

The Rural Economy Research Centre

Working Paper Series

Working Paper 09-WP-RE-04

Cap reform: implications for Ireland

Peter Howley*, Trevor Donnellan and Kevin Hanrahan

Rural Economy Research Centre, Teagasc, Athenry



For More Information on the RERC Working Paper Series

Email: Cathal.odonoghue@teagasc.ie,

Web: www.tnet.teagasc.ie/rerc/

RERC

Cap reform: implications for Ireland

Peter Howley*, Trevor Donnellan and Kevin Hanrahan

Abstract

Increasingly farmers can be viewed as multifunctional providers of a range of commodity and non-commodity goods that are valued by society. Changes to the Common Agricultural Policy (CAP) such as the shift towards decoupled payments not only have significant effects on agriculture but also rural areas and society more generally. Given that the CAP is likely to be the most significant driving force for change in the Irish countryside, it will be important to assess the impact of policy changes. Using a dynamic, multi-product, partial equilibrium model, this paper firstly examines the potential impact of recent policy changes accruing from the Mid-Term Review of the Common Agricultural Policy (CAP). In addition, this paper highlights additional potential reforms of the CAP and discusses their implications for the Irish agricultural sector.

* Corresponding Author: Peter Howley

Email: peter.howley@teagasc.ie

Introduction

European agricultural policy underwent significant changes under the Mid-Term Review of the Common Agricultural Policy (CAP) in 2003. These reforms have sought to break the link between payments and production as under the new system the majority of payments to farmers will be paid independently of the volume of production. The shift towards support measures that are decoupled from production was introduced in order to reduce the trade-distorting and inefficiency effects of the CAP (Swinbank and Daugbjerg, 2006). Advocates of decoupled payments assert that breaking the link between subsidies and production removes the incentive for farmers to maximise production, effectively freeing farmers to produce what the market and consumers want. Agriculture accounts for 64 per cent and 4.3 million hectares of the land use in Ireland and therefore policy changes such as the shift towards decoupled payments not only have significant effects on agriculture but also rural areas and society more generally. The term ‘multifunctionality’ has been widely used to conceptualise the wider external effects of the agricultural sector on society. These external effects of agriculture include impacts on: biological diversity, soil and water quality, landscape and habitats, rural tourism and the vitality of rural communities (Burrell, 2004; Moreddu et al, 2004; Firbank, 2005; Boel, 2006). These wider benefits can be thought of as public goods and often go unrewarded in the market place. Up until the Mid-Term Review in 2003 the CAP stimulated the intensification of agricultural production and this often led to problems of degradation and environmental pollution in rural areas throughout Europe (Huylensbroeck and Durand, 2003). The European Community’s Fifth Environmental Action Programme concluded that “farming practices in many regions of the community have led to over-exploitation and degradation of the natural resources on which agriculture itself ultimately depends: soil, water and air” (European Commission, 1992; p.15).

The Mid-Term Review can be seen as reversing previous policies which stimulated production by allowing farmers to reduce their activities to an absolute minimum without losing any subsidies. In addition, increased resources have been made available for the Second Pillar of CAP support (rural development policy) by reducing the level of direct payments to farmers in excess of 5000 Euro by 3 percent in 2005, 4

percent in 2006 and 5 percent thereafter and transferring the funds for rural development measures (known as modulation). More emphasis has been placed on agricultural practices that are environmentally sound as through cross-compliance obligations, even eligibility for the main direct payments is now conditional on achieving environmental and welfare goals. As production is not needed to receive subsidies the recent policy reform could potentially lead to significant land use changes. For example, it has been reported that the decoupling of direct payments could lead to land abandonment particularly in marginal rural areas (Osterburg and van Horn, 2006). However, the actual effect is unlikely to be as drastic as farmers engage in production for economic as well as non-economic motivations. Even if it may be financially optimal for farmers to leave their land idle, due to the many non-pecuniary benefits to farming, in many instances farmers are likely to continue to keep their land in agricultural use (Key, 2005; Key and Roberts, 2009). Some of the non-pecuniary motivations behind farm operators' behaviour may include lifestyle factors such as the pleasure derived from working in farming irrespective of financial reward, prestige associated with land ownership, utility derived from being self-employed, family circumstances, benefits accruing from social interaction with other farmers and individuals in the agricultural sector and aversion to change.

Given the significant and wide-ranging effects of farming activity on the agricultural sector and on society more generally, it is important to assess future trends in agricultural activity. Furthermore, given that the CAP is likely to be the most significant driving force for change in the Irish countryside it will be important to anticipate future changes in agricultural policy. Utilising a partial equilibrium model, this paper will firstly analyse the potential impact of recent policy changes accruing from the Mid-Term Review of the Common Agricultural Policy (CAP) in 2003 on the Irish agricultural sector. This partial equilibrium econometric model is comprised of national level sub-models that are combined to be linked and solved in prices generating projections for each country over the medium term (i.e. as far as 2020). This is followed with discussion of further potential reforms of the CAP and their likely implications for Ireland. Finally this paper concludes with a discussion of its main findings and their implications for the agricultural sector.

Research design

The modelling approach used in this analysis is the development of an econometric, dynamic, multi-product partial equilibrium model (Agmemod¹) in which a bottom-up approach is used. Country level models have been developed that reflect the specific situation of the agricultural sectors in each Member State within the EU. The maintenance of analytical consistency is achieved via adherence to a common model template across all the partners involved in the model. In all country models, agricultural supply and use data as well as policy data for the years 1973-2005 have been collected. The CAP budget and national ceilings remain at the levels set out in Regulation EC 1782/2003. For each commodity modelled, and in each country, agricultural production as well as supply, demand, trade, stocks and domestic prices are derived by econometrically estimated equations. The national level models have been combined into a composite EU model. Each country model contains the behavioural responses of economic agents to changes in prices, policy instruments and other exogenous variables. One element of the supply and demand balance (usually exports), for each commodity modelled, is derived as a closure variable to ensure that the supply and use identity holds for all EU markets throughout the projection period. This condition implies that production plus beginning stocks plus imports always equal domestic use plus ending stocks plus exports.

Projections of exogenous data relating to macroeconomic series such as exchange rates and GDP have been taken from research institutions within each individual Member State and incorporated into the model. In addition projections of world prices from the Food and Agricultural Policy Research Institute (FAPRI) have been incorporated into the model structure. The development of specific country models has allowed for the capture of the inherent heterogeneity of agricultural systems existing within the EU, while simultaneously maintaining analytical consistency across the estimated country models. Within this combined model environment all EU prices, as well as all elements of agricultural commodity supply and demand in each member state, are modelled endogenously. Hence, the final dynamic, multi-market, multi-country composite model developed allows us to generate projections for each Member State, under the assumption of exogenous world prices (see Chantreuil et al., 2005 for a more detailed description of the model structure).

In order to analyse the impact of policy reform, data on all of the different types of direct payments that are and were part of the CAP were collected for each member state. The degree to which decoupled payments are expected to impact production decisions is captured via explicit coefficients that are termed multipliers. Using these multipliers and the various policy data a set of country specific variables were developed which calculated the impact of policy instruments on the supply and use of various agricultural commodities. The multipliers are set as equal to .5 and this condition implies that decoupled payments maintain 50 percent of the supply inducing effect of previous coupled payments. This assumption firstly reflects the fact that through cross compliance obligations farmers must still maintain their land in good agricultural condition. This requirement can be seen as having the effect of partially recoupling decoupled direct payments. In addition, it is now widely held that decoupled payments still influence agricultural production by increasing a farm operator's wealth. The argument here being that an increase in wealth facilitates on farm investment and secondly farmers with higher guaranteed incomes are more likely to be granted loans from lenders both of which can facilitate agricultural production (Young and Westcott, 2000; Adams et al., 2001; Goodwin and Mishra, 2005). One additional reported potential impact is that the increase in wealth accruing from decoupled payments may decrease a farmers risk aversion, consequently making farmers more likely to engage in certain production activities that otherwise they may not have made. Finally there is evidence to suggest that many farmers often do not respond in a profit-maximising manner and are determined to stay in farming despite low returns and will often use these payments to subsidise seemingly unprofitable production (Colman and Harvey, 2005; Hennessy and Thorne, 2005).

Results

The changes to the CAP under the Mid-Term Review, in particular the move towards decoupled payments, represent a new and radical reform of the CAP. The following section is concerned with analysing the potential effect of these recent changes. In this analysis, the decoupling decision made by Member States in 2005 cannot be changed. The current mix of historic, static and dynamic regional models and hybrid models will continue for the complete projection period to 2020. The model

projections in 2020 are compared with 2005 as this was the last year in which agricultural supply and use data were collected for all Member States and also the year in which the move towards decoupled payments in Ireland was fully implemented.

Grains

Under the Mid-Term Review of the CAP, the area devoted to the production of grains in Ireland is projected to increase by 11 percent over the projection period (see table 1). This is due to anticipated increases in the returns to grain relative to the returns to other agricultural activities. This increase in return is driven by a projected large increase in biofuel demand within the EU which results in a significant increase in the price of the three major grains in Ireland namely, soft wheat, oats and barley. Total production of grains is projected to increase by 33 percent over the projection period. This increase is driven by the increase in the area harvested and projected increases in the yields of the grains grown in Ireland. Overall grain feed use is projected to decline from 2,295,000 tonnes to 1,884,000 tonnes between 2005 and 2020 (18% drop). This decline is attributable to a projected decline in overall meat production and a projected increase in the price of grains between 2005 and 2020, which reduces the derived demand for grains as an animal feed. Projected growth in non-feed use of grains from 622,000 tonnes to 731,000 tonnes partially offsets the projected decline in feed use with the result that overall domestic use of grains falls by 12 percent between 2005 and 2020. The significant increase in the production of grains coupled with falling domestic use results in imports of grains that decline by 37 percent and exports of grain that are projected to increase by 97 percent between 2005 and 2020.

Insert table 1 here

Livestock and meat products

Cattle

Despite projected increases in nominal cattle prices, the Irish suckler cow herd is projected to decline by 25 percent between 2005 and 2020 (see table 2). This is a continuation of the trend evident post decoupling, as the Irish suckler cow herd

declined by 3 percent between 2005 and 2007. The projected contraction reflects the decoupling of direct payments and the decline in the real returns to beef farming. This reduction contrasts with the evolution of the suckler herd in the years prior to the introduction of decoupled payments, as during the 1980s and 1990s, the numbers of suckler cows rose steadily in response to the introduction of coupled direct payments. The Irish dairy cow herd is projected to decline by 13 percent over the projection period. This decrease is due to an increase in milk yields as the milk quota is fixed under the Mid-Term Review. Due to the projected declines in the Irish suckler and dairy cow herds, total cattle ending numbers, cattle slaughter and the calf crop are projected to decline by 30, 21 and 19 percent respectively over the period 2005-2020. The average cattle slaughter weight in Ireland is projected to decline by 8 percent over the projection period. This projected decline is due to an increase in feed prices and also a decrease in the share of suckler cows in the total Irish cow herd.

Due to a fall in total cattle slaughter and also in average slaughter weights, Irish beef production is projected to decline by 28 percent over the projection period. Despite an increase in Irish beef prices, Irish per-capita consumption of beef is projected to increase by 8 percent over the projection period. This is due to projected growth in real GDP over the projection period and projected increases in the prices of beef's immediate consumption substitutes namely, lamb, pork and poultry. Total domestic use of beef is projected to increase by 30 percent due to projected population growth as well as increasing per capita consumption over the period 2005-2020. As a result of falling indigenous production and projected increases in total domestic use of beef, exports of beef are projected to decline by 35 percent over the period 2005-2020

Pork

The total number of sows is projected to decline by 12 percent over the period 2005 to 2020. This decline is largely due to feed costs and the increased costs of compliance with environmental regulations which have since the late 1990s caused the Irish sow herd to contract. The projected decline in sow numbers results in the Irish pig crop declining by 11 percent. The fall in the number of pigs produced over the projection period results in the total number of pigs slaughtered contracting by 6 percent over the projection period. In addition, the fall in the total number of pigs available for exports

results in exports of live animals contracting by 51 percent over the period 2005 to 2020. The decline in the numbers of animals slaughtered coupled with a slight decrease in average slaughter weights means that Irish pig meat production is projected to decrease by 9 percent over the projection period. Irish pigmeat per capita consumption is projected to increase slightly by 2 percent over this period due to projected income growth. Higher per capita consumption and projected increases in the Irish population combine to leave projected total domestic use of pig meat in Ireland 23 percent higher in 2020 than in 2005.

Sheep

The decoupling of the ewe premium results in a projected decline of 42 percent in the ending stocks of ewes over the projection period despite nominal prices of lamb that are projected to increase strongly. The most recent data indicate that between 2005 and 2008 the Irish ewe flock has contracted by almost 22 percent. This projected decline is a continuation of a longer term trend of decline as the number of ewes has been declining since the introduction of cross compliance obligations in 1998 designed to reduce the number of ewes in environmentally sensitive areas. The significant decline in ewe numbers over the projection period (2005-2020) results in the number of lambs produced declining by 44 percent over the projection period. With lower numbers of lambs produced each year the projected volume of lamb and other sheep slaughtering is projected to decrease over the projection period, with slaughtering of sheep in 2020 46 percent lower than in 2005. As a result of these changes, the total ending numbers of sheep are projected to decline by 36 percent over the projection period. The reduction in numbers of sheep slaughtered means that sheep meat production is projected to decline by 40 percent between 2005 and 2020. Irish per capita consumption of sheep meat is projected to increase by 11 percent over the projection period. Rising per capita consumption rates and projected population increases result in total domestic use of sheep meat increasing by 32 percent between 2005 and 2020. With production projected to decline and increased domestic use projected, Irish exports of sheep meat are projected to decline by approximately 60 percent over the projection period.

Insert table 2 here

Dairy markets

As the milk quota is fixed under the Mid-Term Review, cows' milk production remains relatively constant over the projection period (see table 3). The milk yield per cow, however, increases by 18 percent between 2005 and 2020 and hence there is a consequent projected 13 percent decline in the number of dairy cows over the projection period. The per capita consumption of drinking milk decreases by 7.6 percent between 2005 and 2020. This is the result of a projected increase in prices and also a trend in decline evident in this sector since the 1970s. Prices for the main dairy commodities (butter, cheese and skimmed milk powder (SMP)) are projected to increase over time. The drivers for these price changes are largely external to Ireland given that almost 80 percent of Irish milk production is exported. Demand for dairy products in the EU is increasing while production is relatively static and this, along with growing international dairy product demand, drives dairy commodity prices upward. Over the period 2005 to 2020 prices for butter, cheese and SMP are projected to increase by 34% 8% and 18% respectively. While these price changes may seem quite large, it should be noted that prices in 2005 were quite low since the reductions in support following Agenda 2000 and the Mid-Term Review were taking effect. The increase in prices results in the production of these commodities being projected to increase over the period 2005-2020. It is difficult to model the evolution of product mix although it should be expected that increasing returns (as measured by changes in relative prices) should lead to increasing production. In Ireland observed changes in dairy commodity production is strongly related to strategic decisions by milk processors and are difficult to anticipate. Accordingly, more substantial changes in the Irish dairy product mix than are projected here, are also conceivable.

Insert table 3 here

Future challenges

As part of the Mid-Term review of the CAP in 2003 Member States agreed to review these reforms in order to assess their effectiveness and to introduce modifications where necessary for the period 2009-2012. As described by Moss et al. (2008) any changes to the agricultural sector accruing from these 'Health Check' reforms is likely to be small reflecting the relatively cosmetic changes implied under this policy. Further more substantial reforms are, however, likely at the end of the current financial perspective in 2013. More precisely, the overall CAP budget is likely to be reduced as since the mid 1980s agriculture's net budget share has gradually fallen. However it still accounts for 40 per cent of the EU budget although agriculture represents only 4.2 percent of employment and 1.7 percent of GDP (Burrell, 2004). The Mid-Term Review of the CAP sets out strict budgetary ceilings to cover spending between 2007-2013 but the European Commission has signalled that further reductions is likely at the end of this period as it looks to focus resources on other issues such as climate change, global security, energy and the Lisbon Agenda. For example, the European Council has called upon the European Commission "to undertake a full, wide ranging review covering all aspects of EU spending, including the Common Agriculture Policy (CAP)...to report in 2008/2009" (CEU, 2005; p. 32). Irish farmers benefit significantly from the CAP and any reductions will of course have negative implications for the Irish agricultural sector.

In addition to an overall reduction in the level of CAP payments, there is also likely to be significant changes in the structure of these payments. Consumers are increasingly demanding more from farmers in receipt of these payments than just the provision of readily available food (Burrell, 2004). As noted by Broewer and Lowe (2000) the pursuit of quantity, in some cases, has compromised food quality and safety and resulted in the degradation of the rural environment. While food security was the dominant concern for consumers at the onset of the CAP, concerns relating to human health and the environment are now just as important to citizens of the EU. In particular, consumers wish to see the environment protected and in addition wish to be reassured with respect to the quality and safety of food and that food has been

produced in an ‘animal friendly’ way. In light of these concerns, under the Mid-Term Review of the CAP in 2003 the EU upgraded the status of non-agricultural objectives from ‘optional extra’ to ‘intrinsic component’ and presented a broad range of multifunctional elements as key ingredients of the future direction of agricultural policy. This sends an important signal to all stakeholders and future reforms will undoubtedly place a greater emphasis on supporting the multifunctional agenda (Burrell, 2004). More specifically, further agri-environment and cross compliance measures are likely to be introduced. In addition the rate of modulation is currently set at 5 percent and given its limited resources its effect is obviously limited. It would appear likely, therefore, that the Commission will seek to implement a much higher rate of modulation in the coming years which would reduce the Single Farm Payment (SFP) under the First Pillar of the CAP available to farmers.

In relation to trade, there is ever increasing pressure from the World Trade Organization (WTO) for the EU to remove what they see as highly protectionist and market-distorting agricultural policies (Ackrill, 2008). Certainly the CAP as it is currently formulated has a paradoxical relationship with EU competition policy. The likely result is that large tariff cuts will be implemented across supported sectors within the EU at the conclusion of the next round of WTO negotiations (see Binfield et al., 2008 for an analysis of the potential impact of WTO reform). In addition, there is concern as to the appropriateness of including decoupled payments under the WTO definition of a ‘green box’ policy. Policy measures in the ‘green box’ are assumed to have none or at least a minimal trade distorting effect and thus are not subject to reductions. However, both in the U.S and Europe commentators increasingly assert that “production decoupled payments” maintain a strong supply inducing effect on agricultural production (see Howley et al., 2009a for a review), which means that these payments could be subject to reductions in further negotiating rounds of the WTO.

One further likely avenue for reform is measures aimed at addressing the imbalance between payments both across countries and across farms. The political decision to base direct payments/subsidies on historical entitlements has benefited the largest and

most affluent farmers (Pelkmans, 2006). In the famous MacSharry report in 1992 the Commission denounced the famous 80/20 imbalance (80% of the aid is concentrated in the hands of 20% of the farmers). However, this imbalance has continued to increase since that time. Furthermore, not only is a disproportionate amount of payments being accrued by the largest farmers there is also an inequitable distribution of payments between Member States. Farmers, all things being equal, in new Member State countries (those who joined the EU in 2004) receive a lower payment per hectare than those in the EU-15. As Bureau and Mahe (2008) report the political legitimacy of these differences in payments is no longer justifiable as the current distribution of CAP payments across Member States do not contribute to the European Unions cohesion objectives as generally more prosperous Western and Nordic countries get a higher proportion of payments than poorer new Central and Eastern European Member States. The European Commission has signalled that it will be evaluating current differences in the level of support between Member States as, for example, in the explanatory memorandum accompanying the Commission's Health Check proposals the Commission argues that it is "increasingly harder to justify the legitimacy of significant individual differences in the support level which are only based on past support" (CEC, 2008; p.18). Ireland presently benefits from this unequal distribution of payments across the EU. For example, based on 2005 figures if the sum of all national budgetary envelopes within each Member State was divided by utilisable agricultural area then the average payment per hectare across all Member States would stand at €247 per hectare. The average payment per hectare in Ireland currently stands at €311 per hectare (see Howley et al., 2009b for a greater discussion of present inequalities in direct payments). Consequently, any move towards equalizing direct payments across countries will have significant negative implications for the Irish agricultural sector.

Discussion

This results presented in this paper suggest that policies enacted under the Mid-Term Review of the CAP in 2003, the most significant of which was the move towards decoupled payments, are likely to result in significant changes in the agricultural

sector. Firstly, in relation to the livestock sector, the decoupling of premiums in 2005 results in the number of suckler cows and ewes being projected to decrease by 18 and 42 percent respectively during the projection period. The more pronounced decline in the number of ewes relative to suckler cows is due to the fact that in addition to the effect of decoupling, the number of ewes has been declining since the introduction of cross compliance obligations in 1998 designed to reduce the number of ewes in environmentally sensitive areas. The total number of sows is projected to decrease by 12 percent over the projection period. Given that the CAP has little direct impact on the pig sector this decline is largely due to increased feed costs and the increased costs of compliance with environmental regulations which have since the late 1990s caused the Irish sow herd to contract. The projected decline in the number of breeding animals (suckler cows, ewes and sows) results in beef, sheep and pig meat production falling by 28, 40 and 9 percent respectively by 2020 relative to 2005. In relation to grains, while the move towards decoupled payments has a negative impact on production this is not enough to offset the increased demand for grains driven by a large projected increase in biofuel demand within the EU. The overall result being that there is a projected increase in the price of grains which results in an increasing share of land being devoted to grain production (11% increase). This projected increase along with projected increases in yields leads to overall grain production being estimated to increase by 33 percent between 2005 and 2020. This significant change in the production of grains coupled with falling domestic use means that Ireland becomes a net exporter of grains (49,000 tonnes) whereas at the start of the projection period in 2005 Ireland was a net importer of grains (717,000 tonnes). In the dairy sector the milk yield per cow is projected to increase by 18 percent between 2005 and 2020 and this leads to a reduction in dairy cow numbers of 13 percent.

Since its inception in 1957 the CAP has encouraged the intensification and specialisation of agricultural production which often resulted in negative external effects on rural areas. However, through cross compliance obligations and the transfer of funds to the Second Pillar of CAP support, the Mid-Term Review can be seen as introducing measures for the benefit of the wider rural environment. Cross compliance measures and the rate of modulation is likely to be strengthened still further in future reforms as farmers will increasingly have to demonstrate wider social

and ecological benefits of their activities in order to receive support. In particular, the EU consumer will push for farmers to adopt higher standards with respect to protecting the environment, landscape and habitats, food quality and protecting the welfare of animals. In relation to trade, the WTO is likely to continue to pressurise the EU to further reduce the distortions on trade accruing from the CAP. In particular cuts in tariffs and export subsidies are likely to be enacted at the conclusion of any further trade negotiations. In addition, it remains to be seen whether decoupled payments can continue in the ‘green box’ of domestic support and thus assumed to cause none, or at most, minimal distortions on trade. Finally, the present unequal distribution of payments are in contradiction with the European Unions cohesion objectives and further reforms are likely to centre on providing a more equal distribution of payments both across farms and across countries.

Note 1: AGMEMOD is funded under the European Commission 6th Framework and by contributions from the partners’ institutes throughout the EU. The AGMEMOD Partnership model is an econometric, dynamic, multi-product partial equilibrium model and involves institutes in the EU15 group of Member States. In advance of the accession of the so-called “new” Member States in May 2004 the AG-MEMOD partnership was expanded in 2002 to include research institutes from 8 of the 10 new EU Member States.

References

Ackrill, R.W. (2008) The CAP and its reform-half a century of change? *Eurochoices*, 7(2), 13-21.

Adams, G., Westhoff, P., Willott, B. and Young, R.E. II (2001) Do 'Decoupled' Payments Affect US Crop Area? Preliminary Evidence from 1997-2000. *American Journal of Agricultural Economics* 83 (5), 1190-1195.

Binfield, J., Donnellan, T., Hanrahan, K. and Westhoff, P. (2008) FAPRI Ireland 2008 WTO reform analysis: Potential impact on EU and Irish agriculture. Available at: www.tnet.teagasc.ie/fapri.

Boel, M.F. (2005) Delivering on the potential of the new CAP. *Eurochoices*, 4(2), 6-11.

Brouwer, F. and Lowe, P. (2000) Cap Regimes and the European Countryside. Wallingford: CAB International

Bureau, J.C. and Mahe, L.P. (2008) Cap reform beyond 2013: An idea for a longer view. *Notre Europe*.

Burrell, A.M. (2004) The 2003 CAP reform: implications for the EU dairy sector. *Outlook on Agriculture*, 33(1),15-26.

Chantreuil, F., Hanrahan, K. and Levert, F. (2005) The Luxembourg Agreement Reform of the CAP: An Analysis using the AG-MEMOD Composite Model. In : F. Arfini (Ed), *Modelling Agricultural Policies: State of the Art and New Challenges*, pp. 632-653. Monte Università Parma Editore.

Cocklin, C., Dibden, J. and Mautner, N. (2006) From market to multifunctionality? Land stewardship in Australia. *The Geographic Journal*, 172(3), 197-205.

Colman, D. and Harvey, D. (2004) *The Future of UK Dairy Farming*. Report commissioned jointly by the MDC, DIAL and Defra. Available at <http://www.defra.gov.uk/foodrin/milk/pdf/colman-harveyreport.pdf>

Commission of the European Communities, (2008) Proposal for a council regulation, 306 final. Available at: http://ec.europa.eu/agriculture/healthcheck/prop_en.pdf

Council of the European Union, (2005) Note on the Financial Perspective 2007-2013. Available at: http://ue.eu.int/ueDocs/cms_Data/docs/pressdata/en/misc/87677

European Commission, (1992) The European Community Fifth Environmental Action Programme. Europa.

Firbank, L.G. (2005) Striking the balance between agricultural production and biodiversity. *Ann. Appl. Biol*, 146, 163-17.

Goodwin, B. and Mishra, A. (2005) Another Look at Decoupling: Additional Evidence on the Production Effects of Direct Payments. *American Journal of Agricultural Economics*, 87(5), 1200-1210.

Huylenbroeck, G.V. and Durand, G. (2003) *Multifunctional Agriculture: A New Paradigm for European Agriculture*. Ashgate: Gower.

Hennessy, T.C. and Thorne, F.S. (2005) How decoupled are decoupled payments? The evidence from Ireland. *Eurochoices*, 4(3), 30-35.

Howley, P., Donnellan, T. and Hanrahan, K. (2009)a Do decoupled payments affect farm behaviour? Evidence from Ireland. RERC working paper: Teagasc. Available at: <http://www.agresearch.teagasc.ie/lerc/workingpapers.asp>

Howley, P., Donnellan, T. and Hanrahan, K. (2009)b Does the CAP support cohesion objectives: An examination of the distributional impacts of CAP support. RERC working paper: Teagasc. Available at: <http://www.agresearch.teagasc.ie/lerc/workingpapers.asp>

Kantelhardt, J. (2006) Impact of the Common European Agricultural Policy (CAP) reform on future research on rural areas. *Outlook on Agriculture* 35(2), 143-148.

Key, N. (2005) How much do farmers value their independence? *Agricultural Economics*, 33, 117-126.

Key, N. and Roberts, M.J. (2009) Nonpecuniary benefits to farming: Implications for supply response to decoupled payments to decoupled payments. *American Journal of Agricultural Economics*, 91(1), 1-18.

Moreddu, C., Antón, J., von Lampe, M., Martini, R., Tallard, G. and Vavra, P. (2004) Analysis of the 2003 CAP Reform. OECD paper, Paris.

Moss, J., Binfield, J., Patton, M., Zhang., L. and Westhoff, P. (2008) Health Check: major surgery or cosmetic procedures? *Eurochoices*, 7(3), 11-16.

Osterburg, B. and von Horn, L. (2006) Assessing the impacts of decoupling EU direct payments from agricultural production and the potential for recoupling. *Outlook on Agriculture*, 35(2), 107-113.

Pelkmans, J. (2006) *European Integration: Methods and Economic Analysis*. Essex, Pearson Education Limited.

Swinbank, A. and Daugbjerg, C. (2006) The 2003 CAP Reform: Accommodating WTO Pressures, *Comparative European Politics*, 4, 47-64.

Young, E.C and Westcott, P.C. (2000) How decoupled is US agricultural support for major crops? *American Journal of Agricultural Economics*, 82(3), 762-767.

List of tables

Table 1: Grains

		2005	2010	2015	2020	Total percentage change
Total grains						
Production	1,000 ton	2123	2605	2741	2832	33.4
Area harvested	1,000 ha	281	308	313	312	11.2
Domestic Use	1,000 ton	3089	2864	2793	2699	-12.6

Table 2: Livestock and meat products

		2005	2010	2015	2020	Total percentage change
Beef and veal						
Production	1,000 ton	545.9	468.8	426.4	393.2	-28.0
Beef cows ending stock	1,000 head	1150	1043	951	856	25
Slaughtering weight	kg/animal	324.0	291.0	294.6	297.5	-8.2
Domestic Use	1,000 ton	89.9	100.0	110.3	116.8	29.9
Consumption/head	kg/head	21.8	22.6	23.4	23.5	7.9
Price	Euro/100kg	136.4	155.4	165.8	171.9	26.0
Pig meat						
Production	1,000 ton	205.2	198.8	192.1	186.9	-9
Sows ending stock	1,000 head	174.4	159.2	155.6	153.3	-12.1
Slaughtering weight	kg/animal	77.5	74.1	74.5	75.5	-2.5
Domestic Use	1,000 ton	150.0	164.7	175.1	184.0	22.7
Consumption/head	kg/head	36.3	37.2	37.1	37.0	1.9
Price	Euro/100kg	130.9	164.7	176.8	187.3	45.7
Sheep meat						
Production	1,000 ton	73.3	57.5	50.0	43.7	-40.3
Ewes ending stock	1,000 head	3208.6	2639.8	2219.4	1849.8	-42.3
Slaughtering weight	kg/animal	20.3	21.0	21.8	22.6	11.4
Domestic use	1,000 ton	18.3	22.0	23.1	24.3	32.9
Consumption/head	kg/head	4.4	5.0	4.9	4.9	10.4
Price	Euro/100kg	152.6	189.4	199.1	204.0	33.7

Table 3: Dairy sector

		2005	2010	2015	2020	Total percentage change
Cow milk						
Production	1,000 ton	5280.0	5410.8	5411.2	5409.8	2.5
Dairy cows ending stock	1,000 head	1101.1	1042.9	994.6	953.2	-13.4
Yield/cow	kg/cow	4795.2	5188.0	5440.8	5675.3	18.4
Consumption/head	kg/head	146.5	147.5	141.2	134.2	-8.4
Price	euro/100kg	25.2	27.7	28.9	29.5	16.9
Butter						
Production	1,000 ton	148.0	155.7	155.5	155.4	5.0
Domestic use	1,000 ton	14.0	15.0	16.0	16.9	20.4
Consumption/head	kg/head	3.4	3.4	3.4	3.4	0.0
Price	euro/100kg	265.3	323.4	337.9	354.8	33.8
SMP						
Production	1,000 ton	56.0	100.5	95.4	89.8	60.4
Domestic use	1,000 ton	10.0	10.0	10.0	10.0	0.0
Consumption/head	kg/head	2.4	2.4	2.4	2.4	0.0
Price	euro/100kg	199.3	230.4	237.1	234.4	17.6
Cheese						
Production	1,000 ton	119.0	118.5	119.4	120.2	1.0
Domestic use	1,000 ton	34.0	36.2	40.2	45.3	33.2
Consumption/head	kg/head	8.2	8.2	8.5	9.1	10.6
Price	euro/100kg	550.9	545.8	576.3	593.6	7.7