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An Analysis Of The EU Positions In WTO: Impact On EU And New Zealand

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Abstract

The Doha round negotiations in World Trade Organisation (WTO) have been suspended in the last July due to lack of agreement in agriculture issues. Nevertheless, several leaders of WTO countries have stated publicly their will in reviving WTO talks. Therefore, further negotiations should be expected.

Despite the last July failure in obtaining a final text on the negotiating modalities for agriculture, it should be noted that since the launch of Doha round in 2000 significant progress was made in the negotiations. WTO members tabled more generous offers than the initial ones in the round. In fact, during July talks the EU had a active role offering more concessions, such as, 48% reductions of their import tariff (instead of the 39% cuts proposed in its last October's offer), increases in Tariff Quotas, and progressive elimination of export subsidies.

The EU recent offers would have had a considerable impact on New Zealand (NZ). The EU is the second largest market for NZ exports. It will be relevant to analyse what impact these changes would have had in the EU and NZ if the latest negotiation offers would have been accepted. Such analysis will help to estimate the cost of failure or can be an important contribution for future WTO negotiations.

This paper will assess the implications of the very latest EU offers on market access, domestic support and export competition in EU and NZ Agriculture. The analysis covers livestock sectors of these countries. The model used for this analysis is the LTEM (Lincoln Trade and Environment Model).

Key words: *WTO, European Union, New Zealand,*

EU Positions in WTO: Impact on the EU, New Zealand and Australian Livestock Sectors

1. Introduction

The Doha round negotiations in World Trade Organisation (WTO) was suspended in July 2006 due to lack of agreement in agriculture issues. Nevertheless, several leaders of WTO countries have stated publicly their will to revive WTO talks. Further negotiations are expected.

The discussions on agricultural aspects concern mainly three pillars: market access, domestic support and export subsidies. Market access was considered the most difficult topic to reach agreement on, with more liberal countries asking developed countries with agricultural domestic policies such as EU, Japan and others for more generous offers on market access. The EU offered to apply cuts on their import tariffs based on a tiered formula where higher import tariffs would suffer higher reductions, and proposed an average 39 per cent tariff cuts (higher than the 36 per cent cut of the Uruguay round). Domestic support was controversial, especially for the US which appeared to be more reluctant in conceding to reduce its domestic subsidies with consequent need to reform its Farm Bill (Agra Europe 2006). The EU has a more “relaxed” approach since it reformed in 2003 the bulk of its direct payments affect to the green box. Discussions on the export competition were less controversial due to the EU proposal to eliminate its export restitutions by 2013. This proposal is nevertheless conditional to the regulation of other forms of subsidies such as food aid and State Trade Enterprises (STE). New regulations in the latter may force New Zealand to change its export structures.

The recent EU offers in the Doha round, if accepted as such, would have had or may have a considerable impact on New Zealand (NZ) and Australia. The EU is a major market for both countries. Although overall subsidy levels are important to address, increased market access in agriculture is also significant (Anderson and Martin 2005). This paper analyses what impact the changes in market access proposed by the EU will have or would have had in the EU, NZ and Australia. The latter will also be considered in this study as it shares with NZ new market opportunities arising from EU liberalisation.

The analysis covers livestock sectors of these countries. The model used for this analysis is the LTEM (Lincoln Trade and Environment Model). The next section of the paper provides a briefing of agricultural policies involved in the WTO. Section 4 is a review of applied studies that focus on the liberalisation on market access and its implications for New Zealand and Australia. Section 5 presents and discusses some results for both economic and environmental impacts. Section 6 concludes the report.

2. Policy

2.1 Agricultural policies and WTO

Agricultural policies adopted by different countries have been addressed in the WTO negotiations in a view to achieve greater trade liberalisation. They have been classified in three main pillars: market access, domestic support and export competition. Market access includes all import restrictions such as tariff duties and import quotas. Domestic support address subsidies given by government to their farmers, either via price support mechanisms, direct payments or others. Export competition covers export restitutions and others such as export credits, food aid and exports via STEs.

The EU policies in the agricultural sector are managed through the Common Agricultural Policy (CAP). Between the 60s and early 90s this policy relied in protective market instruments such as import tariffs, intervention mechanisms and export restitutions. The EU prices were higher than the world market, and exports were subsidised. This situation caused distortions in world trade. Since then the CAP has been reformed aiming at reducing EU surpluses and making it more compatible with potential WTO requirements. With the 1992 McSharry reform, import tariffs, intervention prices and export restitutions have been reduced and farmers have been compensated through direct payments. These reductions were continuously implemented through the Agenda 2000 and 2003 reform. The latter introduced the novelty of the Single Farm Payment (SPF) in which direct payments to farmers would no longer be attributed in function of the area cultivated or the number of animals. Instead, the farmers would receive a SPF equivalent to the subsidies that a farmer benefited during a reference period 2000-2002. The bulk of EU subsidies are no longer dependent on quantities produced or type of product, thus less trade distorting. EU prices reduced more in line with world prices and EU export share in the world market is now lower. However, and despite these changes, import tariffs still remain. These are still high for certain sectors such as livestock sectors and dairy products where over-quota import tariffs can be 100 to 140 per cent in certain cases almost prohibitive. New Zealand and others benefit of preferential access to the EU through the Tariff Rate Quotas (TRQ), in which NZ products exported within the quota are submitted to a reduced or zero duty. Nevertheless, overall over quota tariffs still apply.

Table 1
EU tariff rates in 2000 for main selected commodities (OECD, 2002)

	Over-quota tariff	In-quota tariff for NZ TRQ
Beef and Veal	142.8	20.0
Cheese	96.5	42.2
Butter	144.3	66.0
Sheep meat	104.3	0.0
Pig meat	67.3	
Coarse grains	99.1	
Wheat	121.0	
Oils	1.0	

Since the economic reforms in 1984, NZ has a liberalised agricultural sector, without protection or direct support mechanisms. However, some exports are sold through single desks sellers, which have been criticised by other members of the WTO.

2.2 WTO developments

To pursue the liberalising efforts made in the Uruguay Round, the WTO established the DOHA round. The November 2001 declaration of the Fourth Ministerial Conference in Doha, Qatar, provides the mandate for negotiations on a range of subjects and other work. The negotiations include those on agriculture and services, which began in early 2000. Negotiations would be held in order to agree on a framework and guidelines for further reduction and elimination of trade distorting policies. Following the Cancun Ministerial

Conference 2003, the WTO members agreed on a “framework for establishing modalities in agriculture”, which was adopted on 1 August 2004 (WTO 2004). The Hong Kong Ministerial Conference committed members to continuing the negotiations, taking into account the “framework” and progress in the ongoing negotiations in order to submit modalities and draft schedules by 31 July 2006. WTO members have tabled their official offers during 2005. The EU offered in October 2005 a comprehensive proposal with specific proposals in agriculture: market access, domestic support and export competition (European Commission 2005). Based on the framework and the members’ offers, the Chairman of Agriculture section of trade negotiations committee in WTO submitted to the members drafts for the modalities (WTO 2006). However the members did not agree upon these compromise texts and on 24 July 2006 the Director General of WTO decided to suspend all the negotiations.

Market access and domestic support were amongst the most difficult topics on which to reach an agreement. The EU was under pressure to make more generous offers on market access, namely by the US. On the other hand the US was asked by the EU and others to reduce its Farm Bill subsidies, in particular its counter cyclical payments (Agra Europe 2006). Proposed new limitations in the domestic support have a lesser impact in the EU since the bulk of direct payments as been converted into the SPF, which are classified as green box payments (measures with minimal trade impact that can be used without restriction). Discussions on export competition were less controversial due to the EU proposal to eliminate its export restitutions by 2013. This proposal is nevertheless conditional to the regulation of other forms of subsidies such as food aid and State Trade Enterprises (STE).

Despite the fact that talks were in officially suspended in 2006, progress in the Doha round was still achieved. In market access, the EU made offers to further reduce their tariffs. The positions on import tariff between the EU and more liberal members became closer as EU was preparing to offer around 48 per cent on tariff cuts, higher than the average 39 per cent tariff cuts proposed in its official Doha offer and the 36 per cent cut agreed in the Uruguay Round Agreement on Agriculture (URAA) (Agra Europe). Also, the cuts on import tariffs would be based on a tiered formula where higher import tariffs would suffer higher reductions, instead of the UR linear approach (European Commission 2005).

Table 2
EU offer of October 2005 (European Commission 2005)

Developed countries		Developed countries	
Treesholds witihin AVES	Linear cuts	Treesholds witihin AVES	Linear cuts
0≤30	35% (20 – 45%)	0≤30	25% (10- 40%)
>30>60	45%	>30>80	30%
>60>90	50%	>80>130	35%
>90	60%	>130	40%

The future outcome of WTO negotiations will be dependent on several political factors: willingness of the EU and others to make further concessions on market access; internal adjustments in the US farm bill for 2008; political elections in WTO countries. Nevertheless,

it is possible to make an impact assessment on the offers tabled and the potential compromises. In this paper, market access will be analysed due to its important impact in trade, noticeably for the EU, NZ and Australia.

3. Literature Review

There are a number of relatively recent studies analysing the impact of proposed WTO reforms, on the agricultural sector of countries and regions around the world. Few of the studies include both NZ and Australia specifically, and if they do, the agricultural sector is generally at a high level of aggregation. Brockmeier and Pelikan (2006) analyse the economic effects of different magnitudes of tariff cuts in the market access pillar of the Doha round agricultural negotiations. The authors use an extended version of the GTAP model and an extended version of the GTAP database including bound and applied tariff rates. The results showed that the EU experiences a negative change in its trade balance in the high protected beef and sugar sectors. The authors find that this difference is mainly due to the magnitude of tariff cuts and to a lesser extent influenced by the kind of formula used to implement the tariff cuts. The authors also find that the EU trade balance for dairy is hardly influenced by the different options to cut tariffs.

Anderson and Martin (2005) examine the extent to which the world as a whole, and various regions, could gain from multilateral trade reform over the next decade. They use the GE model GTAP's database, amended to account for key protection changes to early 2005, integrated with the World Bank's economy-wide Linkage model. Anderson and Martin (2005) address a number of questions relating to the Doha round and the consequences of alternative proposals. The authors find that the potential gains from further global trade reform are huge in terms of global welfare, with developing countries gaining disproportionately from further global trade reform. They also state that agriculture is where the cuts are needed the most, because of the high rates of assistance in that sector relative to others. Subsidy disciplines are important to address, but they find that increased market access in agriculture is crucial. Anderson and Martin (2005) also conclude that the July Framework Agreement does not guarantee major gains from the Doha Development Agenda. Even if an agreement is ultimately reached, it may only be very modest.

Rae and Strutt (2004) simulate some Doha Round proposals and look at the effect on NZ. However, the focus of the paper is on environmental results and they do not provide a detailed analysis of the trade impacts on NZ. Rae and Strutt (2006) published another report on the New Zealand's agricultural exports to tariff quota markets, providing useful information on the functioning of these instruments and how they affect NZ. However, they do not proceed to the modelling of different volume and tariffs that relate to Tariff Rate Quotas.

Francois *et al.* (2003) explore the likely economic effects of the Doha WTO round for Europe and major developing regions, using a CGE model. They simulate a linear liberalisation, where all trade instruments are reduced by 50 percent; a "Swiss formula" scenario, where the maximum import tariffs in agriculture and manufacturing are reduced by 25 percent; and finally a full elimination of all trade barriers. The results show positive results globally and regionally for Europe, Africa and most of Asia, and particularly for Australia and New Zealand.

Langley *et al.* (2003) examine the effects of policy changes on international dairy markets. Their overall results indicate that liberalisation would reduce supplies, increase dairy trade,

and raise world prices. They use a PE model, adjusted to include the 2002 Farm Bill and China's WTO accession. The analysis consists of a total liberalisation scenario for dairy products only, and then a complete liberalisation of all agricultural products in their model. They find that raw milk production increases in Australia and NZ by about 5 to 6 per cent, with prices in those countries increasing by between 22 to 29 per cent from the base in both scenarios. Dairy product prices decrease in the EU, by around 25 percent in both scenarios for butter and around six per cent for cheese.

Boumamra-Mechemache *et al.* (2002) use a spatial equilibrium model of the EU dairy sector to analyse the economic and welfare impacts of various liberalisation scenarios, all of which lead to sharp decreases in milk prices. In another analysis, Bureau *et al.* (2000) take the Uruguay Round Agreement on Agriculture as a starting point and measure the liberalisation in agriculture that will take place by the EU and US by the end of the implementation period. They compare the actual UR commitments with alternative schemes such as the "Swiss formula" and a uniform reduction in tariffs.

Shaw and Love (2001) examine the economic effects of two types of reform – increasing market access and reducing export subsidies- on world dairy trade. They use the OECD's AGLINK partial equilibrium model.

The research done in this paper has similarities with that of Brockmeier and Pelikan (2006), Francois et al (2003), Langley et al. (2003) regarding the modelling of tariff cuts. However, this research brings a special focus on the implications to NZ and Australia of WTO reforms.

4. The Empirical Model

4.1 Model background

The model, LTEM (Lincoln Trade and Environment Model), is based upon VORSIM which has evolved from SWOPSIM and the associated trade-database used to conduct analyses during the Uruguay Round (Roningen, 1986; Roningen *et al.*, 1991). LTEM is a multi-country, multi-commodity PE framework which focuses on the agricultural sector i.e. the linkages of the agricultural sector with the rest of the economy are not considered. LTEM is used to quantify the price, supply, demand and net trade effects of trade and domestic agricultural support policies. The model is used to derive the long-term policy impact in a comparative static fashion. The included products are treated as homogenous and therefore perfectly substitutable in international markets. It is a non-spatial model in which the framework derives the net trade of each region; however, the supply and demand shares of countries in trade can also be traced down. It allows the application of various domestic and border policies explicitly such as production quotas, set-aside policies, input and/or output related producer subsidies/taxes, consumer subsidies/taxes, minimum prices, import tariffs and export subsidies. The economic welfare implications of policy changes are also calculated in the LTEM framework by using the producer and consumer surplus measures.

The LTEM framework includes 19 commodities and 17 countries. These are presented in Appendix Tables A1. The dairy sector is modelled as five commodities. Raw milk is defined as the farm gate product and then is allocated to either the liquid milk, butter, cheese, whole milk powder or skim milk powder markets depending upon their relative prices subject to physical constraints. The meat sector is disaggregated into sheepmeat, beef and pig meat in the current version of LTEM. Six crop products (wheat, sugar, coarse grains, oilseeds, oil

meals, oil) as well as the poultry sector (poultry meat and eggs) and wool are also explicitly modelled in LTEM framework.

The general equation structure of each commodity at country level in LTEM framework is represented by six (eight for crops) behavioural equations and one economic identity as in the equations (1) to (9). The trade price (pt) of a commodity (i) in a country (j) is determined as a function of world market price ($WDpt_i$) of that commodity and the exchange rate (ex_j), equation (1). The total effect of world market price on trade price of the country is determined by the price transmission elasticity. The domestic producer (pp_{ij}) and consumer prices (pc_{ij}) are defined as functions of trade price of the related commodity and commodity specific production and consumption related domestic support/subsidy policies, (Zs_j , Zd_j), which represent the price wedge, equations (2) and (3).

$$pt_{ij} = f(WDpt_i, ex_j) \quad (1)$$

$$pp_{ij} = g(pt_{ij}, Zs_j) \quad (2)$$

$$pc_{ij} = h(pt_{ij}, Zd_j) \quad (3)$$

The domestic supply and demand equations are specified as constant elasticity functions that incorporate both the own and cross-price effects. Domestic supply (qs_{ij}) is specified as a function of the supply ($ssft_{ij}$) shifter, which represents the economic factors that may cause shifts, a policy variable (Z_j) that may reflect the production quota or set-aside policy, and producer prices of the own and other substitute and complementary commodities (pp_{ijk}), equation (4).

$$qs_{ij} = l(ssft_{ij}, Z_j, pp_{ijk}) \quad (4)$$

Domestic demand (qd_{ij}) is specified as a function of the demand ($dsft_{ij}$) shifter, consumer prices of the own and other substitute and complementary commodities (pc_{ijk}) and per capita real income ($pinc_j$) created in the economy, equation (5). The total demand for crops is separated into feed and food demand (and processing industry demand ($qd_{ij,pr}$) in some cases, equation (6). In feed demand ($qd_{ij,fe}$) function domestic supply of livestock ($qs_{ij,liv}$) sector is also included as an explanatory variable, equation (7).

$$qd_{ij,fo} = m(dsft_{ij}, pc_{ijk}, pinc_j) \quad (5)$$

$$qd_{ij,fe} = m'(dsft_{ij,fe}, pc_{ijk}, qs_{ij,liv}) \quad (6)$$

$$qd_{ij,pr} = m''(dsft_{ij,pr}, pc_{ijk}) \quad (7)$$

The stocks (qst_{ij}) are determined as a function of the stock shifter ($stsft_{ij}$), quantity supplied (qs_{ij}) and consumer price (pc_{ij}) of the commodity, equation (8). Finally, net trade (qt_{ij}) of the country (j) in commodity (i) is determined as the difference between domestic supply and the sum of domestic demand (also includes ($qd_{ij,fe}$) and ($qd_{ij,pr}$) in case of crops) and stock changes in the related year, equation (9). LTEM is a synthetic model since the parameters are adopted from the literature.

$$qst_{ij} = n(stsft_{ij}, qs_{ij}, pc_{ij}) \quad (8)$$

$$qt_{ij} = qs_{ij} - qd_{ij} - \Delta qst_{ij} \quad (9)$$

The model works by simulating the commodity based world market clearing price on the domestic quantities and prices, which may or may not be under the effect of policy changes, in each country by basing on 2000. Excess domestic supply or demand in each country spills over onto the world market to determine world prices. The world market-clearing price is determined at the level that equilibrates the total demand and supply of each commodity in the world market.

4.2 Policy focus: incorporation of tariffs in the model

In the LTEM, various domestic producer and consumer support and subsidy measures in the dairy market are incorporated to the price transmission mechanism as ad-valorem distortions* which form a price wedge between domestic and world prices. These measures include direct payments ($sd_{mh,l}$), inputs subsidies ($simh_{,l}$), general services expenditures ($sgmh_{,l}$) and other market subsidy payments ($smmh_{,l}$) to the producers and consumer market subsidy ($cmmh_{,l}$). Border policies such as per unit import tariffs (or taxes) and export subsidies and taxes are also incorporated in the price transmission mechanism through the use of commodity based price wedge variables, $tp_{mh,l}$ and $tc_{mh,l}$, which differentiate the domestic and trade price of the commodity. Equation (15) and (16) show the $pp_{mh,l}$ and $pc_{mh,l}$ which are extended with ad-valorem domestic and border policy measures.

$$pp_{mh,i} = pt_{mh,i} + tp_{mh,i} + tc + sd_{mi} + si_{mi} + sg_{mi} + sm_{mi} \quad (15)$$

$$pc_{mh,i} = pt_{mh,i} + tc_{mh,i} + tc + cm_{mh,i} \quad (16)$$

The imports tariffs were incorporated in the database as ad valorem values for the EU and for the commodities studied (summarised in Table 1). The values were those available in the literature and several databases (OECD, FAO and EU database), and reflect the most favoured nation ad-valorem equivalent values. This means that the model will not take into account differences resulting from an agreed tariff (most favoured nation) and the applied tariffs. This occurs in certain cases where countries decide to apply lower tariffs than the declared ones (Francois 2005).

5. Empirical Results

The LTEM was calibrated using 2000 data as the base year. It was then used to simulate forward to 2013. Based on the EU offers in WTO negotiations in particular in market access, three liberalisation scenarios were simulated. The first scenario represents a linear reduction of EU import tariffs of 39 per cent. The second scenario represents the reduction of EU import tariffs through the application of the tiered formula proposed in EU official offer. In this formula, the tariff cuts vary as a function of the tariffs' levels. The third scenario assumes that EU fully removes all import tariffs. The second scenario is the most likely to happen as the tiered formula was agreed in the framework for modalities and proposed by the EU in its latest offer (European Commission 2005). The other two scenarios give a view on alternative degrees of liberalisation. In all the assumptions the other EU market policies such as intervention price and export subsidies remain unchanged.

* As introduced in the methodology of producer and consumer subsidy equivalent (PSE and CSE) measures, Cahill and Legg (1990).

The results are discussed by scenario below. For presentational ease, only changes in selected key variables and only for the main countries are summarised in Table 3.

Table 3
Changes in producer returns between baseline and scenarios, in 2013 for EU, NZ and AU

		Scenario1 Tariff cut 39%	Scenario2 Tariff cut (60,50,45,35)%	Scenario 3 Tariff cut 100%
EU	Beef	-23.3	-35.2	-53.8
	Sheep	-25.2	-37.6	-57.5
	Milk	-10.7	-16.7	-31.1
NZ	Beef	6.8	11.0	20.9
	Sheep	12.7	22.5	47.8
	Milk	9.1	11.5	19.9
AU	Beef	6.7	11.3	21.8
	Sheep	9.7	17.0	36.2
	Milk	1.8	2.3	3.9

Scenario one – linear tariff cut of 39 per cent

The simulated results predict an overall decrease in producer returns in the EU by the end of the simulation period, 2013. More specifically, the producer price reductions range from 15.8 per cent in beef, 19.3 per cent in sheep and to 10.7 per cent in raw milk. Production falls in beef by 9 per cent and in sheep by 7.4 per cent. In dairy despite the price drop of 10.7 per cent the EU will keep its production at its quota level.

Not surprisingly the impact of the cut in the tariffs leads to positive results for NZ and Australia, with increasing producer returns. Producer prices for sheep go up by 7.3 per cent for NZ and by 7 per cent for Australia and production goes up by 5 per cent for NZ and to a lesser extent (2.5 per cent) for Australia.

At present, NZ sheep meat is exported for the EU under preferential access agreement. This consist in country specific Tariff Rate Quota (TRQ). Exports within the TRQ volume (226,700 t) are exempt from the normal over-quota tariff and are submitted to a zero per cent tariff. Any exports over this volume are submitted to the over-quota tariff which applies in general to other countries, the level in 2006 was 104.3 per cent. This production increase shows a NZ response to the cut on the over-quota tariff. Australia does not benefit from a specific TRQ and exports to the EU in the over-quota tariff. A decrease in the EU general over-quota tariff means market opportunities for both NZ and Australia, and hence competition between them. NZ producer prices for dairy increase, and NZ production rises from 5.1 per cent in butter and SMP to 3.1 per cent in cheese.

Scenario two – the tiered formula

This scenario reflects the application of the tiered formula proposed by the EU in the WTO during the latest negotiations. With this formula tariff reductions will be achieved through deeper cuts in higher tariffs. A 60 per cent cut is applied for the higher tariffs (the ones higher than 90 per cent ad-valorem equivalent), 50 and 45 per cent for the intermediate tariffs and 35 per cent for the lower ones. The import tariffs for beef, sheep, butter, cheese and WMP are among the highest and therefore were subject to a 60 per cent cut. Raw milk is subject to a 50 per cent cut.

The results show greater drops in EU producer returns than the first scenario. Proportionally these reductions are higher for beef and sheep (35.2 per cent and 37.6 per cent respectively) than for dairy (16.7 per cent). Production and prices fall as well for beef and sheep. The lower decrease in producer returns for dairy is due to the fact that despite a price drop of 16.7 per cent the EU production remains unchanged at its quota level. Processed dairy products face small reductions ranging between 4 and 5 per cent. This might result from the fact that import tariffs remain binding even after the 60 per cent cut, and because of other EU policies in place (intervention price and export subsidies).

This scenario is beneficial for NZ which increases its produce returns for all sectors, in particular for sheep with a price rise of 12.4 per cent and production of 8.9 per cent in comparison with reference scenario. Prices for butter rise 4.1 per cent and for cheese remain almost unchanged. Production increases by 6.4 per cent for butter and by 4.7 per cent for cheese, which is a small difference from the previous scenario. This small response might be affected by the fact that NZ butter and cheese exports are made under the TRQ with lower in-tariffs for butter (66 per cent) and cheese (42.2 per cent) than the correspondent over-quota tariffs of 144.3 per cent for butter and 96.5 per cent for cheese, even after tariff cuts. This scenario is also beneficial for Australia, in particular for the beef and sheep sector. Producer returns for the latter increase by 17 per cent in comparison with the baseline, and somewhat comparable with the increases for NZ.

This scenario shows that a tiered formula that applies deeper cuts to higher tariffs is worse for the EU and beneficial to NZ and Australia. However, in dairy results are more moderate possibly because other EU intervention policies such as intervention price and export restitutions remain unchanged.

Scenario three – full removal of import tariffs

Although this scenario is very unlikely to happen it is useful to compare results in an extreme situation. Production and prices in the EU are predicted to fall with the strongest drop in sheep and beef. Dairy sectors will also see negative results, with price decreases for raw milk, butter and cheese of 27.1 per cent, 30.5 per cent and 33 per cent respectively. Contrary to the previous scenarios, EU production falls under the quota level. However this fall of 5.4 per cent is moderate, possibly attenuated by the EU intervention price and export restitutions. NZ positive reaction is reflected in particularly beef and sheep. For the latter the complete removal of import tariffs doubles the results in comparison with the previous scenario, showing the full effect of removal of out-and-in quota tariffs. Australia also shows large gains in this scenario. For the dairy sector NZ gains are more moderate than in the meat sectors, confirming the importance of other EU policy tools such as the intervention price and export restitutions.

6. Conclusions

This paper examined the impact of reducing agricultural import tariffs in the EU by different levels and in different forms. The form of reduction of import tariffs tried to reflect the EU offers in WTO for market access pillar of the Doha round agricultural negotiations. This was achieved by incorporating import tariffs and reductions in scenarios in an existing partial-equilibrium trade model.

The economic modelling considered three tariff reduction alternatives and focused on the changes on the livestock sectors. The first applied a linear tariff cut of 39 per cent and the second a tiered formula with cuts ranging from 60, 50, and 45 to 35 per cent. The highest cuts were applied to the sectors with highest tariffs, such as beef, sheep and some of the dairy products. The third applied a 100 per cent tariff removal. The results show that producer returns decrease for the EU in proportion to the level of tariff cut. The reductions in producer returns are bigger in beef and sheep. In dairy, the reductions in producer returns are more moderate because despite the price decrease EU milk production keeps the same levels. In fact, EU dairy production remains at the quota level in the first two scenarios. NZ and Australia benefit in all scenarios. The application of a tiered formula for tariff cuts in the second scenario leads to deeper reductions in the commodities where NZ and Australia are net exporters and therefore leads to higher returns than the linear reduction. Regarding commodities, the gains in producer returns for NZ and Australia are bigger for beef and sheep. With future removal of general tariffs, the current preferential market for NZ towards the EU will be eroded and NZ will compete with other exporting countries in liberalised market. Regarding the dairy sector the gains for NZ and Australia are much more moderate.

To conclude, the tiered formula proposed by the EU will bring positive gains to NZ and Australia, as it will produce greater market access in strategic sectors and protected sectors such as beef and sheep. The higher the tariff cuts the greater the results will be, in particular in those sectors where current tariffs are very high. The cuts in import tariffs in the EU dairy sector are offset by other market mechanisms in place.

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Appendices

Appendix 1: Countries, Commodities and Policy variables / parameters and non-agricultural exogenous variables in LTEM

ID	Country	ID	Country
AR	Argentina	NI	New Independent States
AU	Australia	NO	Norway
CI	China	NZ	New Zealand
CN	Canada	PO	Poland
CZ	Czech Republic	SL	Slovakia
EU	European Union (15)	SW	Switzerland
HU	Hungary	TU	Turkey
JP	Japan	US	United States
MX	Mexico	RW	Rest of World

ID	Commodity	ID	Commodity
WH	Wheat	WL	Wool
CG	Coarse grains	PY	Poultry meat
SU	Sugar (refined)	EG	Eggs
RI	Rice	MK	Raw milk
OS	Oilseeds	ML	Milk (liquid, other products)
OM	Oilseed meals	BT	Butter
OL	Oils	CH	Cheese
BV	Beef and Veal	MW	Whole milk powder
SH	Sheep meat	MS	Skim milk powder
PG	Pig meat		

Policy Variable- Domestic Market	Policy Variables- Border	Non-Agricultural Exogenous Variables
Land set-aside	Import tariff	Gross domestic product
Production quota	Export subsidy	Country price index
Support/minimum price	Trade quota	Population
Producer market subsidy	In-quota tariff	Exchange rate
Producer input subsidies	Export tax	
Producer direct payments		
Producer general services		
Consumer market subsidy		

Appendix 2: Technical Data

		EU							NZ						
		Baseline	Scenario 1	%	Scenario 2	%	Scenario 3	%	Baseline	Scenario 1	%	Scenario 2	%	Scenario 3	%
Producer prices (US\$/t)	BV	3980.2	3352.6	-15.8	3025.5	-24.0	2426.7	-39.0	1663.9	1737.1	4.4	1784.9	7.3	1895.0	13.9
	SH	6715.4	5419.6	-19.3	4758.2	-29.1	3589.3	-46.6	1584.3	1699.5	7.3	1781.4	12.4	1987.8	25.5
	MK	660.0	589.1	-10.7	549.8	-16.7	481.0	-27.1	253.3	266.2	5.1	269.1	6.3	280.7	10.8
	ML	524.0	496.1	-5.3	481.4	-8.1	478.6	-8.7	200.8	194.8	-3.0	193.3	-3.7	189.3	-5.7
	BT	5096.7	4435.4	-13.0	4104.4	-19.5	3542.2	-30.5	2122.1	2167.2	2.1	2208.5	4.1	2332.5	9.9
	CH	7135.5	6224.7	-12.8	5722.1	-19.8	4784.1	-33.0	3488.2	3508.2	0.6	3510.0	0.6	3527.7	1.1
	MW	4164.9	3688.8	-11.4	3380.4	-18.8	2860.6	-31.3	1914.0	2073.1	8.3	2117.7	10.6	2256.0	17.9
	MS	4250.2	4053.2	-4.6	3902.0	-8.2	3329.7	-21.7	1898.4	2197.6	15.8	2214.0	16.6	2370.0	24.8
Production (000t)	BV	7581	6898	-9.0	6464	-14.7	5748	-24.2	684	700	2.3	708	3.5	726	6.2
	SH	1209	1120	-7.4	1064	-11.9	962	-20.5	520	547	5.0	567	8.9	613	17.8
	MK	118392	118392	0.0	118392	0.0	111972	-5.4	14601	15163	3.8	15320	4.9	15802	8.2
	ML	28006	28606	2.1	29030	3.7	29066	3.8	409	411	0.6	412	0.8	413	1.2
	BT	1630	1584	-2.8	1565	-4.0	1432	-12.2	502	527	5.1	534	6.4	556	10.8
	CH	7550	7373	-2.3	7265	-3.8	6624	-12.3	461	478	3.7	483	4.7	497	7.8
	MW	808	789	-2.3	765	-5.3	680	-15.9	547	574	5.0	582	6.4	606	10.7
	MS	911	886	-2.8	875	-4.0	800	-12.2	374	393	5.1	398	6.4	415	10.8
Producer returns (US\$ 000)	BV	30172328	23127134	-23.3	19555962	-35.2	13947769	-53.8	1138257	1215654	6.8	1263603	11.0	1376332	20.9
	SH	8117263	6068487	-25.2	5065066	-37.6	3451308	-57.5	824630	929193	12.7	1009803	22.5	1218445	47.8
	MK	78139934	69741035	-10.7	65092929	-16.7	53854013	-31.1	3698360	4036740	9.1	4123380	11.5	4435000	19.9
	ML	14676069	14191856	-3.3	13974289	-4.8	13909765	-5.2	82043	80066	-2.4	79581	-3.0	78280	-4.6
	BT	8308008	7027335	-15.4	6421774	-22.7	5072191	-38.9	1065053	1142795	7.3	1179234	10.7	1297204	21.8
	CH	53871271	45895570	-14.8	41568348	-22.8	31689684	-41.2	1609159	1678295	4.3	1695610	5.4	1754906	9.1
	MW	3366041	2911431	-13.5	2586452	-23.2	1943909	-42.2	1046859	1190623	13.7	1232590	17.7	1366125	30.5
	MS	3872567	3589493	-7.3	3412462	-11.9	2665062	-31.2	710531	864162	21.6	881566	24.1	982872	38.3

Appendix 3: Technical Data (cont.)

	AU						
	Baseline	Scenario 1	%	Scenario 2	%	Scenario 3	%
Producer prices (US\$/t)	1753.7	1830.9	4.4	1881.3	7.3	1997.4	13.9
	953.1	1019.6	7.0	1067.5	12.0	1188.8	24.7
	170.9	173.5	1.5	174.3	2.0	176.8	3.4
	517.5	520.2	0.5	521.0	0.7	524.2	1.3
	628.0	628.0	0.0	628.0	0.0	628.0	0.0
	769.0	769.0	0.0	769.0	0.0	769.0	0.0
	2211.2	2395.0	8.3	2446.5	10.6	2606.3	17.9
	617.0	617.0	0.0	617.0	0.0	617.0	0.0
Production (000t)	2439	2493	2.2	2531	3.8	2609	7.0
	792	812	2.6	827	4.5	864	9.2
	14176	14215	0.3	14225	0.3	14241	0.5
	2213	2212	0.0	2212	-0.1	2210	-0.1
	557	547	-1.8	544	-2.3	536	-3.8
	526	527	0.2	527	0.3	527	0.3
	143	154	7.1	156	9.1	165	15.0
	800	785	-1.8	782	-2.3	769	-3.8
Producer returns (US\$ 000)	4277944	4565052	6.7	4762484	11.3	5211805	21.8
	754516	828076	9.7	883030	17.0	1027680	36.2
	2422523	2466785	1.8	2479125	2.3	2517171	3.9
	1145397	1150946	0.5	1152555	0.6	1158750	1.2
	349732	343497	-1.8	341805	-2.3	336343	-3.8
	404268	405114	0.2	405313	0.3	405502	0.3
	316956	367763	16.0	382576	20.7	429576	35.5
	493434	484637	-1.8	482251	-2.3	474544	-3.8