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Re-evaluating the Harbinson Proposal - Prospects for the EU25: A Note[1]

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Abstract

In this study, we employ the Harbinson proposal and July Framework to compare a 'likely' Doha scenario with a realistic baseline. The novelty of this study is that we focus exclusively on the trade-led welfare impacts in selected EU member states. The important features of this paper are (i) the usage of the latest GTAP (version 6) data; (ii) the focus on EU25 regions incorporating all major CAP policy instruments and reforms; and (iii) the inclusion of binding tariff overhangs into the Harbinson tariff reductions. Results show the damping effects of tariff binding overhangs on welfare outcomes. This and other factors which limit the gains to liberalisation mean that the EU25 only realises 10% of its long-run welfare gain potential defined by complete liberalisation.

1. Introduction

In recent years, the applied trade literature has tended to conform on both range of scenarios and the use of the Global Trade Analysis Project (GTAP) database for computable general equilibrium (CGE) simulations of the WTO Doha Round agenda. However, given the emphasis on development issues in the Round, the potential trade-led impacts on individual member states have been somewhat overlooked. Our study bridges this gap by employing the Harbinson proposals[2] (WTO, 2003a; 2003b) and subsequent July Framework (WTO, 2004) documents to compare a 'likely' Doha scenario with a 'status quo' baseline scenario.

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[2] At the current time, this remains the main point of reference in the agricultural modalities negotiations.

Brockmeier *et al.*, (2003), Yu and Jensen (2005) and Bouet *et al.*, (2005) have updated the analysis from the EU perspective through explicit implementation of CAP reforms (albeit in varying degrees of detail).[3,4] These comparative static assessments examine the Harbinson tiered tariff reduction formula against a long run status quo baseline scenario (see footnote 8 below), although only Brockmeier *et al.*, (2003) and Bouet *et al.*, (2005) include export subsidy elimination and AMS reductions. Importantly, all three studies use version 5 of the GTAP database (base 1997), rather than the more recent version 6 (base 2001).

Equivalent variation (EV) or real income gains to the EU25 from a WTO outcome in Yu and Jensen (2005) and Bouet *et al.*, (2005) are US$9.1bn and US$8.2bn (1997 prices) respectively, despite the fact that in addition to the tariff reforms in Yu and Jensen (2005), Bouet *et al.*, (2005) also include 55 per cent reductions in Amber and Blue Box support, export subsidy eliminations and imperfectly competitive scale effects. The reason for the difference in these estimates is in the treatment of the tariff reductions, where Bouet *et al.*, (2005) check for binding overhang. More specifically, the percentage binding overhang, or 'water in the tariff' is calculated as the difference between the bound and applied tariff rates expressed as a percentage of the bound tariff rate. Thus, if the percentage binding overhang were 50 per cent, then bound tariff reductions would have to be greater than 50% for 'real' market access (i.e., applied tariff reductions) to occur.

This paper builds on the existing literature in the following respects. Firstly, we employ the latest GTAP version 6 data as a basis for the simulations, relating to 2001 as the base year, and we also disaggregate the EU25 to more specific country groupings following Brockmeier *et al.*, (2003) and Yu and Jensen (2005). Secondly, we model in detail *all* of the major CAP policies (e.g., production quotas, decoupled payments and the single farm payment (SFP), set aside, CAP budget). Finally, as in Bouet *et al.*, (2005), we introduce binding overhangs into the market access and domestic support pillars for all countries.

To anticipate our results, the Harbinson scenario only realises one-tenth of the welfare gain for the EU25 compared with 'complete abolition of all agro-food protection and support'.

[3] A full literature review of Doha related studies can be found in Philippidis *et al*. (2006)
[4] Whilst Brockmeier *et al.* (2003) disaggregate EU regions, no results are presented for individual members. Moreover, no welfare (equivalent variation) gain estimates are presented

2. Methodology, Model Extensions and Scenario Design[5]

We use the standard comparative static GTAP CGE model (Hertel, 1997), whilst in contrast to the three studies mentioned above, we employ the version 6 GTAP database (Dimaranan and McDougall, 2006).[6] Version 6 is benchmarked to a later policy year (2001 instead of 1997 in version 5), and includes a broader regional coverage, improved trade and demand elasticity estimates and most importantly, significant refinements of the tariff protection data. More specifically, version 6 integrates trade preferences, specific tariffs and a partial evaluation of non-tariff barriers (NTBs) (e.g., tariff rate quotas (TRQs)), through the calculation of bilateral applied *ad valorem* tariff equivalents. Since version 6 data has significantly lower effective tariffs than version 5, welfare impacts following tariff reform are generally smaller.

To keep the model manageable, we report results for the following composition of countries: the four largest countries in the EU15 (France, Germany, Italy, UK), the three largest in the EU10 (Czech Republic, Hungary, Poland) and the Netherlands, Greece and Spain,[7] are also treated separately. The remaining EU countries are grouped as two regions: the 'rest of the EU15' (Ro15) and 'rest of the EU10' (Ro10). The remaining regions in the model are the key players on world agricultural markets (USA, China, India, Japan, Cairns), the 'Everything But Arms' (EBA) group of Sub-Saharan and South African countries and a 'Rest of the World' (ROW) region. Given the focus on agriculture and food, all major EU crops and livestock sectors are disaggregated from the GTAP database, whilst remaining non-agricultural sectors are aggregated into 'raw materials', 'manufacturing' and 'services'.

We extend the GTAP framework to include a plausible long run baseline scenario[8] projected from the benchmark year (2001) to 2020. Against this baseline we

[5] Philippidis *et al.*, (2006) provide a full description of the aggregation, the composition and modelling of the baseline and Doha scenario, and the tariff binding overhang data.

[6] Although the dynamic GTAP model is superior to the static model for long run policy analysis, we were obliged to use the static version, since the version six 'dynamic' data were not publicly available at the time of this research.

[7] The Netherlands (Greece) is the largest net payer (net recipient) per capita to (from) the EU budget. Spain is the largest net recipient from the EU budget.

[8] The baseline includes remaining Uruguay Round commitments, EU Enlargement shocks, CAP reforms (Agenda 2000, Mid Term Review including the SFP and modulation and recent sugar reforms), Chinese Accession to the WTO and the Everything but Arms Deal. It should be noted that are supply response estimates in the sugar sector are biased by the fact that we do not explicitly differentiate between 'A', 'B' and 'C' quotas. For an up to date quantitative assessment of the recent sugar reforms see Gohin and

compare our 'probable' Doha scenario, consisting of tariff reductions (see Table 1), moderated by detailed binding overhang data from Buetre *et al.* (2004).

Table 1 –Harbinson's average tariff rate reductions
WTO (2003a)

Developed Countries		Developing Countries	
Existing tariff	**Harbinson's reduction**	**Existing tariff**	**Harbinson's reduction**
> 90 %	60%	> 120 %	40%
> 15 % and ≤ 90 %	50%	> 60 % ≤ 120 %	35%
≤ 15 %	40%	> 20 % ≤ 60 %	30%
		≤ 20 %	25%

In addition, we abolish export subsidies and reduce Amber Box support by 60 (40) % for developed (developing) countries, subject to Amber Box expenditure overhangs. In the EU, the single farm payment (SFP) is treated as being in the Green Box, so no expenditure limits apply.[9] This contrasts with Brockmeier *et al.*, (2003) and Bouet *et al.*, (2005), who reduce EU Blue Box support by 50% and 55% respectively. All Blue Box expenditures in non EU countries are capped at 5 per cent of the value of production (i.e., *de minimis*). For TRQs, we increase the quota to 10% of current consumption**.** Finally, we assume that the non-agricultural sectors also have the same average tariff rate reductions as suggested by Harbinson for the agricultural sectors. A full discussion of all the model estimates is unwieldy, so we focus on the welfare (EV) effects here.[10]

3. Results

As background,[11] comparing our Doha scenario with the status quo baseline shows a slight long run decline in arable, dairy and processed sugar activities, whilst there is substitution from red meat into white meat production. Given the contraction in primary agriculture, returns to agricultural land factors fall slightly (mainly from export

Bureau (2006). In addition further projections shocks to reflect 'time path' increases in labour and capital endowments; population; total factor productivity (TFP) in agriculture, industry and services sectors; and real GDP growth are included. In this sense, the baseline represents the current 'status quo'.

[9] By 2012, the European Commission (2005) estimates that 90 per cent of all direct payments will be decoupled. Thus, given our end year of 2020, we assume that all direct payments will be exempted from reductions.

[10] For a full description of all model results see Philippidis *et al.* (2006).

[11] See Philippidis *et al.* (2006) for a full discussion.

subsidy eliminations in the case of 'arable' land)[12], whilst unskilled labour wages also fall marginally. With greater levels of binding tariff overhangs across many of the EU's principal trading partners, the EU25 agro-food trade balance deteriorates €2.161bn. As expected, world prices in agro-food sectors rise as a consequence of the partial liberalisation, although by typically less than two per cent for most sectors (except in 'dairy' and 'processed sugar' where rises are slightly greater).

The decomposition of regional EV in Table 2 is divided into allocative efficiency effects, terms of trade effects, a stylised CAP budget effect (see below) and 'other' effects.[13] The underlying result is that the Harbinson proposal has a minor positive impact of €1.205bn ($US1.349bn) on EU25 real income (0.02% EU25 GDP). From the selected EU member states, the largest gainers as a proportion of GDP are Italy (0.05%), the UK and Poland (0.04%), whilst the largest net loss accrues to Hungary and the rest of the EU10 (-0.07%). At the global level, we estimate a real income gain of €7.135bn ($US7.992bn) or 0.03% of global GDP, mainly from efficiency gains of €7.054bn. In a separate scenario (not shown), we eliminate all protection and support, yielding EU25 (global) gains of €11.707bn (€67.161bn) relative to the baseline. Accordingly, we estimate that the EU and the World are realising trade-led gains from the current Harbinson package of between 10 and 11% of their long run potential.

[12] Export subsidies have largely been eliminated, although in the database for 2001 are still prevalent in primary 'wheat' and 'other grains' sectors, (7.8% and 29.6% respectively), whilst in the downstream meat, 'other meat', 'dairy' and 'sugar' export subsidies are 78.5%, 5.1%, 27.2% and 53.1% respectively. Primary agricultural sectors use one of the land factors (depending on whether it is an arable or non arable activity), whilst downstream food sectors (and non agricultural related activities) do not. Thus, with eliminations in 'wheat' and 'other grains' export subsidies, there are *direct effects* on the arable land factor. On the other hand, *indirect effects* also occur, as export subsidy reductions in downstream sectors reduce demand for upstream non-arable and arable (in the case of sugar) sectors which has a deflationary impact on non arable land prices. Importantly, with muted drops in tariff protection, in *relative* terms, the export subsidy takes on additional significance.

[13] The 'other' category is an EV (money metric) measure of changes in: (i) *values* of factors of production from exogenous endowment shocks, (ii) *values* of production and demands from exogenous productivity shocks and (iii) population impacts on per capita welfare. The total of these 'other' effects is *relatively* small given that these exogenous shocks also feature in the baseline scenario.

Table 2: EV impacts (€millions, 2001 prices)

	% of GDP	Total EV	Efficiency Effect	Terms of Trade Effect	CAP Budget Effect	'Other' Effect
France	0.02	248.5	297.2	-116.5	72.3	-4.5
Germany	0.03	526.6	276.4	-42.5	294.1	-1.4
Greece	-0.06	-58.1	44.6	-26.1	-73.4	-3.2
Italy	0.05	466.0	222.8	-30.3	278.9	-5.4
Netherlands	-0.05	-169.4	160.0	-143.0	-186.2	-0.2
Spain	-0.02	-128.0	158.4	-77.8	-203.8	-4.8
UK	0.04	452.9	212.4	-53.0	296.4	-2.9
Czech Rep	0.01	7.1	-1.1	-11.5	21.8	-2.1
Hungary	-0.07	-31.9	-2.6	-20.0	-5.8	-3.5
Poland	0.04	67.5	-9.3	-12.8	90.7	-1.1
Ro15	-0.01	-131.9	410.6	-144.8	-385.7	-12.0
Ro10	-0.07	-44.5	2.6	-13.1	-30.5	-3.5
EU15	**0.02**	**1206.8**	**1782.4**	**-634.0**	**92.8**	**-34.4**
EU10	**0.00**	**-1.9**	**-10.4**	**-57.4**	**76.1**	**-10.2**
EU25	**0.02**	**1204.9**	**1772.0**	**-691.4**	**168.9**	**-44.6**
Global	**0.03**	**7135.3**	**7054.3**	**38.0**	**0.0**	**43.0**

The terms of trade effect is negative in all EU regions. Since the binding overhang for many of the EU25's principal agro-food trading partners (except Japan and the USA) is large, our competitors have greater insulation from multilateral tariff reductions. As a consequence, the reform results in increased imports to the EU25.[14] To preserve the external trade balance closure of the model, EU25 exports must rise to offset the influx of imports. This can only be achieved through improved competitiveness which implies falls in factor prices, export prices, and subsequently a terms of trade deterioration of -€0.7bn. This loss is concentrated in the EU15 (-€0.63bn) because of its considerably larger extra-EU trade links than the EU10.

Reductions/eliminations in market distortions (output subsidies, export subsidies, import tariffs) have net positive efficiency impacts of €1.772bn in the EU25 from improved resource reallocation,[15] of which €1.782bn accrues to the EU15. This implies a small negative efficiency impact on the EU10. In part, this result reflects the fact that domestic support and export subsidy distortions are minimal to zero in the

[14] See Tables 4 and 5 of Philippidis *et al.*, (2006) for a comparison of the tariff binding overhangs for each of the regions.

[15] Efficiency is measured as the value of changes in resource or product usage from changes in a given market distortion (e.g., tax or subsidy). Thus, a tariff on a product implies an under usage of resources as the economy is using less compared with a free market. Conversely, subsidies encourage over-production relative to free market conditions, and thus waste resources (Huff and Hertel, 2001).

EU10. Moreover, with the majority of EU10 trade being intra-EU, Doha related liberalisation reduces intra-EU trade-led efficiency gains in the EU10 *relative* to the status quo baseline experiment.

The change in the CAP budget effect is decomposed in Table 3 into CAP expenditures from Brussels (column 2) by component parts (columns 2a, 2b, 2c), and budgetary contributions, both in the form of agricultural tariff revenues (column 3) and a share of non-CAP related own resource contributions (column 4) to cover the balance of net CAP expenditure.[16] CAP expenditures shrink by -€3.624bn relative to the baseline largely due to reductions in export subsidies and Amber Box support. With improved market access to the EU, the model estimates tariff revenue falls, whilst lower EU25 own resource contributions are a consequence of the reduction in CAP expenditures.

Table 3: Decomposition of the CAP Budget Effect (€millions 2001)

	1.CAP Budget	2.CAP Exp.	2a.Export Subs.	2b.Amber Box	2c.Int-Input Subs.	3.CAP Tariff	4.Own Resources
Fra	72.3	-723.6	-620.6	-80.2	-22.8	-46.6	-749.3
Ger	294.1	-394.1	-384.7	-1.2	-8.1	-66.1	-622.1
Gre	-73.4	-119.6	-82.1	-36.8	-0.6	-3.5	-42.7
It	278.9	-456.8	-367.6	-78.5	-10.7	-27.0	-708.8
NL	-186.2	-390.6	-374.9	-11.5	-4.3	-35.4	-169.0
Spa	-203.8	-430.2	-113.5	-313.1	-3.6	-16.7	-209.7
UK	296.4	-183.7	-133.7	-46.3	-3.7	-51.9	-428.2
Cze Rep	21.8	-7.4	-6.3	-0.8	-0.3	-1.8	-27.4
Hun	-5.8	-19.6	-0.8	-18.3	-0.6	-0.4	-13.3
Pol	90.7	-7.5	-1.3	-5.6	-0.6	-2.7	-95.5
Ro15	-385.7	-816.2	-566.1	-220.1	-30.0	-28.7	-401.8
Ro10	-30.5	-74.7	-0.8	-73.9	-0.2	-3.0	-41.2
EU15	**92.8**	**-3514.8**	**-2643.2**	**-787.7**	**-83.9**	**-276.0**	**-3331.6**
EU10	**76.1**	**-109.2**	**-9.1**	**-98.7**	**-1.7**	**-7.9**	**-177.4**
EU25	**168.9**	**-3624.0**	**-2652.2**	**-886.4**	**-85.6**	**-283.9**	**-3509.0**

The UK, Germany and Italy are large net contributors to the stylised CAP budget used here. A reduction in CAP expenditures from the Harbinson package brings benefits to these countries of €0.296bn, €0.294bn and €0.279bn respectively. In contrast, as large net beneficiaries, Greece and Spain lose €0.073bn and €0.204bn respectively. For France, the significant budget contributions and the substantial CAP support receipts largely cancel each other, resulting in a net budget effect of €0.072bn.

[16] Own resource payments are calculated as a uniform fixed share of each member's GDP to cover the EU total net CAP resource cost (i.e., CAP related expenditures minus CAP related revenues). Also note that the CAP budget does not net to zero across the EU25 in Table 3 because the changes presented are equivalent variation measures (money metric) which are a function of the price index in each EU region.

The Netherlands is also a large net budgetary contributor, but loses since its share of export subsidies, which are eliminated, is considerable in proportion to its relative size. The Czech Republic and Poland are net beneficiaries from the CAP, although the impact of the Harbinson proposal is very minor since neither has significant Amber Box or export subsidy protection (the majority is tied up in the SFP). Hungary has historically been close to or above its Amber Box ceiling limit in local currency terms due to inflationary problems. Thus, its Amber Box reductions from the 2001 benchmark result in net CAP budgetary losses.

4. Discussion and Conclusions

Compared to the existing literature, our EU25 (and global) estimates appear at the low end of the range of results, where modest gains are now an important characterising feature of the recent Doha related CGE trade studies in the literature (Ackerman, 2005). This is primarily because of our treatment of binding overhangs, and use of version 6 GTAP data.[17] In addition, we do not incorporate 'welfare boosting' modelling features such as imperfect competition, trade-productivity linkages or NTB protection (e.g., in services),[18] whilst EU25 allocative efficiency gains are reduced since we assume full decoupling by 2020.

Furthermore, the explicit representation of CAP market rigidities[19] (see Philippidis *et al.*, appendix, 2006) impedes the release of factors of production from agricultural to non-agricultural uses from agricultural liberalisation. This has a moderating impact on the efficiency estimates reported in Table 2, both within and outside of the EU25.

Considerable work remains for a meaningful trade deal to be struck. If these results are accepted – that the EU25 is only realising 10% of its potential benefit from complete liberalisation – the EU (*inter alia*) must assume a more positive stance at the negotiating table.

[17] In an earlier version of this study excluding binding overhangs, EU25 EV gains were estimated at €4bn.
[18] In his insightful literature review, Ackerman (2005) notes the danger of using 'speculative extensions' (p.2) when reporting welfare results from trade liberalisation.
[19] Such market rigidities take the form of quantitative production quota and TRQ constraints and the sector specific treatment of 'arable' and 'non-arable' land. It should be noted that in some cases the broad sectoral aggregation excludes the possibility of including TRQ's on narrow product definitions which will only account for a minority proportion of trade along the route. A similar argument also applies to the composite ROW region which includes a considerable number of regions which do not employ TRQs and for simplicity is excluded from the TRQ treatment.

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