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UK Trade and FDI: A Post-Brexit Perspective

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Abstract

Leaving the EU will change the UK's economic relations with the rest of the world. This paper discusses the UK's role in the global economy and the consequences of Brexit for the UK's trade, investment and living standards. We emphasize that international integration encompasses investment and labour services flows as well as trade in goods and services and that there are important interdependencies between the different forms of integration which should be considered when evaluating policy changes. Brexit is likely to make the UK poorer by reducing trade and investment flows, but the size of these effects will depend upon the nature of the UK's post-Brexit economic relations with the EU and the rest of the world. We conclude by considering options for UK-EU relations after Brexit and how the UK should approach future trade negotiations.

Keywords: Brexit, UK trade, UK FDI, negotiations

JEL codes:F02; F13

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1. Introduction

The UK's participation in global markets has increasingly come to be based on its relatively abundant skilled labour, its business-friendly rule of law, and its geography. These characteristics dictate its pattern of comparative advantage in the trade of goods and services. Importantly, they also dictate the direction and nature of its foreign direct investment (FDI) flows. The UK is a net exporter of services (financial, IT, and media) and sophisticated goods (pharmaceuticals and cars), but these exports are made possible, in large part, by using imported capital, inputs and technical know-how. Indeed, the car industry, IT, and financial services are the main destinations of FDI inflows and accumulate 51% of the UK's international investment position as of 2015. The UK is a small economy that requires access to both export and import markets to realize an efficient scale of production and obtain access to many of the inputs used in production.

It is unambiguous that the UK benefits from its current participation in global markets for goods, services, investment, and people. It is also clear that the benefit of its participation in each of these markets is amplified by its presence in each of the others. That is, different aspects of global integration are complementary contributors to economic growth.

The UK's trade and investment flows are built upon its existing economic relations with the EU. Europe's geographical location and economic size mean it is the UK's natural goods and services trading partner. And, because of this, foreign direct investment in the UK is often motivated by the ease of selling to the high-income and nearby consumers in the rest of the EU. Due to the importance of geographic factors for international flows, referred to in the trade literature as "gravity forces", integration with countries outside the EU offers fewer opportunities for the UK to benefit from trade in goods, services, investment and people. Gravity cannot be avoided.

In this paper, we first review the canonical conceptual framework within which gains and losses from international trade are analysed in the economics literature (Section 2). Next, we characterize the UK's trade (Section 3) and FDI flows (Section 4), emphasizing the implications of the imminent changes in its relationship with the EU. We then turn to policy recommendations aimed at dampening the negative consequences of reducing any aspect of integration with the UK's natural trading partners, discussing first the policy options (Section 5) and then concluding by suggesting how the UK government should approach its trade negotiations with the EU (Section 6).

2. Gains and Losses from Trade

International openness affects both aggregate income ('efficiency') and its distribution across different types of individuals ('equity').

2.1. Efficiency

There is a broad consensus among academic economists that reducing barriers to trade creates new opportunities that raise overall output, making the world as a whole better off. These gains materialise through many different channels. More trade allows countries to specialise in industries where they have a comparative advantage increasing the efficiency of production (Ricardo 1817, Ohlin 1933). Trade enables countries to import and consume goods that are not produced domestically (Krugman 1979). Lower trade barriers increase competition between firms in different countries leading to lower prices for consumers (Krugman 1979). Increased trade raises productivity by causing more productive firms to expand while less productive firms contract (Melitz 2003). Larger markets allow firms to produce more and take advantage of economies of scale to lower production costs and prices. Greater integration also reduces the cost of knowledge transfer across countries helping to raise productivity.

Quantifying the size of the aggregate gains from trade is a difficult challenge. Recent work by Arkolakis, Costinot and Rodriguez-Clare (2012) has shown that in many of the canonical models of trade, the effect on income per capita of a change in the volume of trade can be written as:

$$\begin{aligned} \text{Percentage change in 'Income per capita'} = \\ -\frac{1}{Z} \times \text{Percentage change in '1 - Import Penetration Ratio'}. \end{aligned}$$

In this formula the import penetration ratio is the ratio of a country's total imports to its total output. When a country trades more its import penetration ratio increases. The parameter Z is known as the trade elasticity and is defined as the percentage increase in trade when trade costs fall by one percent. This means Z is large when small changes in trade costs cause big changes in trade. A rise in the import penetration ratio increases income per capita. But the size of this effect depends on the trade elasticity Z . The smaller Z is, the greater the increase in income per capita for any given rise in the import penetration ratio. Simonovska and Waugh (2014) estimate the trade elasticity Z to be around 4.

The gains-from-trade formula captures the idea that there are aggregate gains from trade. But this formula is too simple to incorporate all the channels through which trade affects income per capita, implying that it is likely to underestimate the gains from trade. Accounting for differences across industries in the trade elasticity and allowing for trade in intermediate inputs magnifies the gains from trade (Costinot and Rodriguez-Clare 2014, Ossa 2015). State-of-the-art quantitative trade models, such as that used by Dhingra et al. (2016) to estimate the consequences of Brexit for the UK economy, include these additional channels and find bigger gains from trade than a naïve application of the gains from trade formula would predict.

An important limitation of quantitative trade models is the assumption that trade does not change the set of technologies available for production. By increasing competition between firms and facilitating international knowledge diffusion, trade can stimulate technology

investment and growth leading to dynamic productivity gains (Grossman and Helpman 1991, Bustos 2011). There is considerable uncertainty over the size of these dynamic gains, but recent theoretical work implies dynamic effects may double or treble the gains from trade compared to the static gains estimated by quantitative trade models (Bloom et al. 2014, Sampson 2016).

Another way to estimate the gains from trade is to use empirical studies of the relationship between trade and income per capita. These studies estimate the sum of the static and dynamic gains from trade. Identifying the causal effect of trade on income per capita is difficult because trade policy is correlated with many other potential determinants of income and richer countries mostly choose more open trade regimes. Building upon the observation that trade flows are decreasing in the distance between countries, Frankel and Romer (1999) use variation in countries' proximity to their trading partners to isolate plausibly exogenous variation in openness to trade. Alternatively, Feyrer (2009a, 2009b) uses changes in transport costs caused by the introduction of air freight and the closure of the Suez Canal as exogenous shocks to trade. These papers find larger gains from trade than those estimated by quantitative trade models, suggesting the dynamic gains from trade are indeed quantitatively important. Feyrer's results imply a 1 percent increase in trade raises income per capita by between 0.25 percent and 0.75 percent.

2.2. Equity

The fact that trade generates aggregate economic gains does not necessarily mean it makes everyone better off. Some relatively unproductive firms and industries may suffer from competition with foreign producers, potentially making their workers and owners worse off. Since the late 1970s inequality has increased in many countries, while over the same period international trade has grown rapidly. This has stimulated a large body of research looking at whether trade has contributed to rising inequality.

Traditionally, economists mainly analysed the effects of trade on inequality using the Stolper-Samuelson theorem (Stolper and Samuelson 1941). This theorem predicts trade integration will raise the wage gap between skilled and unskilled workers in skill abundant developed economies, while reducing wage inequality in developing countries. However, empirical work studying the causes of rising wage inequality in the US and many other countries has found little evidence of Stolper-Samuelson effects. In particular, trade liberalisation has been followed by increases in inequality in both developed and developing countries (Goldberg and Pavcnik 2007) and the increased demand for skill has occurred primarily within industries, whereas Stolper-Samuelson effects are driven by between industry changes (Bekman, Bound and Machin 1998).

The empirical failings of the Stolper-Samuelson theorem have led researchers to consider alternative channels through which trade may affect wage inequality. Only a select few highly productive firms participate in international trade and, on average, these firms are more skill intensive and pay higher wages than domestically oriented firms (Bernard and Jensen 1995). Trade allows high-wage paying, exporting firms to expand and become more profitable, while causing lower-wage paying non-exporters to contract or shut down because of increased import competition (Pavcnik 2002, Melitz 2003, Trefler 2004). These

reallocation effects can increase the wage gap between firms leading to higher wage inequality (Yeaple 2005, Egger and Kreickemeier 2009, Helpman, Itzhoki and Redding 2010, Sampson 2014). Firm-level evidence supports the idea that trade increases wage inequality between firms (Verhoogen 2008, Amiti and Davis 2012, Helpman et al. 2016).

Other recent work has argued that trade may increase wage inequality through the offshoring of tasks that employ less skilled workers to developing countries (Feenstra and Hanson 1996, 1999) and through increased trade in capital goods that are complementary to skilled labour (Burstein, Cravino and Vogel 2013, Parro 2013). There is also growing evidence that trade has a negative impact on workers who live in regions that face rapid increases in import competition, such as areas of the US that are highly exposed to imports from China (Autor, Dorn and Hanson 2013).

In summary, recent research that looks beyond the Stolper-Samuelson theorem has identified new channels through which trade may affect inequality, but further work is still needed to understand the relative importance of these channels. It is likely that trade has contributed to recent increases in inequality in developed countries, but the existing evidence suggests trade is not the main driver of changes in inequality. Using a quantitative model of the global economy, Burstein and Vogel (2016) estimate that because of trade the average skill premium across countries is 5.1% higher than it would have been in the absence of trade. This effect is important, but does not explain a large share of the observed increase in inequality since the 1970s.

3. UK International Trade

The Centre for Economic Performance (CEP) has produced a series of Brexit Analysis briefings studying how Brexit may affect trade, FDI and immigration between the UK and the EU and quantifying the possible welfare effects of these changes.² In this section we summarize the conclusions of these briefings regarding the impact of Brexit on UK trade and living standards.

3.1. Brexit, trade and aggregate welfare

Membership of the EU has meant low trade costs between the UK and the EU not only through the removal of tariff barriers, but also through reductions in non-tariff barriers as part of the EU's Single Market. Reductions in trade barriers have increased trade between the UK and the EU. Prior to the UK joining the European Economic Community (EEC) in 1973, around one third of UK trade was with the EEC. In 2014, the 27 other EU members accounted for 45% of the UK's exports and 53% of UK imports. EU exports comprise 13% of UK national income.

Higher trade benefits UK consumers through lower prices and access to better goods and services. At the same time, the UK's workers and businesses benefit from new export opportunities that lead to higher sales and profits and allow the UK to specialise in industries

² See: <http://cep.lse.ac.uk/BREXIT>

in which it has a comparative advantage. Through these channels, increased trade raises output, incomes, and living standards in the UK.

The economic consequences of leaving the EU will depend on what policies the UK adopts following Brexit. But the CEP's analysis finds that lower trade due to reduced integration with EU countries is likely to cost the UK economy far more than is gained from lower contributions to the EU budget.

Even setting aside foreign investment, migration and the dynamic consequences of reduced trade on productivity growth, Dhingra et al. (2016) estimate the effects of Brexit on trade and the UK's contribution to the EU budget would be equivalent to a permanent fall in income of between 1.3% and 2.6% (£850 to £1,700 per household per year). The lower estimate of 1.3% corresponds to an optimistic case where the UK remains part of the Single Market following Brexit. The larger estimate of 2.6% is for a pessimistic case where the UK and EU do not agree a new trade deal and revert to trading under WTO terms.³

Once the long-run effects of Brexit on productivity and investment are included, the decline in income increases to between 6.3% and 9.5% (about £4,200 to £6,400 per household per year). Other possible economic benefits of Brexit, such as better regulation, would have to be very large to outweigh such losses.

3.2. Distributional effects of leaving the EU

The economic pain of Brexit is likely to be widely shared. Breinlich et al. (2016) study the distributional consequences of Brexit using data on the heterogeneous expenditure patterns of households in different deciles of the income distribution and predicted industry price changes from Dhingra et al. (2016). The costs are fairly evenly shared across the income distribution, with the middle classes being slightly harder hit than the richest and poorest. Based on their specific expenditure patterns only, households on average incomes would face losses of at least 4% of their real income (£1,637 per year) if the UK leaves the European Union (EU) and trades as a regular member of the World Trade Organization, compared with remaining in the EU. This is because prices will rise across the board, particularly for transport, alcohol, food and clothing.

Prices would go up most in transport (a price hike of between 4% and 7.5%), alcoholic drinks (4% to 7%), food (3% to 5%) and clothing (2% to 4%). These product groups rely heavily on imported intermediate inputs. By contrast, prices for services will rise the least.

For the poorest tenth of households (the bottom decile), real income losses would be 1.7% to 3.6% in the short run and 5.7% to 12.5% in the long run. For the richest households, the short-run losses would be 1.8% to 3.9% and the long-run losses 6% to 13.4%. So the middle class lose out slightly more than the rich and poor.

³ In particular, in the optimistic case Dhingra et al. (2016) assume that: (i) there are no tariffs between the UK and EU; (ii) non-tariff barriers increase by one-quarter of the reducible non-tariff barriers on US-EU trade; (iii) intra-EU trade costs fall by 20% faster than in the rest of the world for ten years after Brexit; and (iv) the UK's per capita contribution to the EU budget is equal to Norway's contribution. In the pessimistic case they assume instead that: (i) the EU's MFN tariffs are imposed on UK-EU trade; (ii) non-tariff barriers increase by three-quarters of the reducible non-tariff barriers on US-EU trade; (iii) intra-EU trade costs continue to fall by 40% faster than in the rest of the world for ten years after Brexit; and (iv) the UK makes no budget payments to the EU. Their analysis does not consider the possible effects on new trade agreements with non-EU countries. In a recent paper, Brakman, Garretsen and Kohl (2017) conclude that only a trade agreement with the EU can compensate for the negative trade consequences of Brexit.

Looking at specific households such as pensioners, families with children and single people, the pain would also be widely shared. For example, even in the short run, pensioners will lose between 2% and 4% of their real income.

4. UK Foreign Direct Investment

The UK has long been one of the world's largest recipients of foreign direct investment. FDI is also an important determinant of the UK's economic performance.

4.1. *The importance of the UK as an FDI destination*

FDI inflows reached all-time highs during the years prior to the financial crisis of 2007-08. Although the values of inflows fell in the aftermath of the crisis, the UK remains the largest destination for FDI flows in Europe (**Figure 1**). As of 2014, UK was the host to 6% of world FDI stocks, surpassed only by the USA and China (**Figure 2**). According to the CEPII, the UK accounted for 7.4% of announced world greenfield investment projects for 2015. Germany, in comparison, accounted for only 1.6%.

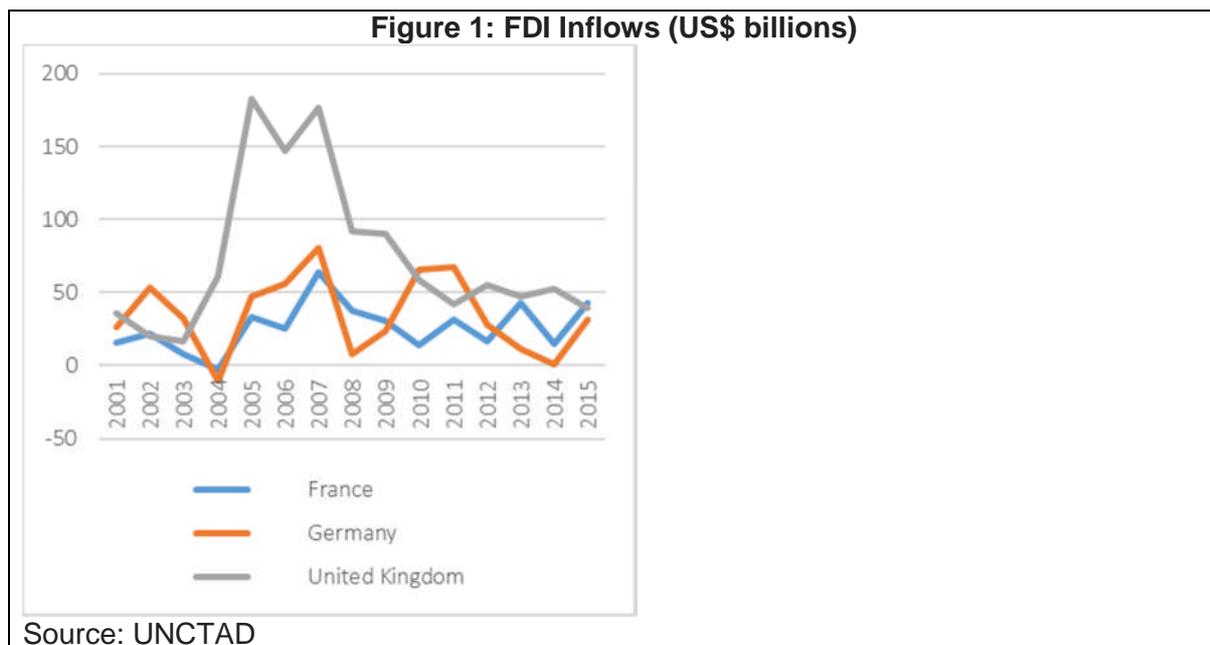
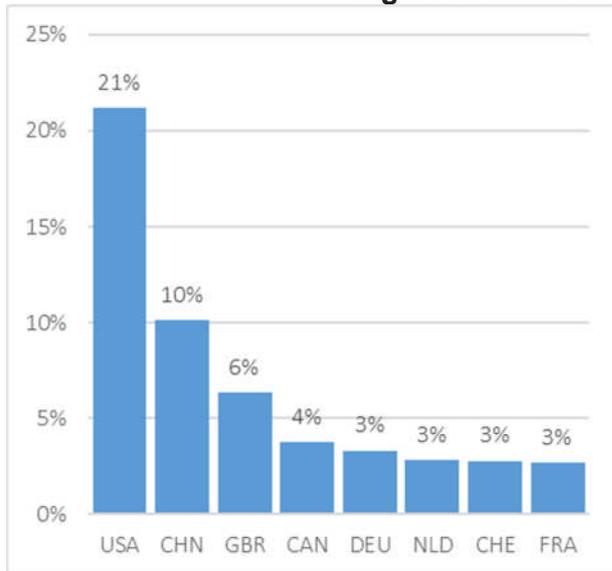


Figure 2: Share of World FDI Stock



Note: World FDI Stock as of 2014: \$25.7 tr. Source: OECD

The motives for investing and locating production in a given country are multiple and complex, but we can broadly divide them in two categories that need not be mutually exclusive for any one investment. These categories are: 1) Demand side: to gain access to foreign markets, either in the host market or in neighbouring countries, or 2) Supply side: to exploit local comparative advantages in certain processes or inputs of production, which is the basis for the existence of Global Value Chains. With these motives in mind, we can ask why the UK is currently an attractive location for FDI.

On the demand side, the UK has a market of 60 million consumers with a mean GDP per capita of around 41,000 USD. While some FDI in the UK serves the local market only, the UK often serves as an export platform for firms to access countries across the European Single Market. Through its EU membership, a UK location currently offers non-EU firms access to a further 443 million consumers with a mean GDP per capita of around 33,000 USD. This is true both for manufacturing and services sectors. In particular, “passporting rights” allow financial services firms to operate seamlessly to serve customers across country borders within the Single Market.

Market access alone cannot explain why the UK is the number one FDI destination in the EU since all member countries provide this access. Supply side considerations also explain the UK’s appeal as a location to firms participating in global value chains. The UK offers three advantages for this business model: a) low shipment cost of physical goods, from raw materials to final products, along the value chain, b) a legal environment that protects, and is conducive to, the creation of intellectual property, and c) access to skilled labour.

These supply-side factors are often linked to the UK’s EU membership. Shipping of goods along the value chain is facilitated by the Single Market, with firms purchasing inputs mostly from other EU countries. Member countries do not need to comply with “rules of origin” concerning the inputs used in production, trade is tariff-free within the EU, and it is subject to

minimal non-tariff bureaucratic costs. Moreover, the UK attracts highly skilled workers from the entire EU market, which adds to its advantage as a location. Free movement of people within the EU thereby increases the UK's appeal to foreign firms making direct investments in the UK in order to benefit from free movement of goods and services in the Single Market.

The UK, then, appeals to multinationals with highly transferable, often intangible assets that are utilised best by a highly skilled workforce. Several characteristics of these technologies mean foreign firms prefer to own local establishments rather than contracting at arm's length. These include a high level of product and process complexity, strong specificity to the firm's operations, or a high degree of confidentiality. For production that involves various stages that are intensive in different inputs, the UK is often embedded in global value chains where intermediate inputs are imported by foreign multinationals for further manufacture and then sale in local markets or re-export.

4.2. The importance of FDI for the UK's economy

Table 1 shows that foreign-owned affiliates accounted for 14% of private sector employment, the FDI stock totalled 58% of UK GDP and FDI flows made up 10% of investment in 2014. The bulk of this investment has come from EU countries and the US. Affiliates owned by EU and US corporations account for 7% and 4% of the UK's total employment, respectively. This is consistent with FDI flows following a gravity model (Anderson, 2011). The greatest FDI capital flows occur between geographically close and large economies. "Closeness" is increased by shared institutions, and Bruno et al. (2016) estimate that the UK would have received about 22% less FDI between 1986 and 2014 had it not been in the EU.

FDI inflows are concentrated in industries in which the UK has clear comparative advantage: the financial sector, mining and transport equipment, as well as sectors with high local demand (food and beverages).

The effect of Brexit on the inflows of FDI depends on the motives behind the multinational activity. For European firms, an increase in trade costs between UK and the EU would make the option of serving the UK market from an affiliate in the UK more attractive compared to importing from elsewhere in the EU. Utilities and industries like food, beverage and tobacco may experience an increase in inward FDI. However, at the same time, an increase in the cost of importing inputs and of exporting outputs within the EU's Single Market may reduce the UK's participation in international value chains. This negative effect is likely to dominate.

If we concentrate on manufacturing, the participation of affiliates of multinational firms in local production is particularly important in sectors characterized by complex value chains and high export content, such as electronics and machinery, transport and automobiles, and chemicals and pharmaceuticals. In the case of US affiliates, which represent the bulk of non-EU FDI, the UK as an export platform for the EU Single Market is particularly important. According to the US Bureau of Economic Analysis, US affiliates in Europe sell, on average, only 50% of their output in the host country, they export 25% to customers in other countries

in the Single Market, and the remaining 25% are inputs internationally traded within the boundaries of the multinational corporation (Ramondo et al, 2015).

Table 1: Share of UK Employment in Foreign-Owned Affiliates, by Sector.

	Total Employment (2014)	Share of total employment in foreign owned affiliates					
		All	EU-owned	Non-EU owned	Germany owned	US-owned	China India owned
Agriculture, fishing, and logging	491,458	2%	1%	0%	0%	0%	0%
Mining	61,187	52%	22%	30%	3%	12%	18%
Man. food, beverage	430,319	34%	18%	16%	1%	8%	0%
Man. textile	171,000	10%	5%	5%	0%	2%	0%
Man. Paper and printing	183,397	19%	10%	8%	1%	5%	0%
Man. rubber, plastic, petroleum deriv	176,204	29%	15%	14%	2%	8%	7%
Man. chemicals and pharma	152,653	44%	13%	31%	3%	21%	1%
Man. minerals	484,439	23%	10%	13%	2%	5%	4%
Man. computer, machines, and electrical	535,766	41%	16%	25%	5%	16%	0%
Man. auto and transport equip	290,749	46%	15%	31%	5%	9%	9%
Man. furniture	171,767	12%	6%	7%	1%	4%	3%
Utilities	329,850	34%	27%	7%	7%	3%	4%
Construction	1,551,054	8%	6%	2%	0%	1%	2%
Wholesale and retail	5,078,376	19%	9%	10%	2%	7%	0%
Transportation	1,248,629	27%	19%	8%	7%	2%	0%
Accommodation, food and tourism	3,068,907	13%	6%	7%	1%	4%	3%
Media and publishing	407,403	26%	9%	17%	2%	13%	1%
IT	833,555	25%	8%	18%	1%	10%	2%
Finance and Insurance	1,115,694	30%	11%	18%	2%	11%	0%
Real Estate	1,425,237	10%	5%	5%	0%	2%	0%
Professional activities	3,873,933	11%	5%	6%	0%	4%	0%
Education and research	3,576,685	1%	0%	1%	0%	1%	0%
Health	3,740,822	4%	2%	2%	0%	1%	1%
Other	785,724	3%	1%	2%	0%	1%	0%
Total (excluding public sector)	30,184,808	14%	7%	7%	1%	4%	1%

Source: ONS

To obtain a more granular view of the way that key sectors may be affected, we analyse the UK car industry—a recent manufacturing success story—in more detail:

The UK is now the EU’s fourth largest car producer and KPMG (2014) argues that “much of the recent investment by car manufacturers is in new vehicles which will be predominantly for sale to the EU market.” In 2014, the car industry employed nearly 300,000 workers and contributed around 5.1% to total UK exports; 40% of its car exports were to the EU. In a survey of its members in 2014, the Society for Motor Manufacturers and Traders found that 70% of its members expect Brexit to have a negative medium to long-term impact on their business.

There are very rich data on the car industry, which enable one to extend the structural gravity model of exports in Dhingra et al (2016) to the decisions of multinationals over where to base their production. Head and Mayer (2016) use information on assembly and sales locations (IHS Automotive data) on 1,775 models across 184 brands. These data include annual flows of each model shipped from 49 assembly countries to 75 destination countries between 2000 and 2013. They also contain information on the headquarters and assembly

location of the car. The model accounts for how the headquarters decide where to locate their production—for example, why BMW chooses to produce Minis in the UK that are sold in France.

Head and Mayer (2016) estimate the impact of Brexit on plant location as well as the levels of car production and price. In their work, Brexit has two main disadvantages:

- First, as trade costs rise—because of non-tariff and possibly tariff barriers-- locating production in the UK is less attractive because it becomes more costly to ship to the rest of Europe.
- Second, there is an increase in the coordination costs between headquarters and the local production plants. Transfers of key staff within the firm may be harder if migration controls are put in place. Different regulatory standards can make engineering, R&D and consultancy services trickier.

Generally, all factors that make trade more costly between firms in different countries will also make trade within multinationals across countries more costly.

Table 2 examines two scenarios for the impact of Brexit on the automotive industry:

- First, row 1 considers both of the costs together—the increased trade costs of exporting and the higher costs of headquarters coordination. Total UK car production is predicted to fall by 12% or almost 180,000 cars per year. This is mainly because European car manufacturers such as BMW move some production away from the UK. Prices faced by UK consumers also rise by 2.55% as the cost of imported cars and their components increase.
- Row 2 analyses the case where the UK faces no trade barriers on cars and car components with the rest of the EU (for example, if it signs an ambitious free trade agreement with the EU following Brexit). Hence, the only increase in costs is due to increased headquarters coordination costs. Although prices are stable in this scenario, car production in the UK still falls by almost 36,000 (2.4%).

Table 2: The predicted impact of Brexit on UK car production and prices

	Change in total number of cars produced	Percentage change in cars produced	Percentage increase in car prices
1. Increase in trade costs and headquarters coordination costs	-180,746	-12.0%	2.55%
2. Increase in headquarters coordination costs only	-35,728	-2.4%	0.003%

Source: Derived from Head and Mayer (2016).

In short, the detailed model in Head and Mayer (2016) confirms the macroeconomic and survey evidence that the costs of Brexit for car production in the UK could be severe, particularly if the UK gives up access to the single market for goods.

5. The UK's Policy Options

How can the negative effects of Brexit be mitigated? In this section we discuss the policy options facing the UK while in the concluding section we suggest how the UK government should approach its future trade negotiations with the EU.

As discussed above, the UK's position in the global economy is intimately linked to its geography. The UK has gained much from concurrent integration with EU goods, services, investment and labour markets. If the UK does not preserve its market access, it may see its locational advantages diminished and its participation in international value chains reduced. Firms with substantial presence in the UK may not immediately re-locate their operations, as reflected in Ernst and Young's survey in January 2017 that found that 86% of foreign firms with a presence in the UK have no intention to relocate European operations in the next three years. But we would expect to observe a slowdown in reinvestment and new FDI flows in the medium and long term.⁴ It is very unlikely that non-EU markets will adequately replace the Single Market as a source of either demand for UK output or supply of production inputs (Brakman, Garretsen and Kohl, 2017). That is, there are no alternative trading options that will compensate for the economic losses arising from leaving the EU's Single Market for goods, services, investment and people.

To reduce the costs of Brexit, the UK needs to focus on maintaining tariff-free trade with the EU and, more importantly, on preventing non-tariff barriers from increasing, especially for services. Important points to consider are:

- For firms participating in Global Value Chains, with a high share of imported inputs, the bureaucratic costs of complying with "rules of origin" are high and may reduce the UK's attractiveness as a location.
- Customs procedures should be simple and fast. The financial costs associated with border delays are especially important for small exporters, for whom these fixed costs are a larger share of export revenues. Small and medium-sized enterprises do not typically export and, when they do, they currently focus on the EU market.
- The effect of Brexit on the administrative costs of trade will vary across sectors. Music, media and IT services, for example, are mostly regulated by national authorities not the EU. Some financial services are governed by global standards (foreign exchange trading, some derivatives clearing). Brexit is not expected to have a substantial impact on trade costs and investment decisions in these

⁴ See <http://www.ey.com/gl/en/issues/business-environment/ey-attractiveness-surveys>

industries. However, if the EU further deepens integration in these areas, without the participation of the UK, this conclusion may reverse.

There are a number of options for UK-EU relations post-Brexit. European Economic Area (EEA) membership would give the highest level of market access and minimize disruption to workers and businesses. Under EEA membership, the UK would remain part of the Single Market, meaning it would have to continue to accept EU economic regulation and free movement of labour with the EU. Pulling out of the EU and reverting to World Trade Organization (WTO) membership would restore sovereignty over economic regulation to the UK and would allow the UK to impose restrictions on immigration from the EU. But the UK would not have the same level of market access to the EU that it currently has. Trade in goods would be subject to the EU's most-favoured nation (MFN) tariffs but there would be new non-tariff barriers and restrictions on services trade. Policy options like the Swiss model and the Liechtenstein model would provide more intermediate levels of market access and sovereignty. The different policy options for future UK-EU relations, and their various pros and cons are summarized in **Table 3**.

Table 3: Options for the UK outside the EU

	Pros	Cons
EEA – the Norway model	<ul style="list-style-type: none"> o Belong to the Single Market. o No longer subject to certain EU policies (agriculture, fisheries, justice and foreign policy) o Can negotiate trade deals independently of the EU. 	<ul style="list-style-type: none"> o Implement Single Market policies, without representation in EU decision making. o Must comply with rules of origin for exports to the EU and subject to EU anti-dumping measures. o Must contribute to the EU budget, Norway's per capita contribution is currently 17% lower than the UK's.
Bilateral agreements – the Swiss model	<ul style="list-style-type: none"> o Free trade in goods and free movement of people with the EU. o Can negotiate trade deals independently of the EU. o A la carte approach permits opting out of EU programmes on a case-by-case basis. 	<ul style="list-style-type: none"> o Need EU consent for bilateral agreements. o Adopt EU rules without representation in EU decision making. o No agreement with the EU on trade in services. o Pay a fee to participate in EU programmes, Swiss contribution is 60% lower than the UK's.
Continental Partnership	<ul style="list-style-type: none"> o EEA membership with free trade in goods and services with the EU. o Limited autonomy in setting immigration quotas for EU migrants. o Consultative voice in EU decisions. 	<ul style="list-style-type: none"> o Need EU consent for immigration quotas. o Adopt EU rules without voting rights in EU decisions. o Must contribute to EU budget.
Liechtenstein/Brussels model	<ul style="list-style-type: none"> o EEA membership with free trade in goods and services with the EU. o Safeguard measure to control EU immigration or denial of access to public services for EU immigrants without a job. 	<ul style="list-style-type: none"> o Need EU consent for safeguard measures. o Adopt EU rules without voting rights in EU decisions. o Must contribute to EU budget.
EFTA	<ul style="list-style-type: none"> o Free trade in goods with the EU. o Can negotiate trade deals independently of the EU. o Not required to adopt EU policies and regulations. o No obligation to contribute to the EU budget. 	<ul style="list-style-type: none"> o No freedom of movement of people with the EU. o No right of access to EU markets for services. o Goods exported to the EU must meet EU product standards.
WTO	<ul style="list-style-type: none"> o Can negotiate trade deals independently of the EU. o Not required to adopt EU policies and regulations. o No obligation to contribute to the EU budget. 	<ul style="list-style-type: none"> o Trade with EU subject to MFN tariffs and any non-tariff barriers that comply with WTO agreements. o No freedom of movement of people with the EU. o No right of access to EU markets for services. o Goods exported to the EU must meet EU product standards.

Leaving the EU will give the UK greater freedom in designing domestic policies and regulation. It has been argued that this could compensate for the costs of reduced trade and FDI. After Brexit, the UK will have the freedom to redesign all areas of economic policy currently under the authority of the EU (e.g. competition policy, international trade policy, and

funding for regional development, research and agriculture). However, any new subsidies or regulations that do not comply with EU or WTO standards may provoke the imposition of further market restrictions from global trading partners. Regulatory divergence between the UK and the EU will also increase the export costs faced by UK firms that will need to satisfy different product standards for domestic production and for exports to the EU. More generally, while a lack of policy coordination with the EU will provide more freedom for domestic policy design, it will make it harder for UK firms to do business with the Single Market.

After Brexit, the UK plans to leave the EU's Customs Union. This would allow the UK to have its own trade policy and to negotiate new trade agreements with countries outside the EU. With an independent trade policy the UK could seek trade agreements tailored to UK interests and it would not need to compromise with the 27 other EU member states during negotiations. However, the UK alone would have less bargaining power than the EU since it is a much smaller market. This may mean the UK ends up obtaining worse trade deals than the EU could. It is also uncertain what will happen to the trade agreements the UK currently participates in as a member of the EU such as the EU-South Korea free trade agreement. The UK may need to replace or re-negotiate these past trade agreements, which would require costly and long-lasting diplomatic efforts and a fair amount of uncertainty in the interim. At a time of limited negotiating capacity, the UK must prioritize larger and closer trade partners like the EU and the US.

Furthermore, export expansion into new markets is in itself a slow and costly process. Currently, around half of UK trade is with the EU and only around 4% is with China. Given the importance of geographic factors in explaining the size of bilateral trade flows, policy efforts to increase trade with countries such as China and India are likely to have limited effects in the short-term.

It is important to note that deepening international integration with non-EU countries implies different challenges than those that are faced in current partnership with the EU. European economies are relatively similar to the UK in terms of education, labour costs, and environmental regulations. As a result, much of the gain from trade within the EU are based on economies of scale and access to broader varieties of goods and inputs. The gains from trade with labour-abundant economies such as China or India are based on comparative advantage driven by technological differences and patterns of factor abundance. Deepening integration with these countries may lead to aggregate gains from trade but is also likely to harm some UK workers, particularly in sectors that are intensive employers of unskilled workers. Further integration with low income countries will therefore create an increased need for fiscal policy to compensate the losers from trade through income redistribution.

Summarizing, the UK's decision to leave the EU reflects a willingness to risk significant economic costs in exchange for an increase in political sovereignty. The UK should do everything possible to avoid new trade costs with the EU and to promote integration with countries outside the EU, but these efforts will not be sufficient to overturn the negative effects of Brexit.

6. Conclusion: The Art of the Deal

What strategy should the UK government adopt to secure the best possible outcome in its future trade negotiations?

Trade negotiations are a bargaining game between countries with conflicting objectives. Each country wants to achieve its goals while giving up as little as possible to its negotiating partners. Dhingra, Ottaviano and Sampson (2017) review the rationale for trade agreements and how this shapes the nature of trade negotiations. They suggest four principles the UK should adopt in its negotiations with the EU.

1. You Get What You Give

In order to achieve its objectives, the UK must be willing to make concessions. In general, the more countries concede and the more policy control they give up, the bigger are the potential gains from reaching an agreement. An important question the UK is likely to face is what it is willing to give up in return for the EU allowing UK services firms to participate in the Single Market. Unless the UK makes a sufficiently attractive offer, UK services exporters will face new trade restrictions once the UK leaves the Single Market.

2. Where Negotiations Start From Matters

The outcome of any bargaining game depends upon the fall-back option that participants obtain if negotiations fail. The fall-back option determines what countries bargain over and, consequently, affects the outcome of negotiations. Trade agreements are no exception. Before any negotiations between the UK and the EU take place, there will have to be an understanding on what happens if negotiations fail. The UK needs to ensure its fall-back option assists in achieving its post-Brexit objectives.

3. Bargain from a Position of Power

In principle, trade negotiations are supposed to involve countries making reciprocal concessions of equivalent value. In practice, this is not always the case. It is often difficult to determine the value of a concession and countries that bargain poorly will get a worse deal. Consequently, bargaining power affects the outcome of trade negotiations. Countries that are desperate to obtain a deal at any cost have little bargaining power and are less likely to achieve their objectives. Because UK-EU trade accounts for a much larger share of the UK's economy than the EU's economy, the UK needs a deal more than the EU does. This puts the UK at a disadvantage. The weakness of the UK's position is further exacerbated by the two year time limit on exit negotiations imposed by Article 50, which provides insufficient time for a new trade deal to be negotiated.

One step the UK should take to improve its bargaining position is to prioritise agreeing a transition arrangement to govern UK-EU trade relations for as long as necessary between when the UK leaves the EU and when a longer term agreement is concluded. Remaining part of the Single Market offers the greatest chance of maintaining economic stability during

the transition period. Returning to the principle that you only get what you give, the UK needs to decide what it is willing to offer the EU in return for a transition agreement.

4. Invest in Negotiating Capacity

Trade agreements are complex. Smart negotiators use this to their advantage by ensuring they are better informed than their counterparts. Having not participated in trade negotiations for the past forty years, the UK currently has very little negotiating capacity. To become a smart negotiator, the UK needs to invest heavily in four areas of expertise: trade lawyers to undertake negotiations; diplomats to analyse the objectives and strategies of its negotiating partners; developing links with UK businesses to understand how they will be affected by proposed agreements, and; building the economic expertise to study the consequences of trade policy changes.

Brexit will not be easy. And even under optimistic assumptions it is likely to make the UK poorer than it otherwise would have been. But how much poorer will depend on the choices the UK makes over the next decade as it renegotiates its relationships with the EU and the rest of the world. Whatever future the UK decides it wants, adopting these four principles will help the UK government to achieve its objectives and, hopefully, to make the best of a bad situation.

References

- Amiti, M. and Davis, D.R., 2012. Trade, firms, and wages: Theory and evidence. *The Review of economic studies*, 79(1), pp.1-36.
- Anderson, J.E., 2011. The gravity model. *Annual Review of Economics*, 3(1), pp.133-160.
- Arkolakis, C., Costinot, A. and Rodríguez-Clare, A., 2012. New trade models, same old gains?. *The American Economic Review*, 102(1), pp.94-130.
- David, H., Dorn, D. and Hanson, G.H., 2013. The China syndrome: Local labor market effects of import competition in the United States. *The American Economic Review*, 103(6), pp.2121-2168.
- Bekman, E., Bound, J. and Machin, S., 1998. Implications of skill-biased technological change: international evidence. *The quarterly journal of economics*, 113(4), pp.1245-1279.
- Bernard, A.B., Jensen, J.B. and Lawrence, R.Z., 1995. Exporters, jobs, and wages in US manufacturing: 1976-1987. *Brookings papers on economic activity. Microeconomics*, 1995, pp.67-119.
- Bloom, N., Romer, P., Terry S. and Van Reenen, J., 2014. A Trapped Factors Model of Innovation. Centre for Economic Performance Discussion Paper No. 1261.
- Brakman, S., Garretsen, H. and Kohl, T., 2017. Consequences of Brexit and Options for a "Global Britain" (No. 6448). CESifo Group Munich.
- Breinlich, H., Dhingra, S. and Ottaviano, G. 2016. The Impact of Trade Agreements on Consumers. Centre for Economic Performance mimeo.
- Bruno, R., Campos, N., Estrin, S. and Meng, C., 2016. Gravitating towards Europe: An econometric analysis of the FDI effects of EU membership. CEP Technical Paper, Brexit Analysis No 3.

Burstein, A. and Vogel, J., 2016. International Trade, Technology, and the Skill Premium. *Journal of Political Economy*, forthcoming.

Burstein, A., Cravino, J. and Vogel, J., 2013. Importing skill-biased technology. *American Economic Journal: Macroeconomics*, 5(2), pp.32-71.

Bustos, P., 2011. Trade liberalization, exports, and technology upgrading: Evidence on the impact of Mercosur on Argentinian firms. *The American Economic Review* 101 (1), pp.304-340

Costinot, A., and Rodriguez-Clare, A., 2014. Trade theory with numbers. Gopinath, G., Helpman, E. and K. Rogoff.(eds.) *Handbook of International Economics*, 4.

Dhingra, S., Huang, H., Ottaviano, G., Pessoa, J., Sampson, T. and Van Reenen, J., 2016. *The Costs and Benefits of Leaving the EU*. Centre for Economic Performance Technical Report.

Dhingra, S., Ottaviano, G. and Sampson, T., 2017. A hitch-hiker's guide to post-Brexit trade negotiations: options and principles. *Oxford Review of Economic Policy*, 33, pp.S22-S30.

Egger, H. and Kreickemeier, U., 2009. Firm heterogeneity and the labor market effects of trade liberalization. *International Economic Review*, 50(1), pp.187-216.

Feenstra, R. and Hanson, G., 1996. Globalization, Outsourcing, and Wage Inequality. *The American Economic Review Papers and Proceedings*, 86, pp. 40-245.

Feenstra, R., and Hanson, G., 1999. The Impact of Outsourcing and High-Technology Capital on Wages: Estimates for the United States, 1979-1990. *Quarterly Journal of Economics*, 114(1999): 907-940.

Feyrer, J., 2009a. Trade and Income – Exploiting Time Series in Geography. NBER Working Paper No. 14910.

Feyrer, J., 2009b. Distance, trade, and income-the 1967 to 1975 closing of the Suez canal as a natural experiment. NBER Working Paper No. 14910.

Frankel, J., and Romer, D., 1999. Does trade cause growth?. *The American Economic Review*, pp.379-399.

Goldberg, P. and Pavcnik, N., 2007. Distributional effects of globalization in developing countries. *Journal of economic Literature*, 45(1), pp.39-82.

Grossman, G. and Helpman, E., 1991. *Innovation and growth in the world economy*. MIT Press.

Head, K., and Mayer, T., 2016. Brands in Motion: How frictions shape multinational production, CEPR Discussion Paper No. 10797.

Helpman, E., Itskhoki, O., Muendler, M. and Redding, S., 2017. Trade and inequality: From theory to estimation. *The Review of Economic Studies*, 84(1), pp.357-405.

Helpman, E., Itskhoki, O. and Redding, S., 2010. Inequality and unemployment in a global economy. *Econometrica*, 78(4), pp.1239-1283.

KPMG, 2014. *The UK Automotive Industry and the EU*. <https://www.smmmt.co.uk/wp-content/uploads/sites/2/SMMT-KPMG-EU-Report.pdf>

Krugman, P.R., 1979. Increasing returns, monopolistic competition, and international trade. *Journal of international Economics*, 9(4), pp.469-479.

Melitz, M., 2003. The impact of trade on intra-industry reallocations and aggregate industry productivity. *Econometrica* 71.6: 1695-1725.

Ohlin, B., 1933. *International and interregional trade*. Harvard Economic Studies, Cambridge, MA.

- Ossa, R., 2015. Why trade matters after all. *Journal of International Economics*, 97(2), pp.266-277.
- Parro, F., 2013. Capital-skill complementarity and the skill premium in a quantitative model of trade. *American Economic Journal: Macroeconomics*, 5(2), pp.72-117.
- Pavcnik, N., 2002. Trade liberalization, exit, and productivity improvements: Evidence from Chilean plants. *The Review of Economic Studies*, 69(1), pp.245-276.
- Ramondo, N., Rodríguez-Clare, A. and Tintelnot, F., 2015. Multinational production: Data and stylized facts. *The American Economic Review*, 105(5), pp.530-536.
- Ricardo, D., 1817. On foreign trade. *Principles of political economy and taxation*.
- Sampson, T., 2014. Selection into Trade and Wage Inequality. *American Economic Journal: Microeconomics*, 2014, 6 (3): 157-202
- Sampson, T., 2016. Dynamic Selection: An Idea Flows Theory of Entry, Trade and Growth. *Quarterly Journal of Economics* 131(1): 315-80.
- Simonovska, I. and Waugh, M., 2014. The elasticity of trade: Estimates and evidence. *Journal of international Economics*, 92(1), pp.34-50.
- Stolper, W., and Samuelson, P., 1941. Protection and real wages. *The Review of Economic Studies*, 9(1), pp.58-73.
- Trefler, D., 2004. The long and short of the Canada-US free trade agreement. *The American Economic Review*, 94(4), pp.870-895.
- Verhoogen, E., 2008. Trade, quality upgrading, and wage inequality in the Mexican manufacturing sector. *The Quarterly Journal of Economics*, 123(2), pp.489-530.
- Yeaple, S., 2005. A simple model of firm heterogeneity, international trade, and wages. *Journal of international Economics*, 65(1), pp.1-20.

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