

MATHIAS JUUST

Dynamic effects of trade shocks



DISSERTATIONES RERUM OECONOMICARUM
UNIVERSITATIS TARTUENSIS

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LIST OF AUTHOR'S PUBLICATIONS AND CONFERENCE PRESENTATIONS

Papers in peer-reviewed journals

1. **Juust, Mathias**; Vahter, Priit; Varblane, Urmas. 2020. Trade Effects of the EU– South Korea Free Trade Agreement in the Automotive Industry. *Journal of East-West Business*, 27(1), 1–29.
<https://doi.org/10.1080/10669868.2020.1732511>
2. **Juust, Mathias**. 2023. Trade effects of a negative export shock on direct exporters and wholesalers. *Journal of Economic Studies*, 50(5), 967–986.
<https://doi.org/10.1108/JES-01-2022-0056>
3. **Juust, Mathias**; Varblane, Urmas. 2024 (published online). Firm-level capabilities and response to a negative export shock: 2014 Russian embargo on the West. *The Journal of International Trade & Economic Development*.
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Other publications

1. Lastauskas, Povilas; Proskute, Aurelija; Zaldokas, Alminas; **Juust, Mathias**; Berzins, Janis. 2023. How firms adjust to economic sanctions. *CEPR-VoxEU* (<https://cepr.org/voxeu/columns/how-firms-adjust-economic-sanctions>).
2. Varblane, Urmas; **Juust, Mathias**. 2022. The Fight Between the U.S. and China for Leading Role in Global Economy. *The Proceedings of the Riigikogu (Parliament of Estonia)*, 45. (Full text in Estonian: <https://rito.riigikogu.ee/eelmised-numbrid/nr-45/usa-ja-hiina-voitlus-maailmamajanduse-juhtrolli-parast/>).
3. Varblane, Urmas; **Juust, Mathias**. 2019. Escalation of the China-US Trade War Could Lead to an Economic Crisis. *Diplomaatia magazine, International Centre for Defence and Security*. (<https://icds.ee/en/escalation-of-the-china-us-trade-war-could-lead-to-an-economic-crisis/>).
4. Contributing author to the University of Tartu, Tallinn University of Technology, Estonian Business School and the Estonian Academy of Security Sciences joint *Report on the Future Relations between Estonia and Asia*, commissioned by the Ministry of Foreign Affairs of Estonia.
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Conference presentations

1. University of Tartu, School of Economics and Business Administration, and Academy of Korean Studies' conference Geopolitical changes, economic innovation and international relations: Korea and Estonia (Tartu, 2018). Presentation: "Trade Effects of the EU–South Korea Free Trade Agreement in the Automotive Industry".
2. Annual conference of the Estonian Economic Association (Toila, Estonia, 2018). Presentation: "Trade Effects of the EU–South Korea Free Trade Agreement in the Automotive Industry".
3. 16th European Association for Comparative Economic Studies Conference (online, 2021). Presentation: "Trade effects of a negative export shock on direct exporters and wholesalers"
4. 50th AIB-UKI (Academy of International Business United Kingdom and Ireland Chapter) Conference (Birmingham, 2024). Presentation: "Firm-level capabilities and response to a negative export shock: 2014 Russian embargo on the West"
5. The Spanish Association of International Economics and Finance's (AEEFI) XXV Conference on International Economics (Alicante, 2024). Presentation: "Firm-level capabilities and response to a negative export shock: 2014 Russian embargo on the West".
6. The 6th Baltic Economic Conference (Tallinn, 2024). Presentation: "Firm-level capabilities and response to a negative export shock: 2014 Russian embargo on the West".

INTRODUCTION

List of papers

This thesis consists of three published studies that are referred to throughout the thesis with their respective Roman numerals:

- Study I:** **Juust, Mathias;** Vahter, Priit; Varblane, Urmas. 2020. Trade Effects of the EU–South Korea Free Trade Agreement in the Automotive Industry. *Journal of East-West Business*, 27(1), 1–29. <https://doi.org/10.1080/10669868.2020.1732511>
- Study II:** **Juust, Mathias.** 2023. Trade effects of a negative export shock on direct exporters and wholesalers. *Journal of Economic Studies*, 50(5), 967–986. <https://doi.org/10.1108/JES-01-2022-0056>
- Study III:** **Juust, Mathias;** Varblane, Urmas. 2024 (published online). Firm-level capabilities and response to a negative export shock: 2014 Russian embargo on the West. *The Journal of International Trade & Economic Development*. <https://doi.org/10.1080/09638199.2024.2419400>

Motivation

The growth of international trade flows in the late 20th century was accommodated by multilateral trade liberalisation through the World Trade Organization (WTO). The insufficiency of existing multilateral rules to address trade-related issues in the context of global value chains (Baldwin, 2016) and geopolitical tensions have given way to new trends in 21st century trade. On the one hand, like-minded countries are signing ambitious trade liberalisation agreements that go far beyond the removal of tariffs (WTO, 2025; World Bank, 2025), on the other hand, trade restrictive measures are increasingly being applied, sometimes in relation to broader foreign policy goals (van Bergeijk, 2022; Yotov et al., 2020; Morgan et al., 2023). The recent instances of both trade liberalising and restricting shocks require detailed examination since the potential reshaping of existing global value chains has both macro- and micro-level implications. As the effects of trade policy shocks are often viewed as static or one-off changes (Goldberg and Pavcnik, 2016) in bilateral trade flows, there is a need to further explore the dynamic effects of recent trade shocks that “relate to changing an economy’s evolution through time” (Stone and Shepherd, 2011:8).

These dynamic effects of trade shocks can occur on various dimensions that necessitate addressing them on different levels of aggregation. This thesis focuses on the asymmetric effects of trade shocks that are related to differences between national trade barriers on the macro-level and between firms on the micro-level. Conceptually this thesis thereby draws novel connections between the functioning

of modern international trade between actors on the macro-, meso- (or industry) and micro-level. Methodologically this also requires the use of a novel mixed-method approach that applies both macro- and micro-level data, as well as quantitative and qualitative methods.

Former findings in international trade literature show that the effect of positive trade shocks, in the form of free trade agreements (FTA), on the trade flows of signatories can vary significantly subject to the contents of a specific agreement (Kohl, 2014; Baier et al., 2014; Baier et al., 2019). In addition, there are indications that effects on different sectors can even differ inside a particular agreement (Grant and Lambert, 2008; Sun and Reed, 2010; Jean and Bureau, 2016). Therefore, there is an existing need to examine the outcomes of recent FTAs. This thesis addresses the case of the EU-South Korea FTA, applied since 2011, which can be considered modern and comprehensive as it reduced both tariffs and industry-specific nontariff barriers. Lakatos and Nilsson (2017) have found that this FTA resulted in asymmetric bilateral trade effects for the EU and South Korea.

The persistence of new trade restrictive shocks during the last decade necessitates a more detailed examination of how firms adjust to such shocks. Prior literature in international trade has shown how firms can try to gain competitive advantage through switching their export products (Bernard et al., 2010a; Mayer et al., 2014; Iacovone and Javorcik, 2010) and destination markets (Almunia et al., 2021; Blum et al., 2013). However, less attention has been turned to firm-level adjustments after negative trade shocks, especially the relationship between firm-level characteristics and post-shock performance. Therefore, there is a need to draw novel connections between the literature on international trade and the theory of the firm from management literature. This thesis examines the firm-level effects of a negative trade shock that Estonian exporters to Russia faced in 2014 following the escalation of economic tensions between the West and Russia after the latter's aggression against Ukraine. The given negative demand shock was twofold: first, the Russian market suffered from a general negative demand shock; secondly, Russia established an embargo on food exports from the West, including Estonia. In relation to this specific negative trade shock, the case of Estonia is of special interest because of the existing close trade ties some Estonian businesses had with Russia.

A more nuanced examination of firm-level adjustments to negative trade shocks should also be associated with firm-level heterogeneity that can determine exporters' potential adjustment routes. Prior literature has demonstrated that the natural response for a destination-specific demand shock is firm-level trade diversion (e.g. Cheptea and Gaigné, 2020; Kutlina-Dimitrova, 2017). However, former findings indicate that firm performance after demand shocks is stronger for firms with initially higher productivity levels (Bernard et al., 2018; Lewrick et al., 2018) and that wholesalers and direct exporters possess performance features that are distinct from each other (Bernard et al., 2010b; Crozet et al., 2013). In management literature, firm resilience to shocks is associated with firm-level resources and capabilities that could determine the firms' post-shock adjustments (Kim, 1980; Teece et al., 1997; Eisenhardt and Martin, 2000; Barney, 2001).

There is also a need for multilevel studies of the dynamic trade effects of modern trade shocks from a policy perspective. Around the initiation of this thesis in early 2018, the economic and trade tensions between Western countries and Russia had not escalated significantly since 2015. Following the launch of Russia's full-scale aggression against Ukraine in 2022, trade flows between Western countries and Russia have been hit by the direct effect of sanctions and increased geopolitical tensions. By 2021/2022, the majority of EU firms surveyed by the European Investment Bank had experienced trade disruptions (Brasili and Harasztosi, 2023). In the period that this thesis has been produced, world trade has been facing new uncertainties – the rules-based trading system is arguably under attack, and principal trade policy choices are in the limelight of mainstream public debates across major economies.

On the first day of his second term in 2025, US President Trump issued a memorandum “America First Trade Policy” that established a “trade policy that promotes investment and productivity, enhances our Nation’s [US] industrial and technological advantages, defends our economic and national security” and orders the US Trade Representative to “recommend appropriate measures, such as a global supplemental tariff or other policies” to remedy the US trade deficits (White House, 2025). European Commission President von der Leyen’s political guidelines for her 2024–2029 term explicitly state plans to “continue to deepen our [EU] free and fair trade links with growth centres and partners around the world”, while at the same time insisting on the use of “all of our trade defence instruments where and when needed” (European Commission, 2024). Recent developments in the international trade system setting and the strategic plans of major economies in international trade increase uncertainty and the likelihood of new severe trade shocks that both countries and firms face.

Aim and research tasks

The thesis is motivated by two major developments in recent trade relations: the rise of new comprehensive trade agreements between countries and exogenous negative destination-specific trade shocks for exporting firms. This leads to the following research aim: to provide insights into how heterogeneous trade barriers and key firm-level characteristics are associated with the dynamic effects of trade shocks. Support tasks are as follows:

- 1) To provide a theoretical background on the dynamic effects of trade shocks

Study I (using the case of the EU-South Korea FTA)

- 2) To provide an ex-post general assessment of the trade effects of a modern comprehensive FTA.
- 3) To compare the gross trade effects of comprehensive trade liberalisation with those in an industry that initially faced significant NTBs.

- 4) To investigate the trade and trade in value-added effects of comprehensive trade liberalisation in an industry with initially asymmetric NTBs between counterparts.

Study II (using the case of the 2014 negative demand shock on the Russian market for Estonian exporters)

- 5) To provide an ex-post assessment of the firm-level trade effects of a destination-specific negative trade shock.
- 6) To investigate the effects of a destination-specific negative trade shock on the firm-level product and destination switching patterns in the short and intermediate term.
- 7) To compare the trade effects of a destination-specific negative trade shock among firms with initially different levels of productivity, as well as between direct and indirect exporters.

Study III (using the case of the 2014 Russian embargo on Estonian exporters)

- 8) To provide an ex-post assessment of the firm-level trade effects of an industry-specific trade embargo.
- 9) To examine the relationship of pre-shock firm-level productivity with the firms' post-embargo trade performance and productivity.
- 10) To determine the key firm-specific resources and capabilities affecting firm-level post-embargo adjustments.

Based on the empirical findings from Studies I–III

- 11) Discuss the findings and the practical implications of the studies.

The research tasks are designed to support the research aim in addressing the asymmetries in the effects of trade shocks. The first research task relates to providing a theoretical framework to the empirical studies. The theoretical part provides an overview of the relevant theory of international trade, empirical studies on the dynamic effects of trade shocks, literature on the potential role of firm-level capabilities in relation to adjustments to trade shocks, and defines some key concepts relevant to this thesis. Research tasks 2–4 are related to the examination of the macro- and industry-level effects of trade liberalisation in Study I. Research tasks 5–7 concern the investigation of the firm-level trade effects of a negative destination-specific demand shock, accounting for heterogeneities in exporter type and pre-shock productivity levels. Research tasks 8–10 focus on the examination of the firm-level trade and productivity effects of a destination-specific embargo, while also drawing parallels with and accounting for firm-specific resources and capabilities in post-shock adjustments. Research task 11 outlines the main contributions of the empirical studies and discusses them; it also provides practical and policy implications of the results and provides an overview of opportunities for future research and limitations.

Structure and design

Figure 1 depicts the general structure of the thesis. The types of trade shocks investigated are listed in the second panel. These include a case of trade liberalisation (represented by the EU-South Korea FTA in Study I), a negative destination-specific demand shock (2014 Russian demand shock in Study II), and a destination-specific export embargo (2014 Russia’s embargo on Western exporters in Study III). Panel one demonstrates the pre-shock heterogeneities addressed in the study of the aforementioned trade shocks. First, Study I accounts for the macro-level asymmetric trade barriers and trade structure before trade liberalisation. Studies II and III additionally illustrate the firm-level heterogeneities derived from differences between exporter type (direct exporters and wholesalers), pre-shock firm-level productivity levels, and pre-shock firm-level resources and capabilities.

Panel three illustrates the dimensions of the dynamic trade effects examined. Firm-level adjustments in exports, including shifts in destinations and product groups both in the short- and intermediate term, as well as productivity, are investigated in Study II and Study III. The aggregated effect of different firm-level adjustments amount to changes on the industry- and macro-level. Industry- and macro-level trade effects are examined in Study I.

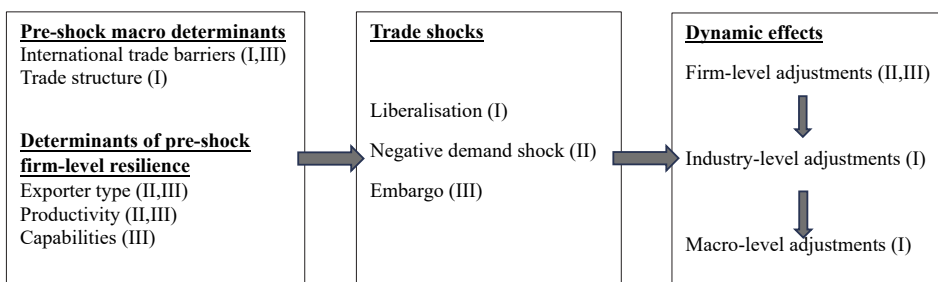


Figure 1. General structure of the thesis and relationship to Studies I, II, and III

Note: numerals I–III in the brackets represent Study I, II, and III, respectively.

The rest of this thesis is organised as follows. Chapter 1 establishes the theoretical framework for the study by providing an overview of relevant prior literature on international trade theory about the effects of trade shocks and the role of firm-level capabilities in relation to trade effects. Chapter 2 consists of three empirical studies investigating the dynamic effects of trade shocks based on three case studies. Chapter 3 summarises and discusses the main results as well as the contributions of the three empirical studies, while additionally outlining opportunities for further research and limitations.

Table 1 presents a description of the empirical studies of this thesis. Study I examines the impact of a positive trade shock in the form of an FTA on nominal and value-added trade flows, while also differentiating between the pre-shock level of trade barriers as well as temporal effects. The case in focus in Study II

relates to a general export market-specific negative demand shock, the firm-level effects of which is quantified on the destination-product changes of different exporters (wholesalers and direct exporters) with different productivity levels. Study III first quantifies the general firm-level trade diversion and productivity effects of an embargo. Second, it adopts a mixed-method multiple case study approach to examine the role of firm-level capabilities in their post-shock adjustments.

Table 1. Description of studies

	Study I	Study II	Study III
Type of trade shock	Trade liberalisation through FTA	Exogenous market-specific negative demand shock	Exogenous market-specific export ban
Level of analysis/data	Macro (countries, industry)	Micro (firm)	Micro (firm)
Type of analysis	Quantitative, macro-level trade statistics	Quantitative, firm-level statistics	Mixed-method firm-level (quantitative, qualitative, multiple case study)
Effects investigated	Bilateral aggregate and industry level trade Value-added in bilateral trade Industry trade structure	Post-shock firm-level trade Firm-level product and destination switching dynamics	Post-shock firm-level trade and productivity Post-shock firm-level adjustments and performance
Effects differentiated between	Countries/industries with asymmetric trade barriers Short and intermediate term Nominal/value-added exports	Direct exporters and wholesalers Firms with different productivity levels Short-/ intermediate term	Firms with different dependency on Russia, productivity, size Firms with different capabilities and resources

Methodology and data

Table 2 illustrates the connections between the thesis research tasks and the data and methods applied in each empirical study. Study I addresses research tasks 2–4 using macro-level quantitative data on bilateral nominal and trade in value-added trade flows between countries. The quantitative analysis method in Study I uses the gravity model of trade that has become a common and theoretically founded tool for assessing the effects of trade policy (Bergstrand and Egger, 2013).

Study II (research tasks 5–7) combines data on firm-level product- and destination-specific export data from Statistics Estonia with firm-level performance indicators from the Estonian Business Register. The empirical analysis uses a quantitative difference-in-difference approach in combination with coarsened exact matching (CEM) (Iacus et al., 2012). The first part of Study III uses the same data sources and methods as Study II. The gravity model in Study I and the difference-in-difference models in Study II and the first part of III are estimated using the STATA statistical software.

The second part of Study III adopts a multiple case study and mixed methods approach that uses both quantitative and qualitative data. The data sources in Study III include industry reports and an interview with a former head of an industry association, firms’ annual reports and news reports about the case study firms before and after the embargo, and interviews with the case firms’ CEOs. Altogether the mixed-method Study III aims to fulfil research tasks 8–10.

Table 2. Connections between empirical studies, tasks, data and methods

Study	Tasks	Data	Method
I	2–4	OECD’s Structural Analysis Database on international trade flows; CEPII database on country-specific gravity model indicators	Quantitative, gravity model
II	5–7	Firm-level export data from Statistics Estonia; firm-level performance statistics from Estonian Business Register	Difference-in-difference, coarsened exact matching (CEM)
III	8–10	Firm-level export data from Statistics Estonia; firm-level performance statistics from Estonian Business Register	Mixed methods approach Difference-in-difference, coarsened exact matching (CEM)
		Case study firm-level annual reports from Estonian Business Register; documents including newspaper articles and industry reports, interviews	Multiple case study: quantitative and qualitative methods (interviews, document analysis)

Contribution of individual authors to the studies

The author of this dissertation is the main author of all three studies. Study I was co-authored by Professor Priit Vahter and Professor Urmas Varblane, who contributed to the conceptualisation of the research ideas and advised on the data analysis process and formulation of the results. Study III was co-authored by Professor Urmas Varblane, who contributed to the conceptualisation of the research idea, qualitative data gathering and discussion of the results. The author of thesis is the sole author of Study II.

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1. THEORETICAL FRAMEWORK

1.1. International trade theory and gains from trade

In classical trade models, economic gains from international trade are related to inter-industry comparative advantage or endowment differences between countries, but they fall short in finding explanations for some of the modern aspects of international trade, such as increasing international intra-industry trade flows (Ruffin, 2013). One answer to this puzzle was provided by the New Trade Theory models or monopolistic competition models (Krugman, 1979, 1980; Helpman, 1981). These types of models saw gains from trade arise from increased market scale for firms as a result of removing trade barriers and liberalising trade policy. This literature also initiated the shift of focus in the international trade literature from the macroeconomic level of trade between countries with different characteristics to the microeconomic level of industries or firms with different characteristics. The models of monopolistic competition introduced some novel assumptions. First, intra-industry trade involves differentiated goods and consumers have “love-for-variety” types of preferences, which means that goods are no longer perfect substitutes and consumers are willing to pay extra for the distinct characteristics of specific goods. On the production side, increasing returns to scale incentivise higher output levels. The combination of these demand and supply side assumptions provides consumers with a wider variety of products at a lower price, as the largest producers can expand to a new market after trade barriers are lowered.

The age of globalisation has shown that differences between individual producers, even inside the same countries and industries, can play an important role when studying the effects of trade. In the works of Melitz (2003) and Bernard et al. (2003), gains from trade originate from firm-level heterogeneity and the notion that the most productive producers in each industry survive and thrive, which eventually increases average industry efficiency. In these models of heterogeneous firms or New New Trade Theory, gains are related to increased competition after trade liberalisation and the ability of the largest and most productive firms to cover the fixed costs of entering a foreign market or investing in productivity-enhancing innovation.

To understand the differences between the trade models of monopolistic competition and heterogeneous firms, it is important to look at their distinctive assumptions and implications. As in Krugman (1980), intra-industry trade in the heterogeneous firm model of Melitz (2003) occurs in differentiated goods. However, on the supply side, producers also differ in terms of the marginal productivity of labour and thus overall productivity. As a result, more efficient firms have higher output, revenue and profit levels, while charging lower prices than their less productive competitors. Exporting firms must cover both the sunk fixed investment of entering the foreign market and the per-unit shipping costs. A firm’s decision whether to export is made after drawing its productivity from a

fixed distribution. Thereafter three types of firms can be found: firms that exit, firms that produce only for the home market, and firms that produce for the home and foreign market. While all surviving firms lose market share at home, the exporters cover their losses and increase their initial profits through sales on the foreign market, eventually causing growth in average industry productivity.

Trade shocks can be represented by any disruption or enhancement to trade flows. Trade shocks can have static effects that relate to changes in the allocation of resources and consumption opportunities, but they can also bring about dynamic effects that affect productivity growth (Milner, 2013). Therefore, one key concept in the following examinations of the firm-level effects of trade shocks is productivity, which can be broadly defined as the “efficiency in production: how much output is obtained from a given set of inputs” (Syverson, 2011). There are different ways for measuring this ratio; for example, one often used method invariant to the intensity of inputs (e.g. labour and capital) is total factor productivity, which increases for firms that produce more output from a fixed set of inputs (*Ibid*).

The rise of the models of heterogeneous firms that predict overall welfare gains has been accompanied by more detailed examinations of the differences between firm performance after trade shocks. Bustos (2011) studies the effects of trade liberalisation via MERCOSUR (The Southern Common Market) on the technological change and performance of Argentinian firms. Like Melitz (2003), the underlying model includes heterogeneous firms facing fixed costs of exporting that are more likely to be undertaken by larger and more productive firms. However, it adds a fixed technological adoption component that induces larger firms to apply the newest technologies as the returns are proportional to sales volumes, as in Yeaple (2005). Empirical testing shows that increased revenues from new markets motivated Argentinian exporters to upgrade their technology, which was highest and most profitable for upper-middle sized firms but upgrading remained more limited for the smallest and largest firms whose technology advancement decisions are independent of trade policy. Related works have also shown that trade liberalisation shocks have an asymmetrically large positive effect on the performance of more advanced or productive firms (Iacovone, 2012; Aghion et al., 2018).

Trade shocks can also result in an increase in import competition for the incumbents. Bernard et al. (2006) study the impact of higher import penetration from low-income countries on different types of American firms, indicating that industries facing more competition from low-income countries showed higher rates of default and lower levels of growth. However, they also find that skill- and capital-intensive producers are less affected than labour-intensive firms. The subsequent literature has produced somewhat contradictory conclusions about the import competition effects of trade shocks. Higher import competition has been shown to increase firm-level innovation and growth (Bloom et al., 2021) or productivity in import-competing industries (Topalova and Khandelwal, 2011). Bloom et al. (2016) find that Chinese import competition since 1996 has induced innovation and technical change in affected European firms and moved labour to

more advanced firms. On the other hand, Autor et al. (2020) relate higher import exposure from abroad to lower firm-level sales, profitability, and R&D activities in the US manufacturing sector.

Bernard et al. (2007) note that there is remarkable heterogeneity in US firms' overall engagement in international trade, in that only a small fraction of firms are exporters, most of which only trade in a narrow set of products on a limited number of foreign markets. At the same time, a minority of multi-product exporters simultaneously trade with numerous countries and constitute a vast majority of total trade value. Additional findings indicate that the average value of firms' export or import products is increasing in the partner country's income or capital- and skill-level. A subsequent model by Bernard et al. (2011) predicts that lowering trade barriers has within-firm compositional effects, as producers concentrate their exports on a smaller number of products, while firms exporting several goods can be expected to enter several countries and increase the export level of their chosen products.

Mayer et al. (2014) study the effects of destination market size and geographical distance on the product range and the export mix of firms. The intuition behind these relationships is that market size and geographical factors impact the competitiveness and markups in product lines, causing changes in the product mix towards goods preferred by the consumers. Relying on data from French exporters, their results confirm that the share of high-performing goods increases in larger and more competitive markets. Subsequent findings have also shown how firms skew their exports towards high-quality and in-demand products (Manova and Yu, 2017) or engage in price discrimination by adjusting mark-ups according to the destination market's distance or tariff level (Chen and Juvenal, 2022). Alborno et al. (2023) demonstrate a degree of learning by exporting among firms sequentially widening their product portfolio on one market before entering new ones.

International trade models with oligopolistic competition highlight the importance of very large exporters in modern global trade (Neary, 2010), predicting that multi-product firms become more productive by increasing their focus on core products (Eckel and Neary, 2010). Bernard et al. (2018) build upon the existing literature on heterogeneous firms but emphasise that the former literature does not appropriately address the peculiarities of the largest firms on the market, the so-called "global firms". These producers differ from others because they account for a large share of international trade and simultaneously make decisions on various margins of trade by optimising their selection of production locations, export destinations, import partners for intermediate inputs and product lines for plants they operate. Their model also highlights the interdependence between different export or import decisions as the costs and benefits of entering one market can affect the profitability of engaging in another one. By spreading business operations across different cost-efficient locations, even small differences in productivity can have a huge impact on the overall performance of a firm, while large market shares enable these huge multinationals to apply variable pricing and increase mark-ups across different markets.

The reviewed literature on international trade has implications for this thesis by showing how trade shocks can lead to both macro- and micro-economic adjustments. The sources of trade-related welfare gains can relate to increased market size or import competition that has often been found to lead to asymmetrically large performance growth for more productive, technically advanced or larger firms. Potential sources of post-shock efficiency gains include technical advances or innovation and product-destination level export choices. Trade shocks, whether they are positive or negative, can be expected to lead to adjustments and asymmetrical effects due to firm-level heterogeneity.

1.2. Trade shocks

The empirical studies in this thesis focus on the study of trade in goods and two types of trade shocks: trade policy shocks and export market specific demand shocks. Trade barriers can range from natural barriers (e.g. geographical distance) or human-related barriers (e.g. cultural-linguistic differences) to man-made policy restrictions to trade (Bergstrand and Egger, 2013). This thesis mainly addresses policy restrictions and the effects of changing them. These trade barriers can be broadly divided into historically prevalent tariff barriers and nontariff barriers. Tariff barriers are typically different mechanisms for taxing imports from other countries. Nontariff barriers can be any other type of policy restriction from quotas to product-specific standards or technical measures of various kinds. Measuring the effects of establishing or removing nontariff measures can, however, remain complicated as their effects can be multidimensional (Disdier and Fugazza, 2019) and their restrictiveness on trade can be difficult to quantify (Bergstrand and Egger, 2013). Nontariff barriers in the form of technical measures can relate to genuine non-discriminatory rules in the public interest, such as for safety, but in practice they can also be used to discriminate against the entry of foreign firms to the home market (Anderson, 2013).

Study I directly relates to the literature on the removal of trade barriers. The literature on the impact of trade liberalisation is vast. Many meta-analyses of FTAs expectedly confirm that trade liberalisation treaties on average result in an increase in the participants' trade flows (Head and Mayer, 2014; Baier et al., 2019), while there are also indications that many FTAs do not actually result in trade growth and that the average effects of FTAs can be affected by factors such as applied empirical methods or the specific sample selection in cases (Kohl, 2014).

Heterogeneities in the effects of trade liberalisation between partners can be explained by a multitude of conditions. Prior literature has explained the heterogeneous effects of trade agreements on the basis of factors like partner level of development (Eicher and Henn, 2011, Martinez-Zarzoso et al., 2009) and the content or depth of the trade agreements (Baier et al., 2014; Kohl, 2014; Wang, 2016). Heterogeneities can also exist not only between different trade agreements but also between different industries or fields inside a single trade agreement

(Orefice and Rocha, 2013; Baier et al., 2019). Moreover, preference utilisation rates of FTAs show that some firms do not make use of available preferential policy treatment that requires meeting preconditions like initial administrative compliance costs or the rules of origin requirements (Legge and Lukaszuk, 2024). An additional factor affecting the examination of trade policy effects on trade flows is the spread and fragmentation of global value chains across countries, which complicates the interpretation of changes in bilateral gross trade value (Grossman and Rossi-Hansberg, 2008; Baldwin, 2013). The potential effectiveness of fragmenting value chains across different countries can depend on industry or even product-level characteristics (Mudambi, 2008, de Backer and Miroudot, 2014). Therefore, aspects related to the global value chain can impact the nominal and trade in value added effects differently, especially in the presence of modern comprehensive FTAs that in addition to tariffs deal with NTB removal or investment facilitation (Baldwin, 2016).

In the context of this thesis, Study I directly relates to studies investigating the effects of EU trade agreements. Numerous studies have highlighted that significant heterogeneities in the export effects also exist between trade agreements signed by the EU (Bergstrand et al., 2011; Gylfason et al., 2015; Montalbano and Nenci, 2014; Cieslik and Hagemeyer, 2009). Considering the EU-South Korea FTA that is the focus of Study I, ex-post studies have found differences in the intra-agreement bilateral trade flows, where EU exports to South Korea (Korea) increased more than vice versa (Lakatos and Nilsson, 2017; Felbermayr et al., 2019). On a more disaggregated level, trade effects of this agreement have been found to differ also between industries (Evert and Oh, 2019). Analyses following the publication of Study I confirm the FTA's asymmetrically large positive effect on EU exports associated with pre-FTA nontariff barriers and the fragmentation of global value chains (Quintieri and Stamato, 2023) and indicate that rules of origin related requirements could be one reason why some firms did not use the agreement's preferences for imports from Korea to the EU (Kasteng et al., 2022; Kasteng et al., 2024).

The empirical literature on the effects of trade liberalisation through FTAs has offered different reasons why outcomes may vary in the different cases that relate to Study I. Prior findings indicate that the bilateral trade effects between FTA members can differ on the aggregate as well as on the industry level. Heterogeneous outcomes in post liberalisation trade effects can relate to differences in the level and type of initial trade barriers and the extent of removing them. Understanding the more nuanced nature of trade liberalisation effects also requires considering potential changes in global value chains and the trade in value-added.

Study II and Study III of this thesis focus on the trade effects of negative trade shocks. The expected outcome of a destination market specific negative demand shock can depend on the given theoretical assumption. A negative demand shock on one market could negatively impact exports on other markets if sales on different markets are complementary. This sort of complementarity between sales on different markets has been shown to exist empirically (Berman et al., 2015; Erbahar, 2020) and can be explained by the liquidity channel (Cooley and

Quadrini, 2001; Kohn et al., 2016). In addition to increasing returns to scale, sales on one market can also benefit sales on other markets thanks to export experience and know-how (Morales et al., 2014; Martins and Yang, 2009; Atkin et al., 2017; Salomon and Shaver, 2005). The opposite could be expected after a negative destination-specific demand shock if markets act as substitutes; for example, if firms face capacity constraints (Blum et al., 2013; Soderbery, 2014; Ahn and McQuoid, 2017). Empirically, it has been found that a more severe negative demand shock on the domestic market could lead to higher export performance on other markets (Almunia et al., 2021). At the same time Aranguren et al. (2021) find no relationship between a demand shock on firms' key export destination and their sales on other markets.

In addition to changes in export value, trade shocks can also bring about shifts in the export product portfolio of firms. Product switching and churning or the simultaneous shifts in both products and destinations have been shown to be significant firm-level sources of productivity growth (Iacovone and Javorcik, 2010; Bernard et al., 2010a; Bernard et al., 2011; Mayer et al., 2014; Ladu et al., 2020; Mayer et al., 2021). The ability of exporters to engage in effective product or destination switching can, however, vary due to firm-level characteristics like the ability to modify inputs-outputs according to destination country needs (Manova and Zhang, 2012).

Significant firm-level differences could also derive from the exporting type between direct exporters selling goods they produce themselves and wholesalers selling the products of other producers. Wholesalers benefit from economies of scope that enable them to serve smaller or high fixed-cost markets more efficiently than direct exporters, while the exports of wholesalers have been found to be less responsive to external shocks than those of direct exporters (Bernard et al., 2015). Exporting costs can lead to most productive producers exporting on their own and intermediate-productivity firms exporting via wholesalers (Grazzi and Tomasi, 2016; Akerman, 2018). Crozet et al. (2013) observe that wholesalers both accommodate the exports of less efficient firms and enable exporting to less accessible destinations. Bai et al. (2017) find that direct exporting and learning by exporting results in higher firm-level productivity growth compared to indirect exporting. Subsequent studies have shown that many manufacturing firms also export products by other firms (carry-along trade) that is higher for high-productivity exporters (Bernard et al., 2019).

Economics and international relations literature related to Study III of this thesis has been concerned with the effectiveness of sanctions, often hinting that sanctions have not fulfilled the ultimate goals of the sender (Egger et al., 2024). Study III focuses on a case of product- and partner-specific trade embargoes, wherein one state bans the import of specified goods from the firms of selected states. Based on Danish firm-level data from 2000–2015, Jäkel et al. (2024) conclude that sanctions reduce firm export level and the likelihood of exporting to the sanctions target country, while there is significant heterogeneity between the types of sanctions, objectives and target countries.

Sanctions and other types of negative demand shocks affecting exporters can take many forms that can consequently affect their outcomes. Relevant to the scope of this thesis, Sun et al. (2021) have found sanctions to benefit the performance of non-sanctioned firms in comparison to firms affected by the given sanctions. Evidence from recent international sanction cases show that the natural response for exporters facing destination-specific sanctions is to divert exports to other markets (Haidar, 2017; Esfahani and Rasoulinezhad, 2017). In addition to trade diversion, Aytun et al. (2025) associate a destination- and product-specific embargo with negative firm-level effects on employment, purchases and domestic sales.

The trade effects of Russia's 2014 sanctions on the West have been by now examined by a small number of studies. Several studies find that the exports of embargoed products from the EU to Russia decreased (Flach et al., 2024) and were diverted to other markets (Cheptea and Gaigné, 2020; Kutlina-Dimitrova, 2017). Studies on the firm-level effects of the embargo are rarer. Based on insights gathered from French firms (Crozet and Hinz, 2020) and German firms (Görg et al., 2024), it has been found that both the firm-level exports of directly sanctioned goods as well as non-sanctioned goods to Russia were negatively impacted. Görg et al. (2024) add that the negative effect on firms highly dependent on the Russian market was larger than for other firms that replaced sales via other markets. Lastauskas et al. (2023) demonstrate that firms directly affected by the sanctions also experienced declining employment and investment rates. There are also some preliminary studies on the firm-level effects of the shock that exporters to Russia faced after Russia launched its full-scale invasion of Ukraine in 2022. Gavaille (2025) finds that Latvian firms highly dependent on the Russian market experienced a fall in turnover, employment and profitability, while firms with low dependency were likelier to stop exporting to Russia.

More generally, Study II mostly investigates the directly quantifiable outcomes of firm level adjustments to a negative demand shock, while Study III additionally explores qualitative firm-level adjustments and factors enabling those adjustments. The aforementioned welfare gains from increased international trade are related to firm-level effects such as the greater (export) performance and opportunities for high productivity firms (Melitz, 2003; Bernard et al., 2003; Melitz and Ottaviano, 2008), while better export performance as such has been associated with larger manufacturing firms (Ha et al., 2020). Moreover, changes in trade barriers have been associated with adjustments of resources inside firms and industries (Pavcnik, 2002; Bernard et al., 2018). Increased firm-level innovation or technology uptake, often shown to be more effective for high-productivity firms, is one channel through which trade or trade policy affects firm performance on the market and vis-à-vis competitors (Lileeva and Trefler, 2010; Aghion et al., 2005; Autor et al., 2020). More productive firms have also been found to show better performance after a negative demand shock (Lewrick et al., 2018; Foster et al., 2016) or a currency depreciation shock (Berman et al., 2012), while qualitative studies have reported higher post-recession resilience for firms with better innovation and managerial capabilities (Temel and Forsman, 2022).

1.3. Role of firm-level capabilities in dynamic trade effects

In addition to exploring various dimensions of dynamic trade effects, this thesis also touches upon the question of why some firms are more effective in their adjustments after trade shocks. Study III draws connections between the previously reviewed concept of productivity in international trade theory as a potential proxy for firm-level capabilities and resources that are more prevalent in management literature.

The roots of the literature on firm-level capabilities has developed in parallel with macro level inquiries into why some countries show better economic growth than others. Works by Abramovitz (1986) have posited that in addition to the existence of the technology or capital necessary for growth, countries also need “social capabilities” to make use of available productive factors. Such capabilities can relate to level of education, growth-supporting governance structures and financial institutions, as well as societal trust. Kim (1980, 1997) uses the related term – technological capability – which describes the firms’ ability to use and develop available technologies to their advantage; these technological capabilities can be further divided into three increasingly complex types of capabilities: production, investment, and innovation. On a more generalised level, the national technological capability and innovation system frameworks associate the capabilities of firms with the capabilities of different organisations and the stakeholders they interact with (Lall, 1992).

Another thematically similar conceptualisation of firm-level capability by Cohen and Levinthal (1990) uses the term “absorptive capacity” as “the ability of a firm to recognize the value of new, external information, assimilate it and apply it to commercial ends” in which there is a degree of path dependency derived from the cumulative knowledge of a firm. The term absorptive capacity itself has been later reconceptualised and empirically examined from different perspectives as reviewed in, for example, Zahra and George (2002). Absorptive capacity can be viewed from the perspective of a wider resource-based framework that highlights a firm’s possession and efficient use of resources as a defining feature of competitiveness (Penrose, 1959; Barney, 1991, 2001; Lockett et al., 2009; Cohen and Levinthal, 1990). From this perspective, resources can be both tangible, like physical capital, or intangible, like the ability to involve external knowledge (Cohen and Levinthal, 1990; Griffith et al., 2003).

In the following integrative approaches, firm-level capabilities have been divided broadly into two. First, ordinary (sometimes operational or zero-order) capabilities constitute the standard or routine ways a firm operates that can be made more efficient but that do not result in significant organisational change (Winter, 2000, 2003). On the other hand, dynamic (also higher order) capabilities enable firms to significantly modify their operation or way of doing business to become more competitive and to better adjust to changes in the business environment (Teece and Pisano, 1994; Teece et al., 1997; Eisenhardt and Martin, 2000). In subsequent elaborations, Teece (2012) has classified dynamic capabilities into further subgroups, such as sensing (identifying opportunities), seizing (using

available resources to benefit from an opportunity), and transforming (the process of renewing the organisation).

The reviewed broad definitions and frameworks of firm-level resources and capabilities that set some firms apart from others have been followed by more detailed topical empirical investigations. In the context of this thesis, it is relevant how firm-level capabilities can explain why some firms are more successful than others in responding to demand shocks. Conz and Magnani's (2020) literature review divides firm resilience related capabilities into proactive, absorptive and adaptive, reactive, and dynamic attributes, with the latter being the only one that enables adjustments simultaneously before, during and after a shock. Makkonen et al. (2014) find that operational capabilities and innovation accommodate firm-level adjustments during a negative shock, while the results of Zouaghi et al. (2018) associate better firm performance during a crisis with better in-firm human capital and use of external knowledge. Lee et al. (2009) highlight that firms with flexible capabilities, such as research intensity, adjust to negative shocks better than firms with locked in or destination-specific capabilities like advertising.

Discussions of absorptive capacity as a key firm-level capability for making effective use of available information have been complimented by more nuanced studies of how firms obtain and use knowledge to gain competitiveness. Lome et al. (2016) find that firms with higher R&D intensity show better performance after being faced with a negative economic shock. One branch of the literature demonstrates how firm performance or innovation can benefit from cooperation in networks, such as professional associations and business group affiliations (Balla, 2001; Chang et al., 2006), increased external collaboration linkages with other organisations (Laursen and Salter, 2006; Love et al., 2014; Roper et al., 2017) or research institutions (Arundel and Geuna, 2004). Bloom and Van Reenen (2010) associate better management practices with both persistent firm and country level productivity differences. Higher performance has also been related to managerial upgrading (Yoruk, 2019) or higher entrepreneurial ambition, including in aspects like strategic intentions for market growth and technological change (Gundry and Welsch, 2001), while the literature on the judgement-based approach examines firm performance through the actions of entrepreneurs that are shaped by heterogeneous available resources and external uncertainty (Foss et al., 2019).

2. EMPIRICAL STUDIES

3. DISCUSSION AND CONCLUSIONS

3.1. Main findings and contributions

Study I

The aim of Study I is to examine the trade effects of the free trade agreement (FTA) between the European Union (EU) and the Republic of Korea (Korea) that was provisionally applied in 2011. The specifics of this trade liberalisation case make it possible to examine the dynamic effects of a positive trade shock on several dimensions.

First, the EU-Korea FTA represents a modern type of comprehensive trade liberalisation treaty that not only lowers bilateral tariff rates but also addresses the removal of some sector-specific nontariff barriers (NTBs) to trade. This notion is especially important as tariff rates between WTO members have been lowered significantly during the second part of the 20th century, while the use of NTBs remains widespread across the world (WTO, 2024). Moreover, quantifying the extent or impact of NTBs like technical standards is more complicated than for tariffs, which can mean that NTBs can intentionally or unintentionally represent the most detrimental trade restrictive measures in current international trade.

Second, the EU-Korea FTA represents an outstanding positive trade shock via trade liberalisation between some of the world's largest economies that can have tangible implications for global trade flows and provide guidance about the potential future effects of trade agreements between major distant economies, also known as mega-regionals (Baldwin, 2014), that have been recently signed or are being negotiated. Moreover, EU and Korea are both developed economies with fairly similar economic structures due to which bilateral trade liberalisation, which is especially comprehensive concerning both tariffs and NTBs, creates the potential for intra-industry trade adjustments. The study also compares the changes in nominal trade flows to trade in value-added indicators, which is necessary to address the actual dynamic adjustments in trade patterns that result from the fragmentation of production through global value chains (GVC) (Baldwin, 2013; Timmer et al., 2015).

Following this argumentation, Study I addresses the trade effects of the EU-Korea FTA not only on the level of aggregate bilateral trade but also in the automotive industry. The special focus on automotive trade derives from the fact that both the EU and Korea are major car producers on the world market, which provides an opportunity to study an industry that is part of modern global value chains. Moreover, the given FTA had a specific focus on removing bilateral NTBs in automotive trade that were also estimated to be much higher in Korea than in the EU, while the changes in sectoral bilateral tariff rates were of similar magnitude (UNCTAD, 2019; Cooper et al., 2011). This harmonisation of sectoral standards, that were initially asymmetric, enables a closer examination of the effects of a trade shock originating from the removal of NTBs. In addition, comparing the changes between post-FTA aggregate and industry-level trade flows also

provides some indication of the effectiveness of sector-specific NTB-related provisions in modern comprehensive agreements.

Study I adds to the discussion in the literature that has found the trade effects of FTAs to vary significantly (Kohl, 2014; Head and Mayer, 2014) by confirming the significant trade-enhancing effects of the EU-Korea FTA. Considering the comprehensive content of the EU-Korea FTA, these findings support previous conclusions about the trade enhancement of deep trade agreements (Baier et al., 2014; Wang, 2016; Baier et al., 2019). Study I also confirms the observations of Baier et al. (2019) by illustrating that trade effects inside FTAs can be asymmetric, as EU exports to Korea generally increased more than bilateral trade flows in the other direction. Similar to Jean and Bureau (2016) and Mujahid and Kalkuhl (2016), the results demonstrate that bilateral trade effects can differ even between narrower levels of export product aggregation.

The first contribution of Study I to the literature relates to a more detailed investigation into the reasons behind the differences of post-FTA trade effects. Most evidently, the results demonstrate the persistent importance of NTBs as trade restrictive measures. This conclusion follows the notion that trade growth in the automotive sector, which experienced specific NTB reductions, was higher than in aggregate trade flows. Besides that, the growth in bilateral automotive trade was driven by EU exports that experienced a relatively higher reduction of NTBs on the Korean market than vice versa.

Moreover, the changes in the post-FTA trade structure also follow the pattern of NTB removal as the share of products that faced the highest NTB reductions increased in the bilateral automotive exports from the EU. Considering the sectoral fears (Erixon and Lee-Makiyama, 2010; Siles-Brügge, 2011) and ex-ante assessments that did not properly account for NTBs (e.g. Guerin et al., 2007; Francois, 2007) and predicted that the Korean bilateral automotive exports would expand far more than the EU's, Study I reiterates that existing NTBs can inhibit trade and lead to misconceptions about the relative competitiveness of industries. Additional potential reasons limiting Korean exports to the EU after the FTA could relate to the rules of origin and preference utilisation rate related issues (Kasteng et al., 2022; Kasteng et al., 2024) or the continuous practical fragmentation of the European single market between its member states.

The main novel contribution of Study I associates with the investigation of FTA effects on trade in value-added. On the one hand, the trade in value-added outcomes is similar to the results on nominal trade flows as they show that EU value added in Korean imports increased more than in the opposite direction, especially in the automotive sector. As an important addition, these indicators also show that EU value added in Korean exports increased and there are also some signs of Korean value-added increasing in the EU automotive exports. These conclusions about the dynamics of global value chains after trade liberalisation have been typically missing in the literature focusing on the effects of FTAs, including in EU-Korea FTA impact assessments (e.g. Bergstrand et al., 2011; Lakatos and Nilsson, 2017; Felbermayr et al., 2019; Wei et al., 2019; Timsina and Culas, 2019).

Study II

Study II investigates the effects of the 2014 multifaceted negative Russian demand shock on the exports of Estonian firms that had previously exported to Russia, explicitly focusing on firms exporting goods that did not fall under Russia's embargo against Western countries in the same year. Therefore, Study II focuses on the effects of a negative shock that relates to a country-specific income shock as well as country risk and trade cost shock. The study examines the firm-level adjustments in the dimensions of trade reallocation or diversion and product switching over the short and medium term, which provides insights into gradual firm-level dynamics. As a novelty, it contributes to the literature by taking a closer look at the differences between firm-level adjustments to a negative demand shock based on some of their key characteristics, namely exporter type and pre-shock productivity level.

On a more general level, the results of Study II contribute to the literature on the relationship between sales on different markets (e.g., Erbahar, 2020; Berman et al., 2015, Almunia et al., 2021). Contrary to studies such as Aranguren et al. (2021), concluding that a demand shock on one market does not affect sales on other foreign markets, Study II finds signs of trade diversion for Estonian firms affected by the 2014 Russian demand shock. In addition, Study II simultaneously addresses the trade effects on the product level and total exports of the affected firms, which provides additional observations to the literature on firms seeking efficiency increases through product switching (Ladu et al., 2020; Bernard et al., 2011; Iacovone and Javorcik, 2010; Mayer et al., 2014). Comparing the effects of the Russian shock over the short (2014–2015) and intermediate term (2014–2018) also makes it possible to provide insights into the temporal effects of dynamic firm-level adjustments.

The results of Study II indicate that firms simultaneously use both destination and product switching to adjust after a destination-specific negative demand shock. Previous literature has outlined firm-level characteristics that accommodate simultaneous shifts in product-destination dimensions, such as the ability to modify inputs and outputs across destinations (Manova and Zhang, 2012). Study II adds to the literature by highlighting the role of exporter type in the post-shock adjustment process, as wholesalers on average show better export performance than direct exporters after the shock. My results establish that the average decline in the product-level exports of direct exporters is initially higher and more persistent than for wholesalers. This notion supports the conclusions of Bernard et al. (2015), indicating that wholesalers face lower export contraction after external shocks. Considering that prior to the shock, the wholesalers in the sample used in Study II had a higher number of export products and lower number of export destinations than direct exporters with similar initial dependency on Russia, my results indicate that the wholesalers' established networks for exporting a wider variety of products could have accommodated the diversion of goods from Russia to other markets.

The more detailed examination of firms with different initial dependency on the Russian market in Study II also provides some novel insights into the dynamics of firm-level adjustments. Among the firms with high dependency on Russia (pre-shock export shares above 66% to Russia), wholesalers experience an immediate decline in exports followed by gradual export diversion at the aggregate level but not the product level, which illustrates a product switching process. This subgroup initially had the least diversified export market and product portfolio among wholesalers, which indicates that reducing the high dependence on Russia necessitated product-level adjustments. Affected wholesalers with an initial medium dependency on the Russian market were the only subgroup experiencing aggregate trade expansion in the intermediate term that was driven by trade diversion both at the product-level and aggregate exports. Adding to the literature on product-destination level adjustments as a source of firm-level performance and competitiveness that has been often observed after positive or trade liberalising shocks (e.g., Bernard et al., 2010a; Mayer et al., 2014; Ladu et al., 2020), Study II points out that similar adjustment mechanisms can occur for firms displaying an effective trade diversion after a negative destination-specific shock.

Direct exporters with the highest dependency on Russia did not experience an immediate decline in exports; however, they faced significant product-level export contraction in the intermediate term without any significant effects on the aggregate level, which also demonstrates a degree of gradual product and destination switching. The generally insignificant effects on the aggregate exports of direct exporters hints at a substantial degree of heterogeneity between the post-shock trade performance of different firms in this subgroup.

Following the more general theoretical notions about firm-level productivity as the driver of firm-level performance after an increase in market size or a change in trade barriers (Melitz, 2003; Bernard et al., 2003, 2011, 2018) and some studies holding that more productive firms show better performance after a demand (Lewrick et al., 2018; Foster et al., 2016) or currency shock (Berman et al., 2012), Study II also explores the relationship between pre-shock firm-level productivity and export performance after a negative market-specific demand shock. The results confirm that firm-level productivity is on average a good predictor of post-shock trade performance, as affected firms with the lowest productivity level experienced significant declines in exports. This notion is true for both direct exporters and wholesalers, but the negative effect for low-productivity direct exporters turned out to be more persistent than for low-productivity wholesalers. Herein, parallels can be drawn with the dynamic capabilities literature (Teece et al., 1997; Teece, 2014) if the firm-level productivity is viewed as a proxy of firm ability to react to sudden shifts in the business environment.

The direct contribution of Study II to the literature on negative trade shocks, and specifically regarding the 2014 Russian shock, are multifaceted. Both Crozet and Hinz (2020) and Görg et al. (2024) focus on the 2014 Russian case, finding that exports declined for both exporters directly affected and unaffected by the embargo. Görg et al. (2024) highlight that the negative effect of the shock was higher for firms more dependent on the Russian market, while Crozet and Hinz

(2020) emphasise the role of increased country risk and trade financing related to Russia as the cause for export contractions. Study II confirms the negative trade effects of the 2014 Russian demand shock on exporters directly unaffected by the Russian embargo and adds that the negative effect was generally higher for direct exporters than wholesalers. Besides that, the findings specify that the post-shock export performance was weaker for firms with the lowest pre-shock productivity levels.

Study III

Similar to Study II, Study III also relates to the 2014 Russian export shock but instead focuses on the direct effects of Russia's embargo on Estonian exporters of food products. The aim of Study III is to examine the role of firm-level productivity, and key firm-level resources and capabilities for adjusting to a negative trade shock. Study III is driven by prior impact assessments on the Russian embargo case, showing that Western firms diverted their exports from Russia to other markets (e.g. Cheptea and Gaigné, 2020; Kutlina-Dimitrova, 2017), and the broader international trade literature suggesting that higher productivity is a proxy for better firm-level resilience to negative shocks (Lewrick et al., 2018; Foster et al., 2016) or more generally increased competition (Bernard et al., 2003; Melitz and Trefler, 2012) that was also confirmed by Study II. The somewhat separate management literature relates firm resilience to demand shocks with firm-level resources and capabilities (e.g., Kim, 1980; Eisenhardt and Martin, 2000; Barney, 2001; Teece, 2014), which could be reflected in the synthetic and quantitative productivity measures. As a major novelty, Study III draws parallels between the two streams of literature and examines how firm-level productivity and firm-level capabilities are related to firm-level adjustments after an embargo. Coming to the literature on sanctions, alongside Lastauskas et al. (2023) and Görg et al. (2024), Study III is the first to investigate the effects of trade sanctions on firm performance, with Görg et al. (2024) being published around the same time as Study III.

In order to associate productivity as a proxy, and firm-level resources or capabilities as an enabler of firm resilience to a negative shock, Study III employs a mixed method empirical approach. Part 1 quantifies the firm-level trade diversion effects of firms that exported embargoed products to Russia, as well as the embargo effect on the same firms' productivity both in the short and intermediate term. Part 2 uses qualitative and quantitative data in a multiple case study to investigate the firm-level resources and capabilities that determined the post-embargo adjustment process of three dairy companies that were heavily dependent on the Russian market before the embargo. This mixed method approach makes it possible to highlight connections between general statistical inferences on the embargo effects and the more granular qualitative descriptions of firm-level adjustments to an embargo.

First, the quantitative analysis of part 1 expectedly confirms previous findings that Western firms affected by the Russian embargo diverted their exports to other

markets (e.g., Cheptea and Gaigné, 2020; Kutlina-Dimitrova, 2017; Crozet and Hinz, 2020), while total trade diversion effects were higher for firms with initially higher dependence on the Russian market. My results add that pre-shock firm-level productivity can be seen as a predictor of firms' successful trade diversion of embargoed products after the trade shock, thereby complementing the broader literature on firm-level productivity as a proxy of firm competitiveness or resilience.

The main novelty of part 1 of Study III is its contribution to the literature about the effects of trade sanctions on firm performance that is very limited, as also noted by Görg et al. (2024), published around the same time as Study III. Lastauskas et al. (2023) find that Lithuanian firms affected by the sanctions reduced their employment and investment rates. Görg et al. (2024) observe a heterogeneous impact of the Russian sanctions on affected German firms that is larger on the sales and employment of firms highly dependent on the Russian market. The results of part 1 highlight the heterogeneity of firm-level trade performance based on productivity levels. Moreover, it finds some signs that the embargo also had a negative effect on firm performance as measured by productivity. This average effect only appeared immediately after the embargo though, and dissipated in the intermediate term, possibly due to subsequent heterogeneity in firms' performance rates. There were also some indications that the initial negative productivity shock is on average lower for more productive firms and in the intermediate term for larger firms.

Part 2 of Study III further explores the differences in firms' post-shock adjustments by relating them to pre-existing firm-level resources and capabilities, the examination of which is enabled by the mixed method multiple case study using sources like firm annual reports, topical news articles, and interviews with CEOs. The three case study firms are from the Estonian dairy industry, which had a historical dependence on the Russian market. Estonian dairy products were also in high demand in Russia due to historical taste preferences and high-quality image, which was not true for Estonian dairy in many other key Western European markets. By the 2014 Russian embargo, the three companies had developed different sets of resources and capabilities that eventually predefined their options for post-shock adjustments.

The empirical results from part 2 partly confirm the findings from part 1, indicating that on average firm-level productivity could serve as a proxy for post-shock firm performance. Part 2 shows that the sample firm with the highest initial productivity (firm C) adjusted and diverted its exports successfully after the Russian embargo. However, among the other two firms with similar initial level of productivity, firm B adjusted successfully, and firm A struggled to cope and substitute export markets. What connects the two firms that adjusted successfully compared to the third firm is that they had obtained a more diverse set of firm-specific resources and capabilities before the Russian embargo. Therefore, the results highlight that the important firm-level resources and capabilities necessary for post-shock adjustments might not necessarily be reflected in the quantitative firm-level productivity measure. Part 2 concludes by highlighting four key firm-

level resources and capabilities for successful adjustments after a negative trade shock.

The first key capability is firm-level quality of export experience that builds on a prior history of overcoming different market entry restrictions, such as nontariff barriers, product certification or forming business networks. This experience is difficult to quantify using measures such as the number of export markets or products, as it relates to the nature of prior activities in connection to exporting. Previous literature has also related the efficiency of firm-level adjustments to direct export experience (Bai et al., 2017) or export experience to high-income markets (Brambilla et al., 2012), but the results of part 2 add that more diverse experience in overcoming different market- or industry-specific barriers as such can later enable a successful diversion of trade.

The second key firm-level capability is competitive firm-level product-market matching. This proposition relates to the notion that the two successfully adjusted sample firms engaged in different post-shock strategies: one identified market niches and increased focus on its competitive advantage product, while the other diversified its complementary product portfolio hand in hand with new or even unique export markets. This finding adds to the international trade literature on product and destination switching in search of efficiency gains (Mayer et al., 2014; Ladu et al., 2020; Iacovone and Javorcik, 2010) as well as studies identifying trade diversion effects after the Russian embargo (Lastauskas et al., 2023; Cheptea and Gagné, 2020; Kutlina-Dimitrova, 2017). The qualitative investigation in part 2 demonstrates that the firms' initial product capabilities with the simultaneous ability to identify the most suitable and profitable destination markets for them is one determinant of a successful trade diversion.

The third key capability identified is firm-level absorptive capacity in its broader sense, as discussed in Cohen and Levinthal (1990). The two sample firms with successful post-shock adjustments engaged more in innovation or R&D activities than the third unsuccessful firm, confirming prior findings about the importance of innovation activities in firm resilience (Lome et al., 2016; Makkonen et al., 2014). The case study in part 2 highlights and explains the importance of the gradual upgrading of both in-house innovation and external knowledge sources that benefitted adjustments after an exogenous shock. It is also important to note that building these capabilities is a long-term process, which means that the firms' choices for potential post-shock reactions are partly pre-determined by the existing level of absorptive capacity.

Lastly, part 2 lists managerial vision and autonomy as the fourth key firm-level capability. Better firm-level performance in the case of a shock has been shown to be related to managerial ambition, quality or perception of the crisis at hand (Yoruk, 2019; Gundry and Welsch, 2001; Temel and Forsman, 2022). Regarding this key firm-level capability, parallels can also be drawn with the entrepreneurial judgement based approach (Foss et al., 2019). The empirical investigation in part 2 further explains the overarching role of the strategic vision and decisions of the CEO both before and after the embargo, which eventually determined the firm-level adjustment paths of the firms. The CEOs of the

successful sample firms also engaged actively in professional networks and associations that have previously been related to higher firm performance (Balla, 2001; Chang et al., 2006). The findings of part 2 highlight that in addition to making effective strategic choices, the CEO must have the autonomy to follow it in order for the firm to succeed amidst a shock.

3.2. Novelty

Table 3 provides a summary of the novel outcomes of this thesis in association with the related literature. All studies contribute to the literature of international trade and more precisely to the empirical investigations of different types of trade shocks. Study I provides additional details about the dynamic effects of removing nontariff barriers both on nominal and value-added trade flows that result in changes to trade structure. Study II highlights the differences between wholesalers and direct exporters in their response to negative destination-specific demand shocks, and specifies the role of pre-shock firm-level productivity as a predictor of post-shock firm performance. Study III adds to the empirical quantitative studies of negative trade shocks by investigating the effects of an embargo on firm-level trade diversion and performance measured via productivity. As a major novelty, Study III additionally integrates the concepts of firm-level capabilities from management literature with quantitative firm-level productivity measures. In doing so, Study III also applies a novel mixed method approach.

Table 3. Novel outcomes of Studies I–III

Study	Literature	Novelty
I	International trade; empirical quantitative studies of trade liberalisation	Impact of “deep” trade liberalisation and removal of nontariff barriers (NTBs) Dynamic effects on trade in value-added and structure
II	International trade; empirical quantitative studies of negative trade shocks	Wholesaler-direct exporter differences in reaction to negative demand shocks Pre-shock productivity as a predictor of post-shock export performance
III	International trade; empirical quantitative studies of negative trade shocks/embargoes Management literature on firm-level capabilities	Investigation of the effects of an embargo on firm performance Integrating two streams of literature (international trade, management) via a mixed method approach Parallels between firm-level productivity and capabilities

3.3. Practical implications

The practical implications of this thesis mainly relate to the creation of effective trade policy and building firm resilience against exogenous shocks. The policy implications are especially relevant in the present geoeconomic context with numerous impactful positive trade shocks in the form of free trade agreements (FTAs) and negative shocks in the form of new international trade restrictions and sanctions.

Study I and Study III underline the persistent importance of nontariff barriers (NTBs) as policy measures that restrict trade. The asymmetrically large trade enhancement of EU automotive exports to Korea after the removal of industry barriers illustrate the significant extent of market-specific product standards that initially restricted trade flows, even among a set of developed countries with relatively open economies. Study III provides practical firm-level insights into the difficulties food industry exporters face in gaining certifications on foreign markets. Therefore, if the intention of future trade liberalisation partners is to truly open their markets and benefit from the gains of trade, removing existing NTBs deserves increased attention. Constructing trade liberalisation measures should be preceded by a more detailed identification of the nature of case-specific NTBs, the restrictiveness of which can vary between markets, industries or even specific products.

Moreover, Study I demonstrates that modern comprehensive FTAs can result in much more than one-off changes in bilateral trade flows that create winners and losers as is sometimes portrayed in the political or public discussions on trade policy. Study I shows how the removal of trade barriers, especially industry-specific NTBs, can lead to changes in the short- and intermediate term both in nominal and value-added trade flows. This means that in addition to changes in bilateral trade volume, policy liberalisation can increase efficiency by reshaping global value chains. Therefore, policy communication aiming to introduce the benefits of trade liberalisation to the public could learn how to better explain these dynamic shifts and potential gains to stakeholders. This argumentation also goes the other way. If policymakers deem it necessary to use trade restrictive measures as foreign policy tools, policy communication can better explain how modern bilateral trade in the context of global value chains is more than just the exchange of final goods or services. Therefore, skilful trade policy measures can have structural implications for the economies targeted by sanctions or introducing sanctions.

Study III demonstrates the practical issues that exporting firms face to overcome destination- and industry-specific NTBs in order to enter new markets, especially in the case of an existential need to divert their trade flows due to shocks like an embargo. However, the case studies also showed how some NTBs can be overcome thanks to firm-level capabilities that, for example, relate to prior experience in obtaining product-specific certifications, which provides the first argument in favour of state-led firm-level capability building policies that will be elaborated more thoroughly below.

One joint lesson from Study II and III is that pre-shock firm-level productivity can on average be viewed as a reliable proxy of firms' trade performance and resilience after a negative demand shock. This somewhat intuitive notion on its own provides opportunities for the design of across-the-board policy measures to help prepare for or react to sudden economic shocks. The exact design of such crisis support measures could account for additional considerations, such as whether the goal of policymakers is to protect the more vulnerable or boost more viable businesses.

Study II further elaborates that firm resilience to an export destination-specific negative demand shock that necessitates trade diversion to other markets can differ between exporter type, as wholesalers showed better post-shock export performance than direct exporters. Descriptive statistics from Study II show that wholesalers on average export a higher number of product lines to a lower number of destinations than direct exporters. The results of Study II also hold that wholesalers find it easier to simultaneously readjust their product mix and destinations than direct exporters. Jointly these insights indicate that direct exporters could need more targeted support measures to conduct firm- and product-level readjustments as a precondition for diverting trade to other markets. Wholesalers could benefit more from softer policy measures like business diplomacy or marketing to expand their presence on selected markets. While Study III showed that some NTBs like production facility compliance requirements can only be addressed by the producers themselves, wholesalers could potentially help direct exporters to overcome NTBs on new markets that relate to trade costs such as administrative or customs procedures. Therefore, collaboration between wholesalers and producers in responding to trade shocks could be mutually beneficial.

Study III specifies that even though productivity is a good quantitative measure of firm resilience, the firm-level performance of a particular firm after a negative export shock is ultimately determined by its individual firm-level capabilities. As evidenced by Study III, post-shock performance can significantly vary even between firms with initially similar level of productivity. The results indicate that investing and more broadly focusing on firm-level capability building can initially increase costs and might not be directly reflected in running productivity measures. This evolving capability building process could relate to activities such as persistent destination-product diversification or collaboration with other organisations. Moreover, a firm that does not engage in such capability building and increasingly focuses on a narrow set of profitable markets or product groups may see its productivity level increase although its resilience to potential exogenous export shocks actually decreases.

There is also a degree of path dependency in resilience to export shocks, as firm-level capability building is a gradual process that cannot be replicated rapidly, especially in a crisis situation. Therefore, policy measures should be directed to the continuous build-up of firms' capabilities as a tool for making the economy more resilient to unexpected shocks. Most importantly these policies should relate to expanding the firms' knowledge base. One set of relevant measures relates to trade promotion tools to enable firms to gain the learning-by-

doing export experience necessary for making suitable strategic choices about destination-product combinations and overcoming feasible entry barriers like some market- or industry-specific certifications. The second set of measures relate to the diversification of firms' external knowledge base through cooperation with other firms or business associations, as well as public and academic organisations. In this it is also important to highlight building up managerial capabilities, which were shown to be an important contributor to better post-shock performance. There is also a need to increase firm knowledgeability of the importance of upgrading these key capabilities as managers are the ones that ultimately have to take concrete actions.

The third set of policy measures relate to actions after an export shock. These measures can include various trade promotion and diplomacy tools to open new markets for exporters that abruptly need to divert their trade flows. Assistance can also be provided in removing market-specific nontariff barriers that might be difficult to overcome for the private sector on their own, as they require decisions or proactive steps by public authorities. While modern FTAs often already address different nontariff barriers, exporters in some sectors still face high industry-specific certification requirements, the fulfilment process of which can in some cases be eased by the public sector.

More generally the results of this thesis illustrate the connectedness of both the micro- and macro-level effects of trade shocks. Moreover, effective trade policy in the current geopolitical context requires increased coordination with other economic and foreign policy dimensions, as the effects of international trade shocks cannot be viewed in isolation. The multifaceted impact of Western sanctions against Russia since 2022 demonstrates the interconnectedness between geopolitical goals, economic dependencies and trade policy, as well as state-level trade policy choices vis-à-vis firm-level resilience and adjustments. In the current state of a globalised economy with globalised geopolitical tensions, policymakers must address issues such as securing critical resources, technologies, and value chains with coordinated macro- and micro-level trade measures that fit into the broader national economic and security system.

3.4. Opportunities for future research and limitations

The focus of Study I on the FTA between the EU and Korea highlights a comprehensive trade liberalisation that directly relates to other modern FTAs between developed and geographically distant countries or blocs, the most relevant of which are, of course, other trade deals by the EU or Korea outside their neighbourhood. Future research could compare the effects of the EU-Korea FTA with those of the EU-Japan Economic Partnership Agreement that entered into force in 2019 or the USA-Korea agreement that entered into force in 2012, especially by accounting for industry-specific NTB harmonisation. Such comparisons that account for the specifics of particular agreements and partners could provide a more nuanced examination of the impact of modern comprehensive trade liberalisation.

In addition, the implications of the effects of the EU-Korea agreement could be taken into consideration in the impact assessments of potential new FTAs currently being negotiated; for example, between the EU and Australia or Indonesia. Repeated impact assessments of this case could also address some limitations of Study I that relate to the potential physical shifts of value chains that took place in parallel with the enforcement of the FTA. It could also be useful to further study the affected firms' preference utilisation rates and the structure of their regional value chains. Addressing these issues through the application of firm- or plant-level data could therefore shed more light on the gradual dynamics of comprehensive trade liberalisation in the presence of global value chains.

The case in Study II, which explored the export dynamics of Estonian firms faced by the general demand shock on the Russian market in 2014, offers the best comparison for other demand shocks for exporters on geographically proximate and large markets. While there have been some subsequent studies examining the Russian demand shock on the exporters of other European countries, more emphasis could be put into exploring additional potential sources of firm heterogeneity. Upcoming research could also address a limitation of Study II by accounting for the potential shifts in the mode of exporting between direct and indirect exporters. Considering the vastly increased political and economic tensions between the West and Russia since 2022, after which some Western companies voluntarily left or promised to leave the Russian market, it would be interesting to compare the trade dynamics of the Russian shock for firms directly unaffected by sanctions after 2014 and after 2022. More detailed data could also enable future studies to examine the potential post-shock dynamics of production reallocation patterns.

Study III, relying on the 2014 Russian embargo case, is more topical than ever due to the vastly expanded economic tensions and sanctions between the West and Russia since 2022. Subsequent quantitative studies could further elaborate on sanctions-related heterogeneities, such as the specifics of targeted industries or regional differences. As a limitation, the quantitative assessment of the embargo in Study III relied on a relatively low number of observations and did not account for differences between direct and indirect exporters. Future studies could conduct complementary assessments using larger firm-level datasets that could, for example, cover all Baltic states that experienced a similar shock. More focus could also be put on how the affected firms' pre-shock destination networks and export products associate with their post-shock trade adjustments. When drawing parallels with part 2 of Study III it should be acknowledged that this multiple case study focuses on an industry with relatively fixed technology, and that is subject to significant phytosanitary rules related regulation.

Part 2 of Study III calls for greater scrutiny of the role of firm-level capabilities as the determinants of firm-level adjustments after sanctions. On the one hand, subsequent studies could expand on key firm-level capabilities identified in this thesis as accommodating post-shock firm-level performance by exploring potential quantitative proxies for measuring them. Future investigations into the firm-level trade diversion effects of trade shocks could further focus on the links

between and potential of different alternative markets in relation to quality of exporting experience as a key capability. On a more general level this thesis encourages further integration of both the macro- and micro-level as well as quantitative and qualitative research into the effects of positive and negative trade shocks.

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SUMMARY IN ESTONIAN

Kaubandusšokkide dünaamilised mõjud

Töö motivatsioon ja ülesehitus

21. sajandi rahvusvahelises kaubanduses võib täheldada kahte suundumust. Ühelt poolt sõlmivad riigid uusi ambitsioonikaid vabakaubanduslepinguid (WTO, 2025; World Bank, 2025). Teisalt kasutavad riigid üha enam kaubandust piiravaid meetmeid, mis seostuvad mõnikord ka laiemate välispoliitiliste eesmärkidega (van Bergeijk, 2022; Yotov et al., 2020; Morgan et al., 2023). Hiljutised kaubandust liberaliseerivad ning piiravad šokid vajavad lähemat uurimist, kuna olemasolevate globaalsete väärtusahelate ümberkujundamisel on nii makro- kui mikro-tasandi tagajärjed. Käesoleva töö kolm uurimust panustavad rahvusvahelise kaubanduse teaduskirjandusse, uurides positiivsete ja negatiivsete kaubandusšokkide dünaamilisi mõjusid, millele varasemas kirjanduses pole piisavalt tähelepanu pööratud.

Töö keskendub kaubandusšokkide dünaamilistele mõjudele, mis on seotud nii osapoolte vahel algselt ebaproportsionaalsete kaubandustökete eemaldamise kui ka ettevõtte tasandi heterogeensusega. Kontseptuaalses plaanis loob töö uusi seoseid tänapäevase rahvusvahelise kaubanduse toimimise kohta makro- ja mikro-tasandil. Metodoloogilisest aspektist nõuab see lähenemisviisi ka uudse segameetodi rakendamist, mis kasutab nii makro- kui ka mikro-tasandi andmeid ning kvantitatiivseid ja kvalitatiivseid meetodeid.

Uurimuses I käsitletav positiivse kaubandusšoki juhtum on EL-i ja Lõuna-Korea (edaspidi „Korea“) vabakaubandusleping, mis vähendas nii kahepoolseid tollitariife kui ka mittetariifseid kaubandustökkeid. Varasem erialane kirjandus näitab, et erinevate vabakaubanduslepingute mõju partnerite kaubavoogudele võib lepinguti oluliselt erineda (Kohl, 2014; Baier et al., 2019). Lakatos ja Nilsson (2017) on leidnud, et EL-i ja Korea vabakaubanduslepingul olid osapoolte ekspordile asümeetrilised mõjud. Uurimus I uurib täiendavalt ELi-Korea lepingu mõju autotööstuse kaubandusele, kus esines märkimisväärne mittetariifsete kaubandustökete vähendamine, ning kahepoolse kaubanduse lisandväärtusele.

Uurimused II ja III on seotud kirjandusega, mis käsitleb ettevõtete kohanemist negatiivsete nõudlusšokkidega. Antud uurimused seostuvad negatiivsete kaubandusšokkidega, mis tabasid Venemaale eksportinud Eesti ettevõtjaid 2014. aastal pärast Venemaa sissetungi Ukrainasse. Kõnealune negatiivne šokk oli kaheosaline: esiteks leidis Venemaal aset üldine negatiivne nõudlusšokk, teiseks kehtestas Venemaa lääneriikide, sealhulgas Eesti, toiduainete impordi suhtes embargo. Antud juhtum on tähelepanuväärne oma geograafilise ulatuse tõttu ning Eesti juhtum pakub erilist huvi mõnede Eesti ettevõtete ja Venemaa tihedate kaubandus-sidemete tõttu. Varasemas kirjanduses on leitud, et ettevõtted saavad majandusšokkidega kohaneda, vahetades nt eksporttooteid (Bernard et al., 2010a; Mayer et al., 2014; Iacovone ja Javorcik, 2010) või sihtturge (Almunia et al., 2021; Blum

et al., 2013). Vähem tähelepanu on pööratud šokijärgsele ettevõtte tasandi kohandumisele, eriti seosele ettevõtete omaduste ja šokijärgse tulemuslikkuse vahel.

Uurimus II keskendub 2014. aasta Venemaa üldise negatiivse nõudlusšoki mõjudele Eesti eksportijatele, kelle kaubad ei kuulunud Venemaa toidukaupade embargo alla. Varasem rahvusvahelise kaubanduse teaduskirjandus on näidanud, et nõudlusšokkide järel kohanevad paremini kõrgema tootlikkusega ettevõtted (Bernard et al., 2018; Lewrick et al., 2018). Lisaks on esile toodud erisusi hulgi-müüjate ja otseeksportijate vahel (Bernard et al., 2010b; Crozet et al., 2013). Uurimus II vaatleb negatiivse nõudlusšoki mõjude erinevusi otseeksportijate ja vahendajate vahel ning erineva algse tootlikkuse tasandiga eksportijate vahel.

Uurimus III panustab kirjandusse kaubandussanktsioonide mõju kohta, keskendudes Venemaa embargo alla sattunud tooteid eksportivatele Eesti ettevõtetele. Varasemad uuringud on näidanud, et Venemaa embargost mõjutatud Euroopa eksportijad suunasid oma tooted teistele välisurgudele (nt Chepteja ja Gaigné, 2020; Kutlina-Dimitrova, 2017). Uurimuse III esimene osa uurib Venemaa embargo kvantitatiivset mõju ettevõtete kaubandusvoogude ümber suunamisele ning tootlikkusele. Uurimuse III teine osa loob seoseid eelpool mainitud rahvusvahelise kaubanduse teaduskirjanduse, kus ettevõtete vastupanuvõimet seostatakse tihti tootlikkuse mõõdikutega, ning juhtimisalase kirjandusega, kus ettevõtete vastupanuvõimet kirjeldatakse peamiselt nende võimekuste kaudu (Kim, 1980; Teece et al., 1997; Eisenhardt ja Martin, 2000; Barney, 2001). Uurimuse III teine osa koosneb mitmesest juhtumiuuringust kolmest Eesti piimatööstusest, mis olid enne embargot Venemaa turust tugevas sõltuvuses. Kirjeldatud metodoloogia võimaldab anda vastuseid ettevõtte ressursside ja võimete kohta, mida võib seostada nende ettevõtete šokijärgsete kohanemisvõimaluste, valikute ja tulemuslikkusega.

Käesoleva töö praktiline aktuaalsus lähtub vajadusest uurida ja mõista tänapäevaste kaubandusšokkide mitmekülgseid mõjusid. Pärast Venemaa 2022. aasta õigustamatu täiemahulise sissetungi algust Ukraina vastu on lääneriikide ja Venemaa vahelised geopoliitilised ning majandus ja -kaubandussuhted oluliselt teravenenud. Käesoleva töö lõpliku valmimise ajal on maailmakaubanduses ilmnunud uued riskid ning põhimõttelised kaubanduspoliitilised valikud on maailmamaajanduse võtmeriikide avalike arutelude keskmes. Oma teise ametiaja esimesel päeval avaldas USA president Donald Trump memorandumid „Ameerikat esikohale seadev kaubanduspoliitika“, millega kehtestatakse „kaubanduspoliitika, mis edendab investeringuid ja tootlikkust, suurendab meie riigi [USA] tööstuslikke ja tehnoloogilisi eeliseid ning kaitseb meie majanduslikku ja riiklikku julgeolekut“ (White House, 2025). Euroopa Komisjoni presidendi Ursula von der Leyeni 2024.–2029. aasta ametiaja poliitilistes suunistes on sätestatud plaan „jätkata meie [ELi] vabade ja õiglaste kaubandussidemete süvendamist kasvukeskuste ja partneritega kogu maailmas“, nõudes samal ajal „kõigi meie kaubanduskaitsevahendite kasutamist seal, kus ja millal vaja“ (European Commission, 2024). Sellised arengud rahvusvahelise kaubandussüsteemi kujunemises ja

maailmamajanduse võtmemängijate strateegilistes plaanides suurendavad eba-kindlust ja uute tõsiste kaubandusšokkide tõenäosust, milleks peavad valmis olema nii riigid kui ka ettevõtted.

Uurimiseesmärk ja -ülesanded

Töö ajendiks on kaks peamist arengut hiljutistes kaubandussuhetes: uute laiaulatuslike kaubanduslepingute sõlmimine riikide vahel ja eksogeensed negatiivsed kaubandusšokid eksportivatele ettevõtetele. Uurimiseesmärk on järgmine: anda ülevaade sellest, kuidas heterogeensed kaubandusšokid ja peamised ettevõtte tasandi omadused on seotud kaubandusšokkide dünaamiliste mõjudega. Toetavad ülesanded on järgmised:

- 1) Anda teoreetiline taust kaubandusšokkide dünaamiliste mõjude kohta.

Uurimus I (kasutades EL-Korea vabakaubanduslepingu juhtumit)

- 2) Teha järeldus hinnang tänapäevasele laiaulatuslikule vabakaubanduslepingule.
- 3) Võrrelda kaubanduse liberaliseerimise mõju kogukaubandusele ja tööstusharu kaubandusele, mille suhtes kehtisid algselt spetsiifilised mittetariifsed tõkked.
- 4) Uurida laiaulatusliku kaubanduse liberaliseerimise mõju tööstusharus, kus algselt olid vastaspoolte vahel asümmeetrilised mittetariifsed tõkked.

Uurimus II (kasutades 2014. aasta Venemaa negatiivse nõudlusšoki juhtumit Eesti eksportijate suhtes)

- 5) Teha järeldus hinnang sihtkohapõhise negatiivse kaubandusšoki mõjude kohta ettevõtte tasandil.
- 6) Uurida sihtkohapõhise negatiivse kaubandusšoki mõju ettevõtete toote- ja sihtkoha vahetamise mustritele lühikeses ja keskpikas perspektiivis.
- 7) Võrrelda sihtkohaspetsiifilise negatiivse kaubandusšoki mõju erineva tootlikkusega ettevõtete ning otse- ja kaudsete eksportijate vahel.

Uurimus III (kasutades 2014. aasta Venemaa embargo juhtumit Eesti eksportijate suhtes)

- 8) Teha järeldus hinnang tööstusepõhise kaubandusembargo mõjudele ettevõtete ekspordile.
- 9) Uurida šokieelse ettevõtte tasandi tootlikkuse seost ettevõtete ekspordi ja tootlikkusega pärast embargot.
- 10) Määrata kindlaks peamised ettevõttespetsiifilised ressursid ja võimed, mis mõjutavad ettevõtete kohandumist pärast embargot.

Tuginedes uurimuste I-III empiirilistele tulemustele

- 11) Arutleda uurimuste tulemuste ja praktiliste tagajärgede üle.

Uurimismetoodika ja andmed

Uurimus I kasutab makrotasandi kvantitatiivseid andmeid riikidevaheliste kahepoolsete nominaalsete ja lisandväärtuses väljendatud kaubavoogude kohta. Uurimus I kvantitatiivne analüüsimeetod on kaubanduse gravitatsioonimudel, millest on erialakirjanduses saanud laialt kasutatud kaubanduspoliitika mõjude hindamise vahend. Kaubandusvoolude andmeallikaks on OECD andmebaas.

Uurimus II ühendab Statistikaameti Eesti ettevõtete toote- ja sihtkohapõhised ekspordandmed Eesti Äriregistri ettevõtete tulemusnäitajatega. Empiiriline analüüs kasutab kvantitatiivset erinevuste vahe meetodit koos sobitamismeetodiga CEM (*coarsened exact matching*). Uurimuse III esimeses osas kasutatakse samu andmeallikaid ja meetodeid mis uurimuses II. Kõigi uurimuste kvantitatiivsed mudelid on hinnatud STATA statistikatarkvaraga.

Uurimuse III teises osas kasutatakse mitmese juhtumiuuringu ja segameetodeid, mis rakendavad nii kvantitatiivseid kui ka kvalitatiivseid andmeid. Uurimuse III andmeallikate hulka kuuluvad ettevõtete aastaaruanded, ajakirjanduslikud artiklid ettevõtete kohta enne ja pärast kaubandusembargot ning intervjuud ettevõtete tegevjuhtidega.

Põhitulemused ja järeldused

Uurimuse I eesmärk oli uurida Euroopa Liidu (EL) ja Korea vabakaubanduslepingu mõju kahepoolsele kaubandusele. Uuring täiendab rahvusvahelise kaubanduse teaduskirjanduse arutelusid, mille kohaselt erinevate vabakaubanduslepingute kaubandusmõjud võivad erineda (Kohl, 2014; Head ja Mayer, 2014). Tulemused kinnitavad varasemaid järeldusi, et ulatuslikud vabakaubanduslepingud soodustavad kaubanduse kasvu (Baier et al., 2014; Wang, 2016) ning et lepingute mõju võib olla partnerite vahel asümmeetriline (Baier et al., 2019).

Peale selle võimaldasid ELi ja Korea kaubanduse liberaliseerimise juhtumi eripärad uurida mitmeid positiivse kaubandusõeki detailsemad dünaamilisi mõjusid. Esiteks oli antud lepingus eriline fookus autotööstuse mittetariifsete tõkete eemaldamisel. Sealjuures oli tõkete hinnanguline tase Koreas palju kõrgem kui ELis (UNCTAD, 2019; Cooper et al., 2011). Uurimuse I tulemused näitavad, et lepingujärgsed kaubandusvood suurenesid autotööstuses rohkem kui kogu-kaubanduses. Lisaks suurenes ELi autotööstuse eksport Koreasse rohkem kui vastassuunalised kaubandusvood.

Seega viitavad tulemused keskmisest suuremale kaubanduse kasvule tooterühmades, mille suhtes toimus suurem mittetariifsete tõkete eemaldamine. Kui võrd mõned lepingule eelnenud olulised mõjuhinnangud (nt Guerin et al., 2007; Francois, 2007) ei arvestanud mittetariifsete tõkete vähendamisega ja prognoosisid Korea autotööstuse konkurentsivõime kasvu, rõhutavad käesoleva töö tulemused mittetariifsete tõkete jätkuvalt olulist kaubandust piiravat mõju. Mittetariifsete kaubandustõkete olulisust peaks enam teadvustama ka kaubanduspoliitika analüüsis ning kujundamises.

Uurimuse I teine uudne panus tuleneb lepingu mõju uurimisest kaubanduse lisandväärtusele, millega sarnased mõjuhinnangud tavaliselt ei arvesta (nt Bergstrand et al., 2011; Lakatos ja Nilsson, 2017; Felbermayr et al., 2019; Wei et al., 2019; Timsina ja Culas, 2019). Uudsenäitavad käesoleva töö tulemused lepingujärgset ELi lisandväärtuse suurenemist autotööstuse kaubanduses, leides samas ka märke Korea lisandväärtuse suurenemisest ELi autotööstuse ekspordis.

Uurimus II uuris, kuidas Venemaa 2014. aasta negatiivne nõudlusšokk mõjutas Venemaale eksportinud Eesti ettevõtete kaubandusvoogusid. Tulemused kinnitavad varasemaid teiste riikide andmetel tehtud uuringuid, mis näitasid kaubanduse ümberjuhtimist Venemaalt teistele turgudele (Crozet ja Hinz, 2020; Görg et al., 2024). Uudsenäitab käesolev töö, kuidas hulгимүүјјад suutsid varem Venemaale viidud kaubad paremini mujale juhtida kui otseeksportijad. Need järeldused ilmestavad, kuidas hulгимүүјјад võivad kriisisituatsioonis vajada teistsuguseid avalikke tugimeetmeid kui otseeksportijad.

Varasemas kirjanduses on tootlikkust käsitletud kui võimalikku indikaatorit ettevõtete tulemuslikkusest pärast kaubandustöket muutust või majandusšokke (Bernard et al., 2003; Bernard et al., 2018; Lewrick et al., 2018; Foster et al., 2016; Berman et al., 2012). Uurimus II näitab, et ettevõtte kõrgem tootlikkus võib keskmiselt indikeerida ka paremat toimetulekut pärast negatiivset sihtkohaspetsiifilist nõudlusšokki, kuna madalama tootlikkusega ettevõtete eksport vähenes rohkem kui kõrgema tootlikkusega ettevõtetel. Selline järeldus kehtis nii otseeksportijate kui hulгимүүјјате lõikes. Ettevõtete tootlikkusnäitajad võivad seega aluseks olla ka laiapõhjaliste eksportijate kriisiga kohanemiseks loodavatele tugimeetmetele.

Uurimus III keskendus 2014. aasta Venemaa toidutööstuse toodete impordikeelu mõjudele Eesti eksportijatele. Eesmärgiks oli uurida ettevõtte tasandi tootlikkuse rolli ning peamisi ettevõtte tasandi ressursse ja võimekusi negatiivse kaubandusšokiga kohanemiseks. Juhtimisalane teaduskirjandus seostab ettevõtete vastupanuvõimet nõudlusšokkidele ettevõtte tasandi ressursside ja võimekusega (nt Kim, 1980; Eisenhardt ja Martin, 2000; Barney, 2001; Teece, 2014). Uurimus III lõi antud kirjanduse vahel paralleele rahvusvahelise kaubanduse teaduskirjandusega, milles tulemuslikumat ettevõtete kohanemist pärast negatiivseid šokke seostatakse tavapäraselt kvantitatiivse ettevõtte tootlikkuse mõõdikuga.

Uurimuse III esimene osa näitab kvantitatiivselt, et Venemaa embargo alla sattunud tooteid eksportivad Eesti ettevõtted suunasid oma kaubad Venemaa turult teistele turgudele. Sarnaste tulemusteni on jõutud ka teiste Euroopa riikide andmete põhjal (Chepeta ja Gaigné, 2020; Kutlina-Dimitrova, 2017; Crozet ja Hinz, 2020). Täiendavalt illustreerib käesolev töö, kuidas kaubanduse ümbersuunamine oli suurem algselt kõrgema tootlikkuse ja suurema Venemaa turust sõltuvusega ettevõtete seas.

Uurimuse III teise osa mitmene juhtumiuuring keskendus kolmele Eesti piimatööstusele, mille jaoks oli Venemaa turg enne embargot väga oluline sihtturg. Teise osa tulemused kinnitavad osati esimese osa tulemusi, kuivõrd kõige

kõrgema tootlikkusega piimatööstus suutis edukalt oma kaubandusvood Venemaalt mujale suunata. Teisel kahel piimatööstusel oli algselt sarnane tootlikkuse tase, ent pärast embargot kohanes neist edukalt ainult üks. Segameetodeid kasutades toob uurimuse III teine osa välja neli võimekust ja ressursi, mille olemasolu või puudumist saab seostada vaatluse all olevate ettevõtete eduka või ebaeduka kohanemisega pärast embargot. Nendeks on ekspordikogemuse kvaliteet, konkurentsivõimeline toote ja turu sobitamise võime, vastuvõtuvõime (*absorptive capacity*) ning juhi visioon ja autonoomia.

Kokkuvõtlikult panustab käesolev töö tervikuna rahvusvahelise kaubanduse teaduskirjandusse, eelkõige empiirilistesse uuringutesse kaubandusšokkide mõjude kohta. Tulemused tõstavad esile mittetariifsete kaubandustõkete mõju nii nominaalsetele kui lisandväärtuses mõõdetud kaubavoogudele, erisusi hulgi- müüjate ja otseeksportijate kohandumises negatiivsetele šokkidele ning tootlikkust kui indikaatorit ekspordijate keskmisest vastupanuvõimest. Olulise uuendusena seob käesolev töö juhtimisalase kirjanduse ettevõtte tasandi võimekuste kontseptsiooni kvantitatiivsete ettevõtte tasandi tootlikkuse näitajatega rahvusvahelise kaubanduse alases kirjanduses, rakendades selleks ühtlasi nii kvantitatiivseid kui ka kvalitatiivseid meetodeid.

Töö piirangud ja soovitusid tulevasteks uuringuteks

Uurimuse I tulemused on kõige relevantsemad võrrelduna varasemate uurimustega, mis keskenduvad teistele laiaulatuslikele vabakaubanduslepingutele suurte ja arenenud riikide või majandusblokkide vahel. Täiendavalt tasuks uurida võimalikku ELi ja Korea vabakaubanduslepinguga samal ajal aset leidnud globaalsete väärtusahelate füüsilist ümberpaiknemist, mida käesolev töö ei käsitlenud. Uurimuste II ja III tulemused seostuvad enim teiste sarnaste negatiivsete šokkidega väikeriikide ekspordijatele ning tulevikus võiks sarnaseid uuringuid läbi viia, kasutades kõigi Baltimaade ettevõtete andmeid. Muuhulgas oleks huvitav uurida võimalikke muutusi kaupade ekspordimise viisides ehk šokijärgseid muutusi otsese ja kaudse ekspordimise vahel. Tervikuna võiks tulevane kirjandus arendada edasi makro- ja mikrotasandi andmete ning kvantitatiivsete ja kvalitatiivsete meetodite integreerimist kaubandusšokkide mõjude hindamisel.

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