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# Note on UK Agro Industrial Trade Under a Hard Brexit<sup>1</sup>

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For the United Kingdom and the European Union, the costs from the Brexit policy depends crucially on the ensuing structure of bilateral trade protection that they finally come to agree upon. For the rest of the world, Brexit will open new opportunities and create new challenges. The focus of this note is on the opportunities that would emerge for efficient agro industrial exporters in the UK market in the event of a hard Brexit. This scenario would mark the first time since 1973 that third countries face a level playing field vis a vis the EU as potential suppliers to the UK market. Partial equilibrium estimates indicate that a hard Brexit would reduce UK agro industrial imports from the EU by around 61% (from USD 45,915 million imported in 2015). Because of the relatively high protection provided to these products, this percentage is more than double the number that has been estimated for trade in all goods. The increase in food prices that would accompany adoption Brexit would likely push the UK government to liberalize imports unilaterally and/or to sign FTA's with efficient agro industrial exporters. Apparently, this will occur within a framework of a radical shift in UK agricultural policy away from the Common Agricultural Policy that targets farm income, towards market based incentives.

## I. Introduction

The outcome of the Brexit negotiations between the United Kingdom (UK) and the remaining 27 members of the European Union (henceforth EU) is still anyone's guess but under any agreement, trade flows between these partners will fall which in turn will trigger broader negative macroeconomic impacts (e.g. HM Treasury 2016)<sup>2</sup>. The Brexit trade policy that will eventually be agreed upon will fall within two extreme outcomes: i) a hard Brexit (HB) where both sides initially adopt the trade barriers that the EU28 have bound under the WTO (MFN barriers) and, ii) a most liberal trade agreement<sup>3</sup>.

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This note summarizes part of the analysis and discussion presented in Nogues (2018).

<sup>2</sup> Although we do not discuss macroeconomic effects of Brexit, we note that some forecasts diverge substantially one from the other. Two examples include estimates presented in HM Treasury (2016), and those presented by the so called "Economists for free trade" (2016). Under a scenario of a HB the Treasury document forecasts a drop in GDP that could reach -7.5% while under the assumption that after Brexit the UK adopts a free trade policy, "Economists for free trade" estimate that GDP could increase by 4%. Due to its unique assumption (UK adopting full free trade) the later estimate is an exception within the papers that address the macroeconomic impacts of Brexit.

<sup>3</sup> Given the UK red lines for the Brexit negotiations, the Brexit final agreement will be what observers understand to be "a most liberal trade agreement" like that given to EFTA members like Norway. These members must maintain open borders to the movement of persons and they must contribute financially to the social objectives of the EU both of which are included among the four UK red lines: the other two

From the perspective of the export interest of efficient agro industrial exporters, this note offers an estimate of the effects that a HB could have on agro industrial trade between the UK and the EU. There are three reasons for distinguishing these products from that of others which we call manufactures: i) the fact that under the CAP (Common Agricultural Policy) the EU bound MFN barriers are much higher, ii) the EU long history with several countries indicating that even where it has agreed to ambitious FTAs, the agricultural chapter has always been highly restrictive so it is unlikely that in these goods the Brexit agreement will be liberal and, iii) the import contraction effects following adoption of these barriers is serious enough so as to conjecture that in order to minimize food price inflation, the UK would switch to international markets either liberalizing unilaterally and/or engaging in FTA negotiations with efficient agro industrial exporters<sup>4</sup>.

The order for the rest of this note is as follows. Section II presents a picture of the structure of agro industrial trade between the UK and the EU. Section III will discuss briefly the differences in the bound EU's MFN tariffs between agro industrial and manufactured goods, while Section IV address the likely impact of a HB on UK agro industrial imports from the EU. Section V will discuss the implications of ending the CAP subsidies and directions towards which the UK agricultural policies will apparently be moving. Concluding remarks are presented in Section VI.

## II. UK agro industrial trade with the EU

The EU is by far the major trade partner of the UK but because of its growing trade deficit in goods, over time the relative importance of this market has shifted. While in 2001 the EU accounted for 59% of aggregate UK exports, by 2015 this number had declined to 44% (table 1)<sup>5</sup>. On the import side the opposite has occurred: in 2001 UK imports from this source accounted for 50% but by 2015 this number had increased by five percentage points to 55% (table 2).

**Table 1:** UK aggregate and agro industrial exports to the EU and to the world (million USD)

HS chapter (1)	Exports to the EU		Exports to the world		EU share (%)	
	2001	2015	2001	2015	2001	2015

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being an independent trade policy and ending the reliance on the European Court of Justice. (Holmes and Gasoriek 2017).

<sup>4</sup> For example, FTA negotiations with Australia are underway and apparently they have also been (or will be) initiated with the Mercosur countries (<https://www.euractiv.com/section/trade-society/news/mercosur-to-consider-trade-deal-with-united-kingdom/>). Discussions are also under way for a US-UK trade agreement.

<sup>5</sup> For the purpose of this note, agro industrial products are identified by the first twenty-four chapters of the Harmonized System (HS).

Agro industrial	8,838	18,011	14,520	29,565	60,87%	60,92%
All goods	165,521	204,115	279,425	466,296	59,24%	43,77%
Agro industrial share (%)	5,34%	8,82%	5,20%	6,34%	na	na

**Notes:** Agro industrial products are identified with chapters 1 thru 24 of the Harmonized System (HS); na: not applicable.

**Source:** Trademap.

Table 1 and 2 also show that trade of agro industrial products represent a relatively small share of total trade: 8.8% for exports and 13,2% for imports in 2015. For these products the dependence on the EU as a source of supply has increased twice as much as the case has been for all goods: five percentage points for aggregate imports vs ten percentage points for agro industrial products: from 61% in 2001 to 71% in 2015 when these imports totaled USD 64,548 million<sup>6</sup>.

**Table 2:** UK aggregate and agro industrial imports from the EU and from the world (million USD)

HS chapter	Imports from EU		Imports from world		EU share (%)	
	2001	2015	2001	2015	2001	2015
Agro industrial	18,649	45,915	30,431	64,548	61,3	71,1
All goods	180,823	347,340	358,703	630,251	50,4	55,1
Agro industrial share (%)	10,3	13,2	8,5	10,2	na	na

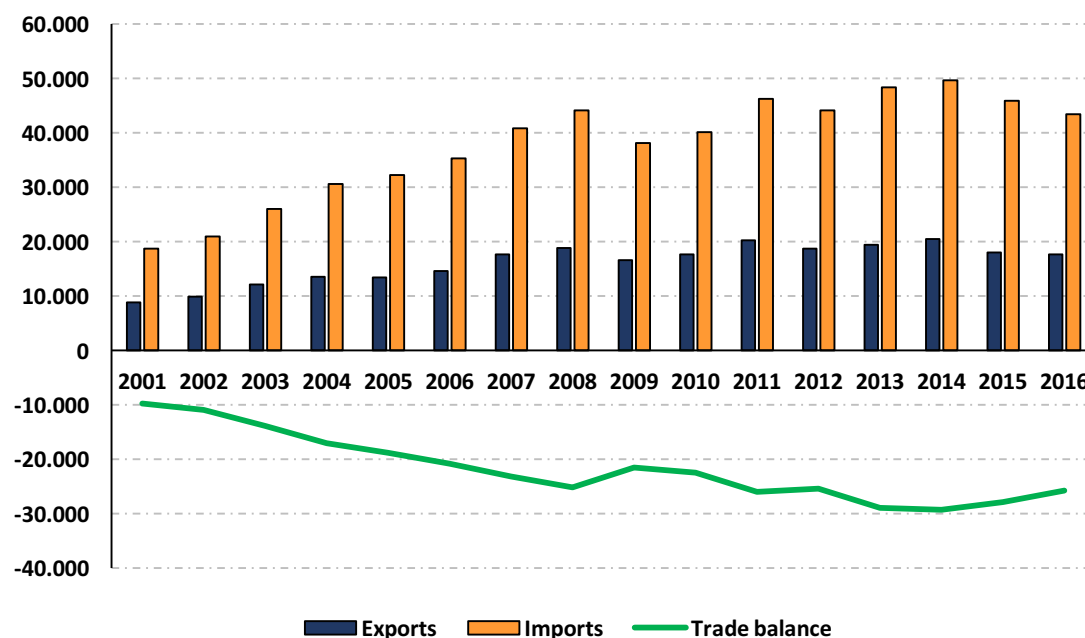
na: not applicable

**Source:** Trademap.

For the period 2001-2016, graph 1 shows the growing deficit of the UK-EU trade in agro industrial products. As seen, this deficit has been driven mainly by a relatively fast import growth that peaked in 2014 with nearly USD 50,000 million. Although since then these imports have declined to USD 43,000 million, by historical standards they remain at a relatively high level.

**Graph 1:** Exports, imports and trade balance of UK agro industrial trade with the EU (million USD)

<sup>6</sup> In some cases the share of the EU in UK agro industrial has grown very fast. For example, between 2001 and 2015 the share of imports coming from the EU grew as follows: frozen boneless meat from 40% to 80%; chicken meat from 78% to 90%; and wine from 40% to 70% (Nogues 2018). In these cases, strong trade diversion effects appear to have been present.



**Source:** Trademap.

Table 3 shows imports, exports and trade balance for the five most important agro industrial chapters of the HS imported by the UK from the EU. In 2015 imports of these products totaled USD 21,710 million equivalent to 47% of all agro industrial imports from this origin. In 2015 and except for alcoholic beverages, imports from the EU are more than double exports to this destination resulting in a deficit of around USD 13,000 million.

**Table 3:** UK-EU trade in five selected agro industrial chapters of the HS: 2015 (USD million)

HS chapter	Product	UK imports from the EU	UK exports to the EU	Trade balance
22	Alcoholic beverages, vinager	6,379	3,826	-2,553
02	Meats	4,845	1,591	-3,254
19	Cereal and milk preparations	3,911	1,509	-2,402
04	Milk, dairy products	3,675	1,336	-2,339
20	Preparations of fruits and vegetables	2,900	477	-2,423
Total		21,710	8379	-12,971

**Source:** Trademap.

Moving closer to the product level, let us take the case of meat whose average EU MFN bound tariffs is according to Lawless and Mogenroth (2016), the highest of the 99 HS chapters. Table 4 shows UK import volumes of different types of meats from the EU and from the world. In 2015, the UK imported 1,353 thousand tons of meat from the EU which as seen, represented 87,5% of aggregate meat imports. As shown in the next section, under a HB imports from the EU will decline substantially opening important export opportunities for efficient meat exporters like the Mercosur countries.

This is in sharp contrast to the current scenario which in part because of the high import barriers under the CAP, Argentina exports a small fraction of 51,000 tons to the EU of which only around 10% go to the UK (3,8% of UK meat imports from the EU).

**Table 4:** UK (Argentina) meat imports (exports) from the EU (to the EU) and the world (to the world): 2015 (thousand tons)

Product	HS code	UK			Argentina		
		Imports		EU/World %	Exports		EU/World (%)
		EU	World		EU	World	
Pigmeat	0203	369	370	99,8%	0	0	0,0%
Chicken meat	0207	432	453	95,2%	9	213	4,1%
Meat residues	0210	260	314	82,8%	0	1	0,1%
Bovine meat fresh	0201	185	202	91,6%	30	55	54,9%
Bovine meat frozen	0202	59	67	88,3%	2	76	2,4%
Other meats	n.a	48	141	34,1%	10	103	9,9%
<b>Total</b>		<b>1.353</b>	<b>1.547</b>	<b>87,5%</b>	<b>51</b>	<b>449</b>	<b>11,3%</b>

**Source:** Trademap.

### III. EU bound MFN agro industrial barriers

Lawless and Mogenroth (2016) present EU average bound MFN tariff rates for the 99 chapters of the HS. According to these figures, the simple average rate for the agro industrial chapters (chapters 1 thru 24 of the HS) is 16% while for manufactures (chapters 25 to 99) this average is 4%. This difference is the major determinant of the impacts of a HB on the UK trade flows of these two product groups far more important for agro- industry than for manufactures.

Table 5 shows average rates for the same five HS agro industrial chapters listed in table 3. Except for alcoholic beverages, the tariff rates for the other four chapters are very high with meats and dairy products being the most protected. In fact, the average rate of 49.4% for meats, is the highest among the 99 chapters of the HS.

**Table 4:** Average EU28 bound MFN tariff rates of the EU28

Product	HS chapter	EU28 MFN bound rate
Alcoholic beverages, vinager	22	3.9
Meats	2	49.4
Cereal and milk preparations	19	15.1
Dairy products	4	31.3
Preparations of fruits and vegetables	20	20.9

**Source:** Inferred from Figure 3 in Lawless and Mogenroth (2016).

Before using these numbers for quantifying trade effects in the next section, some brief words of caution are in order. First, the average for each chapter are arrived at by some methodology that is non reported in Lawless and Mogenroth (2016). Second, even if we knew how these averages have been constructed, there is no unanimous agreement about which in fact are the true numbers corresponding to each chapter. For example, Holmes and Gasoriek (2017) report that the average rates for cereal preparations (chapter 19), and preparations of fruit and vegetables (chapter 20) are 10.7% and 17.7% which are below the numbers reported in table 4<sup>7</sup>. For other chapters the opposite occurs. For example, for cocoa, coffee, etc. (chapter 9 not included in table 4), these authors report an average rate of 6,1% while for Lawless and Mogenroth (2016) this number is 4,1%.

Finally, within each chapter there usually are many products and the individual tariff rates can be quite different than the average rate of the corresponding chapter. For example, belonging to chapter 2 of the HS is boneless frozen bovine meat (line 020230) with a maximum equivalent MFN tariff rate of 87,3%<sup>8</sup>. Therefore, using the average rate reported in Table 4 for meat products (49.4%), would seriously underestimate the trade effect of a HB on the UK imports of boneless meat from the EU.

Given the main objective of this note of offering an order of magnitude of the effects of a HB on UK agro industrial from the EU, uncertainties regarding the precise tariff for each chapter does not change the conclusion to be arrived in the next section.

#### **IV. Impact of a HB on the UK trade flows of agro industrial products**

The trade impact of Brexit has been assessed using both gravity functions and parameters from import demand equations. Regarding gravity functions, a number of

<sup>7</sup> By the way, Holmes and Gasoriek (2017) also do not report how their chapter-specific average tariffs have been constructed.

<sup>8</sup> Under te CAP the EU protects its meat producers with a mix tariff of which the ad valorem rate is 12,8% and the specific tariff ranges from 221€/100kg to 304€/100kg. Nogues (2018) explains how the average rate of 87,3% was estimated.

studies have estimated the negative impact of a HB on the UK trade with the EU and some of the numbers appear to have gone overboard. For example, the often-cited study by the UK Treasury (HM Treasury 2016), estimated that in relation to non EU members, trade flows of member countries with the EU more than doubled since membership. Therefore, leaving the EU would be accompanied by a significant trade shock triggering a declining GDP that would reach -7.5% in relation to a non Brexit scenario. The magnitude of this trade effect has been criticized by Gudgin and others (2017) who noted that the Treasury estimate did not take into account of the fact that UK trade in goods with the EU has been less important and has behaved less dynamically than that of other members. Based on similar gravity equations and time periods as those used by the Treasury but adding a UK country specific dummy, these authors concluded that "...the impact of Brexit on UK trade will be smaller than estimated by the Treasury..." (Gudgin and others 2017, p 32).

From their re estimation of the Treasury numbers using similar gravity equations, Gudgin and others (2017) also conclude that "...our estimates of the impact of the UK alone are close to the impact of WTO tariffs..." adding that "...The ESRI (referring to the paper by Lawless and Mogenroth)<sup>9</sup> estimates of the impact solely of tariffs may thus be nearer the true impact than any estimate based on a gravity model..." (p 32). Lawless and Mogenroth estimates for the impact of a HB on aggregate trade fall somewhere between 22% and 31% depending on the elasticity of import demand. This discussion therefore provides a higher degree of assurance in our estimates.

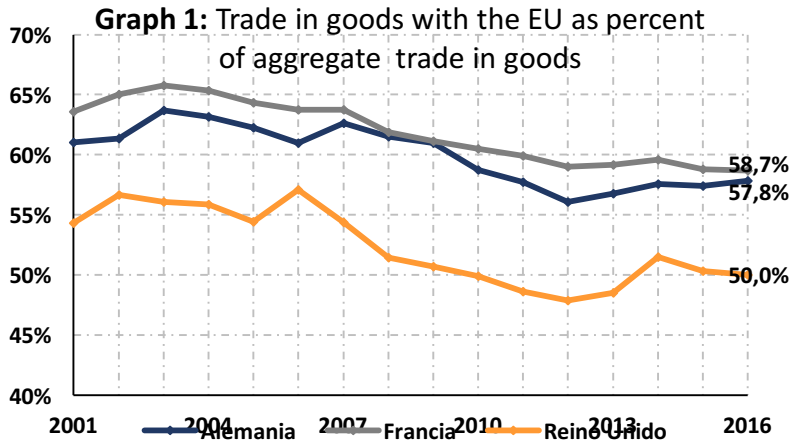
Graphs 1 confirms the existence of differences between the importance of the EU market for the UK on the one side, and Germany and France on the other. In fact, for the UK, the EU market has never been more important than it has for the other countries. Also, for all three countries the time trends show that since 2001 their reliance on the EU has been declining and since the respective peaks, this trend has been a little steeper for the UK. Although the difference for this is not clear, one presumption is that the UK is among the least regulated economy in the EU and therefore, it has relied less than other members on this sheltered market (OECD 2015). A second reason is that the UK is a more important trader of services than are Germany and France<sup>10</sup>.

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<sup>9</sup> My clarification.

<sup>10</sup> The following graph illustrates:

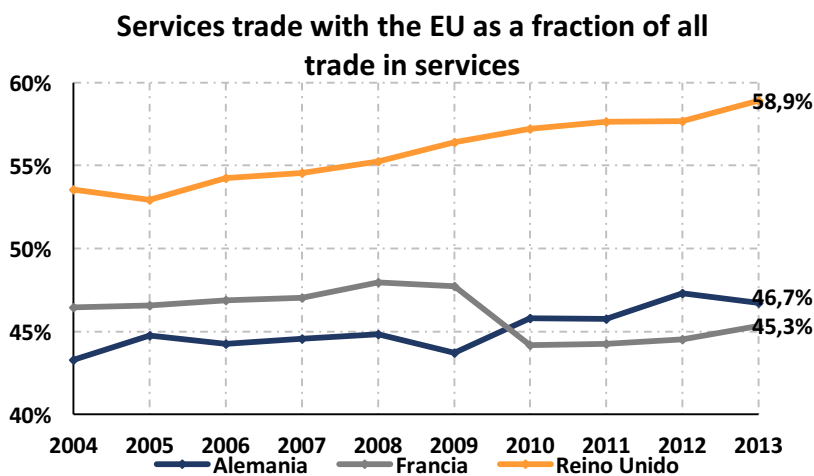




**Source:** Trademap.

Besides gravity equations, estimates of the trade effects of a HB has relied on the price elasticity of import demand. The advantages of this method over gravity equations is not only that the economics is clearer but also, that simulations do not require thousands of observations and can be easily computed for alternative parameter values. This is the methodology applied by Lawless and Mogenroth (2016). For each of the 99 HS chapters, these authors estimated the trade reduction effects of shifting from the current scenario of nearly free trade within the single market, to one where the EU bound MFN tariff prevail for trade between the UK and the EU<sup>11</sup>.

Table 5 shows the simple average trade reduction impacts of such a policy for agro industrial products (chapters 1 to 24 of the HS), and manufactures (chapters 25 to



**Source:** Eurostat.

<sup>11</sup> For product  $i$  the trade reduction effect (%) is estimated by the following expression:  
 $\Delta M_i / M_i = t_i e_i$   
 where  $M$ : value of imports;  $t$ : EU bound MFN rate, and  $e$ : import demand elasticity.

99 of the HS)<sup>12</sup>. As expected, these numbers reveal a negative impact on agro industrial trade that is more than double the estimate for manufactures<sup>13</sup>.

**Table 5:** Simple average trade reduction impact of a HB on agro industrial products and on manufactures (%)

Products	HS chapters	Import reduction	
		Simple average (%)	Weighted average (%)
Agro industrial	1-24	49.8	-61.0
Manufactures	25-99	22.3	--

**Source:** Chapter-specific import reduction effects are inferred from Figures 8 & 9 in Lawless and Mogenroth (2016). The weighted average for agro industrial products from Nogues (2018).

Given that several of the highly traded agro industrial products are also some of the most protected, the weighted averages effects of a HB is higher than the simple average shown: 61% vs 50%. To gauge this, table 6 shows the chapter-specific trade effects of a HB for five of the most highly traded products with the EU. For these chapters, the reduction in UK imports from this origin is 84% (USD 12,859 million from USD15,331 million in 2015), which is more than 70% higher than the average import adjustment for all agro industrial products shown in table 5 (49.8%).

**Table 6:** Import reduction effect of a HB: selected HS chapters 2016 (USD million)

Product	Import reduction effect (%)	2015 imports	Import reduction
Alcoholic beverages, vinager	38.1	6,379	-2,430
Meats	92.9	4,845	-4,501
Cereal and milk preparations	85.7	3,911	-3,352
Milk, dairy products	66.7	3,675	-2,451
Preparations of fruits and vegetables	88.1	2,900	-2,555
Total	na	15,331	-12,859

**Source:** Elaborated on the basis of import reduction effects in Lawless and Mogenroth (2016) and Trademap.

In interpreting these numbers some caution is in order. First, the trade reduction effects require estimates not only of average tariff rates but also, of sector-specific import elasticities which are non reported in Lawless and Mogenroth (2016). For example in order to have a reduction of 85,7% of UK imports of cereal and milk preparations from the EU (table 6), then given a 15,1% average MFN tariff (table 4),

<sup>12</sup> See Nogues (2018) for HS chapter-specific numbers.

<sup>13</sup> We have found only one other study that using time periods, policies and regions that are different to those in this note, has tested the trade effects of the EU market on agro industrial and manufactured trade (Hufbauer and Schott 2009). These authors find orders of magnitude quite similar to those reported in this note.

the import demand elasticity has to be as high as 5.7%<sup>14</sup>. Second, estimates are also based on the assumption that the price increases are equal to the EU bound tariffs which in some cases may be unrealistic. Third, account is not taken of the fact that there can be non-linearities in the elasticities used.

Nevertheless, we do not believe that that adjusting for these probable biases, the conclusion that UK imports of agro industrial from the EU following adoption of a HB will be significant and more important than the reduction to be suffered by imports of manufactures from the same origin.

## V. Ending CAP subsidies: towards a new UK agricultural policy

For many EU farmers the direct CAP payments account for the bulk of their farm income and now Brexit brings a sudden end to these subsidies. In the period between 2014/15 and 2016/17 these payments provided 61% of UK farm income (Mathews 2018) and as seen in table 7, for regions like Wales and Northern Ireland ending the CAP is likely to imply major structural transformations of their agricultural sectors<sup>15</sup>.

**Table 7:** Farm income and CAP payments (million pounds), 2015

Income source	England	Wales	Scotland	Northern Ireland	UK
Farm income	927	-58	223	-104	988
Environmental payments	410	43	101	51	605
Total	1,337	-15	324	-53	1,573
CAP single payment	1402	190	348	236	2,176

Source: Swinbank (2016).

The current level of farm subsidies will be maintained to 2020 so the question emerges on what the UK government's agricultural policy will be after this date? A

<sup>14</sup> According to these authors, their elasticities have been borrowed from Imbs and Meyean (2016) but the version of this paper that is available in the web does not report detailed import demand elasticities. Nevertheless the few numbers shown in this paper do indicate that at the product level import demand elasticities are quite high.

<sup>15</sup> CAP subsidies account for around 40% of the EU budget a significant fraction of which has been financed by the UK whose contributions are also coming to an end:  
<http://www.politics.co.uk/reference/common-agricultural-policy> .

recent policy document indicates that the UK will be moving towards a market based system of agricultural incentives (Department of Environment 2018). The document is highly critical of CAP policies that have targetted farm income as its major goal. The UK government assesment of these policies is that they have distorted land prices, stffled innovation and prevented increases in productivity<sup>16</sup>. Therefore, it "...proposes to move away from direct payments in England, eventually phasing them out altogether...". Instead, they would be replaced with a system of "...public money for public goods..." (Mathews 2018).

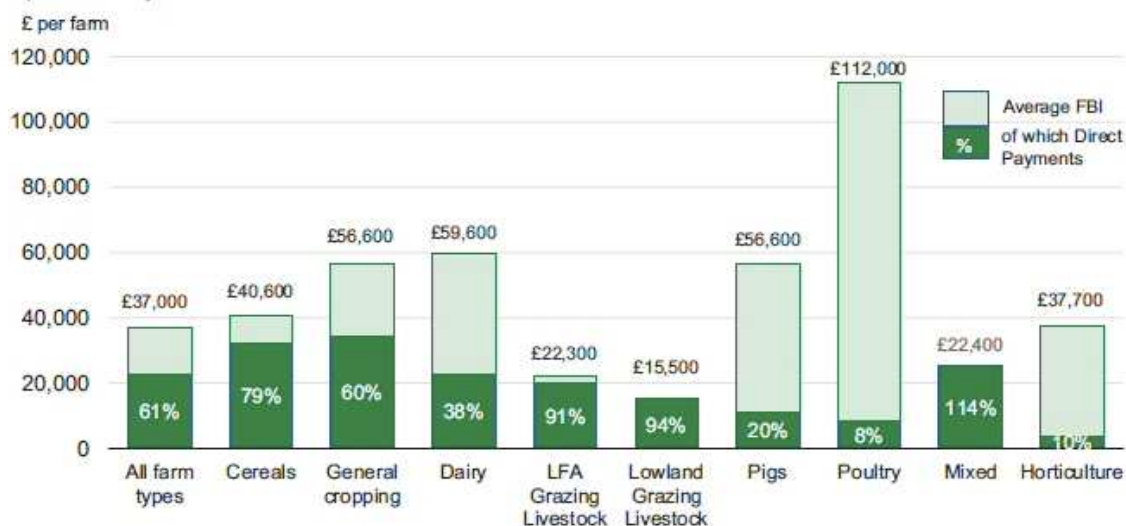
Three comments on this policy goal. First, this vision is set for England but not for Wales, Northern Ireland and Scotland who remain free to design their own agricultural policy. Second, it is highly unlikely that the goal of "public money for public goods" will provide to **all** farmers the resources needed to survive under market based incentives. Third, the amount of fiscal resources for financing agricultural public goods will enter in competition with other public policy goals that are financed thru te budget. Under this situation it is highly unlikely that aggregate farm subsidies will come (in relation to those available under the CAP) unscratched from this process. Finally, on the political economy front, assesment of the new direction to which te UK will be moving has to take account the fact that the farm lobby has has been a strong supporter of the CAP. Some leading organizations of this lobby include "The Tenants Farmers Association" and "The National Farmers Union" who recently demanded to the government "...guarantees that the support given to our farmers is on a par with that given to farmers in the EU who will still be our principal competitors" (Mathews 2016). In defending the maintanance of the current level of CAP subsidies, these lobbies are also defending their highly skewed distribution in favor of big farms (Reuters 2017).

Graph 2 provides estimates of the fraction of farm income by line of activity that has recently been financed by the CAP subsidies. Although there are some of these activities that are highly dependant on them (eg livestock grazing and cereals), without a more precise definition of the details of the new policy, we cannot be sure that the farmers in these activities will be the ones to be the hardest hit.

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<sup>16</sup> Many studies have been critical of the CAP policies. See for example Helm (2017).

Average Farm Business Income (FBI) and the proportion that comes from Direct Payments by 2016 farm type (based on 3 year matched dataset 2014/15 to 2016/17)



**Source:** Mathews 2018.

If adoption of the new policy results in high implementation costs and/or the level of farm subsidies declines substantially, then agricultural output might suffer at least for some time and this could open additional export opportunities for efficient exporters. Finally, if the new market-based policy ends up being deemed a success, it will have shown a roadmap which the EU could use for reforming its outmoded CAP policies. If so, this could end up being one of the biggest benefits of Brexit.

## V. Final remarks

This note's major goal has been to answer the following question: by how much would UK imports from the EU decline in the event of a HB? Our answer: by around 61% (or USD28,000 using 2015 trade flows). While a HB is unlikely, something closer to it than the alternative of a very liberal agricultural chapter is more likely. This conclusion rests on the fact that in the FTAs that the EU has signed with many countries, either the agricultural chapter or at the very least important sensitive products, have been excluded altogether.

Although we have not researched the consumer price inflation of adopting the EU bound tariff rates, their sheer size for agro-industrial tariffs and the high share of imports from the EU indicates that food prices will be particularly hit by Brexit. This in turn would move domestic consumers to switch the source of imports from the EU towards efficient agricultural exporters.

Since 1973 when the UK joined the EU, successive governments have been critical of the CAP's policies and now Brexit has opened the opportunity to redefine the country's agricultural policies and apparently it is doing just that. The signals available indicate that England will be moving in favor of market-based incentives complemented by subsidy payments in line with the policy of "public money for public goods".

Moving to market based agricultural incentives suggests that the EU bound MFN tariffs will be short-lived if ever the government adopts them. What common sense of the post Brexit situation suggests is that in order to prevent food price inflation, UK will likely open its markets and/or negotiate FTAs as it is already doing initially perhaps with the Commonwealth countries but also with other efficient agro industrial exporters. Finally, it is important to remind that competition to export to the UK market will not only be price-based but goods will also have to comply with the stringent levels of quality and environmental goals that the government is likely to set to its own farmers in order for them to benefit from the new subsidy policies.

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