



# **Analysis of the Impact of Modulation on Agriculture in NI**

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September 2002

# **Analysis of the Impact of Modulation on Agriculture in Northern Ireland**

In this analysis we model the impacts of various modulation scenarios on agriculture in Northern Ireland. The modelling system produces ten-year baseline projections of key variables in the main agricultural sectors, which assume current policies remain in place. The baseline projections provide a benchmark against which the various modulation projections can be compared and evaluated. For purposes of the analysis, the various modulation scenarios were implemented by reducing direct producer payments by the appropriate amounts. It is assumed that the modulation funds generated are spent on agri-environment schemes and that all farm types can participate in these schemes. If this were not the case, the impact on sectoral and final aggregate receipts could be significantly different to that presented. It is assumed that the funds generated by modulation do not have any production-influencing effect.

## **The Baseline and Modulation Scenarios:**

- 1) *Baseline.* The baseline projections are produced under the assumption that current policies (including future changes to these policies that have already been agreed) prevail throughout the projection period. The United Kingdom and France are assumed to modulate payments at the rate of 3.5 percent in 2003 and 2004 and 4.5 percent in subsequent years. No modulation of payments is assumed for other EU countries.
- 2) *Moderate EU modulation scenario.* All EU countries are assumed to modulate payments at the rate of 3.5 percent in 2003, 5 percent in 2004 and 10 percent beginning in 2005.
- 3) *Moderate UK-only modulation scenario.* Only the UK is assumed to modulate payments at the rate of 3.5 percent in 2003, 5 percent in 2004, and 10 percent beginning in 2005. Except for France, no modulation is assumed in other countries. France maintains its modulation at baseline levels.
- 4) *Extreme EU modulation scenario.* All EU countries are assumed to modulate payments at the rate of 5 percent in 2003, 10 percent in 2004 and 20 percent beginning in 2005.
- 5) *Extreme UK-only modulation scenario.* Only the UK is assumed to modulate payments at the rate of 5 percent in 2003, 10 percent in 2004, and 20 percent beginning in 2005. Except for France, no modulation is assumed in other countries. France maintains its modulation at baseline levels.

## Impact of the Modulation Scenarios

The reduction in direct payments under the modulation scenarios causes supply and demand responses. In general, producers reduce production in response to lower direct payments. The decline in supply exerts a positive influence on commodity prices in the long-run. However, under each of the modulation scenarios the projected increases in price are insufficient to compensate for the reduced direct payments and consequently, sectoral receipts decline relative to the baseline. The impacts of each of the modulation scenarios on the NI beef, sheep and dairy sectors are outlined in detail below.

Please note that the following definitions have been employed:

Total Sectoral Receipts: Market receipts plus direct producer payments  
(Total Sec. Receipts) (excluding payments from schemes funded by modulation funds) for an individual sector.

Adjusted Aggregate Final Receipts: Market receipts plus aggregate payments (including  
(Adj. Agg. Final Rec) redistributed modulation funds) minus compliance costs associated with modulation funded schemes for the beef, sheep and dairy sectors combined.

### Moderate EU-wide Modulation: NI Results

	<i>% change from Baseline in 2011</i>			
	<i>Sectors</i>			<i>NI Agricultural Sector</i>
	<i>beef</i>	<i>sheep</i>	<i>dairy</i>	
Producer price	+0.9	+1.6	0.0	
Breeding numbers	-0.4	-1.2	0.0	
Total Sec. Receipts	-1.9	-1.6	-0.4	
Adj. Agg. Final Rec				-0.4

- Under this scenario there are significant EU supply and demand effects. With regards to NI there is a reduction in the numbers of breeding animals and hence production in the beef and sheep sectors which leads to slight increases in producer prices.
- Moderate EU-wide modulation has no discernible impact on production and prices within the NI dairy sector.
- Overall, the reduction in direct payments under the moderate EU-wide modulation scenario has a depressing effect on total sectoral receipts (excluding payments from modulation funded schemes) within the beef, sheep and dairy sectors in NI, despite the projected increase in prices.
- Adjusted aggregate final receipts for the beef, sheep and dairy sectors combined (includes redeployed modulation funds and 100 per cent match funding) are expected to be 0.4 per cent below the baseline in 2011 under this scenario. It is assumed that modulation funds are used to fund agri-environmental schemes, where, because of additional expenses incurred, only 30 per cent of these funds is likely to be income enhancing.

### Moderate UK-only modulation: NI Results

	% change from Baseline in 2011			
	Sectors			NI Agricultural Sector
	<i>beef</i>	<i>sheep</i>	<i>dairy</i>	
Producer price	+0.1	+0.3	0.0	
Breeding numbers	-0.6	-2.1	0.0	
Total Sec. Receipts	-2.4	-3.0	-0.4	
Adj. Agg. Final Rec				-0.8

- When only the UK adopts moderate modulation the EU supply and demand effects are more modest and hence there is a more limited impact on NI producer prices under this scenario.
- With only a slight improvement in producer prices under the UK-only moderate modulation scenario production falls by a greater amount compared to when moderate modulation occurs across the EU.
- The projected fall in total sectoral receipts in the NI is more marked than when moderate modulation is EU-wide.
- Following the distribution of modulation funds (including match funding) adjusted aggregate final receipts are projected to be 0.8 per cent below the baseline under this scenario.

### Extreme EU-wide modulation: NI Results

	% change from Baseline in 2011			
	Sectors			NI Agricultural Sector
	<i>beef</i>	<i>sheep</i>	<i>dairy</i>	
Producer price	+2.3	+3.5	0.0	
Breeding numbers	-1.4	-4.2	0.0	
Total Sec. Receipts	-5.6	-5.7	-1.3	
Adj. Agg. Final Rec				-1.4

- A greater improvement in NI producer prices (compared to the baseline) is observed under extreme EU-wide modulation than is the case under both moderate modulation scenarios.
- Compared to both moderate modulation scenarios, NI beef and sheep production levels under extreme EU-wide modulation fall by greater amounts.
- The same effect is observed with regard to total sectoral receipts, where greater reductions (compared to the baseline) are observed.
- Under extreme EU-wide modulation, adjusted aggregate final receipts are 1.4 per cent below the baseline. This is a greater decline than is observed under both moderate modulation scenarios.

## Extreme UK-only modulation: NI Results

	% change from Baseline in 2011			
	Sectors			NI Agricultural Sector
	beef	sheep	dairy	
Producer price	+0.3	+0.8	0.0	
Breeding numbers	-1.5	-6.1	0.0	
Total Sec. Receipts	-6.6	-8.4	-1.3	
Adj. Agg. Final Rec				-2.3

- NI beef and sheep price increases (compared to the baseline) under the extreme UK-only modulation scenario are smaller than those observed under both the EU-wide modulation scenarios.
- Under the extreme UK-only scenario NI beef cow and breeding ewe numbers are lower (compared to the baseline) than those observed under any other scenario.
- The same effect is observed with regard to total sectoral receipts.
- Under the extreme UK-only scenario adjusted aggregate final receipts fall by a greater amount against the baseline than is the case under any other scenario. In 2011, aggregate final receipts are 2.3 per cent below the baseline.

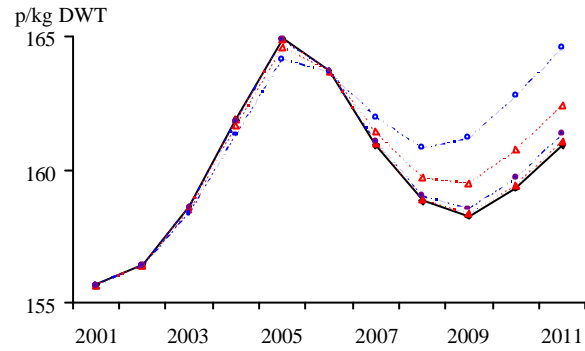
## Conclusions

- In the beef and sheep sectors the reduced direct payments under modulation leads to lower levels of production and total sectoral receipts (excluding payments from modulation funded schemes), despite increases in longer run producer prices.
- The more extreme modulation scenarios (whether EU-wide or UK-only) reduce both production and total sectoral receipts in the beef and sheep sectors to a greater degree (in the long-run) than is the case under the more moderate modulation scenarios.
- The overall effect of modulation on the adjusted aggregate final receipts (including payments less additional expenses incurred associated with modulation funded schemes) is negative. The loss is greater the larger the degree of modulation. A reduction of £12.6m (approx.) is observed under the extreme UK-only modulation scenario compared to the baseline in 2011. Over the entire projection period these losses would amount to approximately £88m.
- There is a competitiveness issue if the UK modulates payments when other countries do not do so. In the UK-only scenarios, UK and NI production falls, while at the same time production in other EU countries increases very slightly because of improved EU producer prices which stem from the fall in UK beef production.
- Individual sectors in the NI fair differently upon the re-distribution of modulation funds. Whilst the majority of the funds generated under modulation come from the beef sector, these funds are not all re-distributed to the beef sector because all farm types are eligible for the modulation funded schemes operated in NI. Prior to the introduction of the dairy premium in 2005, the dairy sector experiences net gains from modulation.

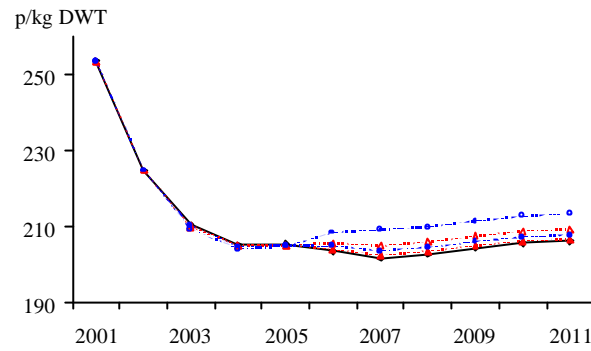
- It is likely that modulation results in some redistribution of income within sectors. For example, given the greater magnitude of direct payments received by large beef farmers compared to small beef farmers it is likely that the former suffer greater absolute financial losses and lower gains under modulation.

## Projected Prices, Breeding Numbers and Sector Farm Income Under Baseline and Modulation Scenarios

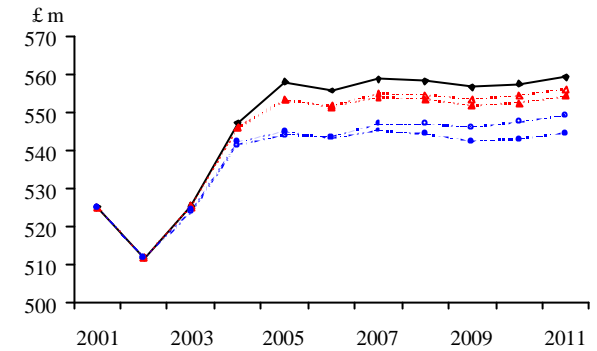
### NI Steer Price



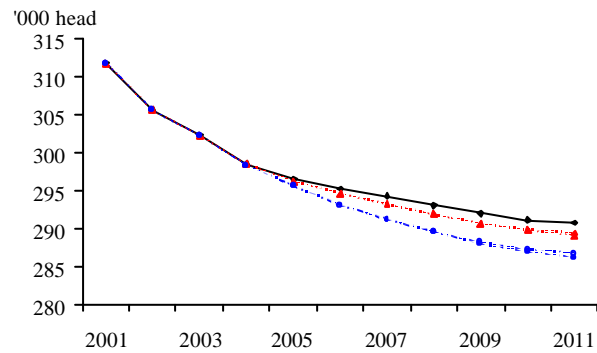
### NI Producer Price of Sheep and Lambs



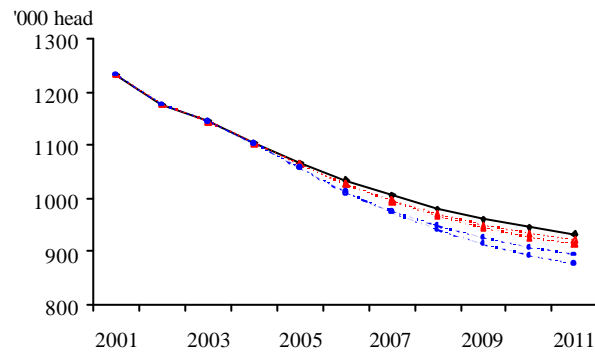
### NI Agricultural Sector Income



### Beef Cow Numbers



### Breeding Ewe Numbers



### Key

- Baseline
- ▲··· Moderate EU modulation
- - -■- - - Moderate UK-only modulation
- Extreme EU modulation
- - -■- - - Extreme UK-only modulation