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The Impact of the Eastern Border Closure on Regional
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Baltic States

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Abstract

This thesis investigates the effect of the eastern border closure in Finland following the worsening of EU–Russia economic relations after Russia’s invasion of Ukraine. The objective of this thesis is to demonstrate whether territories located near the border experienced larger increases in unemployment rates and whether the effect of the eastern border closure is stronger in Finland than in the Baltic countries. This thesis implements Difference–in–Differences, Event Study, and Synthetic Control Methods with the unemployment data extracted from the national bureau of statistics from each country. The analysis measures exposure through proximity to border checkpoints and distance–based treatment groups. The Synthetic Control Method compliments the DiD analysis by investigating the counterfactual path of Finnish unemployment rate. The main results can be summarized as follows: Finnish territories with higher exposure to Russia experienced significantly larger increases in unemployment rates after the border closure. In contrast, the Baltic countries display weaker and less reliable results. This thesis aims to contribute to the existing literature on regional adjustment to external geopolitical shocks and emphasizes the importance of regional exposure in determining economic resilience.

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1 Introduction

The economic and political relationship between Finland and Russia; and between the Baltic countries and Russia has been historically shaped by geographic proximity, extensive cross-border trade, high level of tourism, and investment flows. It should be noted that economic activity of border regions has been influenced by interactions with the Russian market. The relationship with Russia has been put to test due to recent political events such as Russia's invasion of Ukraine in 2022. The escalation of a conflict led to a series of sanctions and countersanctions which significantly affected the European Union. Finland and the Baltic countries are especially important for understanding the impacts of the sanctions due to their geographical location. In addition to sanctions imposed by western countries, Finland implemented a border closure policy which further reduced crossborder mobility and economic activity. Furthermore, the implemented policy raised concerns regarding the economic consequences of border territories which relied on economic activity with Russia

In traditional view, the effect of a shock is often uneven across countries, regions, or municipalities. The magnitude of an effect depends on the level of exposure; territories with high exposure may be more vulnerable to shocks. In case of the border closure, territories located near the border may experience decline in business activity, employment and regional growth. The effects of the shock may be offset by a substantial diversification of economic activity to increase overall resilience.

This thesis investigates how regions with different levels of pre-sanctions exposure to Russia adjusted following the eastern border closure in Finland. To be more precise, it explores whether territories with higher geographical exposure to Russia experienced the increase in unemployment rates compared to less exposed territories. The analysis compares Finnish territories with territories in the Baltic countries which have also been affected by countersanctions, however they didn't completely shut down their cross border activity. The following research question was constructed: *How did Finnish regions with higher pre-sanctions exposure to Russia adjust in terms of economic activity following Finland's eastern border closure, relative to less-exposed regions and comparable regions in the Baltic countries?*

Two hypotheses were developed and tested to examine the research question. First, regions with higher pre-sanctions exposure to Russia experienced larger increases in unemployment following the border closure. Second, the effect is expected to be stronger in Finnish territories than in comparable Baltic territories. Hence, this thesis aims to contribute to the literature on regional economic adjustment, border shocks, and the economic consequences of geopolitical conflict.

The remainder of the thesis is structured as follows: Chapter 2 provides relevant theoretical

background, Chapter 3 reviews the relevant literature, Chapter 4 includes empirical analysis consisting of data, methodology, and results. Lastly, Chapter 5 will conclude the study.

2 Theoretical Background

2.1 Regional Economics and Regional Inequality

Economic geography is a study area that focuses on investigating where economic activities and resources are located and how they are distributed across many territories as well as why they are distributed in this manner.

In standard literature, the reader can observe that a region is usually defined as a periphery– or a core region (Krugman 1999). The core region is the one that is more dominant and is characterized by skilled labor, higher real wages, and innovation (Krugman 1999). The periphery on the other hand has fewer industries, lower productivity, and it is dependent on the core region (Krugman 1999). Based on these attributes, the development of a core – periphery pattern depends on transportation costs, economies of scale, and the share of manufacturing in national income (Krugman 1999).

Transportation costs are associated with the incentive of a firm to localize production in one place due to low transportation costs (Krugman 1999). The need to geographically spread production is not necessary in this case. Economies of scale make production cheaper i.e. the average cost per unit is lower when the firm produces more (Krugman 1999). For example, different suppliers can be found nearby, or the labor pool is more developed in the core region. The share of manufacturing in national income is linked, for instance, to a higher proportion of manufacturing in the core region. This is explained by larger demand; therefore, the firm wants to position themselves where the demand is the largest, but the demand will be the largest where production is concentrated (Krugman 1999). This concept is called circular causation which was observed by Gunnar Myrdal and positive feedback by W. Brian Arthur (Krugman 1999). The concept of circularity allowed for further development of related concepts such as forward and backward linkages created by Albert O. Hirschmann which states that other things equal, it will be more desirable to live and produce near a concentration of manufacturing production because it will then be less expensive to buy the goods in this central place provides (Krugman 1999).

Regional economics and inequalities carry two effects: convergence–and divergence effect (Krugman 1999). In the context of labor markets, convergence and divergence can be explained by labor mobility (Krugman 1999). For example, workers might migrate out of

regions that are overcrowded because they have less job opportunities and migrate to the region with labor shortages. In this case, the convergence effect takes place. The opposite of this is when the worker migrates to the region that is already successful in terms of thriving economic activity which corresponds to the divergence effect (Krugman 1999). The theory suggests that due to uneven distribution of population and resources across geographical territories, it is observed that most of the population prefers to live in thriving metropolitan areas which suggests that the divergence effect may be the dominant one (Fujita, Krugman, and Venables 1999). Therefore, the concept of agglomeration is essential.

Agglomeration is the self reinforcing concentration of different economic activities on many levels in one place (Fujita, Krugman, and Venables 1999). Agglomeration is the result of the concentrated continuous growth and development over many years. The theories that dominated the area of growth and development in the mid -20th century were developed by many notable economists such as Robert Solow, Gunnar Myrdal, Albert O. Hirschman, and Walt Whitman Rostow (Barca, McCann, and Rodríguez–Pose 2012). Nevertheless, their impact started to diminish in the 80s and 90s due to the beginning of globalization and overall technological progress, and new theories were developed (Barca, McCann, and Rodríguez–Pose 2012). However, among new theories, one of them did not see any progress: that is policy implementation (Barca, McCann, and Rodríguez–Pose 2012).

It is suggested that it is crucial to understand the role of globalization and its relevance to regional policy implementations and economic geography. Therefore, there are few key characteristics of globalization that need to be mentioned. First, one of the major characteristics of the global economy nowadays is international convergence between rich and poor countries (Spence 2011). Second, due to astonishing growth of the Asian markets, especially in China and India, the global trade has moved to east (Barca, McCann, and Rodríguez–Pose 2012). Third, the global economy consists of many economic alliances, and these alliances have been pivotal in forming economic relationships between regions. The EU, NAFTA, or South and East Asia are examples of such regional alliances (Barca, McCann, and Rodríguez–Pose 2012). Such relationships are evidence that economic globalization has not been spread uniformly but rather concentrated in few mega regions where the cross border economic activity is oriented between countries within the same geographic mega region (Barca, McCann, and Rodríguez–Pose 2012). Fourth, these mega regions consist of large city regions, and theoretic framework refers to them as global cities. Their role is vital in understanding the disproportionality of related economic activities across the cities or regions (Barca, McCann, and Rodríguez–Pose 2012). For instance, London plays a significant role in the world economy and serves as one of the main financial hubs. Fifth, the assumption that economic growth is only achieved by large metropolitan areas would be misleading (Barca, McCann, and Rodríguez–Pose 2012). Different countries can achieve significant growth through more dispersed patterns of economic activity. i.e. economic activity can be

geographically more distributed to other regions instead of concentrating in one single hub (Markusen 1996, as cited in Barca et al. 2012; Friedman 2005, as cited in Barca et al. 2012).

Even though globalization has been part of overall economic progress, it carries concerns regarding regional policy implementations (Barca, McCann, and Rodríguez–Pose 2012). Chien (2008) suggests that many different regions have applied similar successful isomorphic policies. This raises many concerns regarding the stable development in different regions, for example, what works in one region might not work elsewhere due to regional heterogeneity. A one–size–fits–all approach causes unbalanced implementation of policies, further unstable development, and regional polarization (Pike et al. 2006, as cited in Barca et al. 2012). This approach is also called a spatially blind approach (World Bank 2009, as cited in Barca et al. 2012).

A spatially blind approach can be costly in terms of economy wide productivity maximization and it is linked to the development of agglomerations due the migration to the largely populated cities (Barca, McCann, and Rodríguez–Pose 2012). The theory suggests that agglomerations have a positive spillover effect and even periphery regions can benefit from any innovations that are driven by agglomeration (Fujita et al. 1999, as cited in Iammarino et al. 2019; Duranton and Puga 2001, as cited in Iammarino et al. 2019; Cooke Morgan 1994, as cited in Iammarino et al. 2019; Iammarino 2005, as cited in Iammarino et al. 2019). However, the development of channels through which knowledge and skill can be diffused is essential for periphery regions to gain from spillovers (Boschma 2005, as cited in Iammarino et al. 2019). In contrast, agglomeration effects also generate negative externalities such as pollution and congestion (Fujita and Krugman 2004, as cited in Iammarino et al. 2019). Moreover, if positive spillover effects are not achieved, agglomeration may lead to increasing territorial inequality. Therefore, policy implementation can be discussed in terms of maximization and efficiency, or equity. Equity refers to a place based approach which focuses on minimizing inter–regional inequities. However, excessive focus on efficiency may lead to rising inequities and vice versa (Iammarino, Rodríguez–Pose, and Storper 2019).

2.2 Regional Resilience and Economic Shocks

Resilience is a complex and ambiguous concept in spatial economics that is continually. Resilience corresponds to the systems ability to respond to any shocks or disturbances (Martin 2012). Such shocks or disturbances can be easily observed in case of environmental disasters that affect different regions in varying ways (Martin 2012). This brings attention to the idea of geographic recession i.e. the effects may vary one region to another (Martin 2012). Therefore, the concept of resilience does not have a single clear definition that everyone agrees on, but the key intuition behind resilience is how quickly the different regional systems recover

from a shock back to its pre-shock state (Martin 2012). Other components of resilience are anticipation, preparation for, and re-orientation from a shock (Foster 2007). It is not a surprise that regions that experienced severe effects from a shock tend to have lower growth rates in the future, therefore, the economies that quickly recover back to their steady states are viewed as more resilient ones (Martin 2012).

To predict the relationship between the shock and its impact in terms of its severity, or duration of downturn, the theory introduces the plucking model which predicts that recessionary shocks should not have long lasting effects on the economy (Martin 2012). This assumption is challenged by Setterfield (2010) who argues that the shock that deemed temporary can have permanent effects on the economy by altering the economy as a whole. Setterfield (2010) introduces the concept of hysteresis where history matters in the context of path dependence, but rather than focusing on cumulative memory of economic shocks, it focuses on selective memories i.e. only specific extreme past events may reshape economies.

It may be challenging to define which events are considered extreme for certain regions. Due to heterogeneous characteristics of regions in terms of economic structure, competitiveness, workforce, governance—and institutional arrangements (Martin 2012). These characteristics will shape a regions ability to respond to the shock. One assumption is that more diversified regions can withstand extreme shocks better than non-diversified regions and have more desirable long-run trajectories of regional output and employment (Martin 2012). Given that extreme events are unique and regions are different in their economic nature, regional responses to these shocks may vary from one event to another which makes resilience a dynamic process (Martin 2012).

2.3 Sanctions, Trade Shocks and Border Closures

Sanctions have been around for a long time as a foreign policy tool (Crozet and Hinz 2020). In the context of the world economy, and particularly in the context of the EU, the impact of the sanctions became extremely relevant after the Maidan Revolution in 2013. Evidently, sanctions have a significant impact on international trade and economic activity, therefore, literature suggests that implementation of sanctions can have costly effects on countries who impose sanctions (Crozet and Hinz 2020). It is crucial to look at the sanctions in a more detailed perspective as it has a significant effect on many sectors, regions, companies and individuals.

The purpose of the sanctions is to hurt the targeted country's economy by restricting trade opportunities (Crozet and Hinz 2020). On the other hand, the traditional theory implies that sanctions serve an additional purpose, namely, causing internal political disturbance

by inviting the opposition which can alter ongoing policies (Frye et al. 2019). These sanctions, whose purpose is to target the domestic affairs in targeted country, are also called smart sanction (Crozet and Hinz 2020). Smart sanctions target the elite instead of hurting the average population (Crozet and Hinz 2020). However, signals from smart sanctions may cause a reversal relationship; the support for the targeted government increases among citizens (Frye et al. 2019). In the case of the Russo Ukrainian war, it is challenging to evaluate the success of sanctions (Crozet Hinz 2020). Nooruddin (2002, as cited in Frye et al. 2019) provides an important insight which states that sanctions may induce positive policy shift if a country shares democratic ideology.

Nevertheless, in the case of the Russo Ukrainian war, existing literature suggest that sanctions had a negative impact on the Russian Economy, but it was not costless. Imposing countries lost their trading partner and their share in the Russian market (Korhonen et al. 2018). For instance, Finland and the Baltic countries heavily depended on the Russian market prior to sanctions, and as a consequence they had to adjust their trading strategies and seek other opportunities elsewhere.

Across all EU countries, Finland stands out significantly due to rich and complex history with Russia (Laine 2007). In terms of sanctions and security measurements, Finland has closed the eastern border with Russia at the end of 2023 which affected the border regions (Finnish Government n.d.). However, border closure jeopardizes the initial strategies for regional growth and development proposed by local authorities (OECD 2025). Theoretically, this has been analyzed throughout tourism which is a critical sector for eastern and south eastern border regions (Korhonen et al. 2018). Russia has contributed a significant amount to the growth of tourism in Finland which also affects local regional employment and unemployment levels (OECD 2025). Due to regional attractiveness for Russian tourists in terms of consumption, tourism should be considered as one of the important aspects for overall regional strategic planning (Laine 2007).

2.4 Border Regions and Cross-Border Trade

European border regions play a big part in strategic planning in order reduce the gap or any disparities within the country. To understand the magnitude of the importance of border regions, this research considers Finnish eastern and southeastern border regions. These regions are facing extensive challenges regarding economic activity, but a lot of border regions may share similar characteristics and challenges (OECD 2025). In the case of Finland, 25% of the population lives in these regions (OECD 2025). The fundamental drive for regional disparities is demographic change (OECD 2025). As discussed, people tend to move out to more concentrated areas. The incentive to move elsewhere is due to shrinking

workforce, ageing population, and economic stagnation (OECD 2025).

Finnish border regions are characterized by an intensive focus on service and tourism, which have collapsed due to inability of tourists to visit (OECD 2025). These regions now must seek other alternatives to compensate for a loss in tourism activity. In addition, previously established cross border corridors for transportation are now at stake for these regions that had long standing economic ties with Russia (OECD 2025).

Border regions and cities have experienced many different economic shocks throughout history (Prokkola 2019). One of the reasons for their economic vulnerability is their geographical location (Prokkola 2019). Border regions are most of the time considered periphery, however, there are exceptions (Prokkola 2019). In the context of external EU borders, there are also concerns regarding safety, especially after the Russian invasion in Ukraine and rising number of immigrants (OECD 2025). Therefore, border regions are enormously important for overall state security (Longo 2018, as cited in Prokkola 2019). Considering the case of the eastern border closure, border regions and cities are the first to experience a change in their development trajectories (Prokkola 2019). The lack of resources to cope with changes may also hinder their further economic development (Prokkola 2019). The border shock, therefore, may shift resources elsewhere which undermines the development in border regions (Boschma 2015, as cited in Prokkola 2019). Therefore, the closure of borders can be viewed as one resource taken away from border regions (Sohn 2014). Border closure is presented as a negative outcome in the short run, but it is argued that it can be an opportunity for developing alternatives that will withstand similar shocks better in the long run (Prokkola 2019).

2.5 Baltic Countries: Adjustment, and Resilience Regional Development

The Baltic Countries are Estonia, Latvia, and Lithuania. They share mutual characteristics and history as being a part of the Union of Soviet Socialist Republics which played a big role in their independent development after the collapse of the USSR. These countries are similar in their size, economic structure, and development; however, Estonia is ahead of its Baltic neighbors in terms of economy (Poissonnier 2017, as cited in Dudzeviit 2025).

Due to their small geographic size, The Baltic Countries are fragile to any economic shocks or disruptions beyond their control (Gould et al. 2018, as cited in Dudzeviit 2025). Fragility of these states comes from lack of resources and small domestic markets which make it potentially more difficult to diversify their economic activities to withstand shocks (Pereira 2018, as cited in Dudzeviit 2025). For the purpose of compensating for their small domestic

market, small countries are defined as countries with a high degree of economic openness (Dudzeviit 2025). The high degree of openness refers to the country's dependence on imports and exports. In addition, the economies of small countries are characterized by their diversification constraints of export goods, dependencies on external energy resources, and lack of competition shocks (Briguglio 2014, as cited in Dudzeviit 2025). The lack of competition in small countries allows a few firms to dominate the domestic markets and even create monopolies (Briguglio 2014, as cited in Dudzeviit 2025). These characteristics bring challenges to develop an economy that is resilient to external shocks.

Briguglio (2014, as cited in Dudzeviit 2025) states that to increase the resilience of the country, the government and institutions should implement policies which will achieve macroeconomic stability, efficient markets, good governance, and social development. Macroeconomic stability is the concept of economic balance where important components of the economy are functioning in a sustainable way (Dudzeviit 2025). Market efficiency allows the markets to effectively redirect financial resources (Dudzeviit 2025). Good governance allows governments and institutions to remain trustworthy in the eyes of citizens and maintain the rule of law. Social development is linked to good governance by the strong relationship between citizens and authorities (Dudzeviit 2025).

3 Literature Review

3.1 Regional Economics and Regional Inequality

3.1.1 Economic Geography and Agglomeration

As discussed above, economic geography plays a vital role in the context of globalization and potential external shocks that may affect economic stability. Existing literature suggests that economic activity shifts to concentrated areas due to self-reinforcing agglomeration mechanisms (Fujita, Krugman, and Venables 1999). For instance, most of the American population is settled in a few metropolitan areas (Fujita, Krugman, and Venables 1999). The intuition behind such behavior lies within the concept of economies of scale between two distinct productions where pecuniary externalities may matter: manufacturing and agriculture (Krugman 1991). Manufacturing is characterized by increasing returns to scale compared to agriculture where constant returns to scale are present (Krugman 1991).

Krugman (1991) suggests that manufacturing takes place less in core regions. One of the reasons is that manufacturing takes place in limited areas because of economies of scale. Production will be located where the demand is the highest (Krugman 1991). This

assumption is based on the notion that transportation costs are low. In contrast, the demand will be the highest where production is concentrated, creating circular causation (Krugman 1991). Hirschmann develops this concept further by introducing forward and back linkages (Krugman 1991).

The combination of transportation costs, economies of scale, and production is the basis for the core periphery pattern which allows for the creation of agglomeration.

3.1.2 Regional Divergence and CorePeriphery Dynamics

Iammarino and colleagues (2019) discuss the effects of agglomeration on the core periphery dynamics. One of the effects of regional development is the divergence effect which may have caused the rise in inequality across regions (Iammarino, Rodríguez-Pose, and Storper 2019). The inequality is rooted in loss of job opportunities, decrease in labor force, and decrease in wages (Iammarino, Rodríguez-Pose, and Storper 2019). In contrast, authors speculate whether economic activity can spread across regions or if economic activity is concentrated in one place due to agglomeration forces.

One of the reasons for agglomeration is labor mobility across regions (Iammarino, Rodríguez-Pose, and Storper 2019). Iammarino supports Krugmans assumption of circular causation by arguing that the migration moved to large cities. Fujita states that with high growth in innovation, periphery region may indirectly benefit from positive spillover effects if they are substantially large enough (Fujita and Thisse 2003). The conducted study by Iammarino and colleagues (2019) has shown that people leave less developed areas and are moving to higher income areas to improve the quality of living. The analysis was done by creating four different groups based on GDP per capita; very high, high, medium, and low. Levels of GDP per capita were constructed by comparing them to the EU average. The results showed that levels of employment have declined in areas with low GDP per capita. Thus, technological and high skill-based labor favors the core areas due to labor barriers for less skilled workers (Iammarino, Rodríguez-Pose, and Storper 2019). This finding contradicts with the consensus of agglomerations ability to generate positive spillover effects.

3.1.3 Globalization and Spatial Concentration

Globalization and path dependency are tightly linked together. Barca, McCann, and Rodríguez-Pose (2012) provide several aspects of globalization that relate to economic geography. Globalization has induced convergence on a national level between countries, and countries that are poor are slowly catching up to more developed countries (Spence 2011). For example,

it is noticeable in Asia due to the shift of global trade to eastern countries such as South Korea and Taiwan (Barca, McCann, and Rodríguez-Pose 2012). The rapid economic growth enabled the creation of mega regions which allowed for economic activity to concentrate in these super regional areas (Barca, McCann, and Rodríguez-Pose 2012). This effect of concentration is supported by Rugman who identifies that the trade activity in these regions is oriented between nations within the same mega region (Rugman 2000, 2005). Barca pays attention to global cities which play a significant role in developing core periphery dynamics in mega regions due to stickiness of resources that remain stuck in large agglomerations (Barca, McCann, and Rodríguez-Pose 2012).

3.1.4 Regional Policy Debate

Chien (2008) argues that policy debates regarding the reduction of regional inequalities have been following similar objectives without consideration of geographic or social context (Chien 2008). Storper (1997), Pike et al. (2006), and Pike et al. (2007) support this outcome by stating that many implemented policies mimic the successful policies of the past. Imitation of successful policies, especially infrastructure policies, has shown to improve economic growth to some extent. However, these policies may also increase regional inequalities because these policies may strengthen already developed regions while periphery regions become less competitive and more dependent on core regions (Vanhoudt et al. 2000; Puga 2002; Dall’Erba and Le Gallo 2008). Iammarino describes this mechanism as the trade-off between overall better economic efficiency and regional equity (Iammarino, Rodríguez-Pose, and Storper 2019). Iammarino, Rodríguez-Pose, and Storper (2019) and Barca, McCann, and Rodríguez-Pose (2012) are calling these policies spatially blind due to their nature of not considering regional differences. Even though, Barca, McCann, and Rodríguez-Pose (2012) discuss that spatially blind policies may lead to convergence between regions due to maximizing efficiency through agglomerations, Iammarino, Rodríguez-Pose, and Storper (2019) argue that too much attention to spatially blind policies will undermine regional equity. Therefore, policymakers face a trade-off between efficiency and equity.

3.2 Regional Resilience and Economic Shocks

3.2.1 Defining Regional Economic Resilience

The definition of resilience has been debatable in the context of regional economics. The issues arise from disagreements between scholars on what a precise definition of resilience is, how it should be measured, and how significant it is for regional policy making (Chris-

topherson, Michie and Tyler 2010; Hudson 2010; Pendall, Foster and Cowell 2010). Due to major environmental disasters and other global recessions that are considered system wide shocks that interfere with economic growth (Martin 2012), Foster (2007) was able to define resilience as the ability of a region to anticipate, prepare for, respond to, and recover from a shock (Foster 2007).

Cerra and Saxena (2008) and Cerra, Panizza, and Saxena (2009) provide an insight into the cycle of a shock. They suggest that the frequent exposure to shocks will slower the economic growth of a region or a country in the long run (Cerra and Saxena 2008; Cerra, Panizza, and Saxena 2009). Therefore, Martin (2012) argues that the most common definition of resilience may be linked to engineering resilience that focuses on speed of return of a system to its pre shock state, but Holling (1973), Pimm (1984), and Walker et al. (2006) define resilience in terms of systems ability to stay near its equilibrium state.

Nevertheless, both definitions are closely related, but the latter one holds on to the assumption that the systems ability to recover back to the equilibrium is linked to self correcting forces (Martin 2012). Therefore, Martin (2012) raises the following concern regarding the importance of equilibrium in the context of the ability or inability of the regional economy to return to its steady state after the shock. If we believe that these self-correcting forces hold, Pendall, Foster, and Cowell (2010) argue that rising unemployment levels or decreased output may return to the pre shock state. If not, economies may evolve and transform after the shock reflecting an evolutionary approach to resilience (Simmie and Martin 2010).

3.2.2 Hysteresis, Path Dependence, and Structural Change

Martin (2012) refers to hysteresis as the negative effects of shocks in history, however, Romer (2001) describes hysteresis in the context of a temporary shock that may permanently alter the trajectory of economic development. Setterfield (2010) developed the notion of hysteresis further by characterizing hysteresis as structural change in the economy that may also change the behavior of economic agents. In addition, Setterfield (2010) connects hysteresis to path dependence, and argues that instead of all past events affecting the long term trajectory of economic development, only recent or extreme events may affect the development in the long run.

According to Martin (2012), after the temporary one time event, the regional economic growth may recover to its pre shock growth path even after structural and institutional changes occur. This view is partially supported by Hanley, who argues that regional economies continuously experience structural changes, making the emergence of new economic trajectories a natural feature of economic growth and development (Hanley 1998, as cited in Martin 2012).

In terms of employment and output, the long-lasting shock may lower the opportunity to be re-employed and increase the dependence on welfare even when the economy has stabilized (Martin 2012). According to Martin (2012), the level of unemployment may not be at the pre-shock equilibrium but rather stabilized around the new steady state while the regional economic growth path may have recovered back to its pre shock path. The level of unemployment would also depend on migration and labor force withdrawal in the region due to the depressing economy caused by the shock (Martin 2012). These responses, however, are subject to change due to the heterogeneity of shocks.

This makes resilience a dynamic process that is affected by extreme events and continuous structural and institutional changes according to Martin (2012).

3.2.3 Determinants of Regional Resilience

In the previous section, Martin (2012) provides the determinants of regional economic resilience; structural and institutional changes and the severity of a shock. Brakman, Garretsen, and van Marrewijk (2015) argue that additional determinants in the context of EU regions are urbanization and specialization.

Brakman, Garretsen, and van Marrewijk (2015) clarify that the specialization includes sectoral composition of economic activities in regions. Since regions adapt and recover differently due to a shock, the composition and the size of a population of a region are viewed as one of the important ones of regional growth and employment (Brakman, Garretsen, and van Marrewijk 2015). Brakman, Garretsen, and van Marrewijk (2015) view highly urbanized regions, in terms of skilled work force, as outperforming less urbanized regions. This supports Martins (2012) view of regional heterogeneous composition of firms and workers. In addition, Martin (2012) connects resilience to the level of diversification of regional economic activity, and argues that heterogeneous economic structure may withstand the effects of shocks better than uniquely specialized regions since different industries have varying thresholds.

Due to urbanization, a high number of firms clustered in one location have a higher chance of surviving a crisis according to Martin (2012). This assumption connects to the agglomeration mechanism. However, Brakman's, Garretsen's, and van Marrewijk's (2015) results show that commuting areas with large populations tend to be more resilient than regions with a larger proportion of population living in rural areas or isolated cities. Martin, Mayer, and Mayneris (2013) find that clusters of exporting firms located near cities are more likely to be more resilient. Together, these studies find that urban connectivity, agglomeration, and higher economic diversification increase the probability of adapting to external shocks.

3.3 Sanctions, Trade Shocks and Border Closures

3.3.1 Economic Effects of Sanctions

There is extensive literature discussing the effects of sanctions on economic activity, for example, Glick and Taylor (2010) have shown that drastic measurements such as war have negative effects on international trade and the economy. Michaels and Zhis (2010) work is based on the diplomatic clash between France and the US during the Iraq war in 2003. Their result shows that diplomatic turmoil has decreased the international trade between France and The US for a short time (Michaels and Zhi 2010). In addition, the recent Russo–Ukrainian war had an impact on the global economy. According to Korhonen, Simola, and Solanko (2018), Western sanctions limiting selected Russian entities access to financial markets and technology exports led Russia to impose countersanctions, including import bans. According to Crozet and Hinz (2020), due to the restricted access of Russian entities to international financial markets, the Russian banking system weakened and became increasingly unstable, leading to higher costs of financing and maintaining international trade relations with Russia.

One of the outcomes of imposed sanctions on Russia was a significant reduction in exports (Fritz, Christen, and Hinz 2017). According to Crozet and Hinz (2020), Western countries suffered significant losses in exports which amounted to 44 billion US dollars, and 90% of these losses were carried by the EU. Fritz, Christen, and Hinz (2017). found that EU exports to Russia were reduced by 11%, but their study shows that each sanctioning country was diversely affected by sanctions. This indicates the presence of asymmetric effects, which are also affecting firms and individuals according to Korhonen, Simola, and Solanko (2018). Korhonen, Simola, and Solanko (2018) provide a significant result for Finland and the Baltic countries which were highly dependent on Russian trade. They also state that a large share of their exports, around 60 to 80%, went specifically to Russia. Additionally, Crozet and Hinz (2020) were able to indicate that Finland, among other countries, was affected the most.

3.3.2 Border Closure and Regional Vulnerability

The Finnish government announced in the beginning of 2023, that the increasing number of third country citizens, amounted to approximately 1,300 citizens, crossed the border between Russia and Finland without proper documentation (Finnish Government n.d.). Finnish authorities believe that migration was used as a tool for a political pressure by the Russian government (Finnish Government n.d.). The situation was viewed as a threat to national security; therefore, the Finnish government announced the closure of all cross border checkpoints with Russia (Finnish Government n.d.). Even though border closure is not part of

official economic sanctions, it plays a significant role in intense broad political conflict between Russia and Western countries.

Border closure may have a significant impact on many economic sectors. Laine (2017) discusses the importance of Russian tourism in his work indicating that tourism may be affected by geopolitical shifts. According to Laine (2017), tourism should be considered in the strategic planning of regional development. This notion is based on the behavior of agents in border regions. Honkanen, Pitkänen, Hall, Müller, Olsen, and Tuulentie (2015) argue that residents of border regions have more direct relationships with people from other countries. In the case of Finland, Timothy (2005) provides an interesting insight; tourism may be viewed as a form of consumption which plays a critical role in cross border tourism between Finland and Russia.

3.4 Border Regions and Cross Border Trade

3.4.1 Border Regions and Cross Border Mobility

According to Prokkola (2019), European border regions have experienced dynamic changes throughout history due to environmental, economic and geopolitical events. Prokkola (2019) study shows the importance of border mobility which may determine regional development trajectories. In the traditional view, border regions seem to have unique problems regarding regional development due to their location (Prokkola 2019). Prokkola (2019) introduces two reasons; their closeness to the border and peripheral location within the country. Recent concerns regarding national security have emphasized the importance of border regions and border towns. Brown (2017, as cited in Prokkola 2019) argues that border regions are functioning as transit zones, and in response to increasing migration flows, many governments implemented border closures and the securitization of mobility. Therefore, according to Longo (2018, as cited in Prokkola 2019), the stability of border regions and smooth cross border mobility are important factors for national security and for society as whole.

Even though, cross-border mobility shocks have an impact on the region in the short run, they may provide alternative strategies for regional development and growth (Prokkola 2019). However, openness of borders may be viewed as a privilege as previously discussed. If taken away, the resilience of border regions is threatened due to undiversified economic structure compared to more urbanized regions (Boschma, 2015, as cited in Prokkola 2019; Kotilainen et al. 2015, as cited in Prokkola 2019).

3.4.2 Finnish Russian Cross Border Tourism and Trade

Prokkola's (2019) work included the results of a national survey regarding the relationship with Russia and Russian tourists. One of the outcomes of the survey is that the regional economy of Finland was highly dependent on Russian tourism. Therefore, the Crimean crisis made border regions vulnerable because of their specialization on Russian trade and tourism (Prokkola 2019).

Laine (2017) emphasizes the importance of the complex history between Finland and Russia that played a critical role in the development of a binational relationship. As a result, daily shopping tourism became the foundation for regional economic development in the 21st century in south - eastern regions according to Prokkola (2019). However, after the cross-border shock, economic activity of border regions slowed down. Prokkola (2019) estimated that the number of empty businesses doubled between 2013 and 2017. In addition, many small firms gave up offices and adopted home offices to minimize the costs of rent (Ylönen 2014, as cited in Prokkola 2019; Kemppainen 2017, as cited in Prokkola 2019). One of the participants of the national survey was able to describe the effects of cross-border mobility shock:

"We had enterprises that based their operational model on Russian customers. When the number of Russians decreased, and those who continued to visit here used less money, so this has had impact here and especially in retail, in specialized retail many shops shut up. (LPR, informant 29 as cited in Prokkola 2019, p. 15)"

Besides the negative consequences, Prokkola (2019) argues that geopolitical shock may also generate a positive social effect. The shock may have positively reshaped local perceptions and attitudes towards Russian visitors, while simultaneously highlighting the regional vulnerability which originated from the dependence on cross border mobility (Prokkola 2019).

3.4.3 Geopolitical Shock and Regional Vulnerability of Finnish Regions

Border regions are strategically important for Finland (OECD 2025). There are over a quarter of Finland's population living there and the contribution of the overall output is large (OECD, 2025). However, these regions are facing common challenges such as ageing population, shrinking workforce, and decline in economic activity (OECD 2025). Therefore, OECD (2025) suggests that eastern border regions were already vulnerable to any potential external shocks. For instance, Alasalmi, Toikka, and Ritala (2024, as cited in OECD 2025) show that the population in Eastern Finland has declined by 2.6% between 2019 and 2024. In addition,

OECD (2025) reports that during the same period Eastern Finland witnessed a significant decline in the working age population amounting to 6%.

The shift in demographics of border regions may be explained by substantial outmigration flows of working age people, especially among younger citizens (OECD 2025). OECD (2025) report suggests that between 2007 and 2023 net migration totaled -5.5% relative to the population of border regions in 2007. This pattern is offset by international immigration of 5.0% which roughly cancelled the domestic emigration (OECD 2025). In terms of overall decline in share of population, the population of border regions declined from 31% to 27% between 1995 and 2022 (OECD 2025).

For many border regions economic activity was structured around the dependency on Russian trade and tourism which increased their potential exposure to external shocks (OECD 2025). The report shows that border regions differed in their exposure to Russian activities. According to OECD (2025), South Karelia was affected the most following the decrease of Russian trade and tourism due to its location that serves as one of the major transit zones. Other regions that had a significant dependence on Russian activities include; Lapland, especially Eastern Lapland; Kainuu; North Karelia; South Karelia; Kymenlaakso; South Savo; and North Savo. North Savo is the only region in the list that does not share a direct border with Russia. Interestingly, OECD (2025) findings suggest that North Savo underestimate their dependence on Russian activities which increased their peripheral vulnerability. OECD (2025) reveals that 20% of exports from North Savo were traded to Russia and Belarus.

The effects of closure of cross border mobility are diverse. Many regions experienced disruptions in logistics (OECD 2025). According to OECD (2025), the access to the Saimaa canal is crucial for overall transportation. The closure of the Saimaa canal mostly affected North Savo and North Karelia. These regions are struggling with unemployment and declining business profitability. In addition to the closure of the Saimaa canal, the port of Hamina Kotka continues to play an important role in transport infrastructure of Kymenlaakso. Although the port has experienced difficulties due to the loss of trade volume with Russia, it remains as a crucial node for European trade and logistics. Regarding labor market conditions, the OECD (2025) highlights persistent regional disparities across the country. One of the most significant observations is that regional disparities remain high, even though many regions experienced a decline in unemployment rates between 2021 and 2023 (OECD 2025). Furthermore, it is fundamental to understand the role of municipalities within regions which may lack sufficient resources to effectively address challenges arising from the border closure (OECD 2025).

3.5 Baltic Countries: Vulnerability, Geopolitical Shocks and Economic Resilience

3.5.1 Small-State Vulnerability and Economic Openness

The Baltic countries may be characterized in many ways; however, they share similarities in terms of size, economic structure, development and demography (Poissonnier 2017, as cited in Dudzeviit 2026). Particularly, according to Dudzeviit (2026), their geographically small size plays a crucial role in determining their vulnerability to external shock or arising challenges related to economic activity. Pereira (2018, as cited in Dudzeviit 2026) argues that due to their size, they lack variety of human and natural resources which are tightly linked to their small domestic market. These disadvantages may impact their resilience during the economic disruptions. In addition to their size, they are highly dependent on economic openness, which exposes them to additional risks related to global economic conditions according to Gould et al. (2018, as cited in Dudzeviit 2026) and Pereira and Steenge (2022, as cited in Dudzeviit 2026). In terms of foreign trade composition of the Baltic countries, they are heavily dependent on imports and exports (Dudzeviit, 2026). Dudzeviit (2026) suggests that more than 45% of Estonian imports were exported by Finland, Lithuania, Poland, and Germany, however, the situation is different across all Baltic countries. Poissonnier (2017, as cited in Dudzeviit 2026) argues that Finland and Sweden are in fact the most important trading partners for Estonia, while Lithuania and Latvia are oriented towards the relationship with Poland. Surprisingly, Latvia is the only one that has Russia as an export partner according to Dudzeviit (2026). Although economic openness provides significant opportunities, it also shows that the Baltic countries are not well diversified in terms of imports and exports which makes them more vulnerable to disruptions if trading channels are compromised (Dudzeviit, 2026).

3.5.2 External Shocks, Energy Dependence and Economic Adjustment

External shocks are one of the important factors that influence the economic development of the Baltic countries. In the past, the world witnessed the effects of the 2008 financial crisis and global pandemic in 2020 which lasted until 2023; and one of the most recent global events is the ongoing Russo-Ukrainian war that started in 2022. Since then, the Baltic countries are facing new challenges that may have influenced their economic activity. According to Dudzeviit, the Russo-Ukrainian war weakened the economic growth of all Baltic countries, especially in Estonia that experienced a mild recession of 0.5%.

The crisis had a significant impact on energy and food markets which led to increased prices

that increased costs of living (Dudzeviit 2026). Dudzeviit (2026) suggests that these effects are more prominent in Latvia and Lithuania due to their high dependence on Russian energy. Peterson (2023, as cited in Dudzeviit 2026) finds that 32% of Latvia's total energy in 2020 came from Russia which aligns with Dudzeviit's suggestion. Dudzeviit (2026) suggests that Latvia's dependence on Russian natural gas reached 90%. Comparatively, Lithuania imported 96% of total energy from Russia in 2020 making Lithuania one of the most energy dependent countries in the EU (Janelinas 2023, as cited in Dudzeviit 2025). Nevertheless, Dudzeviit (2026) claims that Lithuania was able to avoid major economic losses, implying that the Lithuanian economy showed greater resilience than initially anticipated.

4 Empirical Analysis

4.1 Data

4.1.1 Unemployment Rate

The unemployment rate data was extracted from multiple sources from national databases of each country. Finnish unemployment rate data on municipal level was taken from Statistics Finland with 2025 regional division. The unemployment rate data is based on ages between 18 and 74. Unfortunately, there was no available data from 15 to 74 due to time - series breaks. The time period is set between 2018 and 2024 to capture more recent trends and avoid possible fluctuation of the past years. The data on NUTS 3 level follows the same parameters except for the territorial selection. In the case of NUTS 3, regions were chosen to illustrate regional unemployment rate dynamics.

Data for Estonia was more limited on the county level. Unemployment rate data is based on a 3 year moving average by county. Data covers population between the ages of 15 and 74. Time period is set between 2019 and 2024. Due to data limitations, Hiiu county was dropped from the analysis. On the NUTS 3 level, the time period was available from 2018 to 2024 which allowed for more precise cross-country comparison. Estonian NUTS 3 data cover the same age range.

Latvian municipal data on unemployment rate is defined as “share of unemployed persons among economically active population aged 15-74 in regions, cities, municipalities, towns, rural territories (based on the boundaries in force at the beginning of 2026), neighborhoods and densely populated areas”(Central Statistical Bureau of Latvia 2025). However, it is important to note that this data is listed under experimental statistics. The time period was set from 2019 to 2024. NUTS 3 data is more complex and should be treated cautiously. To

construct the data for analysis, combining two data sets was necessary. One dataset covers 2018 to 2021, while the other spans 2022 to 2024. The reason why this data should be treated cautiously is due to the boundary changes, therefore, matching new definitions of boundaries with the old ones may be imprecise. The age range for NUTS 3 data remains between 15 and 74.

In the case of Lithuania, the county level and NUTS 3 level are the same in my framework, since Eurostat and the official statistical bureau of Lithuania share the consensus of territorial boundaries. The time period is set from 2018 to 2014. Complete data was only available for the 15 and over age range.

4.1.2 Foreign Population

Finnish foreign share data was extracted from Statistics Finland on municipal and NUTS 3 level. It reflects the percentage share of foreigners in respective territories between 2018 and 2024. Finland Statics provides the following definition for this parameter:

“Citizenship means being a citizen of a particular country. Citizenship is usually acquired at birth, but it can be changed when a person moves to live in another country. A person may also hold the citizenship of more than one country (Citizenship Act 2003/359 and Citizenship Decree 1985/699). If a person has dual citizenship and one of those citizenships is Finnish, they are recorded in statistics as a Finnish citizen. If a foreign citizen living in Finland holds the citizenships of several foreign countries, they are registered and recorded in statistics as a citizen of the country whose passport they used to enter Finland” (Population Structure Statistics, Statistics Finland)

In case of Estonia and Latvia on county and municipal level this variable was omitted due to data unavailability. In addition, the inclusion of region-specific trends would absorb the effect and generate unstable estimates. Nevertheless, I was able to construct the region-specific trends on NUTS 3 level. For Estonia, I looked at external immigration between 2018 and 2024. For Latvia, I looked at long-term international migration in regions, state cities and municipalities between 2018 and 2024. In the case of Lithuania, the data was based on the total number of immigrants between 2018 and 2024.

4.1.3 Synthetic Control Method Data

The synthetic control method is utilized by extracting data from EUROSTAT. The variables that I chose are unemployment rate, population, inflation, and real GDP per capita. The sample consists of the following countries: Denmark, Sweden, Poland, Finland, France, Norway, Belgium, Austria, Germany, Ireland, and Netherlands. Unfortunately, Iceland is excluded from the analysis due to limited data.

The time period 2014 to 2025 was selected for the synthetic control method. A pre-treatment range is sufficient to construct a counterfactual unemployment rate path for Finland. Post-treatment range reflects short-term effect on unemployment rate.

The unemployment rate is defined in percentages from 15 to 74 years of age. Population is calculated on the first of January of each year and listed as total annual number. Inflation is characterized by an annual average rate of change reflecting total consumption. Real GDP per capita consists of chain linked volumes (2020), euro per capita.

4.1.4 Administrative Boundary Data

Administrative boundary data was obtained from the Eurostat dataset at the NUTS 3 level with a spatial scale of 1:1M and from national land surveys. Solely territorial units corresponding to NUTS 3 level were kept for the analysis for Lithuania. On a more granular level, the scale was minimized to 1:100K for Finland, Estonia, and Latvia.

4.2 Model

4.2.1 Baseline Difference-in-Differences Specification

The baseline specification estimates the relationship between border exposure and unemployment rate after the border closure in 2023. The regression equation is the following:

$$Unemployment_{it} = \alpha + \beta(Exposure_i \times Post_t) + \gamma_i + \delta_i + \theta(Z_{i,pre} \times Trend_t) + \varepsilon_{it} \quad (1)$$

where i indexes regions and t indexes time. The dependent variable, $Unemployment_{it}$, is used as a proxy for regional economic activity, capturing labor market responses to the 2023 Finnish eastern border closure. The terms γ_i and δ_i denote region and year fixed effects, respectively.

The variable $Exposure_i$ measures geographic exposure to the eastern border, while $Post_t$ is an indicator variable equal to one for the post-border-closure period (2024-2025) and zero for all prior years. The interaction term ($Exposure_i \times Post_t$) therefore captures whether regions located closer to the border checkpoints experienced different unemployment changes after the border closure.

The term ($Z_{i,pre} \times Trend_t$) captures region-specific pre-treatment demographic trends. $Z_{i,pre}$ corresponds to the average pre-treatment share of foreign population in each territorial unit which interacts with a linear time trend. This control is included to capture labor market dynamics associated with immigration and demographic change.

Standard errors are clustered at the regional level to account for serial correlation within regions over time.

β is the parameter of interest, therefore, I expect to observe a positive estimates suggesting that territories with higher border exposure experienced larger increases in unemployment rate after the border closure.

4.2.2 Definition of Border Exposure

Border exposure is measured by using the absolute distance from each territorial unit to the nearest border checkpoint between Finland and Russia. Let ($distance_i$) denote the distance in meters from region (i) to the nearest checkpoint.

The continuous exposure is defined as:

$$Exposure_i = -\log(distance_i) \quad (2)$$

which is subsequently standardized to have a zero mean and unit variance. Therefore, higher values correspond to territories located closer to the border.

The idea behind the logarithmic transformation is to capture nonlinear decay of the effect. In this framework, the distance moveing from 0 km to 50km is more significant than from 300 km to 500km. Therefore, a positive coefficient suggests that geographically closer territories experienced larger increases in unemployment rates after 2023.

4.2.3 Foreign Population Trends

The share of foreign population was included to account for region specific demographic changes across territorial units. The trend variable is constructed as:

$$ForeignTrend_{it} = ForeignShare_i^{pre} \times Trend_t \quad (3)$$

where $ForeignShare_i^{pre}$ is the average foreign population share in region (i) before the treatment year, and $Trend_t$ is a linear time trend beginning in 2021. This allowed the control of different labor market trajectories related to immigration flows and demographic changes.

4.2.4 Binned Exposure Specification

To further develop the model, I constructed a binned exposure model. Territories are grouped by distance intervals relative to the nearest border checkpoint; $< 50km$, $50 - 100km$, $100 - 150km$ etc.

The corresponding estimating equation is:

$$Unemployment_{it} = \alpha + \sum_k \beta_k (DistanceBin_i^k \times Post_t) + \gamma_i + \delta_i + \theta(Z_{i,pre} \times Trend_t) + \varepsilon_{it} \quad (4)$$

where $DistanceBin_i^k$ functions as an indicator for distance interval k .

This specification allows treatment effects to vary within the geographic proximity of the border checkpoints.

4.2.5 Event Study Specification

To evaluate the parallel trends assumption and examine the dynamic evolution of treatment effects, the following event study specification is estimated:

$$Unemployment_{it} = \alpha + \sum_{\tau \neq 2022} \sum_k \beta_{\tau k} (DistanceBin_i^k \times \mathbb{1}[t = \tau]) + \gamma_i + \delta_i + \theta(Z_{i,pre} \times Trend_t) + \varepsilon_{it} \quad (5)$$

The year 2022 is the omitted reference period. Under the identifying assumptions of the DiD framework, pre-treatment coefficients should remain statistically insignificant.

4.2.6 Synthetic Control Method

To complement the DiD analysis, I use the synthetic control method to construct a counterfactual unemployment path for Finland. Synthetic Finland is defined as a weighted average of sample countries:

$$\widehat{Y}_{FIN,t}^{SC} = \sum_{j \neq FIN} w_j Y_{j,t} \quad (6)$$

where the weights satisfy:

$$w_j \geq 0, \quad \sum_{j \neq FIN} w_j = 1 \quad (7)$$

The sample pool consists primarily of OECD countries including Denmark, Sweden, Poland, Finland, France, Norway, Belgium, Austria, Germany, Ireland, and Netherlands.

Weights are chosen to minimize the pre-treatment discrepancy between Finland and the synthetic control over the period 2014 to 2022. Predictors include GDP, population, inflation, and lagged unemployment rates.

The treatment effect is calculated as:

$$\widehat{\tau}_t = Y_{FIN,t} - \widehat{Y}_{FIN,t}^{SC} \quad (8)$$

The key identifying assumption is that in the absence of the 2023 border closure, more exposed and less exposed countries would have followed similar parallel unemployment rate paths.

It is important to note that the results reflect short-run labor market effects due to data limitations.

4.3 Spatial Distance Calculation

Absolute distances between territories and border checkpoints were calculated by using spatial analysis techniques in Python. Administrative boundary data was obtained from the Eurostat dataset at the NUTS 3 level with a spatial scale of 1:1 million and from national land surveys from each country to analyze geographical data on a smaller scale. Only territorial units corresponding to NUTS level 3 were retained for the analysis of Lithuania. Border checkpoints were manually extracted from Google Maps and stored in a file containing border checkpoint names, latitude and longitude coordinates in the WGS84 geographic coordinate system (EPSG:4326).

To ensure that distances were calculated accurately, both territorial geometries and checkpoint coordinates were transformed from the geographic coordinate reference system (EPSG:4326) into the projected European coordinate reference system (EPSG:3035). This transformation allowed me to calculate distances in meters.

To calculate the distances between territorial geometries, I applied the Euclidean method. The Euclidean method measures the shortest straight-line distance between two points. To complete the calculations, the geometric center (centroid) of territorial unit was used as the reference point for the calculations. Therefore, the distance was measured between the centroid of each territorial unit and the corresponding nearest border checkpoint. To assign the nearest checkpoint for territorial units, I calculated the distances from territorial units to all available border checkpoints. The border checkpoint associated with the minimum Euclidean distance was established as the nearest checkpoint for the respective territorial unit.

4.4 Results

4.4.1 Parallel Trends Assessment

The Difference-in-Differences framework relies on the parallel trends assumption, which requires that treated and control groups are demonstrating similar unemployment trajectories before the border closure. Hence, I expect to observe the coefficients for pre-treatment to be jointly equal to zero. I examined residualized pre-treatment trends across two different exposure groups for Finland and the Baltic countries, conducted Wald tests, and created graphical evidence through event-study plots. The exposure groups are characterized by high and low exposure depending on absolute distance to the border checkpoint.

Figures (1) and (2) for Finland indicate that trajectories of highly exposed and less exposed municipalities and NUTS 3 regions do not significantly diverge before the treatment year. However, both figures include fluctuations in 2020 which corresponds to the global pandemic. Nevertheless, the null hypothesis was rejected after conducting Wald tests for the final pre-treatment year i.e. 2021. Thus, indicating that border regions experienced different dynamics compared to distant regions. However, the graphical evidence from residualized trends and event-study plots suggests that pre-treatment differences were relatively modest compared to a larger divergence following the border closure in 2023. As a result, the outcomes of the analysis should serve as suggestive evidence rather than establishing conclusive causal effects.

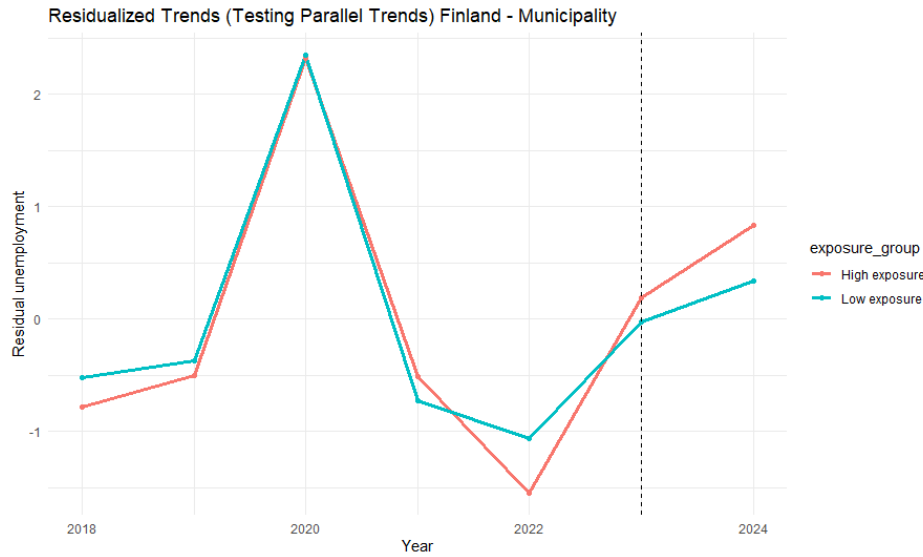


Figure 1: Finland – Municipality. High exposure (< 50 km)

Source: Author's own visualization in R.

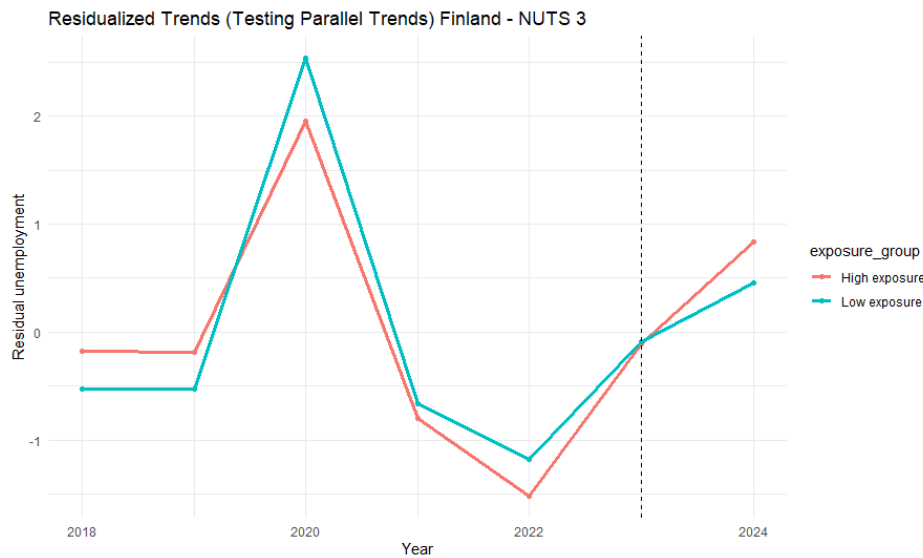


Figure 2: Finland – NUTS 3. High exposure (< 100 km)

Source: Author's own visualization in R.

The outcome of parallel testing for Finland partially supports the assumption of parallel trends, however, the parallel trends for the Baltic countries are not as strong. The Wald test rejected the null hypothesis for all countries, except for Latvia and Estonia. In case of Latvia the p-value demonstrates weak evidence against the null hypothesis. In contrast, the p-value for Estonia is substantially large. Therefore, the null hypothesis cannot be rejected. Although the short sample period was used to avoid major past deviations, the short sample period and smaller sample size may limit the reliability of the estimates.

Table 1: Wald Test Results by Country

Source: Author's own calculations in R.

Country	Wald Statistic	p-value
Finland	3.958	0.0017
Estonia	1.459	0.2705
Latvia	2.307	0.0665
Lithuania	4.753	0.0390

4.4.2 Event Study Analysis

To further develop strong evidence for the treatment effect, a series of event–studies was conducted to check the dynamics of unemployment rates for distance–based analysis.

The event study findings provide further evidence regarding the parallel trends assumption. Graphical evidence of Finnish municipalities suggests that pre–treatment dynamics were fluctuating before the treatment year, however, the fluctuations were relatively stable. Based on the Wald tests, the null hypothesis was rejected, hence; the strict parallel trend assumption was not satisfied. Thus, municipalities located closer to the border already experienced different unemployment dynamics.

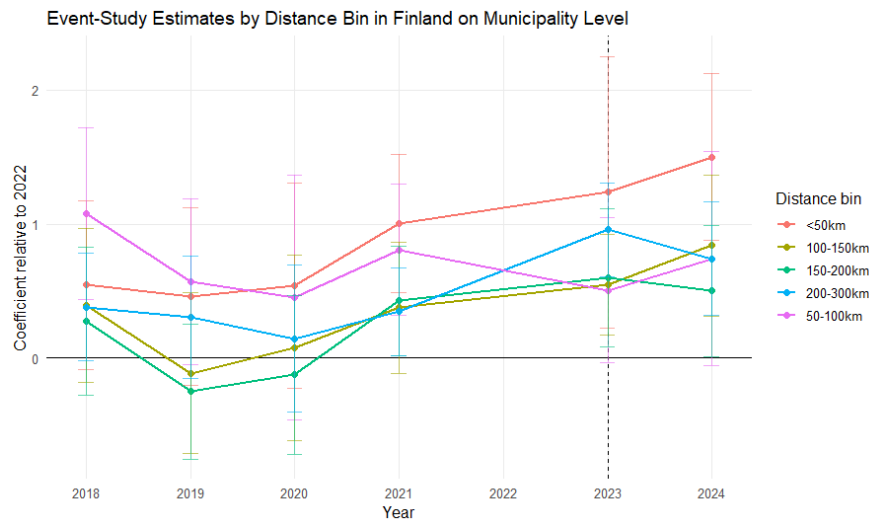


Figure 3: Finland – Municipality Level.

Source: Author's own visualization in R.

Note: Figure is normalized to the final pre-treatment year (2022). The dashed vertical line denotes the introduction of the treatment in December of 2023; however, coefficients should be interpreted as transition-year estimates rather than a full treatment effect since treatment covers only a small portion of the 2023. Error bars indicate 95% confidence intervals.

Comparatively, the results for the Baltic countries vary in terms of magnitude and direction

of the effect due to higher volatility in the sample period as well as between the exposure groups. The volatility is observed through unstable dynamics which also demonstrates that some territories closer to the border checkpoint experienced decline in unemployment rates after the border closure, or the result was insignificant. This may indicate that the border closure affected Finland and the Baltic countries differently suggesting that the labor market structure also differs. Therefore, the results for the Baltic countries do not provide consistent evidence to support the first hypothesis.

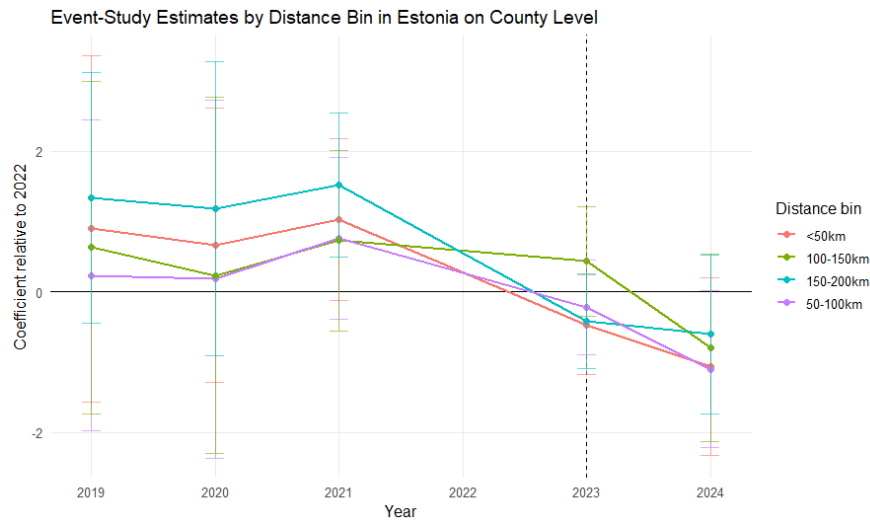


Figure 4: Estonia – County Level.

Source: Author's own visualization in R.

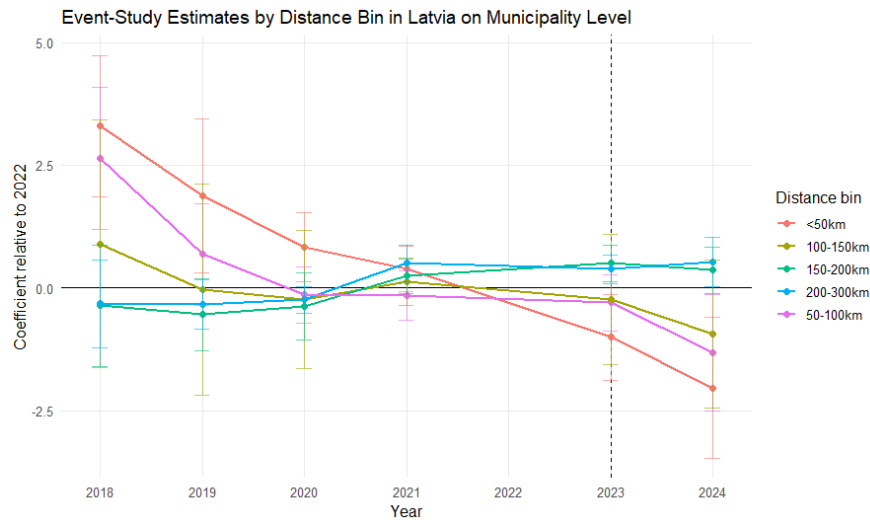


Figure 5: Latvia – Municipality Level.

Source: Author's own visualization in R.

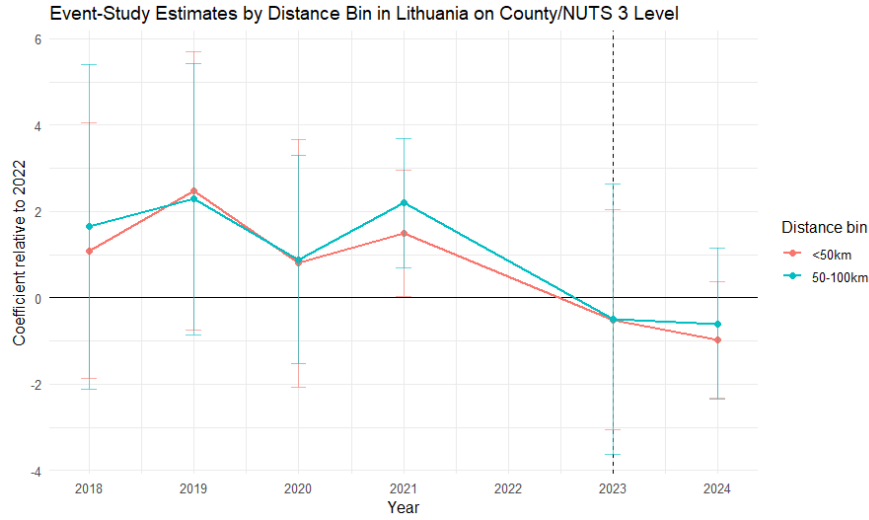


Figure 6: Lithuania – NUTS 3 and County Level.

Source: Author's own visualization in R.

4.4.3 DiD and Distance-Based Treatment Effects

This section provides result starting from the continuous baseline Difference-in-Differences estimates. These estimates were examined at multiple geographical levels such as municipalities, counties, and regions for each country in this analysis. The regions will match the Eurostat definition of nomenclature of territorial units for statistics at the 3rd level i.e. NUTS 3. Secondly, I estimated the results on the basis of the distance bins, which allowed for the creation of treatment and control groups. In this framework, the treatment group is the one that experienced high exposure i.e. geographical territories closest to the checkpoints. The difference in differences analysis is complemented by event study analysis, parallel trends assessment, and synthetic control method. Synthetic control method will provide additional insight and robustness check to support the results by constructing a counterfactual unemployment path for Finland.

Table 2 shows the continuous baseline difference in differences estimates for Finland on the municipality level. The coefficient of interest; $exposure_{cont} \times post$ equals 0.164, indicating that municipalities located closer to border checkpoints experienced larger increases in unemployment. The result is statistically significant at 0.05 level suggesting intermediate evidence of the importance of being a highly exposed territory; and is consistent with the first hypothesis.

Table 2: Difference-in-Differences Estimates at the Municipality-level in Finland

Source: Author's own calculations in R.

	(1)
Foreign_trend	0.005 (0.008)
exposure_cont $\times$ post	0.164* (0.070)
Num.Obs.	2149
R2	0.912
R2 Adj.	0.897
R2 Within	0.004
R2 Within Adj.	0.003
AIC	6873.7
BIC	8660.7
RMSE	1.03
FE: Municipality	X
FE: Year	X
SE: Clustered	Municipality

Note: + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3 reports multiple estimated coefficients based on the absolute distances between the municipalities and the nearest checkpoints in Finland. It is important to point out that the closest bin includes all municipalities located less than 50km from the checkpoint. The estimated coefficient for this bin is equal to 0.865, suggesting that the closest municipalities experienced the largest effect compared to other distance groups. The result is statistically significant at 0.001 level. This suggests that the unemployment rate had a higher increase in these municipalities after the border closure.

Table 3: Distance-Bin Estimates on Municipality-Level in Finland

Source: Author's own calculations in R.

	(1)
distance_bin = < 50 km $\times$ post	0.865*** (0.247)
distance_bin = 50–100 km $\times$ post	0.167 (0.363)
distance_bin = 100–150 km $\times$ post	0.620* (0.251)
distance_bin = 150–200 km $\times$ post	0.344 (0.236)
distance_bin = 200–300 km $\times$ post	0.380+ (0.193)
Foreign_trend	0.006 (0.008)
Num. Obs.	2149
R ²	0.912
Adj. R ²	0.897
Within R ²	0.007
Adj. Within R ²	0.004
AIC	6874.3
BIC	8683.9
RMSE	1.03
FE: Municipality	X
FE: Year	X
SE: Clustered	Municipality

Note: + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 4 estimates results based on NUTS 3 level. Instead of analyzing 308 municipalities, the estimates are based on 19 larger regions. The estimated coefficient is equal to 0.185 and is significant at 0.05 level. Similar evidence applies to this case as it did on the municipality level.

Table 4: Difference-in-Differences Estimates at the NUTS 3 Level in Finland

Source: Author's own calculations in R.

	(1)
Foreign_trend	0.029+
	(0.016)
exposure_cont $\times$ post	0.185*
	(0.085)
Num. Obs.	126
R ²	0.958
Adj. R ²	0.947
Within R ²	0.067
Adj. Within R ²	0.048
AIC	223.3
BIC	297.1
RMSE	0.48
FE: Regions	X
FE: Year	X
SE: Clustered	Region

Note: + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 5 recreates the mechanism of the absolute distances between the regions and the nearest checkpoints in Finland. The estimates partially support my first hypothesis, as the highly exposed regions have experienced a larger unemployment increase as the estimated coefficient is equal to 0.871 for regions less than 50km. The result is statistically significant at 0.001 level. Notably, regions located within 200 and 300km from the border checkpoints show the second highest estimates, therefore, challenging the first hypothesis.

Table 5: Distance-Bin Estimates for Finland - NUTS 3

Source: Author's own calculations in R.

	(1)
distance_bin = < 50 km $\times$ post	0.871*** (0.183)
distance_bin = 50–100 km $\times$ post	0.557* (0.225)
distance_bin = 100–150 km $\times$ post	-0.759 (0.981)
distance_bin = 150–200 km $\times$ post	0.546* (0.211)
distance_bin = 200–300 km $\times$ post	0.827*** (0.150)
Foreign_trend	0.028+ (0.014)
Num. Obs.	126
R ²	0.962
Adj. R ²	0.951
Within R ²	0.170
Adj. Within R ²	0.119
AIC	216.5
BIC	301.6
RMSE	0.45
FE: Regions	X
FE: Year	X
SE: Clustered	Region

Note: + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

After analyzing the Finnish results, the analysis turns to the Baltic countries. I began by analyzing Estonia on a county level, due to unavailability of data on a more granular level. Table 6 shows that the estimated coefficient is equal to -0.406. The result is statistically significant at 0.05 level. Although the model produces a significant result, the interpretation should be rigorous as the number of observations is not nearly as large as it was for Finland on the municipality level.

Table 6: Difference-in-Differences Estimates at the County Level in Estonia

Source: Author's own calculations in R.

	(1)
exposure_cont $\times$ post	-0.406* (0.182)
Num. Obs.	84
Adj. R ²	0.877
Within R ²	0.059
RMSE	0.602
FE: County	X
FE: Year	X
SE: Clustered	County

Note: + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 7 supports the previous results, as the estimated coefficient is the lowest in the counties closer to border checkpoints. The estimated coefficient is equal to -1.493. The result is statistically significant at 0.01 level.

Table 7: Distance-Bin Estimates at the County Level in Estonia

Source: Author's own calculations in R.

	(1)
distance_bin = < 50 km $\times$ post	-1.493** (0.361)
distance_bin = 50–100 km $\times$ post	-1.293** (0.309)
distance_bin = 100–150 km $\times$ post	-1.207* (0.424)
distance_bin = 150–200 km $\times$ post	-1.133*** (0.244)
Num. Obs.	84
R ²	0.908
Adj. R ²	0.875
Within R ²	0.105
Adj. Within R ²	0.046
AIC	195.0
BIC	250.9
RMSE	0.59
FE: County	X
FE: Year	X
SE: Clustered	County

Note: + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 8 supports my cautionary comment on the Estonian analysis. In this table, I moved from

the county level to NUTS 3 level data. In this case, the estimated coefficient $exposure_cont \times post$ is positive, but the result is statistically insignificant.

Table 8: Difference-in-Differences Estimates at the NUTS 3 Level in Estonia

Source: Author's own calculations in R.

	(1)
Foreign_trend	0.000 (0.000)
$exposure_cont \times post$	0.130 (0.399)
Num. Obs.	35
R ²	0.939
Adj. R ²	0.906
Within R ²	0.071
Adj. Within R ²	-0.013
AIC	91.0
BIC	111.2
RMSE	0.61
FE: Regions	X
FE: Year	X
SE: Clustered	Region

Note: + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 9 presents the absolute distance results where almost all estimated coefficients are insignificant except one. The territories that are located between 100km and 150km show the estimated coefficient to be equal to -0.458. This exceptional result is statistically significant at 0.001 level, but it should be interpreted with caution since the number of observations significantly drops.

Table 9: Distance-Bin Estimates at the NUTS 3 Level for Estonia

Source: Author's own calculations in R.

	(1)
distance_bin = 50–100 km $\times$ post	0.042 (0.850)
distance_bin = 100–150 km $\times$ post	-0.458*** (0.031)
distance_bin = 150–200 km $\times$ post	-0.908 (0.746)
Foreign_trend	0.000 (0.000)
Num. Obs.	35
R ²	0.941
Adj. R ²	0.899
Within R ²	0.099
Adj. Within R ²	-0.081
AIC	93.9
BIC	117.2
RMSE	0.60
FE: Regions	X
FE: Year	X
SE: Clustered	Region

Note: + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Based on these results, Estonian results should be viewed as partially supportive evidence for the results conducted for Finland.

The next country in my framework is Latvia. Latvian analysis begins on a municipal level and moves onto NUTS 3 level. The estimated coefficient is equal to -0.990 in the case of municipalities in Table 10. The result is statistically significant at 0.001 level. In addition, I observe that municipalities closer to the border experienced a decrease in unemployment rates. This is supported by the distance bin results, where the lowest estimated coefficient is observed in municipalities that are located 50km from the border checkpoints in Table 11. The estimated coefficient is equal to -2.938 and statistically significant at 0.001 level.

Table 10: Difference-in-Differences Estimates at the Municipality Level in Latvia

Source: Author's own calculations in R.

	(1)
exposure_cont $\times$ post	-0.990*** (0.172)
Num. Obs.	238
R ²	0.969
Adj. R ²	0.963
Within R ²	0.159
Adj. Within R ²	0.154
AIC	648.1
BIC	790.5
RMSE	0.79
FE: Municipality	X
FE: Year	X
SE: Clustered	Municipality

Note: + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 11: Distance-Bin Estimates at the Municipality Level in Latvia

Source: Author's own calculations in R.

	(1)
distance_bin = < 50 km $\times$ post	-2.938*** (0.399)
distance_bin = 50–100 km $\times$ post	-1.773* (0.739)
distance_bin = 100–150 km $\times$ post	-1.023 (0.702)
distance_bin = 150–200 km $\times$ post	0.450 (0.354)
distance_bin = 200–300 km $\times$ post	0.539+ (0.299)
Num. Obs.	238
R ²	0.970
Adj. R ²	0.963
Within R ²	0.187
Adj. Within R ²	0.166
AIC	647.8
BIC	804.0
RMSE	0.78
FE: Municipality	X
FE: Year	X
SE: Clustered	Municipality

Note: + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The NUTS 3 results shown in Table 12 estimate the coefficients to be -0.122. The result is statistically insignificant. In the case of absolute distances, Table 13 reports that the lowest estimated coefficient is for regions that are between 100km and 150km. The estimated coefficient is equal to -0.300, and is statistically insignificant. The model, however, estimates two significant results for regions located within 150–200km and 200–300km. The results challenge the first hypothesis.

Table 12: Difference-in-Differences Estimates at NUTS 3 Level in Latvia

Source: Author's own calculations in R.

	(1)
Foreign_trend	-0.013 (0.030)
exposure_cont $\times$ post	-0.122 (0.452)
Num. Obs.	35
Adj. R ²	0.734
Within R ²	0.029
RMSE	0.687
FE: Regions	X
FE: Year	X
SE: Clustered	Region

Note: + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 13: Distance-Bin Estimates at the NUTS 3 Level in Latvia

Source: Author's own calculations in R.

	(1)
distance_bin = 50–100 km × post	0.640 (0.832)
distance_bin = 100–150 km × post	-0.300 (0.165)
distance_bin = 150–200 km × post	1.405* (0.501)
distance_bin = 200–300 km × post	1.135* (0.272)
Foreign_trend	-0.026 (0.024)
Num. Obs.	35
Adj. R ²	0.722
Within R ²	0.122
RMSE	0.653
FE: Regions	X
FE: Year	X
SE: Clustered	Region

Note: + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Lastly, I analyzed Lithuania. Lithuania does not directly have an eastern border with Russia, but it does share one with the Russian region called Kaliningrad. In the case of Lithuania, the county level and NUTS 3 level are the same in my framework, since Eurostat and the official statistical bureau of Lithuania share the consensus of territorial boundaries. The estimated coefficient shown in Table 14 is equal to -0.545, and it is statistically significant at 0.05. This result is supported by the absolute distance results that show that the lowest estimated coefficient is observed for territories within 50km of the border checkpoints in Table 15. However, the result is insignificant in this case.

Table 14: Difference-in-Differences Estimates at the County and the NUTS 3 Level in Lithuania

Source: Author's own calculations in R.

	(1)
Foreign_trend	-0.003 (0.006)
exposure_cont $\times$ post	-0.545* (0.169)
Num. Obs.	70
R ²	0.886
Adj. R ²	0.849
Within R ²	0.052
Adj. Within R ²	0.015
AIC	208.9
BIC	249.4
RMSE	0.83
FE: Regions	X
FE: Year	X
SE: Clustered	Region

Note: + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 15: Distance-Bin Estimates at the County and the NUTS 3 Level in Lithuania

Source: Author's own calculations in R.

	(1)
distance_bin = < 50 km $\times$ post	-1.194 (0.823)
distance_bin = 50–100 km $\times$ post	-0.719 (0.954)
Foreign_trend	-0.004 (0.007)
Num. Obs.	70
R ²	0.884
Adj. R ²	0.843
Within R ²	0.034
Adj. Within R ²	-0.023
AIC	212.2
BIC	254.9
RMSE	0.84
FE: Regions	X
FE: Year	X
SE: Clustered	Region

Note: + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

In sum, the Finnish results provide the strongest evidence in support of the hypotheses,

with treatment effects concentrated in municipalities, counties, and regions located closest to border checkpoints. In contrast, the Baltic states demonstrate more heterogeneous results, with several coefficients corresponding to negative signs or lacking statistical significance. These differences may be explained by variation in economic structure, exposure intensity, and sample size limitations. The findings suggest that geographically more exposed territories experienced larger increases in unemployment rates following the border closure. The results, however, should be interpreted as suggestive evidence rather than as definitive causal estimates regarding the labor market effects following the eastern border closure.

4.4.4 Synthetic Control Method

To conclude the empirical analysis, I used the synthetic control method to create a counterfactual path for the Finnish unemployment rate. The idea behind this method is to analyze what the trajectory of Finnish unemployment rate would be in the absence of the shock.

I constructed the OECD donor pool which consisted of the following countries; Denmark, Sweden, Poland, Finland, France, Norway, Belgium, Austria, Germany, Ireland, and Netherlands. The OECD sample includes arbitrary selection of countries; however, these countries are somewhat similar to Finland in their economic characteristics.

To create Synthetic Finland, the weights were chosen to minimize the pre-treatment distance between Finland and the weighted donor pool over the 2014–2022 period. The intervention year is 2023, and post-treatment outcomes are evaluated for 2024–2025. The used predictor for Synthetic Finland consists of GDP per capita, population, inflation rate, and lagged unemployment in 2016, 2018, 2020, and 2022.

After applying predictors and creating Synthetic Finland, I observed relatively strong pre-treatment fit. In the OECD sample the pre-treatment RMSPE equals 0.377199, while the post-treatment RMSPE increases to 1.467305, producing a post/pre RMSPE ratio of 3.890003. Graphically, the unemployment of Finland diverges and increases substantially compared to Synthetic Finland. This suggests that Finland's unemployment trajectory diverged from comparable countries following the eastern border closure.

Table 16: Synthetic Control Fit: Finland (OECD Donor Pool)

Source: Author's own calculations in R.

Measure	Value
Pre-treatment RMSPE	0.377199
Post-treatment RMSPE	1.467305
Post/Pre RMSPE Ratio	3.890003
Pseudo p -value	0.1818182

Note: RMSPE denotes the root mean squared prediction error. The post-to-pre RMSPE ratio measures the magnitude of the treatment effect relative to the pre-treatment fit. The pseudo p -value is calculated from in-space placebo tests using OECD donor countries.

In conclusion, the synthetic control analysis complements the Difference-in-Differences results by providing additional suggestive evidence that the eastern border closure may have influenced labor market outcomes in Finland. While the synthetic control method focuses on Finland's aggregate unemployment trajectory, the Difference-in-Differences findings suggest that the largest effect was observed in geographically exposed territories near the eastern border.

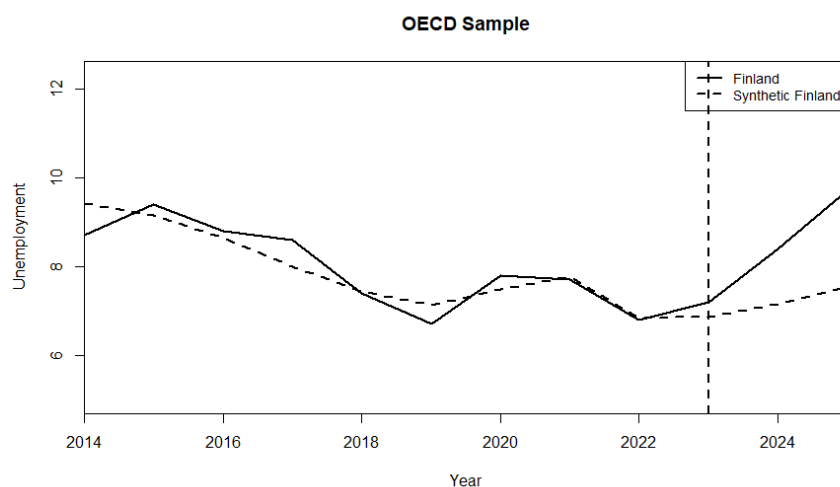


Figure 7: Path plot of unemployment, 2014–2025: Finland versus synthetic Finland (OECD donor pool).

Source: Author's own visualization in R.

5 Conclusion

This thesis examines the effect of the eastern border closure on the regional labor market. The main objective of the study was to analyze whether territories with higher pre-exposure to Russia experienced a larger increase in unemployment rates as well as determining whether

the effect was stronger in Finland than in the Baltic countries.

The Difference-in-Differences analysis on continuous exposure and distance-based groups provide evidence that geographically more exposed territories in Finland experienced increases in unemployment rates after the border closure. Across municipality-level, county level and NUTS 3 specifications, high exposed regions located closer to border checkpoints consistently displayed a stronger effect compared to less-exposed regions. Specifically, the largest effect was observed for the territories within 50km from the border checkpoints. The validity of findings was complemented by residualized trends and event-study plots. Graphically, residualized trends reveal that control and treatment groups did not substantially diverge before the treatment. More formally, Wald tests rejected the null hypothesis of pre-treatment coefficients, hence parallel trends assumption is only partially supported.

This finding suggests that geographical proximity to the border reveals cross-country heterogeneity. Finland demonstrated sufficient increase in unemployment rates after the border closure on the municipality level and on NUTS 3 level, while pretreatment dynamics were partially supported by parallel testing which did not show substantial divergences between treatment groups. In addition, this finding adequately supports the first hypothesis which states that regions that located closer to the Russian border experienced larger increases in unemployment rates after the border closure. The results are consistent with the current literature which states that regional dependence on outside markets may increase territorial vulnerability to external shocks. However, these findings should not be interpreted as definitive causal estimates.

Comparatively, the findings for the Baltic countries were heterogeneous and substantially weaker. Even though some specifications generated statistically significant coefficients, most of the estimates showed greater volatility. Thus, in several cases the effect was statistically insignificant or moved in an opposite direction. This finding is supported by fluctuations in parallel trends and event studies. Hence, the results for the Baltic countries should be interpreted circumspectly. Nonetheless, the results derived from the analysis of the Baltic countries functions as supportive evidence for the second hypothesis which states that the treatment effect was stronger in Finland than in the Baltic countries.

To complement the Difference-in-Differences findings, the Synthetic Control Method was used to demonstrate different trajectories between Finland and Synthetic Finland in the absence of the eastern border closure. The OECD sample produced substantial post/pre-treatment RMSPE ratios, indicating that the treated unit exhibited greater post-treatment deviations from its synthetic control than during the pre-treatment period. These findings suggest that the border closure may have had an impact on the aggregate labor market developments in Finland that differed from those expected in the absence of the intervention.

It is important to acknowledge a few limitations related to the selected methodology. First, the sample period is limited, especially, the pre-treatment horizon is relatively short. This deems the findings relevant for a short-term evaluation. Second, the unemployment rate partially represents the overall economic performance and may not capture broader economic consequences associated with the eastern border closure. Third, the sample size for the Baltic countries was significantly smaller compared to the sample size for Finland which affected the reliability of the results of the Baltic countries.

Overall, the findings provide partial evidence regarding the first hypothesis; regions that were located near the border, and therefore considered highly exposed to the shock, experienced larger labor market effects after the eastern border closure. The second hypothesis is better supported; the effect was more pronounced in Finland. Hence, the results highlight the importance of how geopolitical events, such as border closure may influence regional labor market dynamics, but also the importance of country-specific economic structures.

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8 APPENDIX A: TABLES AND FIGURES

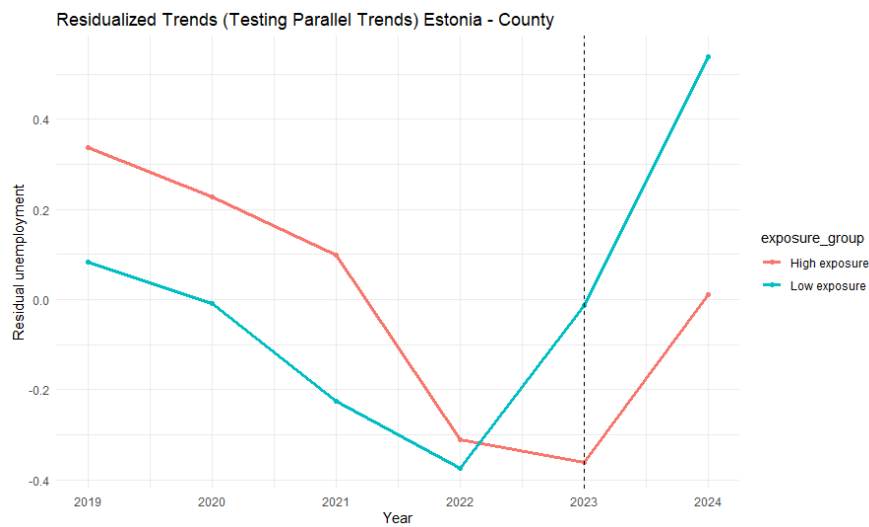


Figure 8: Estonia – County. High exposure (< 100 km)

Source: Author's own visualization in R.

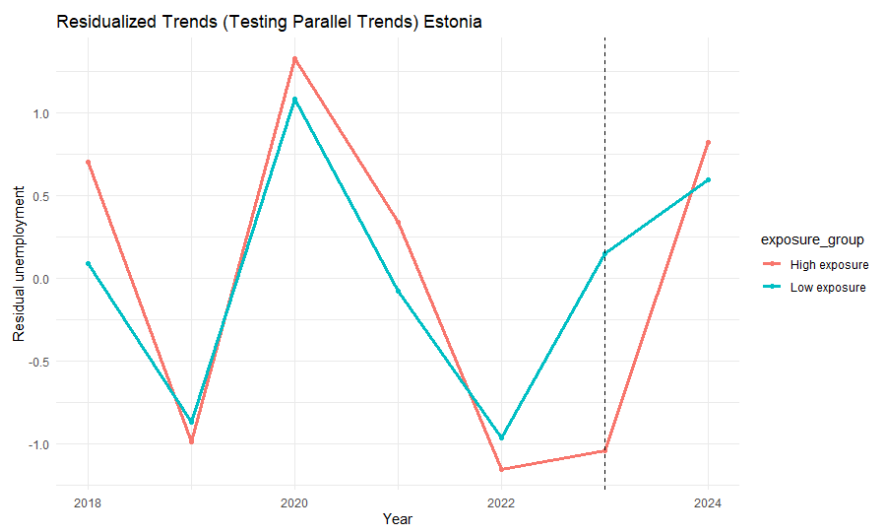


Figure 9: Estonia – NUTS 3. High exposure (< 100 km)

Source: Author's own visualization in R.

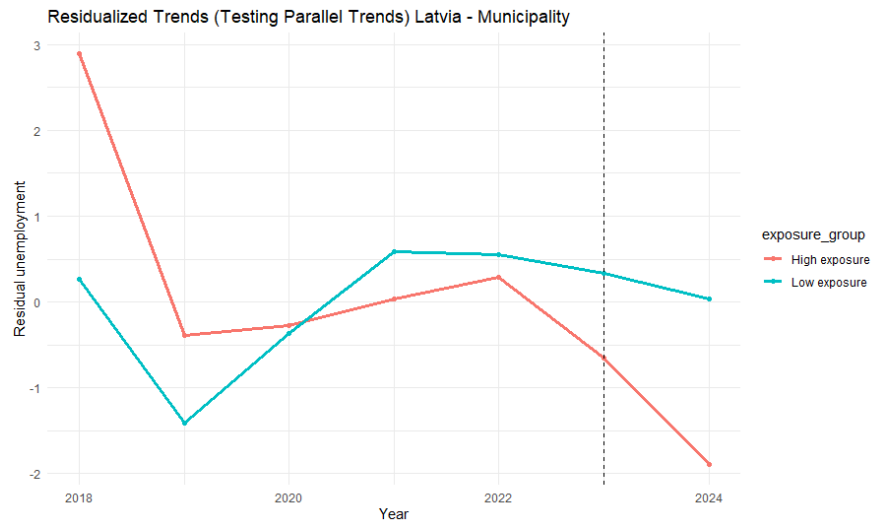


Figure 10: Latvia – Municipality. High exposure (< 100 km)

Source: Author's own visualization in R.

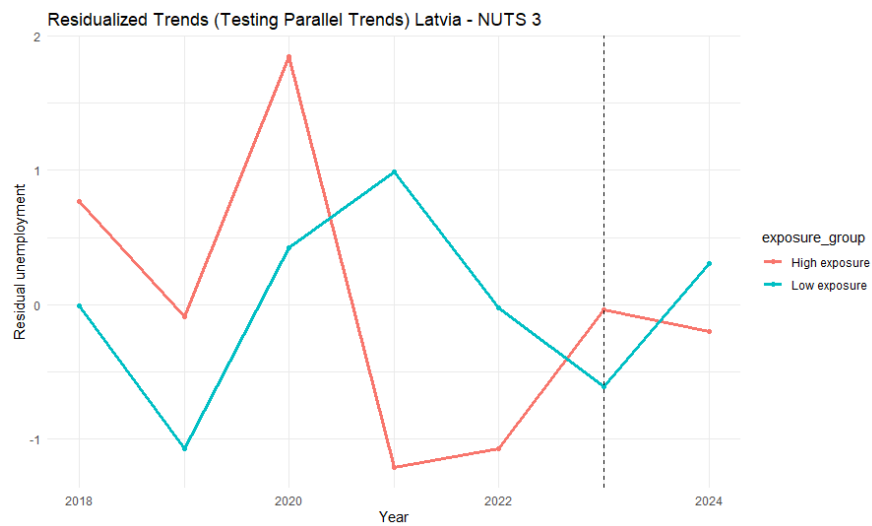


Figure 11: Latvia – NUTS 3. High exposure (< 100 km)

Source: Author's own visualization in R.

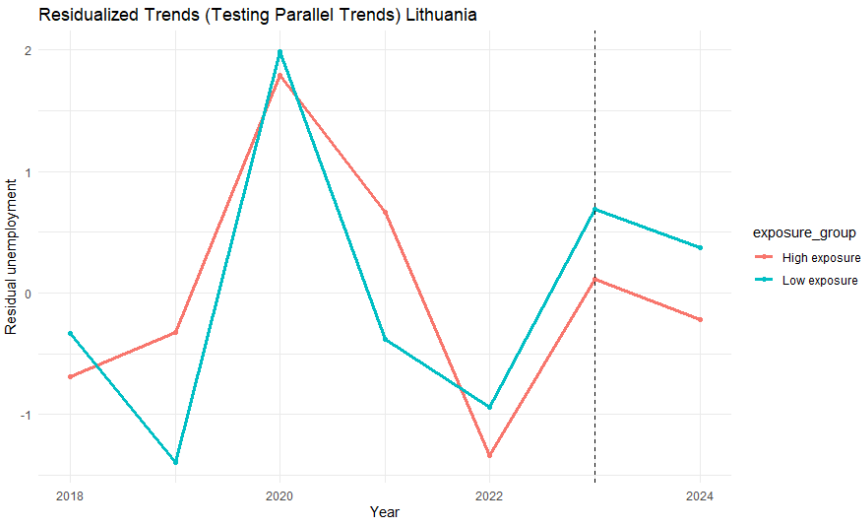


Figure 12: Lithuania – NUTS 3 and County. High exposure (< 100 km)

Source: Author’s own visualization in R.

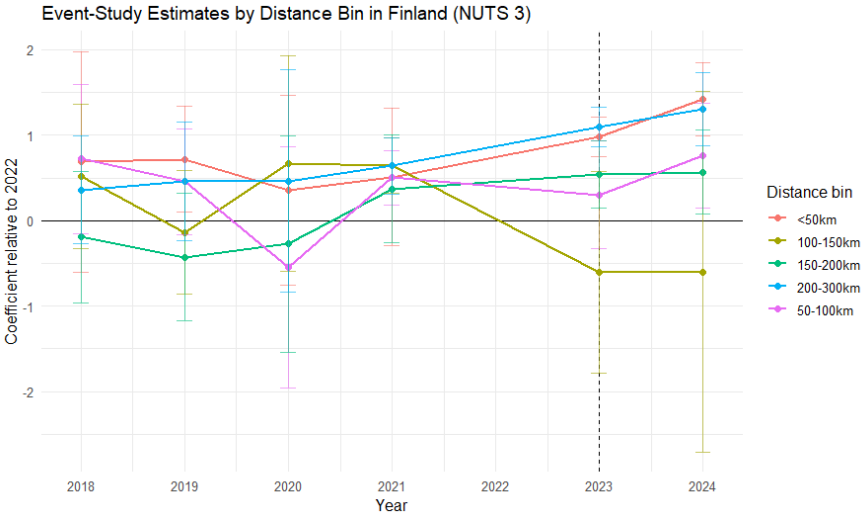


Figure 13: Finland – NUTS 3 Level.

Source: Author’s own visualization in R.

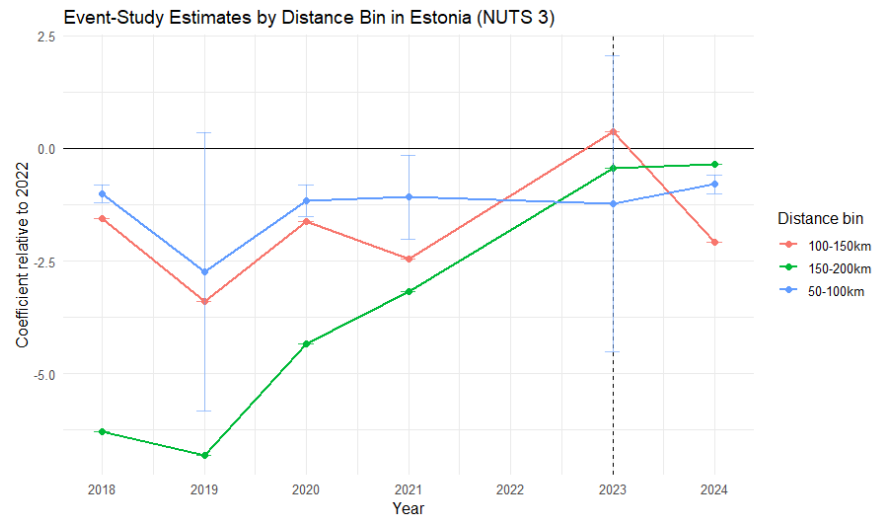


Figure 14: Estonia – NUTS 3 Level.

Source: Author's own visualization in R.

Table 17: Post-to-Pre RMSPE Ratios from In-Space Placebo Tests (OECD Donor Pool)

Source: Author's own calculations in R.

Country	RMSPE Ratio
Denmark	5.8770520
Finland	3.4416826
Sweden	1.7701615
Netherlands	1.4849491
Poland	1.3232378
Belgium	1.1738497
Ireland	0.7421646
Germany	0.6813691
Austria	0.5782824
France	0.4028846
Norway	0.1556417

Note: RMSPE ratios are calculated as the ratio of post-treatment RMSPE to pre-treatment RMSPE. Higher values indicate larger post-treatment deviations from the synthetic control relative to the pre-treatment fit.

Denmark exhibits the highest RMSPE ratio among the OECD donor countries.

Table 18: Synthetic Control Weights for Finland (OECD Donor Pool)

Source: Author's own calculations in R.

Country	Weight
France	0.450
Sweden	0.292
Belgium	0.179
Ireland	0.076
Poland	0.001
Austria	0.001
Netherlands	0.001
Denmark	0.001
Germany	0.000
Norway	0.000

Note: Donor weights indicate each country's contribution to the construction of synthetic Finland.

Abstrakt

Diese Arbeit untersucht die Auswirkungen der GrenzschieSSung an der finnischen Ostgrenze infolge der Verschlechterung der Wirtschaftsbeziehungen zwischen der EU und Russland nach dem Einmarsch Russlands in die Ukraine. Ziel ist es, aufzuzeigen, ob grenznah gelegene Gebiete einen stärkeren Anstieg der Arbeitslosenquote verzeichneten und ob die Auswirkungen der GrenzschieSSung in Finnland stärker ausgeprägt sind als in den baltischen Staaten. Die Arbeit verwendet Differenz-in-Differenzen-, Ereignisstudien- und synthetische Kontrollmethoden und stützt sich dabei auf Arbeitslosenzahlen der jeweiligen nationalen Statistikämter. Die Analyse misst die Exposition anhand der Nähe zu Grenzübergängen und distanzbasierter Behandlungsgruppen. Die synthetische Kontrollmethode ergänzt die Differenz-in-Differenzen-Analyse durch die Untersuchung des kontrafaktischen Verlaufs der finnischen Arbeitslosenquote. Die Hauptergebnisse lassen sich wie folgt zusammenfassen: Finnische Gebiete mit höherer Exposition gegenüber Russland verzeichneten nach der GrenzschieSSung einen signifikant stärkeren Anstieg der Arbeitslosenquote. Im Gegensatz dazu zeigen die baltischen Staaten schwächere und weniger zuverlässige Ergebnisse. Diese Arbeit leistet einen Beitrag zur bestehenden Forschung über die regionale Anpassung an externe geopolitische Schocks und unterstreicht die Bedeutung der regionalen Exposition für die wirtschaftliche Resilienz.