

Executive Summary

David Colman and David Harvey

Historical Background

1. The original Common Agricultural Policy was developed in the 1960s against the background of low farm incomes, food insecurity and reliance on imports, low productivity of European agriculture, and instability of agricultural markets. The resulting EU dairy regime, as for other commodities, protected the domestic European market from import competition and stabilised domestic markets for milk and milk products.
2. By the 1970s, this policy had been at least partly successful. Dairy imports had been eliminated (apart from some preferential imports from ex-colonial countries). However, export and domestic disposal subsidies became increasingly necessary to support domestic prices. Nevertheless, farm incomes remained stubbornly resistant to support, while the taxpayers' position changed from being gainers (via import levies) to clear losers, as the expense of export refunds and domestic disposal subsidies grew.
3. In 1984, quotas were introduced in the dairy regime, to control the supplies of raw milk, restricting the growth of surplus production and limiting the growth in subsidy spending. The alternative reform – reducing the supported price – was resisted largely on the grounds that this would do more damage to farm returns and thus, presumably, farm incomes.
4. The policy was again reformed as part of the MacSharry package in 1992, during the final negotiations of the GATT Uruguay Round Agreement on Agriculture (URAA). These reforms in the dairy sector were modest – limited to a 5% reduction in the butter intervention price. The URAA imposed further restrictions on the development of the policy, especially by allowing levy free access to imports to a 5% share of the domestic market, and limiting both the volume of and spending on subsidised exports.
5. The 1999 Agenda 2000 reform package, associated with preparation for central European expansion of the EU, introduced further modest but significant reforms, to be started in 2005 and completed by 2008, with quotas being extended to March 31st, 2008. The Agenda 2000 policy package also included provision for a mid-term review of this policy. The present study is a contribution to this review.

The Present Study: Principles

The meaning of “quota elimination”

6. Milk quotas serve two separate functions within the present policy: a) to limit production levels to a predetermined maximum; b) to licence owners to receive market price support (or direct payments), as over-quota production is penalised by a super-levy set to the value of market support. The production control element could be eliminated without necessarily abolishing quotas as a licence to receive direct support.

The general consequences of quota elimination

7. Simply removing production controls without also eliminating market price or production-coupled support is not sustainable. Such a policy change would simply return the dairy sector and its policy to the unsustainable position it occupied before quotas were introduced. Price or coupled support must be eliminated as a precondition to the elimination of quota as a means of production control.
8. Producers would lose from elimination of market price support. Consumers would gain as a consequence of lower dairy product prices (and would consume a little more as a result). Taxpayers would save current spending on the policy. Both the logic and practice of market mechanisms ensure is such that the gains to the winners can be expected to exceed the losses to the losers.

The general effects of quotas and support on dairy farming

9. The history of market support has affected the ways in which the industry has developed. Dairy farm numbers have been falling throughout the European Union. As a result, milk production has become more efficient at a rate of between 1 and 2% per year, as farmers adjust their production scales, systems and production practices in an apparently continual process of business improvement. This process of technical and structural change will continue regardless of the level or system of support.
10. The present policy, however, locks up the gains from this improvement in the economic costs of operating the farm business. Both new entrants and expanders have to pay for or acquire the right to produce (the quota). The more profitable is milk production, the more valuable becomes the quota. In those countries where quota redistribution is administered rather than determined through quota trades, the value of dairy support has been capitalised in the value of dairy cows, milking equipment and dairy land.
11. This increase in the value of dairy farm assets increases the costs of entry into the industry, leaving new entrants no better off than without the support. There have been many new entrants to dairy farming since milk quotas were imposed in 1984. The policy also increases the economic costs of existing dairy farmers, by increasing their opportunity costs of continuing in dairy production compared with doing something else. On the other hand, the support encourages peoples' feeling of security in the industry, while the increased capital value of assets increases the leverage of existing producers in their expansion ambitions.
12. Improvements in farm incomes due to coupled support --that which stimulates more production - are temporary. Competition in the industry soon results in the revenue increase being capitalised in the value of dairy farm assets (including quota rights), or being spent on increased costs of production. In either case, market competition ensures that total production costs will increase to match the supported increase in revenue. Remaining farm incomes will not be affected, but will continue to be determined by what farmers could earn in occupations other than dairy farming.

The adjustment processes following quota removal

13. In its simplest economic terms, the effect of the quota has been to increase the costs of production by the annual value of the market support, which is equal to the annual rental value of the quota itself when quota is freely tradeable. Eliminating quota will therefore result in a reduction in production costs. These cost reductions will happen largely at the expense of the owners of the fixed resources in dairy farming – the quota itself, and also, in those countries where quota transfer is administered, through reductions in the values of dairy cows, land and fixed equipment.

Scenarios for policy change

14. It follows that a key feature of any policy scenario is the form and extent of any continued support following quota elimination. The more coupled (in the sense of providing a direct incentive to producers to increase output) any direct support system is, the greater the production encouraged and the lower the market-clearing price. Since domestic demand for milk and dairy products is typically insensitive to price, the reduction in price will generally more than offset the benefit of the direct support for producers, unless production is controlled. Under the Agenda 2000 reforms, direct payments will be made with respect to current holdings of milk quota. As a consequence, they have an effect on production levels – they are coupled. Without quota limits on production, these payments would be self-defeating since they would encourage more output and thus depress market prices.
15. However, simultaneous elimination of quota and all support would be expected to lead to substantial adjustment pressures at the farm level. The removal of support would lead to a devaluation of dairy farm assets, and elimination of the value of quota itself. Owners of these assets would be faced with a new situation – to absorb the loss and continue as before, or retreat from the industry. New entrants, and existing renters of assets, would find their costs reduced, and be able to expand more easily.

Conclusions in principle

16. Policy reform appears potentially beneficial in principle, so long as the European dairy sector could both survive and prosper without support. In principle the gainers (consumers and taxpayers) would be able to compensate the losers (the owners of dairy farm assets) and still be better off as a result.
17. Nevertheless, there are costs to change. Specific estimates of the consequences of change are required in order to judge the desirability of policy reform.

Estimates of the Costs and Benefits of Policy Change

The analytical basis

18. The dairy sector is complex. Raw milk produced from the farm is sold in processed form, both as liquid milk and increasingly as dairy products. Reconciliation of production with consumption is dependent on the precise allocation of raw milk to the various consumer products. Trade both within and between countries is in processed products rather than raw milk. Market prices and balances are determined primarily at the retail level, with farm gate prices derived from these final product markets. Capturing these essential relationships

in a coherent and consistent fashion requires a detailed and specific model of the dairy industry. This study has used the most appropriate and detailed model of the EU dairy sector available – developed by Prof. Vincent Requillart and his colleagues in INRA, Rennes – the INRA Dairy Model (INRADM).

19. Despite its sophistication, however, this model necessarily relies on simplified assumptions about the farm level supply response to market changes. To explore the farm level response in the UK (and the attendant regional implications), this study employs an established model of farm level supply, the Manchester Dairy Model (MDM). This model has been developed by Prof. David Colman and his colleagues on the basis of detailed farm level production cost data and validated against structural changes in the UK dairy sector (number and size of farms) over the recent past. This model has been supplemented with further analysis of dairy farm costs and their variations in several other European countries, carried out by Dr. Alistair Bailey at Imperial College at Wye.
20. Furthermore, INRADM necessarily represents the rest of the world (the world market) in rather simplistic fashion. In particular, INRADM does not separate the Central and Eastern European applicant countries (CEECs) from the rest of the world. This study uses a third model, ESIM, developed by Dr. Martin Banse, Dr. Wolfgang Muench and colleagues at the University of Gottingen, to explore the potential relationships between EU dairy reform and EU enlargement.
21. In addition, the representation of the world market included in INRADM has been compared with other independent models of world dairy markets, such as OECD and FAPRI, to check consistency with professional wisdom and understanding of the behaviour of this complex system. The results of this comparison indicate that INRADM's representation is essentially consistent with current understandings and representations of the world dairy market.

The Baseline and other scenarios tested

22. As already noted, the present (Agenda 2000) policy will not be complete until 2008, the scheduled end of the present quota authority. By this time, it is sensible to suppose that the current World Trade Organisation negotiations will have resulted in further reductions in support. It is assumed here that these additional reductions in export refunds and import levies (and thus associated intervention prices) are equivalent to those agreed in the Uruguay Round Agriculture Agreement, phased in between 2005 and 2010. This future progression forms the Baseline policy scenario against which quota elimination options are assessed, with the Baseline assuming that quotas (and remaining dairy support instruments) are retained at least until 2010.
23. Three basic quota elimination options are considered. In each option, all other dairy support instruments in the EU are completely phased out by 2008, with the associated reductions in price support being compensated by direct payments to producers at the same partial rate as for the Agenda 2000 support price reductions. The three options differ by the extent to which this compensation is coupled to production rather than fully de-coupled:

- a. *Fully Coupled*: all direct payments are coupled to production – so that the incentive price facing producers is the market price plus the full amount of the direct payments per litre produced;
 - b. *Partially De-coupled*: Present Agenda 2000 direct payments are coupled, as now, but compensation for further reductions in price support are treated as de-coupled;
 - c. *Fully De-coupled*: All direct payments, including the present Agenda 2000 payments, are de-coupled from production.
24. Further scenario options consider a variety of different accession arrangements that might be made with the CEECs.

The Analytical Results: Milk price and production effects

25. The more coupled the direct payments, the greater the production encouraged within the EU and the lower is the market clearing farm gate milk price as a result. If the direct payments are fully de-coupled, then the average EU milk price reduction by 2010 caused by the policy elimination is projected to be 29%, rather than 42% if the direct payments are fully coupled. These substantial differences in price response to small changes in EU production levels from the Baseline (increases of 2% versus 7% respectively) reflect the general lack of consumer response to price changes in the total dairy market.
26. Adjustment to these apparently dramatic changes in farm milk prices would mean considerable restructuring of the present EU dairy industry as the more efficient dairy farms expand at the expense of the less efficient. But the adjustment implied here is not substantially different from that which is occurring in the industry over time in any event. Overall, the projection is that the EU dairy sector would not only be capable of surviving elimination of the present policy, but it would probably expand.

The Analytical Results: Economic welfare effects

27. The greater the reduction in the milk price, the greater is the measured consumer gain and producer loss. The direct payments under the Agenda 2000 formula only partially compensates producers, who lose substantially under all options over and above these compensation payments. In other words, it would be possible to fully offset the producer loss by increasing the tax cost of each option by an appropriate amount.
28. However, the appropriate amount differs between the three cases. Only in the case of a fully de-coupled payment could the appropriate tax cost increase match the producer loss. If direct payments are fully coupled, then any increase will further increase production and depress prices still further, further increasing the tax cost of full compensation. Even with the partial compensation implied by the Agenda 2000 formula, fully coupled payments generate a net loss of economic welfare relative to the baseline (the expected *status quo*) of €207m per year. If the compensation rate was to be increased, then this loss would grow significantly.
29. The costs and benefits of the Baseline policy, as compared to a completely liberalised EU dairy sector, have been estimated in this study as shown in Table S.1. The first three lines of this table report the conventional partial equilibrium comparative static welfare gains and losses associated with the baseline policy compared with the no-policy free trade situation. Producers would lose €9.94bn

as a result of price support and quota elimination, while consumers and taxpayers would be better off following elimination by €10.28bn. As a consequence, the EU as a whole would be better off by €0.34bn per year if quotas and support policy were to be eliminated.

Table S.1 Annual Costs and Benefits of Quota Elimination (€bn, real terms, basis 2010.)

Interest Group and Source	
Producers	-9.94
Consumers	6.57
Taxpayers	3.71
Net Partial Static Benefit	0.34
Transfer Cost (@ 10% of tax cost)	0.37
General Equilibrium effect (@ multiplier of 1.2)	0.14
General Static Net Benefit	0.85
Dynamic gains	
Dairy farm sector	0.72
Dairy marketing chain	0.70
Total Dynamic Benefit	1.42
Overall Benefit of Elimination	2.27

30. In addition, direct payments from the taxpayer to the producer incur transaction and administration costs, and also impose resource costs on the rest of the economy as a consequence of the necessary taxes required to finance this transfer. These costs are accounted for at the conservative rate of 10% of the taxpayer cost.
31. These costs are equivalent to a reduction in the circular flow of income in the EU economy, which has second round effects throughout the economy via the multiplier process. The general static benefit from elimination of the present (baseline) policy thus becomes €0.85bn, given a multiplier of 1.2.
32. Elimination of the present policy would release further dynamic gains as the dairy sector becomes adaptive and innovative in response to market opportunities. Although such productivity improvements are not completely prevented by the present policy, they are restricted and discouraged. In the case of farm productivity improvements, the benefits are locked up in the increased monetary value of the farm assets, including quota rights themselves, rather than released to the rest of the economy. These foregone dynamic benefits for the farm sector have been explicitly estimated in this study at €0.72bn per year in 2010 (and growing further subsequently). Similar gains are to be expected in the dairy processing, distribution and retailing sector, as processing and marketing practices are adjusted to a liberalised market rather than encouraged to produce for intervention.
33. The total annual benefit to the EU of quota elimination is estimated in this study as €2.27bn. There is a further static cost to the rest of the world (which accounts for three quarters of world dairy production), although this cost is not estimated here. Dairy policy reform, including the elimination of quota, would seem to be a very sensible option, potentially saving these very considerable annual costs.

However, a number of considerations might be thought to apply to these central estimates of the net benefits of EU dairy policy reform.

Other Issues

Realism of the projections

34. The presumption that the EU dairy sector is fundamentally competitive with world supplies may strike some in the industry as counter-intuitive. It is, however, both consistent with virtually all professional assessments of the world dairy market (as referenced in the full report) and also with the simple logic of the market system.
35. The European dairy sector supplies highly perishable products to a surrounding large, rich and discerning consumer market. Substantial processing is required to convert these products into storable items (most of which suffer from declining demand in rich markets). The sector has some of the world's most productive land, blessed with a generally reliable and benign climate. Its farmers and labour force are skilled and well trained, and its farm structure is improving all the time. It is serviced with a sophisticated and efficient supply chain for its inputs and services, and embedded in large and rich market. In contrast, competing suppliers are far removed from the European market, have distinctly limited supply capacity and frequently less reliable climates and land capabilities.
36. It is impossible to reason that the European dairy sector is inherently disadvantaged by virtue of where it is and the resources it has at its command. It is inconceivable that the rest of the world is capable of or willing to supply much of Europe's dairy needs. Furthermore, there is a growing world market for many of the European speciality dairy products, which is currently restricted both by restraints on European subsidised exports and by other countries counter-protective policies. Both the logic and practice of world markets ensures that world prices would rise sufficiently to make the European dairy production profitable at levels of production close to European self-sufficiency without protection.

CEEC accession

37. Six different policy scenarios involving different arrangements for harmonising price support, paying compensation and applying quota in Central and Eastern European Countries (CEECs)¹ have been examined in this study. Although there are very substantial differences between the CEEC countries, all of these scenarios imply an average reduction in CEEC milk prices. However, the trade position of the CEECs is relatively unchanged by these different policy scenarios. As in the EU the responsiveness of supply and, especially, demand to price changes means that policy change has most effect on prices rather than quantities traded.
38. In other words, the common fear that CEEC dairy production could swamp the EU market is unsupported by these estimates, according to the ESIM representation of the potential of CEC supply and demand.

¹ Ten of these countries are considered in this study, using the multi-commodity ESIM model. They are Poland, Hungary, Czech and Slovak Republics, Estonia, Slovenia, Bulgaria, Romania and Lithuania. It is now apparent that Bulgaria and Romania will not be in the first wave of new members in 2004.

39. The European Commission's (2002) Issues paper on enlargement presents a proposal that new member states' milk producers will receive 25% of the direct payments due to EU15 producers in 2004, rising to 100% in 2013. According to the ESIM model the budgetary cost of full dairy sector compensation in 2010 for the eight CEECs expected to join in 2004 would be €846m, and for all ten CEECs would be €998m.

Cross commodity effects

40. The effects of dairy reform on other parts of the farm sector, particularly on beef and cereals, might offset gains to be made within dairy. However, the changes in the overall size of the dairy sector are projected to be very modest as a consequence of reform. The projections do not involve any substantial shift of land or livestock out of the dairy sector. The offsetting consequences in other parts of the farm sector will therefore be correspondingly small.

Other objectives of support

41. It may well be objected that elimination of dairy support entails withdrawing support from other socially important objectives which have been ignored here. What of the small dairy farmers, of rural employment, of protection of the rural environment, especially in disadvantaged areas?
42. Any or all of these considerations might well be considered sufficiently important to warrant some public intervention and support. However, none of them point to the need or expense of a generalised and universal support system for the whole of a commodity sector. Furthermore, it is impossible to tell to what extent any of these problems might be exacerbated by dairy policy reform before the event. Some of them may well be alleviated. For instance, a lower cost dairy industry might well result in more extensive use of grassland in at least some areas, while a more liberalised market would be expected to generate opportunities for diversification and differentiation that would improve rural employment and activity. It would be more socially responsible to tackle these problems with specific and targeted policy instruments as and when they arise than to continue to indulge in the current universal, expensive and restrictive commodity based policy.

Compensation and adjustment considerations

43. Nevertheless, dairy policy reform would impose costs, especially to owners of quota and other dairy farm assets. This leads to issues regarding the possibility of compensation to milk producers and quota owners. The possible forms and extents are discussed in the main report. The key conclusions are: a) that any compensation must be strictly de-coupled, which means that any payments must be freely transferable between people and businesses; b) that the compensation should be strictly finite and limited, reflecting the finite loss suffered by the asset owners.
44. Adjustment to a reformed market and policy situation would take time. It might be assumed that an obvious implication is that reform should be phased in over time to allow this adjustment to occur without excessive cost or trauma. This proposition is also examined in the main report, and is questioned. Although adjustment appears to take time when observed at the industry level, it happens in discrete and typically major adjustments at the farm level (frequently associated

with changes in ownership or management control following succession). These changes depend on the capacities of farmers to respond, which in turn depend on their capabilities, their confidence in the future, and their capital reserves and leverage. None of these capacities are substantially assisted by a prolonged period of gradual policy change. Many may be actively assisted by more rapid policy change, especially if associated with well-designed compensation mechanisms.

Implications of policy liberalisation for the UK

45. The INRADM model projects that UK farm milk prices will fall more than the EU average if quotas and price support are removed. It also projects rising UK milk production under all reform scenarios, to as much 3-8% above quota. That is consistent with other modelling results reviewed.
46. However, the price reductions projected by INRADM appear excessive, and if applied to the MDM model would imply a reduction in UK production in 2010 to 7-13% below quota, depending on the direct payment system assumed. This does not seem at all realistic. Sensitivity analysis with the MDM, using more likely prices than those projected by INRADM, leads to the conclusion that UK milk output is likely to increase above the post-AGENDA 2000 quota level if the policy liberalisation scenarios examined here were to be implemented.
47. The rate of structural change in UK dairy farming will continue to be rapid, even if there is no substantial policy reform. Producer numbers will decline, but average output per producer will increase at an equal rate if quotas remain, and a faster rate if quotas are removed. A higher proportion of the milk produced under each scenario is projected to be in Northern Ireland and Scotland.
48. Estimates are made in the study (Chapter 6) of the reduction in employment in dairy UK farming which occurs as output per producer rises. Even though milk supply is expected to rise modestly after policy liberalisation, on-farm employment is projected to fall by 10-15% in the longer run, with a negative annual impact on the rural economy £10-29m.
49. Policy liberalisation, with the elimination of intervention and export subsidies, will also stimulate changes in the processing sector away from basic commodities towards value-added and innovative products (Chapter 7), with consequent dynamic gains to that sector.
50. Because UK milk output is not anticipated to change greatly if policy is liberalised, the overall environmental impacts are estimated to be small. Although, there would be some redistribution of pollution effects due to regional shifts in production. As an exercise (Chapter 8) some estimates have been made of what would happen under highly pessimistic assumptions that UK milk supply in 2010 was 9.5% below the level of 1999/2000. It is estimated that the reductions this would cause in nitrogen inputs plus methane and ammonia emissions from dairy farming, would deliver an environmental benefit (reduction in external costs) of approximately £100m per year for the UK.

Conclusions

51. The full liberalisation of the EU dairy regime would, it is estimated, lead to some expansion in EU15 milk production and processing as a whole, and in most individual member states.
52. To obtain the full benefits of removing milk marketing quotas, any compensation to milk producers for price cuts should not be in a form which stimulates production; it should be de-coupled.
53. EU dairy policy reform to eliminate quotas is feasible, practical and socially responsible. The associated benefits of reform are estimated to exceed the costs by €2.3bn per year. The potentially offsetting damages and difficulties of adjustment are not sufficient to warrant continuation of the existing policy. Continuation of the present policy will perpetuate uncertainty amongst farmers and the rest of the dairy sector, in the face of continued pressure from domestic, CEC and international interests for its substantial reform if not elimination.
54. Structural change in EU15 milk production and processing is already rapid, and would be accelerated if policy were liberalised thus generating the estimated welfare benefits.
55. It is possible to design and implement appropriate transition arrangements to encourage and assist the development of a more responsible, efficient and effective industry.
56. In conclusion, the present policy has become expensive and largely ineffective. Although transition to a fully liberalised market in milk and milk products may be difficult for some groups, this is not sufficient to outweigh the very considerable benefits of radical reform.