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EU market access for agricultural products in the Doha Development Round: A sensitive issue

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ABSTRACT

This paper examines how EU trade flows and production values are affected by introducing special treatment for developed countries' sensitive products into a potential DDA agreement. In particular, it explores how the EU's decisions regarding the size of the tariff cut for sensitive products and the corresponding size of TRQ expansion affect its protection levels, its own GDP and that of other countries and regions. It is assumed that the EU's management of its sensitive product regime aims to maintain farm incomes and production values, rather than to minimise import access. A novelty of the paper is that it explores the extent to which achieving this aim depends on similar decisions taken by other developed countries. The simulation tool used to analyse thirteen scenarios, with a time horizon of 2020, is the global Computable General Equilibrium model GLOBE. Results indicate that the lowest tariff cuts for sensitive products may not necessarily lead to the smallest decrease in agricultural production. Moreover, the interdependencies between the sensitive product choices of developed countries are considerable. The extent to which EU management decisions relating to sensitive products matter for the impact of a DDA agreement on third countries' GDP is also examined.

1. Introduction

The current round of multilateral trade negotiations among WTO member governments has been underway for ten years. Known as the Doha Round after the city of its official launching, and also as the Doha Development Agenda in recognition of its intention to focus on the needs of developing countries, it is now the longest-running multilateral round since the initiation of the GATT.

Agriculture has proved to be one of the most difficult of the 21 trade areas covered by the Round. It became apparent early in the Round that market access for agricultural products would be a major line of division between developed and developing country interests, with effective action on developed countries' agricultural tariff peaks high on the list of demands of the G20 and G33 country groups. The Revised Draft Modalities for Agriculture, drawn up by the chairman of the Committee for Agriculture in 2008 (WTO, 2008a) and setting out the areas of conditional consensus as well as those where strong divergences still exist, propose a tiered schedule for tariff cuts¹ that is both steeper and deeper for developed countries than for developing countries (and from which least-developed countries would be virtually exempt). Various features of this proposal are among the more contentious unresolved issues.

In the face of seemingly intractable negotiating differences, 'flexibility' has been seized upon and promoted as a key ingredient for advancing the Round. Not only are countries urged to be more flexible in their negotiating positions, but greater flexibility has been introduced into mechanisms and formulae under discussion for achieving greater trade liberalization.

In the context of agricultural market access, flexibility takes the form of building into the rules various possibilities for individual countries to tailor their binding trade commitments so as to take more account of country-specific trade concerns. The Revised Draft Modalities propose flexibility with respect to tariff reductions by allowing countries to designate 4% of their tariff lines as 'sensitive products' (or up to 6% if more than 30% of their tariff lines have tariffs greater than 75%). Tariff cuts for these products would be smaller than those required by the tiered tariff cut schedules, but this would be balanced by increased market access for these products through expanded tariff rate quotas.

Under this proposal, all countries subject to tariff cuts may designate sensitive products². However, developing countries have an alternative option of designating up to 12% of their tariff lines as 'special products', defined according to the criteria of food security, livelihood security and rural

¹ Tariff bindings are grouped into 'tiers', or bands, according to their size. The size of the tariff cut increases progressively for tiers with higher tariffs.

² With differential treatment for developing countries, especially recently acceded members.

development. A total of 5% of tariff lines qualifying as special products may be exempt from any cut, whilst the average cut across all special products would not be less than a mere 11%. It is expected that developing countries will opt for the more favourable special product regime rather than the regime for sensitive products.³

Critics of the sensitive product provision argue that it promotes flexibility at the expense of both tariff simplification and the level of ambition of a potential agreement. In the negotiating context, not only is consensus lacking on the concept of sensitive and special product regimes itself, but also agreement on the specific parameters delineating them is likely to be hard to reach. As underlined in the recent report by the chairman of the Negotiating Group on Agriculture to the Trade Negotiations Committee (WTO, 2011), disagreement over market access issues is still a major factor in the failure to close the agricultural chapter.

For trade modellers and analysts, more flexible WTO rules and more choices offered to individual countries make *ex ante* simulation of the impacts on agricultural markets and trade of a possible Doha Round agreement much more complex and highly conditional upon the particular options adopted by each country or trade bloc, especially as regards impacts on individual commodities.

A few recent studies have explored the sensitivity of the impacts of a trade agreement to the final form taken by the market access provisions. Efforts have so far focused on three types of uncertainty involved. First, the sensitivity of impacts to the *percentage of tariff lines* that developed countries may designate for their sensitive products was investigated by Vanzetti and Peters (2008) using a partial equilibrium global trade model to simulate the impact on imports, exports, welfare and producer surplus of allowing this percentage to vary between zero and 10%. The study concludes that although changes in *average tariffs* are quite sensitive to the percentage of sensitive products, impacts on *trade flows* and *welfare* are affected relatively little.⁴ Jean, Laborde and Martin (2010) find that doubling the share of tariff lines from 2 to 4% causes only a small additional reduction in the extent of 'delivered liberalisation' compared with the large reduction already achieved by the first 2% of tariff lines selected. In the negotiating context, however, Japan and Canada have both declared themselves unable to accept the 4% limit (WTO, 2008b; WTO, 2011).

The percentage of tariff lines that countries can designate as sensitive products will be laid down in the final multilateral agreement. However, *which products are designated as sensitive* is a country-specific choice that will be determined subsequently and unilaterally. This is a second source of uncertainty when conducting *ex ante* simulations. Initially, it was commonly assumed in the literature that countries will select sensitive products in descending order of bound (Sharma, 2006; Vanzetti and Peters, 2008) or applied tariffs (Martin and Wang, 2004). Because applied tariffs are often well below their bound values, and some of the highest applied tariffs are for lines with very small or no import volume, this approach has been criticized for underestimating the impact of sensitive products on the size of the (trade-weighted) average tariff cut. As an alternative, Jean, Laborde and Martin (2006) explored the implications of selecting sensitive products as a function of tariff revenue loss. Jean et al (2006) find that even with a low percentage of tariff lines as sensitive products, the cut in the average tariff is sharply reduced compared with the tiered formula result. At the same time, the share of trade affected is substantially larger than the percentage of tariff lines declared to be sensitive.

³ There is additional flexibility specified also for the special product regime that both singles out recently acceded members for slightly more lenient treatment, and also introduces more flexibility in the choices facing individual countries.

⁴ The average post-Doha tariff for developed country WTO members is 74% higher with 10% sensitive products compared with no sensitive products, but the corresponding differences are just -15% for developed country imports and -18% for developing country exports; the welfare gain for the EU is 9% smaller, whereas the welfare *loss* for developing WTO members is 57% smaller. The loss in EU agricultural producer surplus between the two extremes is 7% smaller with 10% sensitive products compared with none.

Jean, Laborde and Martin (2010) take a theoretical 'political economy' approach where governments are assumed to select sensitive products so as to maximize an objective function that takes account of the political benefits of providing protection as well as the consumer and taxpayer costs. These authors' calculations comparing the average tariff rate after applying different selection criteria (with a 2% sensitive product limit) showed that in general their political economy-based assumptions provide somewhat more 'shelter' against a reduction in the average tariff than the 'highest-applied-tariff' rule, but considerably less than the 'minimum tariff loss' criterion.⁵

The Revised Draft Modalities propose another element of flexibility, namely a choice between different *combinations of smaller tariff cut and greater tariff rate quota expansion*. The tariff reduction for a sensitive product may be 1/3, 1/2, or 2/3 of the reduction specified by the tiered formula, matched by the creation or expansion of *erga omnes* market access quotas for the corresponding product of an additional 4%, 3.5% or 3%, respectively, of domestic consumption. Each country will choose the optimal combination of tariff cut relief and quota expansion unilaterally, and could in theory optimise the chosen combination for each individual sensitive tariff line. This constitutes a third source of indeterminacy affecting the *ex ante* specification of Doha Round scenarios.

Gouël et al (2010) explore the trade-off between a smaller tariff cut and a larger quota expansion by simulating post-Doha scenarios in which the EU and Japan together adopt each of the three proposed combinations of tariff cut plus quota expansion for their sensitive products. The assumed lists of sensitive products were selected following the political-economy approach (Jean et al, 2010) with no further details given. No information is provided on the assumptions regarding other developed countries' treatment of sensitive products, although it can be assumed that this treatment remains constant across the scenarios. Gouël et al (2010) report that the global welfare improvement with the 2/3 and the 1/3 tariff-cut options is only 72% and 43%, respectively, that of a Doha Round agreement without sensitive products, whilst the global increase in agricultural trade is 74% and 58%, respectively, of what is simulated for an agreement without sensitive products. The increases in market access for agricultural products available from an agreement with no sensitive products are reduced by 17% and 30% for the EU, and by 33% and 53% for Japan, respectively.

The present paper also examines the sensitivity of the impacts of a Doha Round agreement to the combination of tariff cut and TRQ expansion for sensitive products. However, the focus here is on the options facing the EU and in particular, whether the EU's optimal choices are conditional on the choices made by other developed countries regarding their own treatment of sensitive products. When other developed countries expand their market access for products that are also traded by the EU, this can boost EU exports to these markets⁶ or to third markets. In addition, the expected rise in the world market price following greater market access in other developed countries is likely to reduce some EU demand for imports, for any given degree of the EU's market opening. Therefore, it is of interest to look at the impacts of the different choices by developed countries on both EU imports and exports.

The view taken in this paper is that the EU's agricultural protection is motivated largely by the farm income objective, especially regarding particular sectors. It follows that the end-targets are not the trade flows themselves, and that –given agriculture's small share in the EU economy and in consumers' budgets– the choice of the EU's sensitive products that will not be strongly influenced by consumer or taxpayer costs of protection. This view has two implications. First, in selecting a

⁵ In the EU, the ranking is a little different. With 2% of tariff lines allowed as sensitive products, the (weighted) average tariff for agricultural goods of 13.4% falls to 5.9% when the formula cuts are applied, to 7.1% when product selection follows the 'political economy' approach, to 7.5% when products with the highest applied tariffs are chosen, and to 9% when the selection criterion is the minimization of applied tariffs.

⁶ Jean, Josling and Laborde (2009, Tables 14 and 15) show that the sensitive product regime may increase the average tariff (after allowing for the formula cut, tropical products and tariff escalation provisions) faced by EU exporters in developed countries roughly by a factor of three.

hypothetical list of EU sensitive products, we have used the 'highest applied tariff' criterion, on the assumption that the current pattern of applied tariffs reflects the prevailing political consensus of where income protection is most needed. According to this reasoning, when a high tariff is matched with a zero trade flow, this means that the high tariff has been fully successful in protecting domestic production of the product. According to our view, this would *not* be a reason for dropping that product from the sensitive product list. Second, our behavioural assumption means that the most relevant impact indicator (i.e. closest to the farm income objective) is the net change in the value of production rather than changes in imports. Nonetheless, evidence regarding scenario impacts on imports and exports is particularly useful in that it reveals their separate roles in determining the net effect on production value.

The rest of the paper is structured as follows. Section 2 describes the model used, and the most important additional assumptions made in order to use it for this study. Section 3 presents the scenarios examined. Section 4 discusses the results. The conclusions are given in Section 5.

2. Methodology

2.1. The GLOBE model

GLOBE is a Social Accounting Matrix (SAM)-based global CGE model calibrated to the GTAP database version 7.1. Its development has drawn particularly on the IFPRI standard model (Lofgren *et al.*, 2002) and the PROVIDE Project model (McDonald, 2003), as well as the GTAP model (Hertel, 1997). GLOBE's SAM disaggregates each region's economy into eight accounts⁷. Its behavioural relationships are standard CGE model choices (see McDonald *et al.*, undated).

GLOBE consists of a set of single-country CGE models linked by their trading relationships. Each region has its own numéraire price, typically the consumer price index (CPI) and a nominal exchange rate, while the model as a whole requires a numéraire, which is an exchange rate index for certain reference regions⁸. In the version of GLOBE used for this study, the reference regions are the member countries of the OECD.

GLOBE distinguishes 23 product categories across the whole economy. All product categories are agricultural or food-related except five: primary products, manufacturing, services, 'trade' and fuel⁹. Thirteen regions are delineated, of which one is the EU. GLOBE also contains a 'dummy' area, which absorbs inter-regional trade flows for which either the source or destination are not identified (see McDonald *et al.*, undated).

CGE model simulations typically adopt standard 'neo-classical' closure rules, namely: (1) trade balance fixed and exchange rate variable, (2) savings fixed and investment variable, (3) government budget deficit/surplus variable and household income tax rate fixed, (4) total factor productivity growth variable, (5) labour fully mobile and (6) full employment of factors. GLOBE allows for user-defined closure rules. The closure rules used for this study (Table 1) were chosen to be consistent with cross-country differences in macro-management policies and conditions. For example, developed country exchange rates depend not only on the trade balance but also on foreign capital movements and (exogenous) policy adjustments, whereas the exchange rates of least developed countries are likely to be determined by their trading possibilities.

All commodity and activity taxes are expressed as *ad valorem* tax rates, while income taxes depend on household incomes. Tariff concessions agreed for all Free Trade Areas currently in force with the EU and a custom union among the 27 EU Member States are recognized in the model.

⁷ Outputs, intermediate inputs, factors, households, government, capital, margins (trade costs and transport) and rest-of-the-world.

⁸ This is very different from the GTAP model, which does not contain nominal exchange rates and has a single global numéraire.

GLOBE was extended so as to include multilateral TRQs, adapting the bilateral approach of van der Mensbrugge (2005: 26-27) for the multilateral case.

Table 1: Assumptions concerning model closure

Closure Rule	Developed countries¹⁰	Middle-income developing countries	Low-income developing countries
1: Foreign exchange account	Exchange rate exogenous (fixed projection), trade balance variable	As for developed countries	Exchange rate variable, trade balance fixed
2: Capital account	Volume of investment fixed, savings variable ('investment driven')	As for developed countries	Investment not fixed, savings rate fixed (savings driven')
3: Government account	Budget surplus/deficit fixed, household income tax rate variable	Budget surplus/deficit variable, household income tax rate fixed	As for middle-income countries
4: Technology and efficiency	Total factor productivity growth fixed so as to achieve GDP projection for 2020 in reference scenario; GDP variable in policy scenarios	As for developed countries	As for developed and middle-income countries
5: Factor markets: mobility (between agriculture and non-agriculture sectors)	<i>Unskilled labour</i> : mobile <i>Skilled labour</i> : mobile <i>Capital</i> : mobile <i>Land</i> : mobile between different uses within agriculture, does not 'exist' in no-agricultural sector	As for developed countries	As for developed and middle-income countries
6: Factor capacity use	<i>Unskilled labour</i> : full employment not assumed <i>Skilled labour</i> : full employment not assumed <i>Capital and Land</i> : full capacity use not assumed	As for developed countries, except that full capacity use of capital assumed	As for middle-income countries

Following the standard assumption in the literature on multilateral TRQs (Gouel et al. 2010), the entire quota rent is assigned to importers and is treated as part of government income. In a one-household model like GLOBE, this has no implications for consumer welfare.

The exogenous projections of inflation rates, exchange rates, trends in the availability of the five fixed factors, population and GDP used are shown in Table A1. In order to use an exogenous projection of GDP in the reference scenario, the model was solved assuming the level of technological progress achieved by 2020 to be endogenous. This value was then taken as given in the policy scenarios, allowing GDP to be endogenously determined and hence different from the assumption used for the reference scenario. However, this means that technological progress itself was assumed to be independent of a freer trading environment.

2.2. Modelling the DDA agreement

It is assumed that the Doha Round agreement is fully phased in by 2020 and that it includes the abolition of export subsidies.

⁹ The product category 'trade' includes transport costs and other trade services, and margins.

¹⁰ EU27, USA, Japan, Canada, Iceland, Israel, Norway, Switzerland, Australia, Chile and New Zealand.

Calculation of ad valorem equivalents (AVE) and tariff cuts

Product-specific AVEs of final bound tariffs were calculated for all 153 WTO members and several non-WTO countries using tariff information from the database Market Access Maps (MAcMap-HS6, v2 (Bouët et al., 2004)). Average world unit values for 2000-2004 from MAcMap, were used to convert specific tariffs. This was done at the HS-6 level for both agricultural products (as defined according to the WTO nomenclature) and industrial products¹¹. Calculated AVEs were then aggregated to fit GLOBE's 23 composite commodity categories using average import shares for the period 2004-2009 as weights. All tariff cuts were implemented using the TASTE program (Horridge and Laborde, 2010) based on information about *ad valorem* and specific tariffs from MAcMap. In the simulations, if the reduction in tariff bindings brings the bound tariff below the level of the existing applied tariff, the latter is adjusted downwards to the maximum allowed under the new binding; alternatively, if the reduced tariff binding is still above the level of the applied tariff, the latter remains unchanged.

The standard cuts in agricultural tariffs follow the tiered schedule set out in the Revised Draft Modalities for Agriculture (WTO, 2008), differentiated for developed countries, non-LDC developing countries, least developed countries (LDCs), small and vulnerable economies, and two categories of recently acceded members (RAMs) (details available on request).

Market access

Sensitive products are defined for the WTO member countries declaring themselves to be 'developed' (see footnote 9). For Japan, Canada, the US, Switzerland, Iceland, Israel, and Norway, the list of sensitive tariff lines (HS-8 level) was obtained on the basis of their notifications to the WTO¹². For the EU, Australia and New Zealand, an assumed list of sensitive products was drawn up on the basis of AVEs of applied tariffs. In particular, the EU's sensitive products consist of 28 product lines (at HS-6 level) with the highest AVEs of applied tariffs (at HS-6 level, this is equivalent to 4% of product lines, or 88 tariff lines of 2204 HS-8 tariff lines).

As well as the trade-offs between the size of tariff cut and TRQ expansion already mentioned, WTO (2008a) states that developed countries' bound in-quota tariffs should be reduced either by 50 per cent or to a threshold of 10 per cent, whichever results in the lower tariff, and currently unbound in-quota tariffs should be bound. We assumed for simplicity that the in-quota tariffs of multilateral TRQ of developed countries are equal to zero.

Multilateral TRQs were modelled for only four countries or blocs. The expansion in multilateral TRQs for Canada, Japan and USA were calculated based on domestic consumption figures available in balance sheet notifications to the WTO (average of 2003-2005). For the EU, domestic consumption was calculated from balance sheets provided by the European Commission. The multilateral quotas calculated for each GLOBE commodity and specific country were then allocated to the country's trading partners according to their share in the country's total imports in the simulated reference scenario 2020. It was assumed that other developed countries could also declare sensitive products and implement smaller tariff cuts for them, but no corresponding increase in TRQs was modelled.

Developing countries and RAMs (List 2) are assumed to select the special product regime, declaring the 12% of agricultural tariff lines (at HS-6 level) with the highest bound AVEs as special products, of which the first 5% are completely exempt from tariff cuts, while the remaining 7% (8% for RAMs) are subject to tariff cuts of 19% and 16.1% respectively (the average tariff cut for special products for developing countries was 11%, and for RAMs List 2 10%).

¹¹ Computed AVEs of bound tariffs were used to define special agricultural products for different groups of countries and to establish a list of products exempted from 97% initiative for LDCs, and to select non-agricultural products falling under other flexibility rules.

¹² These lists were submitted in 2008 and can undergo further modifications.

Based on the list of tropical products at HS-6 level in WTO (2008a), Annex G, tropical products subject to tariff cuts were selected for each *developed* country according to whether the AVE of each product is below or above 20%. For products with AVE below 20%, the tariff is set to zero, while in the other group the tariff is reduced by 85%. Differential treatment for LDCs (31 countries) and for small vulnerable economies (SVEs) (15 countries) follows the provisions set out in WTO (2008a) (details available on request).

We also impose the general rule for non-agricultural market access (NAMA) set out in WTO (2008a) that countries reduce their tariffs linearly over a number of years according to the Swiss formula (with a coefficient of 8 for developed countries and of 20 for developing countries, and implementation periods of 5 and 9 years, respectively). More flexibility is allowed for particular countries and/or products (details available on request).

3. Policy scenarios and results

Table 2: Scenario definitions

Tariff cut for sensitive products (SP) in relation to tiered formula cut (as in WTO, 2008a)													
other DCs' SP	One third				One half				Two thirds				Full
EU SP	1/3	1/2	2/3	Full	1/3	1/2	2/3	Full	1/3	1/2	2/3	Full	Full
Scenario	1	2	3	4	5	6	7	8	9	10	11	12	13 'No SP'

Table 2 sets out the thirteen scenarios that were compared with the reference scenario representing 'no DDA agreement'. Scenario 13 is a DDA agreement that does not allow any developed countries to provide special protection for selected sensitive products. Scenarios 4, 8 and 12 depict situations where the EU is alone among developed countries in not designating any sensitive products to qualify for softer tariff cuts than specified by the tiered schedule in WTO (2008a). Although these three scenarios are very unlikely, they are included in order to show the sensitivity of the results to a wider range of options. The converse situation, where the EU is alone in declaring sensitive products whilst all other developed countries waive the right to do so, was considered equally unrealistic and unnecessary to show. To keep things simple, in each scenario it is assumed that the EU chooses the same combination of smaller tariff cut and TRQ expansion for all its products, and that the other developed countries for which sensitive products are modelled choose a common combination for all products, but which –depending on the scenario- may be different from that of the EU. Clearly, these assumptions are highly stylized but are sufficient to reveal the sensitivity of the results to the wide range of options available.

4. Results

4.1. Comparison of scenarios: EU trade flows and production values

The impacts on EU import and export flows and EU production of the thirteen scenarios relative to the reference scenario, for 2020, are reported in Tables A2 to A4. Table A2 shows that EU imports under a sensitive product regime (Scenarios 1-12) may depend strongly on the EU's chosen combination of tariff cut and TRQ expansion, but that the combination chosen by other developed countries is largely irrelevant. For rice, sugar, meat (beef and sheep)¹³ and other crops (which includes live plants and cut flowers, as well as a number of lines from HS2 Chapter 12), imports

¹³ This category also contains goat and horse meat.

increase markedly with the size of the tariff cut¹⁴. Because of out-of-quota imports in the reference scenario and the absence of any water in the tariff, the accompanying tightening of the TRQ has no effect. For wheat, other cereals, live pigs and poultry and dairy products, the reverse movement occurs. In the case of dairy imports, virtually all of which enter under TRQs and there is significant water in the tariff, market access by TRQ rather than lower tariffs is more permissive. For wheat and other cereals, imports are higher in all the scenarios with sensitive products than in Scenario 13. For some product categories, the negative impact on imports of the DDA agreement without sensitive products persists under the sensitive product regime, and this impact tends to increase with the size of the tariff cut.

Table A3 reports the impacts of the 13 scenarios on EU exports. A DDA agreement without sensitive products increases EU exports of most agricultural commodities, the exceptions being rice, sugar beet and sugar, and dairy products. The impacts on total agricultural exports and processed food are strongly positive. Furthermore, here we see that the combination of tariff cut and TRQ expansion chosen by other developed countries can influence significantly the impact on EU exports of the EU's own chosen combination of market access parameters. This is particularly evident for wheat, meat (beef and sheep) and meat (pork and poultry)¹⁵ (as well as the aggregates agriculture and processed food) where larger tariff cuts in the USA, Japan and Canada –although accompanied by smaller TRQs— give an upward boost to EU exports regardless of its own choice of market access parameters for these products.¹⁶ This is true to a lesser extent for other cereals and vegetable oils. For all these individual products, it is evidently the out-of-quota tariff rather than TRQ ceilings that are binding on access to other developed countries' markets. EU exports of the two live animal categories are also sensitive to the choice of market access parameters of the other developed countries, but in the opposite direction - their exports are *lower* when other developed countries move towards 2/3 of the formula tariff cut and smaller TRQs. This is presumably because of the converse movement in EU exports of the corresponding meat categories.

Again, dairy products behave differently. The negative impact of a DDA agreement without sensitive products on EU exports of dairy products is deeper when developed countries declare sensitive products, being greatest when other developed countries opt for the smallest tariff cut and largest accompanying TRQ expansion, and progressively less for combinations of a higher tariff cut and smaller TRQ expansion. However, the increase of EU exports to developed countries (USA, Japan and Canada) as they lower their tariffs for these products (which are also on their own sensitive product lists) does not compensate for the fall in exports to all the other countries where the EU has lost competitiveness, particularly compared with Mercosur countries. At the same time, the EU's own chosen combination of domestic market protection has no additional effect on dairy products exports.

EU exports of fruit and vegetables are not affected by any of the sensitive product provisions (neither those of the EU concerning market access for their import nor those of developed countries). Exports of oilseeds, plant-based fibres and other crops vary only slightly with the EU's chosen market-access combination only. By contrast, rice exports (although unaffected by the choices of other countries) are affected by the EU's own choices. The negative DDA impact on EU rice exports is much greater when the EU opts for a tariff cut of just 1/3 of the formula cut and a higher TRQ expansion, and this effect is progressively diluted for tariff cuts of 1/2 and 2/3. This movement is in the opposite direction to that of EU imports of rice under the three different choices of tariff cut. Although domestic and imported rice are not perfect substitutes, these results suggest that when rice imports increase more EU-grown rice finds its way onto third markets.

The objective assumed to underlie the EU's choice of sensitive products is that of farm income protection. Hence, the final targets are not the trade flows themselves, but their implications for EU

¹⁴ This pattern is also found for the aggregate of agricultural commodities and for processed food.

¹⁵ This category also contains other non-ruminant meats.

¹⁶ In the case of meats, this is driven by exports to Japan and to countries having an FTA with the EU.

production levels and prices. It is therefore important to assess the net effects on production values of the 13 scenarios examined. Table A4 shows that the sectors where production falls most sharply from a DDA agreement without sensitive products are sugar, rice and meat (beef and sheep), as well as the related sectors sugar beet and live ruminant animals, and to a relatively smaller extent vegetable oils, and vegetables and fruit. Impacts on other production categories are less than 1%, and mostly positive (as notable exception is dairy products, which is lower than in the reference scenario by 0.49%). For rice, sugar beet, sugar and dairy products, production changes are the result of both lower exports and higher imports, whereas for vegetables and fruit, meat (beef and sheep) and vegetable oils, exports as well imports are higher in the DDA scenario, but the export increase is insufficient to cancel the effect on production of greater market access.

The question is whether the EU's use of the sensitive product regime reduces these production falls or improves production gains. It is clear that at the aggregate level (both all agriculture and agrifood), special treatment by the EU of its sensitive products reduces the aggregate production losses. This is regardless of which market access parameters are chosen by other developed countries for their sensitive products. However, the most advantageous situation for the EU is when a tariff cut of 2/3 of the formula cut accompanied by smaller TRQ expansions is chosen by other countries whilst the EU adopts a 1/3 cut and larger TRQ expansions. If the EU is alone in not declaring sensitive products, then its production losses are greater than if no sensitive products are allowed to any developed countries regardless of the parameters chosen by other developed countries.

The combination of the smallest tariff cut and largest TRQ expansion is the best uniform choice at aggregate level, this is not true for individual product categories. In some cases, there is a dominant strategy for each product that would give the most favourable outcome for that product regardless of the choices made by other countries. These dominant strategies are the 1/3 cut for rice, sugar beet, other crops, and sugar. A tariff cut of 1/2 the formula cut would be a dominant strategy in the case of live ruminant animals and ruminant meat, and the full formula cut gives the best results for vegetables and fruit, oilseeds, plant-based fibres, dairy products and processed foods. For other product categories, there is no dominant strategy – it depends on the choice of the other developed countries. For wheat and other cereals, production is least affected when the EU opts for a 2/3 tariff cut as long as other countries have chosen the 1/3 option, but when they choose tariff cuts of 1/2 or 2/3 of the formula cut, then the best outcome occurs for the EU wheat sector if the EU chooses the full formula cut. In fact, even the sign of the impact on these two sectors depends on the other developed countries' decisions: when they choose the option of a 2/3 tariff cut and smaller TRQ expansions, the impact on EU wheat production shifts from negative to positive. Live non-ruminant animals and meat (pork and poultry) show a similar pattern: as long as other developed countries choose the combination of the smallest tariff cut and largest TRQ expansions, then the 2/3 option gives the best results for the EU. However, when other developed countries choose the 1/2 or 2/3 options, then production is optimised in these two sectors with the full tariff cut, and when developed countries choose the 2/3 cut, production losses in the EU are converted to production gains. A contrasting pattern is seen for wool and silk cocoons: when other countries choose the 1/3 tariff cut, this sector fares best with a 2/3 cut by the EU; however, when other developed countries opt for higher tariff cuts (and smaller TRQ expansions), the best outcome for EU wool and silk cocoons occurs when the EU chooses the 1/2 tariff cut combination.

It is also important to underline that the best outcome for some products with DDA agreement and no sensitive product regime for any developed countries. Regardless of the sensitive product treatment chosen by the EU and other developed countries, the impact on EU production of a DDA agreement was worse, with the sensitive product provisions in place, for dairy products (sensitive) and for vegetable oils (sensitive), and the positive DDA impact on the EU oilseed sector (not sensitive) was lower in the presence of a sensitive product regime. For plant-based fibres, the (small) production gain registered for the EU in Scenario 13 (DDA, no sensitive product regime) is equalled in the sensitive product scenarios *only* when the EU does not make use of this provision. Clearly, depending on the current share of imports in the overall domestic consumption, an

increase in multilateral TRQs for some sensitive products may over-compensate for lower tariff cuts leading to higher imports and a relative decrease of domestic production. In order to verify the extent to which a decrease in production of sensitive products was indeed caused by (lower) tariff cuts compared to the extension of multilateral TRQ, a separate policy scenario (unrealistic from a policy point of view), namely DDA with sensitive products without TRQ expansion, was run. The results show that for a number of agricultural products, e.g. dairy, an expansion of TRQ (and not tariff cuts), was responsible for the fall in production.

4.2. Comparison of scenarios: GDP in all regions

The impact on GDP of introducing the sensitive product regime is presented in Table A5. It shows that introduction of sensitive products and expansion of TRQs in four developed countries (EU, US, Canada and Japan) has a negative impact on GDP in Australia and New Zealand, EU-27 and countries having an FTA with the EU. The main reason why Australia and New Zealand's positive DDA impact on GDP becomes negative with the introduction of sensitive products is that exports of agricultural commodities to their main trading partners fall. In the case of EU, the smaller tariff cuts and larger TRQ expansions under the sensitive product regime keep prices higher and domestic consumption lower than in the DDA scenario without sensitive products. Lower GDP in FTA countries is mainly due to a consumption fall caused by higher export prices.

Countries or groups of countries whose GDP gain following a DDA agreement is enhanced by allowing sensitive products are Canada and India (in the latter, due to smaller consumption fall due to higher prices boosted by greater DDA-induced exports), and Mercosur (for the same reason as in the case of India), the Russian Federation and other ACP countries, whose overall DDA GDP losses are reduced.

Table A5 also permits some insights into the sensitivity of regional GDP to the EU's choice of tariff cut and TRQ expansion for its sensitive products. Columns 2, 3 and 4 of the table show the average impact on each region's GDP, in each case averaged over the relevant scenarios. For example, column 2 shows the average impact for scenarios 1, 5 and 9. The most 'damaging' EU choice for GDP is that of the smallest tariff cut and the larger TRQ expansion in the cases of the EU itself, and in Mercosur and the countries of Oceania. However, for Japan, Canada, the Russian Federation, India and other ACP countries, their GDP impact is most favourable or least damaging when the EU chooses tariff cuts 2/3 the size of the formula cut, accompanied with smaller TRQ expansion. Surprisingly, the EU's choice has virtually no impact on GDP of the USA, Japan or China.

5. Conclusions

This paper has examined how EU trade flows and production values are affected by the EU's decisions regarding the size of the tariff cut (1/3, 1/2 or 2/3 of the cut according to the tiered formula of the Revised Draft Modalities (WTO, 2008a)) and the associated TRQ expansion affect its levels of protection for individual products. In line with our assumption that the EU's management of its sensitive product regime is motivated by the objective of maintaining farm incomes and production values rather than that of minimising import access per se, the conclusions must focus on the net effect on production values of the impacts on both imports and exports.

Our results show that, although a uniform decision to adopt a tariff cut of 1/3 the size of the formula cut together with larger TRQ expansions provides the best outcome for the aggregate EU agricultural sector, this is not the optimal choice as regards all individual products. For example, a uniform tariff cut of 1/2 the formula cut would be a dominant strategy as regards the sensitive product ruminant meat, whereas to optimise production in other product sectors (mainly non-sensitive ones) the full tariff cut dominates the options. For dairy products and vegetable oils, all outcomes with sensitive products produce lower production values relative to a DDA agreement without any sensitive products for developed countries.

A novelty of the paper is that it explores the extent to which optimal decisions by the EU depend on similar decisions taken by other developed countries, and aims to identify dominant strategies that are independent of other countries' choice of market access parameters for their sensitive products. The results show that the interdependencies between the sensitive product choices of developed countries are considerable. The EU parameters that give the best results for wheat, other cereals, non-ruminant live animals and non-ruminant meat all shift from lower tariff cut options to higher tariff cut options as other developed countries make similar shifts.

Insofar as the decisions of other developed countries affect EU exports for both sensitive and non-sensitive products, the net impact of the sensitive product regime on EU farm production and income depends partly on decisions beyond the control of EU decision makers. Because of these interdependencies, developed countries using the sensitive product regime may prefer to wait until others have declared their chosen market access parameters before declaring their own, or may revise their own decisions in the light of what their main trade competitors choose. The Revised Draft Modalities (WTO, 2008a) are silent about whether these choices should be incorporated into a final Doha Round agreement, as were the country schedules of the Uruguay Round Agreement on Agriculture, after which in the normal case no further revisions would be possible, or whether they may be revised on an annual basis. Given the difficulty for individual countries to make 'best' decisions up front without knowing what other countries will choose, developed countries are likely to want the agreement to enshrine their right to revise these choices – which would constitute yet another element of flexibility in a further dimension (future time). However, it could also lead to greater instability of tariff structures, less transparency and hence higher transaction costs for traders.

The extent to which EU market access parameters relating to sensitive products matter for the impact of a DDA agreement on third countries' GDP is also examined. Surprisingly, the impacts affect the GDP of many of the countries and regions identified in the model, but have virtually no effect on GDP in the USA, Japan and China. Countries more affected are those for where agriculture is an important sector for production and trade, or where food importing is considerable. There is no uniform trend in the pattern linking the size of EU tariff cut options and GDP changes for these countries.

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APPENDIX

Table A1: Assumptions about exogenous trends in GLOBE, 2004-2020

	GDP	Population	Capital	Land	Exchange rate	GDP	Population	Capital	Land
	Total change, 2004-2020, %					Average annual change, %			
EU27	28.25	4.03	28.26	-4,41	-15.66	1.57	0.25	1.57	-0,28
Mercosur	116.45	14.58	207.77	14,99	-21.83	4.94	0.85	7.28	0,88
USA	42.17	16.39	43.1	1,23	20.50	2.22	0.95	2.27	0,08
Canada	39.61	18.45	46.01	12,58	-14.11	2.11	1.06	2.39	0,74
Japan	16.01	-2.71	3.59	-13,62	-28.89	0.93	-0.17	0.22	-0,91
China	312.37	9.2	350.19	2,80	-38.39	9.26	0.55	9.86	0,17
India	264.32	22.81	411.89	9,97	-5.80	8.42	1.29	10.74	0,60
Russia	75.18	-5.64	152.97	10,54	21.14	3.57	-0.36	5.97	0,63
Oceania	35.06	8.95	32.21	1,60	-11.72	1.9	0.54	1.76	0,10
Other ACP, WTO developing and Rest of World	105.17	35.23	88.49	9,76	*	4.59	1.9	4.04	0,58
Countries having FTAs with EU	35.06	8.95	32.21	9,76	-11.72	1.9	0.54	1.76	0,58

Note to Table A1

The GDP, population and exchange rate assumptions come from Global Insight, and/or the OECD AGLINK/COSIMO database. A * in the exchange rate column indicates that the closure rules specify balanced trade and endogenous exchange rates. There are five factors in GLOBE, unskilled and skilled labour, capital, land and natural resources. In the model simulations, it is assumed that the availability of unskilled and skilled labour grow at the same rate as population (see table) and that natural resources are constant. The trends in capital and land availability are shown in the table.

Table A2. EU Imports

	Reference scenario 2020	Other developed countries' tariff cut for sensitive products in relation to tiered formula cut												
		One third				One half				Two thirds				Full
		EU 1/3	EU 1/2	EU 2/3	Full	EU 1/3	EU 1/2	EU 2/3	Full	EU 1/3	EU 1/2	EU 2/3	Full	Full
	USD bn (2004)	Difference relative to the reference scenario, per cent												
Rice	1.42	43.71	58.67	75.66	115.56	43.48	58.43	75.4	115.29	43.34	58.28	75.25	115.13	116.27
Wheat	3.24	14.37	14.22	14.04	13.53	14.24	14.09	13.91	13.40	14.07	13.92	13.74	13.23	12.98
Other cereals	2.26	4.30	4.25	4.17	3.86	4.24	4.19	4.11	3.80	4.18	4.12	4.04	3.73	3.61
Vegetables, fruits	28.57	13.55	13.73	13.92	14.28	13.54	13.71	13.90	14.27	13.52	13.70	13.89	14.25	14.28
Oilseeds	8.91	-2.38	-2.41	-2.45	-3.00	-2.38	-2.41	-2.45	-3.00	-2.39	-2.41	-2.46	-3.01	-3.07
Sugar cane & beet	0.03	-0.81	-1.05	-1.39	-2.17	-0.79	-1.03	-1.37	-2.15	-0.76	-1.00	-1.34	-2.12	-1.99
Plant-based fibres	1.71	-1.33	-1.40	-1.49	-1.79	-1.32	-1.39	-1.48	-1.79	-1.32	-1.39	-1.48	-1.79	-1.80
Other crops	15.49	3.81	5.41	7.11	10.29	3.81	5.41	7.12	10.29	3.81	5.42	7.12	10.29	10.32
Live cattle, sheep	0.69	-5.40	-5.32	-5.55	-7.34	-5.30	-5.22	-5.45	-7.24	-5.20	-5.12	-5.34	-7.14	-6.92
Live pigs, poultry	3.52	0.52	0.48	0.44	0.27	0.60	0.56	0.52	0.35	0.69	0.65	0.60	0.44	0.68
Raw milk	0.09	-2.42	-2.52	-2.63	-2.97	-2.38	-2.48	-2.59	-2.93	-2.34	-2.44	-2.55	-2.89	-2.73
Wool, silk cocoons	0.66	-5.87	-6.00	-5.99	-5.35	-6.12	-6.25	-6.24	-5.60	-6.36	-6.50	-6.49	-5.85	-6.77
Meat beef, sheep	6.51	120.43	108.12	116.88	241.98	120.52	108.20	116.92	241.99	120.60	108.29	116.95	242.00	241.5
Meat pork, poultry	3.82	45.44	45.46	45.44	44.37	45.28	45.31	45.28	44.21	45.09	45.12	45.09	44.02	43.14
Vegetable oils/ fats	10.06	16.10	16.27	16.42	16.27	16.11	16.27	16.43	16.27	16.1	16.26	16.42	16.26	16.17
Dairy products	3.80	89.71	86.78	78.51	36.36	89.55	86.74	78.48	36.26	89.41	86.75	78.48	36.24	35.99
Sugar	6.62	23.46	39.53	61.78	122.02	23.44	39.5	61.74	121.97	23.40	39.46	61.70	121.92	121.73
AGRICULTURE	97.40	22.08	22.75	25.12	36.96	22.06	22.76	25.09	36.94	22.04	22.74	25.08	36.91	36.82
Food, beverages, tobacco	60.55	4.89	4.94	5.00	5.09	4.88	4.93	4.99	5.08	4.86	4.91	4.97	5.07	5.01
AGRI-FOOD	157.95	15.49	15.92	17.41	24.74	15.47	15.93	17.39	24.73	15.45	15.91	17.37	24.70	24.63
Primary sectors	61.90	0.12	0.12	0.12	0.14	0.12	0.12	0.12	0.14	0.12	0.12	0.12	0.14	0.12
Fuel	231.43	-0.23	-0.22	-0.20	-0.11	-0.24	-0.22	-0.20	-0.12	-0.25	-0.24	-0.22	-0.13	-0.20
Manufactures	1,870.72	1.93	1.94	1.96	2.04	1.93	1.94	1.95	2.03	1.92	1.92	1.94	2.02	1.96
Trade services & communication	256.78	-0.07	-0.07	-0.06	-0.03	-0.07	-0.07	-0.06	-0.03	-0.08	-0.07	-0.06	-0.04	-0.07
Services	409.35	0.05	0.06	0.07	0.12	0.05	0.05	0.07	0.12	0.04	0.04	0.06	0.11	0.06
TOTAL	2,988.13	2.02	2.05	2.14	2.59	2.01	2.04	2.13	2.58	2.00	2.03	2.12	2.57	2.52

Table A3: EU exports

	Reference scenario 2020	Other developed countries' tariff cut for sensitive products in relation to tiered formula cut												
		One third				One half				Two thirds				Full
		EU 1/3	EU 1/2	EU 2/3	Full	EU 1/3	EU 1/2	EU 2/3	Full	EU 1/3	EU 1/2	EU 2/3	Full	Full
	USD bn (2004)	Difference relative to the reference scenario, per cent												
Rice	0.41	-6.27	-5.93	-5.53	-4.58	-6.23	-5.89	-5.49	-4.54	-6.23	-5.88	-5.49	-4.53	-4.70
Wheat	2.85	9.25	9.46	9.70	10.31	10.74	10.96	11.2	11.82	12.52	12.74	12.98	13.61	17.24
Other cereals	0.69	1.52	1.61	1.70	1.93	2.46	2.55	2.64	2.87	3.57	3.66	3.76	3.99	7.21
Vegetables, fruits	4.10	6.21	6.32	6.46	6.81	6.23	6.34	6.48	6.83	6.25	6.36	6.5	6.85	6.85
Oilseeds	0.64	4.04	4.14	4.26	4.87	4.06	4.16	4.28	4.89	4.09	4.19	4.31	4.93	5.05
Sugar cane & beet	0.01	1.58	1.23	0.80	-0.25	1.59	1.24	0.81	-0.24	1.60	1.25	0.82	-0.23	-0.23
Plant-based fibres	0.85	1.99	2.09	2.21	2.56	1.99	2.09	2.22	2.56	2.00	2.11	2.23	2.58	2.63
Other crops	6.36	15.44	15.64	15.89	16.58	15.51	15.71	15.95	16.64	15.57	15.77	16.01	16.7	16.63
Live cattle, sheep, goats, horses	1.49	1.19	1.36	1.30	0.37	1.12	1.28	1.22	0.29	1.06	1.23	1.17	0.23	0.13
Live pigs, poultry, other animals	5.82	0.89	0.95	1.02	1.23	0.86	0.92	0.99	1.19	0.82	0.88	0.95	1.16	1.13
Raw milk	0.12	1.68	1.82	1.99	2.43	1.66	1.80	1.96	2.40	1.62	1.76	1.92	2.36	2.17
Wool, silk cocoons	2.07	13.63	13.91	13.69	11.31	14.35	14.64	14.42	12.02	15.06	15.36	15.14	12.72	15.31
Meat beef, sheep	1.94	2.91	2.79	2.45	2.02	3.47	3.36	3.01	2.59	4.39	4.27	3.93	3.51	9.12
Meat pork, poultry	8.55	5.61	5.67	5.74	6.09	9.09	9.14	9.22	9.58	13.34	13.4	13.48	13.84	32.01
Vegetable oils/ fats	4.07	3.59	3.61	3.65	3.93	3.69	3.72	3.76	4.03	4.07	4.10	4.13	4.41	5.09
Dairy products	11.84	-8.36	-8.31	-8.25	-8.35	-7.73	-7.68	-7.62	-7.72	-7.54	-7.49	-7.43	-7.51	-5.71
Sugar	2.34	-45.51	-45.76	-46.06	-46.85	-45.48	-45.72	-46.03	-46.81	-45.43	-45.67	-45.98	-46.77	-46.06
AGRICULTURE	54.15	0.90	1.03	1.05	1.16	1.79	1.87	1.88	2.01	2.71	2.77	2.83	2.95	6.78
Food, beverages, tobacco	55.73	2.23	2.27	2.31	2.42	2.39	2.42	2.46	2.57	2.60	2.64	2.68	2.79	3.44
AGRI-FOOD	109.88	1.57	1.66	1.68	1.80	2.09	2.15	2.18	2.29	2.66	2.70	2.75	2.87	5.09
Primary sectors	38.43	1.26	1.26	1.25	1.20	1.26	1.26	1.25	1.2	1.26	1.26	1.25	1.21	1.23
Fuel	51.32	0.67	0.66	0.64	0.57	0.68	0.67	0.65	0.58	0.69	0.69	0.67	0.60	0.69
Manufactures	1,188.56	2.07	2.06	2.04	1.96	2.07	2.06	2.04	1.97	2.08	2.07	2.05	1.98	2.05
Trade services & communication	418.44	0.99	0.99	1.00	1.03	1.00	1.00	1.01	1.04	1.01	1.01	1.02	1.05	1.13
Services	305.80	0.10	0.10	0.09	0.08	0.10	0.10	0.10	0.08	0.11	0.11	0.10	0.09	0.12
TOTAL	2,112.43	1.49	1.49	1.48	1.45	1.53	1.52	1.51	1.48	1.57	1.56	1.56	1.52	1.70

Table A4: Production in the EU

	Reference scenario 2020	Other developed countries' tariff cut for sensitive products in relation to tiered formula cut												
		One third				One half				Two thirds				Full
		EU 1/3	EU 1/2	EU 2/3	Full	EU 1/3	EU 1/2	EU 2/3	Full	EU 1/3	EU 1/2	EU 2/3	Full	Full
	USD bn (2004)	Difference relative to the reference scenario, per cent												
Rice	8.70	-7.42	-9.65	-12.14	-17.80	-7.38	-9.65	-12.17	-17.76	-7.36	-9.63	-12.14	-17.74	-17.90
Wheat	27.94	-0.53	-0.27	0.03	-0.24	-0.34	-0.27	-0.20	-0.05	-0.11	-0.04	0.03	0.18	0.66
Other cereals	30.76	-0.18	-0.09	-0.01	-0.07	-0.14	-0.09	-0.05	-0.03	-0.09	-0.05	-0.01	0.02	0.17
Vegetables, fruits	127.12	-1.52	-1.51	-1.47	-1.27	-1.53	-1.51	-1.46	-1.28	-1.55	-1.52	-1.47	-1.29	-1.36
Oilseeds	17.70	0.58	0.60	0.64	0.96	0.58	0.60	0.63	0.97	0.59	0.61	0.64	0.98	1.04
Sugar cane & beet	10.38	-2.46	-3.29	-4.38	-7.05	-2.45	-3.29	-4.38	-7.04	-2.44	-3.28	-4.38	-7.04	-7.00
Plant-based fibres	10.79	0.41	0.45	0.49	0.66	0.41	0.45	0.49	0.65	0.41	0.44	0.49	0.65	0.64
Other crops	113.08	0.70	0.53	0.36	0.07	0.70	0.53	0.36	0.08	0.70	0.53	0.36	0.08	0.06
Live cattle, sheep	50.21	-2.37	-2.07	-2.21	-4.69	-2.36	-2.07	-2.23	-4.68	-2.35	-2.06	-2.21	-4.66	-4.56
Live pigs, poultry	89.94	0.06	0.16	0.29	0.27	0.13	0.16	0.20	0.33	0.21	0.24	0.29	0.42	0.79
Raw milk	72.62	-0.26	-0.20	-0.13	0.07	-0.25	-0.20	-0.14	0.08	-0.25	-0.20	-0.13	0.08	0.11
Wool, silk cocoons	3.24	11.26	12.09	12.53	9.45	11.84	12.09	11.95	10.03	12.41	12.68	12.53	10.60	12.71
Meat beef, sheep, goat, horse	74.97	-8.85	-7.93	-8.52	-17.07	-8.84	-7.93	-8.55	-17.06	-8.82	-7.91	-8.52	-17.03	-16.84
Meat pork, poultry	117.78	-0.77	-0.45	-0.06	-0.63	-0.48	-0.45	-0.42	-0.33	-0.12	-0.09	-0.06	0.02	1.56
Vegetable oils/ fats	50.41	-2.41	-2.43	-2.42	-2.39	-2.40	-2.43	-2.46	-2.38	-2.37	-2.40	-2.42	-2.35	-2.29
Dairy products	266.12	-1.46	-1.37	-1.23	-0.60	-1.43	-1.37	-1.23	-0.57	-1.42	-1.37	-1.23	-0.56	-0.49
Sugar	34.60	-7.27	-9.66	-12.80	-20.46	-7.26	-9.66	-12.80	-20.46	-7.25	-9.65	-12.80	-20.45	-20.39
AGRICULTURE	1,106.36	-1.65	-1.66	-1.80	-2.60	-1.60	-1.61	-1.75	-2.55	-1.54	-1.55	-1.69	-2.49	-2.25
Food, bev & tobacco	1,291.65	0.13	0.15	0.19	0.27	0.13	0.15	0.18	0.27	0.14	0.16	0.19	0.28	0.30
AGRI-FOOD	2,398.01	-0.69	-0.69	-0.74	-1.06	-0.66	-0.66	-0.71	-1.03	-0.63	-0.63	-0.68	-1.00	-0.87
Primary sectors	219.32	0.34	0.35	0.35	0.33	0.35	0.35	0.34	0.33	0.35	0.35	0.35	0.33	0.35
Fuel	968.88	0.29	0.29	0.30	0.32	0.29	0.29	0.30	0.32	0.29	0.30	0.30	0.32	0.34
Manufactures	10,530.16	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04
Trade services & communication	5,258.48	0.17	0.18	0.19	0.21	0.18	0.18	0.19	0.21	0.18	0.18	0.19	0.21	0.22
Services	11,981.51	0.13	0.13	0.14	0.20	0.13	0.13	0.14	0.2	0.12	0.13	0.14	0.19	0.17
TOTAL	31,356.36	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06

Table A5. Impact of sensitive product regime on GDP by region

	No sensitive products	With sensitive products			
	DDA no sensitive products (1)	EU_1/3 (2)	EU_1/2 (3)	EU_2/3 (4)	Average (2), (3), (4) (5)
	% difference from reference scenario 2020				
EU27	0.0228	0.0218	0.0221	0.0226	0.0222
USA	0.0013	0.0013	0.0013	0.0013	0.0013
Japan	-0.0074	-0.0072	-0.0073	-0.0073	-0.0073
Canada	0.0378	0.0410	0.0406	0.0401	0.0406
China	0.0104	0.0105	0.0105	0.0105	0.0105
Mercosur	-0.0179	-0.0089	-0.007	-0.0057	-0.0072
Australia, New Zealand	0.0014	-0.0102	-0.0099	-0.0078	-0.0093
Russian Federation	-0.0204	-0.0188	-0.0189	-0.0191	-0.0190
India	0.0126	0.0245	0.0243	0.0226	0.0238
Other ACP Countries	-0.0169	-0.0044	-0.0058	-0.0081	-0.0061
Other WTO developing countries	0.0144	0.0148	0.0147	0.0147	0.0147
FTAs in force with EU	0.0310	0.0299	0.0300	0.0299	0.0299
Rest of the World	0.0025	0.0035	0.0035	0.0035	0.0035