Bachelor's thesis

NTNU
Norwegian University of Science and Technology
Faculty of Humanities
Department of Historical and Classical Studies

Viktor Marckx

Quantifying the proposed EU grain sanctions on Russia. A grain of truth?

Bachelor's thesis in European Studies
Supervisor: Synnøve Stølen
May 2024

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Abstract

Since Russia's invasion of Ukraine on 24 February 2022, the European Union has released numerous sanctions as a response. Continuing this approach, on 22 March 2024, the European Commission proposed new sanctions in the form of increased tariffs on 132 grain products originating from Russia and Belarus. As laid out by the Commission, the objectives of the sanctions are to; cut off an important source of revenue for the Russian economy, tackle Russian exports of illegally appropriated grain produced in Ukraine, and prevent an EU market destabilisation through potential dumping practices by Russia. Using a partial equilibrium model, this thesis simulates the impact of the tariffs on the EU-Russian grain market. The results show a decline of more than €1 billion in Russian exports to the EU. Using these results, the thesis evaluates the objectives laid out by the European Commission and finds that only the anti-dumping objective is likely to be fully achieved. Moreover, the thesis suggests that the proposed sanctions might potentially be protective trade measures disguised as support for Ukraine.

Sammendrag

Siden Russlands invasjon av Ukraina den 24. februar 2022 har Den europeiske union utstedt flere sanksjoner som svar. Den 22. mars 2024 foreslo Europakommisjonen å øke tollsatser på 132 kornprodukter som har opprinnelse i Russland og Hviterussland. Som lagt frem av Kommisjonen, er målene med sanksjonene å; kutte av en viktig inntektskilde for den russiske økonomien, håndtere russisk eksport av ulovlig tilegnet korn produsert i Ukraina, og hindre destabilisering av det europeiske markedet gjennom potensielle dumpingpraksiser fra Russland. Ved hjelp av en delvis likevektsmodell simulerer denne oppgaven virkningen av tollsatser på det EU-russiske kornmarkedet. Resultatene viser en betydelig nedgang i russisk eksport til EU. Ved å bruke disse resultatene evaluerer oppgaven målene som er lagt frem av Europakommisjonen og konkluderer med at bare målet om å bekjempe dumping sannsynligvis vil oppnås fullt ut. Videre antyder oppgaven at sanksjonene potensielt kan være beskyttende handelstiltak forkledd som sanksjoner.

Preface

A special thanks to:

Synnøve Stølen	For being a great supervisor
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List of Abbreviations

EU European Union

DCFTA EU-Ukraine Deep and Comprehensive Free Trade Area

PE Partial equilibrium

TFEU Treaty on the Functioning of the European Union

HS Harmonized Commodity Description and Coding System

CN The Combined Nomenclature

PAP Priority Action Plan

1 Introduction

The illegal annexation of Ukraine's Crimean peninsula in 2014 by the Russian Federation formed a turning point in the foreign relations between the European Union (EU) and the Russian Federation and the Republic of Belarus (hereafter solely referred to as Russia). Seeking an appropriate response, the EU introduced diplomatic and economic sanctions (Giumelli et al., 2021). The events in Crimea were a wake up call for the EU, and the sanctions implemented throughout 2014 formed the start of a shift in its foreign policy (Meissner & Graziani, 2023). The need for such a shift became apparent by Russia taking advantage of the EU's free-market commitment. This phenomenon, labelled as 'weaponized interdependence' is where states utilise their involvement in economic networks to coerce the policies of other states (Farrell & Newman, 2019). In this case, Russia used the EU's dependence on the Russian energy market as leverage to reach its goals in Ukraine. To combat this, the EU developed an array of new geoeconomic policy instruments that integrate trade and investment with security concerns that were fully operational by 2017 (Bauerle-Danzman & Meunier, 2024). When Russia invaded Ukraine in February 2022, the EU's immediate response was therefore also more sanctions, by which it was now better equipped. As the war went on, the EU introduced progressively more sanctions, these measures, bundled together and released periodically are called sanction packages. By February 2024, two years after the start of Russia's invasion, 13 of such packages have been adopted by the EU (European Commission, 2024f). Along with extensive aid for Ukraine, these sanction packages form the backbone of the EU's support for Ukraine and defiance against Russian aggression.

Continuing the trend of continuously releasing sanctions against Russia, the European Commission proposed new sanctions on 22 March 2024. The proposed sanctions will target the previously overlooked agriculture sector, with plans to increase tariffs on imports of 132 types of grains, cereals and oilseeds (hereafter referred to as grain products). The measures are designed to achieve three objectives; (1) Cutting off another important source of revenue for the Russian economy and, by extension, the Russian war machine. (2) Tackling Russian exports of illegally appropriated grain produced in the territories of Ukraine, some of which has been illegally exported to the EU market deliberately mislabelled as 'Russian'. (3) Preventing an EU market destabilisation through any future significant redirection of Russian grain products onto the EU market (Directorate-General for Trade, 2024). Additionally, cheap imports of Ukrainian grain products into the EU due to the EU-Ukraine Deep and Comprehensive Free Trade Area (DCFTA) and the Priority Action Plan (PAP), has raised tension among European farmers who have to compete with cheaper Ukrainian prices (Blenkinsop, 2024; Lepiarz et al., 2023; Mambro, 2024). Although not stated by the EU publicly, restricting Russian grain influx into the EU to reduce overall grain imports and thus increase the price of grain, can possibly be a fourth objective.

By employing a partial equilibrium Partial equilibrium (PE) framework, this thesis will do an ex-ante analysis of the proposed 14th sanctions, simulating what effects the new tariff regime will have on EU-Russia trade. Afterwards, this thesis will use these results to do a case study which aims to answer the question: *How likely are the objectives laid out by the European Commission to be fulfilled by the proposed grain sanctions?*

The thesis proceeds by, first, providing a short background on EU-Russian sanctions and then reviewing the existing literature on economic sanctions with a focus on the effectiveness of EU restrictive measures imposed on Russia. The second section creates a conceptual framework of the theory on import tariffs, to give the reader a better grasp of the subject. Third, the thesis introduces the partial equilibrium (PE) model and explains how it is used.

In the fourth section, the thesis presents the empirical results which are discussed in the context of the Commission's objectives in the fifth section. In the conclusion, all findings are summarised, and a final assessment of the objectives are made, concluding that only one objective is fully achievable through the proposed sanctions.

1.1 Historical background of EU-Russia sanctions

The first sanctions imposed on Russia by the EU, after the illegal annexation of Crimea in 2014 were relatively limited in scope, these included; the suspension of negotiations on the visa regime and the new EU-Russian agreement, the blacklisting of Russian individuals and companies that were involved in the events in Crimea, the prohibition of all commercial operations of EU companies in Crimea, and severe restrictions on Russian financial, banking, oil and military sectors (Romanova, 2016). Since the full-scale invasion of Ukraine in February 2022, EU sanctions have become much more all encompassing.

A useful way to categorise these all encompassing sanctions, particularly in terms of their scope, is by considering their anticipated impact on the population of the targeted nation (Biersteker et al., 2013). At one end of this spectrum, comprehensive measures affect the entire population, such as a complete export/import ban or embargo. Conversely, 'smart' sanctions are sanctions that target specific individuals, entities or goods, as opposed to the whole economy of a country, thereby reducing the impact on the target's civilian population (Tostensen & Bull, 2002). The EU's sanctions under the Common Foreign and Security Policy against Russia have almost all been 'smart' measures (Giumelli et al., 2021). Sanctions like excluding Russian banks from the SWIFT system (European Commission, 2024e), and specific sanctions against individuals and entities like banks and companies belong in this category. According to the official Financial Sanction Files (FSF) from the European Commission, there are 11208 individuals and 5575 enterprises sanctioned because of the situation in Ukraine (European Commission, 2024b). More importantly to this paper, the restrictive trade measures taken against Russia are also 'smart' sanctions. Instead of embargoing the whole of Russia, and hurting the Russian civilian population in the process, EU trade sanctions target specific goods, regions and mechanisms (Meissner & Graziani, 2023). Examples of such measures are the prohibition of importing any goods originating from the Ukrainian occupied territories of Donetsk, Kherson, Luhansk, Zaporizhzhia, Crimea and Sevastopol (Official Journal of the European Union, 2014, 2022a), the prohibition to sell, supply, transfer or export goods and technology which might contribute to the enhancement of Russia's military, technological and industrial capabilities (Official Journal of the European Union, 2014, 2022b), an import ban on many goods ranging from iron and steel products, coals, fossil fuels, wood, chemicals and specified fertilisers to luxury goods and seafood all of which generate significant revenues for Russia (Official Journal of the European Union, 2014, 2022c), a ban on providing accounting; auditing; tax consulting; management consulting; and public relations services to entities established in Russia (Official Journal of the European Union, 2014, 2022d), and a ban of the importation of goods using Russian-flagged vessels (Official Journal of the European Union, 2014, 2022c). While initially the sanctions started off specific and 'smart', they have grown to levels where almost all levels and sectors of the Russian economy are targeted, as total EU-Russian trade has plummeted from an average 125 billion euros between 2022 and 2015 to 45 billion euros in 2023 (Eurostat, 2024). With one of the last sectors still untouched being the agriculture sector.

1.2 Literature review

The rise of sanctions as a measure imposed by the EU begs the question on how effective they are. In academic literature, a significant amount of work has been done on the

effectiveness of economic punishment, (see, Doxey, 1980; Drury, 1998; Galtung, 1967; Hufbauer et al., 1990; Pape, 1997). Hufbauer (1990) created a database of all economic sanctions between 1914 and 1990, of 115 cases, only 33% had a success rate. Pape (1997) in his work, strongly criticises Hufbauers analysis and argued a success rate of only 5%. Nevertheless, the general consensus among academics is that economic sanctions do not work well in swaying the target country to change their policies. The economy is a complex system and coercive trade measures like economic sanctions can have unintended consequences. A study by Jones & Whitworth (2014) shows that EU sanctions have pushed Russia to new partners like China, reducing Russian dependence on the EU and therefore also reducing EU influence on Russia. That sanctions generally do not work in persuading a target country to change their course of action, as is also the case with Russia in Ukraine, does not mean sanctions do not have any other functions or desired effects. Extensive research into the results of these sanction to the Russian and European economic base have already been done, both pre- and post invasion, (see, Bali et al., 2024; Borin et al., 2023; Flach et al., 2024; Hausmann et al., 2022, 2024; Meissner and Graziani, 2023; Nguyen and Do, 2021), the findings of these studies have been moderately to remarkably positive. While, non-energy sanctions between 2014 and 2019 were generally ineffective (Flach et al., 2024), the 13 new sanction packages since the start of the war have been very effective, with welfare losses typically $\sim$100 times larger for Russia than for the EU (Hausmann et al., 2024).

As shown, a lot of research on the effects of EU restrictive measures imposed on Russia already exists. However, due to the recency of the matter, more research on the newer sanctions is needed. Therefore, this thesis will fill the gap of knowledge and research on the proposed grain sanctions.

2 Conceptual Framework

To effectively conduct a review of the Commission's objectives and properly answer the research question, it is necessary to estimate the trade effects of the grain tariffs in the proposed sanctions. Empirically, this can only be done with an economic model. In order to understand the economic model used in this thesis, some background information is required. It is therefore necessary to elaborate and contextualise the fundamental theory of tariffs further. This section will explain tariffs, basic tariff analysis and the fundamental economic concepts needed to understand the economic model and the further case study with the results of said economic model.

2.1 Tariffs & trade policy in the EU

A tariff is a tax levied when a good is imported. Specific tariffs are levied as a fixed amount for each unit of goods imported (for example, €12 per tonne of imported wheat). Ad valorem tariffs are taxes that are levied as a fraction of the value of the imported goods (for example, a 12,5 % tariff on imported barley). In either case, the effect of the tariff is to raise the cost of shipping goods to a country, giving an advantage to domestic producers over foreign producers (Krugman et al., 2017). Furthermore, the use of tariffs creates a source of government income for the imposing country. While tariffs can provide revenue and protect domestic sectors and are therefore popular measures, due to the theory of comparative advantage, they lead to inefficient production and consumption patterns, resulting in a reduction in overall global welfare as demonstrated as early as the 1800s by David Ricardo (1817) and John Stuart Mill (1849).

The idea of trade liberalisation and prosperity through free and fair trade competition has been at the heart of the policy goals of the European Communities / European Union since the early days of European integration (Nugent, 2010). In the EU, under Article 28 of the Treaty on the Functioning of the European Union (TFEU), all tariffs between member countries are abolished through the European Union Customs Union (European Union, 2009). The lack of internal duties facilitates the need for a common external trade policy, under Article 3 of the TFEU, the EU has 'exclusive competence' in the operating of the Common Commercial Policy (European Union, 2009). This means that the European Commission negotiates for and on behalf of the EU as a whole in international trade policy (Pomfret, 2021). Consequently, unlike other foreign policy measures such as military support or humanitarian aid, economic sanctions like increased tariffs cannot be taken by individual member states, instead being taken by the European Commission on a supranational level, as is also the case for the economic sanctions against Russia.

2.2 Basic Tariff Analysis

To understand how tariffs impact prices and the economies of the importer and exporter, a background in tariff analysis is required. Let's take the wheat market of the EU and Russia as an example. Wheat is consumed and produced in both countries (for simplicity's sake, the EU will be called a country), the price of wheat is determined by what consumers are willing to pay for, and what producers are willing to sell for. This can be visualised by the supply curves (S) and demand curves (D) in the left panels of Figure 1 and Figure 2 for the EU and Russia respectively. When the price of wheat increases, consumers want to buy less while producers want to sell more. Concurrently, when the price declines, consumers want to buy more while producers want to sell less. The price at which consumers and producers find each other, is called the equilibrium. For both EU and Russian markets this is at price P_A.

Trade between the EU and Russia will happen if there is a difference in wheat prices between the countries (and no other restrictions exist, in this example, there is free trade between both countries). When the price of wheat is higher in the EU than it is in Russia, Russian producers will begin to ship wheat to the EU to profit from the higher price. The export of wheat raises the price in Russia and lowers the price in the EU until the difference in prices has been eliminated. To determine the world price and the quantity traded, it is helpful to define the EU's import demand curve and Russia's export supply curve, which are derived from the underlying domestic supply and demand curves (Krugman et al., 2017).

2.2.1 The EU's import demand curve

The EU's import demand is the excess of what EU consumers demand over what EU producers supply. Figure 1 shows how the EU's import demand curve is derived. In the case of no trade (at P_A), the EU's domestic supply and demand are equal and reach an equilibrium. The import demand curve (MD_{EU}) intercepts the price axis at P_A since no wheat is imported (import quantity = 0). At price P_1, EU consumers demand D_1, while EU producers only supply S_1. As a result, the deficit ($D_1 - S_1$) is imported. When the price falls to P_2, EU consumers demand even more (D_2), while EU producers supply even less (S_2). As a result, the import demand rises to $D_2 - S_2$. The import demand curve MD_{EU} slopes downward because as the price decreases, the quantity of imports demanded increases.

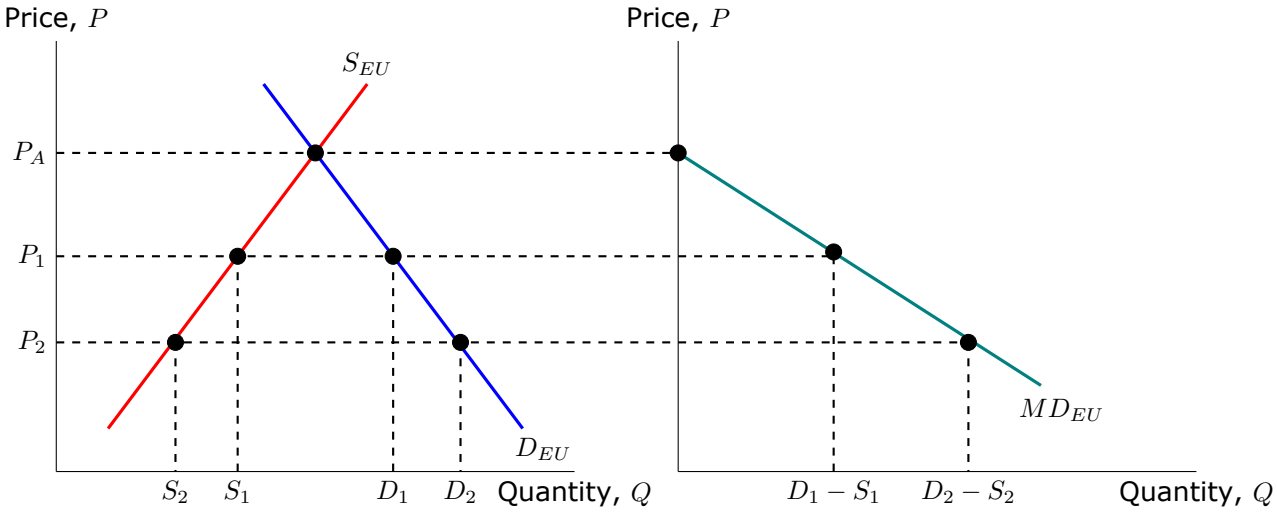

Figure 1: The EU wheat market (left) and the EU's import demand curve (right)

2.2.2 The Russian export supply curve

Russian export supply is the excess of what Russian producers supply over what Russian consumers demand. Figure 2 shows how Russia's export supply curve is derived. In the case of no trade (at P_A), Russian supply and demand are equal and reach an equilibrium. The export supply curve (XS_{RUS}) intercepts the price axis at P_A since no wheat is exported (export quantity = 0). At price P_1, Russian producers Supply S_1, while Russian consumers only demand D_1. As a result, the surplus ($S_1 - D_1$) is exported. When the price rises to P_2, Russian producers supply even more (S_2), while Russian consumers demand even less (D_2). As a result, the exported quantity rises to $S_2 - D_2$. The export supply curve XS_{RUS} slopes upwards because as price increases, the quantity of exports also increases.

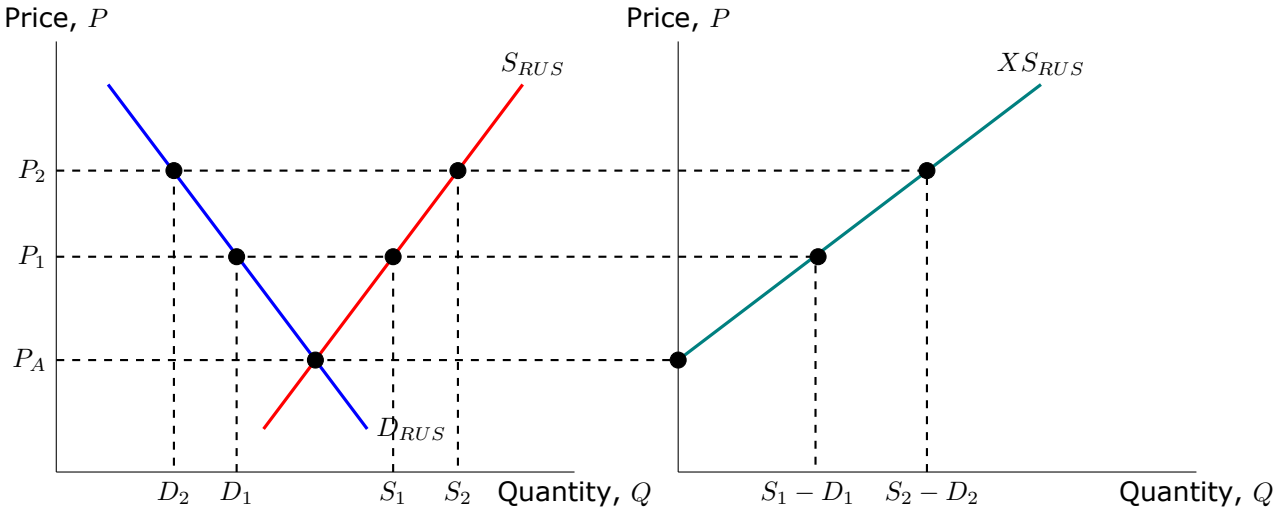

Figure 2: The Russian wheat market (left) and the Russian export supply curve (right)

2.2.3 EU-Russian trade equilibrium

Similarly to domestic equilibria, the EU-Russian trade equilibrium occurs where the EU's import demand equals the Russian export supply, as shown in Figure 3. The equilibrium shows us the price of wheat (P_W) and the quantity traded (Q_W).

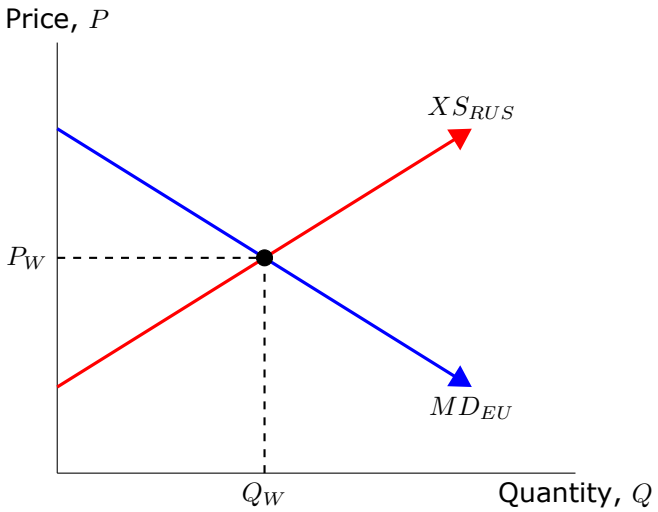

Figure 3: EU-Russian wheat market

2.2.4 Effects of a tariff on the EU-Russian wheat market

When the EU introduces a tariff (τ) on Russian wheat, Russian wheat will become more expensive in the EU (P_{EU}), decreasing its demand. Due to a lower demand, less Russian wheat will be exported to the EU, increasing the supply in Russia and consequently decreasing the Russian wheat price (P_{RUS}). As a result of these price changes, EU producers gain and Russian producers lose. Russian producers are not willing to export wheat from the Russian market to the EU market unless the price in the EU exceeds the price in Russia by at least τ. If no wheat is being exported from Russia to the EU, there will be an excess demand for wheat in the EU and an excess supply in Russia. The price of wheat in the EU will rise and

the price in Russia will fall until the price difference is τ. Due to these effects, the volume of wheat traded declines from Q_W, the free trade volume, to Q_T, the volume traded with a tariff (Krugman et al., 2017).

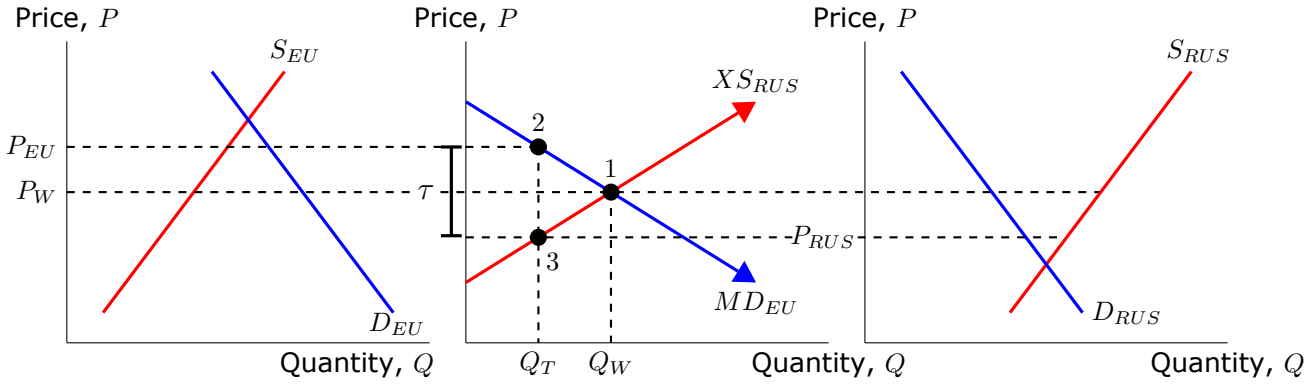

Figure 4: Effects of a tariff on EU-Russian trade

2.2.5 Costs and benefits of a tariff

Comparing the cost and benefits of a tariff depends on consumer and producer surplus. Surplus measures the amount a consumer/producer gains from a purchase/sale by calculating the difference between the price he actually pays/receives and the price he would have been willing to pay/receive (Krugman et al., 2017). If, for example, a Russian producer would have been willing to sell a tonne of wheat for €200, but the price is €300, the producer surplus gained by the purchase is €100. Figure 5 shows the EU consumer surplus (CS^{EU}) in blue, and the Russian producer surplus (PS^{RUS}) in red. When the EU introduces a tariff τ on Russian wheat, the amount traded declines from Q_W to Q_T. Consumer and producer surplus declines, while the EU collects a tariff revenue marked in dark blue. As with every tariff, surplus is lost due to inefficiencies, shown by the empty area L (Sturm, 2022).

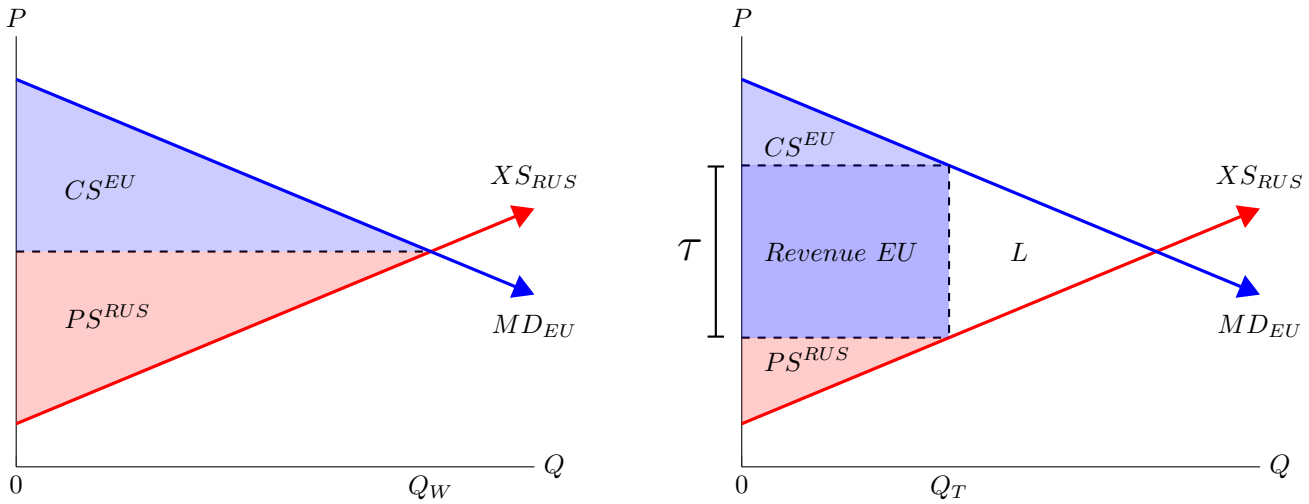

Figure 5: Consumers surplus without a tariff (left) and with a tariff (right)

2.3 Nomenclature

The tariff examples in the previous chapters use 'wheat' as the good being sanctioned, just like how the EU's sanctions will place tariffs on Russian wheat and other grains. In the real world however, simply using 'wheat' can be ambiguous, as there are many different kinds of wheat and grain species, which can have different naming conventions across borders. An internationally standardised system to classify traded products is therefore needed. In international trade, the Harmonized Commodity Description and Coding System (HS), or simply the Harmonized System is used by almost all countries that take part in international trade.

The HS identifies and classifies all internationally traded goods by a six digit code (World Customs Organization, 2024). In the EU, a further development of the HS nomenclature, with special EU-specific subdivisions called The The Combined Nomenclature (CN) is used (European Commission, 2024d). It is under these 8-digit CN codes that the products being sanctioned by the grain sanctions are defined, with a total of 132 products targeted by the sanctions (Directorate-General for Trade, 2024).

3 Methodology

As mentioned, this thesis will make use of a partial equilibrium (PE) model to approximate the economic effects of the grain tariffs within proposed sanctions. The results of the PE model will give an accurate estimation of EU-Russian grain trade after the proposed sanctions, both in the total value traded and the value traded for each individual good. As the results are grounded in economic theory, and derived from well proven models, they can can be used to make assumptions with relative certainty. Combining the results with other scholarly literature gives a solid foundation to critically assess the objectives of the grain sanctions as they are laid out by the European Commission.

3.1 Partial Equilibrium model

The PE model used in this paper is developed by Cecilia Punt and Ron Sandrey (2016). Their calculations are based on the PE model developed for the World Bank's; World Integrated Trade Solution (WITS), called the SMART model, developed by Laird and Yeats (1986). A PE model is a model used to analyse the demand and supply equilibrium conditions within a specific market or sector of the economy (Gilbert, 2017). In other words, it looks at the supply and demand dynamics within a particular market in isolation, assuming that changes in other markets do not affect the market being analysed (Mas-Colell et al., 1995). Punt and Sandrey's model is originally created to model a tariff decrease. Nevertheless, can this model also be used to model a tariff increase, as the calculations consider the effect of any tariff change. The PE model used is excel based, the advantage of a spreadsheet simulation, is that they allow for flexibility with regard to product-specific tariff reductions, as is the case with the EU's grain sanctions. Therefore, the PE model manages to analyse the individual markets of the 132 grain products sanctioned. The analysis estimates trade numbers for each individual market and combines them to create a complete illustration of the effects the proposed grain sanctions will have on EU-Russian trade, thus allowing for a critical assessment of the objectives laid out by the European Commission.

3.2 Data

A PE model requires three main sets of data to obtain results, the accuracy of the data mirrors the accuracy of the results. It is therefore extremely important to gather the most precise data possible.

The first data needed are the tariff rates before and after the sanction is implemented, for each CN product code. The relevant CN product codes and new rates are included in the annex of the Commission's proposal (Directorate-General for Trade, 2024). The current rates are retrieved from TARIC, which is a database maintained by the European Commission that contains information on all the tariffs applicable to imports into the EU (European Commission, 2024c). Unfortunately, the tariff rates for these products are a mixture of specific and ad valorem tariffs. For consistency and because the PE model solely uses ad valorem tariffs, specific tariffs are converted to ad valorem tariffs with a simple equation.

$$\text{Ad valorem tariff rate} = \frac{\text{Tariff in euro per tonne}}{\text{Value of the product per tonne}} \quad (1)$$

The value of the product per tonne is determined by dividing the total imported value of a product by the total imported quantity of that product. Trade data from 2023 is retrieved from a Comext Eurostat query (Eurostat, 2024). Trade data is imported into the model for each product code, the model needs both trade data between the EU and Russia and the EU and the rest of the world.

The last data the model needs are elasticities. Elasticity is the degree of responsiveness of one economic variable to changes in another. (Mas-Colell et al., 1995). If the quantity demanded changes significantly when the price changes slightly, the demand is considered elastic. Conversely, if the quantity demanded changes only slightly when the price changes significantly, the demand is considered inelastic. For most of the products in the proposed grain sanctions, demand is more inelastic as grain products are generally considered essential items. The PE model requires three kinds of elasticities for each product; EU Import demand elasticity, which measures how much the quantity demanded by EU consumers changes in response to a change in the product's price. Russian export supply elasticity, which measures how much the quantity supplied by Russian producers changes in response to a change in the product's price. And substitution elasticity, which measures how likely consumers are to substitute the product with another.

Calculating trade elasticities is a complicated matter and is well beyond the scope of this thesis. Instead, elasticity data is gathered from other research. Import demand elasticities are retrieved from the work by Mahdi Ghodsi, Julia Grübler and Robert Stehrer (2016, 2024). Export Demand Elasticities are retrieved from the work by Christian Broda, Nuno Limão and David Weinstein (2006). And substitution elasticities are retrieved from the work by Lionel Fontagné, Houssein Guimbard and Gianluca Orefice (2022).

3.3 Calculations

The PE model uses a couple of different equations. The first equation calculates trade creation. According to Jammes and Olarreaga, trade creation is defined as the gain that arises from changes in the domestic demand for imports from a specific trading partner due to a shift in the price of the imported product following a change in the tariff regime (Jammes & Olarreaga, 2005).

Trade creation as derived by James and Olarreaga (2005):

$$\epsilon_m \cdot M_{RUS} \cdot \frac{\tau_n - \tau_i}{(1+\tau_i)} \cdot \frac{1}{(1-\frac{\epsilon_m}{\epsilon_x})} \tag{2}$$

Where:

- ϵ_m Import demand elasticity
- ϵ_x Export supply elasticity
- M_{RUS} EU Imports from Russia (value)
- τ_n New tariff rate
- τ_i Initial tariff rate

When modelling tariff increases, trade creation is likely to be negative, as imports are expected to decrease.

Trade diversion is closely related to trade creation but is not entirely the same thing. While trade creation only calculates trade between the EU and Russia, trade diversion includes the rest of the world in the equation. James and Olarreaga explain trade diversion as the effect that occurs when goods previously sourced from one group of foreign suppliers are replaced by goods from another group of foreign suppliers. This shift happens due to changes in the relative prices of imported goods, stemming from changes in the tariff regime (Jammes & Olarreaga, 2005).

Trade diversion as derived by James and Olarreaga (2005):

$$\frac{M_{RUS} \cdot M_{RoW}(\frac{\tau_n - \tau_i}{1+\tau_i}) \cdot \sigma(\frac{(M_{RUS}+M_{RoW})\epsilon_x}{(M_{RUS}+M_{RoW})\epsilon_x - M_{RoW}})}{M_{RUS} + M_{RoW} + M_{RUS}(\frac{\tau_n - \tau_i}{1+\tau_i}) \cdot \sigma(\frac{(M_{RUS}+M_{RoW})\epsilon_x}{(M_{RUS}+M_{RoW})\epsilon_x - M_{RoW}})} \quad (3)$$

Where:

- M_{RUS} EU Imports from Russia (value)
- M_{RoW} EU Imports from Rest of the World (value)
- ϵ_m Import demand elasticity
- ϵ_x Export supply elasticity
- σ Substitution supply elasticity
- τ_i Initial tariff rate
- τ_n New tariff rate

In Punt and Sandrey's model, the amount of trade diverted from the rest of the world to Russia is what is being calculated in the trade diversion equation. Once again, it is expected that this number will be negative, as the price of Russian products increases due to the tariff, pushing EU consumers to suppliers outside of Russia (Punt & Sandrey, 2016).

Using the trade creation and trade diversion results, tariff revenue (for the government) can also be calculated. Calculating the initial tariff revenue is as simple as multiplying the initial tariff rate with the values of the 132 products imported. The initial tariff revenue can thus be written as:

$$\sum_{p=1}^{132} \tau_i \cdot M_p \quad (4)$$

Where:

- τ_i Initial tariff rate
- M_p Value of the p^{th} product imported.

Similarly, calculating the new tariff revenue is as simple as multiplying the new tariff rate with the values of the 132 products imported. The new tariff revenue can thus be written as:

$$\sum_{p=1}^{132} \tau_n \cdot M_p \quad (5)$$

Where:

- τ_n New tariff rate
- M_p Value of the p^{th} product imported.

4 Empirical Results

This section outlines the findings derived from the PE model, showing both authentic EU-Russian trade data of 2023, and the same data after being ran through the PE model, as if tariffs like in the proposed grain sanctions would have been in place, outlining and estimating what EU-Russian grain trade might look like in the future.

In 2023, Russia (and Belarus) exported 4,817,118,566 kg or about 4.8 million tonnes of grain products to the EU, which amounts to a value of 1,577,897,359 (1.58 billion) euros. The rest of the world exported 82,157,303,524 kg or about 82.1 million tonnes of grain products to the EU, which amount to a value of 37,345,890,866 (37.35 billion) euros. Accordingly, Russia (without Belarus) accounted for 4.87% of EU imports in quantity, but only 3.45% of EU imports in value, meaning that Russian products imported are generally cheaper. Note, this does not mean that Russian products are cheaper on a product by product basis, as the data points out, this price difference is the result of an unequal distribution of product types exported (meaning Russia in general exports product types that have less value). The 1.33 billion euros exported to the EU, account for roughly 3% of all EU-Russian trade. For the period between 2015-2022 (before post-invasion EU sanctions) grain products accounted for less than 1% annually (Eurostat, 2024). The PE model's results show EU-Russian trade data from 2023 as though the tariffs from the proposed grain sanctions had been implemented (denoted as 2023′). From the trade creation calculations, EU-Russian trade (with Belarus) would go to 268,539,916 (269 million) euros, meaning a decrease of 1,309,357,443 (1.31 billion) euros. The trade diversion calculations indicates a diversion of trade of 1,543,956,266 (1.54 billion) euros, this number is higher than the EU-Russian trade decrease due to the increased world price, thus implying a welfare loss for EU consumers, who now have to collect their grain products from other exporters that charge a higher price.

Table 1: Value of Russian grain exports to the EU

EU Imports (in €)	Belarus	Russia	Belarus + Russia
2023	242,422,018	1,335,475,341	1,577,897,359
2023′	28,050,865	240,489,051	268,539,916
Change	**-214,371,153**	**-1,094,986,290**	**-1,309,357,443**

The EU levied approximately 26,172,831 (26.2 million) euros as tariff revenue in 2023, this number is relatively low, stemming from generally low tariffs on grain products. While EU-Russian trade declines drastically in the model (by 83%), the tariff revenue for the EU is projected to go to 11,275,334 (11.3 million) euros, a decline of only 56%. This is because the trade that is still happening is taxed at a significantly higher rate than before.

Table 2: EU tariff revenue from Russian grain exports

Revenue (in €)	Belarus	Russia	Belarus + Russia
2023	6,471,593	19,701,238	26,172,831
2023′	1,109,708	10,165,626	11,275,334

4.1 Considerations

While the PE model provides valuable insights into the potential effects of the proposed sanctions, it is important to acknowledge its limitations. For instance, the model does not account for all relevant factors influencing trade dynamics, such as non-tariff barriers

and political considerations. Like most economic models, PE models assume consumers and producers react logically and in their own best (economic) interests. Irrational or uneconomic decisions can therefore not be measured by such a model.

5 Empirical Analysis

This section will analyse the objectives of the European Commission in light of the empirical results achieved by the PE model. Each objective will be discussed separately to allow for a structured review, with the goal of answering the research question on the feasibility of the European Commissions goals.

5.1 Objective 1: Cutting Russian Revenue

As declared by Ursula von der Leyen, President of the European Commission, the proposed tariffs on grain products will ”reduce Russia’s capacity to exploit the EU for the benefit of its war machine”(European Commission, 2024a). In 2022, Russia experienced unprecedented heights in its trade surplus, particularly evident in its exports to the EU, which soared to over 181 billion euros. This surge was primarily propelled by the substantial increase in natural gas prices following the uncertainty of the Ukrainian invasion coupled with the EU’s energy crisis and the continuous importation of natural gas from Russia (Eurostat, 2024). However, the landscape shifted drastically in 2023, precipitated by the implementation of the comprehensive sanctions packages by the EU. This resulted in a significant downturn in exports to the EU, plummeting to roughly 45 billion euros (Eurostat, 2024). Consequently, the Russian trade surplus saw a reduction exceeding two-thirds (Federal Customs Service of the Russian Federation, 2024). EU imports of grain from Russia however, remained relatively steady, maintaining a range between 1 and 1.5 billion euros annually (Eurostat, 2024). This underscores the resilience of grain products as an increasingly vital export commodity for Russia, shifting from less than 1% to 3% of all Russian exports to the EU.

Table 3: Russian Exports to the EU

Year	2023	2022	2021	2020	2019	2018	2017	2016
EU imports from Russia (in billion €)	45.1	181.7	79.9	132.2	139.3	118.4	108.4	122.0

Given this context, directing attention towards the grain product sector appears to be the correct course of action. Estimations of the PE model anticipate the new tariff regime to haven an annual reduction in EU-Russian trade of over one billion euros. This adjustment is expected to curtail Russian exports to the EU to approximately 44 billion euros. While on the surface, this adjustment may seem favourable, it is important to fully consider the effects of this change before drawing any conclusions.

As explained in the conceptual framework, the new tariff regime will have a substantial effect on the price of grain products within both the EU and Russia. Uncovering the winners and losers of this shift is vital for understanding its deeper ramifications. Considering the impact on the Russian grain market, an overflow of over a billion euros’ worth of grain products previously exported to the EU will trigger a swift downturn in grain prices within Russia. This price decline will benefit Russian consumers while posing challenges for Russian producers. For Russian consumers, this decrease will be a welcome relief, considering the significant rise in the cost of living since the start of the invasion of Ukraine (Shatz & Reach, 2023). Conversely, Russian producers will face a stark reality of diminishing real income. Beyond its economic implications, these changes may influence broader social and political dynamics, potentially affecting support for the Putin regime, as rural communities form a large part of the Russian population.

Considering the global ramifications of a price increase in the Russian grain market, it becomes evident that Russia will search for new trading partners. As evidenced by past instances of sanctions, a pivot towards China is expected (Aksenov et al., 2023; Jones & Whitworth, 2014; Kolosov & Zotova, 2023). Traditionally reliant on the United States for grain imports, China is a prime candidate for Russian grain (Deng et al., 2024; Fu & Tong, 2023). This potential shift also carries the weight of further isolating the West from the Moscow-Beijing axis, potentially altering dynamics in US-China relations in other global conflicts, like Taiwan. However, transitioning from the EU to China as an export market is not a straightforward process. The bulk of Russia's grain production stems from the Black Earth and Volga regions in the western part of the country, posing logistical challenges in redirecting exports (Svanidze & Götz, 2019). Transporting goods to China via the Siberian railway or through the Black Sea and the Suez Canal entails substantial transportation costs, which will likely erode a significant portion of Russia's profit margins.

In summary, the findings of the partial equilibrium model indicate a significant decline in EU-Russian grain trade post-sanctions. In the short term, this downturn is expected to result in substantial income losses for Russian producers, who have to endure the brunt of the price shock. However, in the long term, a stabilisation of grain prices within Russia is expected, due to China being a viable alternative export partner. The main effects of the increased tariff regime will therefore be further decoupling of Russia from Europe rather than a long-lasting continuous economic downturn. Lastly, while the tariffs are effective in decreasing Russian revenue from grain exports to the EU, these measures are limited to grain exports only, which make up barely 3% of EU-Russian trade. In order to cut more in the Russian export revenue from the EU, sanctions on Iron, Steel and Aluminium products could be considered which make up more than 9% of EU-Russian trade or further sanctions on the energy market as liquefied natural gas (LNG) still makes up almost 18% of EU-Russian trade (Eurostat, 2024).

5.2 Objective 2: Tackling illegally appropriated grain exports

The second objective of the grain tariffs in the proposed sanctions is to put a stop to the Russian practice of illegally exporting misappropriated Ukrainian grain into the EU (European Commission, 2024a). Since Russia's occupation of the regions of Luhansk, Kherson and Zaporizhzhia, multiple reports have shown that Russian forces have been deliberately and systematically extracting Ukrainian grain in these provinces (Global Rights Compliance, 2023). The conduct of Russian forces in relation to grain extraction appears to constitute criminal behaviour and suggests a high degree of coordinated pre-planning as part of a broader strategy to weaponize Ukraine's grain (Parasecoli & Varga, 2023). Simultaneously, fears of a global wheat crisis were growing, as Ukraine and Russia are both major exporters to regions with vulnerable food security . Six months into the war, on July 22, 2022, the United Nations, with particular help from Turkey, brokered an agreement between Ukraine and Russia called the the Black Sea Grain Initiative (United Nations, 2024). The goal of the agreement was to allow for safe grain transport out of Ukrainian territorial waters (Glauber & Laborde Debucquet, 2023). Over the subsequent year, the Black Sea Grain Initiative facilitated the shipment of over 32 million metric tons of Ukrainian grain worldwide, including to regions facing acute food insecurity such as the Horn of Africa, the Sahel, Yemen, and Afghanistan (Lin et al., 2023). However, on July 17, 2023, Russia unilaterally refused to extend the duration of the initiative, bringing uncertainty to food security in these regions once again. Russia's conduct underscores a concerted effort to weaponize Ukrainian grain, both within the context of the ongoing conflict and in its impact on intended recipients of grain exports beyond Ukraine's borders. In light of these developments, the EU's reaction has been twofold, while on the one hand it wants to stop

Russia profiting of illegally appropriated grain, it also has expressed its full commitment to upholding global food security. Accordingly, the transit of Russian grain products through the EU to third countries will not be affected by the new tariffs. As a consequence of this commitment, no action will be taken to stop Russia from selling misappropriated grain to third countries. But even inside the EU's borders, correctly identifying misappropriated Ukrainian grain is practically impossible (Global Rights Compliance, 2023). Consequently, no real measures to attempt to tackle these practices are made. Instead, the EU has imposed some of the highest tariffs on grain products that are most commonly produced in the regions of Luhansk, Kherson and Zaporizhzhia (European Parliament, 2024; Sławomir Matuszak, 2021). Coincidentally, these products (such as CN codes 10011900, 10039000 and 12060010) are estimated to decline most in value exported to the EU, following the PE model.

Nonetheless, the vows of the EU to "tackle" Russian exports of illegally appropriated grain, and "ensure" that this illicit export method is no longer profitable, are realistically not capable of being fulfilled. Fundamentally, this objective is unattainable, due to the difficulty of tracing illegally appropriated grain. Additionally, the EU cannot stop the transit of all potentially illegally appropriated grain without exposing vulnerable countries to food security risks. Levying the highest tariffs on the products which are most likely to include illegally appropriated grain is therefore an agreeable compromise.

5.3 Objective 3: Preventing EU market destabilisation

The objective to prevent EU market destabilisation originates from the fear of Russia dumping grain products onto the EU market. Dumping, in the context of international trade, refers to the practice of selling goods in foreign markets at prices lower than their production costs or below what they are sold for in the domestic market (Krugman et al., 2017). This can be done by governments or state-owned enterprises. Russia's position as a leading global grain exporter, alongside its willingness to use food exports as a geopolitical tool, makes this a legitimate threat. The danger with Russia flooding the EU market with grain at artificially low prices, is that it will undermine the competitiveness of European farmers, who are already vulnerable due to a large influx of Ukrainian grain products into the EU due to the EU-Ukraine DCFTA and the PAP. With Russian grain flooding the EU market, it will be impossible for European farmers to make any profit on grain products. In such a scenario, the EU would have to start subsidising its farmers an obscene amount in order to keep them afloat.

While the other two objectives are both reactionary in nature, this objective is the only one that is preemptive in nature. The increased tariffs have a function to protect the EU market from potential future Russian dumping practices. The tariff regime is very well equipped to do just that. The partial equilibrium model has shown that it becomes very unprofitable for Russia to export grain products to the EU, as Russian exports decrease by more than a billion euros according to the results. Note, that in economic models like the PE model, consumers and producers make logical decisions in their own interest. In this case, that confirms that redirecting grain products from the EU to other partners is in Russia's interest. If Russia were to dump grain products onto the EU market regardless, tariffs will have two functions to combat the effects of the dumping. Firstly, tariffs will make it very hard for Russian grain to undercut the EU grain price, due to the inherent unfair competition that tariffs grant to the domestic producers. For example, if wheat prices are €300 per tonne in the EU, Russia would need to sell their wheat for no more than €193 to be able to undercut EU prices, in the case of a 55% tariff ($193 \cdot 1.55 = 299.15$). Secondly, if Russia manages to undercut EU prices anyway, the tariff revenue for the EU will be astronomically high. Illustrating this with

Figure 5, imagine the Russian export supply curve (XS_{RUS}) becoming almost horizontal, as would be the case in a dumping scenario. The area for EU revenue increases with the Russian export supply curve (XS_{RUS}) becoming flatter, indicating increasing revenue for the EU. To illustrate this another way, take the numerical example, for every tonne exported by Russia, the EU would earn €106.15 ($193 \cdot 0.55 = 106.15$). Subsequently, the EU can use this new revenue to subside the European farmers, essentially negating the intended effects of the dumping scheme.

There is no doubt that the tariffs in the proposed grain sanctions fulfil the objective of preventing EU market destabilisation perfectly. Not only will dumping be very expensive for Russia, it would also essentially be funding its own countermeasure.

5.4 Objective 4: Increasing grain prices for EU farmers

Finally, while not publicly stated by the EU, a fourth objective of the proposed sanctions could be to limit the flow of Russian grain into the EU, thereby decreasing overall grain imports and potentially driving up grain prices. Since the European Council meeting on October 20-21, 2022, emphasised the importance of maximising the benefits of the EU-Ukrainian Deep and Comprehensive Free Trade Agreement (DCFTA), aiming to facilitate Ukraine's integration into the Single Market with the Priority Action Plan, cheap Ukrainian grain has put pressure on European farmers (Blenkinsop, 2024). As the PE model has shown, due to diminishing Russian exports after the tariffs are implemented, EU consumers will be looking for 1.54 billion euros of grain products elsewhere. While this might come from other grain exporters (like Ukraine), European farmers will be taking a share of this as well. Anti-dumping measures being used by governments as a tool of trade protectionism, is not a new phenomenon (Pistikou & Ketsetsidis, 2023). As explained in section 2.1, trade protection is a popular policy among governments despite free trade creating more wealth on a global scale. Therefore, many governments try to hide protectionist policies under the guise of anti-dumping (Cheng et al., 2001). In this case, not only are the grain tariffs meant as an anti-dumping measure, they are also proclaimed to be a sanction on Russian revenue and a stance against the unjust appropriation of Ukrainian grain. While there is no doubt about the effectiveness of the tariffs as an anti-dumping measure, the effectiveness of the other two objectives can be debated, as evidenced. Thus, it can be argued that the underlying reasoning behind the proposed grain tariffs are to relieve pressure on European farmers who have been struggling since the influx of cheaper Ukrainian grain since the DCFTA and PAP agreements.

6 Conclusion

The intention of this thesis was to evaluate the objectives of the tariffs in the proposed grain sanctions against Russia. In order to answer the research question, a prediction of the tariffs effects were needed. To do this empirically, the thesis used an economic model to simulate the effects of the grain tariffs on the EU-Russian grain market. This was done by applying a PE model to the EU-Russian grain trade data of 2023. In short, the empirical results indicated a significant reduction in EU-Russian grain trade if grain tariffs had been implemented in 2023. As the tariffs make it largely unprofitable to export grain to the EU, this pushes Russia to new partners and gives a competitive advantage to European farmers.

Based on these results, conclusions regarding the likelihood of fulfilling the objectives could be made. Two of the objectives were shown to to be unlikely to be fully achieved. Cutting of another source of revenue for Russia in the grain market through tariffs will likely be effective in the short run, as the results of the PE model have estimated. In the long run, prospects hint at price stabilisation within Russia due to the shifts towards China as a new export market. The second objective of tackling illegally appropriated grain exports has proven to be practically impossible, due to difficulties in identifying misappropriated Ukrainian grain. Simultaneously, the EU has committed to free transit of Russian grain to third countries, which helps global food security, but doesn't help fulfilling the objective. The third objective, preventing EU market destabilisation is the only objective laid out by the EU, that the thesis proclaims as attainable with certainty. High tariffs such as those in the proposed grain sanctions are a particular effective tool for implementing anti-dumping policies. Finally, an effect of the tariff, unmentioned by the EU, is discussed. Limiting Russian grain imports to the EU market due to the tariffs results in higher domestic grain prices, favouring EU farmers.

Given the findings of this thesis, it can be argued that the grain tariffs in the proposed sanctions, are not just economic sanctions to restrict Russia and aid Ukraine, but are potentially a protectionist measures aimed at European farmers who are struggling with cheap imports of grain due to the EU-Ukrainian DCFTA and the PAP. Regardless, it will be interesting to see what the future holds for the grain sanctions.

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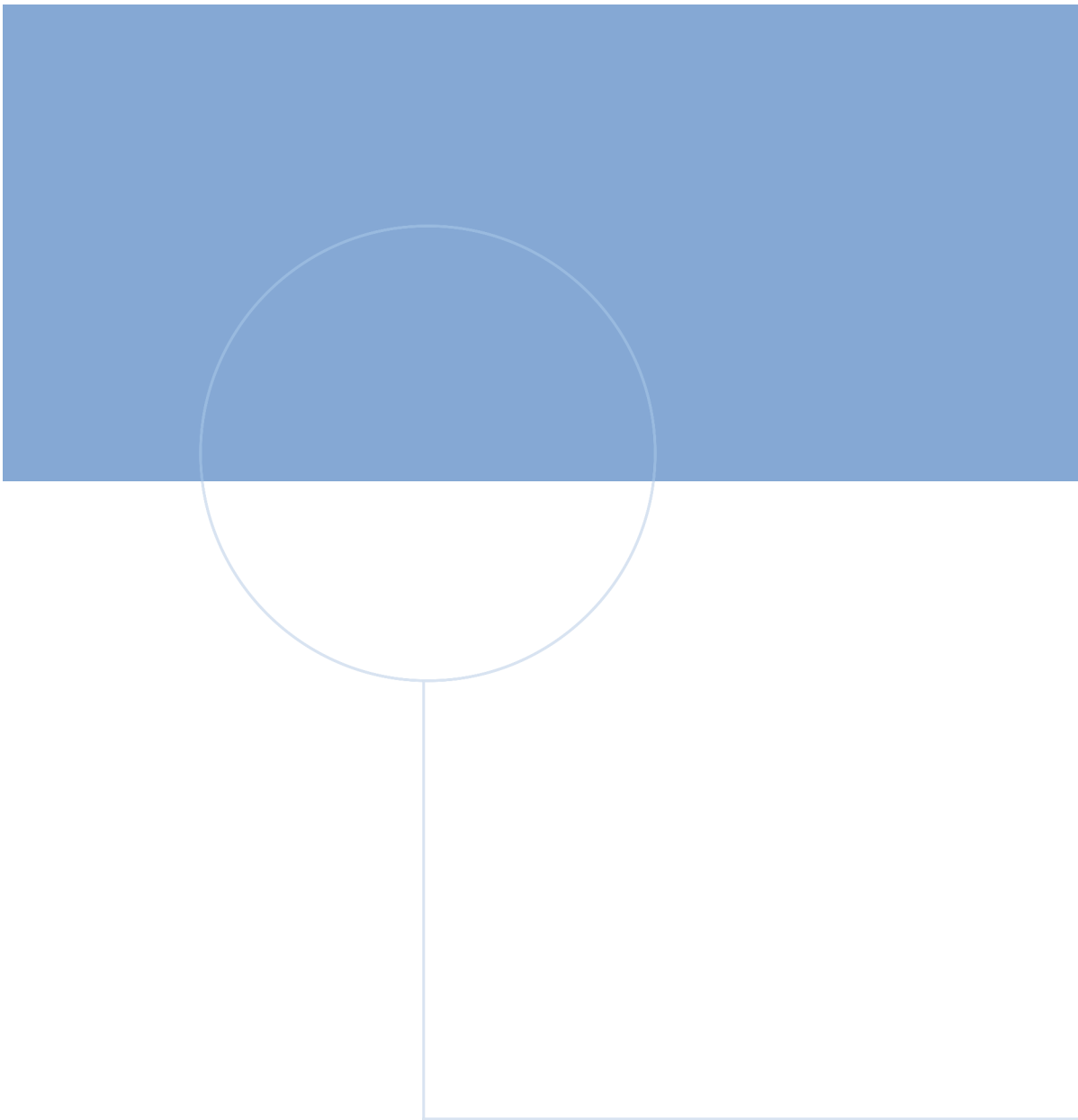

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