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BACKGROUND

The EU dairy policy has undergone several changes over its near forty year life. The most significant of these changes were the introduction of the milk quotas in 1984, and more recently the 2003 CAP reform (Luxembourg Agreement). Whereas since the MacSharry reform of 1992 several other agricultural sectors were already subject to a regime-switch implying the reduction in price support partly compensated by direct payments, the dairy sector had initially be largely exempted from this policy turn to increase the competitiveness of EU agriculture. The Luxembourg Agreement not only deepened the reform of the 1990s, but further completed it by including the dairy sector, as well as by decoupling the direct payments from production. As regards dairy it implied significant declines in support prices for butter and skimmed milk powder, partly compensated for by newly introduced milk premiums. The milk quota regime was prolonged till 2014-15. In the upcoming evaluation of the CAP (Health Check in 2008) the future of the quota regime will be at the core of the discussions. Many countries are now in favour of an expiry of the quota regime.

With these policy changes the EU dairy sector is set on a more market-oriented course, improving its chances at the world markets. In addition, the EU has been enlarged with ten new member states in 2004 and another two in 2007. All of them are dairy producing countries with some heavily dependent on milk production (European Commission, 2006). This significantly increased both the production capacities as well as the demand for dairy products in the EU. It also increased the EU's importance as a big player in the world's dairy sector. With the 'transition' process in the new member states still going on and supply management likely to be abandoned in the future, the EU's role in dairy trade might significantly change over time. However, trade will not be influenced by policy changes within the EU only. It will also be affected by what happens on the international scene, in particular by the impacts the outcome of the ongoing Doha Round of the WTO trade negotiations may have on trade policies world wide.

This article aims at three goals. First an assessment is made of the 2003 dairy policy reform and its impacts both within the EU and on the EU's trade in dairy products. Second, the impact of further trade liberalisation will be analysed by simulating a new Doha Round agreement on dairy trade

policies. Given a new WTO agreement and the likely abolition of the milk quota regime in 2014-15, as a third scenario we look at the implications of a gradual phasing out of the milk quota system.

IMPACT OF THE LUXEMBOURG REFORM ON EU25 DAIRY MARKETS

The baseline scenario (baseline) corresponds to the EU dairy policy that was decided in Luxembourg in June 2003. In accordance with the Luxembourg reform, the intervention price for butter is decreased by 25% in 4 steps from 2004-05 to 2007-08 while the intervention price for SMP is decreased by 15% in 3 steps from 2004-05 to 2006-07 (Table 1). The gradual increases in milk quota are implemented during the period 2006-07 to 2008-09 in EU15. On the whole, the EU25 milk quota will increase by 1.1% to reach 136 Mt in 2008-09 (note that the quota allocated to Romania and Bulgaria is about 4 Mt, then EU27 milk quota will be about 140 Mt). Direct payments are introduced in 2004-05 and we consider that they are fully decoupled (Table 2).¹

Table 1: EU effective intervention prices for butter and SMP. 2003-2014

€/t	<i>Till 2003-04</i>	<i>2004-05</i>	<i>2005-06</i>	<i>2006-07</i>	<i>From 2007-08</i>
Butter	2954	2747	2540	2334	2215
SMP	2055	1952	1850	1747	1747

For butter, the effective intervention price is set at 90% of the intervention price.

Table 2: Direct payments in the EU. 2003 - 2014

								<i>2010-11 to</i>
€/t	<i>2003-04</i>	<i>2004-05</i>	<i>2005-06</i>	<i>2006-07</i>	<i>2007-08</i>	<i>2008-09</i>	<i>2009-10</i>	<i>2014-15</i>
EU 15	0	11.81	23.65	35.5	35.5	35.5	35.5	35.5
EU 10	0	2.9525	7.095	12.425	14.2	17.75	21.3	24.85

Figure 1 shows the impact of the Luxembourg reform on raw milk prices, both within the EU and for its key competitor Oceania. The standard scenario includes empirically estimated autonomous changes in the demand for dairy products both in the EU domestic market and in the rest of the world. Similarly it includes changes in the production costs (technical progress). In order to evaluate the impact of the policy reform alone we in Figure 1 also show the evolution of farm milk price at constant demand (that is without taking into account the year by year changes in the demand). In order to evaluate the impact of the changes in domestic demand relative to those occurring in rest of the world, we also figure out what happens if only the rest of the world demand changes with time.

¹ In some countries, they will be decoupled in 2007-08. However, according to our results, this will not change the results for the period from 2004-05 to 2007-08. This is because of the existence of quota rents that makes the supply inelastic to a decrease in price as long as the decrease in price is lower than the quota rent.

The ‘pure’ impact on the EU25 farm milk price of the Luxembourg reform (the impact when changes in demand are not considered) is significant. Three phases can be distinguished:

- The EU milk price first sharply declines till 2006-07 in response to the decrease in intervention prices of butter and SMP (subsidies to butter and SMP declines);
- Then it decreases at a lower rate until 2009-10 because the decrease in the intervention price is lower (only the intervention price of butter is further reduced) and due to the increase in quota;
- It remains roughly stable from 2009-10 and onwards as the policy does not change.

The decrease in EU price implies a higher consumption of dairy products in the EU25. Moreover the decline in intervention prices is associated with decreases in export refunds. As a consequence EU exports of dairy products to the world market decline. Thus, in Oceania the raw milk price first increases until 2006-07, after which it gradually decreases due technical progress which lowers costs. In the EU, the decrease in production costs due to technical progress is capitalized in the quota rents rather than to be transmitted to the downstream markets.

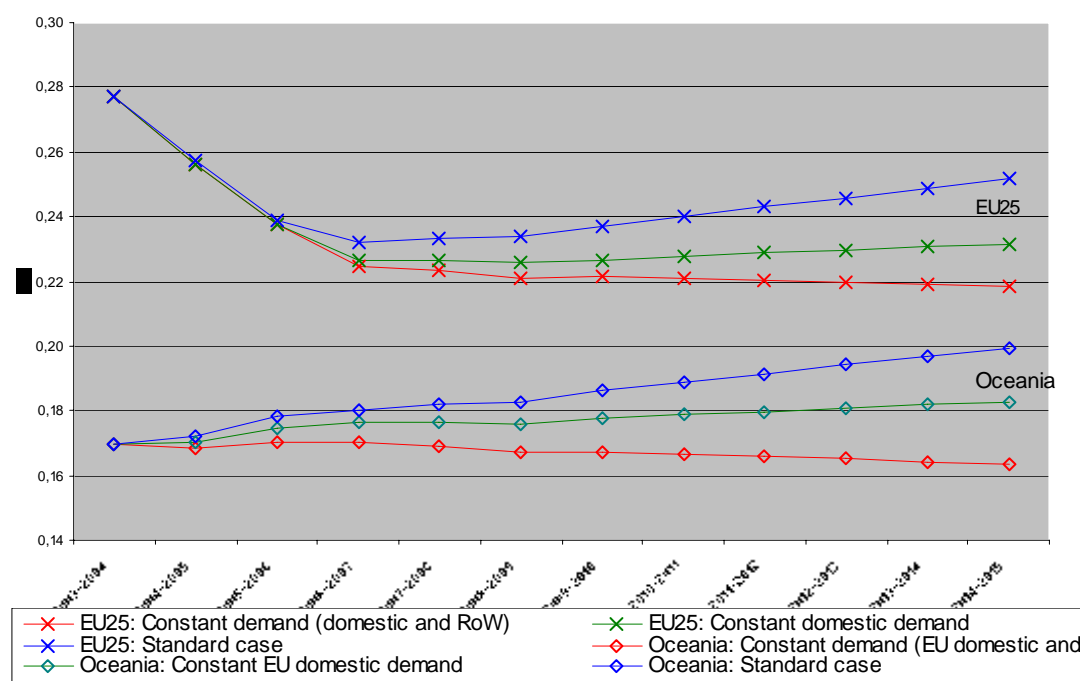


Figure 1 Impact of the Luxembourg reform on raw milk prices in EU 25 and in Oceania

As Figure 1 further shows it are the gradual shifts in demand both in the EU domestic market and in the rest of the world that drive up farm milk prices. The increase in the EU domestic demand for dairy products is dependent on the type of dairy product. On the whole, the change in the total demand is about 0.5% for protein and 0.2% for fat. For the rest of the world, demand is estimated to grow by 2 %

per annum. At the end of the period of analysis, that is 2014-1015, the change in the demand induces an increase in the EU25 farm milk price by about 12%. Two third of this increase in price comes from the EU's domestic demand and one third from the rest of the world. Oceania also benefits from the gradual change in the demand. However, as she is more oriented towards the world market, half of the increase in price comes from growth in the rest of the world demand.

Thus, according to our estimates, following the Luxembourg reform, the EU farm milk price will be in 2014-15 about 10% lower than its 2003-04 level in the standard scenario. The difference between the EU price and the 'world' price (estimated by the Oceania's farm milk price) would be significantly reduced. While the difference in 2003-04 was larger than €0.10, it might be around €0.05 in 2014-15.

Table 3: Impact of the Luxembourg reform on dairy markets, index 100: 2003-2004

2014-2015	<i>Farm milk</i>	<i>Butter</i>	<i>Skim milk powder</i>	<i>Whole milk powder</i>	<i>Cheese</i>	<i>Semi hard cheese</i>	<i>Fluid milk</i>
EU25							
Price	90.7	77.3	101.3	91.0		98.5	96.1
Production	102.1	89.2	81.6	92.2	113.9	120.4	97.8
Exports		12.8	65.4	78.4	132.4	153.2	

The changes in both policy and demand have strong impact on dairy products' prices (Table3). The price of butter significantly drops while the price of SMP remains roughly stable. This is due to i) a larger decrease in the intervention price for butter ii) an increase in the demand for fat that is much lower than the increase in the demand for protein iii) the competitiveness of the EU on world markets of milk powders and its uncompetitiveness on the world butter markets.

Production of cheese increases both because of the increase in the domestic demand and the increase in exports. Fluid milk production decreases slowly as the demand gradually decreases in the EU. The EU production of dairy products is more and more oriented towards the production of final dairy products and towards the domestic market. This is at the expense of the production of industrial products as the global milk production, thanks to the quota regime, does not vary significantly.

The Luxembourg reform first provokes a significant decrease in farm milk price but with the increase in demand for dairy products farm milk price increases after the period of reform. As a consequence of the reform and the demand trend, the EU dramatically reduces or removes its export (and domestic) subsidies.

THE POTENTIAL CONSEQUENCES OF A NEW WTO-TRADE AGREEMENT

We analyse the potential impact of a new WTO agreement. It is assumed that a hypothetical agreement starts in 2008-2009 and is implemented gradually over a 5-year period. At the end of the period (2012-2013), we assume that export subsidies are completely removed while import tariffs are decreased as in the Mandelson proposal. Both in-quota and over-quota import tariffs are thus reduced by a percentage that depends on the initial tariff (ad valorem equivalent). The larger the initial tariff, the larger the reduction in percentage.² On Figure 2, we present the impact of a WTO agreement on the EU raw milk price. This is done for two different market situations: the standard case where the demand for dairy products increases over time and a hypothetical situation where the demand for dairy products is constant over time. In this latter case, the ‘initial’ farm milk price is significantly lower than in the previous comparative case.

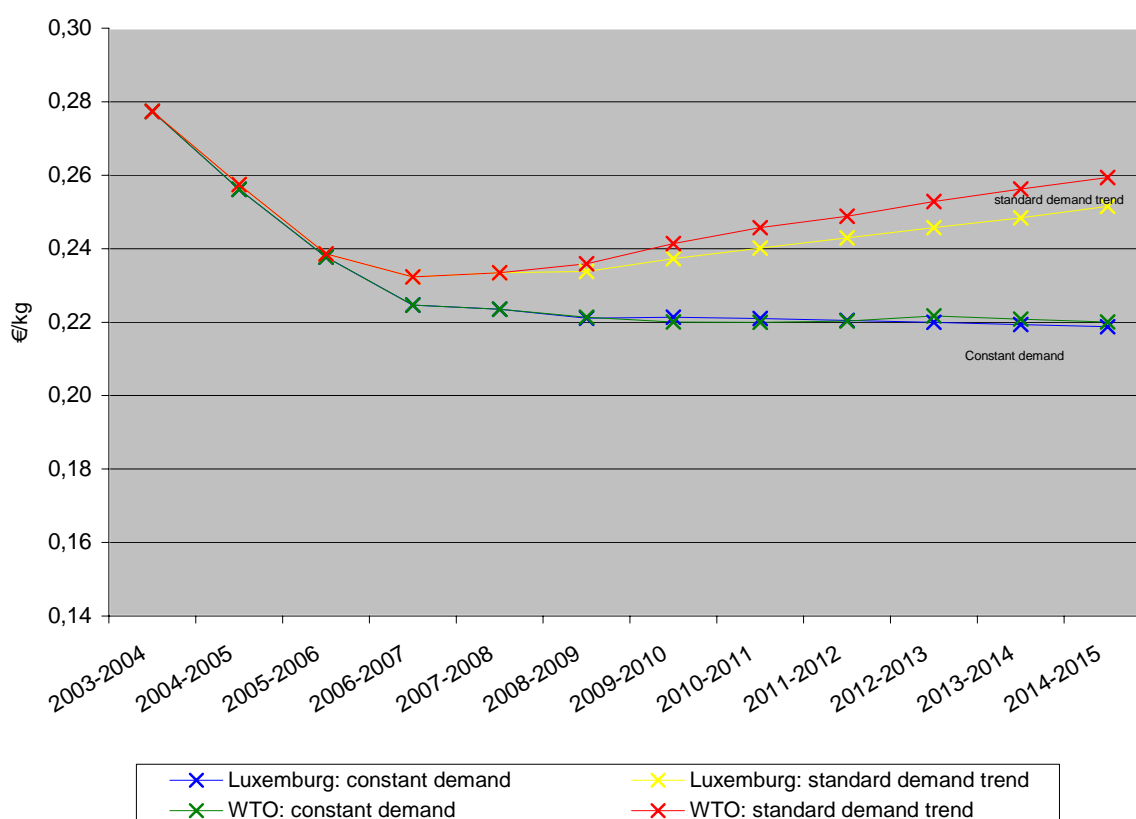


Figure 2 Impact of a new WTO agreement on the EU25 raw milk price

² In the case of EU, given an ad valorem equivalent import tariff equals to 89.6% for butter, 60% for powders and 55% for cheese, the tariff cuts are equal to 50% for all commodities but cheese and 45% for cheese.

Somewhat counterintuitive, the prices associated with a new trade liberalisation agreement are higher than in the baseline scenario. To understand this result it should be noted that the price impact of a WTO agreement actually depends on the magnitude of three effects. On the one hand, the reduction in tariffs in importing areas has a positive impact on prices as it increases the demand for dairy products in the rest of the world. On the other hand, the reduction of EU tariffs may have a negative impact on domestic prices. Moreover, the removal of export subsidies also has a negative impact on domestic prices.

The simulations clearly show that the impact of a WTO agreement does depend on the initial situation. Without the trend in the demand for dairy products, the impact of a WTO agreement is marginal because the positive impact of a decrease in tariffs is fully compensated by the negative impact (on milk price) of the removal of export subsidies. On the contrary, in the standard case, that is when the demand for dairy products increases over time, the EU does not use export subsidies in the initial situation (or at least in a lower extent as compared to the case of constant demand). Then the WTO agreement has a positive effect on EU milk price due to the decrease in import tariffs in the rest of the world, whereas the negative impact of the removal of export subsidies is zero or negligible.

As shown in Table 4, the impact on dairy markets of a WTO agreement is limited as far as prices and productions are concerned: the deviations from the baseline are in all cases less than 5%. There are however significant changes with respect to the EU trade position. As compared to the baseline scenario (see Table 3) butter exports are much lower, WMP and cheese exports are higher, and SMP exports hardly change. The main impact is on world prices which might increase by 3.4 to 9.1% depending on the products.

Table 4: Impact of a WTO agreement on dairy markets, index 100: Luxembourg scenario 2014-2015. Standard case.

2014-2015	<i>Farm milk</i>	<i>Butter</i>	<i>Skim milk powder</i>	<i>Whole milk powder</i>	<i>Cheese</i>	<i>Semi hard cheese</i>	<i>Fluid milk</i>
EU25							
Price	103.1	98.9	104.5	103.4		102.6	102.0
Production	100.2	99.3	97.4	103.0	100.6	101.9	99.6
Exports		56.5	97.1	107.2	111.7	120.3	
Oceania							
Price	105.7	109.1	103.8	103.7		103.4	

A WTO agreement would have a positive impact on the EU milk price as positive effects from an increase in world market access over-compensate the negative impact due to lower tariffs and removal of export subsidies.

GRADUALLY REMOVING MILK QUOTAS

The third scenario considers a gradual phasing out of the milk quota to be achieved by expanding the milk quota by 2 percent per year from 2007-08 and onwards. This scenario is conditional on both the Luxembourg CAP reform and the new WTO agreement as discussed and analysed above.

Relaxing the milk quota constraint leads to an increase in milk production and a decline of the milk price (Table 5). Relative to a combined Luxembourg and WTO reform, the milk price will decline by a further 18 percent in 2014-15. The decline in milk prices will erode the quota rents, with the average quota rents being close to zero in 2014-15 (Figure 3). At the end of the simulation period, the situation is therefore roughly identical to a no quota-situation. Production is 6% higher than in the combined Luxembourg and WTO reform scenario (while the potential increase is 14%). Note that the production increases overtime at a decreasing rate. This is because quotas are no longer binding in some countries; then an increase in the quota in these countries does not lead to an increase in their production.

EU25 milk production will increase by 6% following the removal of milk quota. Milk price will significantly decrease (by 18%). An increase in milk production by 1% generates a decrease of milk price by 3%.

Table 5: Impact of a gradual increase in milk quotas on dairy markets, index 100: Luxembourg scenario including a WTO agreement in 2014-15

2014-2015	<i>Farm milk</i>	<i>Butter</i>	<i>Skim milk powder</i>	<i>Whole milk powder</i>	<i>Cheese</i>	<i>Semi hard cheese</i>	<i>Fluid milk</i>
EU25							
Price	81.7	76.5	89.9	89.9		89.6	90.9
Production	106.1	108.5	115.6	143.1	103.0	107.2	101.6
Exports		300.5	150.1	181.2	125.1	143.0	
Oceania							
Price	87.9	92.8	89.5	88.7		89.3	

Following the increase in milk production, both the production and exports of dairy commodities increase while their prices decrease (Table 6). Productions of dairy commodities are differently affected depending on the competitiveness of EU on world markets. The decline in the price of butter is larger than for SMP. This can be explained by the fact that EU is not competitive on the world market for fat products contrary to protein products that can be sold both on the domestic and the world markets. Moreover, the demand for fat is less elastic than that for protein. Exports mainly increase for powders and cheese. Exports of butter triple in 2014 as compared to the initial situation but remain small as exports were very small in the initial situation. Because EU export increases, the

world market price for dairy products (as approximated by Oceania's raw milk price) will go down by 7 to 12 percent depending on the product type as compared to the new WTO agreement-scenario.

The increase in production has a large negative impact on the price of fat and affects the price of protein to a lower extent. EU exports increase for powders and cheese but the EU is not competitive on the world market for butter.

SENSITIVITY OF RESULTS

Previous studies show that results may be sensitive to both demand evolution and marginal costs assumptions. Actually, an increase by 1% in demand generates an increase in milk price by around 3%. Thus, we test the impact of a lower increase in the demand of dairy products ("low trend").³ In addition, the assumption on the initial level of quota rents will determine the level of the marginal cost that producers will face and will thus influence the level of milk production. In the standard case presented above, marginal costs were ranging from 50 to 70 percent of the farm milk price. We analyse what will be the effect of increasing these marginal cost values by 20 to 30 percent depending on a member state's initial cost level ("high marginal cost"). We also consider a combined high cost-low growth trend assumption.

The impact of a gradual phasing out of milk quotas on prices, quota rents and production are summarized in Figures 3 and 4. When the increase in demand for dairy products is low, the increase in production is significantly lower and the milk price is about 5 per cent lower than in the standard case. As compared to the standard case, a higher marginal cost will generate higher prices and lower production. Moreover, quota rents are much lower and vanish more quickly (in 2010), meaning that a 'no quota situation' will already be reached in 2010.

With both low demand trend and high marginal costs, the expansion of production is relatively small. In this situation the increase in production from 2010 to the end of the period is due to the technical progress that makes possible an increase in production at constant price.

Although the precise impacts will depend on cost of production estimates and expected demand growth, in any case, in 2014 the EU production is larger than in 2003 (whatever the assumptions on demand and cost). This is different as compared to OECD (2005) which predicts a production decline of about 7 percent.

The impact of removing quotas on milk price and production is highly sensitive to the evolution of demand as well as the initial level of the quota rents. However, it is very likely that the EU production increase removing quotas

³ Roughly, we consider that only the demand from the rest of the world increase while the demand in the EU does not change (or decrease in the case of butter).

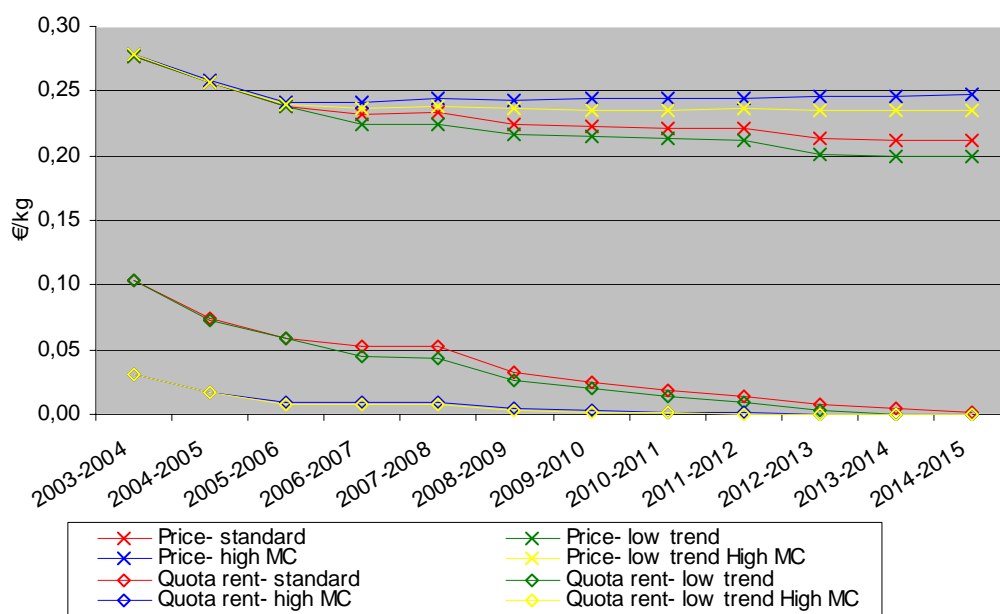


Figure 3 Impact of a gradual increase in milk quota on raw milk price and quota rent in EU25

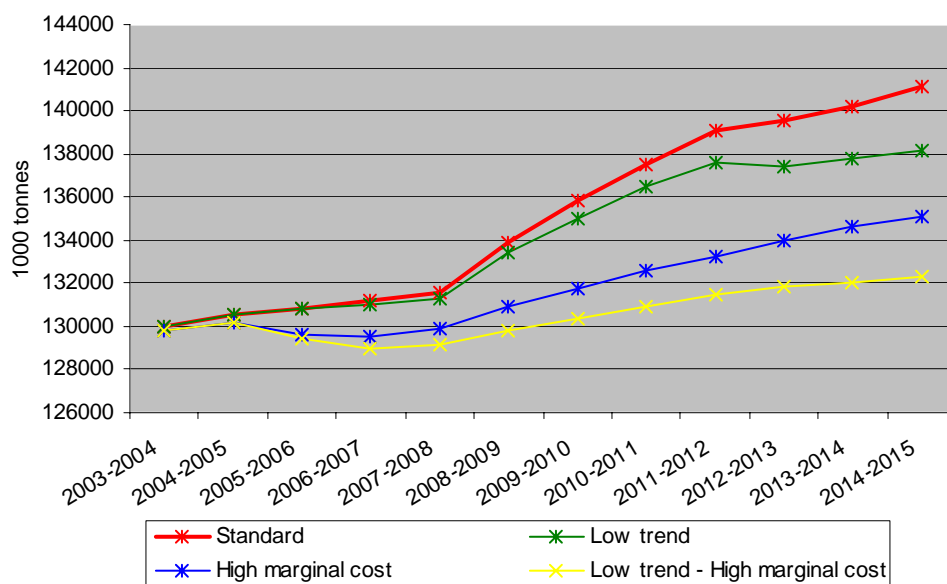


Figure 4 Impact of a gradual increase in milk quota on collected milk in EU25

WELFARE

Table 6 provides information about the changes in producer and consumer-taxpayer welfare and as such gives an overview of the incremental costs and benefits of a new WTO agreement and further dairy policy reform aiming at gradually phasing out the milk quota system. A new WTO agreement will improve producer income as compared to the Luxembourg Agreement with about 1.2 billion euro. Overall welfare hardly changes, implying that the EU consumer-taxpayers will bear the burden. The gradual expansion and final abandonment of the milk quota implies significant income redistribution from producers (vanishing of quota rent value) to consumers (lower prices). The budget expenditure (taxpayer costs) associated with phasing out the milk quota are marginal. This result is conditional on the assumption that the additional price declines are not compensated by increased direct payments. Globally, the EU gains from removing quotas (1.17 billion euro compared to a non abolishment scenario). The cost-benefit comparison in Table 6 does not account for the potential welfare impact of changed externalities (environment, regional relocation of dairy production).

Removing quotas is welfare improving for the EU at the expense of milk producers who are the main losers of the reform and in favour of consumers who benefit from a larger consumption at a lower price.

Table 6: Welfare changes for WTO agreement and phasing out quota scenarios for EU25

Million euro	<i>New WTO agreement as compared to Luxembourg Agreement</i>	<i>Phasing out milk quota as compared to Luxembourg Agreement and a new WTO agreement</i>	<i>Cumulative welfare impact of both scenario's as compared to Luxembourg Agreement</i>
Producers	1206	-4867	-3661
Consumers	-936	5594	4658
Others	-32	450	418
Taxpayers	-130	-4	-134
Total welfare	108	1173	1281

CONCLUDING REMARKS

The Luxembourg Agreement leads to a nearly 10 percent decrease in the EU milk price. A new WTO agreement according to the lines as suggested in the Mandelson proposal will lead to a slight relative milk price increase rather than a further decline. In contrast, gradually phasing out milk quota implies a significant price decline. EU producers are the main losers of such a scenario, consumers gain and impacts on taxpayer or budget are limited. Globally, EU gains from removing milk quotas.

As compared to the Luxembourg Agreement a new WTO agreement will relatively increase the EU's exports of skimmed milk powder and cheeses to the rest of the world, but substantially reduce exports

for butter. Gradual phasing out of the milk quota will lead to an increase of the EU's milk production of about 6 percent as compared to the Luxembourg scenario. The increased milk output will lead to significant increases in EU net exports to the world market, which in turn will create a strong downward pressure on world market prices.

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