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Economic Impact of potential outcome of the DDA

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Economic Analysis in Support of Bilateral and Multilateral Trade Negotiations

ECONOMIC IMPACT

OF POTENTIAL OUTCOME OF THE DDA

CEPII-CIREM

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Executive summary

Using a dynamic computable general equilibrium model of the world economy (MIRAGE), we simulate the impacts of the July 2008 drafts circulated by the WTO before the DDA negotiations stopped, augmented by a modest outcome of the negotiation in services.

The liberalisation of tariffs is implemented at the granular level of 5,113 products in order to take into account exceptions, flexibilities as well as the non linear design of the formulas. A reduction in domestic support and the phasing out of export subsidies are taken into account.

We identify a USD 57 bn world GDP gain when agriculture and industry are liberalised, USD 68 bn gain when a 3 percent reduction of protection in services is added in certain services sectors and for the concerned countries. Lastly, a rough calculation of gains associated with trade facilitation suggests at least a doubling of the expected gains.

In total, the 167 bn gains, identified here in a scenario combining a liberalisation in trade in goods and services with trade facilitation, would be added to the world GDP every year in the medium term as compared with a situation without agreement.

Half of these gains would be reaped within 5 years of implementation only. Using this criterion of GDP, all regions of the world gain from this deal.

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Introduction

The multilateral negotiation engaged in Doha in November 2001 has reached a very critical point. Draft proposals (‘‘draft modalities’’) have been finalised by the chairmen of the agricultural and Non Agricultural Market Access (NAMA) committees. The 19 May 2008, Crawford Falconer, chairman of the agriculture negotiations, circulated a revised draft modalities and Don Stephenson released the same day the revised draft negotiating text for the NAMA. However, the Ministerial agreement, and the associated ultimate fine tuning of the proposals missed their target of reaching a consensus. Still, negotiations resumed in September and helped removing some stumbling blocks. The 6th of December, Crawford Falconer and Luzius Wasescha issued revised texts slightly amending the July ones. On December 12, WTO Secretary General decided not to call a meeting at the ministerial level in December. In this context of political lack of will among the main actors of a possible deal, it is of utmost importance to precisely quantify the potential gains associated with the completion of the Round and how these gains are shared among countries.

Such exercise is different from the assessment of the consequences of the failure of the Round. The resurgence of protectionism, either within the strict boundaries of the WTO rules (e.g. by an increase of tariffs up to their bounds), at the fringes of it (generalising contingent protection), or outside of it (unilateral increases in protection) would have a cost corresponding to a multiple of the gains considered here (Bouet and Laborde, 2008).

The documents used here to assess the consequences of the negotiations are highly technical and complex, pointing to the imagination of negotiators to find a politically acceptable deal. Starting with very simple modalities, such as the use of a non linear formula of tariff cut applied to every tariff line, instead of a negotiation product by product, is a very convenient design. When properly calibrated, such measure can indeed be very aggressive on tariff peaks, and accordingly strongly reduce induced distortions. However, exceptions have to be introduced to cope with internal resistance in negotiating countries. As compensation, additional import commitments (e.g. tariff rate quotas) must be introduced; alternatively, or as a complement, a minimal average cut might be requested. The latter can be calculated as the average of the cuts, or as an average cut. Lastly, this average can be computed before or after the designation of exceptions.

All in all, we end up with an intricate design: the consequences of such agreement, leading to cuts differing by country and by product can certainly not be assessed without resorting to a quantitative and detailed representation of the world economy. This report aims at providing such assessment of the impact of these ultimate proposals on the world economy.

1- How the two ‘‘draft modalities’’ have been modelled

The state of the art lies in the measurement of border protection at the most detailed level affordable, and in the computation of actual liberalisation resulting from a tariff-cutting formula. Bound and applied duties (whether ad valorem, specific, mixed or compound) have to be measured at the HS-6 product level (the most disaggregated level for which harmonised information exists). We rely here on such approach, extended to integrate in one and the same exercise a liberalisation in agriculture, manufactures and services. For agriculture, even more detail is necessary. When it comes to designing the list of exceptions, the level of detail requested is the tariff line, not the HS6 code. For the EU, the difference is sizeable. There are 2,200 tariff lines for agriculture, to be compared with only 689 different HS6 positions for the same products. We implemented the selection of products at the tariff line level for the EU, compared with the result of such implementation at the HS6 level, and inferred from this the actual impact for the US, Japan, Canada and the EFTA, based on the sole information at the HS6 level.[1] This scenario on actual protection being precisely quantified at the country, product and year level, it must be introduced in a Computable General Equilibrium (CGE) model of the global economy, after aggregation at the sectoral level.

One important departure of the existing literature relates to tariff rate quotas (TRQs). In agriculture, a reduced tariff is conceded for many lines within quotas (inside tariff), the outside tariff being much more protective. This is related to the selection of exceptions. When tariff lines are chosen as sensitive, an additional tariff quota must be open. Industrial countries have the possibility of limiting the tariff cut to the 2/3 of what it should be based on the simple use of tiered formulas, and to compensate this by a small quota. Or they can keep half of the cut and open a larger quota. Or keep only one third of the cut and open a large quota. When quotas are not explicitly modelled, the trick is to use the outside tariff under the assumption that the quota will anyway be quickly filled as a result of the growth of world demand. We adopt a different strategy here: within the quota we use the (new) inside quota, and the outside quota for quantities in excess. As compared to the traditional approach, this non linear representation of the functioning of the quota leads to additional liberalisation, as expected by negotiators. This point will be illustrated below by the comparison of the two methods.

The world economy is modelled here using MIRAGE, the CGE developed by the CEPII. As compared to previous studies released by the CEPII, some improvements have been introduced in this model, notably to reproduce the changing patterns of household consumption when income per capita increases. Another improvement concerns the supply of agricultural products.

[1] Hence, we made the plausible assumption that all negotiators use in the same strategic way the margins of manoeuvre offered by the detailed classification of agricultural products.

In the MIRAGE model the demand side is modelled in each region through a representative agent. Domestic products are assumed to benefit from a specific status for consumers, making them less substitutable to foreign products than foreign products between each other. Secondly, manufactured products originating in developing countries and in developed countries are assumed to belong to different (price or) quality ranges. Hence, the competition between products of different qualities is less tough than between products of similar quality. As regards the supply side of the model, producers use five factors: capital, labour (skilled and unskilled), land and natural resources. The structure of value-added is intended to take into account the well-documented skill-capital relative complementarity. The production function assumes perfect complementarity between value-added and intermediate consumption. The sectoral composition of the intermediate consumption aggregate stems from a nested CES function. For each sector of origin, the sector bundle that allows determining the origin of products has the same structure for final and intermediate consumption.

Constant returns to scale and perfect competition are assumed to prevail in agricultural sectors. In contrast, firms are assumed to face increasing returns to scale in industry and services. In those sectors, competition is imperfect. A specific modelling of TRQs is adopted here, directly inspired from Decreux and Ramos (2007),[2] and Gouel, Guillin and Ramos (2008).[3] The modelling has been improved and extended to allow the representation of multilateral quotas.

As regards the market clearing and the macroeconomic closure, capital good is accumulated every year as the results of investments in the most profitable sectors, but it cannot change its sector affectation once it has been installed. Natural resources are considered to be perfectly immobile and may not be accumulated. Both types of labour are assumed to be perfectly mobile across sectors, whereas imperfect land mobility is modelled with a constant elasticity of transformation function. Production factors are assumed to be fully employed; accordingly, negative shocks are absorbed by changes in prices (factor rewards) rather than in quantities. All production factors are immobile internationally. With respect to macroeconomic closure, the current balance is assumed to be exogenous (and equal to its initial value in real terms), while real exchange rates are endogenous.

As regards data, MIRAGE relies on GTAP. Tariff data on goods comes from MAcMap HS6, hence at the most granular level of the international trade classification of products. Tariff equivalents of services barriers are based on two different works: Park (2002) and the Australian Productivity Commission (Warren, 2000).[4]

[2] Yvan Decreux, Maria Priscila Ramos (2007). "How does Tariff-rate quota modelling affect CGE results? An application for MIRAGE", TradeAg Working Paper 2007-16.
[3] C. Gouel, A. Guillin, & M.P. Ramos, (2008), "The Effects of Agricultural Policies on Developing Countries at a Detail Level", TradeAg Working Paper 2008.
[4] Starting from the original data obtained with the two methodologies, two separated data sets are built. In both cases we aggregate original estimations by sector and by country/geographical area, using the value of total

Since protection in services rely on regulatory measures leading to no tariff revenue to the importing country, it translates here into export taxes. Liberalising services is therefore expected to lead to large gains for the liberalising countries, whereas gains for the exporting countries are second order ones.

The available data (in GTAP-7 and in MAcMap-HS6 V2) describe the 2004 economy. We first run a "pre-experiment" introducing the changes accruing to the world economy between 2004 and 2008. In 2008 (and in the subsequent years, depending on the calendar of phasing out of the protection) the scenario described below is implemented. We finally compare the situation of the world economy in 2009, 2010… 2025, with and without such liberalisation. The reference situation over the whole period is defined by the trajectory of the world economy until 2013 as forecasted by the IMF, and from 2013 onwards by the CEPII (Poncet, 2006). Population (active and total) is taken form ILO forecasts. We calibrate Total Factor Productivity for every region of the world economy in order to reproduce the forecasted GDPs, taking populations as exogenous variables. Lastly, simulations of the shock are performed by using these TFP changes as exogenous variables of the model.

For the NAMA as well as for agriculture, we model yearly tariff cuts at the product (HS6) and country level, before aggregating into the regional and sectoral decomposition of the model (see Appendix 1). In addition, we model the reduction in internal support for agricultural products, as well as the phasing out of export subsidies. Lastly, in absence of precise information on potential liberalisation in services and given the lack of ambition of negotiators in this field, we make the assumption of a 3% reduction of protection, limited to certain countries (all industrialised countries, most Latin American countries, and Asia except Central Asia). Detail on how the proposals have been precisely modelled is provided in Appendix 2: we introduce flexibilities, special and sensitive products; we exempt the LDCs from tariff reductions, consolidate the unbound tariffs, etc. in order to mimic the potential outcome of the Round, as suggested by the two July Draft Modalities. We have also taken into account the ongoing progress of negotiations after July, so that our simulations already incorporate several elements of the December Modalities.

One important issue in the Round is trade facilitation. Even if this issue is not at the forefront of the negotiations, progress on this front is key for developing economies as we will show below. In order to measure the gains that would accrue from the implementation of trade facilitation program, we have modified the Mirage model in order to incorporate trade costs that adds up to ordinary freight costs

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demand for this service at market price as a weighting scheme. Data on the demand of services were the one used in the model. At the geographical level, when no data for a specific country is available, a weighted average of the estimations for the other countries belonging to the same area or all the countries available is used. However, when a missing country belongs to a geographical area for which there is original data available we eventually use only original data to compute the average. Finally, to get the tariff equivalents used in our simulations, we compute a simple average of the values contained in the two comparable data sets.

already present in the model. Data about trade costs have been provided by Minor and Tsigas,[5] based on a work initiated with USAID.[6] They measure the time necessary to ship a good from a country to another. They also provide a measure of the daily cost of time as a percentage of the value of the good itself. Transaction time is divided into time to export and time to import. Within each of the two latter categories, a distinction is made between inland transportation from/to the port, customs procedure time, and time at the port to process the good into/out of the ship.

Data about time come from the Doing Business reports provided by the World Bank. In this database, time does not depend on the good, but a differentiation between goods appears because the cost of time depends on products. The cost of time is evaluated through the preference for air transport towards sea transport. These data are computed at the detailed level and then aggregated to the GTAP aggregation level, using trade as weights. In our experiment, only time at the frontier is reduced (customs procedures and time at the port). Transportation time to/from the port may vary a lot due to the various sizes of countries but no improvement has been assumed regarding this particular trade cost.

Our trade facilitation experiment consists of dividing by two the processing time exceeding the median level. More precisely, about half of the GTAP regions need 5 days or less to accomplish export procedures at the port, and half of them need 6 days or less on the import side. Countries that exceed this duration are assumed to halve the difference to this threshold. Only members of the WTO engage in the process. Based on this assumption, trade facilitation concerns almost only developing countries. On the export side, the exception is Italy with a number of days to process their exports at 6 (threshold: 5), while on the import side the exceptions are Italy and Greece at 8 days (threshold: 6). Countries with the highest numbers of days are found amongst African and former Soviet Union countries.

After computing costs before and after the trade facilitation at the GTAP level, this information is aggregated again, using trade as weights, to match with the aggregation of the study.

In the simulation, we assume that trade facilitation can be achieved at no cost, while actually countries may endure some costs to implement it. One of them is due to the need to purchase modern equipment to process goods at the ports and to accomplish customs procedures. Trade facilitation will also generate another cost by diverting qualified people from other productive sectors. These costs have not been incorporated in the model because of the absence of data. However, gains implied by a rather

[5] Minor P. & Tsigas M. 2008. “Impacts of Better Trade Facilitation in Developing Countries, Analysis with a New GTAP Database for the Value of Time in Trade”, GTAP 11th Conference, Helsinki.
[6] USAID 2007. “Calculating Tariff Equivalents for Time in Trade”, March, downloadable from:
http://bizclir.com/cs/calculating_tariff_equivalents_for_time_in_trade
http://www.nathaninc.com/?downloadid=208

moderate scenario are quite significant, and thus quite likely to overcome the costs in a short period of time.[7] As industrialised countries also benefit from trade facilitation, they may contribute to this upgrade of developing countries infrastructure through the "aid for trade" scheme.

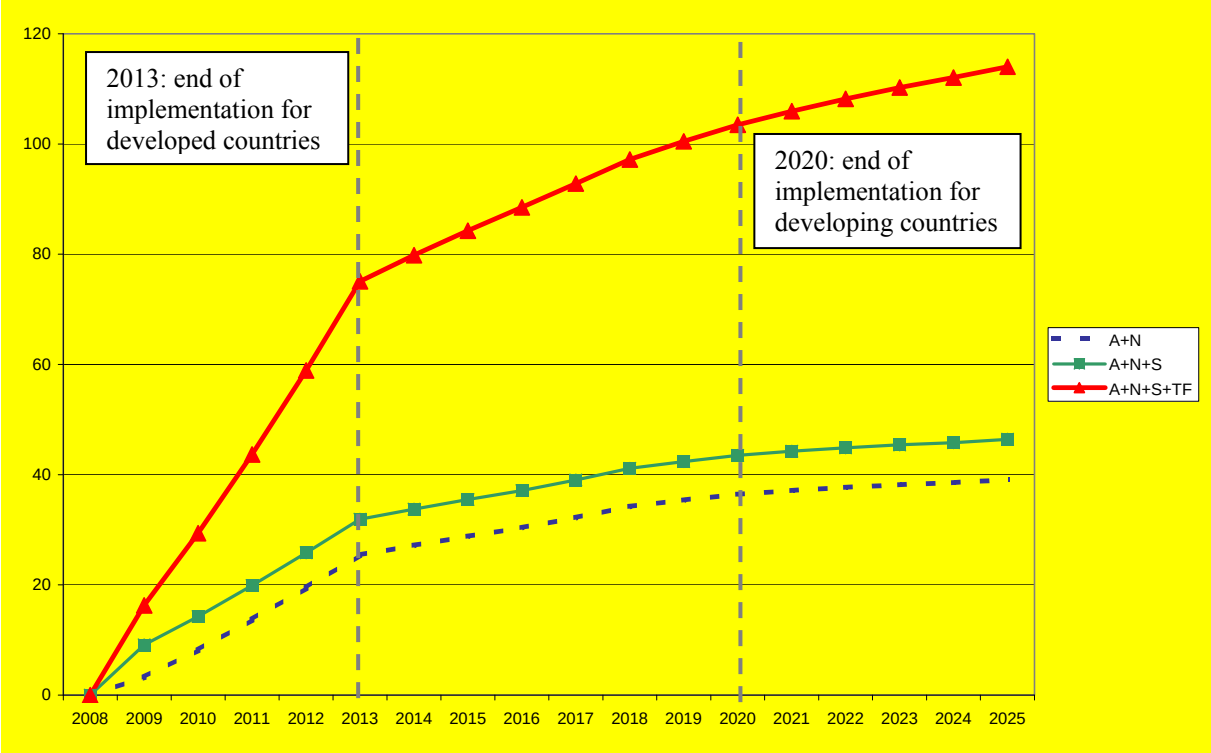
2- Overall results

We start in Table 1 by considering the overall impact of the various simulation scenarios. The long run effect of such trade liberalisation in goods amounts to 0.08 percent of world GDP annually, i.e. USD 57 bn.[8] The increase in world exports amounts overall to 1.51 percent, i.e. USD 226 bn, as a result of the series of flexibilities introduced. Given the very conservative assumption of a 3 percent liberalisation in certain services limited to certain importers, the additional GDP gains are limited: USD 11 bn gains in world GDP. In trade terms, changes are more important: we obtain an additional USD 36 bn world trade. When gains from trade facilitation are added, another USD 99 bn yearly increase in world GDP is to be expected from 2025 onwards. Accordingly, this issue is of utmost importance, in particular because a large part of the additional gains would accrue to developing economies.

Figure 1 shows the evolution of annual GDP gains during the implementation period of the DDA. In dynamic terms, half of this level of annual gains would be reached over a period of at most 5 years (Figure 1). On Figure 1, the slope of all curves is broken after 2013. A smoother break is observed around 2019. Both breaks are the result of the way the Doha scenario is implemented: 2013 corresponds to the end of trade opening by industrialised countries, while developing countries complete their liberalisation process in 2018 or 2020, depending on countries. After 2020 the slope remains positive until 2025 because all dynamic gains have not been harvested yet by the end of the simulation period. Dynamic gains are the consequence of a higher capital accumulation until a new stationary path is reached.

[7] See the recent and extensive work by OECD on this.
[8] In all the report, "long run" implies year 2025, even though dynamic welfare/GDP gains would continue afterwards, leading to slightly larger actual long term gains, as can be seen in Figure 1. Whenever percentage deviations are translated into USD, it is done on the basis of 2020 values (for GDP, exports, etc.) at constant 2004 prices.

Figure 1: Yearly USD bn gains in GDP, 2008-2025



Note concerning the scenarios:
A+N: Agriculture and NAMA.
A+N+S: Agriculture, NAMA and Services.
A+N+S+TF: Agriculture, NAMA, Services and Trade facilitation.
All values correspond to changes expressed in terms of the base year GDP (2008) at constant (2004) prices.

Source: Author's calculation using MIRAGE

Table 1: World GDP and exports long run changes from the baseline (base year 2020)[8]

	Goods	+ Services	+ Trade facilitation
World exports			
%	1.51	1.75	2.56
USD bn	226	262	383
World GDP			
%	0.08	0.10	0.24
USD bn	57	68	167

Source: Author's calculation using MIRAGE

These long term gains in GDP are presented at the regional or country level in Table 2 (see the country aggregation in Appendix). In dollar terms, the EU reaps 27% of world gains from a goods-only scenario, 31% when goods and services are liberalised, and 24% in the trade facilitation scenario. When agriculture, industry and services are liberalised, all regions or countries record an increase in the volume of their GDP, with the exception of Sub-Saharan Africa. For the latter region, only trade facilitation will make it possible to reap gains from this Round. The next regions gaining the most to the scenario combining liberalisation in agriculture and industry are the United States and ASEAN, with 10% of world gains. Korea-Taiwan and Latin America follow with 9 and 8% respectively. The EU is the region reaping the lion share of the liberalisation in services (50% of the world gains accrue to EU27). Sub-Saharan Africa (SSA) is gaining USD 15.6 bn of GDP from trade facilitation.

Table 2: Long run deviation from the baseline, GDP, USD mn (base year 2020)[8]

Region	Goods + Services + Trade facilitation		
Australia & NZ	1632	1763	2292
ASEAN	5425	6025	14225
Canada	353	577	801
China incl. Hong-Kong	3245	4370	8020
EFTA	3600	3872	4340
EU27	15477	20873	39490
Japan	3676	4148	6378
Korea & Taiwan	5011	5372	7458
Mexico	1047	1103	1140
North Africa	1627	1610	3598
Rest of World	3517	3744	21797
Russia	-5	49	391
Sub-Saharan Africa	-129	-84	15486
South America	4332	4561	11018
South Asia	2285	2818	18049
Turkey	493	448	778
US	5465	6572	10130

Source: Author's calculation using MIRAGE

Beyond changes in the volume of GDP, countries may individually be affected by terms of trade changes and by benefits or losses in terms of efficiency. This can be examined using the decomposition of welfare changes proposed in Table 3. For instance, Korea and Taiwan will benefit from sizeable gains in terms of allocative efficiency, due to specialisation in activities for which the two countries are advantaged. However, adverse terms of trade effects will reduce their gains. As a consequence, welfare gains in percentage terms will be lower than gains in terms of GDP for these two countries (0.12% and 0.15% welfare gains in 2025 without and with liberalisation of services, as opposed respectively to 0.23% and 0.25% GDP gains at the same horizon). Two countries currently

largely benefiting from NAFTA will also be adversely affected in welfare terms: Mexico and Canada. In both cases terms of trade losses will play a key role. In North Africa, terms of trade losses are even larger and lead to quite large welfare losses while gains in GDP are quite substantial.

Table 3: Decomposition of long run welfare gains (agric. + NAMA + services), percent[8]

	Allocation efficiency	Capital accumul.	Land supply	Terms of trade	Variety	Other	Welfare
Australia & NZ	0.05	0.07	0.02	0.07	0.02	-0.01	0.21
ASEAN	0.07	0.16	0.00	0.05	0.05	0.05	0.39
Canada	0.05	-0.01	0.01	-0.04	-0.00	-0.01	-0.01
China incl. HK	0.05	0.03	0.01	0.03	-0.01	-0.01	0.10
EFTA	0.48	0.05	-0.02	-0.01	-0.03	-0.04	0.43
EU27	0.11	0.00	-0.00	-0.04	-0.01	0.02	0.07
Japan	0.04	0.01	-0.00	0.07	0.00	0.05	0.17
Korea & Taiwan	0.16	0.10	0.00	-0.04	-0.03	-0.04	0.15
Mexico	0.07	-0.03	0.01	-0.15	-0.02	0.05	-0.06
North Africa	0.18	0.10	0.02	-0.24	-0.01	-0.08	-0.04
Rest of World	0.02	0.06	0.01	-0.02	0.01	-0.00	0.07
Russia	0.01	0.01	0.00	-0.04	0.02	-0.04	-0.04
Sub-Saharan Africa	0.00	0.01	0.01	-0.07	-0.01	-0.06	-0.12
South America	0.05	0.11	0.05	0.09	-0.01	0.01	0.29
South Asia	0.03	0.05	0.01	0.02	0.02	0.01	0.13
Turkey	0.04	0.02	0.00	-0.05	0.01	0.01	0.03
US	0.03	0.01	-0.01	-0.01	0.01	0.02	0.04

Source: Author's calculation using MIRAGE

The case of Sub-Saharan Africa, as already mentioned, is an important issue in the Round, and deserves additional comments. It must be kept in mind that the region does not, or only little, liberalise overall, due to the combination of the presence of LDCs, Paragraph 6 Annex b countries and other flexibilities. In simple bilateral liberalisation schemes, it is common to admit that the country which opens less benefits from terms of trade gains, to the detriment of its partner. In a multilateral framework however, things are not always that simple. In particular, market access improvement is often much more limited for SSA countries, which already benefit from preferential schemes on some important markets. The improved market access granted to their competitors will actually decrease some of their export prices, leading to terms of trade losses even though they don't liberalise. As a result, domestic production could shrink in several industries, leading to increased average costs and reduced variety offered to the local and foreign consumers. However, when trade facilitation is introduced, large welfare gains are obtained in the SSA region (up to 2.6 percent of their GDP). Such result is in line with Minor and Tsigas (2008)[5] estimates, which refer to GDP gains ranging from 1.1 to 4.2 percent, depending on the scenario.

Trade facilitation is also important for North Africa, where welfare gains reach 0.4% of GDP in 2025. In contrast, trade facilitation is not an issue for Mexico and Canada, and this does not reverse the welfare losses already mentioned.

While a reduction of tariff barriers generally deteriorates terms of trade for the opening economy, the converse is true when a country facilitates imports. According to trade facilitation data and our scenario assumption (described in the first section), a trade facilitation program in Sub-Saharan countries would mostly reduce time to import goods. Imported goods would thus become cheaper for importers, as compared to exported goods. Hence, terms of trade gains are significantly improved when trade facilitation is added, as is shown in Table 3b. Dynamic impacts through capital accumulation are also significant.

Table 3b: Decomposition of long run welfare gains (agric. + NAMA + services + TF), percent[8]

	Allocation efficiency	Capital accumul.	Land supply	Terms of trade	Variety	Other	Welfare
Australia & NZ	0.05	0.08	0.02	0.06	0.02	0.02	0.25
ASEAN	0.11	0.34	0.01	0.09	0.08	0.20	0.84
Canada	0.05	-0.01	0.01	-0.05	-0.00	-0.01	-0.01
China incl. HK	0.05	0.03	0.01	-0.01	-0.01	0.04	0.11
EFTA	0.49	0.05	-0.02	-0.03	-0.03	-0.01	0.45
EU27	0.11	0.03	-0.00	-0.05	-0.00	0.08	0.16
Japan	0.04	0.01	-0.00	0.04	0.01	0.07	0.18
Korea & Taiwan	0.17	0.11	0.00	-0.09	-0.03	0.04	0.20
Mexico	0.08	-0.03	0.01	-0.17	-0.02	0.06	-0.07
North Africa	0.28	0.25	0.02	-0.14	0.00	-0.01	0.41
Rest of World	0.07	0.29	0.01	0.08	0.06	0.20	0.72
Russia	0.01	0.01	0.00	-0.07	0.02	-0.02	-0.05
Sub-Saharan Africa	0.43	1.09	0.03	0.66	0.20	0.22	2.63
South America	0.09	0.22	0.06	0.14	-0.01	0.13	0.64
South Asia	0.12	0.24	0.01	-0.01	0.07	0.24	0.66
Turkey	0.04	0.02	0.00	-0.11	0.00	0.08	0.03
US	0.03	0.01	-0.01	-0.01	0.01	0.04	0.07

Source: Author's calculation using MIRAGE

We already noticed that the combination of the various exceptions to the formula with binding overhang and special and differential treatment, limits the changes in world exports in goods to less than 2 percent. Accordingly, the gains in GDP for all regions referred to above are necessarily associated with limited specialisation of these regions. Thus, job displacement across agriculture and other sectors, is especially limited (Table 4). The most affected region is the EFTA, with a 1.9 percent decrease in agricultural employment at the 2025 horizon. The decrease observed in Japan and in the EU is less pronounced – only -0.8 and -1.6 percent respectively. By contrast, a 2.5 percent increase in

agricultural employment is recorded in New Zealand and Australia, 1.2 percent in Canada and 1.4 percent in South America. All these changes are very smooth given the time horizon considered, and should be second order effects, as compared to the "natural" evolutions of this sector (population ageing in Europe etc.). Lastly, it should be stressed that compensatory evolutions in services or manufacturing take place. Their magnitude remains however tiny in percentage terms, given the disproportionate share of these sectors in countries like Europe, as compared to agriculture. A last result deserves comments: trade facilitation reduces the positive employment impact of the agreement on agriculture. This is due to the general equilibrium nature of our approach: due to trade facilitation, employment increases in certain industries in the region (forestry, primary products, metal, transport equipment, etc.) as well as in services, driving the labour force out of agriculture.

Table 4: Long run percent change in employment[8]

	Agriculture			Industry and services		
	A+N	A+N+S	A+N+S+TF	A+N	A+N+S	A+N+S+TF
Australia & NZ	2.51	2.51	2.52	-0.14	-0.14	-0.14
ASEAN	0.09	0.08	0.01	-0.01	-0.01	-0.00
Canada	1.16	1.16	1.17	-0.02	-0.02	-0.02
China incl. Hong-Kong	0.20	0.20	0.20	-0.03	-0.03	-0.03
EFTA	-1.88	-1.88	-1.89	0.02	0.02	0.03
EU27	-1.59	-1.59	-1.66	0.06	0.06	0.06
Japan	-0.76	-0.76	-0.77	0.01	0.01	0.01
Korea & Taiwan	-0.04	-0.04	-0.04	0.00	0.00	0.00
Mexico	0.67	0.67	0.68	-0.07	-0.07	-0.07
North Africa	0.87	0.86	0.85	-0.18	-0.18	-0.18
Rest of World	0.70	0.69	0.65	-0.07	-0.07	-0.06
Russia	0.28	0.28	0.29	-0.03	-0.03	-0.03
Sub-Saharan Africa	0.25	0.25	0.09	-0.16	-0.16	-0.06
South America	1.41	1.42	1.58	-0.11	-0.11	-0.12
South Asia	0.01	0.02	-0.07	-0.00	-0.00	0.02
Turkey	0.06	0.05	0.07	-0.01	-0.01	-0.01
US	-0.05	-0.05	-0.03	0.00	0.00	0.00

Note concerning the scenarios:
A+N: Agriculture and NAMA.
A+N+S: Agriculture, NAMA and Services.
A+N+S+TF: Agriculture, NAMA, Services and Trade facilitation.

Source: Author's calculation using MIRAGE

3- Detailed impacts on factor incomes

Such changes in specialisation naturally leads to changes in factor incomes as the result of the different factor proportions in the different activities. In Table 5, we report changes in returns to skilled labour, to unskilled labour employed in agriculture, and to other unskilled labour, in the different regions in the long run.

Unskilled wages in agriculture are penalised by the reduction in production in the EU (-3.3%), in the EFTA (-3.1%), in Japan (-1.3%). In the US this effect is negligible. The opposite evolution is observed in countries specialising in agriculture: unskilled wages in agriculture record a 5.6% increase in the long run in Australia and New-Zealand, 3.2% in South America, 2.4% in Canada, 2.3% in North Africa and 1.5% in Mexico. Gains in unskilled agricultural wages are more limited in Sub-Saharan Africa, where the consumer cannot take benefit of the more favourable prices associated with freer imports.

Other unskilled wages are positively affected in countries specialising in industry. This is observed for the ASEAN (0.5% in the two first scenarios and 1% when trade facilitation is added), in Korea and Taiwan (0.6%). Evolutions are more limited in China or in Japan. The only undesirable outcome is the (limited) impact on unskilled wages outside agriculture in Sub-Saharan Africa in the two first scenarios. Interestingly, trade facilitation reverses this result and unskilled wages outside agriculture increase by 2.5 percent in the long run in the region.

As for skilled workers, wages increase almost everywhere (with the exception of Canada where there are stable) when liberalisation in agriculture, industry and services are combined. While these gains are increased with the liberalisation in services, they remain modest however: 0.6 percent in the ASEAN, in Korea and Taiwan, 0.4 percent in Japan, 0.3 percent in the EU, etc. Mexico and Sub-Saharan Africa are however the two exceptions.

Table 5: Long run percent change in real wages[8]

	Skilled			Unskilled agriculture			Other unskilled		
	A+N	A+N+S	A+N+S+TF	A+N	A+N+S	A+N+S+TF	A+N	A+N+S	A+N+S+TF
Australia & NZ	0.16	0.18	0.24	5.58	5.61	5.68	0.21	0.23	0.27
ASEAN	0.56	0.62	1.27	0.69	0.72	1.02	0.49	0.54	0.99
Canada	-0.01	0.02	0.05	2.38	2.42	2.45	0.02	0.05	0.06
China incl. Hong-Kong	0.22	0.25	0.27	0.74	0.76	0.76	0.28	0.31	0.32
EFTA	0.70	0.76	0.82	-3.35	-3.31	-3.30	0.43	0.49	0.52
EU27	0.21	0.25	0.38	-3.12	-3.10	-3.14	0.15	0.18	0.27
Japan	0.37	0.39	0.42	-1.29	-1.28	-1.29	0.24	0.26	0.28
Korea & Taiwan	0.53	0.57	0.64	0.54	0.58	0.62	0.61	0.65	0.71
Mexico	-0.08	-0.08	-0.09	1.46	1.48	1.49	-0.03	-0.01	-0.03
North Africa	0.14	0.14	0.84	2.35	2.32	2.70	0.22	0.22	0.62
Rest of World	0.09	0.10	1.12	1.57	1.55	2.12	0.03	0.02	0.67
Russia	-0.05	-0.05	-0.06	0.58	0.57	0.56	-0.05	-0.05	-0.07
Sub-Saharan Africa	-0.23	-0.20	4.63	0.63	0.61	2.81	-0.20	-0.19	2.51
South America	0.22	0.24	0.70	3.20	3.25	3.89	0.13	0.16	0.44
South Asia	0.15	0.19	0.95	0.14	0.19	0.42	0.11	0.15	0.60
Turkey	0.10	0.09	0.10	0.18	0.15	0.19	0.04	0.03	0.03
US	0.10	0.12	0.14	-0.05	-0.03	0.02	0.05	0.07	0.09

Source: Author's calculation using MIRAGE

In Table 6, we report the same results for Capital and Land. In countries specialising in agriculture, such as Australia, New Zealand, or Canada, as well as in South America, the return to land is increasing by at least 2 percent in the long run. This contrasts with the 2.4 percent decrease in the return to land in the US, with the 2.9 percent decrease in Japan, with the 5.5 percent decrease in the EU, and even more with the 23 percent decrease in the EFTA.

Changes in the returns to capital are limited throughout the regions, never reaching one percent.

Table 6: Long run percent change in real returns to land and capital[8]

	Land			Capital		
	A+N	A+N+S	A+N+S+TF	A+N	A+N+S	A+N+S+TF
Australia & NZ	2.42	2.42	2.45	0.25	0.26	0.26
ASEAN	0.38	0.39	0.51	0.13	0.15	0.16
Canada	2.55	2.57	2.58	0.11	0.13	0.12
China incl. Hong-Kong	0.82	0.83	0.81	0.16	0.17	0.18
EFTA	-23.07	-23.07	-23.08	-0.19	-0.13	-0.14
EU27	-5.51	-5.51	-5.68	0.05	0.08	0.10
Japan	-2.88	-2.87	-2.91	0.17	0.18	0.17
Korea & Taiwan	0.08	0.10	0.13	0.29	0.31	0.31
Mexico	1.12	1.12	1.13	0.11	0.13	0.12
North Africa	4.67	4.60	5.04	-0.30	-0.28	-0.38
Rest of World	2.53	2.48	3.01	-0.11	-0.09	-0.13
Russia	0.40	0.39	0.39	-0.07	-0.05	-0.05
Sub-Saharan Africa	0.29	0.28	0.88	-0.29	-0.27	-0.81
South America	2.77	2.80	3.30	-0.05	-0.03	-0.09
South Asia	0.20	0.24	0.28	-0.02	-0.01	-0.04
Turkey	0.03	0.02	0.05	0.01	0.01	-0.01
US	-2.45	-2.44	-2.40	-0.02	-0.01	-0.01

Source: Author's calculation using MIRAGE

4- Sectoral impact

Beyond the macroeconomic approach, it is worth examining some sectoral and regional results.

In Table 7, we accordingly examine changes in exports of the different regions in the different sectors..

In agriculture, the two main beneficiaries of the DDA would be Australia and New Zealand on the one hand and North Africa on the other hand. Australia and New Zealand would benefit from a notable export increase. The strong specialisation of these two countries exports in agriculture (agro-food exports represent one fourth of their total exports) implies that this sector concentrates the bulk of their export gains. As for North African countries, although they are much less specialised in agriculture, this sector remains the most significant one in terms of export gains, which occur especially on the EU market. Overall, two regions face a decrease of their agricultural exports: Russia and the EU. The negative results for Russia is due to the assumption that WTO members would not grant the benefit of MFN reduced tariffs to non-WTO members. Accordingly, Russia will suffer from trade diversion. As for the EU, such reduction in exports is the consequence of the removal of export subsidies. Export subsidies are actually very dependent on the level of world prices. Our main assumption is that 2004 correspond to a year with a regular use of export refunds. Accordingly, in the model, the removal of export subsidies will affect significantly the EU exports in all sectors concerned.

In the industrial sector, impacts are generally smaller in percentage. Sub-Saharan Africa and South Asia however manage to benefit from export increases close to 7%. In the case of Sub-Saharan Africa, trade facilitation is determinant in this result. It is also true for South Asia but to a smaller extent. Asia in general, either developing or already industrialised, and the EU, are characterised by strong export increases, around 4%. For this second set of countries, trade facilitation is much less important.

In Table 8, we take into account the combined impacts of changes in exports, imports and in the demand for every sector. The changes in production are deduced from these three components. Internal demand is less sensitive to price changes than trade, and it generally represents a large proportion of total demand. Consequently, production variations appear relative smaller than trade variations. In terms of agricultural production, Australia and New Zealand benefit the most from their export increase because they are largely open to international trade. North Africa, South America and Canada come next. The EU production is reduced by a little less than 2%. Due to their very strong initial protection, EFTA countries face a strong reduction of their agricultural production, compensated by production increases in the other sectors. By contrast, Japan is much less affected.

Table 7: Long run percent change in the value of exports (Goods + Services + TF) [8]

	Agro-food	Industry	Services	Total
Australia & NZ	17.7	0.6	-0.0	4.8
ASEAN	5.1	3.4	-0.6	2.9
Canada	6.6	-1.1	1.7	-0.1
China incl. Hong-Kong	9.2	4.4	-0.2	4.0
EFTA	4.2	1.1	1.2	1.2
EU27	-4.8	3.8	1.8	2.6
Japan	8.4	4.3	-1.8	3.8
Korea & Taiwan	6.2	4.7	-1.1	4.5
Mexico	3.8	0.5	2.6	0.8
North Africa	49.8	0.7	3.2	4.6
Rest of World	5.4	2.0	1.0	2.0
Russia	-0.4	-0.8	1.8	-0.5
Sub-Saharan Africa	2.3	7.0	2.7	5.3
South America	9.1	0.9	0.5	3.8
South Asia	6.7	6.9	-2.0	6.0
Turkey	4.7	-1.3	1.9	-0.3
US	3.0	2.2	1.4	2.1

Source: Author's calculation using MIRAGE

Table 8: Long run percent change in the volume of production (Goods + Services + TF) [8]

	Agro-food	Industry	Services
Australia & NZ	7.0	-2.2	0.1
ASEAN	0.3	0.7	0.3
Canada	2.3	-0.8	0.0
China incl. Hong-Kong	0.3	0.3	-0.1
EFTA	-11.1	0.8	0.3
EU27	-1.9	0.1	0.1
Japan	-1.4	1.1	-0.1
Korea & Taiwan	-0.6	0.9	-0.2
Mexico	0.6	0.0	0.0
North Africa	4.6	-2.5	0.5
Rest of World	0.8	-0.2	0.5
Russia	0.6	-0.4	0.0
Sub-Saharan Africa	0.8	0.8	2.0
South America	2.5	-1.3	0.3
South Asia	0.1	0.8	0.3
Turkey	0.2	-0.5	0.1
US	-0.1	-0.1	0.0

Source: Author's calculation using MIRAGE

5- Conclusion

Two draft modalities (agriculture and NAMA) are on the table of the DDA negotiations. A detailed representation of their actual impact in terms of liberalisation of market access and reduction in farm support is proposed, taking into account the various formulas, exceptions and flexibilities contained in these two documents. We also add a hypothetical reduction of trade barriers in services, in absence of more detailed information on the possible outcome of the negotiations on these issues. This shock to the world economy is introduced in MIRAGE, a dynamic CGE model, and we compare the trajectory of the world economy until 2025 to a dynamic baseline in absence of final agreement in the Round. Results are detailed for 17 regions of the world economy.

Given the political economy of the negotiations, various exceptions and flexibilities limit the aggressiveness of the Swiss formula for manufacturing and of the tiered formula in agriculture. A series of countries are also exempt from any liberalisation. Notwithstanding such constraints, the final mix of rules and exemptions submitted by the chair persons would lead to a non negligible impact on the world economy, and moreover to a positive outcome in terms of GDP for all its regions, if not a systematic welfare gain.

Our simulations point to a USD 57 bn world GDP gain when agriculture and industry are liberalised. A moderate liberalisation in services would add another USD 11 bn increase in world GDP in the long run. These gains would be added to the world GDP, every year in the medium term, as compared with a situation without agreement. Half of these annual gains would be reaped within 5 years of implementation only. On the top of this, trade facilitation would add each year some USD 99 bn gains to the world GDP in the long term.

Considering these results, three warnings must be made. Firstly, the final outcome of the negotiation will include additional items not modelled here. This is the case for GATS modes 3 and 4, an increase in business security and transparency due to additional commitments and lower bindings, an improvement of rules managing world trade. Secondly, the cost of *not* signing a final agreement is anything but the negative of the gains computed here, as an agreement around current proposals would significantly lower bound tariffs and extend the consolidation coverage (Bouet and Laborde, 2008). Also, a move towards regionalism and bilateralism would be unavoidable. Thirdly, we have modelled the gains, but not the cost of the facilitation programme: the success of the latter will be conditional to the finalisation of an Aid for Trade package.

Appendix 1: regional classification

	Region	Composition
1	EU27	
2	USA	
3	Canada	
4	Japan	
5	ANZCERTA	Australia New Zealand
6	EFTA	Switzerland Norway Iceland Liechtenstein
7	Korea & Taiwan	
8	Mexico	
9	South America	
10	ASEAN	
11	China & Hong-Kong	
12	South Asia	Bangladesh India Pakistan Sri Lanka Afghanistan Bhutan Maldives Nepal
13	Russia	
14	Turkey	
15	North Africa	
16	Sub-Saharan Africa	Except South Africa
17	Rest of World	Central America and Caribbean Rest of Europe Rest of Former Soviet Union Middle East South Africa Rest of Oceania Rest of (East) Asia

Appendix 2: The simulated scenarios

The Doha scenarios have been as close to actual proposals as was possible at the level of detail provided by MAcMap-HS6 v2, the bilateral tariff database. The DDA parameters specified in the agriculture and NAMA modalities were implemented at the most detailed sectoral level available (national tariff line level and HS6 level). The modelling scenarios were performed on a sectorally aggregated database. The main macroeconomic results are presented for agriculture, NAMA and services, for each region mentioned in Annex 1.

For industrialised countries a Swiss formula with a coefficient 8 is linearly implemented in 5 years starting in 2009 for industrial products. Special and differential treatment leads to less ambitious tariff cuts for developing countries. Three schemes based on less demanding Swiss formulas are linearly implemented in 9 years starting in 2009 for industrial products in the case of developing countries. Unbound lines are consolidated before the tariff reduction formula applies. Small and Vulnerable Economies are supposed to avoid any reduction on newly consolidated tariff lines. On the top of this, flexibility is allowed for a percentage of the number of NAMA tariff lines (bounded to a percentage of the total value of NAMA trade; percentages depend on the scheme). For the corresponding HS6 positions, the actual cut is half the cut that would come out of the Swiss formula, or no cut at all if countries choose to select less exceptions. More detail on the various options and the allocation of countries between them is provided below. Since we do not have the list of products chosen by developing countries, we select the HS6 headings for which the tariff cut on the applied MFN tariff obtained with the Swiss formula would be the largest. Additional departures from this general scheme are conceded to recently and very recently acceded members of the WTO, as well as to the so-called ‘‘Paragraph 6 Annex b’’ countries having a limited consolidation of their NAMA tariff lines.

As for agriculture, we start by phasing out export subsidies by 2013, based on a linear implementation. Distorting domestic support is cut by 60% of current AMS commitments for the US and 75% of current AMS commitments for the EU. The latter reduction in farm support is linearly implemented in 5 years. As regards market access in agricultural products, developed economies reduce their protection using an aggressive tiered formula, with tariff reductions ranging from 50% to 70% of the initial bound tariffs, depending of the initial consolidated level. Applied tariffs may be reduced by less however, as a result of the consolidation margin. In addition, a commitment to reduce tariffs on average by 54% is imposed, after the list of sensitive products has been defined. When tariff cuts do not reached this target, a further homogenous cut is applied. Each country can define a list of sensitive products comprising 5% of tariff lines (corresponding to 8% of HS6 headings), selected on the basis of a criterion defined as the product of the cut on MFN applied tariff, multiplied by trade in 2004. Japan and the EFTA, for which more than 30% of all lines belong to the top band defined by the agricultural

modalities, benefit from a larger number of sensitive products, 7% of tariff lines (corresponding to 12% of HS6 headings).

The most recent proposal (December) has slightly modified the number of agricultural sensitive products granted to industrialised countries. This number has been decreased at 4% (6% for Japan and the EFTA). Canada and Japan have expressed serious reservations about this proportion and asked for additional flexibilities. However, this evolution is not reflected in our simulations, which are still based on the July proposal on this point.

Then, two alternative approaches can be considered. In the core simulation we explore the impact of opening TRQs in selected tariff lines, and we implement an explicit modelling of tariff rate quotas to perform these simulations. This is done under the assumption that all developed countries, with the exception of Australia and New-Zealand, choose to open large quotas and limit the tariff cut to one third of what the tiered formula would impose. Australia and New-Zealand limit the tariff cut to two-thirds of what the formula would suggest but do not open quotas in the selected lines.[9] These tariff cuts and quotas opening are linearly implemented in 5 years.

Alternatively, we have computed the results of the traditional approach in CGE studies, where no explicit simulation of the tariff rate quotas is used. A smaller tariff cut associated to the opening or enlargement of a TRQ is permitted for the corresponding products: but this is implemented as a tariff cut equal to 2/3 of what it would have been for a standard product, without any quota increase. For sake of clarity, the associated results are not reported in the tables below, but we may refer to them in the text by comparison.

Again a specific and differential treatment is conceded to developing economies. The bands are more ambitious, and the coefficients of reduction in each band are only 2/3 of the ones applied for industrialised countries. In addition, 12% of the total number of tariff lines are treated as special products and imposed an 11% average cut only. Among them, 5% of tariff lines are exempt from any cut. HS6 headings are chosen on the basis of the criterion already presented. As opposed to the minimum tariff cut for developed economies, here a maximum of 36% after taking account of all flexibilities is introduced. Would the reduction obtained after applying the tiered formula be higher, then all cut ratios would be reduced so as to obtain 36% on average. A linear implementation in 9 years is considered.

The last key component of the special and differential treatment relates to the 97% initiative, by which developed economies concede a zero quota zero tariff access to LDCs exports in agriculture as well as in industry. The impact of such measure is however limited since the EU has already its Everything

But Arms (EBA) programme, the US the AGOA one for African countries, while Japan and Norway for instance have programmes too.

NAMA

Industrialised countries

Binding of unbound HS6 lines

General scheme: at the HS6 level
- if MFN (2001) □ 0.04, then Reference tariff = MFN (2001) + 0.3
- if MFN (2001) > 0.04, then Reference tariff = Max(MFN (2001) + 0.2, 0.04 + 0.3)

Swiss formula coefficient 8
Linear implementation in 5 years

It has been assumed that Croatia, Korea and Taiwan would renounce the possibility to invoke the developing country status and adopt the industrialised country status for NAMA products. Turkey will also follow this scheme as a consequence of its customs union with the EU in NAMA products.

Developing countries, except LDCs

Binding of unbound HS6 lines

General scheme: at the HS6 level
- if MFN (2001) □ 0.11, then Reference tariff = MFN (2001) + 0.3
- if MFN (2001) > 0.11, then Reference tariff = Max(MFN (2001) + 0.2, 0.11 + 0.3)

This scheme determines initial bound tariffs for unbound lines, on which the formula is then applied. However, as small and vulnerable economies (SVE) are exempt from this scheme and can freely determine their initial bound, it can be assumed that they will be able to escape from any actual cut of applied tariffs for these newly consolidated lines.

Three schemes:
1) Swiss formula, coefficient 20 divided in 1-A) and 1-B): see below
2) Swiss formula, coefficient 22 divided in 1-A) and 1-B)
3) Swiss formula, coefficient 25

Linear implementation in 9 years

Flexibility

Option 1-A: 14% of the number of NAMA tariff lines. For these lines, the actual cut is half the cut that would come out of the Swiss formula. They should represent less than 16% of the total value of NAMA trade. Countries assumed to choose this option are: Mercosur, Venezuela, Oman. All Mercosur countries, even those that could benefit from the Small and Vulnerable Economies status, will follow this scheme. For these countries, the trade limit is checked based on Brazilian imports.

Option 1-B: no cut for 7% of the number of NAMA tariff lines. They should represent less than 8% of the total value of NAMA trade. Countries assumed to choose this option are: Malaysia, Philippines, Thailand, Pakistan and China.

[9] For those two countries, we assume as a modelling simplification that quotas would be filled before the end of the simulation period so that it would not provide any further market access.

Option 2-A: 10% of the number of NAMA tariff lines. For these lines, the actual cut is half the cut that would come out of the Swiss formula. They should represent less than 10% of the total value of NAMA trade. Countries assumed to choose this option are: Bahrain, Kuwait, Qatar, United Arab Emirates, Morocco, Tunisia, Egypt and Mexico.

Option 2-B: no cut for 5% of the number of NAMA tariff lines. They should represent less than 5% of the total value of NAMA trade. Countries assumed to choose this option are: Indonesia, India and Israel.

Option 3 offers no flexibility: Chile, Colombia, Costa Rica, Peru, Hong-Kong and Singapore are assumed to choose this option.

Eventually, SACU countries will benefit from the same flexibility scheme as 1A, but with a 22 coefficient for the Swiss formula instead of 20. All SACU countries will apply this scheme, even those which could benefit from a more favourable status.

The value of trade concerned by the flexibilities is to be computed based on 1999-2001 data or the most recent available data, up to the Members' decision.

Selection method for special products?

We select the lines for which the product of the tariff cut on the applied MFN tariff obtained with the Swiss formula, times the total imports, would be the largest. The selection stops as soon as the trade threshold is reached. The value of trade is computed on the basis of 2002-2004 trade.

Exceptions to the standard scheme

Small and vulnerable economies (SVE)

- Can opt out of the Swiss formula, and choose instead:
- If the average of bound tariffs in 2001 □ 0.5 then average bound tariff reduced by 40%.
- If the average of bound tariffs in 2001 in [0.3, 0.5[, then average final bound tariff = 0.23 or average bound tariff reduced by 30%, whichever is the lesser reduction.
- If the average of bound tariffs in 2001 < 0.3, then average bound tariff = 0.17 (or unchanged if it was already below that level). Furthermore, 90% of NAMA tariffs are cut by at least 7.5%.

How we implement this?

The alternative scheme offered to SVE appears as much less demanding than the Swiss formula if one considers as a criterion the effect on the average of bound tariffs. The only exception may be for countries characterised by an initial average bound tariff lower than 2 percent. Therefore we assume that all SVE apply the alternative scheme. Tariffs are cut using a unique reduction factor applied to the original tariff structure. In the third case, the 7.5% reduction is first applied to all but the 7.5% highest bound tariffs. If it is not enough to reach the 0.17 target, then a uniform tariff reduction is applied to the original structure instead.

New WTO members

List 1: Albania, Saudi Arabia, Armenia, Republic of Macedonia, Moldavia, Kyrgyzstan, Tonga, Vietnam
No liberalisation

List 2: China, Croatia,[10] Equator, Georgia, Jordan, Mongolia, Oman, Panama, Taiwan
Benefit from a 2 year delay to start the implementation.

[10] It has been assumed that Croatia would renounce this possibility and follow the same scheme as industrialised countries.

Exception to the standard scheme:

Countries for which consolidated lines cover less than 35% of non agricultural products (paragraph 6 annex b) can consolidate less than 100% of their lines, with a proportion depending on the initial proportion of tariff lines already consolidated.

Initial proportion	**Final proportion**
< 12% (List 1 below)	70%
12% - 25% (List 2 below)	75%
25% - 35% (None)	80%

List 1 (< 12%): Cameroon; Sri Lanka; Congo; Ghana; Kenya; Mauritius; Nigeria; Zimbabwe.
List 2 (12% - 25%): Cuba; Cote d'Ivoire; Suriname.

Average final bound tariffs = 0.285

How we implement this?

The NAMA lines to be consolidated are chosen among those for which initial MFN tariffs are the lowest. Based on such assumption, the average of applied tariffs will always be below 0.285, so that consolidation will have no impact on applied tariffs.

Agricultural policy

Export subsidies

They are removed by 2013, following a linear implementation

Distorting domestic support

US: -60% of current AMS commitments
EU: -75% of current AMS commitments
In 5 years

Agricultural market access

We assume no further binding for tariffs that would not be bound. All formulas apply only to lines that are already bound.

Industrialised countries

Bound tariff in]0, 0.2]	-50%
Bound tariff in]0.2, 0.5]	-57%
Bound tariff in]0.5, 0.75]	-64%
Bound tariff > 0.75	-70%

Sensitive products

5% of agricultural lines, represented by 8% of HS6 products to account for the possibility to select the most significant lines at the tariff line level.
Countries which have more than 30% of their tariffs in the top band are granted 2% more sensitive products, thus a total of 7%. This is the case for all EFTA countries and Japan. At the HS6 level, these sensitive products correspond to a total of 12% of all agricultural products.
The agreement proposes a smaller tariff cut and the opening or enlargement of a TRQ (depending on the reduction of the cut that is chosen).

What do we propose?

For Australia and New Zealand, we implement a tariff cut equal to 2/3 of what it would have been for a standard product. We choose them among those for which the product of the cut on the MFN tariff time total imports would be highest. We do not simulate any quota increase.
For all other industrialised countries, we implement a tariff cut equal to 1/3 of what it would have been for a standard product, and we open a quota that will be large enough to increase market access by a quantity corresponding to 5% of domestic consumption. Sensitive products are chosen using the same methodologies.

Minimal average cut

The average cut on bound tariffs has to be a minimum of 54% (after taking account of sensitive products). This average cut has to be understood as the simple average of percentage cuts, which differs from the cut of the simple average of consolidated tariffs. If the minimum has not been reached, a homogenous reduction factor is further applied to the final structure.

Capping

Final bound tariffs should not exceed 100% for more than the number of sensitive products + 1.5% of the total number of agricultural tariff lines (3% of HS6 tariff headings). If the number of bound tariffs beyond 100% still exceeds this threshold, tariff lines in excess are capped at 100%.

Tropical products

For tropical products, three cases are considered:

Bound tariff in]0, 0.1]	-100%
Bound tariff in]0.1, 0.75]	-70%
Bound tariff > 0.75	-70% - 8 p.p.

Tariff escalation

If the tariff for a secondary product as identified by the list provided in the modality is above the tariff of the corresponding primary product + 5 p.p., then the secondary product is applied the reduction corresponding to the band immediately above, and for products already in the highest band a further reduction by 6 p.p. is added.

Implementation period

Linear implementation in 5 years.

Developing countries, except LDCs

Bound tariff in]0, 0.3]	2/3 of the cuts above
Bound tariff in]0.3, 0.8]	
Bound tariff in]0.8, 1.3]	
Bound tariff > 1.3	

Special products

5% of the total number of tariff lines: exempt from any cut
7% of the total number of tariff lines: -18.85%
Overall the average tariff cut for these 12% of special products is 11%.

How are they chosen?

Many criteria are accepted for a product to qualify as special, according to Appendix F. Furthermore, it is likely that products corresponding to this criterion are highly protected. Therefore we can assume that there is enough flexibility in this scheme to allow developing countries to choose special products among those for which product of the cut on the MFN tariff times total imports would be highest.

Sensitive products

2/30 of the total number of agricultural lines.
The agreement proposes a smaller tariff cut associated with the opening or enlargement of a TRQ (depending on the reduction of the cut that is chosen).

What do we propose?

We assume that developing countries will not use this option and will rely only on special products, to avoid the opening of any TRQ.

Maximal average cut

The average cut on bound tariffs has to be a maximum of 36% after taking account of all flexibilities. If the reduction obtained after applying the tiered formula is higher, then all cut ratios will be reduced so as to obtain exactly 36% on average.

Implementation period

Linear implementation in 8 years.

Exception 1 to the standard scheme

Small and vulnerable economies
After the formula is applied, they add 0.1 to the final Bound tariff, without exceeding the initial level.

Exception 2 to the standard scheme

New WTO members

List 1 (see NAMA)
No liberalisation. For agriculture, Georgia belongs to the list of countries exempt from any cut.

List 2 (see NAMA)
Benefit from a 2 year delay to start the implementation. Furthermore they moderate their cut by 10 *ad valorem* percentage points in the top two bands, and by 5 percentage points in the bottom bands.

97% initiative

Industrialised countries will grant a duty free quota free access to LDCs for all but 3% of their tariff lines.

These tariff lines will be chosen as those corresponding to the highest in terms of tariff revenues from these countries.

Services

Negotiations of services liberalisation are made difficult due to the absence of a consensus on a method to quantify the degree of protection associated to regulatory measures. However, we can rely on some estimate to measure what would be the impact of improvements on this issue.

We propose to simulate an overall reduction of protection of 3% in all services sectors (except distribution, energy and public services where no reduction is envisaged) for the following subset of countries: UE; Argentina, Taiwan, Australia, Canada, China, Hong Kong, India, Indonesia, Japan, Korea, Malaysia; Mexico; New Zealand; Pakistan; Philippines; Singapore; South Africa; Swiss; Thailand; the US.

Appendix 3: TRQ modelling

For the sake of this study, a modelling of multilateral quotas has been introduced in Mirage. Tariff-rate quotas are characterised by the three well-known possible regimes: in-, at-, and out-of-quota. However, in the case of multilateral quotas it is also necessary to identify which exporters are using the quotas whenever the regime of the quota is "at". Assumptions made to do this are presented below.

Modelling tariff rate quotas implied to adapt the structure of demand to account for new products. In all agricultural sectors of industrialised countries containing sensitive products, demand has been split into two subsectors, one containing HS6 products affected by quotas, the other containing other products. This differentiation is introduced at the very root of the demand system, as it is reasonable to assume that consumers first choose the product they want to buy, and only later choose its country of origin. To do this, we rely on domestic consumption data and trade data at the HS6 level, aggregated at the level of both subsectors. For each GTAP sector, the two subsectors are introduced using a CES function with the same substitution elasticity as the one of the LES-CES utility function. The full Armington demand system is then applied to both subsectors.

Products entering under TRQs can then work under the usual three regimes. When the regime is "in", all exporters use the in-quota tariff. This is due to the fact that the in-quota tariff has been set at 0%, for reasons explained later. When the regime is "at", an implicit tariff is computed. It will be used to assess which exporter benefit from the tariff. When the regime is "out", only countries with the highest preferential tariff use the quota while other countries will rely on their own preferential tariff. As we assume the quota rent to be captured by the importer, it is not necessary to compute it. When the quota is binding but not exceeded (regime "at"), it is necessary to identify which exporters will take advantage of the quota. This is done using the implicit tariff. Countries for which the preferential tariff is below the implicit tariff don't use the TRQ, while countries above use it. The logic behind such behaviour is that importers will prefer to allocate a limited quota to countries for which the difference between the tariff they pay and the tariff they would pay is the highest.

Inside tariffs have been set at 0% because the modalities stipulate that it should be set at a level that allows to take full advantage of it. If the quota is not large, a higher inside tariff would be possible, but, by definition, exporters will be able to take full advantage of the quota if the regime is not "in", i.e. if the implicit tariff is above the inside tariff. In our modelling, the level of the in-quota tariff does not matter as soon as the regime is "at" or "out", only the implicit tariff is relevant.

As quotas are set in quantity terms, and demand for agricultural goods by industrialised countries is likely to increase over time, a particular dynamics of quota regimes will be observed. At first, many quotas can be “in”. Thus, all exporters, except those who benefit from zero tariffs, use the quota. When demand increases, the size of the quota appears as more limited and exporters with the lowest preferential tariffs will have to renounce their share of the TRQ. This is possible even though the in-quota tariff is zero, because it is implicitly assumed that importers control the quota. While it is the case with several administration methods, this remains questionable with some particular ones. In 2025, many quotas have reached the out-of-quota regime, and only exporters facing the highest tariff will use the quota. Some quotas are likely to be still binding in 2025 for highly protected products.