the door both at the level of the buttons used by the driver and directly by the passengers). Other solutions were also used on an ad hoc basis (e.g., taping half of seats, to omit using this seats by passengers).

Along with the reduction of COVID restrictions, selected restrictions were eliminated from urban transport. However, the question is still actual: what about the future? With the risk of further pandemics, there will be a debate on the need to prepare vehicles permanently for pandemic conditions. The service life of the bus fleet according to various estimates ranges from 10 to 12–15 years. In American cities, it is assumed that the service life of the bus is approximately 12 years (thoughtco.com, 2023). In practice, the replacement of rolling stock in Polish cities is mainly due to budgetary possibilities, and the service life is usually extended by several years. Thus, a complete replacement of the bus fleet with one that is functionally adapted to pandemic conditions would take approximately 20 years old (and even 40–50 years old!) which makes such a direction unrealistic. What remains is the dynamic adaptation of vehicles to the current pandemic challenges and associated constraints—through physical separation of drivers or minor functional improvements (in terms of space use, restrictions on passenger movement or changes to air conditioning systems).

As part of the fight against the pandemia, a number of other measures related to the safety of transport operations were introduced. In particular, the following have been introduced:

- central door opening in vehicles and temporary suspension of stops on demand—these stops have become temporarily permanent—that also eliminates the need to press buttons in the vehicle;
- personal protective equipment for drivers (e.g., disinfectants);
- suspension of ticket sales by drivers—to reduce interaction with passengers;
- disinfection of vehicles and their more frequent (or more thorough) washing;
- ventilation of vehicles on the loops by opening the door during a stop at the final stops;
- deactivation of air conditioning / ventilation systems—to reduce the risk of virus spread due to air circulation in the vehicle system.

In the longer term, it is worth considering whether other elements of vehicle equipment should be consistently implemented in order to ensure the highest possible sanitary comfort while travelling. It is difficult to imagine a permanent reduction in the capacity of transport vehicles, which would contradict the fundamental principles of public transport.

### 8.1.4. Economic dillemmas

Legal regulations were the basis for supply restrictions in public transport. Regulation of the Minister of Health from 24th of March 2020 (Rozporządzenie Ministra Zdrowia z dnia 24 marca 2020) introduced the obligation to limit the number of passengers in public transport, introducing the provision that "vehicle of public transport (…) may carry passengers, at the same time, no more than half of the number of seats". This limit was in force from 25th March (originally until 11th of April), which in practice gave public transport operators a very short time to prepare for the changes. Further law regulations extended the duration of the different public transport restrictions, ale finally extended indefinitely.

These restrictions have in practice drastically reduced the capacity of vehicles. Thus, given that ticket fees are basic (excluding public funding) group of revenues in public transport systems, this has had a dramatic impact on the profitability of transport. How can we ensure that we operate at the same or comparable level of costs in the face of sharply reduced supply and revenue from tickets? Municipalities faced a serious dilemma regarding the form of the public service provided.

It is also worth highlighting the concept of the so-called "vicious circle of urban transport". The decline in the quality of public transport affects the development of individual transport. It would therefore be a generally bad idea to reduce the supply of public transport in cities. During the pandemia, the number of lines and frequency of courses was reduced, but this was only a short-term perspective.

## 8.2. Public transport—a branch perspective

Trends in rail and air transport were also briefly reviewed. A significant decrease in the number of rail passengers was already recorded at the very beginning of the pandemia. In April 2020, the average number of trains operated by PKP Intercity decreased by approximately 60%, another 8% travelled in a shortened routes, and the average drop in attendance (measured by the level of ticket booking) was 94% (Czubiński, 2020).

The rail transport sector carried 335.9 million passengers in 2019. In 2020, it was 209.4 million, then in the next years: 245.1 million and 342.2 million passengers (UTK, 2023). Last year, therefore, the number of transports from the record year 2019 was exceeded. As a result, the rail transport market, both in terms of the number of passengers carried and the transport work performed, recovered to pre-pandemic levels and even improved its results (operating work increased in 2022 compared to 2019: 186.0 and 171.0 million train-kilometres respectively, and transport work increased to 23,766 and 22,065 million passenger-kilometres

respectively) (UTK, 2023). In 2019, Polish railways carried an average of 27.99 million passengers per month. The lowest traffic results of the pandemic were recorded in April and May 2022 (respectively: 6.1 million and 9.8 million passengers). The gradual recovery of the volume of traffic lasted until 2022, only then the average monthly volume of traffic reached 28.52 million passengers—exceeding the pre-pandemic figures (UTK, 2023). Of course, the indicated data show a certain trend and the analysed market at a certain level of generality—there are both inter-voivodship connections (PKP Intercity is responsible for the transport of 15.69% of passengers, 54.2% of transport work and 35.08% of operating work) (UTK, 2023) as well as transport services operated by numerous companies providing regional transport services.

Decreases of several dozen percent (on an annual basis) were also recorded in air transport. In 2019, 49 million passengers were handled at Polish airports, performing 400,000 flight operations. A year later it was just over 14.5 million passengers (156,000 operations), in 2021 it was 19.6 million passengers and 191,000 flight operations (ULC, 2022). The Civil Aviation Authority has not yet published complete data for 2022, but the data for the first three quarters can be compared with the first three quarters of 2019. On this basis, it should be concluded that the scale of air traffic before the pandemic has not been restored. In the first three quarters of 2019, 37.6 million passengers were carried, in the same period three years later: less than 31 million passengers (ULC, 2021, 2023). These two sectors are outlined, emphasising that public transport problems in the pandemic are not just urban transport problems.

## 8.3. COVID and post-COVID—a macroeconomic context

Macroeconomic factors also influence the current state of the transport industry. Changes to the law introduced in 2022 led to a sharp deterioration in the financial condition of local governments. Specialists of the Union of Polish Cities calculated that the biggest Polish cities will lose the most in these changes. The biggest losses will be in Warsaw: 5.9 billion PLN, Kraków: 1.6 billion PLN, Wrocław: 1.4 billion PLN and Poznań: 1.1 billion PLN (ZMP, 2022). This analysis includes losses associated with lower tax revenues as well as additional equalisation funds, which are, however, much lower than the lost revenues.

High inflation remains a major problem, which also poses a threat to public transport services. Exceeding the inflation target (2.5%) in March 2021 started a long period of almost continuous inflation growth, reaching 18.4% on an annual basis in February 2023 (GUS, 2023). High inflation naturally forces upward pressure on wages, rising labour costs as well as external service costs and rolling

stock maintenance costs. And in the longer term, this poses a real risk of not providing adequate funding for the whole service sector. An additional challenge is the unfavourable exchange rate—a low value of the polish zloty (PLN) means a higher cost both when purchasing fuels and numerous imported products (vehicles, components, etc.).

## Conclusions

Public transport has regained the confidence of passengers, in terms of the scale of transport delivery has generally returned to the levels of 2019. The challenge for the coming years remains limited finances of local governments, which will negatively affect the possibility of developing transport systems, and the priority is to maintain the current level of transport offer.

The limitations of the research were mainly related to the participatory observation conducted locally—for the development of the research in the future it is possible to perform similar analyses also for other urban areas,

Trends observed in the transport industry, for example in terms of traffic autonomy or the search for alternative sources of energy, do not bypass the public transport sector. In addition to the important issues related to functioning during and immediately after the pandemia, public transport is also following industry trends. This means that in addition to risk factors, there are also opportunities factors—especially in the area of increasingly represented new technologies.

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# 9. Substitution of tourism trips as a result of the COVID-19 pandemic—an empirical verification

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## Abstract

**Purpose:** The aim of this chapter is to empirically verify the thesis (set out in the previous work) regarding the substitution changes in the tourism market caused by the COVID-19 pandemic. The question was posed as to whether the travel substitution caused by the pandemic concerned substitution internal or external to the offer of the tourism market.

**Design/methodology/approach:** Qualitative research was conducted on the supply side and the demand side of the tourism market. The supply-side research comprised a direct (non-standardised) interview among representatives of the three main tour operators organising tourist trips on the Polish market. The demand study used a direct standardised interview method using an interview questionnaire.

**Findings:** The results of the research showed internal substitution processes in the tourism market triggered by the COVID-19 pandemic. The changes affected trips to a slightly greater extent in 2020 than in 2021. The research showed lower external substitution, meaning that during the pandemic consumers did not want to give up tourism trips.

**Research limitations/implications:** The research confirms the findings of other authors that the pandemic treated as a transformative force in tourism and hospitality, while the relatively short time after its end prevents long-term conclusions.

**Practical implications:** The results can be used by service providers, to anticipate changes caused by contingencies, as well as to predict trends in tourism product design.

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**Social implications:** The research indicates the direction of change that a pandemic may provide a starting point for further observations.

**Originality and value:** Most of the analysis is limited to quantitative phenomena related to the reduction of tourism trips as a result of the COVID-19 pandemic. The originality of the article is based on the analysis of the substitution processes in the tourism market by internal and external substitution. The added value is the simultaneity of the study on both the demand and the supply side of tourism.

**Keywords:** tourism market, COVID-19 pandemic, internal substitution, external substitution, tourist behaviour.

## Introduction

As shown in previous works (Kowalska & Niezgoda, 2020; Niezgoda et al., 2021), due to the restrictions caused by the COVID-19 pandemic, Polish tourists were forced to change their holiday plans. Due to the threat, governments introduced travel restrictions affecting tourism businesses, resulting in substitutionary changes in the tourism market.

The question arises as to whether these changes concerned substitution internal or external to the tourism market. Internal substitution refers to the replacement of tourism services and goods with other services also of a tourism nature, i.e. it concerns the replacement of different types of tourism trips with other trips involving services of a similar or different standard. According to the works of other authors (Dziedzic & Skalska, 2012; Mazurek-Kusiak, 2019), internal substitution enhances competitiveness between enterprises in the tourism market, but at the same time improves the quality of tourism services and products. External substitution, on the other hand, poses a threat to the tourism services sector as it involves the substitution of goods and services in the tourism market with other services and goods. During the pandemic, such substitution occurred when potential tourists substituted a tourist trip with recreation at home, recreation at home or other activities (e.g., work).

The aim of this chapter is to empirically verify the thesis on substitution changes in the tourism market caused by the COVID-19 pandemic. In order to verify the thesis of substitution in the tourism market, the results of qualitative research conducted on the supply side and on the tourism demand side will be presented. The supply-side research involved a direct (non-standardised) interview among representatives of three main tour operators organising tourist trips on the Polish market. The demand study used a direct standardised interview method using an interview questionnaire. The following section briefly discusses the methodology and results of the survey.

## 9.1. Research methodology

The face-to-face interview on the supply side included 3 purposely selected representatives of tour operators. The demand survey used purposive sampling, the sample consisted of 50 people aged 16 and older, including 29 women (58%) and 21 men (42%). The predominant group among the respondents had tertiary education (50%) and secondary education (48%). The survey was conducted between November 2022 and January 2023.

The specific objective of the survey was to answer the following questions:

1) Did the COVID-19 pandemic trigger changes in tourist travel decisions?
2) Did these changes occur within the framework of internal substitution in the tourism market?
3) What specific trends can be observed in exit substitution?
4) Can it be thought that they will influence the decisions of consumers of tourism services after the pandemic has ended?
5) Has an external substitution caused by the pandemic been noticed?

## 9.2. Empirical findings

The first question asked to respondents was to determine their preferred types of trips and their frequency prior to the outbreak of pandemic COVID-19. More than half of respondents (52%) went on short trips several times a year, 34% of respondents chose one longer trip (lasting at least one week) and 28% of respondents chose several longer trips per year. 10% of respondents chose one short trip per year (Figure 9.1).

It should therefore be concluded that the respondents participated in the trips and, moreover, in the next question, as many as 70% said that they wanted to

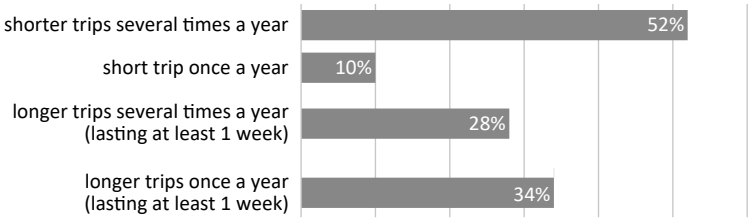


**Figure 9.1. How often did you travel before the COVID-19 pandemic?**
Source: own study.

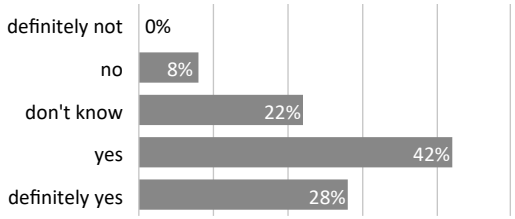


**Figure 9.2. Before the COVID-19 pandemic, did you want to travel more and more?**
Source: own study.

travel more often than they declared before the pandemic. Only 8% of respondents answered this question negatively (Figure 9.2).

Thus, it can be concluded that the outbreak of the pandemic came at a time when the extremely dynamic growth of tourism worldwide was leading to the unfavourable phenomena known as overtourism. The growth trends of the tourism market were leading to overtourism (Peeters et al., 2018; Tiwari & Chowdhary, 2021; UNWTO, 2018).

These observations are confirmed by the interview with tour operators. All tour operators observed an upward trend in tourist traffic, and pilots operating tours in 2019 complained that there was too much tourist traffic in the attraction regions, which made it difficult to conduct tours properly to guarantee a high quality reception of the attractions by tourists.

Among all (100%) of the tourists surveyed, the pandemic triggered changes in tour plans in the first year of the restrictions (2020). In the following year (2021), only 86% of those surveyed changed their holiday plans. The reason for this may have been the easing of restrictions in many countries on tourist trips in 2021 compared to the previous year, when the pandemic broke out, as well as some habituation of tourists to the restrictions, who noticed that in 2020, especially from mid-July onwards, flights and tourist trips started to take place. This observation is confirmed by representatives of tour operators. One of them highlighted that in 2020, despite the restrictions, there were customers who wanted to see famous places that, exceptionally during the pandemic, were not crowded. On the tourism supply side, it was also noted that there was more fluidity in the offers that came from foreign contractors. These included hotels in attractive locations that only had rooms available during the pandemic period, particularly in 2020.

The next part of the study looked at internal substitution processes in the tourism market. For 38% respondents, the COVID-19 pandemic caused a change from a tourist trip planned abroad to a similar tourist trip at home with the required

standard (e.g., a stay in a foreign hotel with an all-inclusive option exchanged for such a stay in a resort in Poland) in 2020. In 2021, this change occurred in almost 28% of respondents. It can be seen that in the first year of the pandemic, more people switched from a foreign trip to the same type of trip in Poland. This may be related to the easing of travel restrictions that took place at the beginning of summer 2020. In one of the tour operator offices surveyed, it was found that as late as the beginning of July 2020, cities in the international flight schedule were being changed and customers were confused. Almost 60% of respondents surveyed who chose the above change in 2020 and more than 40% in 2021 were satisfied with it. However, this did not affect the choice of this type of trip after the pandemic (almost 90% of respondents in 2020 and more than 90% in 2021).

Another reported change was the replacement of a tourist trip planned abroad with a trip at home, but changed in terms of the standard of service and adapted to the pandemic constraints. This refers to swapping a higher standard abroad, for a lower standard in Poland (e.g., swapping a stay in a foreign hotel with an all-inclusive option for a holiday in a motorhome in Poland). In 2020, such a change was reported by 32% and in 2021 by 25.6% of respondents. In this case, it can also be seen that 2021 resulted in fewer changes. However, in an open-ended question, several respondents clearly stated that this choice was dictated by a desire to take care of their own health. In 2020, more than 55% of respondents were satisfied with this type of change, but 75% did not declare this choice after the pandemic. In 2021, almost 50% of respondents reported satisfaction, while more than 60% also indicated no such change after the pandemic.

In third place, in terms of the number of responses, was the substitution of a tourist trip planned abroad for a trip in the country, but changed in terms of the standard of services and adjusted to pandemic constraints, i.e. the substitution of a lower standard abroad for a higher standard in Poland (e.g., the substitution of a stay in a foreign hotel for a stay in a higher standard hotel in Poland). Such a change was declared by 14% in 2020 and by 23.3% of respondents in 2021. It can be assumed that these people treated the lack of a foreign trip as an opportunity to benefit from better leisure conditions in Poland.

The surveyed representatives of tour operators also indicated a high interest in expensive and luxurious tourist facilities in Poland in the summer of 2020. The motivation for this choice by customers was concern for health (higher standard suggests better hygiene protection), but also a desire to rest from various restrictions and fulfil previous dreams. The satisfaction rate for such a change in the years surveyed was just over 70 and 80% respectively, and the declaration of a post-pandemic change was 86% and 80%.

Another option for substitution was to choose a tourist trip planned in Poland for another domestic trip but changed in terms of the standard of services and

adjusted to the pandemic restrictions, i.e. changing a higher standard in Poland for a lower standard in Poland (e.g., swapping a stay in a Polish hotel with an all-inclusive option for a holiday in a motorhome). This type of substitution was shown by 12% of respondents in 2020 and 6.9% in 2021. It can be thought that the choice of motorhomes was not related to a preference for leisure methods, but to safety restrictions. Staying in chalets, tents and caravans in 2020 was extremely popular due to the lack of direct contact with neighbours. Survey results show that the number of people interested in such a swap nearly halved in the second year of the pandemic, when the strictures were reduced. Tour operator representatives confirmed the observations of greater interest in choosing accommodation in free-standing facilities during the first year of the pandemic. All respondents surveyed who indicated this type of substitution were satisfied with the change (in both 2020 and 2021). Only less than 17% of respondents in 2020 declared that they would choose this substitution option after the pandemic (in 2021 the number of such responses was 0).

Another option is the 'reverse' choice, i.e. swapping a lower standard in Poland, for a higher standard in Poland (e.g., swapping a stay in a holiday resort swapped for a stay in a Polish high standard hotel). This option was used by only 6% of respondents in 2020 and 6.9% of respondents in 2021. High-standard hotels are often characterised by a large number of guests and this may have been the reason for health safety concerns. Another explanation for this low number of people who chose this option could be that the outbreak of the pandemic caused public anxiety about income provision and even a real reduction in income due to the closure of many jobs and a decrease in turnover in the service sector. This may have been the reason for the lack of seeking offers in higher standard facilities nationally. All survey respondents indicating this form of substitution were satisfied with such a change. In terms of its impact on post-pandemic tourism trips: only the change in 2021 had an impact on a similar choice of post-pandemic tourism trip for 33% of respondents. The change indicated in 2020 did not affect the choice of this type of post-pandemic trip for any of the respondents surveyed.

Another type of substitution was the replacement of a foreign trip, with another foreign trip. Such a process was noted in 6% of respondents in 2020 and 4% of respondents in 2021. Respondents indicated that they had chosen a different foreign trip due to the fact that the restrictions in the previously planned country were too restrictive and therefore sought an offer in a country where the bans were more lenient. Satisfaction with the change for both 2020 and 2021 was reported by all respondents indicating this type of substitution. A change in trips was declared by 50% in 2020 and 40% in 2021.

A comprehensive summary of the results of the internal substitution surveys is provided in Table 9.1.

**Table 9.1. Internal substitution in the tourism market during the COVID-19 pandemic in 2020 and 2021**

| The pandemic has resulted in the replacement of the tourist trip: | | 2020 *N* = 50 (%) | 2021 *N* = 43 (%) |
|---|---|---|---|
| 1. | planned abroad for a similar tourist trip at home, maintaining the required standard (e.g. a stay in a foreign hotel with an all-inclusive option exchanged for such a stay in a resort in Poland) | 38.0 | 27.91 |
| | Were you satisfied with the change of this trip? (% answer YES) | 57.9 | 42 |
| | Did the change influence your choice of this type of trip after the pandemic? (% answer NO) | 89.5 | 91.6 |
| 2. | planned abroad for a trip at home, but changed in terms of the standard of services and adjusted to pandemic constraints, i.e. exchange of a lower standard abroad for a higher standard in Poland (e.g., exchange of a stay in a foreign hotel for a stay in a higher standard hotel in Poland) | 14.0 | 23.26 |
| | Were you satisfied with the change of this trip? (% answer YES) | 71.4 | 80.0 |
| | Did the change influence your choice of this type of trip after the pandemic? (% answer NO) | 85.7 | 80.0 |
| 3. | planned abroad for a trip at home, but changed in terms of the standard of services and adjusted to pandemic constraints, i.e. swapping a higher standard abroad for a lower standard in Poland (e.g., swapping a stay in a foreign hotel with an all-inclusive option for a holiday in a mobile home in Poland) | 32.0 | 25.58 |
| | Were you satisfied with the change of this trip? (% answer YES) | 56.2 | 45.5 |
| | Did the change influence your choice of this type of trip after the pandemic? (% answer NO) | 75.0 | 63.6 |
| 4. | planned abroad to a trip abroad adapted to pandemic constraints | 6.0 | 4.0 |
| | Were you satisfied with the change of this trip? (% answer YES) | 100.0 | 100.0 |
| | Did the change influence your choice of this type of trip after the pandemic? (% answer NO) | 50.0 | 60.0 |
| 5. | planned in Poland for another domestic trip, but changed in terms of the standard of services and adjusted to pandemic constraints, i.e. exchange of a higher standard in Poland for a lower standard in Poland (e.g., exchange of a stay in a Polish hotel with an all-inclusive option for a holiday in a mobile home) | 12.0 | 6.9 |

**Table 9.1 – cont.**

| The pandemic has resulted in the replacement of the tourist trip: | | 2020 *N* = 50 (%) | 2021 *N* = 43 (%) |
|---|---|---|---|
| | Were you satisfied with the change of this trip? (% answer YES) | 100.0 | 100.0 |
| | Did the change influence your choice of this type of trip after the pandemic? (% answer NO) | 83.3 | 100.0 |
| 6. | planned in Poland for another domestic trip, but changed in terms of the standard of services and adjusted to the pandemic constraints, exchange of a lower standard in Poland for a higher standard in Poland (e.g., exchange of a stay in a holiday resort for a stay in a high-standard Polish hotel) | 6.0 | 6.9 |
| | Were you satisfied with the change of this trip? (% answer YES) | 100.0 | 100.0 |
| | Did the change influence your choice of this type of trip after the pandemic? (% answer NO) | 100.0 | 66.7 |

Source: own study.

In summary, it can be seen that internal substitution processes in the tourism market among respondents were noticeable to a greater extent in 2020, but the substitution involved either choosing the same standard of facility at home rather than abroad or swapping a higher standard in a foreign destination for a lower standard in Poland. However, the choice of facilities in Poland was not based on a preference for the type of facility, but on the fact that the lower standard, which was the offer of cottages, caravans was due to the isolation possibilities recommended during the pandemic period.

Another possibility in the tourism market during the COVID-19 pandemic period was the abandonment of trips and possible external substitution of tourism trips. In 2020, 8% and in 2021, 10% of respondents abandoned their trips. These were mainly older people with higher education. These figures indicate that respondents are used to tourist trips and mostly chose to substitute trips within the tourist market.

Of the possibilities indicated as a substitute for trips, 60% of people chose passive leisure (e.g., reading books, listening to audio books, watching films) and 50% indicated physical recreation at home (indoors or outdoors). The third most popular choice was to replace tourist trips with developing one's own interests (e.g., learning to play an instrument, cooking courses, beauty academy workshops or photography). This choice was declared by 42% of respondents. During the pandemic, social problems related to the need for contact with other people

were indicated. Among the people surveyed, as many as 36% indicated that they swapped tourist trips for activity on social networks, which, in relation to playing on the computer, indicated in the other category (only 4%), is a high number and shows the need for interpersonal activity. 34% of respondents devoted this time to renovating their house or flat and the same number indicated occupying themselves with professional work. A summary of the survey results for external substitution is provided in Figure 9.3.

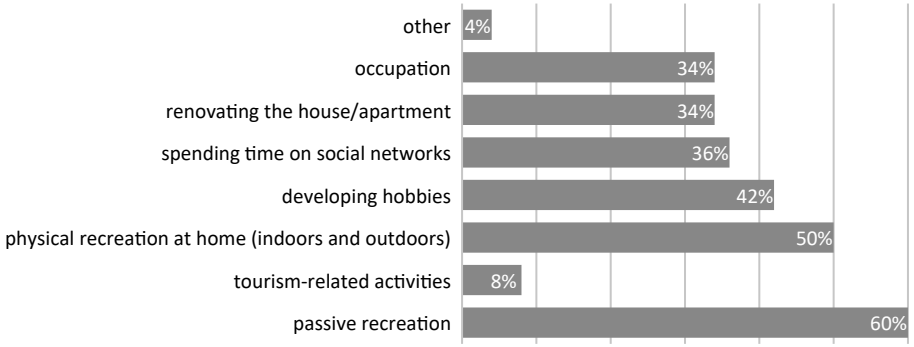


**Figure 9.3. What did you replace your tourist trips with during the COVID-19 pandemic?**
Source: own study.

As previous research has shown (Niezgoda & Markiewicz, 2022), the managers of tourist attractions during the pandemic period undertook activities related to showing the attractiveness of places and regions in virtual space. Virtual walks, lectures at attractions, competitions and other activities were organised to showcase a place instead of a tourist visit. However, only 8% of the people surveyed chose this form of substitution for a tourist activity. Respondents watched tourism films and materials posted by tourism organisers and managers of tourist attractions.

An analysis of the correlation of responses regarding external substitution during the COVID-19 pandemic with the characteristics of the respondents surveyed revealed the following relationships. Women were more likely to choose passive leisure (69%) and physical recreation at their place of residence (55%), while men were more likely to choose developing their interests (57%), renovating their house/apartment (38%) and taking care of their work (38%). Passive leisure was chosen by people irrespective of age, with young people (16–25) with secondary education more likely to choose spending time on social networks (67%), with interest in physical recreation at home increasing with age (irrespective of

education) (50%, 50%, 57%, 100% respectively). As previously mentioned, activities related to tourism topics were undertaken by only 8% of respondents, these were mainly women aged 41–60 with secondary and tertiary education.

In an extended variant of the possibility of external substitution, respondents were asked whether they had attended a remote cultural event during the pandemic period, e.g., a visit to a museum, a theatre performance, a concert, or not. Only just over a third (36%) answered in the affirmative, indicating that such a substitution process is not evident. This type of substitution was mainly chosen by women (67%) aged 41–60 (50%) with a university education (78%).

## Conclusions

The results of the study showed the processes of substitution in the tourism market caused by the COVID-19 pandemic. The vast majority of respondents did not abandon their trips, but due to restrictions and fear for their own health, they swapped their planned trips for others. This is an internal substitution in the tourism market, and respondents mainly indicated changes from a foreign trip to a domestic trip, but with the planned standard of service maintained. The survey noted that the changes in travel plans were slightly more applicable to trips in 2020 than in 2021. These conclusions are confirmed by the representatives of the tour operators surveyed. The vast majority (80.8%) of respondents were satisfied with the change. Such responses may indicate the important role of tourism in the lives of those surveyed and the regenerative function of the anticipated trip during the difficult pandemic period. Although respondents were satisfied, the majority (77.2%) would not stay with the changed choice and would like to return to their old types of preferred trips after the pandemic.

The study showed lower external substitution. Among the activities that replaced tourist trips, passive leisure (watching films, reading books, etc.), physical recreation at home and developing interests were most frequently mentioned. Substitute forms of tourist activities created by tour operators were not popular among respondents. Only 8% of respondents took advantage of virtual visits to attractions and watching tourism-related films. The results may indicate that respondents are used to tourist trips and want to return to normality, their plans and habits in this regard (Brouder et al., 2020). The study confirms the results of other authors that the pandemic considered as a transformative force in tourism and hospitality (Brouder, 2020) did not contribute to the creation of new travel habits, but rather was exceptional and incidental in nature.

The conclusion for practice, therefore, is the need for a continuous study of the tourism market, where no conversion of previous habits to virtual travel has

been observed. A limitation of the study is that changes in consumer choices in the tourism market are affected by many different factors, among which it is difficult to isolate only the impact of the pandemic. Therefore, it is necessary to observe the market and take into account the processes caused by the COVID-19 pandemic and their relationship to changes in the socio-economic environment.

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# CHALLENGES FOR COMPANIES AND CONSUMERS

PART 3

# 10. Firm capabilities, export diversification, and crisis affectedness: A study of Polish exporters during the COVID-19 pandemic in 2020–2021[1]

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## Abstract

**Purpose:** This chapter investigates the factors influencing a company's vulnerability to economic crises, particularly focusing on the role of firm capabilities and export diversification. In light of the unprecedented COVID-19 pandemic, the study explores how these variables interact to shape a company's resilience in the face of crisis.

**Design/methodology/approach:** This study utilises primary data collected from Polish exporters in 2022, allowing for a retrospective analysis of the COVID-19 pandemic's impact. Drawing on the resource-based view and firm internationalisation theories, the research formulates hypotheses concerning the relationships between firm capabilities (marketing and technological) and crisis affectedness, moderated by export diversification.

**Findings:** Both marketing and technological capabilities have a negative impact on a company's vulnerability to economic crises. However, this effect is more pronounced for companies with lower export diversification. In contrast, highly diversified exporters show reduced sensitivity to firm capabilities in mitigating crisis affectedness.

[1] This chapter is based on the findings from the research project financed by the research grant of the National Science Centre (Poland) awarded based on the decision no. DEC-2017/27/B/HS4/02344.

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Gorynia, M., & Trąpczyński, P. (2024). Firm capabilities, export diversification, and crisis affectedness: A study of Polish exporters during the COVID-19 pandemic in 2020–2021. In E. Mińska-Struzik & B. Jankowska (Eds.), *Is there any "new normal"? Economics of the turmoil* (pp. 177–190). Poznań University of Economics and Business Press. https://doi.org/10.18559/978-83-8211-217-7/10

**Research limitations/implications:** This study focuses on Polish exporters in a post-transition economy, which may differ from firms in other economic contexts. Additionally, the research explores a specific crisis, the COVID-19 pandemic, and its effects on export-oriented companies. Further research is needed to generalize these findings to other crises and regions.

**Practical implications:** The findings suggest that companies should invest in marketing and technological capabilities to enhance resilience during crises, especially if they have a limited international diversification strategy. Highly diversified exporters may need to balance their focus on capabilities with broader market approaches.

**Originality and value:** This research contributes to the understanding of how firm capabilities and export diversification interact to influence a company's vulnerability to economic crises, with practical implications for exporters navigating turbulent times in a globalized world. The study sheds light on the complexities of resilience-building strategies in post-transition economies and underlines the importance of adaptability in international business.

**Keywords:** firm capabilities, crisis affectedness, export diversification, exporting firms, COVID-19 pandemic.

## Introduction

The importance of understanding how companies adapt their strategies to sudden changes in their surroundings has been emphasised by economic downturns (Cerrato et al., 2016; Gorynia & Trąpczyński, 2022d,e). As a result, the notion of resilience has gained attention among researchers (Calabrò et al., 2020; Fombella et al., 2022; Tsiapa & Batsiolas, 2019). Resilience is often described as an organization's ability to survive in the face of unexpected and unfavorable circumstances caused by major disruptions or a series of smaller ones (Linnenluecke, 2017; Linnenluecke & Griffiths, 2010). The COVID-19 pandemic has recently underscored the critical role of organizational resilience in times of crisis (Alves et al., 2020; Gorynia & Kuczewska, 2022; Rapaccini et al., 2020). It is important to note that COVID-19 had an unparalleled impact on both supply and demand in the global economy (Buckley, 2020). According to UNCTAD data, global GDP fell by 3.1% in 2020 compared to 2019. In 2021, global GDP rose by 6.1% year on year despite the second wave of the COVID-19 pandemic (UNCTAD, 2022, p. 5).

Although economic crises can have negative effects on a company's performance, some companies are able to increase their competitiveness even in unfavorable external conditions. The extent to which a crisis affects a company and its economic situation may depend on various factors, including the country of origin (Berrill & Kearney, 2011), the age of the company (Burlita et al., 2011), the industry sector (Vissak, 2011; Zelek & Maniak, 2011), the competitive strategy pursued (Latham & Braun, 2010), the size of the company (Burlita et al., 2011),

the resources available (Türel et al., 2012), and the degree of internationalisation (Antonioli et al., 2011). The long-term success of international operations during a crisis may depend on factors such as cooperation with international partners (Vissak, 2011) or international experience (Figueira de Lemos & Hadjikhani, 2011), which often come with greater exposure to international operations. While several studies have examined the relationship between economic crises and company internationalisation (Massaro et al., 2017), little research has been done on how international diversification moderates a company's resilience (Gorynia & Trąpczyński, 2022b,c).

Accordingly, the aim of this chapter is to explore the antecedents of crisis affectedness, taking into account the interplay of firm capabilities with export diversification. We address this objective by using firm-level primary data collected in 2022 after two waves of the COVID-19 pandemic, which allowed the exporters under study to take a retrospective at the pandemic and its effects. More specifically, we conduct regression analyses with the PROCESS macro to investigate how the level of export diversification moderates the relationship between firm capabilities and crisis affectedness.

The remainder of the chapter is structured as follows. First, by drawing on the resource-based view and the theoretical foundations of firm internationalisation, a number of propositions are formulated. Further, the research design is described in detail, followed thereafter by a presentation of empirical results and their summary.

## 10.1. Theoretical overview and hypotheses

### 10.1.1. Firm capabilities and crisis affectedness

Firm capabilities, particularly unique managerial abilities, can transform financial and physical resources into competencies that are essential for a company's international competitiveness through organizational routines (Teece et al., 1997). Spanos and Lioukas (2011) and Ruiz-Ortega et al. (2013) focus on the technological and marketing capabilities involved in key stages of the value chain. Technological capabilities refer to a company's ability to perform any relevant technical or technological function, including the development of new products and processes that improve operational efficiency (Spanos & Lioukas, 2001). These capabilities include technological knowledge, trade secrets, know-how developed through R&D activities, and other specific technological intellectual capital (Dollinger, 1995). Marketing capabilities are directly related to gaining advantages in relationships between companies and their customers (Teece et al., 1997). Day (1994) defined

marketing capabilities as the skills that enable a company to not only understand the behavior of the factors that determine its markets but also to operate more effectively within them.

We anticipate that marketing and technological capabilities will have a positive impact on a company's resilience in hostile environments. In fact, companies need key capabilities to survive in such conditions (Ruiz Ortega et al., 2013). In more hostile environments, companies with strong marketing capabilities are more likely to focus on developing their own markets and exploiting their existing customer base by trying to meet their needs and maintain their market share. In situations of high demand uncertainty, companies with strong marketing capabilities may devote them to developing new products and markets (Perez-Luno et al., 2011). In the context of exports, Yeoh and Jeong (1995) found that exporters who operate in hostile international environments and rely on their entrepreneurial capabilities tend to perform better than other companies. Since competitive advantages in hostile environments tend to be short-lived and predicting the future becomes more difficult, a more pronounced entrepreneurial approach can increase an exporter's sustainable success (Balabanis & Spyropoulou, 2017).

In a hostile environment, having technological capabilities can also enable a company to adapt to emerging opportunities. The key is the suitability of the company's technological capabilities to meet the challenges of the environment and take advantage of it (Ruiz-Ortega et al., 2013). Companies operating in challenging environments are more likely to use their technological capabilities to create new products than those operating in stable environments (Perez-Luno et al., 2011). In an unstable environment, companies with technological strengths can be more successful in dynamic environments by taking on the risks associated with generating and developing innovations and exploiting them in the market. As a result, companies will use their technological skills and knowledge to develop new products, enter new markets early, and take on higher levels of risk to cope with hostile environmental conditions.

In line with the above argumentation, as well as earlier evidence that capabilities positively interact with internationalisation on performance (Chiao et al., 2008), as well as the evidence that also comes from countries of the post-transition region of Central and Eastern European (Bekteshi, 2020; Ruzzier & Ruzzier, 2015), we argue that exporters with more pronounced marketing and technological capabilities will be better positioned to resist the economic crisis. Accordingly, we formulate the following hypothesis:

**H1:** Firm capabilities have a negative effect on exporter affectedness by the crisis.

## 10.1.2. The moderating role of export diversification

When examining the factors that influence how a crisis affects a company, it's important to take into account the company's level of international diversification (Vissak, 2011). The Uppsala model suggests that companies gradually expand their international presence in stages as they learn more about foreign markets and gain experience in international operations. Initially, companies may start with low-commitment entry modes, such as exporting to nearby countries, and eventually progress to high-commitment modes, such as establishing production facilities in more distant countries (Johanson & Vahlne, 1977). In a more recent version of the model, the authors recognise the complexities of modern internationalisation and introduce the concepts of liability of foreignness and liability of outsidership to account for the challenges and uncertainties that companies face when doing business abroad (Johanson & Vahlne, 2009).

In light of the updated Uppsala model, recent studies have shown that the relationships established by exporters prior to a crisis can play a significant role in their ability to withstand it (Fath et al., 2021). Evidence suggests that companies with more international experience and a greater degree of internationalisation may even see improved performance during an economic crisis due to the knowledge gained from foreign expansion and the ability to leverage their business contacts (Figueira de Lemos & Hadjikhani, 2011). The strategic position of a company's foreign ventures prior to a crisis can also be an important factor in supporting continued expansion during difficult times (Filippov & Kalotay, 2011). Additionally, having diversified operations across multiple countries can increase a parent company's flexibility and resilience during a crisis (Lee & Makhija, 2009).

Therefore, it can be expected that with increasing export diversification, the alleviating effect of firm capabilities on the affectedness by the crisis will be less pronounced. In fact, it can be argued that owing to a stronger international engagement, exporters will be able to compensate for external shocks to a larger extent by recurring to different sources of demand (Gorynia & Trąpczyński, 2022a,b,c). On the other hand, they may benefit from a more diversified sourcing and production base. Therefore, it can be expected that with greater involvement of companies in international activities, the ability to withstand and reduce the degree of impact of the crisis will be higher in the case of more internationalised companies.

Thus, we propose the following:

**H2:** The relationship in H1 is moderated by export diversification such that for higher export diversification it becomes weaker (less negative).

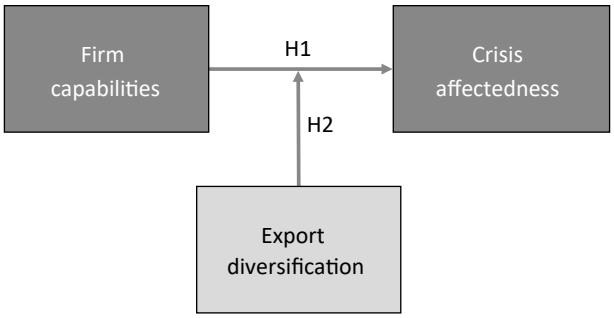


**Figure 10.1. Analytical framework of the study**
Source: own work.

The above research hypotheses are summarised in the conceptual framework shown in Figure 10.1.

## 10.2. Research methods

### 10.2.1. Data collection and sample

The sampling for the study was based on data on Polish exporters from the BISNODE database and embraced firms meeting inter alia the following criteria:

- majority-owned by Polish shareholders;
- active in manufacturing sectors;
- exporting to at least two countries and showing at least 10% of foreign sales to total sales (FSTS);
- employing at least ten people.

Based on the criteria, 358 randomly selected firms with an equal split of small, medium and large enterprises and low, mid and high-tech manufacturing were contacted by a professional market research agency. Primary data were gathered from computer assisted telephone interviews (CATI) with owners, top managers or sales or export-related managers of 120 firms, conducted between June and July 2022. This resulted in a response rate of 34%.

The study follows up on an earlier survey from 2020 by Gorynia and Trąpczyński (2022a), who explored some first descriptive statistics pertaining to the affectedness and responses to crisis by Polish exporters with diverse levels of internationalisation. The current sample characteristics are presented in Table 10.1. The

**Table 10.1. Sample characteristics (*N* = 120)**

| **Employment (as of 2021)** | **# firms** | **Manufacturing sectors** | **# firms** |
|---|---|---|---|
| 10–49 employees | 41 | Low–tech | 40 |
| 50–249 employees | 39 | Mid–tech | 40 |
| 50–249 employees | 40 | High–tech | 40 |
| **#export markets** | | **FSTS (%)** | **# firms** |
| 1–10 | 89 | 10–19 | 44 |
| 11–20 | 25 | 20–30 | 51 |
| >21 | 6 | >30 | 25 |

Source: own work.

respondents answered a number of questions on export strategy, business models and internationalisation performance, as well as a block of questions devoted to the COVID-19 pandemic, which is the focus of the present paper.

## 10.2.2. Variables operationalisation

With regard to the dependent variable, the affectedness by the crisis, according to some earlier studies on the effects of the economic crisis (e.g., Burlita et al., 2011; Gorynia & Kuczewska, 2022; Zelek & Maniak, 2011) the authors asked the respondents about the susceptibility of their company to the limitation or suspension of sales due to changes in regulations, supply disruptions, delays in payments by customers or business partners, increased employee concerns, difficulties in access to external financing (of operating activities, investment projects, etc.), increased costs of debt servicing and increased costs of supplies (Cronbach alpha of 0.91). The respondents were hereby asked to rate the related statements on a 7-point Likert scale, where 1: does not apply to our company; 7: largely concerns our company.

In order to measure our independent variable, firm capabilities we have referred to two types of capabilities, technological and marketing, as proposed by the Spanos and Lioukas (2001). Technological capabilities refer to the necessary technical and technological abilities/skills needed to transform inputs into products. We decided to include scales proposed by Spanos and Lioukas (2001) and used *inter alia* by Ruiz-Ortega et al. (2013) which includes seven items in terms of a firm's strength relative to competition. These items are linked to expenditure

on research and development, modern equipment and devices, economies of scale, effective production department, patents held, technological knowledge possessed. Marketing capabilities refer to the output-based competences with regard to advantages in relationships with clients, customer base, control and access to distribution channels, market knowledge, motivated and well educated employees, and experienced management team (Ruiz-Ortega et al., 2013; Spanos & Lioukas, 2001). Respondents were asked to evaluate all items on 1-7 Likert scale, where 1 is definitely worse than the closest competitor, and 7 is definitely better than the closest competitor (Cronbach alpha value of 0.91).

As far as the moderating variable is concerned, export diversification was measured with the number of export markets served by the firm. Finally, in line with extant literature, a number of control variables were defined and integrated into the analysis in order to neutralize influences of economy-level, industry-level and firm-level components in the regression equations as these could distort the empirical findings. These comprised: firm size, firm age, technological intensity of the industry, length of international operations, as well as family ownership.

## 10.3. Results

In order to check whether the export diversification as a dichotomous variable (low level: $N = 58$; 48.3% vs. high level: $N = 62$; 51.7%) is a significant moderator of the relationship between firm capabilities and the affectedness by the crisis, a moderation analysis was performed using a macro PROCESS 3.4.1. The following variables were controlled: the technological intensity of the sector, the status of the family business, the size of the company, years of operation on the international market and the age of the company. Table 10.2 shows the results of this analysis.

The moderation model was found to fit the data well: $F$ (9, 107) = 11.50; $p < 0.001$. This model explains 38% of the variance of the crisis affectedness ($R^2 = 0.377$). Adding the interaction of firm capabilities and the export diversification contributed to a significant increase in the explained variance by 2% ($\Delta R^2 = 0.024$): $F$ (1, 107) = 4.06; $p = 0.047$.

Conditional effects showed that there is a negative relationship between firm capabilities at a low level of export diversification. At a low level of export diversification, with an increase in firm capabilities by one unit, the level of crisis affectedness will be reduced by 0.39 units. In the case of a high level of export diversification, there is no relationship between firm capabilities and the crisis affectedness (see Table 10.3 and Figure 10.2). Therefore, both hypotheses were supported.

**Table 10.2. Regression results (*N* = 120)**

| | *b* | *SE* | *t* | *p* | 95% *CI* | |
|---|---|---|---|---|---|---|
| | | | | | *LL* | *UL* |
| Constant | 45.76 | 6.23 | 7.45 | <0.001 | 33.42 | 58.11 |
| Firm capabilities | –0.86 | 0.39 | –2.18 | 0.032 | –1.64 | –0.08 |
| Export diversification | –5.67 | 2.00 | –2.83 | 0.006 | –9.64 | –1.70 |
| Firm capabilities × Export diversification | 0.47 | 0.23 | 2.01 | 0.047 | 0.01 | 0.93 |
| Medium technology | –0.22 | 1.80 | –0.12 | 0.903 | –3.79 | 3.35 |
| High tech | –0.57 | 1.67 | –0.34 | 0.734 | –3.89 | 2.75 |
| Family company | –3.73 | 2.89 | –1.29 | 0.199 | –9.46 | 1.99 |
| Company size (lg10) | –5.06 | 2.35 | –2.15 | 0.034 | –9.72 | –0.40 |
| Years of activity on the international market | –0.03 | 0.11 | –0.27 | 0.790 | –0.25 | 0.19 |
| Company age | 0.12 | 0.08 | 1.50 | 0.137 | –0.04 | 0.27 |

Source: own work.

**Table 10.3. Contingent effects for the moderation of export diversification**

| | *b* | *SE* | *t* | *p* | 95% *CI* | |
|---|---|---|---|---|---|---|
| | | | | | *LL* | *UL* |
| Low level of export diversification | –0.39 | 0.19 | –2.03 | 0.045 | –0.78 | –0.01 |
| High level of export diversification | 0.08 | 0.17 | 0.45 | 0.651 | –0.25 | 0.40 |

Source: own work.

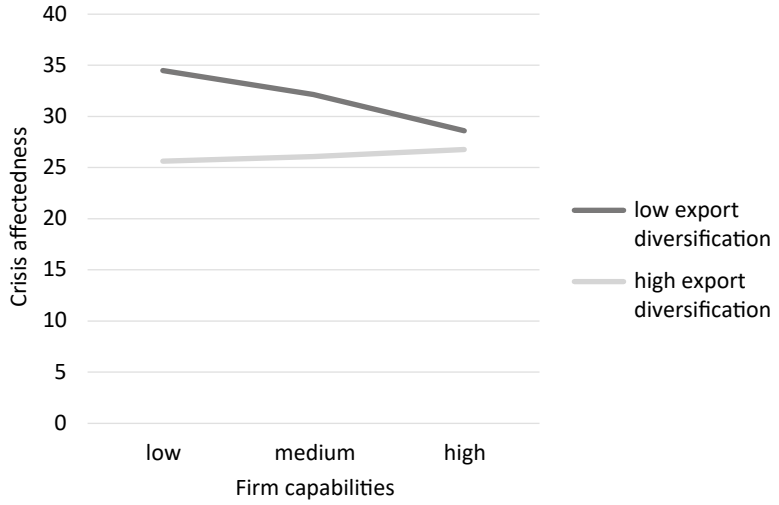


**Figure 10.2. Visualisation of the moderating effect**
Source: own work.

## Conclusions

The COVID-19 pandemic crisis emerged during a period when the accomplishments of globalization in the previous decade were being scrutinised by some academics and national identities were becoming more prominent than ever. Notably, the pandemic exposed vulnerabilities in global value chains and thus the limitations of globalization. However, restricting global economic connections would also reduce the ability of the global economy to address global challenges, including the pandemic.

At the microeconomic level, our preliminary study presents a series of statistical analyses that show that firm capabilities can aid in building resilience during times of crisis, in line with some earlier evidence (Balabanis & Spyropoulou, 2017; Perez-Luno et al., 2011). However, this factor is less significant for more diversified exporters who can take advantage of market differences to maintain or enhance their competitive position. Our findings resonate with some earlier showing that international diversification can offset the effects of an economic crisis (Figueira de Lemos & Hadjikhani, 2011; Filippov & Kalotay, 2011). On the other hand, our findings can be contrasted with the notion that capabilities positively interact with internationalisation on performance (Chiao et al., 2008), as we find a kind of "substitution" effect of international diversification which offsets the crisis affectedness, making firm capabilities less

relevant in the case of more intensive exporters. This learning is also important to note for managers in exporting firms, particularly during times of international turbulence, first amplified by the COVID-19 pandemic, and subsequently reinforced by the war in Ukraine and calling firms to revisit their international strategy even further.

It should be noted that the empirical analysis presented in this chapter pertains to firms from a post-transition economy. As a result, these firms may have different characteristics and behaviors than typical firms from emerging markets or developed economies. Due to their limited scale of operations, limited experience in international markets, and low levels of intangible assets compared to their counterparts in more developed countries, firms from post-transition economies provide a valuable context for studying the relationships discussed in this chapter, as they focus on markets with different levels of economic and institutional development in their export activities. Our finding that export diversification may help firms, regardless of the possessed capabilities, in sustaining international economic crises, is a useful indication for managers and policy makers alike.

The present study presents a rather simplistic view of international diversification, measuring it with the number of export markets. Future research should look into the structure of export market portfolios in order to investigate whether an expansion focused on more or less developed countries will have similar resilience effects for exporters.

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# 11. The impact of COVID-19 pandemic on sustainable business practices—case of an international logistics company

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## Abstract

**Purpose:** The aim of the research was verification of changes in companies' environmental and social initiatives during the COVID-19 pandemic and determination of the impact of these changes on the economic benefits and costs.

**Design/methodology/approach:** A case study method was applied in the research. A deliberately selected company, which participated in previous quantitative research was chosen for the study.

**Findings:** In the analysed company, the COVID-19 pandemic led to the acceleration of the already implemented sustainable business practices and the introduction of new ones. It suggests that the crisis may improve companies' environmental and social results. The improvement is particularly likely, if the implemented sustainable business practices meet one of the criteria: have a positive impact on the financial performance in the short term (1), reduce business risks highlighted by the crisis (2) or improve efficiency, optimise operations (3).

**Research limitations/implications:** A company selected for the case study may be considered a sustainability leader and, as such, is not representative for the population. At the same time, however, it meets the criterion of vividness of the cases selected for study.

**Originality and value:** In the previously conducted quantitative research, the largest group of respondents indicated that in the crisis they would probably give up all implemented environ-

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mental and social practices. The presented results suggest, that the opposite approach—increasing the number and accelerating already implemented sustainable business practices—may be profitable for the companies.

**Keywords:** sustainable business practices, sustainable transportation, social programmes for employees, companies' economic performance.

## Introduction

The crisis always requires the companies to revise their operations (Dubrovski, 2004). The revision should be made according to certain criteria and may lead to giving up some of the company's activities, in particular the least beneficial for the company (Valackienė & Virbickaitė, 2011). Quantitative research conducted in the initial period of the COVID-19 pandemic showed that in a crisis situation, as exemplified by the occurring pandemic, almost all companies declared that they would probably give up all or part of sustainable business practices. At the same time, a large group of respondents indicated that they were unable to determine which initiatives, and selected on the basis of which criteria, would be abandoned (Małys, 2021). Currently, it is possible to verify which changes in the area of sustainable development have actually been introduced, together with an indication of the reasons for the actions taken.

The idea of the triple bottom line assumes that along the economic performance companies should consider the environmental and social results of their operations (Eklington, 1998). However, it is indicated that in practice, activities beneficial from the environmental and/or social perspective sometimes are, and sometimes are not beneficial from the economic perspective (Hoffman & Bazerman, 2007). Individual companies should be particularly involved in environmental and social practices that improve their economic performance, what increases the likelihood of maintaining these practices in the long term (Guerrero-Villegas et al., 2018).

At the same time, however, it is noted that due to the growing popularity of the idea of sustainable development, some companies may be interested in its implementation, wanting to follow the dominant and growing trends, even if it is associated with incurring additional costs in the absence of clear economic benefits. Such opportunities may be available mainly to companies achieving good results, especially of a financial nature (Martínez-Ferrero & Frias-Aceituno, 2015). In a crisis situation, they can resign from implemented initiatives in order to reduce current costs.

Taking the above considerations into account the aim of the research is verification of changes in companies' environmental and social initiatives during the

COVID-19 pandemic and determination of the impact of the economic benefits and costs on these changes. To achieve the aim, a case study method was selected, which allows to obtain detailed information on the changes made and their reasons.

The chapter is composed of five parts. After the introduction, the possible influence of environmental and social practices on company's economic performance is discussed. The section also summarises the results of previous, quantitative study. The next part presents research method and is followed by research results elaboration. The chapter is concluded by the summary of main research results, practical implications and research limitations.

## 11.1. The influence of environmental and social business practices on companies' economic performance

The improvement of the company's economic results has always been one of the dominant issues in management. The concept of sustainability additionally highlights the importance of environmental and social results. The impact that the company's commitment to environmental and social business practices on the achieved economic performance is still under study. The research results are ambiguous—some studies indicate a positive impact (e.g., Fujii et al., 2013; Jung et al., 2018), some negative (e.g., Feng et al., 2018), in some studies the results obtained are statistically insignificant (e.g., Mahoney & Roberts, 2007).

Various explanations for the obtained results are proposed. According to the first of them (Fujii et al., 2013), environmental and social business practices generate only additional costs and do not bring measurable benefits to the company, which in turn leads to the the weakening of the competitive position of the company (Walley & Whitehead, 1994). Thus, it is assumed that the improvement of environmental or social performance is achieved at the expense of economic performance.

The second explanation assumes, that the commitment to environmental and social business practices leads to immediate and lasting improvement in economic performance. In this context, the possibility of reducing costs (e.g., energy), improving resource management (e.g., by reducing their losses in production), or improving results in the area of human resources management are given as examples. In the environmental area, it is also indicated that traditional production methods often involve additional costs, related to environmental fees, storage of harmful substances or their disposal, or reduction of emissions at the end of the production process, which are incurred annually. Eco-design or clean production practices allow for the permanent elimination or reduction of these costs (Fujii et al., 2013).

According to other ideas, the relation between economic costs and benefits achieved thanks to implementation of environmental and social practices changes in time. This is mainly a result of investments related to some practices implementation with the benefits visible only in the long term (Fujii et al., 2013).

In a crisis situation, those companies for whom involvement in environmental and social business practices worsens the economic performance may resign them. In the aforementioned studies conducted in the initial period of the pandemic, the largest group of respondents indicated that they would probably give up all implemented practices (Małys, 2021).

## 11.2. Research method

In the discussed research, a case study method of a deliberately selected company was chosen. The company participated in quantitative research conducted in the initial period of the COVID-19 pandemic. In that study, the respondent indicated that probably some sustainable business practices will be abandoned, but at this stage it was impossible to specify which ones. At the same time, the respondent declared the willingness to maintain the practices addressed to the company's employees.

The analysed company is part of a Scandinavian capital group operating in the TSL sector. The core activity of the entity is concentrated in the western part of Poland and includes activities typical of 3PL operators. The company belongs to the SME sector: it employs approximately 100 people and its annual turnover does not exceed PLN 50 million. The two main areas of the company's activity are contract logistics, carried out in two distribution centres and international road transport, performed by a fleet of tractor units with universal and specialized road trailers. The company also conducts auxiliary shipping activities, including multimodal (rail, sea and air) and distribution transport carried out by SCV

Data for the analysis were obtained from two sources: internal documents and reports of the company (1), and as a result of a series of semi-structured interviews with various employees of the company, to which one of the authors had easy access (2). Subsequent interviews were conducted in order to obtain more detailed information as a result of previously obtained data. The research was carried out in November-December 2022.

## 11.3. Research results

Environmental and social initiatives in the period before the start of the COVID-19 pandemic were an important and integral element of the company's strategy.

To a large extent, this reflects the vision and values represented by the founding entity and thus expected from subsidiaries. Nevertheless, the examined company has a high degree of autonomy in the selection of specific initiatives. Due to the relatively complex economic situation in the years preceding the pandemic, tasks related to the implementation of environmental and social objectives were strongly conditioned by a simulation of the financial result of the planned activities. The areas of particular interest of the company were sustainable transport and social practices for employees.

Activities related to the acquisition and operation of HGV fleet since 2011 were focused on meeting the highest standards in terms of pollutant emissions (EURO VI). The framework for these activities was determined on the basis of legal acts in force in the European Union.[1] These rules were respected throughout the pandemic and, despite sanitary restrictions, resulting in particular in a decrease in the supply of contract vehicles, they were not abandoned or reduced.

Initiatives in the field of adapting the company's fleet to EURO VI emission standards, apart from the obvious environmental benefits related to the reduction of pollution, are strongly justified both in terms of marketing and economics. The financial benefits of implementing vehicles in this standard are multifaceted and cover almost every aspect of both financing and fleet operation. These vehicles, as new units, are covered by a full warranty during their financing period (36 months), which significantly reduces technical costs. The fuel consumption is significantly reduced compared to older models. This allows to generate savings of 6%–8%, which is all the more important as fuel costs range from 15% to as much as 35% of the total operating costs of the fleet (depending on the characteristics of the line). Road toll costs in the vast majority of cases are preferential for low-emission units, thus promoting environmental solutions. In addition, these vehicles are characterized by excellent parameters in terms of ergonomics, amenities for drivers and are equipped with a large number of additional elements that increase driving safety.

The initiative that was both strengthened and accelerated to the strongest extent as a result of the COVID-19 pandemic was the intermodalism of road transport for the analysed company. It consisted in a sectional change from road to rail transport by placing road semi-trailers on pocket wagons. This change is consistent with the White Paper of the European Union (European Commission, 2011) and is associated with a significant reduction in greenhouse gas emissions. The dynamic development of activities aimed at intermodalism of road transport was strengthened by one of the basic effects of the pandemic on the transport sector,

[1] Directive 1600/2002/EC of the European Parliament and of the Council of 22 July 2002 and Regulation (EC) No 595/2009 of the European Parliament and of the Council of 18 June 2009.

which was the limitation of the availability and mobility of the company's fleet staff. A significant number of absences, both caused by infections and preventive, caused serious disruptions in the serviced supply chains, and due to the prevalence of the phenomenon, it did not allow the use of substitutive alternatives to own transport. The weakening of the impact of the pandemic on road transport has not resulted in even a partial departure from the concept. On the contrary, once launched, the initiative was further accelerated due to the widely reported problem of driver shortage (IRU, 2022), but also due to the highly positive economic results.

Another activity that can be treated as a response to the pandemic staff shortage is the handling of multiple semi-trailer distributions using one truck tractor and a single crew. The solution is closely related to the intermodalism of transport by road trailers, but goes a step further and includes the company's own vehicles for last-mile delivery. In this case, the shipment of several road trailers by rail is accompanied by one truck with loaded trailer, that unloads carried cargo by consignee located in the vicinity of destination rail terminal first, while rest of the shipped trailers are being delivered by train. After unloading, the driver tows the first trailer to the terminal, collects sequentially the next trailer arriving on rail cars and delivers them to their destinations.

The COVID-19 pandemic caused, or at least accelerated, transformations in the field of fleet crew employment systems. On lines servicing Polish foreign trade, i.e. starting and ending in Poland, the current model of employment in a continuous system, with drivers taking weekly rest at their place of residence (or on the road, if synchronization is not possible) has been replaced with a model of two weeks of continuous employment with one week of rest.[2] On the one hand, this change causes an increase in the company's costs, due to the need to employ three drivers for each pair of vehicles (to ensure traffic continuity). In practice, however, it means a very significant improvement in driving efficiency and optimisation of the use of the company's resources. During two weeks of employment, drivers receive a shortened rest period between two weekly driving periods of at least 24 hours. Driving time is used optimally and drivers are not under pressure to quickly finish their weekly work between shifts. As a consequence, the change in the employment system results in an increase in drivers' satisfaction with a significant improvement in the profitability.

The period of the COVID-19 pandemic also made it necessary to abandon some of the planned activities due to the objective impossibility of implementation. These activities included those, that did not meet the demands of maintaining the recommended (and in some periods also required) social distancing. First of all,

[2] In practice, this division amounts to 13 days of work and 8 days of rest, due to the maximum number of daily driving periods permitted by law in one driving week of the driver.

integration and recreational meetings suffered, which were only marginally replaced by increased activity in social media and the company's internal communication system. Trainings (both for administrative employees and cabin crew) were also cancelled. These initiatives have not been transferred to the virtual space, to a large extent due to the lack of appropriate tools for remote training and training staff trained in this field, but also due to the insufficient access to infrastructure declared by employees.

Table 11.1 presents a summary of information regarding changes introduced in the company to environmental and social practices during the COVID-19 pandemic.

**Table 11.1. Changes in environmental and social practices introduced during the COVID-19 pandemic**

| Sustainable development area | Implemented practices | Changes during the COVID-19 pandemic | Benefits from introduced changes | Costs of introduced changes |
|---|---|---|---|---|
| Sustainable transport | emission reduction (EURO VI emission standard) | maintaining the practice | • decrease in some operating costs<br>• marketing benefits<br>• improved environmental performance | increase in some operating costs |
| | intermodalism | accelerating practice implementation | • reducing the risk of shortage of drivers<br>• reducing the number of vehicles on the roads (congestion and safety)<br>• improved environmental performance | increase in some operating, transactional and sales costs |
| | change of road trailer distribution (use of one truck tractor) | introduction as a new practice | • reducing the risk of shortage of drivers<br>• decrease in operating costs | no effect |
| | changing the system of employing fleet crews | significant acceleration of practice implementation | • optimising the use of resources<br>• improving driving efficiency | increase in costs |

**Table 11.1 – cont.**

| Sustainable development area | Implemented practices | Changes during the COVID-19 pandemic | Benefits from introduced changes | Costs of introduced changes |
|---|---|---|---|---|
| | | | • revenue growth<br>• profitability increase<br>• improved social performance (driver satisfaction) | |
| Social programmes for employees | integration meetings | resignation from implementation | • reducing the risk of employee illnesses<br>• cost reduction | no effect |
| | internal trainings | resignation from implementation | • reducing the risk of employee illnesses<br>• cost reduction | a slight increase in training costs due to the partial use of external training |

Source: own work.

## Conclusions

As already mentioned, in quantitative research conducted at the beginning of the pandemic, the largest group of respondents indicated that in the crisis they would probably give up all implemented environmental and social practices (Małys, 2021). The results of the presented research indicate, however, that the crisis may also lead to the acceleration of the already implemented initiatives or the introduction of new ones. It seems that in particular this may apply to activities in the field of sustainable development that meet one of the criteria:

1) have a positive impact on the financial performance in the short term,
2) reduce business risks highlighted by the crisis,
3) improve efficiency, optimise operations.

As one of the respondents said, "economic judgment is always the most important thing for companies, regardless of the circumstances." For this reason, in a crisis, efforts are made to maintain activities directly improving the financial result (in the short or medium term) or limiting the risk of deterioration of this result. Other practices, in particular those generating greater burdens than economic benefits for the company, may be suspended at least temporarily.

It should be noted that the conducted research has some limitations. First of all, it is limited to one case study of a company that meets the vividness criterion. The conducted analyses should be supported with quantitative research. In addition, the analysed company belongs to a highly regulated industry in the environmental area, which affects the level of costs when not meeting certain environmental standards.

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# 12. Factors influencing consumer trust in sharing economy platforms—a comparative study of Polish and Moroccan consumers

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## Abstract

**Purpose:** The study aims to define the significance of trust and identify consumers' trust-building factors in sharing economy platforms in two different cultures.

**Design/methodology/approach:** The study used a narrative literature review and exploratory primary qualitative research—focus groups, providing an in-depth insight into the perception of trust in the sharing economy in Poland and Morocco.

**Findings:** Eight factors are crucial in the trust-building process toward sharing economy platforms. For Polish consumers, functional elements such as customer service or service provider reputation standards are critical in building trust, unlike Moroccans, who value the platform's reputation the most.

**Research limitations:** The study's focus group size and the possibility of being influenced by other participants' responses may limit the generalizability of the results.

**Practical implications:** The research stresses the importance of the cultural context in the trust-building process. It may help the sharing economy platforms to customise their offers for consumers coming from different cultural backgrounds, gain their trust and make them feel secure.

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**Originality and value:** The study provides new insights into consumers' perception of trust determinants in two different cultural contexts and contributes to the ongoing discussion on the importance of trust in the sharing economy.

**Keywords:** sharing economy platform, Poland, Morocco, trust, sharing economy.

## Introduction

The sharing economy has given consumers more choices and control over many aspects of their lives, all at reasonable prices and without owning anything (Hossain, 2021). The global sharing economy market was expected to flourish, but the outbreak of COVID-19 has significantly disrupted operations within it, impacting sectors like transportation, lodging, and food delivery that are linked to sharing economy activities (Lopes de Sousa Jabbour et al., 2020). In addition, it has negatively affected service providers, consumers, and society. The pandemic and the accompanying restriction measures suddenly put a brake on the sharing economy sector's momentum, as restrictions have brutally forced people to reduce their services-sharing activities (Hossain, 2021; Mont et al., 2021).

This unprecedented situation has resulted in a decline in the value of sharing economy firms, prompting concerns about the sector's survival, especially given the income loss experienced by many service providers (Higgins-Desbiolles, 2020). Additionally, this event has led to fears of the collapse of the sharing economy, which depends heavily on sharing goods. Nevertheless, some scholars argue that sharing economy platforms have been increasingly gaining attention during the pandemic, given that many sectors have tried to adapt to the crisis by being more open to sharing information (Chesbrough, 2020; Kumar, Singh et al., 2020). As a response to the challenges posed by COVID-19, the sharing economy sector is undergoing a recalibration, and ongoing studies are exploring its multifaceted impact, including aspects such as business uncertainty (Lopes de Sousa Jabbour et al., 2020; Sharma et al., 2020; Tuzovic & Kabadayi, 2020).

If crisis events such as pandemics, wars, economic crisis may affect the sharing economy, distrust is another critical factor hindering its development. Accordingly, trust is a crucial factor, given that interactions within the sharing economy platforms can be risky as they occur among total strangers, often coming from different cultural backgrounds (Alharthi et al., 2021; Pelgander et al., 2022). The COVID-19 crisis has heightened the significance of trust, with information asymmetries and the remote nature of transactions creating challenges in evaluating the safety and reliability of sharing economy interactions (Abrate & Viglia, 2019). Mistrust has emerged among different sharing economy stakeholders, impacting not only transactional trust but also trust beyond the transaction stage (Yang et al.,

2019). Customers, grappling with concerns related to safety and hygiene, are now undergoing a reassessment of trust dynamics within the sharing economy.

While enterprises mainly aim at profit maximisation, gaining and increasing customers' trust must be a priority as it helps to attract new users and strengthens usage frequency among existing ones (Arteaga-Sánchez et al., 2020). Thus, an adequate understanding of various aspects affecting customers' trust in post—pandemic times, especially in the context of cultural differences, is essential. Cultural traits not only provide a broader perspective on consumer decisions and behaviours but also offer nuanced insights into the authentic motives driving trust, deeply rooted in diverse cultural backgrounds (Gesteland, 2003).

Combining these three factors—sharing economy, trust and cultural traits—in one comprehensive study allow for a broader and better understanding of the phenomenon and the impact of culturally-conditioned trust on the decisions of sharing economy users. This can enable the identification of cultural differences and similarities in the context of trust and its building factors. Such knowledge will allow the development of more efficient and safe platforms, enhance the quality and safety of the existing ones, guide companies willing to operate in various countries and cultures and help customers feel safe (Gupta et al., 2019; Räisänen et al., 2021; Zhu & Liu, 2021).

The research gap has been translated into four research questions:

1) Whether and how trust in the platform affects the willingness to participate in the sharing economy?
2) What factors influence consumer trust in the sharing economy platforms?
3) What are the similarities in the trust-building process between Polish and Moroccan sharing economy consumers?
4) What are the differences in the trust—building process between Polish and Moroccan sharing economy consumers?

Through a narrative literature review and exploratory primary qualitative research using focus group interviews (FGIs) as the main research methods, this study aims to define the significance of trust and identify factors building consumer trust in the sharing economy platforms in two different cultures. The study incorporates sharing economy users from Morocco and Poland, emphasising the considerable cultural disparity between these nations. Morocco and Poland embody unique cultural environments marked by differences in values, norms, religions and attitudes (Hofstede et al., 2005). Additionally, these two countries showcase distinctions in their sharing economy markets, encompassing variations in platform accessibility and user adoption rates (*Sharing Economy Index*, 2021).

This paper is organized as follows. It starts by discussing the literature on sharing economy definition dilemma and trust in sharing economy. Next, it presents

a particular focus on the trust building process in Moroccan and Polish culture. Then, the article offers the methodology and findings of the qualitative study. Afterwards, we discuss the findings in the context of the current literature, draw conclusions, and recommend directions for further research.

## 12.1. Theoretical basis and literature review

The theoretical background of the article is based on cultural differences especially on Gesteland's (2003) and Hofstede et al.'s (2005) cultural theory (e.g., deal–relationship–focused concept or uncertainty avoidance concept). Futhermore, the social exchange theory was chosen as background for the research. The social exchange theory provides a theoretical foundation to understand how individuals perceive and evaluate trust in the sharing economy. It suggests that individuals engage in relationships and interactions based on their assessments of the benefits, costs, and fairness involved. When we mention benefits, we do not mean only material issues, but all benefits of a social nature. These theories provide a conceptual framework to understand the cultural nuances, motives, and trust-building factors in the sharing economy within the specific cultural contexts of Poland and Morocco. They help researchers identify similarities and differences between the two cultures, contributing to a deeper understanding of how cultural factors impact trust dynamics in the sharing economy.

### 12.1.1. Definition of the sharing economy

The definition of the sharing economy has been the subject of much debate and controversy, with experts disagreeing on its precise meaning (Botsman & Rogers, 2010; Czernek et al., 2018; Hamari et al., 2015; Hossain, 2020; Hua et al., 2020; Trenz et al., 2018). The difficulty in defining this term stems from the wide range of activities and services and its similarity and overlap with other terms, such as the gig economy and collaborative economy or consumption (Borusiak, 2021; Pawlicz, 2019; Sundarajan, 2016). The sharing economy constantly evolves and changes, making any definition incomplete or outdated (Koopman et al., 2015).

In this study, the sharing economy is defined *sensu largo* (Koźlak, 2017) as a socio-economic system in which consumers give up ownership in favour of sharing, obtaining, or getting temporary access to goods and services (Bardhi & Eckhardt, 2012). Each transaction occurs via an intermediary platform, without which sharing economy services would not be as accessible, efficient, and widespread internationally. Transactions can be peer-to-peer (P2P) or business-to-peer (B2P) relations for a fee or free of charge.

## 12.1.2. Trust in the sharing economy

Trust is one of the factors influencing the proper functioning of the sharing economy (Li & Tsai, 2022; Mao et al., 2020; Nisar et al., 2020). Depending on the field of science, trust can be defined as a component of social capital (Sztompka, 2007), mental state (Pilluta et al., 2005), the background of interaction in the organisation (Weber et al., 2005), readiness to accept the behaviour of the others (Mayer et al., 1995) or a resource in an organisation (Gambetta, 2000). In the literature, trust and the lack of it are defined as a bet that a person places with foresight on another person's behaviour (Sztompka, 2006).

Fukuyama (1995) and Sztompka (2000) propose the concept of a "radius of trust" or "circles of trust", which refers to the various levels of trust that exist within society. These interconnected circles include personal relationships, functional systems, and abstract social objects. However, at the core of this trust circle is a fundamental trust in people and their actions, which Sztompka calls a "primordial form of trust".

Trust in the sharing economy occurs on three levels (3P): service provider (peer), platform, and product (Akin et al., 2021; Hawlitschek, Teubner & Weinhardt, 2016). The consumer of shared services, before deciding to join in on the sharing economy, analyses each of the levels mentioned above to verify their credibility. Trust in the sharing economy is a combination of institutional and interpersonal trust. Institutional trust is based on trust in the platform and its policies. Interpersonal trust is based on trust in other users (Möhlmann & Geissinger, 2018). Institutional and interpersonal trust allows users to feel confident in engaging in transactions with strangers.

In this study, trust would be defined as a "willingness to be vulnerable to the actions of another party, based on the expectation that the other will perform a particular action important to the trustor irrespective of the ability to monitor or control that other party" (Mayer et al., 1995, p. 712).

## 12.1.3. Trust-building theories in Poland and Morocco

The theories of culture and the examples of specific countries highlight the diversity in values, attitudes, trust-building, and other cultural concepts worldwide. According to Hofstede (1991), Hall (1976), and Gesteland's (2003) frameworks, Morocco and Poland belong to different cultural groups. Therefore, the degree of cultural distance, which refers to the extent to which cultural values differ between countries, is significant (Carlos et al., 2008; L. Wang et al., 2021). In other words, the differences in cultural values between these two countries are crucial and cannot be ignored when analysing trust-building behaviours.

According to Hofstede's Cultural Dimensions Theory (1991), there are differences in uncertainty avoidance levels between Moroccan and Polish cultures. Uncertainty avoidance is the degree to which a society tolerates ambiguity in social and organisational contexts. It also considers the attitude to new and unfamiliar situations, as well as to upcoming changes.

Moroccan culture has moderate uncertainty avoidance level (68 points), given that the Arab world exhibits a high degree of power distance (70) and collectivism (54), a moderate level of masculinity (53), and a low degree of long-term orientation (14) and indulgence (25) (Aldulaimi, 2019; Hofstede et al., 2005). This implies that individuals within Arab societies focus on respecting and following the directives of those in positions of authority, prioritising relationship-building and communal values, and upholding traditional beliefs and customs (Khakhar & Rammal, 2013). Moroccans focus on informal relations and personal connections in business and social contexts. They prioritise building personal connections and relationships with others (Hall, 1976). There is often a greater emphasis on social harmony, mutual trust, and maintaining positive relationships.

As for Poland, research has shown it is a high uncertainty avoidance culture (93), where individuals prefer clear rules, formal procedures, and hierarchies (Hofstede, 1991). This cultural orientation may make Poles more risk-averse and less inclined to take chances or try new things (Siemiński et al., 2022). Poles emphasise formal relations in business and social contexts, including following standard protocols, adhering to rules and regulations, and respecting authority and hierarchy. Personal and informal connections may also play a role, but they are often built on the foundation of formal relationships. In deal-oriented cultures, the focus is on achieving goals, completing tasks, and following established procedures. There is often a strong emphasis on efficiency and productivity. In business contexts, deal-oriented cultures value professionalism, competence, and performance.

## 12.2. Methodology

### 12.2.1. Research design

This study used a narrative literature review and a qualitative research approach. The exploratory primary qualitative research using FGIs provided an in-depth exploration of the sharing economy phenomenon and detailed insights into people's attitudes, behaviours, experiences, and perceptions (Dilshad & Ijaz Latif, 2013; Kitzinger, 1995). This method is commonly used when researching the behaviour of the sharing economy consumers (Kumar, Jha et al., 2020; Niezgoda & Kowalska, 2020; Yuan et al., 2021) because of its advantages such as: synergy, snowball effect, stimulation.

The topic addressed in the article is still relatively unexplored. Specifically, there is a lack of research on post-COVID-19 user behaviour in the context of the sharing economy, which could have significantly influenced the issue of trust, especially in an international context. The limited availability of similar studies makes it difficult to develop research hypotheses. Therefore, it was decided to formulate research questions based on the literature study and the theoretical concepts and to utilise focus groups. This qualitative method is used to investigate lesser-known issues that do not allow for a clear development of research hypotheses.

Our research was based on a heterogeneous sample by varying the profiles of participants from a socio-demographic point of view (Figure 12.1). Non-probability sampling was used, given that respondents were not randomly selected; the selection was based on specific criteria presented below (Crossman, 2018). This sampling method is commonly used in exploratory and qualitative research to develop an initial understanding of a minor or under-researched population.

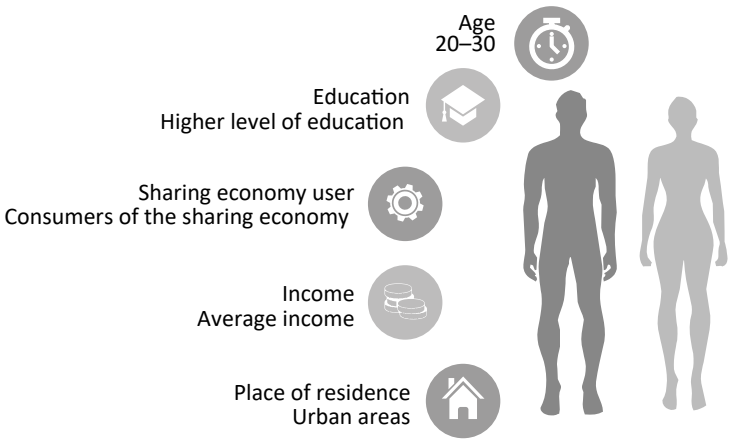


**Figure 12.1. Participant profile**
Source: own work.

Our study included 12 participants: two focus groups of six sharing economy consumers from Poland and Morocco. Six is the minimum number of participants for a focus group (Barrett & Kirk, 2000; Baumgartner et al., 2002; Johnson & Christensen, 2004; Onwuegbuzie et al., 2009). The choice of the interviewees was based on specific criteria established after the narrative literature review (Table 12.1, 12.2).

Based on the literature, the ideal respondents' age in relation to such research was between 20–30 (Bäro et al., 2022; Deloitte, 2015; Eurobarometer, 2016; ING, 2015;

**Table 12.1. Profile of the Moroccan participants**

| No. of focus group`s participant | Gender | Age | Income | Educational level | Place of residance | Sharing economy user / provider |
|---|---|---|---|---|---|---|
| 1 | female | 26 | PLN 2001 to PLN 5,000 | master degree | urban area | user |
| 2 | female | 29 | over PLN 5,000 | master degree | urban area | user |
| 3 | female | 26 | PLN 2001 to PLN 5,000 | master degree | urban area | user |
| 4 | male | 26 | PLN 2001 to PLN 5,000 | master degree | urban area | user and provider |
| 5 | male | 28 | over PLN 5,000 | phd | urban area | user |
| 6 | male | 30 | 2001 PLN to 5000 PLN | master degree | urban area | user |

Source: own work.

**Table 12.2. Profile of the Polish participants**

| No. of focus group`s participant | Gender | Age | Income | Educational level | Place of residance | Sharing economy user / provider |
|---|---|---|---|---|---|---|
| 1 | female | 22 | PLN 2,000 or less | bachelor degree | urban area | user |
| 2 | female | 22 | PLN 2001 to PLN 5,000 | bachelor degree | urban area | user |
| 3 | male | 22 | PLN 2001 to PLN 5,000 | during bachelor studies | urban area | user |
| 4 | male | 21 | PLN 2001 to PLN 5,000 | during bachelor studies | urban area | user |
| 5 | female | 29 | over PLN 5,000 | master degree | urban area | user |
| 6 | male | 30 | over PLN 5,000 | master degree | urban area | user and provider |

Source: own work.

PwC, 2015; Schor et al., 2016; Smith, 2016). Besides, respondents' gender emerges as a more complex antecedent of participation in the sharing economy. Studies have established that men are more likely to know about sharing economy platforms and are less likely to say that they have never heard of them than women (Eurobarometer, 2016). By contrast, other studies have found that men and women have the same intensity of use (Smith, 2016). In our research, six women and six men were invited.

Third, studies have shown that people with a higher level of education strongly engage in the sharing economy (Bäro et al., 2022; Eurobarometer, 2016; ING, 2015; Schor, 2017; Smith, 2016). Accordingly, the interviewees in our research had at least a baccalaureate degree. Fourth, the literature presents the sharing economy as primarily used by employed and wealthy people (Eurobarometer, 2016; Schor, 2017; Smith, 2016). For our study, respondents with different income levels were picked. Lastly, the place of residence was considered, given that people residing in an urban environment use such services the most (Smith, 2016).

Due to the qualitative nature of the research, the formation of research hypotheses was deemed inappropriate, and instead, research questions were formulated (Craig & Douglas, 2009). Building on the insights obtained from the literature review, we formulated four research questions, which are presented in the Introduction section of the paper. This approach allows for an exploratory investigation of the research area, providing insights into the phenomena while remaining open to new discoveries and perspectives.

The study was divided into four main stages (Figure 12.2).

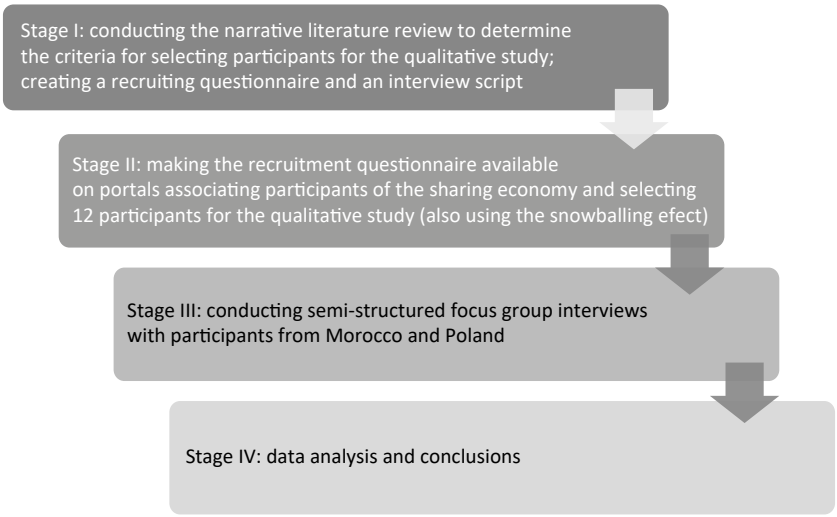


**Figure 12.2. Qualitative study stages**
Source: own work.

Participants were asked about their knowledge, experiences, and trust regarding the sharing economy. The FGI scenario was divided into three parts:

- users' knowledge and the level of involvement in sharing economy activities (their awareness about sharing economy; their previous experience with sharing economy services etc.),
- identification of trust building factors—participants were asked to choose offers from particular platforms and they were asked what motivated their choices,
- trust importance and trust building factors toward sharing economy platforms (what makes them trust companies in general, what motivates participants to use sharing economy services, why do they use particular platforms, what is important for them, etc.).

Each FGI lasted approximately two hours. The interview with the Polish group took place face-to-face in January 2023, while the interview with the Moroccans was in February 2023 on the Zoom platform. Each participant signed the consent form to participate in the study, was informed about its purpose, and agreed to the recording.

The study utilised digital recording devices to ensure accurate recording of all interviews, which were subsequently transcribed for data analysis. The authors conducted semi-structured interviews and also analysed the interview data. This approach helped ensure consistency in the data collection and analysis processes while allowing for a more nuanced understanding of the study findings.

### 12.2.2. Data analysis procedure

Authors read the transcribed data to familiarise themselves with the content and identify potential themes or patterns related to trust in the sharing economy. Then, the Atlas.ti program was used for the transcripts' initial (inductive) coding to identify themes from the data, such as concerns about the trust significance; reliability of platforms or the perceived risk and trust-building factors. After completing the initial coding, secondary coding was initiated to review and refine the codes and categorise them. The example of coding process is presented in Table 12.3. In the final stage, the data was analysed to draw conclusions and identify patterns and differences in cultural perceptions of trust in the sharing economy.

**Table 12.3. An example of the coding process**

| Categories | Examples of the sentences | Coding | Subcategories |
|---|---|---|---|
| Users' knowledge and experience about sharing economy | *Yes, I have heard the term sharing economy (...). and I use some platforms such us Amazon, Uber, etc.* | misunderstood the term | sharing economy definition |
| | *I don't know the exact term but maybe sharing economy is something that you not buy but you just share some goods for example a car. You don't need to buy a car you can just share it via TraffiCar (...).* | don't know the term | |
| Trust significance | *Because of the large number of people it is hard for platforms to control every provider (...). But it is really important for us consumers* | lack of trust | trust in sharing economy provider |
| | *I think platforms are doing their best to check providers.* | trust transfer | |

Source: own work.

## 12.3. Results

### 12.3.1. Moroccan participants

Regarding users' involvement and knowledge level in the sharing economy, the results show that Moroccans were unfamiliar with the term sharing economy, even though they said they know the definition of the term. Moreover, three Moroccan participants confused sharing economy platforms with e-commerce ones.

> *Yes, I have heard the term sharing economy (...). and I use some platforms such us Amazon, Uber, etc.* (Participant 6)

The sharing economy platforms are more frequent among Moroccan participants, as the latter primarily use drive-sharing (e.g., Uber) and food delivery platforms (e.g., Glovo). Only one Moroccan participant has used the flat sharing platform—Airbnb. What is more, five Moroccan participants hardly refused to use pure sharing economy platforms such us Couchsurfing highlighted that there is too much interaction between user and a service provider. They also indicated that the lack of trust is the main reason to refuse using such platforms.

> *When I have a choice between traditional and sharing economy I will use sharing economy services (...) we have multiple apps where we can easily find and compare offers.* (Participant 5)

All participants agreed that they prefer sharing economy services instead of the traditional economy, however, they are not willing to use all of them. All Moroccan participants agreed that without trust in the platform and service provider, they would not be involved in sharing economy activities. That is why they are generally not willing to use these services where high interaction between participants is needed. Moroccans also indicated that they feel more comfortable using local sharing economy platforms than international ones.

> *Because of the large number of people it is hard for platforms to control every provider (...). But it is really important for us consumers.* (Participant 2)

They felt that companies operating in local markets are more trustworthy and able to check and control service providers because they operate on a smaller scale. Multinational companies cannot afford it, it is technically difficult. In general, Moroccans believed that sharing economy platforms are doing their best to provide the high quality of services, however, it is really hard when they operate internationally. All participants agreed that they will not use sharing economy services if they would not be provided by sharing economy platforms. They highlighted that the ease of use the sharing economy platform is crucial in the initial trust building process.

Participants repeatedly emphasised trust as the main factor determining their participation in sharing economy services. The reputation of the platform among friends and family was a factor determining trust in the sharing economy platform. Also, the previous experience of the participants, i.e. positive associations, build trust in the platform. Nevertheless, participants were aware that the quality of services can vary as it depends on the individual service provider.

### 12.3.2. Polish participants

All Poles agreed that they do not know the term sharing economy even though they are users of such activities. Polish participants had more experience in engaging in sharing economy. They were more likely to use driving and car-sharing apps such as Uber, Blabla Car; TraffiCar, etc.; room and flat sharing such as Airbnb and Couchsurfing. They also used bike and scooter sharing apps. In general, the sharing economy was perceived positively by participants, however, they were aware of some negative influences on the traditional economy. They believed that is important to develop and support sharing economy activities.

Although the interviewees perceived the sharing economy positively, some of them refuse to participate in some forms of co-consumption. The high level of trust that needs to be engaged was cited as the main reason.

> *To use Couchsurfing you just need to be brave (...). Maybe if I would be with a friend I will use it, but alone? I will not use... I think it is all about trust issues.* (Participant 1)
> *I have never used Couchsurfing and I am not sure I will. I am not feeling safe.* (Participant 3)

However, two participants were likely to use the pure sharing economy services to save some money. Price was indicated as a very important factor determining the decisions of Polish consumers. They also mentioned the social advantages as an important factor—the opportunity to meet new people, make friendships etc.

> *I used it and I was also a provider for a while (...). I was a student and I was looking for an opportunity to save money (...). For me it was a good experience.* (Participant 5)
> *It strongly depends on the purpose, when someone wants to be on their own will choose a hotel. When you want to meet local, new people, have a local guide you can find it in Couchsurfing.* (Participant 6)

Participants indicated trust as a crucial factor in the decision-making process, and when it came to price, they were able to reduce their need of safety in favour of the more attractive offer of the platform. They strongly indicated that they are ready to use some services even though there is no specific information about the service provider.

> *When the price is lower I will go with this platform (...) even though the providers have no ratings or comments (...).* (Participant 1)

In case when the price is on the same level or the services are for free they were considering the trust issue. To sum up, Poles highlighted that trust is important in sharing economy services, however, it could be observed that price is playing a greater role.

> *I think platforms are doing their best to check providers.* (Participant 4)
> *They cannot introduce too many restrictions because providers will not introduce services to the platform (...). It will be too much effort for them. The main idea is to make it quite easy to the potential sharing economy provide to offer there the services.* (Participant 6)

Poles strongly believed that sharing economy platforms are doing their best to check the providers' backgrounds and try to introduce safety measures. They

also thought introducing too many restrictions would negatively affect the sharing economy because it would be too complicated to provide services there. The Polish participants indicated that they prefer international, well-known sharing economy platforms. They seem more reliable and trustworthy because of their global success.

> *When some platform operates in Warsaw or Berlin already I am assuming it will provide the same quality and standards of the services in other place, so I trust them.* (Participant 6)

During a discussion about trust-building factors, Poles first mentioned such things as 24/7 customer service (help desk), providers' verification standards; systems to build providers' reputation (ratings; comments, etc.), or security of the customer data. They also indicated that even though data and payment protection are essential, they assumed all platforms do it properly.

The summary of the results is presented in Table 12.4, which compares the most important differences and similarities in the approach of the two groups to the issue of trust in the sharing economy.

**Table 12.4. Results summary**

| | **Moroccan participants** | **Polish participants** |
|---|---|---|
| Trust significance | the most important factor | price is more important than trust |
| Engagement in sharing economy | refuse to use pure sharing economy such as Couchsurfing services | more likely to use pure sharing economy activities such as Couchsurfing |
| Local/ international platforms | local platforms are more trustworthy | international platforms are more trustworthy |
| Trust building factors | previous experience; platform's reputation; ease of use; providers reputation | 24/7 customer service; provider verification system; standards for evaluating the reputation of service providers (comments, number of stars; provider's photo); data protection |
| Trust in provider | trust in sharing economy platform and service provider should be considered separately | sharing economy platforms encourage trust in sharing provider |
| Platform importance | not using sharing economy services without platforms | not using sharing economy services without platforms |

Source: own work.

When analysing the behaviour of both Polish and Moroccan sharing economy participants, similarities and differences in the significance of trust and trust-building factors can be noticed. For both cultures, trust plays a crucial role, while Poles were able to prioritise saving money over their safety. They were also more likely to use sharing economy services that are highly interactive between strangers and are cheaper or for free. Moroccans firmly refused to participate in such platforms, stressing that they do not sound safe and are not trustworthy.

In addition, the scale of the platform's operation makes a difference in the trust-building process. One the one hand, for Moroccans, local sharing economy platforms were more trustworthy as they were more likely to scrutinise shared service providers. On the other hand, Poles trusted international enterprises more, which seemed more credible due to the scale of operation and achieved international success.

The factors indicated by the participants overlapped to some extent, but they were also considered in different contexts. Polish sharing economy users identified trust in the platform mainly from its functionality: 24/7 customer service, the method of verifying service providers, and solutions introduced to build the supplier's reputation (ratings, comments, etc.). However, Moroccan users focused more on the emotional aspect, i.e. their feelings and experiences with the platform and the opinion of friends or family.

Poles strongly indicated that trust in the platform determines their continued trust in the shared service provider. They believed that platforms do their best to keep users safe. This is a significant difference from Moroccans, who mostly said that platforms could not check providers sufficiently and each service provider should be treated separately. However, both groups strongly indicated that they would not be willing to use this type of service without the mediation of sharing economy platforms.

## 12.4. Discussion

The results have confirmed that the sharing economy platforms are primarily used by people aged 18–49. Both groups of participants have stated that older family members do not commonly use such platforms, which aligns with the results of Andreotti et al. (2017) and Torrent-Sellens (2020).

All participants of the primary studies agreed that the development of the sharing economy in recent years is due to technological and legal aspects, time economy, a wide choice of offers, competitiveness and environmental protection. This aligns with the finding of Frenken (2017), who indicated that sharing economy can contribute to a sustainability transition. The main differences between

traditional businesses and the sharing economy platforms are accessibility to the provider's reputation, prices, variety of offers, time economy, and flexibility. However, some participants also stated that the sharing economy platforms are negatively affecting traditional businesses. It supports the finding of Hira and Reilly (2017), as it causes losses of profits for them, while the other four participants said that the sharing economy positively affects traditional businesses as it can incentivise them to provide better services. This supports the results of Hall et al. (2022) showing that the sharing economy pushes traditional companies to be more competitive. However, both focus groups agreed that the sharing economy should be encouraged because it creates more job opportunities and positively affects consumers as it offers a more comprehensive choice of offers, confirming the finding of Ahsan (2020).

Regarding factors affecting users' trust in the sharing economy platform and their choice of offers, the interviewees acknowledge that distrust is a big obstacle since sharing involves personal interactions with strangers. For Arteaga-Sánchez et al. (2020), Hawlitschek et al. (2018), and Räisänen et al. (2021), the proper functioning of the sharing economy depends on trust. Polish participants unlike the Moroccans unanimously confirmed that, in contrast to Liang et al. (2018), trust in the platform determines the trust level in the service provider (Aityoussef & Belhcen, 2022). Although participants have indicated some negative and positive impacts of the sharing economy on the traditional economy sector and the environment, they have identified it as a positive phenomenon, which aligns with the finding of Cherry and Pidgeon (2018).

Price and trust were the most crucial factors influencing the choice of an offer. Although the interviewees perceive the sharing economy positively; several participants refused to participate in some forms of co-consumption, such as Couchsurfing, given the high level of trust needed to use such a platform.

For Zhang et al. (2018), reputation is not crucial in the sharing economy compared to its importance for traditional businesses. However, our study cited reputation as a vital determinant, especially for Moroccan participants. All participants stated that having a reputation system makes it easier to build trust among strangers. This finding supports the results of Hou (2018), Li and Tsai (2022), in which reputation systems were proven to affect users' trust. In addition, factors indicated as necessary when choosing an offer were the provider's photo, number of stars, comments, information, and provider experience. Thus, as has been shown by Li and Tsai (2022), Teubner and Flath (2019), and Wang et al. (2020), the platform reputation, identification and verification of service providers, security of participants' data, 24/7 customer service, internationalisation level of the sharing economy platform, the introduction of standards for evaluating the reputation of service providers were crucial for the participants. However, in contrast to Kong

et al. (2020), both focus group participants did not mention transaction safety as a factor determining trust.

For Moroccan participants, trust comes before price, as it was crucial for them when choosing an offer. In addition, they preferred local platforms over international ones because it is more difficult for the latter to control all their service providers. They think the sharing economy platforms do not sufficiently exercise the needed control. Consequently, background checks are essential to increase trust, especially for high-context cultures. The results support Etzioni's (2019) and Xie et al. (2019) findings. The participants said that they generally trust sharing economy platforms. However, to gain customers' trust, platforms need to check providers regularly, consider customers' reviews and suggestions, and have a high morality and ethics business. However, they stressed the importance of trust and safety as the most crucial factors that affect their decision to use a particular platform. Therefore, the results support the previous findings of Chasin et al. (2018) that culture affects users' perception of trust in the sharing economy platforms.

The explanation of differences and similarities in the behaviour of the sharing economy users may be based on cultural differences, which in the literature are indicated as a critical factor influencing consumer behaviour (Bartosik-Purgat, 2019; Chu et al., 2020; Torrico et al., 2019). According to the theory presented by Gesteland (2003), Arab cultures are more relationship-oriented, making it more difficult for them to engage in transactions with strangers. They need more time to build relationships and tend to be more distrustful. This may explain their greater tendency to prefer local companies, a more emotional approach to building trust in the platform, and the significance of trust over price. They also do not easily translate the trust from the platform to the service provider in opposition to the results of Aityoussef and Belhcem (2022).

Due to their more deal-oriented nature, Poles approach the issue of trust more functionally, and build trust with the help of factors related mainly to the technical aspect of platforms. Poles showed high trust in both the platform and the shared service provider, contradicting the results presented by Wagner et al. (2019). According to them, Poles feel confident about the platform, but do not trust the human factor of the sharing economy.

## Conclusions

The global repercussions of the COVID-19 pandemic have accentuated the already pivotal role of trust in the sharing economy. The uncertainties and safety apprehensions stemming from the pandemic have not only intensified the crisis of trust but have also emphasised the enduring significance of trust dynamics in influencing

consumer behaviour within the sharing economy worldwide. Despite the ongoing challenges and prevailing uncertainties, trust remains a central element, undiminished in importance, continuing to shape the dynamics of consumer interactions in the global sharing economy landscape.

The general aim to define the significance of trust and the identification of factors building consumer trust in such platforms in two different cultures was achieved. Trust has been indicated as an indispensable part of the sharing economy, largely determining consumer behaviour and willingness to use sharing economy services in both cultures. It largely determines the choice of the appropriate platform or individual shared services. However, for Polish consumers level of prices can be more important than the trust level in the platforms, contrary of Moroccans who value trust the most. Therefore it can be noticed that there are differences in the importance of trust between individual nations, nevertheless, trust is still considered as an important factor determining the participation of consumers in shared services (RQ1).

This study also found that two culturally different groups build trust in the platform based on various factors. We identified eight main trust-building factors crucial for both Moroccan and Polish consumers (RQ2): previous experience; platform reputation; ease of use; provider reputation; 24/7 customer service; provider verification system; standards for evaluating the reputation of service providers (comments, number of stars; provider's photo); data protection. Moroccans indicated emotional factors such as the platform's reputation; previous experience as key factors in building trust, while Poles appreciated functional aspects such as 24/7 customer service.

We also observed similarities and differences between the two groups (RQ3, RQ4). Firstly, trust is significant for all sharing economy users. However, Moroccans are guided more by it when deciding to participate in the sharing economy. Secondly, differences also occurred regarding the trust transfer from the platform to the shared service provider. Moroccans treat platforms and service providers separately, and trusting a platform is not equal to depending on all its providers. Thirdly, the local or global dimension differentiates groups' trust in the sharing economy platform. Differences can also be observed in the importance of individual trust-building factors; when Polish users attached more importance to the functional aspects of the platform, i.e. customer service, Moroccans approached it more emotionally, by recommendations or their own experience (RQ4). Both groups indicated trust determining their participation in the sharing economy. In addition, participants agreed that they would only participate in sharing economy services with their intermediation (RQ3).

Our findings align with the ongoing discussion about trust, providing better insight into the cross-cultural trust-building process and offering clear implications

for sharing economy stakeholders. First, understanding the cultural factors impacting trust can help the sharing economy platforms design better user experiences tailored to the needs of users from different cultures. This can lead to increased satisfaction and engagement with the platform, especially after crisis introduced by COVID-19 pandemic. Second, platforms can design strategies to improve users' participation from other cultural groups by understanding the factors that impact trust. This study extends the existing literature about the sharing economy users' behaviour and trust in sharing economy platforms in post-pandemic reality. Identifying differences among countries in trust antecedents leading to engagement in sharing economy services provides theoretical contributions to the literature on sharing economy from a cross-cultural perspective.

Our study has also some limitations. First, the small number of participants and the use of non-probability sampling may limit the generalisability of the results to other contexts or populations. Second, the study's reliance on self-reported data may also be subject to response bias, where participants may be inclined to present themselves more favourably or provide socially desirable answers. Thus, future research could be conducted on a larger sample, including other cultures, which have a different approach to building trust. Future research should consider examining the cultural dimensions at the individual level instead of being guided by available research and assumptions that can give a more reliable result for the studied group. Moreover, the study's exploratory nature allows for further empirical verification of the results using statistical analysis. A structural model could be built that would show interactions between the variables.

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With the outbreak of the COVID-19 pandemic, the world came to a standstill. Scholars and policymakers dealing with the economic consequences of the pandemic quickly realised that returning to the pre-pandemic state was impossible—the global community had been heading toward a "new normal". Unfortunately, before we could recognise and tame the "new normal" for good, it was disrupted by the Russian invasion of Ukraine and subsequent energy crises. Therefore, in the monograph's title, we question whether any "new normal" exists. However, disruptions and shocks are unimaginable to get used to; as researchers, we believe knowledge becomes particularly valuable in such circumstances. Defining, studying and describing turmoils allow, if only to some extent, to control the damages they cause. Hence, the research presented in this book aims to identify and explore challenges at the supranational and national levels. Focusing on those challenges, we got to investigate the multidimensional impact of the pandemic shock on business reality. In doing that, we hoped to collect a valuable foundation for formulating a resilience policy, which, to be effective, must respect the peculiarity of national economies, industries, firms, and individual consumers.