

**THE IMPACT OF BREXIT TOWARDS AGRI-FOOD SECTOR IN
RELATION WITH SUPPLY CHAIN MANAGEMENT IN THE
EUROPEAN UNION**

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Abstract

The withdrawal of United Kingdom from European Union through Brexit referendum is projected as the cause in disruption of trade flow within both sides. It is estimated that the land border between United Kingdom and Republic of Ireland as one of the main gateway will face huge impact from the Brexit. Potential agreement is still arranged to maintain the least impactful outcomes. This research aims to discover the possible impact from the potential agreement in the agri-food industry based on the perspective of supply chain management, such as tariff, custom procedures, and transit duration. The author uses literature review as a method to collect, process, and elaborate data with the ideas of this research topic. Indeed, the finding shows a negative impact on any potential agreement, even though the level of impact depends on which potential agreement will be actualized in the future. The findings from this research will hopefully raise awareness of Brexit and its implications toward European Union members, and provide knowledge to students, future researchers, and companies which operating in the agri-food industry.

Keywords: brexit, brexit supply chain, tariff, custom and procedure, transit durations, agri-food sector, Ireland border, backstop.

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I. INTRODUCTION

1.1. Problem Description

On 23 June 2016, the United Kingdom settled the question that had rumbled under the surface of British politics for a generation: should the country remain within the European Union or end its 40-year membership and go it alone? (The Week, 2018). The 52% voters giving their answer, creating a new history on how the United Kingdom leave European Union without any vision on what would happen next. Briefly, the European Union is an economic and political partnership. There are currently 28 member states including the United Kingdom, and this partnership originally began as a trade group of six nations in the 1950s. The United Kingdom first applied to join what was then the European Economic Community in 1961 and finally became a member in 1973 (Fruen, Mullin, & Petkar, 2018). Along with the development of the issue, there are terms called soft and hard Brexit to pointing out on how the relationship of the United Kingdom will be to the European Union after the separation. According to Sims (2016), hard Brexit arrangement would likely see the United Kingdom give up full access to the single market and full access of the customs union along with the European Union. The arrangement would be giving Britain full control over its borders on making new trade deals and applying laws within its own territory. In contrast, a soft Brexit approach would leave the United Kingdom's relationship with the European Union as close as possible to the existing arrangements and is preferred by many Remainers (UK citizen who votes for the UK remains in EU) (Sims, 2016). Goods and services would be traded with the remaining European Union states on a tariff-free basis and financial firms would keep their rights to sell services and operate branches in the European Union. Britain would remain within the European Union's customs union, meaning that exports would not be subject to border checks (Sims, 2016).

Even though there is a term of soft or hard Brexit, does not mean that the agreement would be easily arranged. In practice, Brexit might cause a problem with the country that has a goods trade relationship with the United Kingdom, in every element of the industry. As stated by Sampson (2017), leaving European Union will mean withdrawing from the EU's supranational political institutions and will lead to the erection of new barriers to the exchange of goods, services, and people with the remaining 27 member states. With the withdrawal of United Kingdom, it might have a possibility that the trade which previously under European Union provisions will change

completely into a new trade with new regulations, and in general can lead to losses for both the United Kingdom and partner countries in trading. As the agreement on the future relationship between the United Kingdom and the European Union is unknown, the existing studies have assessed the impact under different scenarios that cover a spectrum of possible outcomes (Lawless & Morgenroth, 2016). Previous research has discussed about what impacts on Brexit will give to each country, with various methods and models applied to the trade agreement. Ebell, Hurst, & Warren (2016) using their National Institute Global Econometric Model, focusing on the reductions in the trade with European Union member countries and a modest increase in tariffs, resulting in the combination of higher import prices and lower export prices leads to a persistent deterioration in the terms of trade. The loss in market access to the European Union leads the United Kingdom to both trades less and to benefit less from the remaining trade. Other research from Lawless & Morgenroth (2016) on Product and Sector-Level Impact of a Hard Brexit across the EU, finds out that trade in some specific sectors, such as food and textiles would be close to wiped out while others would be almost unaffected. The severity of the impact is therefore driven critically by the product structure of current trade flows between the United Kingdom and each individual European Union member. Hence, the impact of Brexit may depend on what industry sector are operates.

One of the country that will have a direct impact on the withdrawal of Brexit is Republic of Ireland. It is because Republic of Ireland share the land border with the part of United Kingdom, which is Northern Ireland. Thus, the withdrawal of United Kingdom from European Union will certainly affect the border between both of the country. From many kinds of goods sent between these border, one of the product is derives from agri-food sector. In 2016, around 37 percent of Irish agri-food and drink exports went to the United Kingdom market, compared with 32 percent to the rest of the European Union and 31 percent to international markets (Matthews, 2017). If the United Kingdom were to vote to leave the European Union, there would be obvious implications for the United Kingdom farm and food industries, depending on the agricultural policy that would be put in place in the United Kingdom and the trade regime that might be agreed with the European Union post-Brexit (Matthews, 2016). Uncertainty remains around the United Kingdom's status as a trading partner in the future and the report outlines several possible scenarios for the food and drink industry post Brexit. These include the possibility that there will be additional customs processes and checks adding time at borders, which in turn impacts costs and driver driving time

limits (Fox, 2018). The impact of this uncertain trade can disrupt the export and import activities to and from Ireland. Therefore, to avoid the negative impact, United Kingdom and European Union creates a backstop arrangement, intended to apply temporarily as an agreement for Northern Ireland to remain within the European Union regulatory and customs arrangements to prevent emergence of a hard border (Bush, 2018). In general, the products of Agri-food have a low level of resilience products. By this means, the existence of new agreements contained in Brexit can hamper the supply chain process. The Food and Drink Supply Chain Logistics, Strategies for Success report released by Bord Bia finds that increased lead times, especially when related to short shelf life products, in conjunction with a complex and intense supply chain, is a key issue for the industry (Donnelly, 2018).

An exit from the European Union by Britain would do serious damage to Irish beef farmers, the Larry Goodman-owned beef processor ABP has warned. Goodman's business is one of Ireland's largest private employers. It has 2,500 staff in the Republic and 8,000 overall, and works with thousands of Irish beef suppliers (McCabe, 2015). Under the least favorable outcome of a hard Brexit in the Irish food sector, World Trade Organization rules would see tariffs of 50 percent or more imposed on dairy produce and meat exported to the United Kingdom (Irish Times, 2018). Lawless & Morgenroth (2016) also found in his research that duties on meat products tend to be higher than other product category based on the estimation of MFN duty rate through different sectors in the trade with the European Union. This leaves the sector particularly vulnerable to a WTO-style tariff environment. Hence, this research will aim to find out on what extent the implication of Brexit for the agri-food sector trade in relation with supply chain management between the United Kingdom and the European Union. Moreover, because of the high impact of tariff incurred in meat industry sector, and Ireland as the one of biggest meat exporter to the United Kingdom, along with the ABP group as one of the biggest meat processor in Ireland, this research also aims to analyze the result on how will the supply chain management in meat product of ABP Food Group be affected by the Brexit.

1.2. Research Question

This research question will be divided into two parts, which are main question and sub questions. Both of these part will be an instrument as an objective of this research:

1.2.1. Main Question:

What is the implication of Brexit toward the agri-food sector in relation with supply chain management in European Union?

1.2.2. Sub Questions:

1. What is the impact of Brexit toward the tariff in agri-food sector?
2. What is the impact of Brexit toward the transit duration in agri-food sector?
3. What is the impact of Brexit toward the custom procedures in agri-food sector?

1.3. Research Methodology

1.3.1. Literature Review Methodology

This research using literature review as a methodology to collect the data. This method applied to this research because it provides an information as a foundation for the author to combine the ideas with the findings on previous research. Moreover, literature review helps the author to complement the research gap from previous research that has been achieved. The search for related topics cover from the following media:

- Articles from journals (Scientific and Professional journals)
- Theses and dissertations
- Newspaper and magazine articles (online articles)
- Other types of information: websites

1.3.2. Article Search Method

The following journal provided most of the articles that are included in this research:

- Economic Modelling
- Agricultural Economics Society and European Association of Agricultural Economists
- National Institute of Economic and Social Research
- The Economic and Social Research Institute
- Journal of Economic Perspectives

- The Economic and Social Review

1.3.3. Identification of Key Words

The author uses the following keywords in order to achieve the relevant articles: *Brexit, soft brexit, hard brexit, brexit supply chain, brexit tariff, custom and procedure, transit durations, agri-food sector, Ireland border, backstop.*

1.3.4. Selection of Search Engines

The following search engines have been used to provide the necessary relevant articles:

- Google Scholar
- Research Gate
- Science Direct
- ProQuest
- Wiley Online Library
- EconStor

1.3.5. Selection and Number of Articles

The author classify the articles based on the title and abstract. The search then expanded by applying back and forward citations. The selection continues with hundreds of articles found on the search engine, and prioritize the topics about Brexit on agri-food industry. Further filtering is based on the supply chain management scope to reach the related article with the main idea.

1.4. Research Objective

This research aims to measure how much affect that Brexit gave to agri-food industry, especially on the supply chain management of the meat sector. A lot of discussion has been made about Brexit, but only reach the general impact of each industry. In this research, to author wanted to go deeper with agri-food industry, one of the crucial industry which is directly related to daily needs. The scope will be narrowed down to the supply chain management topic, which are: tariff, transit duration, and custom procedures. The author believe that agri-food industry would be one of the industry that greatly affected, because of how perishable a goods in agri-food sector are. Hence, the author will analyze to what extend does the variable are affected in agri-food sector, and perhaps the author could also provide an insight for the reader on how Brexit affect this industry. The result would be helpful for people who run on this industry. Moreover, the findings

of this research can be used for other researcher to complement their information about the effect of Brexit on agri-food industry as well as providing a literature for any reader who are interested in this topic.

1.5. Thesis Structure

This research uses systematic writing system to conduct the research, which include the following chapters:

I. Introduction

This chapter contains things and issue that will be discussed in the thesis as follows: background, objectives, research questions and strategy to answer the main question; describes the specification of the research process, literature review methodology, article search and identification of keywords.

II. Theoretical Framework

This chapter provide the theoretical basis of this research, the foundation of the theory, which will create the formulation of hypotheses and basic research discussion.

III. Conclusion

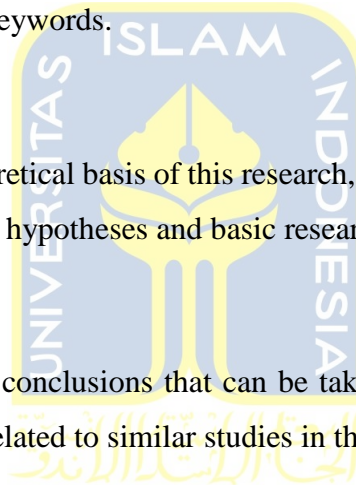
This chapter incorporate the conclusions that can be taken based on the results of the data processing and suggestions related to similar studies in the future.

IV. Policy and Limitation

This chapter presents recommendation and shows the limitation of the research.

V. References

This chapter contains the sources of the literature review from another researcher.



II. THEORETICAL FRAMEWORK

2.1. Introduction

Almost three years after 52% of United Kingdom voters opted to leave the European Union, lawmaker and the public are still struggling to decide what they want of their future ties to the bloc to look like (Nugent, 2019). Interpretations of the referendum result will be critical to the most central policy debate it generated: whether Brexit will or should be a soft or hard (Menon & Fowler, 2016). United Kingdom agri-food, food and drink trade is deeply embedded in European Markets (Feng et al., 2017). Not to mention that Ireland is the single most important source for the United Kingdom's agri-food imports (Donnellan & Hanrahan, 2016). The negotiation between both the United Kingdom and the remaining European Union member also have deadlocked over one topic: the backstop. Both British and Irish government have committed to avoid 'physical infrastructure' on the Irish border, and the aim to do so is through negotiating a free trade agreement with the European Union (Bush, 2018). If the United Kingdom could negotiate a free trade agreement with the European Union, it would avoid the reintroduction of tariffs on agri-food trade. Nonetheless, if the United Kingdom were to withdraw from the single market, additional trade cost, greater delay at cross-channel ports, and higher cost of production would be incurred (Matthew, 2016).

2.2. History & Current State

Far before the United Kingdom decided to go out from the European Union, there is a lot of history on the relationship between the United Kingdom and the European Union. It is all started in 1957, when France, West Germany, Belgium, Italy, Luxembourg, and Netherlands signed the Treaty of Rome, which established the European Economic Community (EEC), the predecessor of today's European Union (Pruitt, 2017). United Kingdom was applied to join EEC since 1961, but then rejected by President de Gaulle of France because he conceives that the nature, structure, and economic context of England is different profoundly from the other States of EEC (Calik, 2019). After de Gaulle resigned in 1969, British found a way into EEC (The Sun, 2019). The first enlargement took place in 1973, when Denmark, Ireland, and the United Kingdom have signed the accession to the European Communities (Vătăman, 2010). However, The Labour Party's general election manifesto February 1974 committed labour to provide a referendum on whether Britain should stay in the Common Market on renegotiated terms, or leave the EEC. The referendum was

held on 5 June 1975 with a turnout of 64%, 67% voted in favour of staying in the EEC and 33% voted against (Miller, 2015). The United Kingdom was staying in the European Union until the rise of conflict that leads to the second membership referendum.

The first trigger of the United Kingdom leaving European Union was the financial crisis faced by the United Kingdom in 2008, coupled with the euro currency crisis that struck in 2010—and the harsh austerity measures imposed to stabilize the currency afterward—obscured the appeal of European Union membership (Frum, 2019). The second reason is the rise of nationalism across the world. Many who oppose the European Union believe the institutions no longer serve a purpose. Not only that, the organizations take control away from individual nations. Mistrust and fear of losing control made Brexit a reasonable solution to them (Mauldin, 2016). The energy behind the Brexit campaign set up by Referendum Party and United Kingdom Independence Party, which they argued that sharing political power with the European Union was an unwanted constraint on Britain's sovereignty. A particular bone of contention was the United Kingdom's commitments to allow free movement of labor within the European Union and to accept the jurisdiction of the European Court of Justice (Sampson, 2017).

As a result of the trigger that has been arising, the Conservative government, led by Prime Minister David Cameron, is committed to holding an in-out referendum. This will be preceded by a referendum campaign and a renegotiation of the terms of European Union membership (Irwin, 2015). The second European Union membership referendum, which was held on 23 June 2016, decide whether the United Kingdom should leave or remain in the European Union after the last referendum 41 years ago. The result was coming with 72% of turnout, which 52% voted to Leave the European Union, while 48% voted to Remain stay in European Union (Wheeler, Seddon, & Morris, 2019). The countdown to Brexit starts when the United Kingdom triggered Article 50 of the Lisbon Treaty, which is targeted for March 2017. That signals the beginning of the two years of negotiations that will decide the United Kingdom's new relationship with the European Union (Marshall & Duvall, 2017). The negotiators of both European Union and the United Kingdom has reached a draft withdrawal agreement on November 14, 2018, outlined a draft political declaration on the future of the United Kingdom and European Union relationship when Brexit transition period ends (Latorre et al., 2019). Unfortunately, the withdrawal agreement has failed three times to gain parliamentary approval, after extended the departure deadline twice and lead to the future

of Brexit remains as uncertain as ever (Sloat, 2019). The United Kingdom had been due to leave the European Union on 29 March 2019, but Theresa May asked for an extension and the date was pushed back to 31 October 2019. However, the United Kingdom could leave before then if Parliament agrees with the upcoming withdrawal agreement (BBC, 2019).

2.3. Brexit – Relationship with Rules of the European Union Soft/Hard/Backstop

The future rules on trade will rely upon what sort of agreement that the United Kingdom comes to after they leave the European Union. The potential results of Brexit have been portrayed on the range of soft and hard Brexit up until now. A soft Brexit is taken to refer to one that keeps Britain continue the membership of Single Market and closely aligned with the European Union. For the non-European Union states, it can be obtained only through the European Economic Area (EEA) or European Free Trade Association (EFTA) which wish to participate (Menon & Fowler, 2016). The objective is to minimize the disruption to trade, to supply chains and to business in general that would be created by diverging from the EU's regulations and standards, thereby reducing the cost of Brexit (Economist, 2018). As a result, goods are seen being traded with the remaining European Union states on a tariff-free basis, exports would not be subject to border checks, as it would keep access to the European single market and create the United Kingdom's relationship with European Union as close as possible to the existing arrangements (Sims, 2016).

Hard Brexit option is understood to be a withdrawal in which the United Kingdom would give up participation in the European single market and its legal rules (Smith, 2016). A hard refers to a 'complete' Brexit and a trading deal between the European Union and the United Kingdom that does not allow for the free movement of any goods, services, capital, and/or people (Dhawan, 2017). Since there is no preferential relationship with Single Market, the United Kingdom may rely only on the World Trade Organization rules, which means that it is possible of the imposition of tariffs on at least some trade goods between the United Kingdom and the European Union (Menon & Fowler, 2016). Nonetheless, the United Kingdom still pursues the new trade agreement with other countries bilaterally and in wider groupings. This allows the United Kingdom to independently negotiate international trade agreements either with individual countries or other customs unions after the withdrawal date (Di Lieto, 2019)

At the moment, goods and people flow freely between land border in Republic of Ireland and Northern Ireland. The United Kingdom and European Union wants to secure this border from any

impact of Brexit, under a provision known as the backstop. The backstop would keep Britain, and particularly Northern Ireland, tied to many European Union rules, to avoid building physical barriers on the border (Mueller, 2019). The backstop is a position of last resort, to maintain an open border on the island of Ireland in the event that the United Kingdom leaves the European Union without securing an all-encompassing deal. An agreement on the backstop is important because the European Union will not agree to a transitional period and substantive trade talks until it is in place. Ultimately, if the backstop deal does not approve, then there is no withdrawal agreement and no transition period—which means a hard, or even a no-deal Brexit at all (Campbell, 2019).

2.4. Current State of the Agri-Food Industry Within The EU

The impact of Brexit will clearly have implications on trade flows for agricultural commodities between the United Kingdom, the European Union and the rest of the world, depending on the type of trade policy implemented after Brexit. The changes in trade flows will have important consequences for commodity prices and production in turn of future agricultural policies (Feng et al., 2017). While tariffs are generally low across industry in general, there are much higher with respect to agricultural and food trade, given the importance of standards, labeling and other regulatory requirements that impact on the food sector. The incidence of non-tariff barriers is much higher in regard to trade in food and agricultural products compared with other sectors (McCorriston, 2017).

The United Kingdom is the net contributor to the European Union budget. From 18.2 billion, 3.2 billion is a contribution to the Common Agricultural Policy. This gap of the budget will require the expenditure reductions or larger contributions by remaining member states following Brexit (Velthuisen & Hoijtink, 2017). Since the United Kingdom is a net contributor to European Union budget, a net importer of agri-food products from the European Union, its withdrawal would have broadly negative effects for the European Union farm and food sector (Matthews, 2016). Moreover, the most United Kingdom trade in goods is with the European Union, around 47% of United Kingdom exports go to the European Union and the European Union is the source for over 50% of United Kingdom imports. The food sector has a great reliance on the European Union, with around 70% of food products destined for the European Union (McCorriston, 2017). The majority of United Kingdom's export for its Agri-food products to the

European Union also shown in Food and Drink Association from PwC analysis, which 52% of the United Kingdom's total Agri-food exports goes to only four countries: Ireland, France, the Netherlands, and Germany (Velthuisen & Hoijtink, 2017).

According to Lang and Schoen (2016), the food system is now so finely attuned to 'just-in-time' systems that any disruptions could be serious. Moreover, Brexit is affecting the entire food system, not just part or one Regional Distribution Center or one company or one food line. Increased time may be required to get products to market due to potential additional administration requirement and inspections. The significant adverse implications from agri-food products may arise should additional time delays be incurred along the supply chain and logistics process (Kirby, 2017).

2.5. Soft Brexit & the Agri-food Industry

An optimistic soft Brexit scenario, one refers as the United Kingdom continues to belong to the European Union Single Market and tariffs remain zero, while non-tariff barriers to trade (NTBs) increase by 2.77% (Vandenbussche, Connell, & Simons 2019). If the United Kingdom withdraws from the European Union but stays in the Custom Union, there would be common external tariff to be paid for agricultural products. European Union as a regulatory union can determine whether a product passed the internal inspection criteria, and once the products are approved, it can be freely circulating without the need to pass an additional custom check to subsequent European Union member. While implementing the European Economic Area agreement, there are some limited provisions which applied, which are related to veterinary and phytosanitary matters which disturb the supply chain process (Cardwell, 2017). Hubbard et al., (2018) stated that even soft Brexit would create a disruption to trade flow, although the market impacts are relatively small. It is mainly due to the introduction of an assumed increase in United Kingdom trade facilitation cost. Trade protection that could apply on agri-food goods in the absence of a free trade agreement is particularly high (64% to be compared with 26% before Brexit), taking into accounts both the tariffs and non-tariff measure (Steinberg, 2019).

2.6. Hard Brexit & the Agri-food Industry

A pessimistic hard Brexit scenario, which defined as the United Kingdom leaves Single Market and trade between the European Union, then governed with World Trade Organization rules. Increase in trade tariff imposed under the Most Favored Nations (MFN) clause, which Agri-

food sector reach approximately 9%, and the non-tariff barriers rise further to a tariff equivalent of 8.31% (Vandenbussche et al., 2019). Research from Ebell et al., (2016) using National Institute Global Econometric Model which focuses only on World Trade Organization scenario, finds that negative shock to export demand, resulting in a decline in United Kingdom export prices and a sharp depreciation in Sterling, which leads to higher import prices. Lawless & Morgenroth (2016), using sector-level elasticity, compare trade and tariffs data to discuss the effect of Brexit on European Union trade, which tariff-induced price increases and trade reductions might result from Brexit. It shows the significant concentration of Irish exports to and imports from the United Kingdom in a small number of products with potentially high protection, makes Ireland the most affected country in terms of trade. Moreover, in terms of value-added in agri-food sectors, Ireland is the most negatively affected European country by Brexit, with a decrease of 16.3% in value-added caused by the production that exported to the United Kingdom and the high level of dependence of Ireland on intermediates imported from United Kingdom (Bellora et al., 2017).

2.7. Agri-food Industry and Meat Sector

In the Hard Brexit scenario, Lawless & Morgenroth (2016) estimated of MFN duty rate depends on the sector in trade with the EU, and duties on meat products are higher than any other products category. Most beef imports are subject to ad valorem tariffs of 12.8 %, and in most cases, this tariff equates to an addition of 50% or more to the value of import, which seriously impacts on the ability of imported beef to compete with European Union meat. The main non-tariff barriers limiting access to the European Union market are sanitary and phytosanitary measures. There is a range of such requirement but perhaps the most significant is the ban on beef from animals treated with growth hormones, a widespread practice in some major exporting countries (Agriculture & Horticulture Development Board, 2016). A new regime of veterinary checks and restrictions would apply on meat trade which did not exist before. Evidence from third countries shows that the veterinary checks are expensive and difficult to do for the exporters and importers, which the inspection can lead to additional wait times at borders. Moreover, transactional and transportation cost would be incurred as an implication of imposition of customs formalities at the border, which lead to long delays at customs posts and could disturb production scheduling and delivery logistics (European Livestock and Meat Trading Union, 2017).

2.8. Backstop in Ireland

The potential adverse consequences of any re-introduction of a controlled hard border between the United Kingdom and Ireland, could destabilize the flow of goods and have negative consequences for trade. In terms of overall trade, over half of all exports from Northern Ireland go to the European Union, and the Republic of Ireland is the main destination for exports and the main source of import (Greer, 2017). Agri-food accounts for close to 40% of Northern Irish exports to the Republic, and supply chain across the border are highly integrated. Makes it imperative to find a way to remove the need for the checks (Durant & Stojanovic, 2018). Ensuring stable and reliable supply chain process remains in place will be the key of importance for Irish economy, while the additional challenge that have to be faced are potential consequences for firms exporting perishable goods with a short shelf life, especially agri-food exports. Custom procedures as well as regulatory controls have to complied with the nature of trading agreement (Kirby, 2017). As a consequence, both United Kingdom and European Union have committed to avoid a hard border on the island of Ireland, and agreed that the withdrawal treaty should include a backstop—an insurance policy that means even if future relationship negotiation fall, there will be no border erected in Ireland (Owen et al., 2018). The backstop arrangements are therefore an agreed insurance policy, intended to apply only temporarily and would only be in place unless they are superseded by a subsequent agreement. The objective is not to established a permanent relationship between the European Union and the United Kingdom (Phinnemore, 2018). However, European Union originally proposed a backstop that would mean Northern Ireland staying in the European Union customs union, and the chief negotiator continually emphasized that the backstop could only apply to Northern Ireland. Any separate status for Northern Ireland from the rest of the United Kingdom considered as potentially damaging the union as a whole, that is why Prime Minister Theresa May also continually rejected the European Union proposal saying it would threaten the constitutional integrity of the United Kingdom (Campbell, 2019). Under agreed terms of Brexit negotiations, there can be no withdrawal agreement until every part of the deal is agreed, which means that without a legally binding backstop clause, there can be no transition deal, no outline accord on the future relationship, and hard Brexit would certainly happen (Henley, 2018).

III. CONCLUSION

This research is conducted and reported to determine the implication of Brexit towards the agri-food sector in relation with supply chain management in the European Union, such as tariff, transit duration, and customs procedures. Most of the researchers portrayed the potential agreement as a soft Brexit and a hard Brexit, which each of them carries different implication on how Brexit will affect the agri-food sector. Soft Brexit, commonly recognized as the United Kingdom continuing to join the membership through European Economic Area or European Free Trade Association, aims to keep close with European Union rules to prevent the worse impact on Brexit. In contrast, hard Brexit is defined as the United Kingdom having no preferential relationship with the Single Market and rely on World Trade Organization rules (Menon & Fowler, 2016).

Agri-food sector is acknowledged as one of the most affected industries caused by Brexit, as a consequence of changes in trade flows disrupting the supply chain process: tariff, non-tariff barriers, and lead times. These reasons are compounded by the fact that the agri-food sector of the United Kingdom is the net contributor to the European Union budget. This does not only negatively affect the agri-food sector, but the European Union is also facing a loss, as their most contributor to their budget is leaving the union. McCorriston (2017) together with Velthuisen & Hoijtink (2017) agreed that the agri-food sector has a dependence on both the United Kingdom and the European Union in term of imports and exports. The complexity of the supply chain and logistics process in agri-food could be agitated because of time delays as a consequence of custom procedures, which is a part of non-tariff barrier.

The favorable outcome, soft Brexit scenario, is believed by previous researchers as the agreement with the least significant impact. If the United Kingdom keeps maintaining the relationship with the Single Market and Customs Union, there might be no tariffs incurred, and non-tariff barriers would arise insignificantly. However, the customs procedure such as veterinary and phytosanitary checks are inevitable because of the non-European Union products procedure checks. Hubbard et. at., (2018) also mentioned in his paper that soft Brexit can interrupt the trade flow, even though the market impacts are relatively small.

Hard Brexit is known as having the most significant influence outcome that affects the trade and supply chain process. With this outcome, the United Kingdom has to follow the World Trade Organization rules and therefore applies the tariff established by Most Favoured Nation. Using the models of their research, Vandebussche et al., (2019) Ebell et al., (2016) and Bellora et al., (2017), find that the hard Brexit create a negative effect of trade and supply chain process, because the tariffs incurred are relatively high and more complex procedures due to the country undertaking new agreements outside European Union. Lawless and Morgenroth (2016) show that Ireland would be one of the most affected countries in terms of trade caused by the dependency on intermediates import and export from the United Kingdom.

Among the agri-food sector, specifically in hard Brexit scenario, Most Favourable Nation duty rate approximated the meat products to be one of the products subjected to high tariffs. Moreover, the veterinary checks such as sanitary and phytosanitary have to be applied as a consequence of non-tariff barriers to the products delivered from outside the European Union. This non-tariff barrier would lead to additional cost and lead times because of the additional customs formalities at the border, affecting the production scheduling and delivery logistics.

Since the trade flows between the United Kingdom and Ireland is high, both of the United Kingdom and European Union as a representative of Ireland decide to create a Backstop arrangement; an insurance policy that temporary applies for the border between Ireland and Northern Ireland. The existence of backstop can restrain the direct impact of Brexit, as an assurance for the United Kingdom and European Union to maintain the stability of goods flow in Northern Ireland and the Republic of Ireland, at least until the new agreement has been reached. However, when there is no final withdrawal agreement approved between the United Kingdom and European Union, then the backstop agreement would be revoked, which means that hard Brexit scenario would be applied for both of the borders in future trade.

The vast majority of researchers presume that the future outcome of Brexit agreement, as well as the extent of its impact on the supply chain of the agri-food industry, is still uncertain. For the most part, research are conducted based on the related potential trade negotiations between the United Kingdom and European Union, and on the international regulations which will essentially be related to these new agreements.

IV. POLICY AND LIMITATION

The author would like to give several recommendation and suggestions for ABP Food Group as one of the companies in the meat industry that operates and based on the Republic of Ireland. This suggestion can also be implemented by companies in the agri-food industry from the United Kingdom and/or country which is a member of the European Union. The solutions provided by the author are based on the data collected and evaluated on the current situation, as the result of uncertainty in Brexit until this paper is finished. Along with these suggestions, the limitations of working on this paper will be discussed to helps future researchers on improving the content of their research that discusses the implication of Brexit towards agri-food sector.

As a prediction in the rising of meat price under circumstance of Brexit, ABP Food Group might start to search for the potential partnership with a company from the United Kingdom, by creating a joint venture and developing what is called by transfer pricing, a tactic that is used by multinationals company to limit the damage to pricing when trade disruption such as Brexit, resulting in increased tariffs on goods crossing borders (Whelan, 2018). The determination of correct pricing can help ABP Food Group to maintain the high tariffs as low as possible because of the flexibility on partnership company inside the United Kingdom. Furthermore, the existence of domestic supplier from the partnership can reduce the lead time and custom procedures, since the products are processed from the United Kingdom and do not have to pass the border at all.

Outside Ireland-United Kingdom perspective, it would be useful for ABP Food Group to find other possible customers and create a contract as a supplier for an industry which runs in similar sectors, to reduce the potential losses caused by the reduction of the export amount which used to allocate for the United Kingdom. As mentioned before, a backstop agreement currently exists between Republic of Ireland and Northern Ireland. There are two possibilities regarding this agreement. First, the agreement may be implemented permanently, which results in avoidance of disruption of trade flow. However, it is also possible that United Kingdom chooses hard Brexit, which will cause the backstop agreement to be halted and eventually results in interference of trade flow between United Kingdom and Republic of Ireland. While waiting for the result of Brexit, in the meantime, ABP Food Group should try and expand their business to other countries, for example third world countries, which are considered as new markets.

The author would like to mention some limitations of this research. First, the topic of Brexit is considered as a new problem, which started to arise since the date of the referendum, 23rd June 2016. This problem leads to the number of availability on the information regarding Brexit, especially for the agri-food sector in the supply chain management point of view. The author was facing a difficulty in finding information about the agri-food sector, in regards with the lack of information in previous research studies on the topic. Nonetheless, the studies on the agri-food sector in supply chain management are still available, but only on limited subjects and several researchers. Hence, the author gathered all of the information given by previous researchers, and create a conclusion based on their findings.

Second, the author only focuses on the relationship between the United Kingdom and the Republic of Ireland as a member of the European Union. The author chooses Ireland as the discussed country because it was considered as one of the countries that are affected the most by the Brexit. However, some countries such as Germany, Netherland, and France also included as the countries that affected the most by the Brexit and might be the subject for the further researchers.

Third, the scope of this research only covers the impact of the agri-food sector in terms of supply chain management. Indeed, the agri-food sector comprises of many other aspects such as budgetary implications, regulatory policy, consumer prices, and others that might influence the development of agri-food sector as an impact of Brexit, in which it is should be considered by the future researcher. In this matter, the future researcher needs to enhance the scope of the agri-food sector in detail, which specifies a certain issue. As a consequence of the complexity in Brexit, they need to review these topics which should be aligned with the current situation and the findings from recent literature sources.

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