Post-Brexit trade and foreign direct investment (FDI) in United Kingdom

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ABSTRACT

This paper examines the impact of Brexit on the UK total good imports from the EU, UK total good exports to the EU, UK Inward foreign direct investment (FDI) from the EU and the UK outward FDI to the EU. The findings of the paper are as follows: Brexit has a negative impact of 8.88 % on the UK total good imports from the EU, as for the exports to the EU, there seems to be no statistically significant impact. Brexit seems to have an effect on the UK inward FDI from the EU, however the extent of the impact cannot be concluded from the conducted analysis. On the other hand, there is no effect of Brexit on the UK outward FDI to the EU.

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1. INTRODUCTION

1.1. Objectives of the thesis

Since UK's joining to the EU, there was a difference of opinion, leading to the UK always feeling at a disadvantage. The years of questioning regarding its membership lead to a 2016 referendum, asking citizens of the UK to vote for either 'stay' or 'leave'. The majority vote was to leave, leading to long negotiations regarding an exit agreement between the UK and the EU, as no member state before has left the EU. The official exit happened in February 2020 and was followed by a transition period, where the UK was no longer a member of the EU, but still participated in the single market. The transition period ended in January 2021. The expectation was that Brexit will have an impact on both the UK total good imports from and exports to the EU and the UK inward and outward FDI with the EU, as the UK will no longer enjoy the EU's single market and won't have the same agreements as it had as a member state. Especially due to the facts that the UK is one of the most sought-after foreign direct investing countries, both when it was a member state and after, moreover, the UK depends on imports for production, especially of luxury good like cars, and then exports after the production is done. So, imposition of trade barriers can lead to an impact on volumes of FDI and trade.

This undergraduate thesis aims to analyse the impact of Brexit on the UK total good imports from the EU and exports to the EU, as well as the UK inward FDI from the EU and outward FDI to the EU, using econometrical analysis (DiD and panel model) in R software.

1.2. Structure of the thesis

The paper consists of five main chapters: Introduction, Brexit, Trade and foreign direct investment (FDI), Research of impact of Brexit on trade and foreign direct investment in the United Kingdom. In introduction, objectives of the thesis have already been explained. Next, in chapter 'Brexit', the paper will touch upon the relationship of the United Kingdom with the European Union before referendum on exit of the UK from the EU happened. After that, history of the Brexit movement will be explained. It is crucial to understand the events that led to Brexit referendum and how they influenced the final results of the referendum. After

explaining Brexit and the UK's relationship with the EU, theories of trade and foreign direct investment (FDI) will be explained, as well as factors that impact them. In the same chapter, it will be talked about how trade and FDI are connected and in the last subchapter of chapter *Trade and foreign direct investment*, all previously mentioned topics will be connected together, to make a sense as to why both trade and FDI are important for the UK's economy. Continuing to the research part of the paper, used methodology and data will be explained, then results will be analysed and their contributions to practice, as well as limitations discussed. Lastly a comprehensive conclusion of the whole paper will be done.

2. BREXIT

2.1. United Kingdom's relationship with the European Union before Brexit

The United Kingdom has joined the European Union in 1973, when it was known as the European Economic Community (established by Treaty of Rome in 1957). So, the UK was among first countries (along with Denmark and Ireland) to join the Union created by the six founding countries (Belgium, France, Germany, Italy, Luxemburg, Netherlands). Therefore, the UK's relationship with the EU has a long history. Nonetheless, the relationship between the two has been tense since the very beginnings. While trying to join the ECC, UK's membership has been vetoed by the French President general de Gaulle, as he thought that the UK's membership would weaken French position and also lead to increase of the influence of the US in Europe. Later on, two years after joining the ECC, in 1975 there was a referendum on whether the UK should continue its membership, it has been voted 67,2% to stay (Miller, 2014). Even though the UK stayed in the EU, up until it did not, it did show grater resistance in the integration, compared to other member states, in years to come. For example, the UK was a full member of the Single market, but it did not join the single currency, moreover the UK was never a part of Schengen. Key moments in the EU history that characterise the UK's resistance to full integration are the 1984 UK Budget Rebate and the 1991 Maastricht treaty. The UK Budget Rebate was negotiated by then Prime Minister Margaret Thatcher. The UK threatened to stop any payments made for the EU budget, as they thought that them being then the third poorest member, but a large contributor to the budget was unfair. Then 70% of the budget was spent on agriculture and the UK had and

still has a different structure of the agricultural sector, so they benefited little from the mutual fund. The UK rebate was ratified. (Miller, 2014). With 1991 Maastricht Treaty, the ECC changed its name to the European Union and with the treaty, steps were established in order for countries to adopt the single currency and integrate more, however as mentioned, the UK never adopted the Euro as its official currency. The UK's idea of the EU was cooperation on voluntary and government basis.

Seeing the UK's resistance to fully integrate as the EU member, like other member states and considering the fact that the UK government has been questioning its position in the EU from the very beginnings, up until the end, it might seem to a clueless observer that being the EU member had not brought many advantages to the UK. On the contrary, while being the EU member, the UK enjoyed many benefits of it. IT had the access to the Single Market, that considered free movement of goods, services, capital and labour, Osborne (2016) argues that this enables increase in the UK's openness and trade and investment. Trade with the EU members is made easier, along with other non-member states with which the EU has trade agreements. Moreover, while being the EU member state, the UK has become a desirable place internationally for foreign direct investment (FDI). Along this, the UK had significant influence in the decision-making process and rules setting regarding the Single market, with right to veto in the European Council (Osborne, 2016).

However, even though there seemed to be many benefits from the membership, the UK government still had many doubts about it. It was a popular opinion that the UK was at disadvantage by being the EU member by having to subject to many rules that follow the integration. It was thought that the UK was being held back by the EU membership and that it was missing out on opportunities that they could not do as the EU member state. All of these events, along with strong opinions of the politicians and part of the UK population, led to the 2013 David Cameron's 'Bloomberg speech' that was the first official mention of the EU referendum, later to be known as Brexit, which will be explained in detail in the next chapter where it will be talked about the history of the Brexit movement.

2.2. History of the Brexit movement

On June 23, 2016, a referendum took place on which the British public decided with 51,9% vote to leave the European Union (EU). Though it may have been a surprise for general public, it was soon to become reality. A reality that was uncertain, considering the fact that there was little idea of the date and terms of UK's departure from the EU, as well as what their future relationship will look like (Dhingra et al., 2022). Article 50 of the European Lisbon treaty allows EU member states to leave the union and states the process, however before the UK, no other country has done it (Rossbach, n.d.). However, before discussing how the negotiations looked like and what was the exit agreement, it is important to explain the events leading up to Brexit referendum.

Portes (2022) documents that characteristics of enabling the EU referendum began from year 2010 with drastic increase in support of the UK Independence Party (UKIP). UKIP was established in the 1990s and before the 2016 was the only main political party in favour of leaving the EU (Fetzer, 2019). Due to growing support of UKIP, the possibility of Brexit referendum became more real every day. In his 2013 speech at Bloomberg, Prime Minister David Cameron (from Conservative party) promised the EU sceptic-wing of his party an in-out referendum in favour of a new settlement for the UK in the EU, provided that he wins a majority in the 2015 elections (Walker, 2021.). The idea behind it was to attract anti-EU voters, however it backfired because the support for UKIP rose. Because of that, when the elections came, Labour and Liberal Democrat candidates lost crucial votes, while UKIP party came in third on the elections. Still, this proved to be extremely positive for the Conservatives, as they won the majority on the 2015 elections and came out unscathed. The electoral support of UKIP depraved Labour and the Liberal Democrat candidates of their seats and they instead went to Conservatives (Portes, 2022). The result of the 2015 elections was unexpected, as during recent years no party had majority, rather there was always a coalition government created between the Conservative and the Liberal Democrat parties.

What has really enabled for the referendum to take place, was the fiscal austerity and political backlash against it. Due to the global financial crisis that began in 2008 and spread

in 2009, coalition government led by Prime Minister David Cameron opted for austerity measures, harsh economic policies which intention is to reduce government spending and/or increase taxes in order to reduce budget deficits and debt. The austerity measures prompted sharp decreases in government spending, Dhingra et al. (2022): "Welfare payments, such as housing and child benefits, were reduced by up to 23% per person between 2010 and 2015." (pp 498). This is just one of the examples of the intensity of the decided government policy. Alongside, the decreases in spending were not happening only on the central government level, they were happening even more intensely at the local level in poorer regions (Dhingra, 2016). To begin with, the poorer regions were already poor, these were places where funding was already limited and further decreases in government spending and support led to difficult living conditions. Of course, not all regions suffered on the same level, but the poorer regions took a stronger hit. Due to those facts, as already mentioned, voters turned away from the major political parties to a smaller one – UKIP.

It should be noted that the results of the EU referendum were highly unexpected, both by the general public and by David Cameron, who, alongside with the Labor Party was opposed to Brexit. Due to the result of Brexit, 51,9% majority vote deciding to leave the EU, the Prime Minister David Cameron announced his resignation the next day. The outcome of referendum was decided by a margin of only 3.8 percentage points. (Fetzer, 2019) proves that the austerity was the leading factor of the rise in support of the UKIP party and argues that had there not been fiscal austerity, the referendum results could have likely ended different. The majority of the voters who opted for leaving of the EU consists of voters with relatively low economic fundamentals, or those living at such places. However, the voters who swung the results of the referendum were protest voters (the ones who went to polls to express their current dissatisfaction with the country state).

After the outcome of referendum, nothing immediately changed, rather hard and long negotiations began, defining UK's politics for the next four years. The UK found itself in a hard place, as the Brexit referendum divided the country on Brexit supporters and Brexit opposers. On one hand were those against the Brexit, they hoped that the UK would stay in the EU's Single Market and Customs Union or at least, in the case of leaving, that a new referendum would be set in place, with clear and defined expectations of leaving the EU. On

the other hand, there were Brexit supporters. Some of them were of opinion that all ties with the EU should be cut (a case of a no-deal Brexit). In this case, the UK would have the same relationship with the EU as with any other World Trade Organisation (WTO) member state that does not have a trade agreement set in place. Under this agreement, the UK would lose the benefits of free movement of people, free provision of services and freedom of establishment, i.e., a total loss of access to the EU's Single Market.

The UK officially left the EU on February 1st 2020, however there was a transition period in the duration of 11 months. During the transition period, the UK was officially no longer a part of the EU, however it was still part of the EU single market until January 1st 2021. After that the UK could no longer enjoy the EU free market benefits. Nevertheless, a Trade and Cooperation Agreement (TCA) has been established between the UK and the EU, offering better conditions than traditional trade agreements that the EU has with other non-member states, but still in no way matching the level of economic integration that the UK was once a part of.

3. TRADE AND FOREIGN DIRECT INVESTMENT (FDI)

3.1. Theories of trade

Throughout the history trade theories have evolved, all in order to explain why nations trade, explaining how trade policies impact economies and what are the benefits of trade. In this chapter, different trade theories will be explained, including both the traditional and new trade theories. In terms of the trade discussed in this paper, it will be explained as exchange of goods between two or more countries.

David Ricardo in 1917 with the publication of his book *On the Principals of Political Economy and Taxation*, developed a trade theory of comparative advantage building upon Adam Smith's theory of absolute advantage. Ricardo explains that countries have the comparative advantage in production of some good, if the opportunity cost of producing that good in terms of the other good is lower in that country, even if it doesn't have an absolute advantage in production of that good. In this case both countries can produce and consume

more than they would if each country specialised in the production of just one good, moreover both countries can obtain the good at a lower opportunity cost.

Factor endowment model of trade theory is a model developed by Heckscher and Ohlin, they focus on the factor endowment (quality and quantity of factors of production, either labour or capital that country owns). If the country is abundant in labour, it will produce and export capital-intensive goods, if a country is abundant in capital, it will produce and export labour-intensive goods. Siddiqui (2024) says “The H-O model has the following assumptions, …zero transport costs, perfect competition in commodity and factor markets, production functions are homogeneous, and consumers' tastes are the same in both trading countries.” (pp 3.).

This model was later on expanded by Stopler and Samuelson, they wanted to know how will changes in trade patterns affect income distribution within a country, along with the assumptions made by Heckscher-Ohlin theorem. They found that in countries abundant by labour, export of labour-intensive goods will be beneficial for workers and increase their wages, but it may result in reduced returns to capital. On the other hand, countries that are capital-abundant, here the openness to trade and export of capital-intensive goods will be in favour of capital owners. In conclusion, trade can lead to redistribution of income, where the scarce factor of the country will be at disadvantage.

Although the forementioned trade theories have brought an important insight into trade and introduced new ideas, they failed to take all factors that are important, in terms of trade, into consideration. Therefore, economists started to develop new trade theories, which take a more realistic approach. They take economies of scale, perfect competition and differences in technologies among nations into consideration. New trade theories (NTT), also known as the neoclassical trade theories, expand on the comparative advantage model. They explain international trade through classical trade theory without critically engaging with comparative advantage theory. The focus is put on macroeconomic outcomes: trade patterns, differences in labour productivity and factor endowments (Siddiqui, 2024). Although NTT incorporate the role of transnational firms, they assume factor immobility and do not question the origins of monopolistic markets, despite acknowledging the influence of FDI.

3.2. Factors that impact trade

As seen in the chapter before, trade is a complex concept, which can be difficult to explain, especially as it is always changing due to many factors that impact trade. It is crucial to understand their impact, in order to grasp the dynamics of global trade and economic relationship between trading countries. World Trade Organisation (WTO) names fundamental economic factors impacting trade: demography, investment, technology, energy and other natural resources, transportation costs and policy frameworks.

First factor, demography is deemed complex, in terms of being able to predict how trade will change in the future, according to the change of country's demographic picture. However, it is still important, especially in terms of its impact on country's comparative advantage and import of labour. More developed countries (observed later in the paper, the UK and countries in the EU), have an aging population, meaning there is significantly less new-borns, than there is deceased. This leads to more tax-burden for the working population, so the older population can be taken care of, alongside, the availability of labour is affected, meaning the need for labour import increases. However, aging countries may be more capital-abundant, which can influence their specialization in capital-intensive goods. Moreover, with increase of older population, increases also the demand for healthcare and financial services, as well as demand for goods specific for this part of population (WTO, 2013). Therefore, changes in demography are an important part of trade, they don't have to necessarily increase or decrease, but they can change the structure of trade.

By accumulation of capital, countries can influence and change their participation in global markets. By investing in infrastructure (ports, roads, ICT – information and communications technology), countries can reduce trade costs, improve connectivity and reduce logistical difficulties. On the other hand, by investing in capital, country can change its comparative advantage to capital-intensive goods, which can help it to compete on the international market. However, in cases where domestic financing is not sufficient, countries need to opt for external financing sources. In these cases, countries turn to foreign direct investment (FDI) (WTO, 2013), but more on that will be explained in later chapters. Overall, investing,

no matter through which resources, can have a significant influence on trade patterns and economic growth of a country.

Another factor that impacts trade and is usually talked about in older trade theories is technology. The more country develops its technology, the less will be its production costs, meaning it can produce more with the same or lower number of inputs. Country can also offer better working environment, which not only enhances productivity, but opens up a space that enables further innovation and access to new markets. The more developed the countries technologies are, the better the opportunities. WTO, 2013 says that great technological advancements can shift comparative advantage by altering the factor intensity of production. Therefore, countries that can develop and integrate new technologies faster can develop competitive advantages in tech and capital abundant industries. Thus, changing trade patterns and being able to export goods and services with higher added value. On the other hand, technology can be a barrier to trade especially for countries that struggle with adoption of technologies may be challenged to compete globally.

Transportation cost has been mentioned in the previous chapter and it was indeed used to explain some trade theories. It is one of crucial factors influencing trade. When talking about investment, it was mentioned that countries can invest in their roads, ports and that this investment will influence trade. Exactly this comes into consideration of transpiration costs. Based on the transportation costs, firms decide where they will set up their production. Lower transportation costs can lead to increased volume of sales as they enhance the ability of export and import. Moreover, lower transportation costs can connect distant locations, enabling each country access to products, which otherwise may not be available. Overall transportation costs are an important aspect of trade, as they can not only decrease the price of products, but also can encourage higher trade volume.

Transportation costs can also have environmental implications, the more transportation there is, the higher the greenhouse gas emission and degradation of environment (WTO, 2013). It needs to be taken into consideration, as the environment can also have an impact on trade. Some countries are rich in natural resources and use them in trade. For example, if these are countries abundant in natural resources, they can produce them at a lower cost

and higher efficiency than others. However, this can lead to a dependence if the country doesn't specialize in production of other goods and services, leading to an economy that can be fragile to global price changes. On the other hand, if countries use their natural resources for tourism, they are very exposed, both depending on demand and the state of the environment that tourists come to enjoy. Connecting it with transportation that can harm the environment and numerous other factors, these countries need to ensure sustainable practices in both tourism and their other industries, fostering innovation, in order to be able to preserve the environment they depend on and ensure continuance of trade for generations to come.

All of these forementioned factors impacting trade potentially cannot meet their positive full capacity, if the institutions that shape the international trade rules and frameworks don't function very well. Political stability and absence, low corruption significantly impact trade, as those countries show stability and have resources to trade on the international market. Also, transparent and efficient institutions within a country protect property rights, ensure enforcement of contracts and reduce transaction costs (WTO, 2013.). If a country doesn't have both government and institutions of high-quality, it makes it harder for it to be competitive in trade. Other important factors influencing trade that are enforced by the government and its institutions are trade agreement and policies. These can set the terms of trade between countries, reduce barriers and facilitate market access. For example, the UK was a part of the EU, which enables it free market access, no trade barriers and reduced non-tariff barriers. Goods, services, capital and labour can move freely within the EU, enabling trade opportunities which otherwise might be difficult or impossible to achieve. Policy framework could be considered one of the most important factors impacting trade, while the impact can be positive (as mentioned on the example of the EU), it can also be seen as negative, as the government can impose tariffs, quotas, duties, subsidies, embargos. While they do protect domestic production and in those terms are positive, they can put other countries at a disadvantage by limiting or prohibiting trade or simply making trade with some countries more expensive than others.

Other factors important to mention when talking about impacts on trade, are demand and factor endowment. After all, there is no trade if there is no demand for any goods or

services. Consequently, as demand changes, so does trade, if demand increases, trade will also increase and vice versa. However, even when demand is present, supply of the demanded goods/services may not be possible. If the resources are scarce or for some reason unable to be delivered, even if the demand goes up, supply won't follow, thus either stagnating or lowering trade.

On the other hand, factor endowment generally has a positive impact on trade, as countries will export cheap factors of production, they are abundant in and import domestically expensive and scarce factors, trade will change depending on the volume of export/import. However, product endowment can have a negative impact on country's trade, for example, if country focuses only on the export of one or a few commodities, it allows itself to be vulnerable to international price fluctuations, thus putting itself in danger of economic instability and trade imbalance. Moreover, intensive exploitation of certain products can lead to environmental degradation, which can affect agriculture and tourism and again reduce the productivity and trade of the country.

All of the mentioned factors play an important role in the scale of trade, while some may have a greater and other less great impact on trade. Nonetheless, they are all equally important, especially when trying to conclude where did the changes in trade come from and whether positive or negative, how can they be furthered or changed.

3.3. Theories of foreign direct investment (FDI)

Foreign direct investment theories offer a greater understanding in terms of why countries engage in direct investment in foreign countries. The investor acquires a stake in the overseas company. Depending on who is on the receiving or giving end, FDI can be divided onto inward and outward FDI. Inward FDI concerns the investments made by foreign countries into domestic country (for example, the EU firms investing in the UK), while outward FDI are all the investments made by the domestic country into other, foreign countries (for example, the UK firms investing into the EU countries). House of commons' International Trade Committee (2021), divides FDI on greenfield FDI, brownfield FDI,

expansions and merger and acquisitions (M&A). In greenfield FDI, the investing company creates a new establishment in the host country, in brownfield FDI, the investing company acquires or leases already existing businesses in the host country, expansions concern investment of foreign company into expansion of production of some host's business entity and in M&A, a foreign company acquires a considerable amount of existing company in the host country. A few of the developed theories will be explained in this chapter, in order to gain a better understanding of overall FDI.

In 1966 Vernon developed production cycle theory which explains patterns and motives for foreign direct investments, based on the life cycle stage of a product. It was initially developed to explain international trade and investment made by the United States companies into the Western Europe. Vernon characterises four key stages of production cycle: innovation, growth, maturity and decline. In the innovation stage, manufacturers have an advantage as they possess new technologies, in second stage, growth happens, as the product develops, technology becomes more known, demand increases and firm expands more to foreign markets. Then comes maturity stage where the product and technology are well established and competitions rises. The last stage is decline, where product demand decreases and the focus shifts to minimization of costs. The firm moves their production to less developed or developing countries where materials and labour are cheaper (Denisia, 2010). This theory highlighted well how FDI changes during the product's life cycle. However, the theory may be more applicable to industries where products have clear life cycles and pressure of cost minimization in high.

The eclectic paradigm theory, developed by Dunning, integrates several theories in order to explain why firms engage in FDI and how do they choose the location of their investment. It is also knowns as OLI framework, where OLI stands for the three theories that explain eclectic paradigm; those are: ownership advantages, location advantages and internalisation advantages (Gandolfo, 2014, 142-143). Ownership advantages are usually considered to be intangible assets, they include information and different ownership rights of a company. Ownership is also considered as a competitive advantage, as one gains access to resources that cannot be easily imitated (for example: rights to patents, trademarks, copyrights, internally available skills, etc.). Location advantages are considered a comparative

advantage of a country. They are either natural or man-made sources. Companies that are deciding to move their business abroad may take into consideration costs, market size, distance and government policies that impact FDI (Denisia, 2010). Internalisation advantages are taken into account after the first two are satisfied. In this step, companies decide whether they will engage in foreign production or license it to an independent foreign company. The benefits of engaging in foreign production are greater, offering lower costs and better control over skills and quality.

Later, in 1981 Dunning created an investment development path (IDP) theory, based on the previously explained OLI paradigm. According to the IDP theory, as countries develop, they experience certain changes in their structures, which affect FDI patterns they attract and create, leading to five stages. In the first stage, a less developed country receives very little FDI or generates next-to-nothing outward FDI. In the second stage, country improves its location advantages (improved infrastructure, skilled labour) which results in more inflows from FDI, however outward FDI remains low hence negative net investment position. In the stage three, further economic development strengthens technological capability and market size leading to significant inflow of FDIs. Companies within the host country start to innovate and specialize overseas thereby increasing their own outward FDI, while net investment position stays the same. In the stage four, companies' ownership advantage has been established resulting into outward FDI exceeding the inward FDI as they seek efficiency and strategic assets abroad. In the last, fifth, stage, highly developed countries have balanced and have high inward and outward FDI (Chen, n.d.). First to third stage are considered for developing countries, while four and five are connected with developed countries.

These theories explain foreign direct investment (FDI) in general, providing a good framework in analysis of both inward and outward FDI.

3.3.1. Inward foreign direct investment and determinants

Inward FDI are the investments made by foreign countries into a domestic country (for example, the EU firms investing in the UK). The UK is one of the top world countries when it comes to attracting investors and for more than 40 years encourages and welcomes inward investments (P. Sauvant et. Al, 2013). The share of UK FDI in the total inward EU FDI was 23% in 2018, falling down from previous year's 30% and 35% in 2016 (Ward, 2020). Showing that the EU referendum has had a significant impact on post-referendum inward FDI. However, Ernst&Young (EY) 2020 report shows different numbers, valuing the UK share of FDI in the EU in 2018 to be 16,6%, with an increase in 2019 to 17,4%. Industries bringing in most of the FDI in 2019 were digital tech (30% share of the EU FDI) and R&D (18,6% share of the EU FDI).

Dellis et.al (2017) mention the following determinants of inward FDI in developed countries, that influence future investor's decisions: market size and potential, close geographical proximity, openness, tax rate, public efficiency. High tax rates are argued to discourage the inward FDI. Public efficiency is also an important determinant of inward FDI, involving tax systems, extent of corruption, easiness to create a company, transparency, contract laws, property rights, etc.

All of the forementioned factors influence potential investor's decision, in terms of developed countries, to decide where they will foreign direct invest. Therefore, the better the determinants, i.e., the more they are adapted to inward FDI, the higher is the possibility of attracting foreign investors.

3.3.2. Outward foreign direct investment and determinants

Just as the UK is one of the most invested in countries in the world, it is also a major investor outside of its borders. Some major companies (like Dyson) have moved their production to more affordable foreign locations, encouraged by the UK's government, has also enable them to increase competitiveness (P. Sauvant et. Al, 2013). It is also mentioned that manufacturing sectors isn't the only one moving its operations to abroad. Large companies

in the service sector are out-sourcing the jobs providing services (for example: technical support) to more affordable locations such as India.

The biggest determinants for companies to FDI abroad is the already mentioned cost effectiveness, enabling companies to decrease their costs. However, other determinants like resource, efficiency and asset seeking are not less important. It can be that the labour abroad is more effective, or there is access to better technologies, availability of particular raw materials or there is a want for competitive advantage, so there is acquiring and/or merging with foreign companies.

While there are many positives to outward FDI, when it comes to moving production abroad or out-sourcing jobs providing services, there can come to a lack of available jobs and opportunities in the domestic countries. Therefore, it should be regulated by governments by how much moving of production or out-sourcing abroad has to be cheaper than domestically before outward foreign direct investing them, in order to protect domestic workers and industries.

3.4. The relationship between trade and foreign direct investment

In order to be able to connect the impact of Brexit on trade and foreign direct investments in the UK, it is important to firstly connect trade and FDI. The relationship between trade and FDI can be divided onto two outcomes, either it is a substitution or complementary relationship.

If trade and FDI are seen as substitutes, an increase in FDI will decrease exports to foreign countries, while decrease of FDI leads to higher export to foreign countries (Pietrzak, 2019). When a company foreign direct invests, instead of exporting its products or services, FDI will substitute trade (in this case exports). In cases where it is cheaper to establish a business entity in the host country, rather than export, companies will opt out for FDI. In that case, FDI will be a substitute for trade, as it is horizontal in nature. This way companies avoid high transportation costs and other trade barriers like tariffs (Pietrzak, 2019). Previously was mentioned Dunning's eclectic paradigm theory supports movement of establishment to

foreign countries, taking into consideration ownership, location and internalisation advantages, consequently seeing trade and FDI as substitutes.

On the other hand, if trade and FDI are seen as complements, both exports and foreign direct investment should move in the same direction. That means that if a company increase its FDI, the exports will also increase and vice versa. Pietrzak (2019) argues that the reason for an increase in complementary relationship between the two, is due to the fact that production is organised in different stages, which are then divided among many suppliers, that often more than not are located all over the world. Vertical FDI is done by firms that need to move their production due to cost minimization to other foreign countries. While here is done foreign direct investment, once the products are finished, they will be exported to other countries to finish processing. This therefore creates a complementary relationship between trade and FDI.

3.5. The importance of trade and foreign direct investment for the United Kingdom's economy

The United Kingdom was one of the most sought-after countries for foreign direct investment, while being a part of the EU. House of Commons (2021) state that in 2020 the UK was the third country in the world by the amount of accumulated FDI and second in the Europe. Therefore, it goes without saying that any drastic changes in FDI can impose significant effects on the UK economy, unlike in other countries where FDI revenue isn't as high. If trade is also taken into consideration, it can either impact positively or negatively the economy, depending if FDI and trade are seen as substitutes or complements. The UK is a relatively small economy that relies on exports and imports, as it needs them for the functioning of its market. Moreover, the UK is a net exporter of services and luxury goods, for which usually capital, inputs and technical knowledge are imported (Dhingra et.al, 2017). FDI and trade can have similar implications for an economy. Both create job opportunities and work places. If FDI and/or trade increase, there is a great possibility that more workforce will be needed, moreover business turnovers will also increase. Now in a scenario where FDI and/or trade not only stagnates but diminishes, not only could the businesses

find itself in danger, so could employees. That would have significant effects on the economy. Besides that, as mentioned in previous chapters, trade can be impacted by changes in the exchange rate. If there is a depreciation of British sterling, both exports and imports can become more expensive, leading to lower revenues and possibly lower trade volumes, leaving as a consequence impact on the economy.

Although trade brings economics gains, Dhingra et.al (2017) explain that it may not be beneficial for everyone. They talk about an assumption that higher gains from trade can lead to an increase in inequality in developed countries. Some economists tried to prove the hypothesis, however there is still debate over to what extent the impact is.

4. RESEARCH OF IMPACT OF BREXIT ON TRADE AND FOREIGN DIRECT INVESTMENT IN THE UNITED KINGDOM

4.1. Subject and objectives of the research

The subject of this research is Brexit, trade and foreign direct investment (FDI). The objective of the research is to analyse the impact of Brexit on trade and foreign direct investment (FDI) in the United Kingdom. Trade will be analysed in terms of total exported and imported goods, while FDI will be analysed, in terms of inward and outward FDI. The impact will be observed by doing econometric analysis in R software. Since the paper is analysing trade and FDI, and since used methodologies and data is different, next two chapters (methodology and results) will be structured by firstly explaining data and results for trade and then for FDI.

4.2. Methodology

To analyse more precisely impact of Brexit on trade, trade will be analysed as total good imports and total good exports. Effect of Brexit will be analysed on the United Kingdom's imports from European Union and exports to the EU. The databases used for the UK trade has been collected from Office for National Statistics (UK's largest independent producer of official statistics) and COMEXT (official trade database for the EU produced by Eurostat). Another variable which will be used as control variable in the analysis is EU total good

exports to the rest of world (RoW) and total good imports from the RoW. The database used to obtain the EU trade is COMEXT. All collected data is monthly data from year 2013 to 2023. Unit of measure for data is billions of pound sterling (GBP). However, data that has been collected from COMEXT was initially in euros, so those values have been transformed to GBP by multiplying with average monthly exchange rates. The average monthly exchange rates between EUR and GBP have been collected from MUFG bank's online page.

The data has been collected from the COMEXT database is recorded at the 8-digit Combined Nomenclature product level (CN8). Since the UK has left the EU, that means that it is no longer a part of the EU's internal trade reporting system (Intrastat) and the trade flows from the EU side are now collected through Extrastat, system used for non-EU member states. Intrastat system creates data from VAT returns in each member state, while Extrastat collects data from customs forms, while applying lower threshold for trade declarations on imports coming from outside the EU. Instrastat applies those on internal EU trade. Data regarding the UK trade flows has not been available in the Intrastat system since February 2020. Therefore, to fill for the missing data, Office for National Statistics database has been used. Trade data here is collected on the same basis as before the exit from the EU, for the EU member states is used Intrastat system and for non-EU member states Extrastat.

Before econometric analysis, each data set will be plotted on a graph and briefly analysed.

Econometric analysis will be done using R software in order to analyse the impact of Brexit on the UK total good imports from the EU and total good export to the EU. For analysis Difference-in-Differences (DiD) model is used, the regressions are estimated using Quasi-Poisson within GLM framework. DiD model suits well for trade data analysis, especially in terms of evaluating the impact of policy changes or significant economic events like Brexit. It can analyse the changes in trade values over time between a treatment group and a control group, while isolating the effect of intervention (in this case Brexit) from other factors. By doing this, observed changes in trade patterns are explained in terms of whether they have been impacted by the intervention or there were some other factors. Trade data depends on many factors, several of which are unobserved and change through time. The DiD model accounts for these unobservable changes by looking at how things have changed over time

within groups. It does so under an assumption that any hidden factors shared by both groups changing similarly over time are taken into consideration hence isolating a policy change's effect alone. Moreover, the model can handle multiple time periods, which in case of this analysis will be post-Brexit referendum and the actual Brexit.

As for the use of Quasi-Poisson regression, it is used because the trade data values have overdispersion, meaning that the variance of the data is greater than the mean. The model can provide robust standard error estimates, which adjust for heteroskedasticity and other potential issues, providing a more reliable testing of hypothesis. Moreover, Quasi-Poisson model withing the GLM framework can consistently estimate diagnostic tools and procedures. The interpretations remain, but standard errors are more accurate and the model overall is made a better fit for the over dispersed trade values.

The first analysis that will be done is impact of Brexit on the UK total good imports, where control variable is the EU total good exports to the RoW. The reason why control group is the EU export to RoW and not for example the UK, is simply because it is considered that Brexit wouldn't have nearly as much of an impact on trade of the EU with the Row, like it would when observing trade of the UK with the RoW.

The UK import model is as follows:

$$Trade\_Value = \beta_0 + \beta_1 \cdot Post\_ref + \beta_2 \cdot uk\_import + \beta_3 \cdot (Post\_ref \cdot uk\_import\ ) + \beta_4 \cdot Brexit + \beta_5 \cdot (Brexit \cdot uk\_import\ ) + \beta_6 \cdot Date\_num + \epsilon$$

$Trade\_Value$ – dependant variable; the UK imports from the EU
$Post\_ref$ – binary indicator variable, 1 if the date is on or after June 2016, otherwise 0
uk_import – binary indicator variable, 1 for the UK import from the EU, otherwise 0
$Post\_ref \cdot uk\_import$ – interaction term, captures the impact of Brexit referendum on the UK imports from the EU
$Brexit$ – binary indicator, 1 for if the date is on or after January 2021, otherwise 0
$Brexit \cdot uk\_import$ – interaction term, capture the impact of Brexit implementation on the UK imports from the EU

$Date\_num$ – continuous variable, represents the number of months since January 2013

ϵ – error term

β_0 – baseline trade value when all other variables are zero

β_x – β coefficients represent different changes, depending on the variable they are next to

The above equation is written as a code in R software and monthly data set from 2013 to 2023 containing the UK total good imports from the EU and the EU total good exports to the RoW is uploaded. After the code in R for impact of Brexit on the UK total good imports from the EU is executed, it will generate the following: p-values, which will determine the statistical relevance of the observation. The p-value shows if the relationships between two variables is significant or not. Significance codes '***', '**', '*' or no code, show significance level of 1%, 5%, 10% or no significance. If the p-values are lower than any of the significance levels, null-hypothesis (H_0) is rejected and the statistical observations are relevant. Next off, if there is impact of Brexit on trade, either post-Brexit referendum or the actual Brexit, the value of impact will be shown as a percentage (%).

The second analysis that will be done is the impact of Brexit on the UK total good exports to the EU, as a dependant variable and control variable will be the EU total good imports from the RoW. Analysis will be done in the same manner, as forementioned analysis of Brexit impact on the UK total good imports.

The UK export model is as follows:

$$Trade\_Value = \beta_0 + \beta_1 \cdot Post\_ref + \beta_2 \cdot uk\_export + \beta_3 \cdot (Post\_ref \times uk\_export) + \beta_4 \cdot Brexit + \beta_5 \cdot (Brexit \times uk\_export) + \beta_6 \cdot Date\_numt + \epsilon$$

This model is the same as previously mentioned one, the only difference is in the labels. In the UK imports formula, it is *uk_import* and in the UK exports one is *uk_export*, there is a change in the dependant variable. The analysis in R is the same, but uploaded data set is different, containing monthly data from 2013 to 2023 for the UK total good exports to the EU and the EU total good imports from the RoW. The code will also generate p-values and percentage (%) impact of Brexit, if there is any.

Moving on, methodology and data used for the analysis of the impact of Brexit on inward and outward foreign direct investment (FDI) of the UK will be explained. Data on the UK inward FDI from the EU and outward FDI to the EU, has been obtained from the Office for National Statistics database. Data is annual, and taken from each industry, rather than the total value of the UK inward FDI from the EU, it is expressed in millions of pound sterling (GBP). This will be the dependant variable in the analysis. Other variables used to help in the assessing of the impact of Brexit are GDP growth rate (expressed as percentage %), unemployment rate and political stability. Data is annual, obtained from the Office for National Statistics database for GDP growth rate and other control variables' data was obtained from the Global Economy database.

Since the data of annual FDI is taken from every UK industry, the data set created is panel data. Panel data is longitude data that can observe multiple dimensions over time. In this case it controls for unobserved heterogeneity that can be accounted by using fixed-effects or random-effects models. Panel data enables analysis of variables changer over time, in this case how FDI evolved pre- and post-Brexit. The combination of cross-sectional and time-series data increases its variability and could lead to more efficient and reliable estimators. Including pre- and post-Brexit dummy variables helps in isolating the effect of Brexit on the FDI. Both fixed- and random-effects model will be used in the analysis, the fixed-effects model controls industry-specific characteristics that do not change over time. On the other hand, the random-effects model assumes no correlation between industry-specific effects and explanatory variables. In order to determine which model is more appropriate, Hausman test will be conducted.

The general model for FDI analysis is as follows:

$$FDI = \beta_0 + \beta_1 \cdot GDP\_growth + \beta_2 \cdot Unemployment\_rate + \beta_3 \cdot Political\_stability + \beta_4 \cdot Pre\_Brexit + \beta_5 \cdot Post\_Brexit + u + \epsilon$$

FDI – inward/outward foreign direct investment
GDP_growth – GDP growth rate
$Unemployment\_rate$

$Political\_stability$

Pre_Brexit – dummy variable for period before Brexit, otherwise 0

$Post\_Brexit$ – dummy variable for period after Brexit, otherwise 0

β_0 – intercept

β_x – coefficient for independent variables

u – specific effect (fixed, random)

ϵ – error term

After uploading the panel data to R software and code execution, it will generate p-values, explaining whether the effects are statistically significant and R-squared, which explains what percentage of the variability in the FDI is explained by the model.
The first analysis done will be on the impact of Brexit on the UK inward FDI from the EU.
Then the analysis of the impact of Brexit on the UK outward FDI to the EU will be done in the same way.

After explaining used data and methodology for the impact of Brexit on the UK trade with the EU and inward and outward FDI of the UK, in the next chapter, results of the previously explained models will be analysed.

4.3. Results

Firstly, results of trade will be analysed. Before the analysis of the DiD models, raw, plotted data regarding trade will be briefly analysed.

The following graph (Figure 1) shows the UK total good imports from the EU. Graph is done using data from both COMEXT and Office for National Statistics. The Brexit referendum was in June 2016. From graphical interpretation, there does not seem to be a significant impact on the UK imports, a bigger drop seems to have happened in January 2019. The official exit of the UK from the EU was in February 2020, however the steep decline in the UK imports from the EU mostly happened due to COVID-19. The UK, even though it officially exited the EU in 2020, still continued to participate in the EU Customs Union and the single market until January 2021. Therefore, then is when in terms of trade Brexit actually happened.

However, on the graph, there doesn't seem to be a real drop in the UK imports from the EU up until July/August 2021 and this drop is steep, indicating that Brexit could have negatively influenced the UK imports.

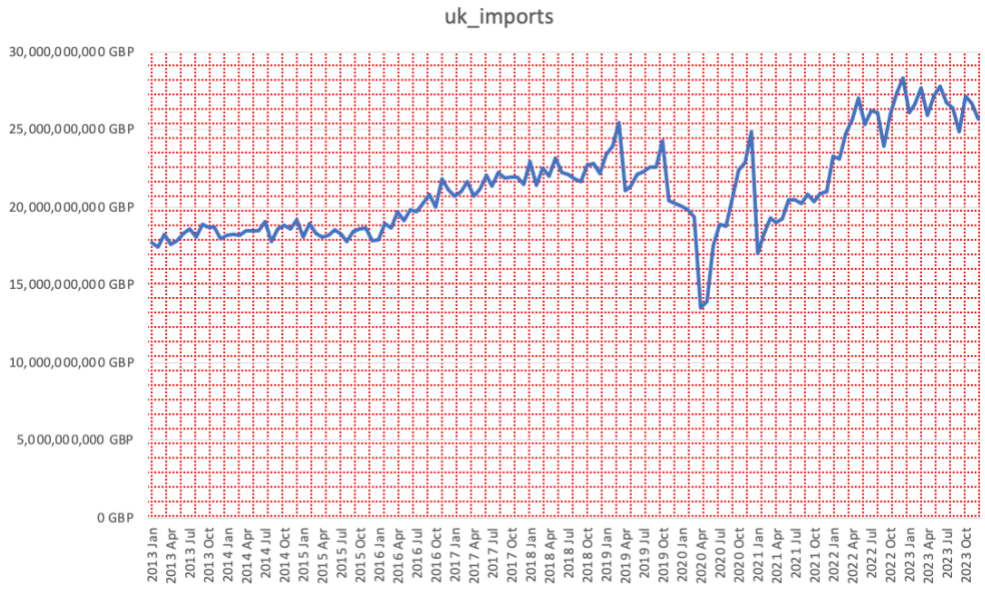

Figure 1 - UK total good imports from the EU; figure produced by Author based on data sourced from COMEXT and Office for National Statistics database

Figure 2 shows the EU total good exports to the RoW, created using data from COMEXT. The value of the EU exports to the RoW does not seem to have dropped after the referendum, it seems it grew. In February/March 2020 there is a sudden drop in the EU exports to the RoW, however, again, this has been mainly caused by COVID-19. In January 2021, there is a decline of the EU exports to the RoW, however this decline started to happen in September, the previous year, so it cannot be influenced by Brexit.

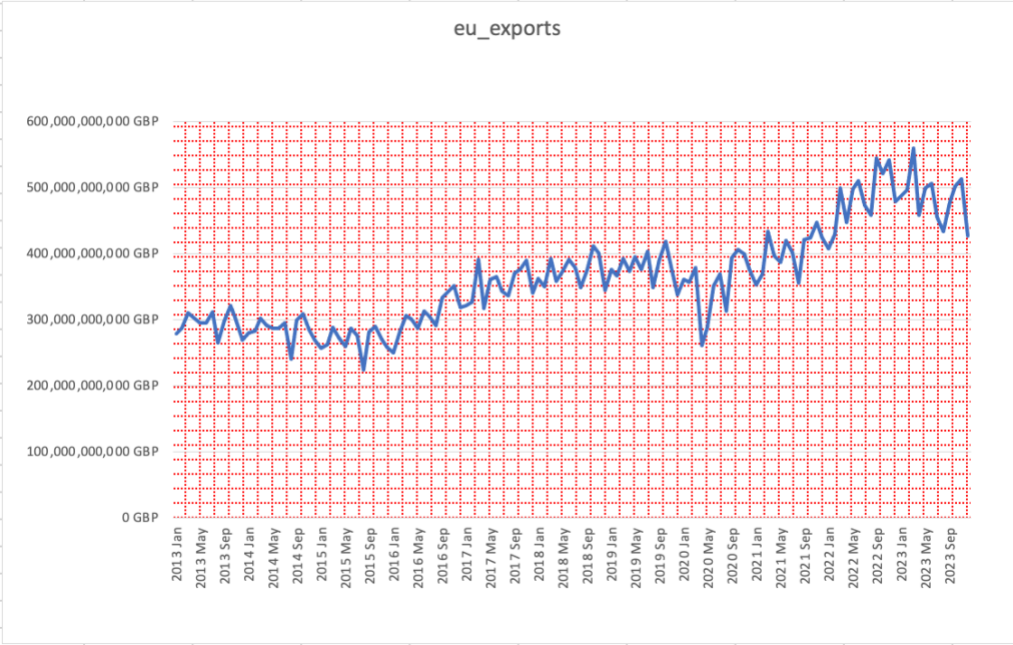

Figure 2 - EU total good exports to the Rest of the World; figure produced by Author based on data sources from COMEXT database

Moving on, Figure 3 shows the UK total good exports to the EU. By looking at the graph, there is a small fall in the UK exports to the EU in June 2016, but by September 2016 the exports rose. In January 2020, official Brexit date, there is a sudden drop in the UK exports, however it may be accounted for COVID-19. However, an even more drastic drop in the UK exports to the EU happens in January 2021 when the UK was no longer a part of the EU single market. By purely graphical analysis, it could be concluded that Brexit impacted the exports.

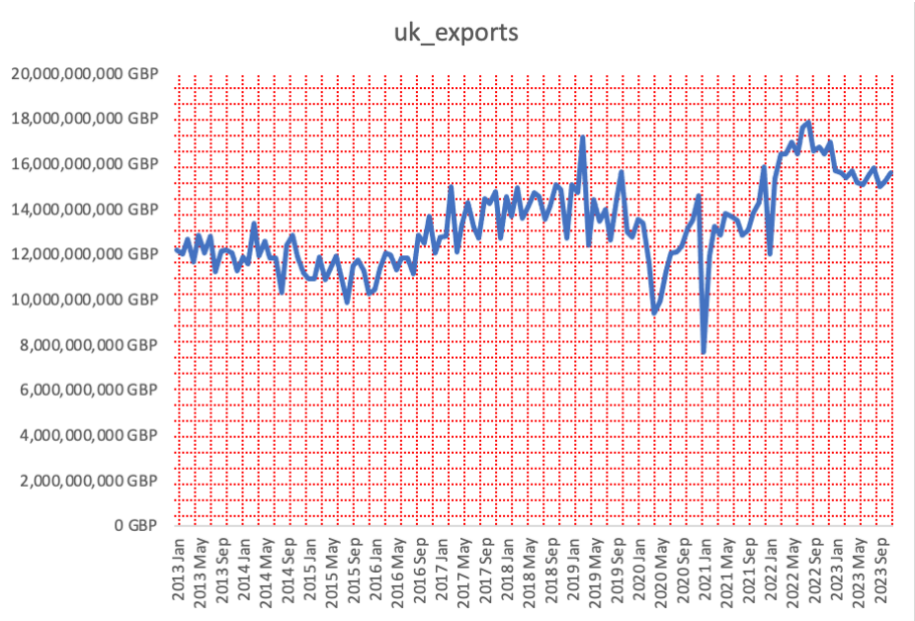

Figure 3 - UK total good exports to the EU; figure produced by Author based on data sourced from COMEXT and Office for National Statistics database

Figure 4 shows the EU imports from the RoW. After the referendum in June 2016, there is a rise in the EU imports. In February 2020 there is a bigger drop in the imports, however it is mostly due to the COVID-19. In January 2021, there seems to be a smaller fall in the EU exports to the RoW, however, since trade data is highly volatile, this drop is nothing out of the ordinary, or a drop that did not happen in previous or future periods.

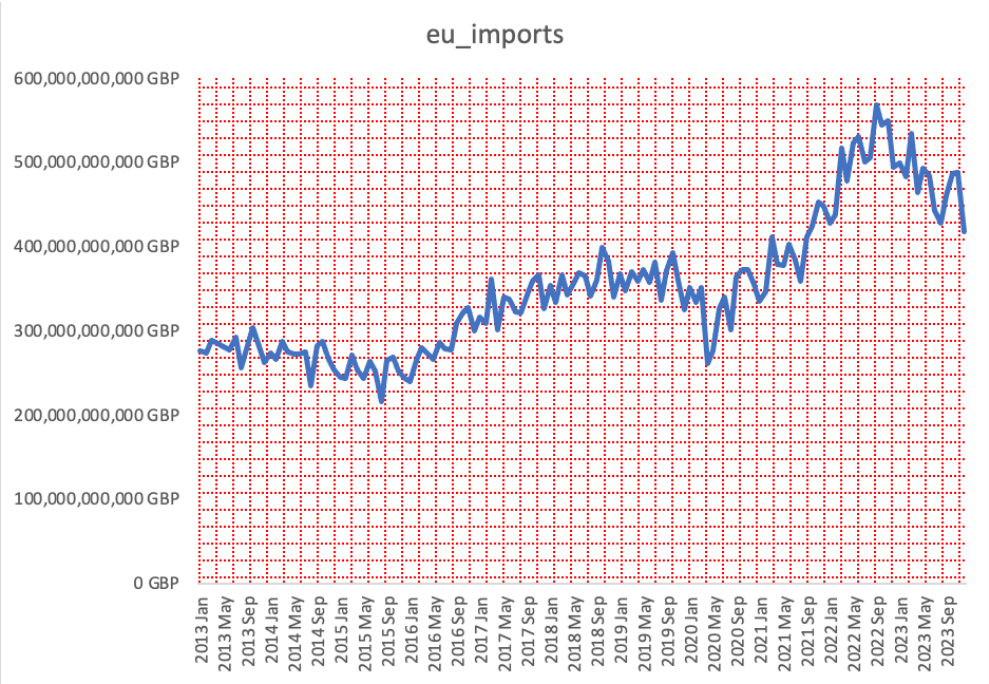

Figure 4 - EU total trade imports from the Rest of the World; figure produced by Author based on data sourced from COMEXT database

After plotting the data, even from the graphical analysis there are indications of impact of Brexit on the UK imports and exports, however true statistical results will be now examined.

The DiD model analysis of the impact of Brexit on the UK total good imports from the EU has yielded the following results.

Figure 5 - DiD analysis on the impact of Brexit on the UK total good imports from the EU; uk_import (dependant variable), eu_export (control variable); estimate, robust standard error, p-value; source: Author's calculations

```
                   Estimate  Std. Error   z value  Pr(>|z|)
(Intercept)        26.32487688  0.01832799 1436.3208 < 2.2e-16 ***
Post_ref            0.13072370  0.03169193    4.1248 3.710e-05 ***
uk_import          -2.73414380  0.01407317 -194.2806 < 2.2e-16 ***
Brexit              0.13700477  0.03922586    3.4927 0.0004781 ***
Date_num            0.00225611  0.00061991    3.6394 0.0002733 ***
Post_ref:uk_import -0.09304289  0.02371520   -3.9233 8.733e-05 ***
uk_import:Brexit   -0.12145735  0.03217095   -3.7754 0.0001598 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

The Post_ref variable shows impact of Brexit after the referendum in June 2016, it is highly significant at significance level of 1%, but it shows an increase in the UK imports from the EU. The Brexit variable shows a decrease in the UK imports after January 2021, also at level of 1%

significance. Post_ref:uk_import shows the interaction between post-referendum period and the UK imports from the EU. Being highly statistically relevant, it shows a decrease in the value of UK imports from the EU. The interaction term uk_import:Brexit, shows that the UK total good import from the EU has fallen down by 8.88 % after Brexit. P-value for the interaction is significant at level of 1%, providing high significance of the impact.

Moving on to the results of the impact of Brexit on the UK total god exports to the EU, with EU total good imports from RoW as control variable.

Figure 6 - DiD analysis on the impact of Brexit on the UK total good exports to the EU; uk_export (dependant variable), eu_import (control variable); estimate, robust standard error, p-value; source: Author's calculations

	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	26.609341	0.319300	83.3365	<2e-16	***
Post_ref	-0.418634	0.608762	-0.6877	0.4917	
uk_export	-3.712487	0.250676	-14.8099	<2e-16	***
Brexit	-0.331979	0.521885	-0.6361	0.5247	
Date_num	0.013624	0.010228	1.3320	0.1829	
Post_ref:uk_export	-0.111588	0.334148	-0.3339	0.7384	
uk_export:Brexit	-0.164801	0.345897	-0.4764	0.6338	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

The Post_ref (post-referendum period) does not seem to be statistically significant, indicating no impact of Brexit. The Brexit variable, as well as Post_ref:uk_export show no significant impact of Brexit on the UK total good exports to the EU. While conducting a graphical analysis, it seemed that Brexit would have had a significant impact on the UK exports towards the EU, however after regression, it is proven that there is no statistically significant impact of Brexit on the UK exports.

After observing the impact of Brexit on trade, the analysis of Brexit impact will continue for inward and outward FDI. Firstly, total inward and outward FDI will be graphically analysed and then panel model results will be shown.

The below graph shown the total UK inward FDI from the EU, shown annually from 20018 to 2021. From 2015 to 2015 UK inward FDI from the EU rose drastically, however after the referendum in 2016, there seems to be a fall in inward FDI up until 2018. The official exit

happened in 2020, where there is a fall in inward FDI that seems to continue in 2021. The UK officially stopped being part of the EU single market at the beginning of 2021, however data after the end of 2021 is not available, therefore we cannot say certainly if the FDI continued to fall or it built back up.

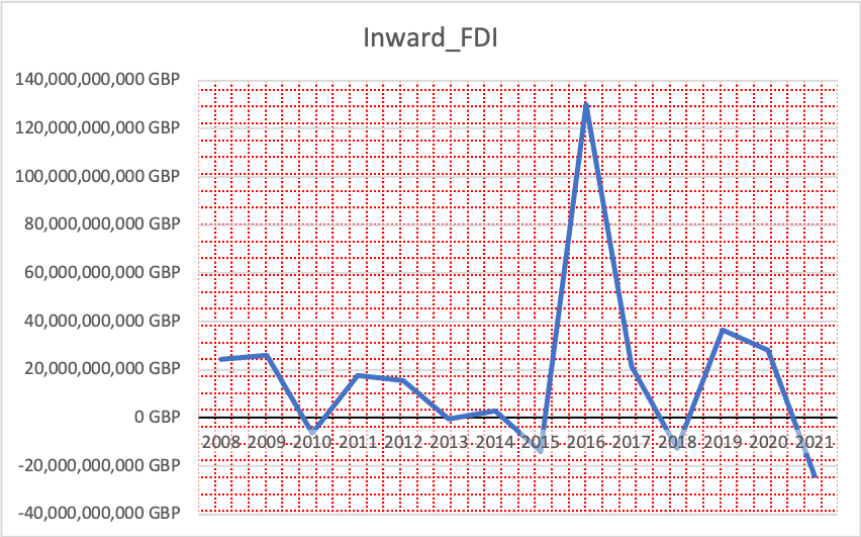

Figure 7 - total UK inward foreign direct investment (FDI) from the EU; figure produced by Author based on data sourced from National Statistics database

Figure 8 represents the UK total outward FDI towards the EU. There seems to be rise in the UK outward FDI to the EU after the referendum in 2016, it peaked in 2017 when it continues to fall, up until 2020 where is stagnates with a slightly positive rise. According to this graphical representation, it does not seem that there was an impact of Brexit on outward FDI. However, data after 2021 is not available, so it can only be observed until the end of 2021.

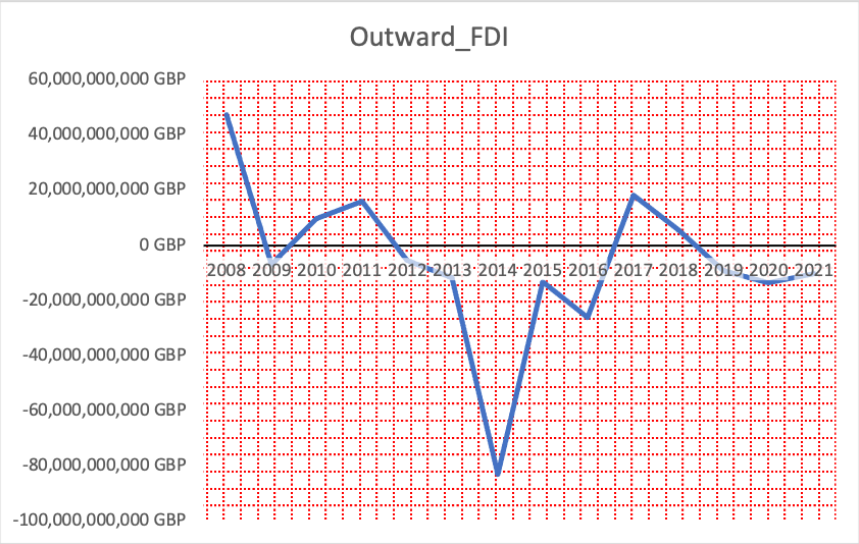

Figure 8 - total UK outward foreign direct investment (FDI) towards the EU; figure produced by Author based on data sourced from National Statistics database

After the graphical analysis, results done using panel model will be presented. First to be observed is the UK inward FDI from the EU. Both random and fixed effects model were used, however, after conducting Hausman test, it has been concluded that there is evidence that the individual effects are correlated with the regressors, meaning the fixed effects model is more appropriate for the data set. Therefore, results of fixed effects model will be analysed.

Figure 9 - impact of Brexit on the UK inward FDI from the EU; estimate, regular standard error, p-value; source: Author's calculations

```
Coefficients:
                   Estimate Std. Error t-value Pr(>|t|)
GDP_growth          -98.503     53.563 -1.8390  0.06743 .
Unemployment_rate  -107.784    160.794 -0.6703  0.50344
Political_stability -234.786  1800.901 -0.1304  0.89641
Pre_Brexit          -849.256    980.429 -0.8662  0.38743
Post_Brexit        -1506.880    971.517 -1.5511  0.12250
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Figure 10- impact of Brexit on the UK inward FDI from the EU; estimate, robust standard error, p-value; source: Author's calculations

```
                     Estimate Std. Error t value Pr(>|t|)
GDP_growth            -98.503     84.407 -1.1670 0.244629
Unemployment_rate    -107.784    148.001 -0.7283 0.467320
Political_stability  -234.786   2277.946 -0.1031 0.918014
Pre_Brexit           -849.256    650.839 -1.3049 0.193469
Post_Brexit         -1506.880    565.569 -2.6644 0.008356 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

The figure 9 shows results using regular standard errors, as there is no evidence of heteroscedasticity or serial correlation in the fixed effects model. GDP_growth indicator shows that a 1% increase in GDP growth is related to decrease in inward FDI by 98 503 000 million GBP. It is marginally significant at level of 10%. R-squared is just 3,15%, indicating that a very small portion of the variability of the inward FDI is explained. There seems to be no impact of Brexit on the inward FDI.

The figure 9, shows results using robust standard errors. The robust errors were still used even though there is no heteroscedasticity and serial correlation, but they are a good precautionary measure to ensure robustness of the inference. Post_Brexit coefficient indicates that Brexit has led to a decrease of the UK inward FDI from the EU for 1 506 880 000 GBP. P-value shows significance of level of 5%, indicating a good statistical relevance. Nevertheless, factors chosen to be control variables (GDP growth, unemployment rate and political stability) show no significant impact on the FDI. Indicating that other factors not included in the model may explain the changes in inward FDI.

By comparing both error results, it can be concluded that the analysis findings are robust to potential deviations from the classical assumptions. It can potentially be concluded that Brexit did impact the UK inward FDI from the EU, however since the results are not as reliable, it cannot be said that the extent of effect is proven.

Moving on to the analysis of results of the impact of Brexit on the UK outward FDI to the EU. Both regular standard errors and robust standard errors results show no indication of impact of Brexit on the outward FDI.

Figure 11 - impact of Brexit on the UK outward FDI to the EU; estimate, regular standard error, p-value; source: Author's calculations

```
Coefficients:
                    Estimate Std. Error z-value Pr(>|z|)
(Intercept)         -753.042   2665.340 -0.2825   0.7775
GDP_growth           -51.502    107.880 -0.4774   0.6331
Unemployment_rate   -108.088    308.815 -0.3500   0.7263
Political_stability  362.258   3450.808  0.1050   0.9164
Pre_Brexit          1130.177   2169.077  0.5210   0.6023
Post_Brexit           92.940   2191.606  0.0424   0.9662
```

Figure 12 - impact of Brexit on the UK outward FDI to the EU; estimate, robust standard error, p-value; source: Author's calculations

```
                    Estimate Std. Error t value Pr(>|t|)
(Intercept)         -753.042   1404.490 -0.5362   0.5924
GDP_growth           -51.502     94.787 -0.5433   0.5875
Unemployment_rate   -108.088    204.966 -0.5273   0.5985
Political_stability  362.258   2295.049  0.1578   0.8747
Pre_Brexit          1130.177   1669.346  0.6770   0.4991
Post_Brexit           92.940   1476.374  0.0630   0.9499
```

P-values in both error results are statistically insignificant, providing no evidence of any influence of Brexit on the outward FDI. This follows the graphical representation of total outward FDI, which does not show any significant movement post-Brexit.

4.4. Discussion and contributions to practice

The research highlights the nuanced impact of Brexit on the United Kingdom trade and foreign direct investment (FDI). It is found that Brexit has led to a 8,88% decrease in the UK total good imports from the EU. There is an indication of negative impact of Brexit on the UK inward FDI from the EU, however the precise extent of it cannot be concluded based on the obtained results. On the other hand, the impact of Brexit on the UK total good export and outward FDI to the EU is shown as statistically insignificant. Leading to think that the UK is still exporting and investing in the EU, as when it was a member state, but importing less and receiving lower inward FDI from the EU, than it has as a member state. The paper contributes to practice by providing empirical evidence that can guide both general public and policymakers in understanding the economic ramifications of a political decisions such

as Brexit. Both political stability and clear international agreements are crucial to maintain business' confidence.

4.5. Limitations

The dependence on annual up to 2021 FDI data limits the research of the Impact of Brexit, as only taking one year of full Brexit effects into consideration is not enough to truly capture the Brexit effects and conclude if there indeed are any and to which extent. Moreover, data regarding the FDI is only available annually, a higher frequency would provide an even better model to determine the Brexit impact. The research also only focuses on the UK trade and FDI with the EU, whereas the implications of Brexit surely had an impact on the UK's trade and FDI with other non-EU countries.

5. CONCLUSION

This undergraduate thesis aimed to analyse the impact of Brexit on the UK total good imports from and exports to the EU, as well as the UK inward and outward foreign direct investment (FDI) with the EU. It aimed to do so by suing econometrical analysis and Difference-in-Differences and Panel model, providing empirical evidence of Brexit effects.

The findings show that the Brexit has led to an 8,88% decrease in the UK total good imports from the EU, showing how the loss of single market benefits and trade barriers introduction have made imports from the EU less attractive. However, there does not seem to be an impact on the UK total good exports to the EU, proving that the UK has been able to maintain its export levels to the EU.

As for the inward FDI, the results show a potentially negative impact of Brexit on the UK inward FDI from the EU, however since the R-squared value is extremely low and since the data is limited to a one-year post-Brexit, the precise extent of the effect and whether it truly stands cannot be concluded. On the other hand, there does not seem to be an impact on the UK outward FDI to the EU, showing that the UK FDI to the EU remained stable post-Brexit. Because the FDI data is limited to one year after Brexit, there is a need for further research when more data will be available to capture the Brexit effects more accurately.

In conclusion, the Brexit has had a noticeable negative impact on the YK total good imports from the EU and potentially negative impact on the inward FDI. The effects on total good exports to the EU, as well as outward FDI caused by Brexit have not been proven. The findings of the paper prove theoretically explained complexity of both trade and FDI, showing that they are sensible to any country-related economic changes. The real statistically proven extent and impact of Brexit won't be able to be determined until more years to come, when more data can be collected and better future trade and FDI patterns observed.

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