Impact of the abolition of EU Milk quotas on Agriculture in the UK

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Abstract

In recent years the CAP has undergone significant reforms, but the dairy sector has largely avoided wholesale changes. The sector, however, is now faced with a significant effort by the Commission to instigate reform. In this study the FAPRI-UK modelling system is simulated to identify the impact of abolishing or phasing out EU milk quotas on the dairy sector in the UK and the results are compared against a 2007 Baseline projection (2007 – 2016). The results demonstrate that although the impact of the abolition of dairy quotas is fairly modest at the EU-25 level, significant impacts are apparent at the individual country level.

Key words: Milk Quotas, CAP Reform, Commodity Modelling

1. Introduction

The EU milk quota regime was introduced in 1984 to restrict milk production levels and control EU dairy commodity surpluses. The regime will automatically expire in 2015 unless a decision is taken to renew it. The EU's agricultural policy will be reviewed in 2008 and the Agriculture Commissioner has announced her intention to abolish milk quotas in due course. It is likely that the abolition of EU milk quotas will have differing implications across member states. Based on a partial equilibrium modelling system, this article examines the impact of abolishing EU milk quotas on the dairy sector in the UK. The models consist of a set of annually validated econometric equations of the beef, sheep, dairy, pig, poultry, cereal and oilseed sectors of England, Wales, Scotland and NI. The UK models are run in conjunction with the FAPRI European Union model (GOLD) run by the University of Missouri which is in turn linked to the FAPRI Global modelling system. The FAPRI-UK modelling system produces Baseline projections, over a ten year period, of key variables in the beef, sheep, dairy and cereal sectors for each country in the UK. It is assumed that current policies remain in place and specific macroeconomic assumptions hold.

The impact of the abolition or phasing out of EU quotas is dependent upon the underlying WTO trade rules. The 2007 Baseline incorporates the existing trade regulations but the EU has already declared that, irrespective of a new WTO agreement, EU export subsidies are going to be eliminated (Agra Europe Weekly, 2007). The first policy scenario investigates the impact of export subsidy elimination prior to changes in the EU dairy quota regime. The second and third scenarios examine the impact of the abolition of EU milk quotas with differing assumptions about EU import tariffs. Finally the impact of phasing out quotas through quota expansion is investigated. An overview of the methodology underlying the policy analysis is provided in Section 2. Section 3 describes the scenarios undertaken in this study. The results are presented in Section 4 and conclusions are drawn in Section 5.

2. Methodology

2.1 Baseline

The FAPRI-UK modelling system, which is integrated into the FAPRI European model (GOLD), produces Baseline projections, over a ten year period, of key variables in the beef, sheep, dairy and cereal sectors for each country in the UK, under the assumption that current policies remain in place and specific macroeconomic assumptions hold. The Baseline does not constitute a forecast, but provides a benchmark against which projections of the policy scenarios can be compared and interpreted. The following analyses are based on a Baseline generated in October 2007. During 2007 there has been a sharp rise in international commodity prices and as a result the world prices obtained from the January FAPRI 2007 US and World Agricultural Outlook (FAPRI, 2007) have been adjusted to reflect market developments

2.2 Quota Rents

In the past the GOLD model has functioned as if production were determined by quotas, i.e. that quota rents were positive. In order to model the elimination or phasing out of quotas, a new equation has been added to the model. This equation determines "planned production" which is equal to that determined by the quota, where there are positive rents, but allows for the simulation of situations where quotas are eliminated. When quotas are abolished, the quota rental value determines the deviation of milk production from the quota. In the case of positive quota rents, this leads to an increase in milk production. Thereafter, milk production responds to milk price changes that occur either as a result of shocks to the sector or from outside forces.

Unfortunately it is not straightforward to determine quota rents. In the UK it is clear that the rent associated with quota is minimal. For other countries where quota transfer has been restricted it is less easy to determine rental values. Other than the UK, the rents that are used for the model are based on those calculated by Lips and Rieder (2005). They used a general equilibrium framework to compute macroeconomic estimates of quota rents for the EU-15 plus Switzerland. Their macro-economic quota rents are used to calibrate the country-specific quota rent estimates, obtained using micro-economic procedures by the INRA (Institut National de la Recherche Agronomique) -Wageningen consortium (Consortium INRA-University of Wageningen (2002)). The rents that are used in the GOLD model are shown in Table 1 under the column labelled Lips.

Rents for the EU-15 are calculated as a proportion of the milk price and as stated are based on those calculated by Lips and Rieder (2005). The figures that this source used were for 1997, so in order for these to be relevant for the purposes of this exercise they have to be projected forward. This is achieved using milk prices that are projected as a matter of course by the GOLD model and by taking account of a cost index. The cost indices for the countries are based on FADN information. Feed costs are projected using GOLD projections of grain and meal prices; energy and fertilizer prices are projected using the Global Insight's oil price; and

other costs are proxied by the GDP deflator and a constant. For Poland and Hungary, rents are determined by the difference between pre-accession and current year prices and costs, with other NMS-10 rents set at an average of these values. In accordance with the literature, the short run elasticity of planned milk production to changes in milk prices is approximately 0.25, while the long run elasticity is close to 1.5. While rents differ between countries, the structure and elasticities of the equations, with the exception of the UK and Ireland models, are the same.

Table 1: Rents used in the model, 1997 (% of milk price)

	Lips	INRA
France	0.22	0.35
Germany	0.20	0.35
Ireland	0.31	0.45
Italy	0.30	0.30
Other EU	0.19	0.37

Unlike the other country models within the GOLD model, quota rental values are not used as a basis for defining milk production functions within the UK dairy model. In the UK given that production has consistently been below quota in recent years and the low price of quota, it is apparent that the rent associated with quota is minimal. In addition, the free transfer of quota between each country in the UK facilitates the estimation of milk production functions rather than employing quota rental values derived from microeconomic studies. Milk production in each country in the UK is modelled using separate latent milk output functions for each region. These indicate how much each UK country would have wanted to produce, if the quota was not binding. The four countries' latent production values are added together to obtain the latent UK milk output. If the computed UK latent production exceeds the quota, it needs to be reduced (scaled back) to the quota level. This is achieved by appropriately reducing (scaling back) the individual regions latent production value to obtain their final production. On the other hand, if the computed UK latent production is below quota, no scaling back takes place and UK milk production is equated to this value. The practical implementation of this milk production system and its estimation are outlined in FAPRI-UK (2007).

Using the latent production approach, it is feasible simultaneously to estimate production functions for England, Wales, Scotland and NI. Estimation generates upward sloping production functions with different elasticities for each country in the UK. The latent production approach also generates quota shadow prices that are consistent with milk production in the UK falling below quota levels in recent years.

Using the estimated latent milk production functions the model assumes production is equal to the quota providing the incentive price (milk producer price plus production enhancing effect of dairy compensation element of the SFP) exceeds the quota shadow price. However, if incentive prices fall below the quota shadow price milk production is determined by the

upward sloping supply functions in each country. In the latter case, milk production is determined by milk prices, SFP component and a dairy input cost index of each region. The dairy input cost index is specified as a function of the prices of the different feed grains and oilseed meals, energy costs and a measure of general price inflation.

3. Scenario Definitions

The following policy scenarios were examined:

Scenario 1: *Phasing out of export subsidies between 2009 and 2013, with 50% reduction by 2010*. This scenario involves the phased reduction in the value and volume of export subsidies. By 2013 all export subsidies are prohibited. In conjunction with the phased elimination of export subsides, it is assumed that intervention prices are lowered, where necessary, to allow the markets to clear, thus avoiding the build up of stocks.

Scenario 2: *Elimination of EU milk quotas in 2010, in conjunction with the phasing out of export subsidies between 2009 and 2013.* This scenario maintains the same assumptions as Scenario 1, with the exception that the EU milk quotas are abolished in 2010. Because the FAPRI-UK model runs on a ten-year horizon, updated each year, it would not be possible to obtain full estimates of the impact of quota abolition if this was applied to the model in 2015. Consequently 2010 was selected for modelling purposes as the appropriate year to introduce this policy change. Note that it is assumed that no restructuring aid is provided.

Scenario 3: *Elimination of EU milk quotas in 2010, in conjunction with reductions in EU import tariffs and phasing out of export subsidies between 2009 and 2013.* In this scenario EU tariffs agreed under the Uruguay Round Agreements Act are reduced by 65% for all products, apart from cheese, where the reduction is 60%. Tariff reductions are phased in between 2008 and 2013. This scenario maintains the same assumptions as Scenario 2, with the exception that tariffs are reduced.

Scenario 4: *EU quotas are expanded by 2.5% a year between 2010 and 2015 (total 15%) and then eliminated plus import tariffs are reduced and export subsidies are eliminated*. This "phasing out" scenario is the same as Scenario 3 except that milk quotas are gradually increased rather than abolished. This scenario should be treated as the focal point of the FAPRI-UK modelling exercise since it corresponds most closely to the policy preference of the EU Commission as stated in the recent Health Check announcements – the so-called *soft landing* approach.

4. Results

The results of scenarios are presented below. Results at the EU level are shown in Tables 2, 3, 4 and 5 and results for the different countries in the UK are presented in Table 6. These tables present the projected difference between each scenario and the Baseline for the final year of the projection period (2016). Furthermore, Figures 1 and 2 illustrate the impact of the various scenarios on the projections for the UK milk producer price and UK milk production respectively. The results for each scenario are discussed in detail below.

Table 2: EU-25 Dairy Sector Results for Scenarios 1 to 4
(Percentage difference from the Baseline in 2016)

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Dairy cows	-0.3%	1.8%	2.5%	2.2%
Yields	-0.6%	-0.7%	-0.3%	-0.2%
Milk Production	-0.8%	1.1%	2.2%	2.1%
Cheese				
Production	0.1%	1.5%	2.7%	2.7%
Consumption	2.5%	3.6%	4.5%	4.5%
Import	-2.1%	-2.9%	-3.4%	-3.4%
Export	-49.0%	-41.6%	-36.1%	-36.0%
Butter				
Production	-3.8%	0.2%	1.8%	1.3%
Consumption	6.8%	7.8%	8.3%	8.2%
Import	0.0%	0.0%	0.0%	0.0%
Export	-70.7%	-49.0%	-40.1%	-42.9%
SMP				
Production	-9.0%	-7.2%	-6.0%	-6.0%
Consumption	-2.3%	-0.4%	0.8%	0.7%
Import	0.0%	0.0%	0.0%	0.0%
Export	-72.7%	-72.7%	-72.7%	-72.7%
WMP				
Production	-22.3%	-16.1%	-9.4%	-8.7%
Consumption	3.5%	3.9%	4.3%	4.3%
Import	3.6%	3.9%	4.3%	4.4%
Export	-71.3%	-54.1%	-35.6%	-33.6%
Milk Prices	-9.0%	-11.8%	-13.9%	-13.9%
Cheese Prices	-7.7%	-10.9%	-13.4%	-13.5%
Butter Prices	-28.2%	-31.5%	-32.9%	-32.6%
SMP Prices	0.5%	-4.2%	-7.2%	-7.0%
WMP Prices	-14.6%	-15.9%	-17.3%	-17.4%
Butter Int	-30.0%	-35.0%	-35.0%	-35.0%
SMP Int.	0.0%	0.0%	0.0%	0.0%

Table 3: Country changes in milk production for Scenarios 1 to 4
(Percentage difference from the Baseline in 2016)

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
EU-25	-0.8%	1.1%	2.2%	2.1%
EU-15	-0.9%	-0.5%	0.7%	0.9%
France	-0.5%	1.5%	3.9%	4.5%
Germany	-0.5%	-3.4%	-2.3%	-1.7%
Ireland	0.2%	15.5%	16.4%	11.8%
Italy	-0.9%	1.3%	2.7%	2.9%
UK	-3.6%	-6.0%	-6.7%	-6.4%
NMS-10	-0.5%	10.7%	11.4%	9.4%
Poland	-0.5%	19.5%	19.4%	15.5%
Hungary	-0.4%	-4.1%	-1.8%	-1.3%

Table 4: Impact of Scenarios on other commodities at the EU-25 level
(Percentage difference from the Baseline in 2016)

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Prices				
Wheat	-0.4%	0.6%	-0.9%	-0.9%
Barley	-0.4%	0.6%	-0.9%	-0.9%
Maize	-0.4%	0.7%	-0.9%	-0.9%
Beef	-0.2%	0.8%	-17.6%	-18.6%
Pork	-0.3%	0.0%	-2.2%	-2.4%
Poultry	1.1%	1.7%	-1.2%	-1.3%
Production				
Beef	-0.4%	1.1%	-5.3%	-4.5%
Pork	-0.7%	-0.3%	-2.0%	-2.1%
Poultry	1.0%	1.0%	-0.5%	-0.6%

Table 5: Impact of Scenarios on world commodities prices
(Percentage difference from the Baseline in 2016)

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Prices				
Butter	12.3%	8.0%	6.1%	6.5%
Cheese	2.1%	1.9%	1.3%	1.2%
SMP	1.4%	1.9%	1.6%	1.5%
WMP	6.9%	5.5%	3.9%	3.8%

Table 6: UK dairy sector results for Scenarios 1 to 4
(Percentage difference from the Baseline in 2016)

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
UK				
Milk Production	-3.6%	-6.0%	-6.7%	-6.4%
Dairy cows	-3.4%	-5.7%	-6.4%	-6.1%
Cheese Production	-3.1%	-4.0%	-4.4%	-4.4%
Butter Production	-21.5%	-23.2%	-25.1%	-25.7%
SMP Production	-23.7%	-25.8%	-32.4%	-36.3%
WMP Production	-21.1%	-19.4%	-20.0%	-21.0%
Cheese price	-6.4%	-9.0%	-11.1%	-11.2%
Butter price	-27.0%	-30.1%	-31.5%	-31.2%
WMP price	-14.7%	-16.1%	-17.5%	-17.6%
SMP price	0.5%	-4.3%	-7.4%	-7.2%
England and Wales				
Cheese Production	-2.7%	-2.6%	-2.6%	-2.7%
Butter Production	-21.6%	-22.8%	-24.7%	-25.6%
SMP Production	-30.7%	-31.5%	-39.3%	-44.8%
WMP Production	-48.6%	-41.6%	-45.3%	-51.2%
Milk price	-4.3%	-6.0%	-7.1%	-7.1%
England				
Milk production	-4.3%	-6.2%	-6.9%	-6.9%
Dairy cows	-4.1%	-6.0%	-6.7%	-6.6%
Wales				
Milk production	-3.8%	-5.5%	-6.1%	-6.1%
Dairy cows	-3.6%	-5.2%	-5.9%	-5.8%
Scotland				
Milk production	-3.7%	-5.5%	-6.2%	-6.1%
Dairy cows	-3.5%	-5.2%	-6.0%	-5.8%
Milk Price	-4.5%	-6.4%	-7.7%	-7.6%
Cheese production	-6.4%	-9.5%	-10.8%	-10.6%
Butter production	-31.0%	-35.1%	-36.9%	-36.5%
Northern Ireland				
Milk production	-0.6%	-6.1%	-6.6%	-5.1%
Dairy cows	-0.3%	-5.6%	-6.1%	-4.6%
Milk price	-8.4%	-11.9%	-14.2%	-14.1%
Cheese Production	-1.9%	-5.3%	-7.3%	-7.2%
Butter Production	-14.9%	-18.2%	-19.5%	-19.2%
SMP Production	-2.3%	-8.6%	-11.4%	-10.9%
WMP Production	-17.3%	-16.3%	-16.4%	-16.8%

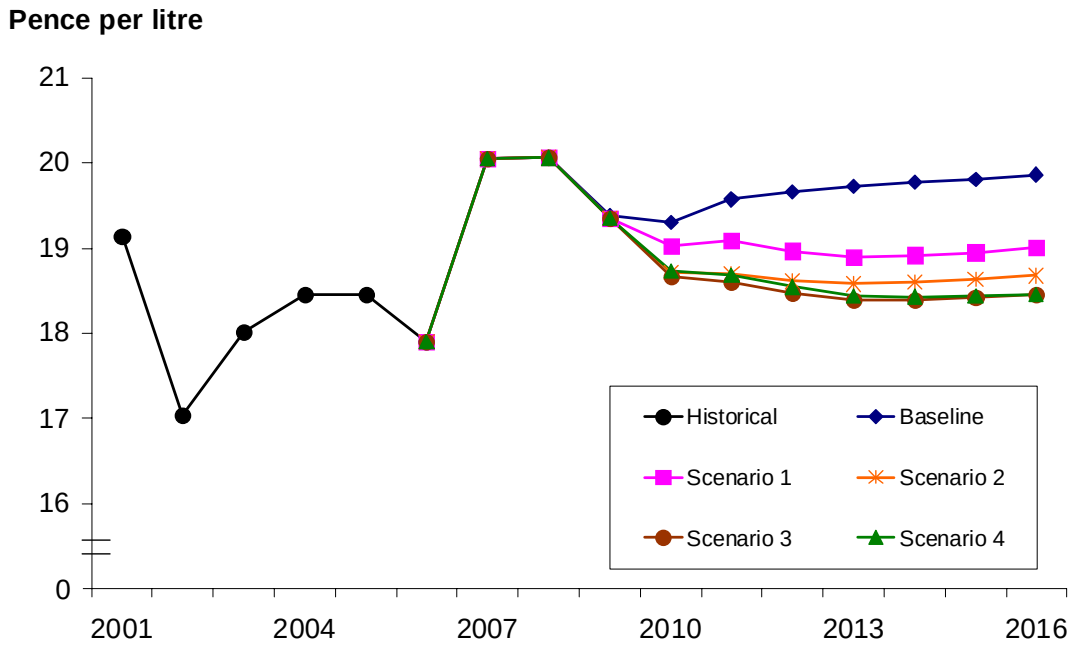

Figure 1: UK producer milk price* projections under the Baseline and Scenarios 1 to 4

(Note *: English producer milk price is depicted in diagram)

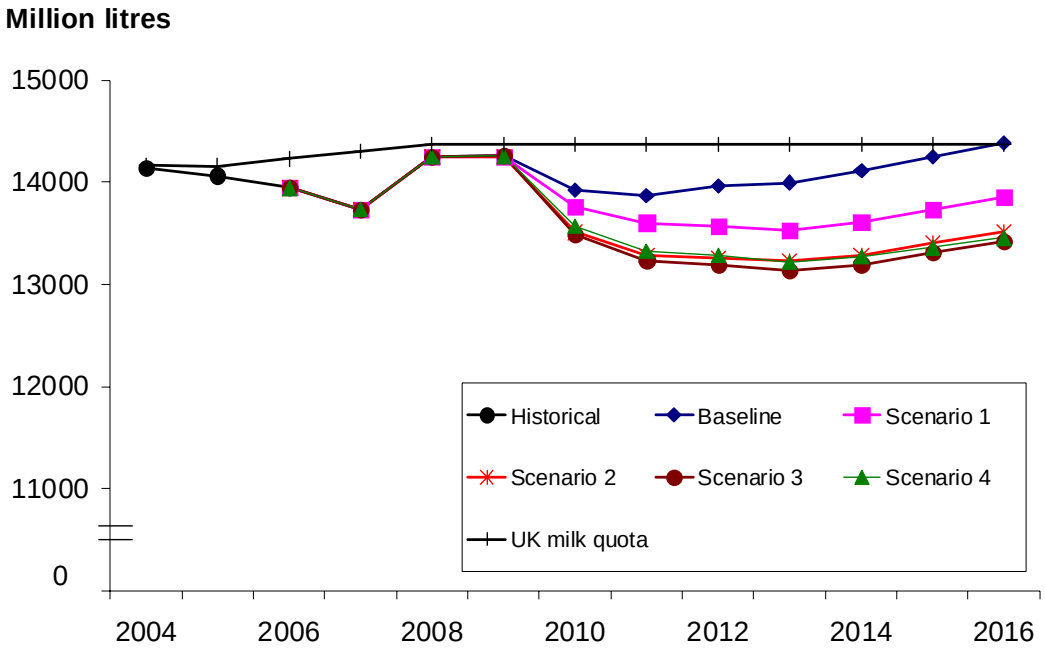

Figure 2: UK milk production projections under the Baseline and Scenarios 1 to 4

Scenario 1: Phasing out of export subsidies with continuation of EU milk quotas

EU Results

Within the Baseline export refunds rise at the end of the projection period due to the assumed Euro/dollar exchange rate which causes the world dairy commodity prices to fall relative to EU internal prices. Consequently, the elimination of export subsidies reduces the dairy commodity prices at the end of the projection period (Table 2). Butter and WMP are the commodities that are most reliant on export subsidies in the Baseline and consequently these are the commodities that are projected to suffer the largest price falls. The elimination of export subsidies has a significant downward impact on internal prices even though refunds are at a low level since this policy change results in a dramatic reduction in exports and the lower world prices at the end of the projection period do not provide a floor so the prices fall to balance the market.

Under this scenario, the butter intervention price is reduced to prevent the build up of intervention stocks. It is necessary to reduce the butter intervention price by successively larger amounts, beginning with 5% in 2010, 10% in 2011, 25% in 2112 and 30% in 2013 and beyond. SMP intervention is unchanged since it is projected that the market price remains significantly higher than the existing intervention price for the whole of the projection period.

Quota rents remain positive under Scenario 1 so the production response to the projected drop in prices for the countries other than the UK is minimal, with projected EU-25 production falling by 0.8%, for a milk price fall of 9%. To put that in context, the milk price of 28.4 €/100kg at the end of the projection period is higher than that which prevailed in 2006. WMP production drops the furthest despite the butter price showing the greatest fall, as a lower price reduction for SMP bolsters butter production.

The reduction in world supply of dairy commodities as a result of the elimination of export subsidies has a positive impact on world prices (Table 5). The biggest impact is on butter (12% higher under S1 compared to the Baseline in 2016), followed by WMP (7% higher). For cheese, less than half of exports require an export subsidy in the projection period, while SMP export subsidies are very low given that the SMP price is above the intervention price. As a result, the elimination of EU export subsidies has a minimal impact on cheese and SMP world prices.

The projected internal price for butter converges to the world price by 2013 and tracks the world price for the remainder of the projection period. The internal WMP price remains at world price levels for the whole of the projection period, unlike the Baseline where the internal WMP price diverges from the world price in the latter part of the projection period. In contrast, internal cheese and SMP prices remain above world price levels following the elimination of export subsidies.

UK Results

The projected fall in EU dairy commodity prices is transmitted to UK prices. As in the EU, the UK prices for butter and WMP experience the greatest projected price declines following the elimination of export subsidies (Table 6). The fall in UK commodity prices results in a decline, relative to the Baseline, in projected milk producer prices throughout the UK. The fall is more pronounced in NI than elsewhere in the UK since a greater amount of milk is used in the lower value processing sector and NI is more dependent upon WMP. In contrast to the Baseline, by the end of the projection period the NI producer milk price is lower compared to elsewhere.

The projected fall in milk producer prices leads to a decline in UK milk production. Overall, by the end of the projection period UK milk production falls by 4% under Scenario 1 relative to the Baseline (Figure 2 and Table 6). Milk production impacts are unevenly distributed across the UK regions. The decline in milk production is greater in England, Wales and Scotland compared to Northern Ireland. The production impact is less significant in NI since the quota shadow price is lower compared to elsewhere probably due to the importance of (relatively cheap) family labour.

Given the decline in UK milk production; there is less milk available for manufacture. As a result, UK production of all the dairy commodities declines under Scenario 1 compared to the Baseline. Given the relative commodity price impacts there is a shift in the product mix towards cheese production. The decline in milk production also exerts downward pressure on the number of dairy cows. By the end of the projection period there are 3% fewer dairy cows in the UK under the Scenario 1 compared to the Baseline.

Scenario 2 - Elimination of EU milk quotas in conjunction with the phasing out of export subsidies

EU Results

The abolition of EU milk quota, in conjunction with the phasing out of export subsidies results in an expansion of milk production of 1% relative to the Baseline. This represents an increase of approximately 2% compared to Scenario 1. As shown in Table 3, the positive production impact is greatest in Poland, followed by Ireland. Milk production for the EU-15 falls by under 1% at the end of the projection period under Scenario 2 compared to the Baseline. Underlying this EU-15 production impact, Irish, French and Italian production rises while German and UK production falls. Under this scenario it is necessary to reduce the intervention price of butter by a further amount to prevent the build up of stocks. The intervention price of butter is reduced by 20% in 2010 and 201, 30% in 2012, 35% in 2013 and beyond. The SMP intervention price remains unchanged.

Even though production of some commodities is lower compared to the Baseline, the production of all dairy commodities under Scenario 2 rises when compared to Scenario 1. As

a result, the abolition of EU milk quotas, in addition to the elimination of export subsidies, leads to a further decrease in EU commodity prices (Table 2). Compared to Scenario 1, the reduction in commodity prices due to the additional impact of the abolition of EU milk quotas is greatest for SMP, followed by butter, cheese and WMP.

Given the change in dairy commodity production, EU exports onto the world market increase under Scenario 2 compared to Scenario 1. The increases are greatest for Butter and WMP (Table 2) since following the elimination of export subsidies the prices of these commodities are at world levels. The increased supply of dairy commodities on the global market resulting from the abolition of EU dairy quotas has a negative impact on world prices. The world price for butter declines by 4% under Scenario 2 compared to Scenario 1, while the WMP prices declines by about 1%.

The decline in EU commodity prices ultimately impacts on producer milk prices. The EU milk price is 12% lower under Scenario 2 compared to the Baseline. This represents an additional negative impact of about 3% compared to Scenario 1. Thus, overall, the elimination of export subsidies exerts a much greater negative impact on milk prices than the abolition of milk quotas. The EU milk price at the end of the period is 27.5 €/100kg.

UK Results

The decline in EU dairy commodity prices impacts on UK prices (Table 6). While the commodity price falls under Scenario 2 are significant compared to the Baseline (particularly butter and WMP), the falls are modest compared to Scenario 1. The projected additional fall in UK dairy product prices, due to the abolition of EU milk quotas under this scenario, leads to a modest decline, relative to Scenario 1, in the projected milk producer prices in the UK (Figure 1 and Table 6). The impact on the producer price of milk varies slightly across the UK. The negative price impact is greatest in NI due to the large share of milk used for processing compared to GB. In England and Wales, in particular, the small share of milk used for processing restricts the fall in projected producer milk price.

The fall in projected milk producer prices leads to a decline in UK milk production (Figure 2 and Table 6). Overall, UK milk production is 6% lower under Scenario 2, compared to the Baseline. The projected decline in the UK in tandem with projected increases elsewhere in Europe may seem counterintuitive given that the UK possesses a more efficient herd size structure than its EU counterparts. However, the UK has benefitted from a liberal quota trading system since 1994, which has promoted efficiency gains and the geographical redistribution of production. In contrast, the quota system is generally much more restrictive elsewhere in the EU and consequently there is likely to be significantly more scope for efficiency gains and higher production following the elimination of quotas. England and NI experience the greatest falls (milk production is about 6% lower under Scenario 2 compared to the Baseline in both countries), followed by Wales and Scotland (5% lower). The

production impact in NI largely reflects the more pronounced decline in the producer milk price. To a lesser extent, an increase in milk production in the RoI reduces the volume of milk exported from NI to RoI.

Given the decline in UK milk production there is less milk available for processing. As a result, UK production of dairy commodities is lower under this scenario compared to the Baseline. Compared to Scenario 1, SMP and butter production experience the greatest fall. The decline in milk production also exerts a downward impact on the number of dairy cows. By the end of the projection period there are 6% fewer dairy cows in the UK under this scenario compared to the Baseline (Table 6).

Scenario 3 - Elimination of EU milk quotas in conjunction with reductions in EU import tariffs and the phasing out of export subsidies

EU Results

Although the 65% and 60% tariff cuts for dairy products seem significant, even after the reduction they still range from 40 – 70 €/tonne of milk equivalent. High world prices, CAP Reform and significant 'water' in the tariff rates are still largely effective in restricting the inflow of imports from third countries. Consequently, the changes in the level of imports into the EU from third countries under Scenario 3 compared to Scenario 2 are minimal (Table 2).

There is a slight increase in EU milk production of 1% under Scenario 3 compared to Scenario 2. Overall, EU milk production is 2% higher under Scenario 3 compared to the Baseline (Table 2). This production impact reflects cross commodity price impacts with the beef sector. The EU beef price falls markedly following the reduction in tariffs (Table 4) and this has a slight positive impact on milk production due to the relative returns between the beef and dairy sectors. The increase in EU milk production has a slight downward impact on dairy commodity prices. All dairy commodity prices are slightly lower under Scenario 3 compared to Scenario 2.

UK Results

Tariff reductions have only a small additional downward impact on UK dairy commodity prices (Table 6). As a consequence, UK milk producer price (Figure 1) and milk production projections (Figure 2) under Scenario 3 are similar to Scenario 2, with just slightly greater projected reductions.

Scenario 4: EU milk quota expansion in conjunction with reductions in EU import tariffs and the phasing out of export subsidies – the so-called *soft landing* scenario

EU Results

As expected, the long-run projections for this scenario are similar to that of Scenario 3. In the short term, however, different country-specific dynamics emerge. Although the additional quota is not filled at the EU level, Poland and Ireland are constrained by the quota throughout the quota expansion period (2010 to 2015). While the quota is fully eliminated in the last year of the projection period, 2016, milk production in Poland and Ireland under Scenario 4 are lower than Scenario 3 due to the different dynamics in the process of expanding production.

UK Results

It is projected that the additional quota available under this scenario is not utilised in the UK. Moreover, projected UK commodity prices under this Scenario closely resemble those under Scenario 3. Therefore, UK milk producer price projections (Figure 1) and UK milk production projections (Figure 2) under Scenario 4 are not significantly different from Scenario 3.

5. Conclusions

In all the scenarios in which milk quotas were abolished or phased out export subsidies were also eliminated. Thus, the production-price effects represent the combined impact of these policy changes. Scenario 4, milk quota expansion in conjunction with reductions in import tariffs and the phasing out of export subsidies, should be considered the focal point of the FAPRI-UK modelling exercise as it corresponds most closely to the EU Commission's favoured 'soft landing' approach.

The projected impact of the elimination of milk quotas on EU milk production is modest. In all of the scenarios undertaken (including under the sensitivity analyses) the expansion of EU milk production is less than 5%. Under the most likely scenario, Scenario 4, the expansion in EU milk production is 2%. In contrast, EU dairy commodity and producer milk prices fall significantly under all the scenarios. These price impacts, however, are largely attributable to the elimination of export subsidies. Abolishing/phasing out milk quotas only has a slight additional negative impact. Reducing import tariffs has a negligible impact on commodity and producer milk prices since high world prices and 'water' in the tariff rates stem the inflow of imports into the EU market.

Within the UK producer milk prices and production are projected to fall under all the scenarios. The negative impact on the producer milk price is greatest in NI due to the large share of milk which goes into the lower value processing sector. In contrast, the large volume of liquid milk consumption in England and Wales restricts the drop in the producer milk price. The projected declines in production across the four countries in the UK under the milk quota abolition/phasing out scenarios are relatively similar. The projected decline in UK milk

production reduces the amount of milk available for processing and hence the production of dairy commodities.

The analysis also demonstrates that following the abolition/phasing out of milk quotas and further trade liberalisation, EU commodity prices will be more closely linked to world prices. Consequently, EU producers and processors will face more uncertainty due to increased volatility as a result of external shocks, such as those due to poor weather conditions.

References

Agra Europe Weekly (2007). Dairy export subsidies to end by 2013. *Agra Europe Weekly* June 27 2007.

Consortium INRA-University of Wageningen (2002). Study on the Impact of Future Options for the Milk Quota System and the Common Market Organisation for Milk and Milk Products. Summary report INRA / Wageningen University 2002.

FAPRI (2007). FAPRI 2007 US World and Agricultural Outlook. FAPRI Staff Report 07-FSR 1.

FAPRI-UK (2007). Modelling Milk Production in the UK. FAPRI-UK Project Working Paper No. 13.

Lips, M. and Rieder, P. (2005). Abolition of Raw Milk Quota in the European Union: A CGE Analysis at the Member State Country Level. *Journal of Agricultural Economics* 56: 1-16.