1990s, the US joined in with the H1-B programme, although it already had in place a special category of permanent immigrant visas reserved for highly skilled or exceptionally talented individuals. In the late 1990s, Western European countries started to compete as well in attracting skilled immigrants. The competition initially took the form of offering privileged access to visas. It is now moving to a higher level with tax advantages and other benefits offered to skilled workers. Tax exemptions on the first 25 per cent of income in Sweden, 30 per cent in the Netherlands and 40 per cent in Korea are examples of fiscal incentives designed to attract highly skilled foreign workers. Offers of tax exemptions on relocation, educational and housing allowances are becoming increasingly common.

A new EU programme to issue 'blue cards' to skilled immigrants was approved by the European Parliament in November 2008 and is scheduled to be incorporated into the respective national legislation of each participating member state by 19 June 2011. A blue-card holder must have at least a Bachelor's degree or five years of professional experience and a job offer in an EU member state that pays at least 1.5 times the average wage in that country (1.2 times in labour-short occupations). Blue cards may be validated for up to four years, with holders having the right to be joined by their families within six months. After 18 months in the EU country that first admitted them, blue-card holders will have the right to live and work in any other EU country. British and Irish governments are not taking part in the programme as they have their own schemes to attract highly skilled foreigners.[15]

There are also new initiatives targeting foreign students. In a growing number of OECD countries, they are now given special treatment, including the right to remain after graduation for 3, 6, 12 and up to 36 months to look for work (see Lampert and Ochel, 2005, p. 70). In some cases they have an advantage over other foreign workers in that there is no need to certify that they are not replacing a native worker. There is also direct recruitment of skilled workers from the developing countries, as in the case of health-care professionals.

Immigration policies concerning skilled labour are usually designed to meet two basic objectives:

1. Increase the stock of expertise available in the country's labour market by attracting migrants with high levels of human capital. This serves to facilitate growth of relatively clean, high-productivity, high value-added activities at the cutting edge of technology, where positive externalities (and especially increasing returns to scale, both internal and external to the firm) are perceived to be significant. In addition, highly skilled migrants are unlikely to become dependent on the welfare system or to represent a fiscal burden for the host country. Because of their level of education, training, income and language skills, they are easier to integrate into the social, cultural, political, and not just the economic mainstream of the host-country society. Their children are also likely to attain high levels of education and training and become an asset for the economy. For all these reasons, host countries find high-skilled migrants much more attractive than low-skilled workers as candidates for permanent immigrant status.
2. The other objective of policies aimed at attracting skilled immigrants is to meet shortages in certain occupations: this includes education and health-care professionals,

ICT specialists, managers and other highly skilled workers that may be in short supply. In most cases, the recruitment programmes have been employer led, with the government merely acting as a facilitator by keeping bureaucratic hurdles low.

In the meantime, developing countries incur large costs in trying to train doctors and nurses and other skilled workers in order to make available essential services, such as health care, to their population. The cost of training highly skilled workers represents a relatively large burden for the very poor developing countries. While higher-income countries spend 20–50 per cent of per capita GDP on subsidising each university student, the per student subsidy in Sub-Saharan Africa is a multiple of per capita GDP (see Lucas, 2005). The cost to the public sector of training a doctor in South Africa is 23 times larger than the per capita GDP of that country. Public subsidies for training a nurse are 10 times the per capita GDP (OECD, 2002). For the poorer African economies, the relative cost is still higher. Yet many of the graduates leave their country to work abroad, with the most significant flows of skilled immigrants pointing in the direction of North America.

This so-called 'brain drain' is a particularly serious concern for the developing countries when it involves health-care professionals. However, the problem goes far beyond the fiscal implications of public funding for higher education. It is the most capable doctors and nurses that emigrate, as they have the greatest prospects of enjoying a large increase in real income by seeking employment abroad. Their departure deprives communities not only of leaders, role models and taxpayers, but also of health workers who are desperately needed by the health systems already strapped for resources.

One possible solution might be to seek greater international cooperation for orderly international transfer of skilled workers. When the workers have commitments to the institutions that trained them, they should not be eligible for a transfer to another institution prior to meeting such commitments. These may include working for the institution for a number of years or compensating it for the loss. A scheme similar to that governing the transfer of professional athletes from one club to another could be an attractive solution to the problem. In an orderly, market-based transfer system, the transfer fee would account for two key elements: (a) the cost of training incurred by the institution that developed the skills of the worker seeking to be transferred and (b) the value of those skills from the perspective of both institutions involved in the transfer.

Transfer fees in such a system would provide a strong incentive for institutions in the developing countries to strengthen their training programmes and uncover more effectively the existing, untapped, human-resource potential of the developing countries. By addressing in this manner the severe credit-market imperfections that currently prevent millions of young people from acquiring an education and realising their potential, a competitive, market-based transfer system for highly skilled workers would go a long way to increase the supply of skilled workers and potentially benefit *both* the host and the source countries.

Objections of the advanced countries to any kind of a compensation scheme for the transfer of health-care professionals is based on the assumption that a part of the transfer fee (or of some form of a Bhagwati tax) would be at the expense of the host countries. And even if the fee or tax is shifted on to the migrants, it is seen as potentially having a negative effect on the ability of host countries to attract foreign workers. In a simple

North–South framework of analysis, with capital market imperfections in the South, which prevent liquidity-constrained individuals from acquiring advanced training and skills, it can be shown that neither of these presumptions is well founded. From the perspective of the host country, the optimal transfer fee may in fact be positive. Such a fee provides an incentive for the health institutions in the source countries to train more health workers and offers a mechanism for surmounting the distortion in the developing countries' credit markets. In the end, there is an increase in the supply of newly trained health workers flowing from the training institutions in the South. If appropriate policies are in place, some of the workers will migrate to the North, while others will stay to increase employment of health-care workers in the South. With a transfer fee that is optimal for the host country, both economies can end up with a larger supply of health workers at a lower wage. This represents an improvement in welfare in comparison with an unregulated migration regime.

6 DISSATISFACTION WITH IMMIGRATION

In spite of the large benefits enjoyed by the host countries, there is growing dissatisfaction with immigration among their residents. While only 7 per cent of UN member states considered immigration to be too high in 1976, the figure rose to 35 per cent by 1993 and to 40 per cent by the beginning of the twenty-first century (Ghosh, 2005). Only if immigration policies ensure that those admitted are an asset for the host country, will there be more public satisfaction with immigration. Public satisfaction, in turn, is very important if the country is to enjoy the full benefits of hosting foreign workers. The point is that dissatisfaction with immigration goes hand in hand with discrimination against immigrants. When it occurs, it is a problem not only for the migrants, but also for the host country as a whole. Of particular concern is discrimination in the labour market. It has a negative impact on the rate of return on human capital of immigrants, discouraging them and their children from investing in human capital formation. This reduces the pace of assimilation and contributes to further polarisation, tensions and potential conflict. It also lowers productivity of the immigrant population and increases their dependence on the welfare system. Discrimination against immigrants in other dimensions is similarly damaging to the assimilation process. Active policies to prevent discrimination and educate natives about the benefits of immigration are urgently needed in most of the host countries. They should also be part of a comprehensive immigration reform package.

7 CONCLUSION

The existing system of international migration is overly restrictive. It is restrictive in the sense that larger migration flows, if properly managed, have the potential to increase very significantly the efficiency of labour allocation in the world economy and raise the levels of welfare in both the host and source countries. It is also overly restrictive in the sense that the existing barriers to migration of low-skilled workers from the developing to the advanced countries generate an enormous waste of resources, both from the perspective of the migrants trying to get across the border and of the authorities of the host countries

trying to keep them out. The system is desperately in need of reforms that would reduce the waste and improve the efficiency in the allocation of labour across countries.

An important step in this direction would be to strengthen cooperation between the host and source countries in an effort to develop large-scale guest-worker programmes designed to facilitate the needed immigration flows in an orderly, flexible and documented manner. Guest-worker programmes, structured along the lines suggested above, support the host-country goal of having access to a controllable as well as reversible inflow of documented foreign workers who are unlikely to impose a fiscal burden. This access, in itself, is an essential first step in addressing the problem of illegal immigration. Designing incentive and enforcement schemes that would effectively control illegal immigration in the presence of a guest-worker programme should be high on the agenda for future research.

Guest-worker programmes described above are also designed to maximise the benefits of international migration enjoyed by the source countries for any given stock of migrants abroad. By doing so, they promote growth, development and creation of employment opportunities in these economies to help reduce migration pressures and illegal immigration in the long run. Refining policies and incentive structures to maximise the benefits of temporary migration from the perspective of the source countries is another important topic for future research.

Concerning international migration of skilled workers, particularly health-care professionals from the very poor developing countries, where market failures interfere with efficient human capital accumulation, there is a need to develop an orderly transfer system. Such a system should be designed to compensate the developing-country training institutions for the loss of their graduates while at the same time encouraging them to expand their training programmes for the purpose of exporting skilled workers. Further research should devote more attention to this problem and the design of an economically sensible and politically feasible scheme for international transfer of health-care professionals.

At a more general level, the advanced countries should strive to increase the degree to which their immigration policies are transparent, enforceable and have clearly defined and well-understood objectives. This will help build confidence of citizens in national immigration policies and help them understand the costs and benefits of hosting foreign workers. Immigration policies must also guarantee fair treatment of immigrants. In the absence of fair treatment, the host countries will not be able to benefit fully from the potential that their immigrants can and would like to offer.

SUMMARY

Among the striking features of the world economy today is the persistence of large international wage differentials for labour of similar skill and quality, in spite of the ongoing globalisation. With such huge differences in productivity, the potential gains from liberalising international trade in labour services are also very large. They are estimated to be much larger than the potential gains from further liberalisation of trade in goods or from the removal of the remaining restrictions on international capital movements. This chapter offers suggestions for reforming immigration policies of the advanced economies so as to enable both the host and source countries to realise greater benefits

from international labour mobility. With respect to migration of low-skilled labour, the focus is on the long-term advantages of a guest-worker system designed to facilitate the needed immigration flows, reduce the scope for illegal immigration, and address the long-term goal of reducing migration pressures by promoting development and expansion of employment opportunities in the source countries. With respect to skilled labour, the emphasis is on the need for an orderly, efficient, market-based transfer system for international mobility of highly trained professionals.

Keywords

Immigration policy, guest-worker programmes, skilled immigrants.

JEL Classification

F22, F15.

NOTES

1. Some of the discussion below draws extensively on Djajić (2010).
2. See Freeman and Oostendorp (2000) for evidence on variations in wages across occupations and countries. When nominal wages are adjusted by their purchasing power, this lowers differences across countries by a half or more (Ashenfelter and Jurajda, 2001). A recent study by Clemens et al. (2008) provides estimates of international wage differentials adjusted for compensating differentials and worker productivity.
3. Card (1990) examines the impact on wages in the Miami area as a result of the 7 per cent increase in the local labour force following the arrival of 125,000 Cuban immigrants from Mariel to Florida in 1980. He found no evidence of a decline in wages or increase in unemployment of blacks, non-Hispanic whites, or any other group. Only the wages of Cubans declined relative to those of other workers due to the reduction in the average level of skills of that group following the arrival of the relatively less-skilled Mariel immigrants. A recent survey by Hanson (2008) discusses the evidence on the impact of immigration on wages of host-country workers and the problems of measuring such effects at the national level. See also Djajić (1997) for a theoretical, general-equilibrium analysis of the impact of illegal immigration on wages of skilled and unskilled natives.
4. In a recent paper, Cohn and Razin (2008) provide evidence that generous benefit programmes are likely to attract immigrants with relatively lower skills if the host country's immigration regime is unrestricted (for example, the case of internal migration within the European Union). By contrast, highly skilled migrants are deterred from host countries with generous welfare programmes to the extent that such programmes are associated with a correspondingly heavy tax burden. In the same vein, Sinn (2004) has referred to the welfare state as a two-pole magnet for potential immigrants: one pole repelling high-income immigrants, who would be net contributors to the tax-transfer system and another pole attracting the poor who would be net beneficiaries.
5. A country's absorption capacity is a rather complex dynamic concept, influenced by economic, social and political factors that determine the extent to which the population of the host country is willing and able to receive immigrants. In the present context, a country's absorptive capacity should be seen as being positively related to the severity of the supply shortage in its labour market and by the social, cultural and religious affinity of the natives with the immigrant population. It is negatively related to the degree of perceived rivalry between natives and immigrants for the available opportunities in the labour market, and in sharing public goods and political power in the host country.
6. One must be careful when trying to identify a shortage of labour in a particular sector. Employers always have an incentive to ask the authorities for the admission of immigrants with the specific skills required by their enterprises. Such demands should not necessarily be interpreted to reflect a shortage. A more objective way of identifying a shortage in a particular skill category is by looking at the evolution of the market wage in that occupation relative to the average.

7. See, for example, Djajić (1986), Lucas (2005), Rivera-Batiz (1986) and Quibria (1997). On the basis of data from Mexico, Taylor (1992) estimates that a one dollar increase in remittances generates 1.85 dollars of activity in the local economy.
8. On the basis of a dataset on poverty, international migration and remittances for 74 low- and middle-income developing countries, Adams and Page (2003) find that remittances have a statistically significant impact on the incidence of poverty (while controlling for per capita income and its distribution). A 10 per cent increase in the share of remittances in a country's GDP is associated with a 1.6 per cent decline in the share of the population living in poverty, as defined to be living on less than $1 per day. The impact on the severity of poverty is slightly larger.
9. See Amuedo-Dorantes (2006) and Ratha (2006) for recent surveys.
10. See, for example, Piore (1979), Rivera-Batiz (1986), Lucas (1987), Durand et al. (1996), Massey and Parrado (1998), Ilahi (1999), McCormick and Wahba (2001) and Renis (2006). The literature identifies two significant effects of international migration on microenterprises in the sending countries. As shown by Ilahi (1999), Dustmann and Kirkchamp (2002) and Mesnard and Ravaillon (2006), it relieves credit constraints and facilitates entry of returning migrants into self-employment. In addition, it also seems to have a positive effect on the amount of capital invested in a small enterprise (see Woodruff and Zenteno, 2007).
11. Djajić and Michael (2008) consider a two-country model of guest-worker migration, where the host country aims to meet shortages in its labour market by inviting temporary migrants, while also being concerned that foreign workers may choose to stay permanently as illegal aliens. The source country shares this interest in circularity as it would like to see temporary migrants repatriate their savings from abroad. It has policies available that can encourage return. It is found that these policies are used more efficiently in a cooperative equilibrium than they are when each country sets migration policies to maximise its own welfare. Host countries can therefore achieve their immigration policy objectives more efficiently through cooperation with the source countries, although side-payments may be necessary to induce such cooperation.
12. According to Douglass Massey, as quoted in the *Arizona Daily Star* (McCombs, 2007), some 20–25 per cent of the illegal crossings from Mexico into the US involved women. Katherine Donato estimates that as many as 35–45 per cent are women, as noted in the *International Herald Tribune* (Alvarez and Broder, 2006).
13. See Martin and Miller (2000). Hanson (2006) offers an illuminating discussion of border and internal enforcement measures in the USA. See also Hanson (2007).
14. See Djajić (2009) for an analysis of the implications of high migration costs for capital accumulation in the source country and the dynamics of immigration flows.
15. See Constant and Zimmermann (this volume, ch. 7) for a discussion on EU policies with respect to migration of skilled workers.

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PART II

AGRICULTURE AND ENVIRONMENT

9 European integration and agricultural protection: an introduction

Piet van den Noort

1 INTRODUCTION

European integration started after the Second World War and took shape after the Treaty of Rome in 1957. This was the start of the European Economic Community (EEC), which we can now see as a great experiment.

This chapter is structured as follows. Section 2 addresses the question of why there should be agricultural protection in the EEC. Section 3 explains the system that evolved. Section 4 discusses outcomes and problems. Section 5 examines possible solutions and prospects, and finally, Section 6 concludes.

2 WHY AGRICULTURAL PROTECTION IN THE EEC?

The Common Agricultural Policy (CAP) was started as a price policy, giving farmers a price guarantee and protection from outside suppliers. Why was that? It is a fact that all capitalist countries have agricultural protection in one form or another and for various reasons. One of the best reasons is the free market's inability to achieve stability and to gain income parity for farmers, but there were also other reasons. Switzerland and Sweden have protected their agriculture so that in times of war, a situation in which they prefer to remain neutral, their agriculture and food supply provide reasons for agricultural protection; as can the landscape and the environment (including conservation of topsoil) as, for example, in Norway and Austria. Some countries, such as France and Germany, have a long tradition of agricultural protection (Tracy, 1982), but most other countries have had such policies only since the Great Depression of the 1930s.

It could be said that just as each individual country had protection for its agriculture, so the EEC had such a policy for itself. This seems to be a logical explanation, but it does not explain everything. Why is there no common policy in other fields where each country traditionally had its own far-reaching policy measures? Why was agriculture a lone forerunner in the field of common policies? Given the ideal of unity underlying the EEC, we might have expected common social, fiscal and monetary policies and also common policies in the fields of research, energy, environment or transport. Other cases of economic integration (Benelux: Belgium, the Netherlands, Luxembourg; EFTA: European Free Trade Association; LAFTA: Latin American Free Trade Association) had no common agricultural policies (Wells, 1973).

So there must be an additional factor. It is useful to remember that economic integration was a third attempt to reach political integration in Europe; that is, to agree on a policy for achieving a stable, democratic order in Europe, with reconciliation between

France and Germany, no wars or revolutions, and a desire for peace and security. The earlier attempts at unification were the Marshall Plan, and the European Coal and Steel Community. The third attempt should have been the European Defence Community (EDC) but this treaty was not ratified by the French National Assembly in 1954.

Integrating the economies in Europe, however, was also a means for achieving greater stability and peace. Germany was all in favour of this policy, not least because it has much to gain from a large industrial market. Unlike Germany, France believed that its comparative economic strength was in agricultural production. Post-war France could therefore only agree to join the integration policies provided that it could expand its markets for agricultural products in Europe, in exchange, as it were, for German industrial expansion. The participation of France was essential: its government was prepared to play it hard (it had already refused to ratify the EDC Treaty) so the other countries involved thought it wise to humour France. This 'grain deal' would give France access to the European agricultural markets, Germany could expand its industrial markets, and political integration could proceed. Of course, the deal had its 'conditions'. The US as a traditional grain supplier agreed to retreat a little for the greater good of European political integration, but was unwilling to relinquish a considerable part of the European market. Consumers and taxpayers implicitly agreed to use more French grain provided that the policy did not become too expensive, that is, prices did not become too high. Farmers in Germany, on the other hand, were willing to cooperate, provided that their losses were made good. It is therefore not surprising to find these provisos in the form of 'goals' in the Treaty of Rome; in principle the deal was simple, but its implementation was achieved only by much hard work on the part of the politicians.

It is clear that France wanted to expand its agricultural production throughout the Euro-market and therefore demanded a market policy for agricultural goods and not an income-deficiency payment system or social measures for farmers. To have a market is meaningless without price guarantees, so the second aim of the common policy proposed for the EEC was a price policy. The aim was for the price of French wheat to at least meet the level of production costs in France, as otherwise a common market would not be an interesting proposition for the French. The EEC member states were to give preference to French wheat: this was done by creating an artificial price difference with the world market by means of imposing a levy on imported grain ('Community preference').

It was difficult to arrive at a common acceptable price level and therefore at a common tariff or levy on grain. The French national price level was not acceptable to the Germans and the German level was not acceptable to the other member states or to traditional overseas suppliers. So the conclusion was that the common price level should be somewhere in between and should be determined during a transitional period of some 12 years!

Within the EEC, France directed its political attention to securing a watertight guarantee of the grain deal by attempting to secure detailed regulations for agricultural markets. Outside the EEC, trade policy was paramount for France: for example, during the Kennedy Round, when the EEC (and also the individual member states) negotiated the issue of tariffs, mainly on industrial goods. France, however, was not prepared to accept an attractive deal in this area unless there was also an agreement about tariffs on agricultural products (and therefore, also about the common price in the EEC).

The stand taken by France was extremely effective and the EEC countries also agreed

on a common price for wheat (106 European units of account (EUA) per ton). This, combined with the detailed market regulations, gave an almost complete common agricultural price policy (see Table 9.1). It was set up as a system of protection with in fact unlimited guarantees. The most important flaw was that no agreement had been reached over the price of wheat in years to come. Politicians played on this weak spot during prolonged negotiations. Little wonder that France was in favour of an automatic procedure, a so-called 'objective method', for fixing future prices. Although such a method was adopted, in fact it never became truly automatic!

Thus the common agricultural price policy was necessary to obtain French cooperation, without which European integration could not proceed.

3 THE SYSTEM

The common price for wheat was called the 'target price' (See Table 9.1). This price was not the target for every place in the Community, but only for the largest consumption area in the EEC, that is the city of Duisburg in West Germany. The target price for other areas was derived from this by deducting the transport costs involved in getting the wheat from those areas to Duisburg. The derived target price in Rotterdam, gateway to Europe and largest grain port in Europe, is called the 'threshold price'. This price is frequently much higher than the world market price (CIF price) in Rotterdam. It was decided that this difference would be bridged by a levy on imported grain. If the world market price in Rotterdam (or any other place of entry) changed, the levy should be changed too, thus the levies are variable. In order to keep grain merchants and users of grain competitive, this levy is refunded if the grain, either as such or in a processed form, is exported again. The grain component of products such as eggs, poultry, bacon and so on is also charged with a levy, so these products can only enter the EEC at minimum or 'sluice-gate' prices, based on production costs which are related to the prices of domestically produced feed and feed/product conversion rates. There are some periods of the year when there is not much international trade in (or import of) grain. Then the levies will not work, and the target price is not reached. To prevent this situation from occurring, an additional policy was implemented in the form of compulsory intervention by the central authorities. The farmers could sell any quantity of grain to these authorities for a guaranteed price, which was originally about 7 per cent below the target price. This guaranteed price is called the 'intervention price'. Intervention of course leads to storage of grain in the Community. At first the necessary payments were made with the national treasuries. But France thought it would be safer for the realisation of the grain deal if the payments of levies for restitutions and intervention were made at the European level. Hence the creation of the European Agricultural Guarantee Fund.

The receipts for this fund in the form of levies were originally high enough to guarantee the payments for refunds or intervention, but over the years this has changed completely – there were shortfalls in the fund, which were supplemented by payments from the EEC budget. Each member state had to contribute to this budget through a certain percentage of value-added tax (VAT). This percentage increased by 1.6 per cent nearly every year. It also became an issue to change the basis of the contribution: instead of VAT some prefer national income to be the benchmark.

Table 9.1 The EEC market regulation scheme, 1970

Commodities	Arrangements													
	Target price	Threshold price	Sluice-gate price	Free at frontier price	Import levy	Supple-mentary levy	Import duty	Provision for market inter-vention	Provision for export refunds	Quota	Quality standards	Producers organi-zation	Initial date	Date for[10] unification
Grain and grain products	❑	❑		❑	❑			❑	❑				1-8-62	1-7-67
Rice and rice products	❑[1]	❑		❑	❑			❑[1]	❑				1-9-64	1-9-67
Pigs and pigmeat			❑		❑	❑		❑	❑				1-8-62	1-7-67
Poultry and eggs			❑		❑	❑			❑				1-8-62	1-7-67
Milk and dairy products	❑[2]	❑		❑	❑			❑[9]	❑					29-7-68
Beef and veal			❑[3]	❑	❑		❑	❑	❑	❑[4]				29-7-68
Sugar and sugarbeet	❑	❑		❑	❑			❑	❑	❑[5]			1-7-67	1-7-68
Oilseed	❑							❑	❑				1-7-67	1-7-67
Olive oil	❑	❑		❑	❑			❑	❑				1-11-66	1-11-66
Fruit and vegetables			❑[6]	❑		❑	❑	❑	❑	❑[7]	❑	❑	1-8-62	1-7-68
Wine							❑			❑[8]	❑		1-8-62	1-11-69

Notes: 1. In France and Italy. 2. Only in the case of milk. 3. Guide price. 4. Levy-free import quotas for frozen beef. 5. Production quotas. 6. Reference price. 7. Import quotas applicable only through a safeguard clause procedure. 8. Import quotas. 9. Applicable for butter and skimmed milk powder. 10. Since the dates mentioned the EEC is unified. This means that for the inner EEC-trade there are no longer any import levies and furthermore, for trade with third countries there are uniform import levies and export refunds.

Source: Dutch Ministry of Food and Agriculture, The Hague.

The EEC developed a similar system for milk and sugar. The sugar arrangement, however, was the first to be modified and there was no longer an unlimited guarantee; for a limited amount of sugar ('A' quota) the full intervention price was paid, and there was also a 'B' quota which received a lower guaranteed price. Together, these were called 'maximum' quotas. Any sugar produced above the maximum was referred to as 'C' sugar and received no price protection at all.

For beef and veal there was also a price protection scheme, which in principle operates on the same basis but the terminology is different: 'target price' became 'guide price'. Another variation is that the intervention price is not the price at which the intervention buying takes place; this takes place at a buying-in price. There are other variations but on the whole the basic ideas are the same. Only for oilseeds and olives is there a different system, because of GATT (General Agreement on Tariffs and Trade) regulations. This means that imports can take place at world market levels. Protection occurs in a different form. Exporters of European oil seeds receive a supplement or restitution equal to the size of the desired price support. This supplement is also paid to manufacturers of processed oil seeds grown in Europe, which means that they are in a position to pay farmers the required price.

Even this rough sketch of the system makes it sound cumbersome and complicated. Indeed it is, and it became even more so because of additional rules for the solution of monetary problems and the problems that arose in relation to the so-called 'substitutes', not forgetting the surpluses.

The first complication to this already extended system arose as a result of the devaluation of the French franc in 1969 and the revaluation of the German mark (DM) which followed shortly after. The devaluation should have meant a change in the exchange rate against the EUA and this in turn should have meant an increase in the price of agricultural products for the French consumer and a higher income for French farmers. The French government did not think this advisable. However, the maintenance of the old rate of exchange against the EUA was not possible just like that. The intervention price in EUA and in francs remained the same, but on exporting to Germany the picture was different. By offering the French wheat to the intervention boards in Germany, the old price in EUA and in DM could be obtained, and the marks could then be exchanged at any bank for more francs than before. Exports would thus be worthwhile.

Supplies could become dangerously low in France and the German intervention boards would be flooded with French produce. The market would be destabilised. To prevent this, a border levy equal to the size of gains from the change in the exchange rate was instituted between France and the other member states. Member states exporting to France were given a subsidy equal to that border levy. Payments at the border were called 'monetary compensatory amounts' (MCAs), and it was intended that they should be only temporary.

The revaluation of the DM caused similar problems. Adjusting the rates of exchange against the EUA implied fewer marks per EUA, meaning that German farmers would receive a lower income. Such a reduction was not seen as desirable by the German government. The same price as before in EUA was paid on goods exported to Germany, and the same number of marks, but this could easily be exchanged for other currencies and exchange rate variation gains could be made. In order to prevent difficulties arising in the market, imports were slowed down by reintroducing a border levy equal

to the exchange rate gains. Exports from Germany received a subsidy of the same magnitude.

Thus, both positive and negative MCAs were introduced. Since exchange rate variations continued and became more frequent, these MCAs remained in force, and were readjusted every week in periods of high currency unrest (that is, there was a floating currency). With the establishment of the European Monetary System (EMS), the EUA was replaced by the ECU (European currency unit), which is a weighted average of the exchange rates of all the currencies of the member states. Every exchange rate change works through to the ECU and this affects the price of agricultural products.

The level of the MCAs had to be continually readjusted. Prices in national currencies showed a different trend in each of the member states, and uniformity of market prices had thus been lost.

The overall result of the agricultural policies and development in European farming was an increase in production at somewhat high and guaranteed price levels. This resulted in surpluses which created all kinds of problems: high budgetary expenses but not the desired level of income for farmers. In order to fulfil the clause calling for 'reasonable incomes, reasonable prices and increases in productivity', an attempt was made to bring about a complete modernisation and restructuralisation of agriculture (Mansholt Plan, 1970). To achieve this, agricultural employment had to be reduced by about 50 per cent, farm area by about 7 per cent, and some capital be transferred to other production areas. The remaining agricultural resources were to be organised into large modern units. On such farms, farmers would obtain a reasonable income at the existing price levels, without this having an undesirable effect on total supply or the consumer being forced to pay excessive prices. Furthermore, international trade would not be negatively affected. With this in mind, the Mansholt Plan was born; however, because of enormous political opposition, no effective large-scale structural measures were actually undertaken.

Guidelines on measures for pensioning off and re-educating farmers, and for interest subsidies on some forms of modernisation investment (all to be conducted on a national level) was all that emerged. To finance these measures a 'Guidance Section' of the European Fund was set up.

It became clear that hill farmers could never receive a reasonable income via the guaranteed price system without overriding the stated aim regarding prices to consumers, and without imposing unnecessarily high farm incomes in other areas. But it was not always socially desirable to leave these people without additional governmental support. It was felt that neither the social environment nor the rural beauty (through erosion) of the hilly areas should be allowed to be destroyed. Thus, the so-called 'hill-farm regulation' came into being.

Clearly the Community responsibility for the financing of the policy has become an increasingly important element in the discussion regarding market regulation. The need emerged to limit the applicability of price guarantees somewhat, by such diverse measures as premiums on non-delivery of milk and on cattle slaughter, and consumer subsidies for butter, milk powder and school milk. Furthermore, in the case of milk and grain, lower intervention prices should apply for quantities over and above a certain production ceiling. This reduction of the marginal price was called the 'co-responsibility levy' (Bureau of Agricultural Economics, 1985).

When this proved to be insufficient, a cap on production was devised, whereby the intervention price would only be paid for a certain quota (set at about the 1983 production level), and any farmer producing more than this amount would be penalised with a super-levy of about 75 per cent of the intervention price. The rules for this quota system are too complicated to deal with here.

There were also problems concerning the so-called 'substitutes'. The grain substitutes are best known although there are now also substitutes for sugar, milk, beef and so on. One well-known grain substitute was tapioca. At the time this was an insignificant product on world markets; it was more expensive than grains, but as a result of the levies imported grains became dearer than tapioca. It was therefore an attractive proposition to feed processors to use tapioca rather than grains. Pig production thus became cheaper, with the result that there was an expansion in this field. This consequently reduced the demand for grains, for which there was a large intervention storage or even a surplus. So, it was then decided to restrict the use and import of tapioca. This was rather embarrassing because the exporters are developing countries (for example, Thailand). It was decided that Thailand should not export more than a certain quantity; to prohibit the export completely was impossible for obvious political reasons.

Since Article 39 of the Treaty of Rome seems to place so much importance on the improvement of agricultural productivity, one should perhaps expect a policy to promote agricultural technology or to improve the structure of agriculture.

Indeed, there have been some measures for the improvement of land allocation and of markets and marketing channels, but these guidance measures are of limited importance both technically and financially. In 1984, for example, while 27,249 million ECU were allocated from the European Fund, only 675 million ECU were in the Guidance Section, whereas the Guarantee Section received 18,333 million ECU. Policies regarding the technical development of agriculture were left to national authorities. The system was therefore fundamentally a market and price policy with an unlimited guarantee. This has been changed, first for sugar and later for milk, and there are also proposals to limit the intervention and/or production of grains. The main issue of the CAP in the last part of the 1980s was therefore the limiting of the guarantee for agricultural prices in one way or another. The unification in 1992 required further adaptations. It was questionable, for example, whether the MCAs could be maintained. The global policies (*vis-à-vis* the US and the developing countries, the UNCTAD and GATT) for grains, beef, sugar and so on would also require some changes in the CAP. So the system is in a state of constant repair and change.

The main features of the CAP, therefore, are the changes in the price level decided upon by the Council of Ministers (see Table 9.2).

4 OUTCOMES AND PROBLEMS

The EEC had a common market policy and a common price level for many agricultural products, but if we look at the price level in national prices (applying exchange rates) we can see that the levels and their trends differ greatly between member countries. The differences are as great as before the Treaty of Rome, and they exist because of the system of special levies and subsidies between the member states – the MCAs. However, the

Table 9.2 Average change in agricultural prices (in percent), decided upon by the Council of Ministers in various years

EC6	%	EC9	%	EC10	%
1968–69	–1.3	1973–74	6.1	1982–83	10.3
1969–70	0	1974–75	15.5	1983–84	4.3
1970–71	0.5	1975–76	8.6	1984–85	–0.4
1971–72	4.0	1976–77	9.1	1985–86	0.1
1972–73	4.7	1977–78	4.9	1986–87	–0.3
		1978–79	2.4		
		1979–80	1.2		
		1980–81	4.9		
		1981–82	9.3		

Source: Gilbert (1987).

Table 9.3 The expansion of the French agricultural market share

		1960	1967	1980
Grains	(tons m)	23	32	48
	(%)	(33)	(36)	(40)
Sugar	(tons m)	19	12	26
	(%)	(33)	(20)	(32)
Milk	(tons m)	23	27	32
	(%)	(26)	(28)	(28)

Source: Gilbert (1987).

various price levels have always been above world market price levels and were particularly attractive for France. France could, therefore, profit from the grain deal: it could increase its share of the European market (see Table 9.3) in exchange for German industrial expansion. The French did indeed obtain a larger agricultural market, although they were faced with some competition from the Dutch who had a high agricultural productivity and an excellent geographical position. Because of German political pressure the price level was high, which also prevented the French from having an even larger market share. The high prices led to a high effective rate of protection for the main agricultural products such as wheat, meat, cheese and butter.

It is said that the CAP had only one instrument – the common price level – whereas the Treaty of Rome lays down many targets. Formally, the CAP would therefore be an illogical construction; it would only be logical to have a separate instrument for each target or political end. But should we look at the CAP in this way? The real and main target of the CAP was to obtain French cooperation in European policy. Market and price policies have realised this goal, although not without some conflict of interest. The so-called goals of the CAP, for example as formulated in Article 39 of the Treaty, can better be seen as limiting conditions, indicating other interests to be considered in realising the agricultural policy.

*Table 9.4 Estimates of EC transfers and costs as a result of the CAP as a percentage of GDP and on a per person basis**

Period	Cost to consumers	Cost to taxpayers	Total cost to consumers and taxpayers	Cost to the economy (deadweight losses)
		As a percentage of GDP (%)		
EC9				
1974–78	0.6	1.1	1.7	0.16
peak	1.8	1.0	2.8	0.48
EC10				
1983	1.2	1.0	2.2	0.32
Average 1973–83	1.3	1.0	2.3	0.30
		Per person (in 1982 values, ECU)		
EC9				
1974–78	48	84	132	12
Peak	163	85	248	43
EC10				
1983	112	90	202	29
Average 1973–83	112	86	198	27

Note: * After allowance for the estimated effect of EC support policies on world market prices for major agricultural products.

Source: Bureau of Agricultural Economics (1985).

For example, consumers were apprehensive about excessive price levels for agricultural products. Is it true that the CAP has consumer interests at heart and that prices are not too high? The fact is that prices at the farm gate have risen less than retail prices. Without the CAP the purchasing power of consumers would have been higher. They have been paying about 2.3 per cent of national income as income transfer to farmers (see Table 9.4), but without the CAP there would have been a similar (national) transfer to income. Therefore we should only look at the additional aspects, but these are difficult to estimate. For example, consumers also had some interest in supply and self-sufficiency. The achievement of the latter is remarkable. For almost all products the degree of self-sufficiency has increased considerably since the inception of the EEC, often to figures exceeding 100 per cent! As a consequence, ample supplies have been available for consumers, but at a cost for them as taxpayers – they have also paid out large sums. This has taken place in a period in which all countries have been experiencing serious problems with government finances. So, when EC expenditures reached the limits of the 'own resources' (in 1982/83) there was a problem but also a political opportunity to change the CAP.

Foreign consumers have benefited from the CAP because food has become cheap; this may have improved welfare in some countries although foreign exporters have suffered: they complain of dumping. For developing countries the repercussions are mixed: industrialisation policies benefit, but those countries that give priority to agricultural

Table 9.5 Guarantee expenditure by economy category (ECU m)

Year	Storage	Aid	Other	Co-responsibility receipts from milk	Export refunds	Total guarantee expenditure
1979	1,658	3,779	116	–94	4,982	10,441
1980	1,617	3,928	298	–223	5,695	11,315
1981	1,631	4,343	436	–178	5,209	11,141
1982	1,818	5,468	603	–537	5,054	12,406
1983	2,893	7,281	712	–527	5,560	15,920
1984	3,583	7,942	1,130	–972	6,718	18,401

Source: Bureau of Agricultural Economics (1985).

development have suffered. The external (net) welfare effect of the EC agricultural price policy is difficult to assess and is still a much debated issue (de Hoogh, 1987).

Some politicians and economists feared the high real costs of protection: too many resources in agriculture, a deficient structure and low productivity. According to Article 39, this should be prevented and in this the agricultural policies have been successful. Since the Treaty of Rome was signed, there has been an enormous outflow of agricultural labour (about 4 per cent per year), an increase in farm size and a rise in technical productivity (by between 3 and 5 per cent per year, a rate that was as good as any that can be found in industry).

It is true, however, that as a consequence of price protection, labour (which could have been better employed in other parts of the economy) was retained in agriculture – at the expense of the GDP of the EC. So there are real costs involved with the CAP, but these are not more than 0.5 per cent of GDP (see Table 9.4). In the period of growth between 1965 and 1975 this was not a large burden, particularly when it is recalled that without the CAP, there would also have been national price policies, which would have had their real costs. The additional real costs of the CAP are therefore around 0.2 per cent of GDP.

According to Scitovsky (1958, p. 67), the real benefit of free trade between member states was perhaps 0.1 to 0.5 per cent of GDP. In comparison, the cost of agricultural protection was high.

This was acceptable only because the political and 'dynamic' benefits were considerable. It is not surprising that protests against the CAP became more vociferous in the 1980s when economic growth, the dynamic benefits of integration and even the political benefits seemed too small.

The real cost of the CAP should not be confused with the budget costs, which are impressive indeed in absolute terms (see Tables 9.5 and 9.6), but in relational terms it increased from 0.50 per cent in 1973 to about 0.95 per cent of GNP (Spaventa et al., 1986) in 1985, which is not such a burden as is sometimes suggested, but nevertheless the increases are disturbing.

Farmers feared a loss in their position, although in general their relative position increased. Farmers' incomes grew considerably in the 1960s and 1970s but there was still an income disparity (Meester and Strijker, 1985). It is remarkable that this income depends heavily (for about 50 per cent) on a transfer of income, indicating the importance of the protection element of the CAP.

Table 9.6 Community revenue and expenditure (ECU m)

Item	1974	1976	1978	1980	1982	1984
Revenue						
Customs duties	2,737	4,064	4,391	5,906	6,815	7,884
Agricultural levies	330	1,164	2,279	2,002	2,228	3,172
Value-added tax				7,259	12,000	14,377
Other	1,669	2,765	5,507	899	197	1,816
Total	5,036	7,993	12,177	16,066	21,241	27,249
Expenditure						
Agriculture						
Guarantee Section	3,278	5,365	9,279	11,306	12,406	18,333
Guidance Section	128	218	324	601	548	675
Total	4,516	7,238	11,973	16,290	20,012	27,249
Agriculture's share (%)	75	77	80	73	65	70

Source: Bureau of Agricultural Economics (1985).

So there have been some real problems: real costs, income transfers, budgetary costs, income disparity, and disturbance of international trade and development policies. Nevertheless, the EC acquired six new members: Greece, the UK, Eire, Denmark, Spain and Portugal. The recent entry of more new members will lead to additional problems in all these areas.

5 SOLUTIONS AND PROSPECTS

In retrospect, we can say that the European policy to achieve peace, stability and democracy in Europe has been a priority. The policies of economic integration can be seen as a means of achieving this goal. The agricultural policy is part of this policy and is also a concrete example of the complicated and costly means of achieving that goal. The main element is protection of farm income.

The situation is now very different from that in the 1950s. We are no longer concerned with reconstruction and reconciliation, and East–West relations have changed considerably.

There is no longer any fear of food shortages. Now the emphasis is more on daily, technical problems than on dealing with high ideals. Nevertheless, there are grave social and economic problems and it is surprising that there are not more common actions against unemployment, environmental destruction and energy problems, or for scientific research and development strategies. The entry into the EEC of Spain, Portugal and countries in Eastern Europe recalled the idealistic desire to strengthen democracy in Europe. But again, even these important policies are overshadowed by a large number of more or less technical problems concerning vegetables, grain, wine, money and all kinds of foreign relations in the Mediterranean, and in developing countries, to say nothing of energy problems.

I believe that France and the northern areas of the EU are now in a similar position

as Germany was in 1957. The new countries have special agricultural interests, just as the founding EU members now have industrial interests. It is interesting indeed to 'swap markets'. It is even questionable whether France did in fact have such a large economic interest in grain exports as was said at the time (Harvey, 1982). But nowadays even France is an industrial nation and should allow Eastern European countries an opportunity to develop, in exchange for participation in a large industrial market. The CAP has the historical role of improving and accelerating economic and political integration and should not become a hindrance to these policies.

Many proposals for new policies have been put forward and some have been incorporated into the CAP. I believe it is unwise to continue changing policies each season. There are still many alternatives open to the CAP. Let us consider some major examples.

One of the oldest alternatives is a structural policy. Price levels could be lower if there were a modern well-structured agriculture. Thus in the late 1960s Commissioner Sicco Mansholt proposed a plan to achieve this in agriculture. The idea was to accelerate the outmigration of rural labour and the modernisation of agriculture. This plan ran into much opposition because of its flaws. For example, it had a low rate of return, needed a large budget, did not consider the unfavourable social consequences of migration and disregarded the vested interests of the agricultural lobby. Today we could also use a better organised agriculture, but a new Mansholt Plan would not be a wise policy: an additional outflow of labour from agriculture would be unprofitable because of unemployment, and the modernisation of agriculture could also lead to more production and more surpluses, which is also unprofitable. Additional structural measures are therefore not the solution, although some doubts about this have been raised because of the recent shortage of grain.

An effective measure is to decrease price levels or levels of protection. The high price levels compared to world market prices were the real cause of surpluses. Many would gain from lower prices, but farming and some agribusiness would not. The income position of farmers is an important aspect of agricultural policies in Europe and this policy line is therefore not generally acceptable in real politics, for example, when applied to cereals in 1985 it created much political tension in the Community. Comparable proposals that have been considered have involved increases in import prices, especially of feedstuffs, which have always led to an intensive political debate with no results. It is difficult to predict whether recent high price levels for cereals on the world market will be upheld in the future.

To have the advantages of low prices but also to maintain income protection and the social position of farmers, Professor J.F. van Riemsdijk proposed a direct income payment system in which the loss of income resulting from the lower prices would be compensated for by direct income payments to farmers. These payments would only be made for a limited period, at most 20 years, and only to farmers up to 65 years of age. This would give a stimulus to improve farming, because after that transitional period low prices would rule the agricultural economy and to survive, farmers would need large and modern farms. This plan was also debated but rejected, because it also had a low rate of return, needed a large budget and would have led to massive migration, with all its attendant social and political repercussions. Today, all these problems would still follow such a policy to an even greater degree, because an additional outmigration is not at all profitable and any increase in the budget for agriculture would meet with considerable political opposition.

Another method is to restrict production by imposing production quotas per country and per farmer. There is a wide range of possibilities in this field. The super-levy system now in use in the dairy sector is perhaps the best-known example, but it is a purely technical measure. It restricts production and therefore decreases the budget costs of the CAP but without the basic systematic improvements that the above-mentioned alternative policies promised to give. The restrictive measures that have been taken for sugar and milk have changed the CAP system from an unlimited guarantee to a limited one. This is already a considerable change when we realise how strongly the farmers are organised compared with all other interest groups involved.

Other interesting proposals involve taking marginal land out of agricultural production and using it for timber production or for recreation. The difficulty with this policy idea is to find this marginal land. For example, in the Netherlands, there are considerable areas of this type of land available, but it is claimed that timber production is not profitable and therefore not an attractive alternative to milk production. But in various other regions it could indeed be a splendid idea to increase alternative production. The problem with labour-intensive products like timber is that new means have to be found to protect employment now found in the CAP.

This would require an additional social policy. It is interesting to note that such policies of new uses of agricultural land have a positive effect on the environment.

Each of these measures has its variations. So in theory, there are many alternative proposals for solving the CAP problems. Among economists there is a strong tendency to try to find the optimal instrument in that series of solutions by estimating the total net effect on the welfare of the Community that each instrument would have, and selecting the highest-scoring measure. The difficulty with this procedure, based on Tinbergen's theory of economic policy (Tinbergen, 1952), is, that there is no social welfare function or no such function can be specified and estimated. So it is no use looking for an instrument or measure that will lead to the maximum value of this function (van den Noort, 1983). This method can only be applied to individual or partial preferences but will not reflect the social preferences of a nation or the Community as a whole. The real selection can therefore be done only by other, that is, political, means. This conclusion is too often overlooked by economists. The Council of Ministers (a result of President Charles de Gaulle's policy towards the EEC in 1965), was a kind of coalition government of the EEC: 10 ministers working towards common decisions. The bartering of votes between them is an obvious way of reaching agreement. To reach unanimity will require greater strength and more exchanges or trade-offs than simple majority rule would require. Because in practice this Council deals only with agricultural affairs and not all types of other affairs (as a national cabinet must do), the political bargaining leads to even more measures in the agricultural environmental field, each time making agricultural policy more expensive (see Table 9.7).

So if we could find more common policies (for example, for energy, environment, unemployment, research) and if we could apply majority rule, we could find easier and cheaper political solutions for agriculture too, but not with an ever-increasing number of member states.

The CAP was quite introverted in character, because it was largely the representatives of farmers and the ministers of agriculture who were involved in the decision-making process in Brussels. The only opportunity for others to influence the process was if the

Table 9.7 EC budget and agricultural expenditure, mid-period, 1980s (ECU m)

Year	Total EC budget	Total for agriculture	Guarantee	Structure
1982	20,705	13,055	12,405	605
1983	24,807	16,539	15,811	728
1984	27,208	19,022	18,346	676
1985	28,100	20,463	19,744	719
1986	35,174	22,938	22,153	785
1987	36,247	23,999	23,003	995

Source: EC Commission, Brussels.

'own means' of the Community fell short. This led to new proposals for financing the Community or to reform the CAP, but they failed to bring about any real improvements (Pelkmans, 1985).

An enlarged EEC could not continue with its agricultural policies in the same way as it did before the entry of Spain and Portugal. Continuing to increase price levels was leading to grave problems. Furthermore, small farmers, with only small means of production (of which there are many, especially in Southern Europe) can never be assured of a reasonable income by price policies alone. High prices also lead to large income differences within agriculture, and have a tendency to lead to high rents and land prices.

Experience with former proposals shows that it will be neither simple nor easy to realise changes in economic and social measures for agriculture.

All this became less and less important in the 1990s because of unexpected developments in Eastern Europe, which demonstrated that a detailed knowledge of the internal structure is not sufficient to understand integration policies in reality.

6 A WALL CAME DOWN

This experiment with economic integration in Western Europe started around 1949 and after 40 years of development something amazing happened: the notorious Berlin Wall came down, leading to the end of communist rule in Eastern Europe. In a rather short period, the USSR was dissolved and a large number of new nation-states appeared. One of the old sources of inspiration for European integration disappeared in the course of the process: fear of communism and of the mighty USSR. The Warsaw Pact and the Council for Mutual Economic Assistance (COMECON or CMEA) also lost influence as stimulators of integration in the West.

Various new problems arose, for example, how to deal with Eastern Germany and later with the new independent states in the eastern part of Europe. Here we can see now that the old idea of reconciliation began to play an important role again, as did measures to increase stability and democracy.

There were also new problems, for example, with the legal and political structure of the Community (the so-called 'constitutional' problem) with new member states and with oil and ethanol produced from agricultural products, problems with the exchange rates, and with the rate of economic growth (including the new fear of recession and even of a real

depression). There were also new environmental problems with, as a consequence, some climate policies being introduced. There was a strong tendency towards globalisation, which has given all European policies an unexpected global twist, including agricultural policies because they are important for world markets and have an enormous impact on developing countries, for example, the unexpected rise in the price of wheat, rice and dairy produce in recent years. There were new economic theories, for example indicating that there was no longer any end to economic growth, which after a couple of years appeared to be a misconception. There were serious diplomatic problems, even leading to wars in the Balkans and later in the Middle East. And in the year 2009 we had to face an unexpected recession. We speak often of financial, economic, energy, food and water crises – which have profound effects for all of us, but most certainly also for the CAP.

What will be the consequences of all these problems for that unique experiment – European integration – and how will this, in its turn, influence the common agricultural policies of Western Europe? Of course, all this is too ambitious a subject to be dealt with in these few pages. There are certainly some limits to agricultural policies in an extended Community, but there are also prospects, as Jovanović (2005) demonstrated.

The experience with agriculture in the process of economic integration is important for the understanding of integration policies in other parts of the world, as demonstrated by Angarita and Coffey (1981) for Latin America. I shall confine my contribution to the great experiment itself, which took place after the Second World War. The prospects for integration and agriculture involve possibilities and also opinions (the past and also the future). They involve extrapolations of tendencies and also special theories of what might happen as, for example, the studies of the so-called Club of Rome about limits to economic growth. Speculation about what might happen often goes under the guise of science, but we have to understand, as Northrop (1960, p. 235) pointed out, that such so-called strict scientific predictions are impossible in the economic realm.

SUMMARY

The political background of the present European Union is the European Economic Community. At the basis of this community lay the so-called reconciliation between France and Western Germany. Reconciliation is still fundamental, as we can see in the policies to include former communist states, or nations that recently made war in the Balkans.

At the core of this important policy of the 1950s was the 'great grain deal', which secured the agricultural interests of France – first of all grain production – in cooperation with the more industrial-oriented West German Republic.

It was the first Commissioner for Agriculture, Dutchman Sicco Mansholt, who turned this deal into a Common Agricultural Policy and, therefore, transformed the plan of integration into a political reality, which still exists today.

It is interesting to see that this important aspect was of course not available in other areas, in Europe or Latin America, where there were tendencies towards economic integration. In these cases agriculture could not be used as a motor to power the process – in fact agriculture appeared to function as a brake or even as an obstacle for the cooperation or integration process, and was frequently simply left out of any deal.

Conditions change all the time, making policy changes both needed and desirable. Nevertheless, this is very difficult to realise with so many member states and their vested interests. A close study reveals a series of reform plans, which were heavily debated and occasionally implemented in real policy changes. The various measures and changes are well known to students of integration, but they do not explain why agriculture was so important in the early stages of the formation of the European Union. We have to realise that agriculture was not simply a business of using land, or economic integration, but involved the creation of a single market.

Keywords

Grain deal, Common Agricultural Policy, France, protection, cereals, surpluses, agricultural prices, reconciliation.

JEL Classification

Q10, Q17, Q18.

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10 The reforms of the Common Agricultural Policy

Huib Silvis and Roel Jongeneel

1 INTRODUCTION

The formation of the European Union (EU) is an example of economic integration *sui generis*. Within the EU integration experiment, the integration with respect to agriculture played a key role. It was one of the major conditions that had to be addressed in order to get the whole experiment running.[1] The Common Agricultural Policy (CAP) was and still is a set of instruments to achieve, develop and further deepen this integration. At the same time the policies can be specified in such a way that they function as a stumbling block to integration. As becomes clear after reviewing the evolution of the CAP, integration is an ongoing process, requiring multiple reforms. In this process, structural changes in the economy and political–economy factors play a co-determining role and affect the focus of the integration (Petit, 1989; Blandford, 1996). Initially, the emphasis of the CAP was on internal market integration and protecting EU agriculture from world markets. Later on, when for several products the EU switched to becoming a net exporter and became more reliant on world markets for surplus disposal, issues of external integration (world trade relations and policies) became more prominent. At the same time, new issues of integration emerged, such as environment, biodiversity, sustainable land use, animal welfare and so on (Garzon, 2006). The (previous) enlargements of the EU15 with 10 new member states in 2004 and another two in 2007 are still a driving force.

This chapter is structured as follows. In Section 2 a brief overview of the agricultural policy evolution is sketched, with the details left for explanation later. Since the budget expenditure is considered to have been a primary driver in the CAP policy reform process, Section 3 discusses the issue of financial discipline. Section 4 describes a number of key cases in the reform of the common market organisations. Section 5 discusses the single farm payment scheme and cross-compliance. Section 6 brings in the EU's rural development policy evolution, which has become a second pillar of the CAP alongside the traditional market and price support policy (first pillar). Section 7 provides a final discussion, interpreting the past and future evolution of the CAP in an integration perspective.

2 A SHORT HISTORY OF CAP REFORMS

When the EU started in the late 1950s, it was still a deficit region with respect to a lot of agricultural products. If imports from third countries are necessary to meet the demand, the system of the market organisations for basic products can operate smoothly, at least from a budget perspective. This was the case for grain and beef in the initial phase of the Community, and for dairy products after the enlargement with Denmark, Ireland and the United Kingdom in 1973. In this situation the common external tariff insulates the

Table 10.1 Past and present characteristics of the common market and price policies

Period	Characteristics
1960–1969	Establishment of the various different market organisations
1970–1980	World agricultural prices rocketed in the early 1970s, leading to concerns about the import dependency of protein sources. When world prices declined, a strong agricultural income-oriented market and price policy was pursued. The product markets, however, seemed to be less 'manageable' than previously thought, causing major problems (surpluses, high expenditure)
1981–1992	The existing systems crack at the seams, price reductions are introduced when production thresholds are exceeded; milk quotas come into force. Environmental problems receive more attention; in the GATT the EU comes under huge pressure to change the agricultural policy
1992–2003	Transformation to price reduction, income compensation, coupled to volume restrictions (set-aside obligation), and a more market-oriented approach in the price policy. This transformation was started by the MacSharry reforms of 1992 and followed by the decisions on Agenda 2000 (1999)
2003–	Decoupling of direct income payments, tied to guidelines from the European Union (*cross-compliance*); continuation of a more market-oriented policy with focus and controls at the business level. Export refunds are dismantled. Market and price policy partly replaced by the rural development policy. Accomplished in the Fischler Reforms (2003/2004) and the Health Check (2008).

Source: Silvis and Lapperre (2010).

EU region from the outside world and the import levies collected may be used to fund the expenditures of the system. If, however, the situation changes in the long term due to production growth or a fall in consumption, agricultural expenditure increases. If the market can no longer be kept 'clean' with sales subsidies and export refunds, intervention stocks grow. The market prices will then fall to the intervention price level or even below it if high-quality criteria are used as well. This move in the direction of unbalanced market situations and rising agricultural expenditure, which goes hand in hand with rising trade conflicts with third countries, occurred right from the outset, but increased in intensity over time. In order to deal with these problems the policy was adapted several times. Table 10.1 gives a schematic overview of the key phases in the development of the CAP.

Since the EU crossed the line of agricultural self-sufficiency for some basic products in the 1980s, the CAP was changed fundamentally. The first step was the introduction of the milk quota system in 1984, ushering in the end of the once notorious butter and skimmed milk powder mountains and the virtual disappearance of dairy as the most expensive sector.

The second step was the MacSharry reform of 1992 for other agricultural products (cereals, oilseeds, protein crops and beef), with the switch from price support to direct payments per hectare or per animal. This switch from price support to coupled forms of direct payments was continued and extended with Agenda 2000.

The third step was the replacement of these coupled payments by the Single (farm) Payment Scheme (SPS), decoupled from production and supply. This was decided in the Mid Term Review of 2003, or Fischler reform, and largely finalised in the Health

Check decisions of 2008. The Fischler reform 'decoupled' direct aid to farmers, but some member states chose to maintain some 'coupled' aid – that is, production-linked payments. With the Health Check decisions these remaining coupled payments will now be decoupled and moved into the single farm payment. The only exceptions are for the suckler cow, goat and sheep premia, where member states may maintain current levels of coupled support.

Whereas the EU started as a customs union, with member states agreeing to charge the same external tariffs, over time it involved into a monetary union, although at this stage not all member states have joined. With respect to agriculture the use of a common currency, the euro, brought to an end the system of monetary compensatory amounts (MCAs), a system of shadow exchange rates, introduced in the CAP to 'preserve' the unity of the market (see Box 10.1).

The legislative texts of the CAP Health Check were adopted in early 2009. The steps towards a more market-oriented CAP came as EU markets were under pressure – dairy in particular – of low world market prices. The Health Check was not intended to be a major reform – more a completion of various issues deferred in the Fischler reform, and a number of points aimed at making the CAP more defendable, ahead of the next reform for European farm policy after 2013. Among the driving forces for this new reform are the new financial framework, the outcome of the Doha Round and the discussion between old and new member states about the distribution of agricultural support.

3 FINANCIAL DISCIPLINE

The dramatically rising expenditure of the CAP in the 1970s and 1980s was a particular source of concern for many years. The reining in of this policy with the introduction of an absolute spending ceiling from 1988 onwards, was largely aimed at forcing urgently needed reforms (Bos, 2010).

Agricultural expenditures (in current prices) have increased from about €10 billion in 1980 to more than €50 billion (including rural development) in 2007. Until recently agriculture expenditure represented the largest part of total EU expenditure. Partly this development has to be perceived in a context where agriculture was one of the main areas where policy integration was pursued, whereas in several other areas a common approach did not take off – or if it did, progress was slow. In 1970 85 per cent of the EU budget was spent on the CAP. In the 1970s and 1980s this share fluctuated between 60 and 70 per cent due to the development of other common policies. The introduction of policy reforms saw the beginning of a structural fall in this share to 56 per cent in 1992 and 48 per cent in 2002. At the end of the current Financial Perspectives 2007–13, the share of agriculture spending (including rural development policy) is set to come out under the 40 per cent mark.

From 1982 to 1986 CAP expenditure rose on average by more than 15 per cent a year. The budget estimates were systematically exceeded. The underlying cause was the productivity increase of European agriculture combined with a high level of protection and an active price policy which turned the EU from a net importer into a net exporter of key agricultural products. Because an effective limit on agricultural spending was lacking, agriculture ministers were not forced to reform the CAP during this period.

BOX 10.1 GREEN CURRENCIES, MONETARY COMPENSATORY AMOUNTS AND MARKET INTEGRATION

In the standard system of the CAP's common market organisations one price prevails throughout the market (full market integration). Before the introduction of the euro, agricultural prices and payments were calculated by the so-called green ECU. This was the equivalent of the ECU as defined in the EMS, plus 20.75 per cent. The percentage increase was the result of a re-alignment between the green ECU and the ECU-EMS which took place on 1 February 1995.This complex system had longstanding origins, going back as far as the devaluation of the French franc with respect to the Deutschmark in 1969.

To avoid politically unacceptable consequences for farm incomes, inflation rates and unity of agricultural prices, the Community at that time instituted a system of import and export payments in intra-Community trade in agricultural products. These payments were negative (levies) or positive (restitutions) according to whether products passed from a weak currency country to a strong currency country or vice versa. This was the system of monetary compensatory amounts (MCAs).

The MCAs had the effect of breaking the unity of the common market in agriculture, leading to distortions. The Community decided to dismantle it, introducing the switchover mechanism* with Regulation 855/84. This brought about an increase in prices in national currencies for farmers throughout the Community in order to keep prices stable in one or two of them where there had been a revaluation of currencies. The system also contributed to increasing Community expenditure because of the increases in all prices, subsidies and aid paid for from the FEOGA (Fonds Europeen d'Orientation et de Garantie Agricole: see EAGGF in Figure 10.2) Guarantee Section (Ritson and Swinbank, 1997).

After 30 years there was a return to the 'normal' situation existing prior to 1969. Since 1 January 1999, all agricultural payments are made at the parities of the national currencies with the euro and no longer with the green ECU.

Note: * Switchover was an agro-monetary mechanism by which, in three phases, MCAs were transformed and later eliminated.

The impasse was broken by the Fontainebleau European Council (1984) which induced the introduction of milk quotas to contain supply, before agreeing to further expansion of financial resources for the EU budget. Agriculture ministers were subsequently forced in 1988 to accept budget stabilisers in the CAP, after which the European Council approved the first Financial Perspectives (Delors I package). In order to discipline agriculture expenditure, a guideline was enforced by the 1988 Council decision on budgetary discipline. The guideline stipulated that agriculture expenditure (excluding structural policy) should not exceed 74 per cent of the annual growth of the GNP of the

EU on an annual basis. This entails a gradual reduction in the size of agricultural spending in relation to EU GNP.

In the 1988–92 period, agricultural spending remained firmly within the guideline. This was due to both the high level of expenditure in 1988 and favourable economic conditions. Part of the budgetary margin under the guideline was used for financing agriculture expenditure in former East Germany after reunification.

In 1992 the MacSharry reforms opened the way to more market-oriented agricultural policies. Price support for arable products was partly replaced by direct income compensation. Two aspects of this are of significance for the EU budget. First, direct income support is predictable and thus in budgetary terms more manageable than product-related price support which is strongly dependent on volatile market conditions. Second, the MacSharry reforms implied a shift of burden from consumers to the EU budget and ultimately the taxpayer. Therefore it has improved overall economic efficiency but not resulted in significant budget savings. However, the guideline provided sufficient space to cover the post-reform CAP expenditure.

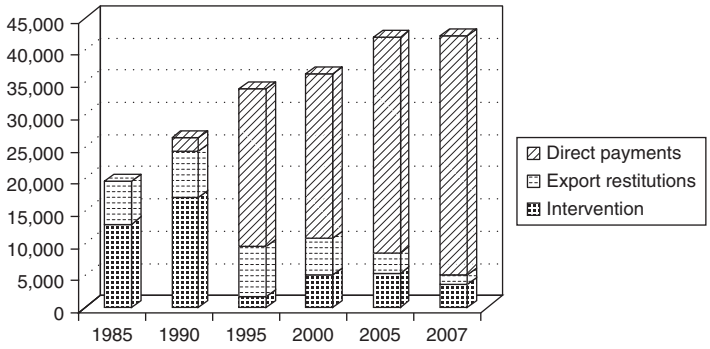
The Berlin European Council (1999) decided to tighten budgetary discipline by setting the annual ceilings for agriculture expenditure in the Financial Framework 2000–06 lower than stipulated by the guideline. The agriculture expenditure heading was also split into two categories. Category 1a concerns market-related expenditure and direct income support as well as veterinary expenditure. Category 1b concerns rural development.

The financial framework 2000–06 was established on the premise that the EU would be enlarged by six new member states and that these states would get no direct income support in the context of the CAP. These premises appeared to be politically infeasible. In the end there were 10 new member states and a gradual phasing-in of income support in these countries was inevitable. Meanwhile the European Council decided in October 2002 to restrict the nominal increase in agriculture expenditure for market measures and direct payments (thus excluding rural development policy) up to and including 2013 to a maximum of 1 per cent per year. Assuming 2 per cent inflation this represents a real fall in the ceiling of agricultural expenditure of 1 per cent per year. The gradual phasing-in of the direct income support to farmers in the new member states must be fitted under this ceiling.

EU agricultural spending continued to rise in the 1970s and 1980s, but has become more manageable in recent years. The change from price support to payments, in particular for cereals and beef, which began in the 1990s, caused spending to rise dramatically (Figures 10.1 and 10.2). The drastic increase in 'Other' payments after 2005, reflects the transition to the SPS, which will be explained below. The category not only includes the decoupled payments but also the partially decoupled SPS payments.

4 EVOLUTION OF THE MARKET ORGANISATIONS

It is neither possible nor useful here to describe all the features and changes of the common market organisations for all products. Details on the latest changes are provided in the *CAP Monitor* (Agra Europe, 2009). To illustrate the general CAP evolution, this section sketches the policies for a selected number of products: cereals, oilseeds and



Source: European Commission (2008a).

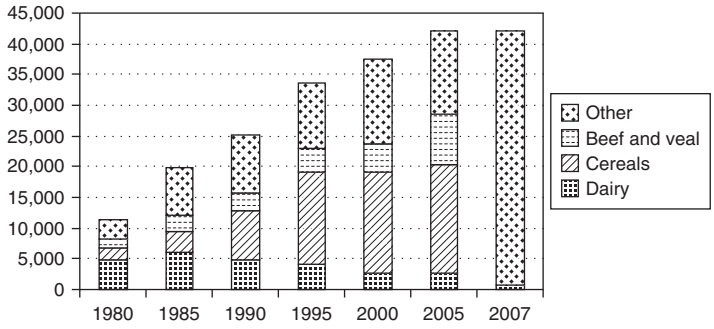
Figure 10.1 Composition of EU expenditure (€ m) for price and income support, 1985–2007

protein crops; sugar; dairy; and beef. Finally, special attention is given to the single Common Market Organisation (CMO), the new legal framework for the agricultural market and price activities of the EU.

Cereal, Oilseeds and Protein Crops

The market organisation for cereals was threatened by the growing use of competing products in compound animal feed such as tapioca, cereal residues, maize gluten feed and fruit pulp. This was called 'the problem of the cereal substitutes' (Harris et al., 1983). With the increase in imports of cereal substitutes came an annual fall in cereal consumption of 1.5–2 per cent. Around 1980 there was an agreement with Thailand to stabilise the imports of tapioca. The other substitutes, such as maize gluten and fruit pulp, came mainly from the USA and Latin America. In the 1980s a so-called 'guarantee threshold' was introduced for cereals, when the EU was more than self-sufficient in this area. If cereal production exceeded this threshold, a discount of 3 per cent was applied during the next price-fixing round. Later in the 1980s, a co-responsibility levy was imposed on cereals, which was partly dependent on the extent to which the threshold guarantee was exceeded. Similar guarantee threshold formulae (stabilisers) were drawn up for the oilseeds and protein-rich cattle feed raw ingredients. The stabilising decisions of 1988 also comprised voluntary regulations for setting aside grain acreage for one or five years. But none of the various measures seemed to work: cereal production in the Community continued to rise.

The decrease in use and the increase in production were an important argument for the MacSharry reform of 1992. The reform package was agreed bilaterally with the USA and paved the way for the agriculture agreement in the Uruguay Round. The reform package was partly concerned with restoring the market balance for agricultural products, strengthening the EU's international competitive position, a more-even distribution of agricultural support, improvements in the relationship with the environment (extensification) and safeguarding employment in the countryside. The final agreed



Note: EAGGF: European Agricultural Guidance and Guarantee Fund, since 2005 split into EAGF and EAFRD.
EAGF: European Agricultural Guarantee Fund (created 2005); finances direct payments to farmers, and measures to regulate agricultural markets such as export funds.
EAFRD: European Agricultural Fund for Rural Development (created 2005); finances the rural development programmes of member states.

Source: European Commission (2008a).

Figure 10.2 Evolution of the ex-EAGGF Guarantee Section (excluding rural development) and EAGF expenditure (€ m) for selected sectors, 1980–2007

reform contained a fundamental change to the EU agricultural policy: a transition from price support, which is by definition tied to product, to lower prices with direct income support in the form of area payments. The reform decisions for cereals boiled down to a reduction in EU prices by about 30 per cent over a three-year period.

For larger growers of cereals, rapeseed, specific protein crops and corn silage the payments were conditional on setting aside at least 15 per cent of the acreage of these products for non-food crops. Due to the reduction in grain stocks the set-aside percentage was decreased little by little. Figure 10.2 shows that this reform in the 1990s resulted in a dramatic increase (about 80 per cent) in the budget for arable products, with almost the entire arable budget going to area payments.

The set-aside rule also applied to oilseeds and for peas and beans grown for cattle fodder. The support system for these products was challenged by the US in the General Agreement on Tariffs and Trade (GATT). After the 1992 reform, area payments were paid out for these products. The oilseed agreement reached in June 1993 with the US and ratified by GATT provides for a maximum acreage of about 5 million ha for these crops in the EU.

For the above-mentioned arable products the reform in the context of Agenda 2000 (Berlin 1999) was a lot less radical than that of 1992. However, the cereal prices were reduced again, this time by 15 per cent. While the price reduction of the MacSharry reform was fully compensated, the compensatory payments in Agenda 2000 was limited to about 50 per cent of the gross price reduction.

At the time of the next reform, the Mid Term Review of 2003, now better known as the Fischler reform, with the introduction of the SPS it was decided to make the complete decoupling of support the rule. However, member states did get the opportunity to have 25 per cent of the payments per hectare coupled to production. The intervention

arrangements for cereals remained unchanged, with the exception of the intervention for rye, which disappeared.

As a result of market pressures it was decided in 2007 to lower the set-aside percentage to 0 per cent, and in the Health Check, set-aside was abolished. Import tariffs for cereals were also suspended, and in fact remained at zero until the summer of 2008. As a consequence, in a few years the cereal sector had gone from being a surplus sector to a sector for which the EU had unilaterally reduced all import protection to zero: a unique development, arising from radical internal reforms *and* a dramatic rise in grain prices on the world market. This was also caused by the rapid economic growth in Asia and the accompanying increase in demand for animal proteins. In addition, the demand for biofuels has risen sharply, in the face of high oil prices and strong backing from various different governments.

Sugar

From the outset of the sugar market organisation in the 1960s, the EU restricted the price guarantees to a certain volume of production. Each producer is entitled to the full guaranteed price only for a basic 'A-quota', subject to a 2 per cent levy for financing the system. For an additional 'B-quota' a levy is applied, which can be up to 39.5 per cent. Sugar produced above these quotas, so-called 'C sugar', had in principle to be sold without support on the world market and so yielded no more than the world market price. This was usually no more than 30–50 per cent of the price in the EU. Beet producers in some member states received a pooled price.

The sugar market organisation provided rigorous import protection. In the context of the Lomé agreement, the EU had made a preferential import agreement for sugar with the so-called ACP countries: countries in Africa, the Caribbean and the Pacific. This import arrangement consisted of a duty-free import quota (1.3 million tonnes), for which these countries then received the high EU sugar price. The sugar policy was subject to increasing criticism from other countries and the World Trade Organization (WTO), which judged in 2004 that aspects of the sugar market organisation were contrary to current WTO rules. In the context of the Everything but Arms (EBA) initiative, the EU had also agreed to let the least-developed countries (LDCs) sell sugar on the EU market without import tariff from 2009. If no adjustments were made, there would be a real risk of disruption to the EU sugar market.

So it was decided in 2006 to introduce radical reforms. This meant a 36 per cent reduction in the official sugar price. The calculated loss of income suffered by beet growers was partially compensated (by 64 per cent) with a payment decoupled from production. The intervention was limited to 600,000 tons per year. The second pillar of the reform agreement was a restructuring fund that gave sugar producers the chance to offer their production rights for buy-back. By 2010, the buy-back regulation should lead to a shrinking of European sugar production by a third compared to 2006. The consequence of this is that the EU will go from being a major net exporter of sugar to a key net importer within a short time, in particular of sugar from the poorest developing countries. One consequence of the reform is that the sugar-exporting Lomé countries lose part of the price premium on their preferential sales into the EU. With the disappearance of export refunds and the dismantling of the intervention mechanism into a

safety net since 2006, the sugar policy has been reformed to look much like that for the other arable products.

Dairy

As mentioned in Section 3, the dairy market posed problems practically from the outset of the market organisation, because production was rising too fast. To combat this, various measures have been taken over the years, such as sales subsidies, conversion and slaughter premiums, price reductions and (co-responsibility) duties. These measures had precious little effect, so the milk quota was introduced in 1984.

This was officially intended to be a 'temporary' measure, but was extended several times and now runs to 2015. In the first instance, the total EU milk quota was equal to the milk supplies in 1981 plus 1 per cent. Later a substantial reduction appeared to be necessary. Only at the end of the 1990s was the quota expanded a little again. Expenditure for the dairy policy fell steadily from the mid-1980s. There was a particularly dramatic fall in the expenditure on storage and domestic sales – the budgetary counterpart to the famous butter mountain.

The quotas are allocated to individual businesses. Exceeding these quotas results in a high levy. The super-levy was initially set at 115 per cent of the target price. The quotas are tradable within many member states, but not between member states. Various member states still see the quotas as an important measure for preserving milk production in economically fragile agricultural areas.

On the one hand the quota system facilitates a gentle reorganisation because the quotas can be sold, but on the other, they are also seen as a definite obstacle to the necessary restructuring of the sector. And yet 50 per cent of the EU15 milk producers have stopped in the last decade and their production has been taken over by other parties.

Since developments in the WTO mean that export support is being gradually phased out and that import tariffs will be reduced, it was decided in June 2003 to lower the intervention prices for skimmed milk powder and butter by 15 and 25 per cent, respectively. This would also cause the milk price to fall. Approximately 60 per cent compensation was paid out for this. In the first few years the compensatory payment – in total about €5 billion – was linked to the quota, but it has since been included in the 'single farm payment'.

Price supportive measures such as export refunds, domestic sales measures (baker's butter, milk powder for feed) and intervention were dismantled in 2007 due to the aforementioned support-price reductions and the high prices for dairy products on the world market. By mid-2007 there were no intervention stocks for dairy products. In future, intervention will be limited to relatively small maximum amounts in a specific period (March–August).

Now that the price support in the dairy sector for a large part has been replaced by decoupled direct income support, the discussion on ending milk quotas has reappeared on the agenda. During the negotiations on the Health Check proposals there was a clear majority of member states in favour of discarding quotas by the anticipated final date of 1 April 2015. A 'soft landing' is addressed by increasing quotas by 1 per cent every year between 2009/10 and 2013/14, in addition to a 2 per cent quota increase in 2008/09 (Bouamra et al., 2008).

Beef

The common beef policy encountered surprisingly few problems until the 1980s, because the EU was a net importer. The situation changed with the introduction of milk quotas which caused cattle farmers to switch to beef production. The increase in the supply of beef resulted in huge intervention stocks and export quantities to third countries, and thus to rising EU spending. When the market problems arose, changes in the intervention policy were initiated at first, mainly with respect to quality requirements, purchasing periods and price levels.

In the context of the 1992 reforms more far-reaching reforms were pushed through, similar to those for cereals. The intervention prices were lowered by 15 per cent in three years, a ceiling was put in place for the intervention purchases (running to 350,000 tons in 1997) and the premiums for steers and suckler cows were raised. For this last there were maximums per business (90 steers and for suckler cows the number in 1990, 1991 or 1992) and per hectare (cattle density), the last running to 2 livestock units (lsu) in 1996. This was intended to extensify beef production and provide more opportunities for cattle farmers in areas 'disadvantaged by nature', for example, mountainous regions. The reform of the beef policy has led, as with grain, to an increase in the required budget. Expenditure on interventions and refunds has fallen off dramatically, but spending on direct premiums has risen sharply since 2000. In 2006 this amount fell again because most of the premiums had been included in the single farm payment.

The Single CMO[2]

Until 2007, the EU was operating 21 separate CMOs, each governed by its own basic regulation. The European Commission has been seeking to reform the CAP by moving away from the traditional approach of legislating specific support measures for specific production sectors. As explained in the next section, the introduction of the SPS is a clear example of this ambition.

Another significant development was the plan to make the functioning of the EU more simple and less bureaucratic. The CAP, with its multitude of legislation covering a wide range of production sectors, was a clear target for rationalisation. Most of the regulations followed the same structure and had numerous provisions in common. This was the case for some general provisions, for rules relating to the internal market and especially for rules on trade with third countries.

The Commission therefore amalgamated the provisions of the sector regulations into a single legal framework, replacing the sector approaches by horizontal ones, where possible and appropriate. A new single CMO was created, governed by a single regulation, which controls the main elements of market support across the board. The Regulation 1234/2007 (Council of the EU, 2007) was agreed by EU agriculture ministers on 12 June 2007, came into force on 1 January 2008 and was fully active as from 1 January 2009. The single CMO covers the following sectors: cereals; rice; sugar; dried fodder; seeds; hops; olive oil and table olives; flax and hemp; bananas; live plants and flowers; raw tobacco; beef and veal; milk and dairy products; pigmeat; sheep and goatmeat; eggs; poultrymeat; fruit and vegetables; and wine.

The single CMO sets out the rules on intervention mechanisms (private storage aid,

public storage, special measures, production quotas) specific aid schemes and trade with third countries (imports and exports). Moreover, it contains rules on state aid and competition. In principle, products covered by the CAP are subject to the basic aid and competition provisions set out in the EU Treaty, except where a derogation is provided under the regulation. The scope for such derogation is not small, as it covers 'agreements, decisions and practices' necessary for the attainment of the objectives of the CAP. In particular, normal competition law does not apply to the operations of producer organisations operating within the scope of the CAP.

In the day-to-day management of the agricultural markets for products covered by the CMO, the European Commission is assisted by the Management Committee for the Common Organisation of Agricultural Markets. This committee is attended by member state experts on a specific commodity, depending on which issues are on the agenda for discussion.

The creation of a single CMO can be seen as a technical exercise designed to simplify the CAP. This view has been stressed by the Commission. The single CMO is in line with the trend of moving away from precise support for specific sectors towards direct income support. However, it would be misleading to suggest that all sectors are now treated in the same way: the CMO retains special clauses for the different sectors.

5 SINGLE PAYMENT SCHEME AND CROSS-COMPLIANCE

The political origin of the direct income support, started by the MacSharry reform of 1992, is to provide farmers financial compensation for lowering the price support. Although the MacSharry reform offered 100 per cent compensation of revenue loss, in later reforms the announced price declines were only partially compensated (with compensation rates about 60–70 per cent). In practice, however, it turned out that the actual compensation in some cases could still be more than 100 per cent, for example, because the real decline in EU market prices was less than the reductions in intervention prices and export subsidies or because of induced cost reductions.

Initially, the direct income payments were generally not fully decoupled from production. For this reason, the payments were criticised as still being trade distortive. Also the combination with compulsory set-aside aimed at curbing production did not change this. In the WTO, the payments were classified in the so-called 'blue box', a box comprising policies which should be dismantled over time. With the Luxembourg Agreement (outcome of the 2003 Mid Term Review of the CAP), however, an important next step in the ongoing reform process was set: the direct payments were to a large extent to be decoupled from production. In 2006, 82 per cent of the EU direct payments were already decoupled and this share will further increase over time. 'Decoupled' means that payments are no longer tied to the production of specific products, but receipt of the so-called 'single farm payments' still requires that entitlements are matched to eligible hectares (which must be maintained in a proper condition). Farmers are now in principle free to choose the optimal allocation of their type of production given market price signals. Initial limitations (for example, vegetable crops, fruit, potatoes) were reduced when land with fruits and vegetables also became eligible for payment entitlements (for example, the Fruits and Vegetables reform; Regulation 1182/2007). With the 2003 CAP

reform, the EU income support, which was until then considered to be trade distorting, claimed a 'green-box' status in the WTO. As such it should no longer count as distorting output and trade, being exempted from support reduction commitments.

The SPS is now the main income support instrument of the CAP (Jongeneel and Brand, 2010). As such, further insight into the degree of support derived from the direct payments and its distribution over farms is useful for evaluating this policy. In 2006 average direct payment per farm in EU25 amounted €10,110 (of which €8,780 came from the EU and €1,330 came from national funds, including the complementary national direct payments) (derived from European Commission, 2008b: 5). On average for the EU15 the share of national direct payments in total direct payments received by farmers was about 5 per cent, with Finland as an exception. Because the distribution of direct payments is rather skewed the median value (half of the farmers receive less than the median value and half of farmers receive more) might be more informative than average numbers. According to the FADN 2006 farm bookkeeping data, the median EU direct payment per farm was €2,160 per farm. The median direct payment per hectare was €160/ha. (ibid.: 1). As compared to 2004, the median payments per farm and per hectare increased by 20 per cent. Two factors explaining the increase are the added milk direct payments (milk premium) and the SAPS (Single Area Payment Scheme) level increase in the new member states, that is, those joining in 2004 and 2007. The level of the median direct payments per farm is closely linked to the structure of the farms. This is in particular the case in the new member states applying the SAPS (linked to area). In the EU15 the level of direct payments by farm is also closely linked to the products they were and usually still are producing (payments reflect historical references). As such the median direct payment per farm in EU15 varied from 0 for specialised horticulture and wine-producing farms to €12,490 for specialised dairy farms (ibid.: 1).

From 2003, member states were allowed to retain by sector 10 per cent of their national budget ceilings for direct payments for use for environmental measures or improving the quality and marketing of products in that sector (Article 69). In the Health Check it has been decided that this possibility will become more flexible (Article 68). The money will no longer have to be used in the same sector; it may be used to help farmers producing milk, beef, goat and sheepmeat and rice in disadvantaged regions or vulnerable types of farming; it may also be used to support risk management measures such as insurance schemes for natural disasters and mutual funds for animal diseases.

Cross-compliance

With the growing commitment in the European Community in the late 1980s to integrating environmental considerations into the CAP, the so-called 'cross-compliance' instrument had already become part of the debate on agricultural policy reforms. With the 1992 MacSharry reforms of the CAP, which increased reliance on the direct payment instruments, the potential relevance of cross-compliance increased. The greater transparency of these payments prompted a debate on the 'value added' or contribution that EU agriculture should give to society. This intensified the debate about the tangible social and environmental services farmers should provide in reciprocity to these payments. Although elements of environmental cross-compliance were introduced into the CAP by the MacSharry reform, its impact initially remained rather limited. Member states were

obliged to apply so-called 'appropriate environmental conditions' to the management of compulsory set-aside in arable cropping. Moreover, they were allowed (but not obliged) to introduce environmental conditions on the direct payments offered as headage payments for beef cattle and sheep. Only a limited number of member states (notably the UK) implemented such schemes.

The Agenda 2000 reform of the CAP extended the switch from price support to direct payments. Also cross-compliance became a more prominent part of the agricultural policy package. Regulation 1259/1999 (Article 3) required member states to take measures to ensure that agricultural activities within the scope of the 'common rules regulation' were compatible with environmental requirements. It allowed member states several options for such measures. These options included: support in return for agri-environmental commitments, the introduction of general mandatory environmental requirements, and the introduction of specific environmental requirements constituting a condition for direct payments (cross-compliance). Member states were able to decide on a sanctioning system punishing violations. Punishment should be appropriate and proportionate and could include withdrawal or even cancellation of direct payments. Only a limited number of member states (among them Denmark, France, Greece, the Netherlands and the UK) set down conditions for direct payments.

With the 2003 policy reform, cross-compliance became a compulsory measure. Together with decoupling of support and the renewed rural development pillar (Second Pillar of CAP) that were then introduced, it intrinsically sought to promote and contribute to sustainable agriculture. This is achieved through the respect by the farmer of the rules relating to the relevant aspects of cross-compliance. A second objective is to make the CAP more compatible with the expectations of society at large. There is now a growing body of opinion that agricultural payments should no longer be granted to farmers who fail to comply with basic rules in certain important areas of public policy. As such, its scope was extended from its original environmental focus to one dealing with a much wider range of public concerns, each of which was already covered by EU legislation. Added concerns were animal welfare, food safety and maintaining agricultural land in a good agricultural and environmental condition.

Cross-compliance can be considered to be an additional enforcement mechanism, alongside the legal sanctioning systems that are at the discretion of the member states. It creates a link between the full payment of support, and compliance with certain rules relating to agricultural land use and to the process of agricultural production. This link is expressed in concrete terms in the possibility, if the rules are not respected, of full or partial reductions of certain EU agricultural payments. These reductions depend on the severity, the extent, the permanence, the repetition and the intentionality of the non-compliance (European Commission, 2007).

Cross-compliance involves three elements of standards: the statutory management requirements (SMRs), the good agricultural and environmental conditions (GAECs) and the obligation to preserve the area of permanent pasture at the reference level in 2003. With the Health Check decisions (November 2008) the original Regulation 1782/2003 (Council of the EU, 2003) establishing cross-compliance was replaced by a new Regulation 73/2009. In return for direct payments under the SPS, this regulation (which applied in all pre-2000 member states, and, as at 2009, Slovenia and Malta) requires farmers to observe certain standards in the following areas:

- environment;
- public, animal and plant health;
- animal welfare; and
- GAECs.

More precisely, farmers must comply with 19 SMRs defined in Annex III of the regulation, and a number of standards ensuring the good agricultural and environmental condition of agricultural land. Although they are part of the cross-compliance package, the SMRs are all pre-existing EU directives and regulations for the EU15. The Nitrate Directive, to mention one example, originates from 1991. With regard to these SMRs, cross-compliance acts only, or at most, as an additional financial incentive, besides the existing national systems for enforcement of EU legislation as transposed into national legislation and in national enforcement and sanctioning policies.

The GAEC framework and the obligation to preserve the national ratio of permanent pasture at the level present in 2003 are, at least in principle, new requirements. The GAEC framework focuses on four 'issues' (soil erosion, soil organic matter, soil structure, minimum level of maintenance) and a total of 11 corresponding standards. With the Health Check the original (obligatory) standards were subdivided into those which are compulsory and those which are optional (member states that already implemented these should stick to them). Moreover, a new compulsory GAEC standard requires member states to introduce a standard for buffer strips next to watercourses. Another new requirement is compliance with water use authorisation standards. The retention of landscape elements was revised referring more specifically to features to be maintained. As a result of the Health Check reform the majority of member states will need to introduce additional GAEC standards for buffer strips and landscape features.

The permanent pasture requirement was included in the cross-compliance package to avoid not only the abandonment of land and associated environmental degradation, but also a potential massive conversion of permanent pasture into arable land. Abandonment of land was feared as a potential side-effect of the introduced decoupling, which delinked support from production activities. A ban on (massive) conversion of permanent pasture into arable land should also limit possible market responses of the arable markets. As such the GAEC requirements can be seen as a precautionary policy to prevent potential problems which might occur in the future. In contrast with the SMRs, the GAEC standards and the permanent pasture clause are part of cross-compliance, which implies that the behavioural changes (and associated costs and benefits) induced by these standards can be attributed to the direct impacts of cross-compliance.

6 POLICIES FOR RURAL DEVELOPMENT

To understand the objectives and instruments of the EU rural development policy, it is useful to start with its origins (Thomson et al., 2010). These origins lie in efforts to promote economic growth and integration in rural areas via 'structural' means. Aside from agricultural market and price policy, and the accompanying common trade policy, it was the intention of policy makers such as Sicco Mansholt right from the beginning to also develop a common agricultural structure policy. This policy should focus on the

supply side of agriculture: the production factors (land, labour and capital) and the farm structure. However, this common policy never really got off the ground. In addition to the less binding articles of the EEC Treaty, agriculture ministers were reluctant to hand over power on this policy to Brussels, a reticence which remains to this day.

Within the CAP, the Agricultural Fund had from the start a structural ('Guidance') component, as a consequence of extensive discussion on this point during the 1958 Stresa Conference . However, compared to the establishment of CMOs for the main farm products under the Guarantee Section of the Fund during the 1960s, progress on agricultural structural policy was confined mainly to examination and coordination of national measures, such as state aids for farm reorganisation and modernisation. Although the Guidance Section was intended to cover one-third of total FEOGA expenditure (with 'matched' national funding to be added), this proportion seldom exceeded 10 per cent.

By the end of the 1960s, the establishment of CAP market support, along with rapid technological progress in farming and slow agricultural restructuring, was leading to severe problems of overproduction. In response, the Mansholt Plan of 1968 proposed a radical shift towards fewer, larger farming units. The plan was violently contested in farming circles, and eventually abandoned. Instead, a set of structural directives (nos 72/159–161) was adopted in 1972, dealing with, respectively: modernisation of 'main occupation farms' via various forms of aid; farmer retirement, releasing farmland to other farmers or for afforestation; and 'socioeconomic' advice and training both for those leaving farming and for those remaining.

In 1975, the first 'less favoured areas' (LFA) Directive (no. 75/258) was adopted – a significant break from the principle of a 'common market' within which economic comparative advantage should be pursued without geographical distinction. Farm producers in the LFAs – which eventually spread to over half the total area of the EU – received annual payments, typically per hectare, in order to 'compensate' for natural handicaps and other difficult territorial conditions. Almost all the content of the 1972 and 1975 directives have been continued in some form or other into the present era.

Later, a wider regional approach provided special support to European regions 'lagging behind' in economic development. Several studies had shown that European integration was leading – possibly due to market imperfections – to agglomeration (clustering) of economic activity in certain city regions, and hence to divergence rather than convergence of GDP levels between all EU regions. To counter this effect, it was considered desirable to keep resources (labour, capital) in their original locations, and not simply helped to transfer to more prosperous regions. By the 1980s, with the Community of Ten again in severe oversupply of farm products, and manufacturing no longer absorbing surplus farm labour, structural problems in rural areas were again in evidence. A number of directives were adapted to take account of this situation, for instance by limiting the possibility of giving aid if this would increase production. Environmental concerns were also incorporated for the first time . In 1986, the further enlargement of the Community to include Spain and Portugal, and the adoption of the Single European Act – which formally recognised regional policy as a major tool in promoting socioeconomic 'cohesion' – heralded a more serious attempt at addressing regional and rural problems within the Twelve.

Following a small set of experimental 'integrated development programmes' (IDPs) in the late 1970s, a series of more substantial integrated Mediterranean programmes (IMPs)

were initiated in France, Greece and Italy. These involved a number of innovations: for example, member states, not the Commission, were responsible for their design; their scope included manufacturing and services (for example, tourism) as well as agriculture; funding came from all three funds (agricultural, regional and social); and multi-annual 'programming' (and budgeting) was instituted.

The MacSharry reforms of the CAP agreed in 1992 included not only major steps towards lowering agricultural price support, but in the field of rural policy included 'accompanying measures' in the form of an early retirement scheme, an agri-environment scheme and a scheme for afforestation of farmland. These were designed both to reduce production capacity and to improve the structure of farming. The problems of 'agricultural adjustment' thus continued to be recognised, but were now more strongly linked to the growing interest in environmentally friendly land management by farmers: member states were now obliged to offer a relevant scheme to their farmers. This happened against the background of diminishing market support due to the 1993 Uruguay Round agreement, although, with the exception of a 20 per cent 'incentive', agri-environmental schemes were to compensate farmers only for additional costs and income forgone, as provided for under the WTO green-box rules. However, many of these first agri-environmental schemes were not well targeted, and a clear link to perceived environmental benefit could not always be established. A more critical approach towards agri-environment schemes was adopted by the Commission in the next and subsequent programming periods.

A next step, in November 1996, was the Cork Conference attended by Franz Fischler as Commissioner for Agriculture and *Rural Development* (emphasis added), and resulting in 'The Cork Declaration: A Living Countryside'. Alongside a 'multisectoral' or 'territorial' approach, and 'subsidiarity' in policy decision making, the term 'sustainability' worked its way into the standard terminology in recognition of growing environmental concerns at EU and global levels. A further term growing in importance was the 'multifunctionality' of agriculture, reflecting the mixture of private goods and services (food and fibre products, and farm tourism) and 'public (or non-commodity) goods' (landscape, wildlife and so on) provided by much of European farming. The 'European Model of Agriculture' was endorsed by the Council of Ministers as a framework to be supported (for example, against pressures from international trade negotiations) in the general interest of EU citizens and their environment.

However, the practical importance of the Cork Declaration was not immediate: many ministers of agriculture were still not keen to shift the main focus of the CAP away from support for farmers and towards wider rural support. In any case, decisions had to await the major Agenda 2000 negotiations leading up to the third programming period of 2000–06 for the EU as a whole. For the CAP, this meant the definition of the two CAP pillars, with all rural development measures reorganised within a separate component of the overall policy, that is, Pillar 2. Alongside multiannual programming, monitoring and evaluation of rural policy measures also became more important. The new integrated regulation (no. 1257/1999) included measures (previously co-financed under Objective 5b) geared at non-agricultural development of regions, so that its scope now covered all rural regions in the EU.

The Agenda 2000 decisions entailed no significant increase in the EU budget for structural funds. The Regional Fund's objectives were limited to two: Objective 1 much as

before but including 'Objective 6' regions in the 1996 entrant countries of Sweden and Norway; and a new Objective 2 which now included Objective 5b areas. 'Community Initiative' programmes were cut to four: INTERREG, URBAN, LEADER and EQUAL.

A special feature of the Agenda 2000 decisions was the preparation for EU entry by the new member states, scheduled for 2004. In the field of rural policy, the SAPARD (Special Accession Programme for Agriculture and Rural Development) initiative was set up (alongside the parallel ISPA and PHARE instruments for structural and environmental infrastructure) to assist the implementation of the *acquis communautaire* in the countries of Central Europe, primarily by building administrative capacity for supporting the enhancement of efficiency and competitiveness in farming and the food industry (about half of the available funding), and the improvement of rural infrastructure (about a third). It was thus recognised that the new member states not only faced a major structural problem in the farm-food sector, but that its public administration needed help in putting together viable proposals for EU funding to create employment and sustainable economic development in rural areas. A more concrete incentive lying behind SAPARD was anxiety in the Commission that the new member states would not be able to prepare and administer the new programmes, and thus that the allocated funds would not be absorbed.

A further step in the development of the EU rural policy was the Mid Term Review (of the CAP) decision taken in 2003 to convert most direct payments to farmers into 'single' payments as from 2005 or 2006. Within a strict 'financial discipline', a small proportion of Pillar 1 funds were compulsorily 'modulated' to Pillar 2, with complex rules over the allocation and use (including co-funding by member states) of such funds.

Finally, Regulation 1698/2005 set up the current structure for rural development policy within the CAP, with three 'strategic priorities' or 'Axes', that is:

- Improving the competitiveness of agriculture and forestry by supporting restructuring, development and innovation (Axis 1).
- Improving the environment and the countryside by supporting land management (Axis 2).
- Improving the quality of life in rural areas and encouraging diversification of economic activity (Axis 3).

In addition, a fourth 'horizontal' Axis 4 enhances the use of the LEADER approach, which can be delivered across any one or combination of the three main axes. Although the implementation of the axes is mainly a national competence, the European Commission exerts some control via the requirement – among others – to spend at least 10 per cent of the Community financial contribution on Axes 1 and 3, at least 25 per cent on Axis 2 and at least 5 per cent on Axis 4.

Some of these developments parallel those in other countries, as represented by the OECD's pursuit of a 'New Rural Paradigm',[3] with its emphasis on: local amenities (environmental or cultural) or local products (traditional or labelled) as a means of generating new competitive advantages; a shift from a sectoral to a territorial policy approach; and new forms of governance, for example, decentralisation, partnerships, and multisectoral coordination.

In designing and implementing Rural Development Programmes (RDPs) for 2007–13 under Regulation 1698/2005, the main aspects of the EU's Lisbon and Gothenburg Agendas (on competitiveness and sustainability respectively) were reflected in 'Community Strategic Guidelines' (COM(2005) 0299), while the strategic aspects of EU rural development policy were strengthened through the requirement to prepare a National Strategy Plan prior to the initiation of the 'programming' phase. Initially these efforts to impose EU-level guidance on national rural development policies were contested, both conceptually (is this an appropriate area for strong EU coordination?) and in practice (will the above documents prove effective during the implementation of national and regional programmes?). However, according to Commission sources, these documents have proved useful tools in translating EU priorities into practical measures in national and regional RDPs. Nevertheless, some member states have doubted their added value. In any case, as detailed below, the actual use of CAP rural development money by a number of EU member states largely maintains a traditional land-based approach.

At time of writing (autumn 2008), EU rural development policy is well into the fourth programming period 2007–13 with some exceptions due to delays in approvals – with an EU27 'indicative expenditure' budget of about €90 billion. The approval process was not always an easy one, especially for countries where regional authorities were required for the first time to prepare stand-alone programmes which still had to respect the priorities set out in the National Strategy Plan and in so-called national frameworks. Some issues required special attention such as, for example: the definition and controllability of agri-environment measures; monitoring and evaluation (see the quantitative targets in the following paragraphs); and demarcation with other funding instruments and with the First Pillar of the CAP to avoid the risk of double financing. Axis 1 in the approved RDPs as a whole accounts for about a third of the planned spend of Community funds, Axis 2 for somewhat under half, Axis 3 for about an eighth, and Axis 4 for just over 6 per cent.[4]

Axis 1 proportions among member states vary from nearly 50 per cent (Belgium) to 10 per cent (Ireland), with new member states scattered fairly evenly. According to the quantitative targets set, the objective of improving human capital is to be pursued by providing training and advice to millions of farmers, and by supporting some 176,000 young farmers to set up for the first time, while 86,000 older ones will retire early. Physical investment and innovation will take place on several hundred thousand farms and forest holdings, including 111,000 semi-subsistence farms in the new member states. The main planned expenditures within Axis 1 are: 'modernisation of agricultural holdings' (€9.6 billion of EU funds); 'adding value to agricultural and forestry products' (€5.5 billion); and 'improvement and development of infrastructure' (€4.9 billion).

Axis 2 proportions vary more differentially, at over 60 per cent for six old member states, but under 33 per cent for five new member states; this is in line with previous findings on the spatial impact of the CAP.[5] Three million holdings, covering some 34 million hectares, will receive agri-environmental payments totalling €20.3 billion from the EU, and a further 3 million holdings on 50 million hectares will receive €12.6 billion in less favoured area (LFA) payments.

Axis 3 measures are favoured relatively by new member states (which enjoy higher EU co-financing rates) with proportions of EU funding between 17 and 34 per cent, while

most member states allocate less than 14 per cent to this axis. The main expenditures are on village renewal and basic services (€5.7 billion), business creation and development (€2.2 billion), and diversification to non-agricultural activities (€1.4 billion). In all, some 370,000 new jobs are expected from diversification, micro enterprises and tourism, and some 36 million people should benefit from improved basic services.

Some old member states propose Axis 4 expenditure proportions over 10 per cent, and nine new member states have shares of 5 per cent or less; most of the rest are around 6 per cent. About two-thirds of these expenditures are focused on Axis 3, with smaller proportions on Axis 1 and the management of local action groups (LAGs).

7 CONCLUSIONS

Progressive integration has been one of the most characteristic elements of economic development worldwide and the EU is a prime and unique example. Reviewing the evolution of the CAP choosing an integration perspective suggests that aspects of internal and external integration should be distinguished. From the late 1960s to the beginning of the 1980s, the CAP changes had a piecemeal character. Important elements in this phase were making further progress with market and policy integration. A number of decisions (those related to the MCAs) can be seen as an answer of a sectoral policy which tries to preserve the unity of market and prices but has to cope with a lack of policy integration. This holds in particular with respect to the divergent monetary policies pursued by EU member states, which required several realignments between exchange rates.

During this period, the EU changed from a net importer with respect to basic agricultural products into a net exporter. As a net exporter it became a big player in several markets. As such the EU was forced more and more to take into account the distortive effects it created at world markets. Not only the increasing tensions with other competing prime exporters (USA) played a role, also the budget implications of market imbalances increased the political pressure from within the EU to reform its policy. An example of the response is the introduction of the milk quota regime in 1984.

In the 1990s, the structural change in the EU's trade position (from net importer to net exporter) as well as the dominance of the trade issue at the EU's policy agenda were important drivers. In other words: rather than internal integration, the external integration of the EU with respect to world markets gained importance. This not only affected the EU's trade policies and the trade policy part of the CAP, but it simultaneously affected the more internal sides of this policy (income support to farmers). The 'solution' found was the switch from price support to income support by means of direct payments. Whereas initially these payments were still coupled to output, later on it was decided to decouple them.

Alongside the external integration, there is still an element of internal integration that deserves further attention. This is the broadening of the CAP from a producer support policy exclusively linked to food and fibre production to a policy which accounts for other societal concerns, in particular those with respect to the environment. Relevant in this respect is the conditionality (created by introduction of obligatory cross-compliance) of the SFPs to compliance with a wide range of statutory management regulations (for example, Nitrate Directive, Birds and Habitat Directives, food safety and animal welfare

regulations and so on) and good agricultural and environmental practices (aimed at avoiding erosion and land abandonment). Also the second pillar of the CAP has been directed more at these issues.

At present, the internal integration has been roughly completed, including the EU enlargement with the Central and East European member states. Also the most important steps necessary to integrate the EU's agriculture with the world economy have been accomplished. What are the challenges for the future? The price upheaval of the 2007–08 period (food crisis), apart from its incidental elements, signalled that agricultural markets as well as other resource markets might enter a new era, where the development spurt of Brazil, Russia, India and China (BRIC) will change the relative scarcities. At the same time the subsequent financial economic crisis is not only likely to create a significant slowdown of the world economy, but also might switch the pendulum from a neo-liberal policy perspective (Washington Consensus) to a more protective one. As a reaction, more efforts might result to influence the world's economic integration process (globalisation) in a direction to better account for sustainability and fairness. This really becomes speculative, but the potential implications for agriculture and its policy environment might be significant (for example, biofuel policy).

The future of the CAP will also be shaped by the new Financial Perspective (2014–20). It is interesting to note (Bos, 2010) that the Interinstitutional Agreement on the present financial framework (2007–13) contains a closing paragraph arguing for the introduction of new co-financing mechanisms (European Parliament et al., 2006). Co-financing has been generally accepted in the EU structural policy. Mixed financing by the EU and the member states is also used in the second pillar of the CAP. In the current system of co-financing of this rural development policy, the EU contribution to the total public expenditure is no more than 50 or 55 per cent (respectively, 75 to 80 per cent for the so-called convergence regions with a GDP per capita below 75 per cent of the EU average). The rest has to be financed nationally or locally. Co-financing contributes to making member states more cost-conscious, leading to a prudent implementation of the funds and hence a greater efficiency. As yet, the first pillar of the CAP is fully financed from the EU budget. With the broader introduction of direct payments decoupled from production, the arguments for decentralisation of income support to farmers gather strength. The personal income distribution is part of the realm of the member states. In line with the subsidiarity principle, it may therefore be expected that at least part of these payments will be financed from the national budgets.

SUMMARY

The development of the Common Agricultural Policy (CAP) offers an interesting example of international economic integration. The Treaty of Rome, by which six countries set up the European Economic Community (EEC), formed the starting point. The treaty stated the direction for agriculture: free trade within the common market. To establish this result, the formulation and implementation of the CAP was a necessary condition. After the 1960s, the original CAP was reformed in several steps. This chapter describes and explains the main policy changes.

The changes were shaped by the following factors:

- the classic objectives of agricultural policies, as formulated in the Treaty;
- the expansion of agricultural production beyond consumption;
- the lack of stable exchange rates;
- the enlargements of the European Union;
- the budgetary limits;
- the constraints of the GATT/WTO, which refer to market access, export support and domestic support;
- the need and ambition to address environmental concerns; and
- the hidden objectives of sectors and member states to maintain the level of support.

In 2008 the Health Check of the CAP was on the European agenda. The decisions are likely to be followed by new reform proposals for the CAP after 2013.

Keywords

European Union, agricultural and trade policies, environmental policies.

JEL classification

F14, F15, Q17, Q18.

NOTES

1. See also van den Noort (this volume, ch. 9).
2. This section is based on chapter 5 of Agra Europe's *CAP Monitor* (2009).
3. See OECD (2006).
4. These figures, and those in the following paragraphs, refer only to Community funding, and exclude national public and private funding. RDP co-funding shares vary widely, from around 80 per cent in some new member states, to under 10 per cent in some old member states.
5. See Shucksmith et al. (2005).

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11 Agricultural policy as a barrier to global economic integration

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1 INTRODUCTION

While the benefits from specialisation in production and international exchange have been recognised for millennia, most governments restrict international trade to some extent, especially in agricultural goods. Sometimes it would be via export taxes, to raise government revenue or to lower the price of food for domestic consumers. More commonly it takes the form of import duties or bans. While food security concerns are sometimes mentioned as a reason for intervention in both sets of countries, for advanced economies the most likely reason for farm trade restrictions in the past century or more has been to protect domestic producers from import competition as they come under competitive pressure to shed labour in the course of economic development. In the process those protective measures hurt not only domestic consumers and exporters of other products but also foreign producers and traders of farm products, and they reduce national and global economic welfare. For many decades agricultural protection and subsidies in high-income (and some middle-income) countries have been depressing international prices of farm products, which lowers the earnings of farmers and associated rural businesses in developing countries. That worsened between the 1950s and the early 1980s (Anderson and Hayami, 1986), thereby adding to global inequality and poverty because three-quarters of the world's poorest people depend directly or indirectly on agriculture for their main income (World Bank, 2008).

In addition to this external policy influence on rural poverty, the governments of many developing countries have directly taxed their farmers over the past half-century. A well-known example is the taxing of exports of plantation crops in post-colonial Africa (Bates, 1981). At the same time, many developing countries chose also to pursue an import-substituting industrialisation strategy, predominantly by restricting imports of manufactures, and to overvalue their currency. Together those measures indirectly taxed producers of other tradable products in developing economies, by far the most numerous of them being farmers (Krueger et al., 1988, 1991).

Thus the global integration of markets for farm products has been reduced by policies of both high-income and developing countries. This disarray in world agriculture, as D. Gale Johnson (1991) described it in the title of his seminal book, means there has been overproduction of farm products in high-income countries and underproduction in more-needy developing countries. It also means that there has been less international trade in farm products than would be the case under free trade, thereby thinning markets for these weather-dependent products and thus making them more volatile. Using a stochastic model of world food markets, Tyers and Anderson (1992, Table 6.14) found that

instability of international food prices in the early 1980s was three times greater than it would have been under free trade in those products.

During the past quarter-century, however, numerous countries have begun to reform their agricultural price and trade policies. To get a sense of how much that has increased the integration of global markets for farm products, the present chapter draws on the results of the recent World Bank multicountry study of distortions to agricultural price incentives over the past five decades. That study includes 75 countries that together account for 92 per cent of the world's population and agricultural GDP and 95 per cent of total GDP. The sample countries also account for more than 85 per cent of farm production and employment in each of Africa, Asia, Latin America and the transition economies of Europe and Central Asia, and their spectrum of per capita incomes ranges from among the poorest (Zimbabwe and Ethiopia) to among the richest (Norway).

Specifically, this chapter summarises estimates of the nominal rates of assistance and consumer tax equivalents (NRAs and CTEs) for more than 70 different farm products, with an average of almost a dozen per country.[1] Not all countries had data for the entire 1955–2007 period, but the average number of years covered is 41 per country. Having such a comprehensive coverage of countries, products and years offers the prospect of obtaining a reliable picture of long-term trends in price-distorting policies (as well as annual fluctuations around those trends, not reported here) for country groups, regions and the world as a whole (as well as for individual countries and commodities, also not reported here because of space limitations).

This chapter is structured as follows. Section 2 begins with the methodology used to generate annual indicators of the extent of government interventions in markets, details of which are provided in Anderson et al. (2008a). In Section 3, the NRA and CTE estimates are summarised across regions and over the decades since the 1950s. A summary is also provided of an additional set of indicators of agricultural price distortions that are based on the trade restrictiveness index first developed by Anderson and Neary (2005) and modified for the Bank's research project by Lloyd et al. (2010). In Section 4, we discuss a new set of results from a global economy-wide model that provided quantification of the impacts on global agricultural trade of the reforms since the early 1980s and of the policies still in place as of 2004. The chapter concludes with Section 5, by drawing on the lessons learned to speculate on the prospects for further increasing the global integration of agricultural markets.

2 METHODOLOGY FOR MEASURING THE EXTENT OF POLICY-INDUCED PRICE DISTORTIONS

Government-imposed distortions can create a gap between domestic prices and what they would be under free markets. The NRA for each farm product is computed as the percentage by which government policies have raised gross returns to farmers above what they would be without the government's intervention (or lowered them, if NRA < 0). A weighted average NRA for all covered products is derived using the value of production at undistorted prices as weights (unlike the producer and consumer support estimates (PSEs and CSEs) computed by OECD (2008), which are expressed as a percentage of the distorted price). To that NRA for covered products is added a 'guesstimate' of the

NRA for non-covered products (on average around 30 per cent of the total value of farm production) and an estimate of the NRA from non-product-specific forms of assistance or taxation. Since the 1980s some high-income governments have also provided so-called 'decoupled' assistance to farmers but, because that support in principle does not distort resource allocation, its NRA has been computed separately and is not included for direct comparison with the NRAs for other sectors or for developing countries. Each farm industry is classified either as import competing, or a producer of exportables, or as producing a non-tradable (with its status sometimes changing over the years), so as to generate for each year the weighted average NRAs for the two different groups of covered tradable farm products.

Also computed is a production-weighted average NRA for non-agricultural tradables, for comparison with that for agricultural tradables via the calculation of a percentage relative rate of assistance (RRA), defined as:

$$RRA = 100*[(100 + NRAag^t)/(100 + NRAnonag^t) - 1],$$

where $NRAag^t$ and $NRAnonag^t$ are the percentage NRAs for the tradables parts of the agricultural (including non-covered) and non-agricultural sectors, respectively.[2] Since the NRA cannot be less than –100 per cent if producers are to earn anything, nor can the RRA (since the weighted average $NRAnonag^t$ is non-negative in all our country case studies). And if both of those sectors are equally assisted, the RRA is zero. This measure is useful in that if it is below (above) zero, it provides an internationally comparable indication of the extent to which a country's sectoral policy regime has an anti- (pro-) agricultural bias.

Also considered is the extent to which consumers are taxed or subsidised. To do so, a CTE is calculated by comparing the price that consumers pay for their food and the international price of each food product at the border. Differences between the NRA and the CTE arise from distortions in the domestic economy that are caused by transfer policies and taxes/subsidies that cause the prices paid by consumers (adjusted to the farm-gate level) to differ from those received by producers. In the absence of any other information, the CTE for each tradable farm product is assumed to be the same as the NRA from border distortions.

The cost of government policy distortions to incentives in terms of resource misallocation tend to be greater the greater the degree of substitution in production. In the case of agriculture which involves the use of farmland that is sector specific but transferable among farm activities, the greater the variation of NRAs across industries within the sector then the higher will be the welfare cost of those market interventions. A simple indicator of dispersion is the standard deviation of the covered industries' NRAs.

However, it would be helpful to have a single indicator to capture the overall welfare effect of each country's regime of agricultural price distortions in place at any time (taking account of both the mean and variance of the product NRAs and CTEs), and to trace its path over time and make cross-country comparisons. From the viewpoint of global integration, an index of the international trade volume effect of national government interventions would also be helpful. To that end, the family of indexes first developed by Anderson and Neary (2005), under the catch-all name of 'trade restrictiveness indexes', is drawn upon.

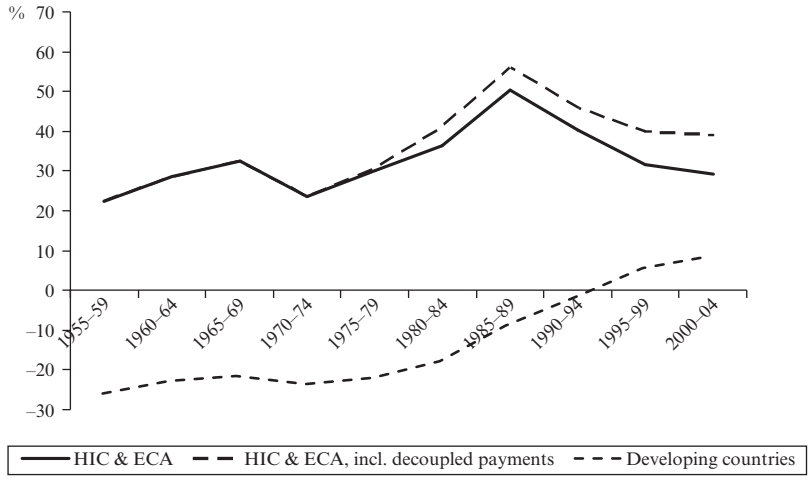
To generate partial equilibrium indicators of the impact of distortions imposed by each country's border and domestic agricultural policies on its economic welfare and its agricultural trade volume, Lloyd et al. (2009) define a Welfare Reduction Index (WRI) and a Trade Reduction Index (TRI) and estimate them for the same focus countries, taking into account that for some covered products the NRA and CTE differ (because there are domestic measures in place in addition to or instead of trade measures). As their names suggest, these two new indexes, respectively, each provide a single indicator of the direct welfare- or trade-reducing effects of distortions to consumer and producer prices of covered farm products from all agricultural and food price and trade policy measures in place (while ignoring non-covered farm products and indirect general equilibrium effects of sectoral and trade policy measures directed at non-agricultural sectors). Specifically, the WRI (or TRI) is that *ad valorem* trade tax rate which, if applied uniformly to all farm commodities in a country that year would generate the same reduction in economic welfare (or trade) as the actual cross-commodity structure of agricultural NRAs and CTEs for that country, other things equal.

The WRI measure reflects the partial equilibrium welfare cost of agricultural price-distorting policies better than the NRA because it recognises that the welfare cost of a government-imposed price distortion is related to the square of the price wedge. It thus captures the disproportionately higher welfare costs of peak levels of assistance or taxation, and is larger than the mean NRA/CTE and is positive regardless of whether the government's agricultural policy is favouring or hurting farmers. In this way the WRI and TRI go somewhat closer to what a computable general equilibrium (CGE) model can provide in the way of estimates of the trade and welfare (and other) effects of the price distortions captured by the product NRA and CTE estimates, while having the advantage over a CGE model of providing an annual time series and not requiring a formal model.

3 EMPIRICAL ESTIMATES: MUTED GLOBAL INTEGRATION TO THE 1980s, BUT THEN SOME REFORMS

The study launched by the World Bank in 2006 involved 75 countries (including 20 high-income countries) that together account for more than 90 per cent of the world's population and agricultural GDP. The global summary of these new results is provided in Figure 11.1. It reveals that the nominal rate of assistance to farmers in high-income countries rose steadily from the mid-1950s until the end of the 1980s, apart from a small dip when international food prices spiked around 1973–74. After peaking at more than 50 per cent in the mid-1980s, that average NRA for high-income countries has fallen a little, depending on the extent to which one believes that some new farm programmes are 'decoupled' in the sense of no longer influencing production decisions. For developing countries, too, the average NRA for agriculture has been rising, but from a level of around −25 per cent during the period from the mid-1950s to the early 1980s to nearly 10 per cent in the first half of the present decade.

The average NRA for developing countries conceals the fact that the exporting and import-competing subsectors of agriculture have very different NRAs. Figure 11.2 reveals that while the average NRA for exporters has been negative throughout (going



Note: [a] Denoted by the World Bank as ECA, for (Central and Eastern) Europe and Central Asia.

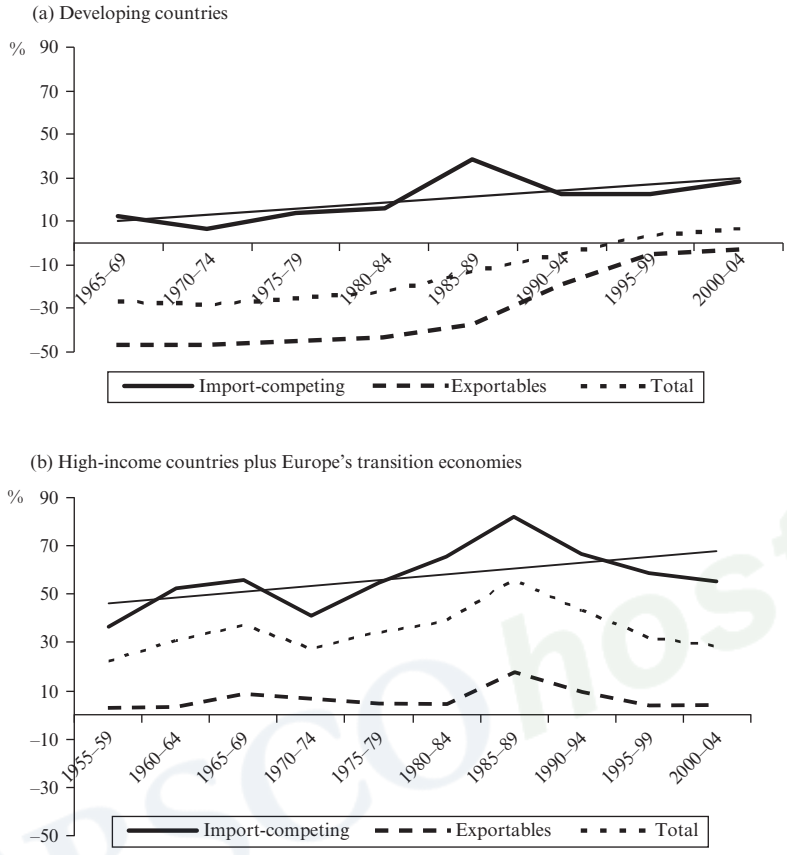
Source: Anderson (2009, Ch. 1), based on estimates in Anderson and Valenzuela (2008).

Figure 11.1 Nominal rates of assistance to agriculture in high-income countries (HIC) and European transition economies[a] and in developing countries, 1955 to 2004 (per cent, weighted averages, with 'decoupled' payments included in the dashed HIC line)

from −20 per cent to −30 per cent before coming back up to almost zero in 2000–04), the NRA for import-competing farmers in developing countries has fluctuated between 20 and 30 per cent (and even reached 40 per cent in the years of low prices in the mid-1980s). Having increased in the 1960s and 1970s, the anti-trade bias within agriculture (the taxing of both exports and imports of farm products) for developing countries has diminished since the mid-1980s, but the NRA gap between the import-competing and export subsectors still averages around 20 percentage points.

Figure 11.2 also reveals that the NRA for import-competing farmers in developing countries has increased at virtually the same pace as that in high-income countries. This suggests that growth in agricultural protection is something that begins at relatively low levels of per capita income rather than being a phenomenon exclusive to high-income countries.

The improvement in farmers' incentives in developing countries is understated by the above NRA estimates, because those countries have also reduced their assistance to producers of non-agricultural tradable goods, most notably manufactures. The decline in the weighted average NRA for the latter, depicted in Figure 11.3, was clearly much greater than the increase in the average NRA for tradable agricultural sectors for the period to the mid-1980s, consistent with the finding two decades ago of Krueger et al. (1988, 1991). For the period since the mid-1980s, changes in the NRAs of both sectors have contributed almost equally to the improvement in incentives to farmers. The RRA, defined in the previous section, provides a useful indicator of relative price change: the RRA for developing countries as a group went from −46 per cent in the second half of



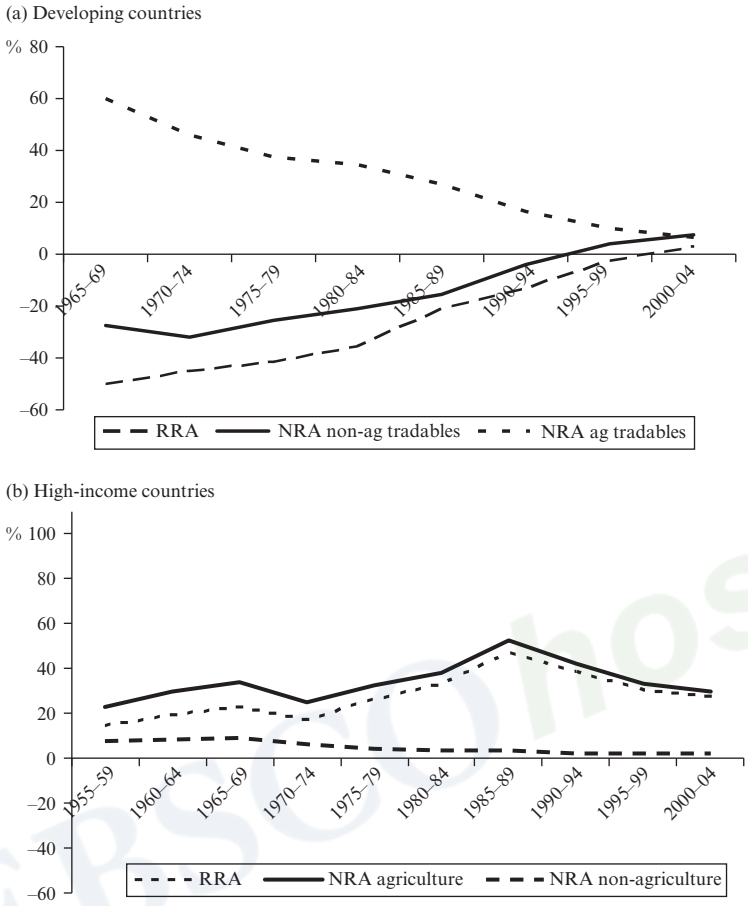
Note: [a]Covered products only. The total also includes non-tradables.

Source: Anderson (2009, Ch. 1), based on estimates in Anderson and Valenzuela (2008).

Figure 11.2 Nominal rates of assistance to exportable, import-competing and all covered agricultural products,[a] high-income and developing countries, 1955 to 2004 (%)

the 1970s to 1 per cent in the first half of the present decade. This increase (from a coefficient of 0.54 to 1.01) is equivalent to an almost doubling in the relative price of farm products, which is a huge change in the fortunes of developing-country farmers in just a generation. This is mostly because of the changes in Asia, but this relative price hike even for Latin America is one-half, while for Africa this indicator improves by only one-eighth. As for high-income countries, assistance to manufacturing was on average much less than assistance to farmers, even in the 1950s, and its decline since then has had only a minor impact on that group's average RRA (Figure 11.3).[3]

Turning to the single indicators of the impact of agricultural distortions on national economic welfare and trade volume, Lloyd et al. (2009) estimate their TRI and WRI for the 75 countries in the above-mentioned World Bank study. The TRI estimates indicate

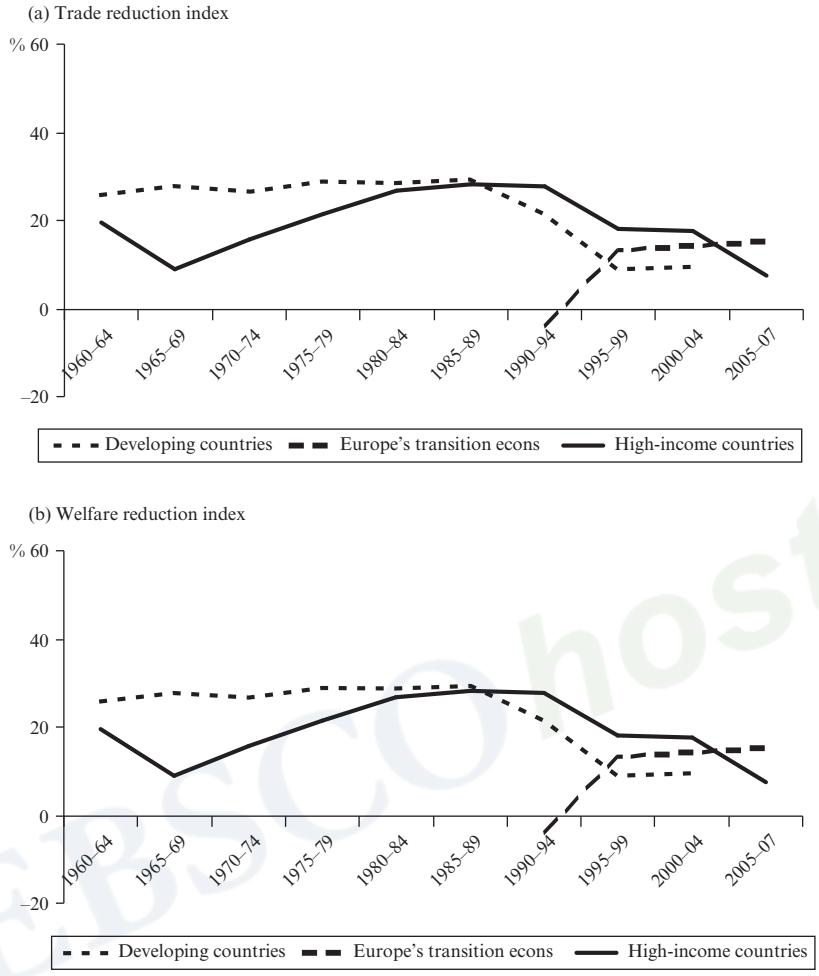


Note: [a] The RRA is defined as 100*[(100 + $NRAag^t$)/(100 + $NRAnonag^t$) − 1], where $NRAag^t$ and $NRAnonag^t$ are the percentage NRAs for the tradables parts of the agricultural and non-agricultural sectors, respectively.

Source: Anderson (2009, Ch. 1), based on estimates in Anderson and Valenzuela (2008).

Figure 11.3 Nominal rates of assistance to agricultural and non-agricultural sectors and relative rate of assistance,[a] developing and high-income countries, 1955 to 2004 (per cent, production-weighted averages across countries)

that the trade-reducing impact of agricultural policies for developing countries as a group was roughly constant until the early 1990s and thereafter it declined, while for high-income countries the decline in TRI began a few years later (Figure 11.4(a)). The TRI for developing countries is driven by the exportables subsector which was being taxed until recently and the import-competing subsector which was and is increasingly being protected (albeit less than in high-income countries – see Figure 11.2 above). For high-income countries, policies have supported both exporting and import-competing agricultural products and, even though they strongly favour the latter, the assistance



Source: Lloyd et al. (2009), based on NRAs and CTEs in Anderson and Valenzuela (2008).

Figure 11.4 Trade reduction and welfare reduction indexes for tradable farm products, by region, 1960 to 2007 (%)

to exporters has offset somewhat the anti-trade bias from the protection of import-competing producers.

The WRI estimates for agricultural policies, shown in Figure 11.4(b), indicate a steady rise from the 1960s to the 1980s, but some decline in the 1990s. This reflects the fact that NRAs for high-income and developing countries diverged (in opposite directions) away from zero in the first half of the period under study and then converged towards zero in the most recent quarter-century. That meant that, while their weighted average NRA traces out a fairly flat trend, the WRI traces out a hill-shaped path and thus provides a less misleading indicator of the trend in resource misallocation in world agricultural markets.

4 EFFECTS OF PAST REFORMS AND OF REMAINING POLICIES: RESULTS OF ECONOMY-WIDE MODELLING

It is clear from the above that there has been a great deal of reform over the past quarter of a century of policy distortions to agricultural incentives throughout the world: the anti-agricultural and anti-trade biases of the policies of many developing countries have been reduced, and the farm export subsidies of high-income countries have been cut. As well, there has been some re-instrumentation towards less inefficient and less trade-distorting forms of agricultural support, particularly in Western Europe (see the dashed line in Figure 11.1). However, protection from agricultural import competition has continued to show an upward trend in both rich and poor countries, notwithstanding the Uruguay Round Agreement on Agriculture that aimed to bind and reduce farm tariffs.

What have been the net economic effects of agricultural price and trade policy changes around the world since the early 1980s? And how do those effects on global markets, farm incomes and economic welfare compare with the effects of policy distortions that were still in place as of 2004? Valenzuela et al. (2009) used a global economy-wide model known as 'Linkage' (van der Mensbrugghe, 2005) to provide a combined retrospective and prospective analysis that sought to assess how far the world had come, and how far it still has to go, in rectifying the disarray in world agriculture. Those authors quantify the impacts of both past reforms and current policies by comparing the effects of the recent World Bank project's distortion estimates for the 1980–84 period with those of 2004.[4]

Several key findings from that economy-wide modelling study are worth summarising here. First, the policy reforms from the early 1980s to the mid-2000s improved global economic welfare by US$233 billion per year, and removing the distortions that remained in 2004 would add another US$168 billion per year (in 2004 US dollars). This suggests that in terms of global welfare the world moved three-fifths of the way towards global free trade in goods over that quarter-century.

Second, developing economies benefited proportionately more than high-income economies (1.0 per cent compared with 0.7 per cent of national income) from those past policy reforms, and would gain nearly twice as much as high-income countries if all countries were to complete that reform process (an average increase of 0.9 per cent compared with 0.5 per cent for high-income countries from freeing the distortions in place in 2004). Of those prospective welfare gains from global goods trade liberalisation, 70 per cent would come from agriculture and food policy reform. This is a striking result given that the shares of agriculture and food in global GDP and global trade are only 3 and 6 per cent, respectively. The contribution of farm and food policy reform to the prospective welfare gain for developing countries alone is slightly greater, at 72 per cent.

Third, the share of global farm production exported (excluding intra-European Union (EU) trade) in 2004 has been slightly smaller as a result of those reforms since 1980–84, because of less farm export subsidies. The 8 per cent share for agriculture in 2004 contrasts with the 31 per cent share for other primary products and the 25 per cent for all other goods – a 'thinness' that is an important contributor to the volatility of international prices for weather-dependent farm products. If the policies distorting goods trade in 2004 were removed, the share of global production of farm products that is exported would rise from 8 to 13 per cent, thereby reducing instability of prices and expanding the quantities of those products traded.

Fourth, the developing countries' share of the world's primary agricultural exports rose from 43 to 55 per cent, and its share of global farm output from 58 to 62 per cent, because of the reforms since the early 1980s, with rises in output of nearly all agricultural industries except rice and sugar. Removing the remaining goods market distortions as of 2004 would boost the developing countries' shares of global agricultural exports and output even further, to 64 and 65 per cent, respectively.

Fifth, the average real price for agricultural and food products in international markets would have been 13 per cent lower had policies not changed over the past quarter-century. Evidently the impact of the fall in RRA in high-income countries (including the cuts in farm export subsidies) in raising international food prices more than offset the opposite impact of the RRA rise (including the cuts in agricultural export taxes) in developing countries over that period. By contrast, removing the remaining distortions as of 2004 is projected to raise the international price of agricultural and food products by less than 1 per cent on average. This is in contrast to earlier modelling results based on the Global Trade Analysis Project (GTAP) protection database. (For example Anderson et al. (2006) estimated that they would rise by 3.1 per cent or, for primary agriculture alone, by 5.5 per cent.) The smaller impact seen in these new results is because export taxes in developing countries, based on the above NRA estimates for 2004, are included in the new database (most notably for Argentina) and their removal would offset considerably the international price-raising effect of eliminating import protection and farm subsidies elsewhere.

Sixth, for developing countries as a group, net farm income (value added in agriculture) is estimated to be 4.9 per cent higher than it would have been without the reforms of the past quarter-century, which is more than 10 times the proportional reform gain in non-agricultural value added. If the price and trade policies remaining in 2004 were removed, net farm incomes in developing countries would rise a further 5.6 per cent, compared with just 1.9 per cent for non-agricultural value added. In addition, unskilled workers in developing countries – the majority of whom work on farms – would see their returns rise more than returns on other productive factors from that liberalisation. Together, these findings suggest that both inequality and poverty could be alleviated by such reform, given that three-quarters of the world's poor are farmers in developing countries (Chen and Ravallion, 2008).

5 PROSPECTS FOR FURTHER AGRICULTURAL REFORM

The reasons why some countries have reformed their price-distorting agricultural and trade policies more than others in recent decades are varied. Some have reformed unilaterally, apparently having become convinced that it is in their own national interest to do so. China is the most dramatic and significant example of the past three decades among developing countries, and Australia and New Zealand among the high-income countries (Anderson et al., 2007; Huang et al., 2009). Other developing countries may have done so partly to secure bigger and better loans from international financial institutions and then, having taken that first step, they continued the process, even if somewhat intermittently. India is one example, but there are numerous other examples in Africa and Latin America. Few have gone backwards in terms of increasing their anti-agricultural bias,

but Zimbabwe and perhaps Argentina qualify during the present decade – and numerous others joined them in 2008, at least temporarily, in response to the sudden upward spike in international food prices. And some have reduced their agricultural subsidies and import barriers at least partly in response to the GATT's (General Agreement on Tariffs and Trade) multilateral Uruguay Round Agreement on Agriculture, the EU being the most important example (helped by its desire for otherwise costly preferential trade agreements, including its expansions eastwards in 2004 and 2007 and its preferential trading arrangements with former colonies and other least-developed countries). The United States, by contrast, has slipped back into higher support after showing signs of reform in the latter 1990s (Orden et al., 2010).

The EU reforms suggest that growth in agricultural protection can be slowed and even reversed if accompanied by re-instrumentation away from price supports to decoupled measures or more direct forms of farm income support (Josling, 2009). The starker examples of Australia and New Zealand show that one-off buyouts can bring faster and even complete reform.[5] But in the developing countries where levels of agricultural protection are generally below those in high-income countries, there are fewer signs of a slowdown of the upward trend in agricultural protection from import competition over the past half-century.

Indeed, there are numerous signs that the governments of developing countries want to keep open their options to raise agricultural NRAs in the future, particularly via import restrictions. One indicator is the high tariff bindings to which developing countries committed themselves following the Uruguay Round: as of 2001, actual applied tariffs on agricultural products averaged less than half the corresponding bound tariffs for developing countries of 48 per cent, and less than one-sixth in the case of least-developed countries (Anderson and Martin, 2006, Table 1.2).

Another indicator of reluctance about agricultural trade reform is the demand by many developing countries to be allowed to maintain their rates of agricultural protection for reasons of food security, livelihood security and rural development. This view has succeeded in bringing 'special products' and a 'special safeguard mechanism' into the multilateral trading system's agricultural negotiations, even though such policies, which would raise domestic food prices in developing countries, may worsen poverty and reduce the food security of the poor (Ivanic and Martin, 2008), and would exacerbate instability in international markets for farm products.

Those developing economies that continue to free up domestic markets and practise good macroeconomic governance will keep growing. Typically the growth will be more rapid in manufacturing and service activities than in agriculture, especially in the more densely populated countries where agricultural comparative advantage is likely to decline. Whether such economies become more dependent on imports of farm products depends, however, on what happens to their relative RRA. The first wave of Asian industrialisers (Japan, and then Korea and Taiwan), like some Western European countries before them, chose to slow the growth of dependence on food imports by raising their NRA for agriculture even as they were bringing down their NRA for non-farm tradables, such that their RRA became increasingly further above the neutral zero level. A key question is: will later industrialisers copy advanced economies, given the past close association of RRAs with rising per capita income and falling agricultural comparative advantage? Figures 11.2 and 11.3 suggest that developing countries' RRA trends of the

past three decades have been on the same upward trajectory as the high-income countries prior to the 1990s. So unless new forces affect their polities, the governments of later industrialising economies may well follow suit.

One new force is disciplines on farm subsidies and protection policies of WTO members since the Uruguay Round. Earlier industrialisers were not bound under GATT to limit their agricultural protection. Had there been strict disciplines on farm trade measures at the time Japan and Korea joined GATT in 1955 and 1967, respectively, their NRAs may have been halted at less than 20 per cent (Anderson, 2009, Figure 1.12). At the time of China's accession to the WTO in December 2001, its NRA was less than 5 per cent according to Huang et al. (2009), or 7.3 per cent for import-competing agriculture alone. Its average bound import tariff commitment was about twice that (16 per cent in 2005), but what matters most is China's out-of-quota bindings on the items whose imports are restricted by tariff rate quotas. These tariff bindings, as of 2005, were 65 per cent for grains, 50 per cent for sugar and 40 per cent for cotton (Anderson et al., 2009). Clearly the legal commitments even China made on acceding to the WTO are a long way from current levels of support for its farmers, and so are unlikely to constrain the government very much in the next decade or so. The legal constraints on developing countries that joined the WTO earlier are even less restrictive. For India, Pakistan and Bangladesh, for example, their estimated NRAs for agricultural importables in 2000–04 are 34, 4 and 6 per cent, respectively, whereas the average bound tariffs on their agricultural imports are 114, 96 and 189 per cent, respectively (WTO, ITC and UNCTAD, 2007). Also, like other developing countries, they have high bindings on product-specific domestic supports of 10 per cent and another 10 per cent for non-product specific assistance, a total of 20 more percentage points of NRA (17 per cent in China's case) that legally could come from domestic support measures – compared with 10 per cent currently in India and less than 3 per cent in the rest of South Asia.

Given this need to tighten the constraints on agricultural protection and assistance policies, it is especially unfortunate that the WTO's Doha Development Agenda is struggling to deliver a new agreement, and makes it more likely that developing countries will follow the same agricultural protection path this century as that taken last century by high-income countries.

There are some relatively new forces at work that have recently raised, and will continue to raise, international prices of farm products above what they would otherwise be, and thus reduce the NRAs of countries that maintain constant domestic prices. One is the emergence of demand for biofuels, which is driven largely by subsidies and mandates in the United States and EU (whose NRA equivalents have yet to be calculated for those countries). Another is the growth of demand for protein-rich foods (for example, livestock products) in rapidly emerging economies such as China. Global climate change is also expected to raise the mean (and variance) of international prices of farm products, thereby raising the denominator of the domestic-to-border price ratio.

By contrast, the emergence of the new biotechnologies that provide genetically modified (GM) foods, feedstuffs, fibres and biofuels are helping to lower international food prices – although not in those countries that are banning the production and importation of GM farm products. Such bans purportedly are for local food safety and environmental reasons, although countries that have adopted and export GM crops suspect that these new protective measures also have a traditional economic protective motive.

Regardless of the rationale for those bans, the new biotechnologies on the one hand are providing lower-cost (and potentially higher-quality and less-pollutive) farm products in those developing countries that share the view of current adopters that this is a benign technology.[6] On the other hand, until there is general acceptance of GM technology globally, this issue is going to be a force that fragments the world into two parts: the group of countries that accept the technology and enjoy lower-priced farm products, and the residual set of countries where consumers will have to continue paying higher prices for their food.

SUMMARY

For decades, trade between countries in agricultural products has been distorted by policies of richer countries favouring their farmers with import barriers and subsidies. Agricultural trade has often also been limited by an anti-agricultural, pro-urban bias in many developing-country policies. Both sets of policies have reduced national and global economic welfare. They also have added to inequality and poverty in developing countries, because three-quarters of the world's billion poorest people depend on farming for their livelihood. Over the past two decades numerous developing-country governments have reduced their sectoral and trade policy distortions, while some high-income countries have also begun reforming their farm protectionist policies. Drawing on results from a new multicountry World Bank research project, this chapter summarises estimates of the extent of those distortions to prices of farm products over the past five decades, and of their effect in reducing the integration of the world's agricultural markets.

Keywords

Distorted incentives, agricultural and trade policy reforms, international economic integration.

JEL Classification

F13, F14, Q17, Q18.

NOTES

* This chapter draws on results from the World Bank research project on Distortions to Agricultural Incentives (www.worldbank.org/agdistortions). The authors are grateful for the efforts of nearly 100 authors who provided the country case studies for the Agricultural Distortions project; for computational assistance from a team of assistants that brought together the global Agricultural Distortions database; and for funding from various World Bank Trust Funds and the Australian Research Council. Views expressed are the authors' alone and not necessarily those of the World Bank or its Executive Directors.

1. In aggregate the coverage represents just under two-thirds of global farm production valued at undistorted prices over the period covered. Of the world's 30 most valuable agricultural products, the NRAs cover 77 per cent of global output, ranging from two-thirds for livestock, three-quarters for oilseeds and tropical crops, and five-sixths for grains and tubers. Those products represent an even higher share (85 per cent) of global agricultural exports.

2. Farmers are affected not just by prices of their own products but also by the incentives non-agricultural producers face. That is, it is *relative* prices and hence *relative* rates of government assistance that affect producer incentives. More than 70 years ago, Lerner (1936) provided his symmetry theorem which proved that in a two-sector economy, an import tax has the same effect as an export tax. This carries over to a model that also includes a third sector producing only non-tradables.
3. Australia and New Zealand were clear exceptions, where manufacturing protection had been very high and its decline occurred several decades later than in other high-income countries, so their RRAs have risen much like the average for developing countries (Anderson et al., 2007).
4. While international food prices in mid-2008 were well above those of 2004, the slump in these prices over the second half of 2008 suggests that prices in 2009 may not be so different from those of 2004, and in any case the Doha Round negotiations have been using such a historical period against which to draw up reform proposals.
5. Anderson et al. (2007). For a detailed analysis of the buyout option versus the slower and less complete cashout option (moving to direct payments), as well as the uncompensated gradual squeeze-out or sudden cutout options, see Orden and Diaz-Bonilla (2006).
6. On the potential global economic welfare effects of GM technologies and associated trade policies for GM farm products, and their distributional consequences, see, for example, Anderson and Jackson (2005) and Anderson et al. (2008b).

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12 The differential impact of economic integration on environmental policy

Jale Tosun and Christoph Knill

1 INTRODUCTION

In the last three decades, a growing number of both industrialised and industrialising countries have decided to open their economies and conduct liberal trade policies. The launching of multilateral trade regimes, such as the General Agreement on Tariffs and Trade (GATT) and the World Trade Organization (WTO), further intensified the economic interactions between countries. Complementary to multilateral regimes, regional integration, such as the North American Free Trade Agreement (NAFTA), has proliferated, and has even led to the creation of a political union as the case of the European Union (EU) shows.

While the acceleration of international trade was initially regarded against the background of industrial development and income growth, gradually concerns emerged about negative impacts on the environment. The focus of this discussion has been on whether countries engage in an environmental 'race to the bottom' by deliberately setting environmental protection standards at low levels to attract international capital (Ferrantino, 1997, p. 48). This scenario has been associated with a loss in the level of environmental quality and consequently with an increase in social costs. Policy makers in industrialising countries, by contrast, have expressed fears that the links between trade policy and environmental policy are used by industrialised countries to erect barriers to trade (Copeland and Gulati, 2006, p. 178). These concerns are currently, for instance, present in the public debate surrounding the creation of the Free Trade Area of the Americas (see Deere and Esty, 2002) and a frequent object of dispute settlement in the WTO context as they are perceived as non-tariff barriers to global economic integration (see Charnovitz, 2007; Anderson and Valenzuela, this volume, ch. 11).[1]

As a result, the interaction between trade policy and environmental policy has triggered a scientific debate, in which both the commercial impact of environmental policies (see, for example, van Beers and van der Bergh, 1999) and the environmental impact of trade policies (see, for example, Prakash and Potoski, 2006) have been considered. Despite the large size of the literature, the evidence on the impact of economic integration on environmental policy choices often produces contradictory findings making cumulative research difficult (Bernstein and Cashore, 2000, p. 68). This chapter reviews some of the theoretical concepts and empirical evidence on the trade–environment interface with the goal of shedding light on the shortcomings and providing solutions.

How does economic integration affect the design of national environmental policy arrangements? To answer this question, we propose a conceptual clarification of economic integration and the underlying causal mechanisms that bring about environmental policy change. Researchers interested in addressing this issue first need to clarify their

understanding of economic integration, which leads to the question, how they measure this variable. This is a necessary step since there are several conceptions of international economic integration, which at the most general level imply that economic activities make boundaries between nation-states less discontinuous.[2] For the sake of conceptual clarity, here we stick to a narrow definition of economic integration, which comprises only three aspects. The first and most rampant definition of economic integration refers to rising international trade and investment flows. The second concept of economic integration takes up the specific trade patterns among countries and focuses on increased trade and investment flows with a particular group of countries. Third, economic integration can be understood as the creation of institutions facilitating cross-border economic flows, such as GATT/WTO. Depending on the concept selected, the environmental policy implications of economic integration are likely to change due to different causal mechanisms, which are intended to open the 'black box' between the dependent variable and the explanatory variable. Against this background, we introduce regulatory competition, economic conditionality and international harmonisation as helpful concepts for disentangling the environmental impact of economic integration. Regulatory competition explicitly models the policy implications of rising competition for trade and investment, whereas economic conditionality pays attention to the regulatory consequences of trade with industrialised, high-regulating countries for industrialising, mostly low-regulating countries. Finally, the mechanism of international harmonisation highlights how economic institutions shape the member states' environmental policies.

The central conclusion that can be drawn from our discussion is that the conceptual clarification and identification of the appropriate causal mechanisms help to overcome the confusion present in the research literature. In this vein, we can gain a better understanding of *how* international economic forces affect domestic environmental policy making. Our analytical approach thus enables a differential modelling of the environmental policy impact of economic integration and supports a more rigorous hypothesis testing.

This chapter is structured as follows. In Section 2, we give an overview of the most relevant economic and political science literature on the environmental policy impact of trade policies. This presentation of the state of the art helps to locate the contribution of this chapter in the appropriate context. In Section 3, we discuss different modes of economic integration and link those with the concepts of regulatory competition, economic conditionality and international harmonisation. Finally, in Section 4, we summarise our argument and point to open questions setting the stage for future research.

2 RESEARCH ON TRADE AND THE ENVIRONMENT

The interaction between trade and the environment has been the subject of much scholarly debate, in which both economists and political scientists are involved. Generally, the economists' research efforts focus on how increased international trade and capital mobility affect environmental quality. Political scientists, on the other hand, scrutinise the implications of economic integration for the stringency of environmental policy arrangements.

According to the economic literature, economic integration affects environmental

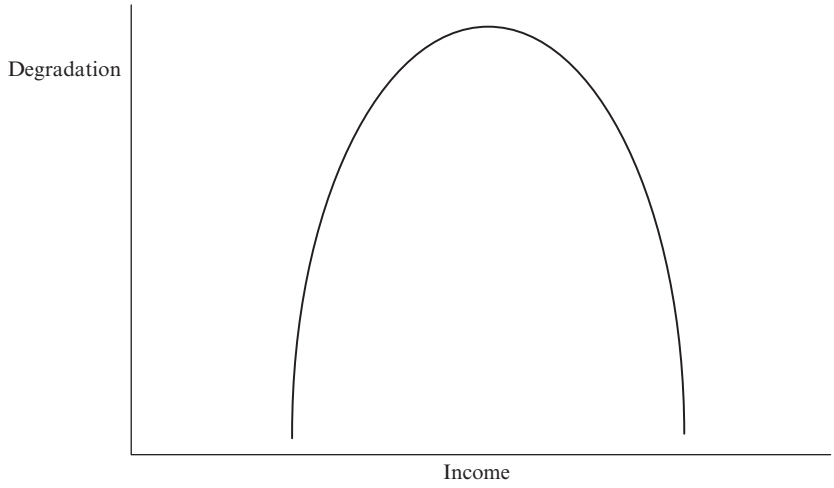
quality through several different channels, that is, through product effects, scale effects and structure effects (Stevens, 1993, pp. 443–5). Product effects refer to the transnational exchange of products and services that have ecological impacts. Through trade, both environmentally friendly and harmful products can enter a certain country. Scale effects focus on the possible expansion of economic activity and growth, which on the one hand can burden the environment. On the other hand, however, economic growth entails an increase in wages and may therefore generate a stronger demand for advanced environmental standards. Structure effects relate to production patterns in a particular country and the use of natural resources due to intensified trade. All of these three categories can yield both positive and negative impacts on environmental quality. Further, the interaction of these effects can again lead to different results. For example, higher levels of pollution stemming from an increased scale of production and structure changes can be offset by positive product effects, implying that free trade has a positive impact on the environment (see Antweiler et al. 2001).

Against this background, the 'pollution haven hypothesis' and the 'environmental Kuznets curve' have dominated much of the economic research literature.[3] The pollution haven hypothesis states that trade liberalisation may induce pollution-intensive industries to migrate to countries with less-stringent environmental regulations. Here it is important to note that this approach directly refers to regulatory differences across jurisdictions. Countries with weaker environmental protection standards would have a comparative advantage in pollution-intensive goods and could therefore be inclined to efforts to attract foreign capital in these areas. In addition to the pollution haven hypothesis, Copeland and Taylor (2004) recognise a weaker 'pollution haven effect', which would exist if more stringent environmental regulations lead to a capital outflow of the affected industries.

With regard to the empirical testing of the pollution haven hypothesis, there is little evidence that polluting industries shift to other locations in order to avoid the costs of environmental regulations (see, for example, Birdsall and Wheeler, 1993; Levinson, 1997; Mani and Wheeler, 1998; Wheeler, 2001; Dasgupta et al., 2002; Gallagher, 2004). The costs of complying with stringent environmental protection standards seem to be relatively small compared to other factors of production (Ferrantino, 1997, p. 50).[4] But there is indeed emerging evidence that changes in environmental policy affect plant location and production decisions at the margin (Copeland and Gulati, 2006, p. 203). Spatareanu (2007), for instance, reveals that firms in industries with higher abatement costs seem to invest more abroad, which lends support to the pollution haven effect. Nevertheless, the increasing international liability arising from environmental damages and requests to undertake remedial actions should turn this option into an ever less attractive option for multinational companies.

The environmental Kuznets curve refers to the scale effects of trade. It stipulates that the initial increase in pollution associated with economic growth will give way to declining levels of pollution per capita as countries economically develop and demand higher environmental quality (Grossman and Krueger, 1995). The inverted U-shaped relationship between economic growth and environmental quality is exhibited by Figure 12.1.

Much of the environmental Kuznets curve literature has focused on testing this basic hypothesis and estimating the 'turning point' level of development at which the per capita pollution–growth relationship changes sign (see, for example, Seldon and Song, 1995;



Source: Own illustration.

Figure 12.1 Stylised environmental Kuznets curve

Beghin and Potier, 1997; Panayotou, 1997; Bhattarai and Hammig, 2001; Gallagher, 2004; Aubourg et al. 2008). On balance, the empirical evidence for the environmental Kuznets curve is relatively weak and the underlying theoretical considerations have not remained undisputed (see Stern, 2004).

In sum, the economic literature deserves credit for shedding light on the variety of channels of how increased international trade and investment affect environmental quality and therewith increase or decrease social welfare. But since these works tend to take environmental policy arrangements as given, they do not directly address the question whether economic integration induces governments to weaken the level of environmental protection standards. To be sure, economic research surely recognises the need for appropriate environmental policies to accommodate the changes in economic activity and aggregate pollution (Anderson and Blackhurst, 1992b, p. 19), but it does not provide the most appropriate tools for understanding the policy implications of economic integration.

Here the political science literature comes into play, which explores trade-induced incentives for governments to modify domestic environmental policy arrangements. There is an established literature examining the precursors and consequences of jurisdictional competition to attract mobile production factors (see Tiebout, 1956). Against this background, Andonova et al. (2007) argue that especially in emerging market economies the impact of economic integration may be a negative one since import-competing firms may lose market shares to cheaper imports due to more-stringent environmental policies. Consequently, there should be domestic opposition to more costly environmental standards. The results of their analysis show that trade openness actually reduced the level of environmental funds in the post-communist countries of Central and Eastern Europe and the Commonwealth of Independent States. Similar findings are reported by Ekins and Speck (1999), who show that there are significant exemptions from environmental

taxes in Europe in order to allay concerns about the adverse effect of these taxes on competitiveness. Moreover, Konisky (2007) uses data from the State Environmental Managers Survey to show that state regulators in the United States (US) have familiarity with the regulatory practices of other states. Accordingly, they sometimes lead their agencies to ease their regulatory effort, which indicates that competitiveness concerns indeed affect the environmental regulatory behaviour of some US states.

This literature, however, does not allow for easy conclusions. In fact, there is also strong evidence refuting the hypothesis that international trade undermines environmental protection standards (see, for examples, Hoberg, 1991; Vogel, 1995, 1997, 2000; Desai, 1998; Drezner, 2001, 2007; Holzinger et al. 2008a, 2008b). Garcia-Johnson (2000), for instance, argues that the operation of chemical multinational cooperations stimulated the adoption of more advanced environmental practices in Mexico and Brazil.

Why is it so difficult to assess whether economic integration is either positively or negatively correlated with tighter protection standards? We argue that besides differing notions of 'environmental policy', the main impediment to a more thorough understanding of the impact of economic integration stems from different conceptualisations of the focal explanatory variable. Some authors (Ekins and Speck, 1999; Andonova et al., 2007) conceive of economic integration only in terms of increased competition for international trade and investment. Other contributions (Charnovitz, 1993; Knill et al., 2008b) focus on regulatory harmonisation within the context of institutional economic integration, which confronts national policy makers with other pressures than mere competitiveness considerations. Finally, a third group of empirical works analyses the effects of environmental provisions included in free trade agreements (Weintraub, 2004). Of course, this plurality in the conceptualisations of economic integration is necessary and corresponds to its complex character, but it is often overlooked that they also necessitate completely different theoretical underpinnings to produce sound explanations. Consequently, the empirical findings are limited in their comparability.

Overall, the political scientists' efforts to explore the link between economic integration and environmental policy have produced a heterogeneous body of research, which provides many instructive insights but does not allow for generalisations. It therefore remains difficult to state which particular aspect of economic integration motivates national regulators to weaken environmental policies and which prevents them from doing so. To remedy this situation, we propose to disaggregate the causal mechanisms underlying the different forms of economic integration and to formulate more clear-cut expectations about the direction and strength of trade-induced environmental policy change.

3 THE DIFFERENTIAL IMPACT OF ECONOMIC INTEGRATION

The objective of this section is to elucidate *how* economic integration affects the stringency of national environmental policy arrangements. To this end, we review and structure the promising theoretical literature that has emerged recently. We argue that by making their research interests more explicit, scholars of public policy analysis can gain a better understanding of the trade–environment nexus. This entails that researchers must

state how they conceive of the variable economic integration, that is, whether they focus on the outcome of economic integration as increased international trade and investment or rather on the institutions facilitating or impeding cross-border economic flows, such as GATT/WTO. The different notions of economic integration entail the necessity to use different theoretical underpinnings. A primary interest in competition for international trade and investment would suggest the use of the theory of regulatory competition, whereas economic conditionality is an appropriate concept when the focus is on the direction of trade. Moreover, international harmonisation helps to understand the implications of economic integration through the creation of common institutions. These concepts originate from the literature on cross-national policy convergence (Holzinger and Knill, 2005, 2008). Their analytical use, however, reaches well beyond this particular area and allows us to explain environmental policy change in more general terms.

Regulatory Competition

Regulatory competition is associated with the importance of attracting foreign capital and improving the competitive position of the domestic economy. This concept refers to the definition of economic integration as increased cross-border activities. It hypothesises that the international mobility of goods, workers and capital puts pressure on the nation-states to redesign domestic market regulations in order to avoid regulatory burdens restricting the competitiveness of domestic industries (Goodman and Pauly, 1993). The pressure arises from (potential) threats of economic actors to shift their activities elsewhere. In this sense, the theory of regulatory competition somewhat parallels the logic of the pollution haven hypothesis. Politicians behaving as rational actors seek to attract investments, for instance, in order to create or preserve working places. Thus, regulatory competition clearly predicts a race to the bottom in policies, implying that industrialised, high-regulating countries lower their standards for approaching those of industrialising, low-regulating countries (Simmons and Elkins, 2004). Equally, industrialising countries might be reluctant to tighten their protection standards in order to preserve their comparative advantage, implying a 'stuck at the bottom' scenario (Porter, 1999; Knill et al., 2008b).

Theoretical work, however, suggests that there are a number of conditions that may drive the stringency of domestic environmental policy in both directions (Vogel, 1995, 1997, 2000; Scharpf, 1997; Drezner, 2001, 2007; Holzinger, 2002, 2003). In this context, particular emphasis is placed on the distinction of different types of environmental regulations, namely product and process standards.

Product standards define regulatory requirements for the quality and specific characteristics of traded goods such as passenger car emissions. Two conditions can avoid downward dynamics of national product standards. First, competition between products might be based not only on their price, but also on their quality. If quality aspects dominate, stricter standards will constitute a competitive advantage, hence implying a race to the top (Scharpf, 1997, p. 523). Second, downward pressures can be avoided if trade rules allow individual countries to erect exceptional trade barriers for products which do not comply with national environmental standards. Such measures are, for instance, possible within the trade regimes of the WTO and the EU. In empirical terms, Damania et al. (2003) show that increased trade is indeed associated with a reduction of the

gasoline lead content – that is, a product standard – and consequently with an increase in environmental protection.

Process standards, by contrast, refer to the conditions under which certain goods are produced. Typical examples of process standards are sulphur dioxide or nitrogen oxide emission standards for large combustion plants. Strict standards demand filters, which raise production costs. Then the domestic steel industry, for example, suffers from a competitive disadvantage against the steel producers abroad, if the latter need not apply the same strict standards. In order to avoid such a disadvantage, governments may want to decrease their standards to the level of other countries. The expectations for the direction of changes in process standards are therefore less optimistic than for product standards (see Holzinger, 2002, 2003). However, there is also empirical evidence showing that the level of process standards may also increase over time (see Holzinger et al., 2008b; Knill et al., 2008a). In a similar vein, Sorsa (1994) finds that more-demanding legislation has not lowered the international competitiveness of industrialised countries, but rather created a comparative advantage in environmentally sensitive industries.

Nevertheless, there is empirical evidence that some political jurisdictions have not strengthened or have even weakened the enforcement of environmental regulations in order to increase the competitiveness of domestic producers (Vogel, 2000, p. 266). In this context, Konisky (2007) argues that governments may have the motivation to attempt to attract economic investment through their enforcement of pollution control regulation. Using a panel dataset of state-level enforcement of US federal air and water pollution control regulation, he shows that a state's choice about its level of environmental enforcement is a function of similar choices in states with which they compete for economic investment. This finding provides evidence that race to the bottom-type dynamics affect the environmental enforcement behaviour of some US states. Similar dynamics are observed for the relationship between environmental rule setting and actual enforcement and compliance efforts in Hungary and Mexico (see Gallagher, 2004; Knill et al., 2008b).

To sum up, the theory of regulatory competition is helpful for understanding how competitiveness concerns may induce policy makers to lower or to preserve low environmental protection standards. Yet, most empirical work rather points to a positive relationship between increased trade and foreign direct investment (FDI) and the stringency of environmental policy. Does this show that the theory of regulatory competition is wrong? In fact, it does not since regulatory competition merely describes the incentives for governments in view of strong competitiveness pressures. This implies that only the volume of trade and investment is taken into account. The positive impact of economic integration on environmental policies can, however, be much better understood if one not only focuses on the volume but also on the direction of economic activities.

Economic Conditionality

An important modification to the theory of regulatory competition has been proposed by Vogel (1995, 1997, 2000), who argues that the erection of trade barriers might not only avoid a race to the bottom, but even induce an upward dynamic between national regulations. He observed this development for the regulation of car emission standards in the US. When California raised its emission standards, most US states followed quickly for

two reasons. First, California was permitted to apply its standards to foreign car producers. Second, since licensing procedures for cars are very expensive, car producers wanted to avoid multiple arrangements and hence demanded harmonised requirements throughout the US. Based on this observation, the upward ratcheting of regulatory standards is known as the 'California effect'.

Briefly, the California effect stipulates that economic integration can trigger an upward adjustment of regulatory policies in (originally) low-regulating countries. This is most likely if low-regulating countries aim at integrating their economies with high-regulating countries that possess more advanced regulatory systems. Given their weak economic position and the – compared to high-regulating countries – much higher relative welfare gains associated with economic integration, low-regulating countries are generally more dependent on intensified trade relations than their more wealthy counterparts. This holds particularly true if the latter already have well-established free trade regimes with one another, such as in the case of the EU.

In this vein, the California effect touches upon the growing interference and influence of the state government in economic affairs since a somewhat paradoxical consequence of economic liberalisation is the increase of public intervention in the economy and the proliferation of rules (Gilardi, 2008, p. 1). As a result, the enhanced activities of regulatory policy making not only emerge at the national but also at the global level (Vogel, 1995, p. 2). In turn, this facilitates governments of high-regulating countries to gain domestic political support for free trade agreements with low-regulation countries (Hufbauer and Goodrich, 2004, p. 46).

Following this logic, market incentives can also trigger a strengthening of process standards of industrialising countries, if three conditions are met: first, the practices have to be targeted by domestic political or economic pressure groups in a 'green', that is, high-regulating, country; second, the producing country should seek to enter a free trade agreement with a green country, or be already a member of it; third, the production process should be covered by an effectively enforced international environmental agreement (see also Hoberg, 2001). While the California effect is generally treated as a refinement of the theory of regulatory competition, we argue that it refers to another causal mechanism, namely economic conditionality.

Economic conditionality thus occurs, when a country needs to adopt certain environmental policies in order to become a member of a free trade agreement or to gain access to the market of green jurisdictions (Dolowitz and Marsh, 2000, p. 9; Holzinger and Knill, 2005, p. 781). Depending on the degree of power asymmetries between the countries seeking market access, high-regulating countries might also be able to render further economic integration with low-regulating countries dependent on the adoption of respective process regulations. To protect the competitive position of their economies, they can factually impose the adoption of stricter regulatory standards in low-regulating countries in exchange for intensified trade relationships (Abrego et al., 2001, p. 414). In other words, there is an exchange of economic resources for the adoption of stricter environmental policies. Thus, economic conditionality constitutes incentives for low-regulating countries to adjust their regulatory arrangements upwards. This particular mechanism also implies that a country is forced to adopt a certain model without much leeway for modifying it. As a consequence, it can generally be expected to lead to a high degree of similarity of the policies present in the submitting and the imposing country.

Various empirical examples underline the validity of this argument. Borregaard et al. (1999, p. 34) argue that the strengthening of Chilean environmental regulations *inter alia* resulted from repeated pressure from the US government and its decision to decrease imports of copper products because of low protection standards. Garcia-Johnson (2000) finds that Brazil and Mexico adopted US environmental practices. However, the Brazilian approximation to US legislation was notably smaller due to the country's large domestic market and its increasing trade relations with the countries of the South Cone. The relevance of specific trade patterns is also underlined by the fact that many governments of the Commonwealth of Independent States have expressed their willingness to adapt their environmental legislation to European standards. According to the European Commission (2003, p. 9), 'this interest is driven by the general economic and political orientation towards the EU, which is their most important foreign trading and investment partner'. Also, as a result of the involvement with the international market, the Czech Republic, Poland and Bulgaria all decided to adopt EU chemical safety legislation (Andonova, 2004, p. 80). Along the same lines, Prakash and Potoski (2006) show that trade creates incentives for firms in developing countries to introduce the relatively costly ISO 14001 management system, if trade occurs with countries whose firms have adopted a progressive environmental programme.

In sum, the concept of economic conditionality explains why increased economic integration with industrialised countries may induce governments of industrialising countries to introduce stricter environmental protection standards. Modelling asymmetries in terms of political and economic power, it also allows us to explain why industrialised countries do not lower their protection standards. The EU and the US hence benefit from the large size of their internal economic markets, which turns them into regulatory 'price-makers' (Drezner, 2007, p. 34). In this sense, low-regulating countries are not confronted with competitiveness pressures but rather with the threat of losing permanent access to attractive markets. In other words, the pressures stemming from increased competition for trade and investment translate into a pressure arising from economic conditionality.

International Harmonisation

There are still stronger forms of economic integration, which offer their members even more effective ways for avoiding an environmental race to the bottom. Membership in an international economic institution may prevent competitiveness pressures from emerging through the mechanism of international harmonisation. Harmonisation refers to a specific outcome of international cooperation, in which the countries involved are required to comply with uniform legal obligations defined by free trade agreements, their side agreements, or international or supranational law. International harmonisation is generally traced to the existence of interdependencies or externalities which push governments to resolve common problems through cooperation within international institutions, hence sacrificing some independence for the good of the community (Drezner, 2001, p. 60; Hoberg, 2001, p. 127).

Once established, these arrangements constrain and shape the domestic policy choices, even as they are constantly challenged and reformed by their member states (Martin and Simmons, 1998). The idea is to neutralise comparative advantages stemming from regulatory differences by creating a 'level playing field'. However, as member states

voluntarily engage in institutional integration and actively influence corresponding decisions and arrangements, the impact of international harmonisation on national policies constitutes no hierarchical process; it can rather be interpreted as 'negotiated transfer' (Dolowitz and Marsh, 2000, p. 15).

With regard to environmental policy, several factors favour that international harmonisation implies an overall increase in the strictness of regulatory levels, that is, a compromise that is closer to the strictest rather than weakest regulatory level found in the member states of the international institution in question.

First, it has been argued by several authors (Vogel, 1995, 1997, 2000; Scharpf, 1997; Holzinger, 2002, 2003) that in certain constellations those countries preferring stricter levels of environmental regulation are more influential in international negotiations, implying that international harmonisation takes place at the top rather than the bottom level. This argument has been developed in particular for the case of product standards. In this case, all member states (regardless of their preference for strict or weak standards) share a common interest in international harmonisation in order to avoid market segmentation as a result of different national product requirements (Holzinger, 2002, p. 69). While all countries share a common interest in harmonisation, those states with a preference for strict standards are in a stronger position to put through their preferences in international negotiations. The trade regimes of the EU (Article 30 TEU) and the WTO – for reasons of health and safety protection – allow high-regulating countries to ban the import of products that are not in line with the strict domestic standards. As all countries share an interest in international harmonisation, high-regulating countries are therefore in certain cases able to unilaterally impose their strict standards as the international rule (see Drezner, 2007). Based on this argument, we should expect that – at least for product standards – international harmonisation implies an upward shift of the regulatory mean.

Second, especially for harmonisation at the EU level, additional structural features of the policy-making process might favour an upward shift for other policy types (production standards and non-trade-related policies), for which the above-mentioned interest constellation favouring harmonisation at the top does not apply. The fact that we also observe European harmonisation at the top rather than at the bottom of existing member state regulations in these areas has been explained by particular dynamics emerging from a regulatory contest in influencing EU policies between the member states (Héritier et al., 1996).

These dynamics emerge from the interest of national governments to minimise institutional costs of adjusting domestic regulatory arrangements to EU policy requirements. In particular, high-regulating countries with a rather comprehensively and consistently developed regulatory framework of environmental policies and instruments might face considerable problems of adjustment, if European policies reflect regulatory approaches and instruments that depart from domestic arrangements. As a result, these countries have a strong incentive to promote their own concepts at the European level. In so doing, the most promising way is to rely on the strategy of the 'first move', that is, to try to shape European policy developments already during the stages of problem definition and agenda setting. This requires that member states have to win the support of the EU Commission, which has the formal monopoly to initiate policies at the EU level. The Commission, in turn, is generally interested in strengthening and extending

supranational policy competencies. As a consequence, only those domestic initiatives that fit with these objectives of the Commission have a chance to succeed. This specific interaction of national and supranational interests favours the development of innovative and ambitious policies at the EU level, hence driving EU harmonisation more towards the top rather than the bottom of domestic regulation levels (Knill and Liefferink, 2007).

Third, even if we assume that the final agreement only lies in the middle between high-regulating and low-regulating countries, there is still a high probability that the mean of national regulatory levels becomes stricter. This can be traced to the fact that the by far largest part of environmental standards follows the principle of minimum rather than total harmonisation. In the case of minimum harmonisation, it is still possible for countries with a preference for higher regulatory levels to enact standards beyond the minimum level specified in international agreements.[5] In contrast to total harmonisation, deviations to the top are therefore still possible, while countries with lower standards are obliged to raise their standards at least to the international minimum level. Given the dominance of minimum harmonisation, we thus predict that international environmental policy harmonisation is likely to result in shifting the regulatory mean upward. This expectation rests on the assumption that not all high-regulating countries will lower their standards towards the minimum level.

With regard to the empirical findings, the impact of international harmonisation has particularly been analysed for the EU. In this context, the comparative analysis of 40 environmental policy items in 24 countries carried out by Holzinger et al. (2008a, 2008b) reveals that EU membership is positively correlated with changes in policy stringency. In addition to the studies on the EU, the NAFTA has also been evaluated against this theoretical background. In this regard, Hoberg (1991, 2001) shows that the harmonisation of pesticide standards in the context of the Canada–US Free Trade Agreement and the NAFTA triggered a tightening of the protection level.

The compliance costs to international harmonisation, however, should not be underestimated. In this regard, Andonova (2004) shows that the implementation effectiveness of European air pollution legislation varied across the Czech Republic, Bulgaria and Poland. Her analysis reveals that the good performance of the Czech Republic can largely be explained by the well-developed administrative infrastructure but also by the fact that the Czech government offered the affected industries generous compensations. To give another example, the European Directives 88/609/EC and 2001/80/EC on emissions from large combustion plants, for instance, refer to a policy which involved substantive compliance costs for the new member states. As a result, 10 of the 12 new member states were granted temporal exemptions from implementing the directives, until 2017 in the most extreme case, that is, Poland. A World Bank study revealed that Ukraine's approximation with the EU directives on urban wastewater treatment and large combustion plants would create costs of $2–20 million along with $25–50 million costs of staff capacity improvements and $50–100 million for a monitoring system upgrade (European Commission, 2003, p. 17). Nevertheless, Knill and Tosun (2009) highlight that international harmonisation is the most effective way of achieving a tightening of regulatory standards *vis-à-vis* other mechanisms, such as, for example, economic conditionality.

Table 12.1 Overview of causal mechanisms underlying economic integration

Variable	Measurement	Causal mechanism	Expectation
Trade intensity	Ratio of trade flows or FDI to GDP	Regulatory competition	Race to the bottom/ stuck at the bottom
Direction of trade	Ratio of trade with a particular country or group of countries with attractive markets, e.g. the US, to GDP	Economic conditionality	Race to the top
Institutional integration	Membership in free trade agreements, e.g. NAFTA, or common markets, e.g. EU	International harmonisation	Race to the top

Summing up

A different understanding of economic integration can lead to different findings about its environmental policy impacts. This conclusion is not too surprising in view of the complexity of the variable. Therefore, empirical studies should clearly state the consequences of their measurement of economic integration for the theoretical underpinnings. In Table 12.1, we summarise how different economic integration indicators and causal mechanisms are linked to each other.

The expectations for the direction of environmental policy responses in the presence of economic integration change in accordance with the different theoretical concepts considered. As a result, a race to the bottom or a stuck at the bottom scenario is most likely if competitiveness pressures are the only policy-shaping force. Economic conditionality, that is, trade with high-regulating countries, and international harmonisation, by contrast, are expected to lead to a race to the top. Thus, once the underlying theoretical considerations are clear, the empirical picture on the economic integration and environmental policy interface starts to become less ambivalent and enables a better understanding of the empirical phenomena.

4 CONCLUSION

The linkage between economic integration and environmental policy has indeed become an important topic in the last few years. This is reflected by the impressive size of the body of scholarly literature and ongoing public debates. In this chapter, we scrutinised *how* increased economic integration affects the stringency of environmental policy arrangements. We started with an overview of the economic and political science research literature. This exercise revealed that economic theories are only of limited appropriateness for deriving hypotheses about the direction of the impact of economic integration on environmental policy arrangements since they take environmental policies as given. Instead, these approaches explore the interaction between international trade and environmental quality on a sophisticated methodological basis. We found that in view of our research question, the political science literature provides more adequate analytical

tools. Nevertheless, this body of literature often remains implicit about the measurement of economic integration and the underlying theoretical underpinnings. Such a lacking conceptual precision produces contradictory findings that hamper a fuller understanding of the economic integration and environment policy interface.

To improve the state of theorising, we introduced the concepts of regulatory competition, economic conditionality and international harmonisation, to which several studies implicitly make reference – sometimes by merely using a different terminology or slightly different definitions. In the way we use these concepts, regulatory competition refers to economic integration through enhanced trade and FDI inflows by asking whether national governments compete over the optimal design of domestic regulations in order to attract foreign capital and to improve the competitive position of their economy. Economic conditionality is predominantly likely to affect the stringency of environmental protection standards in industrialising countries, whose main trading partners have demanding environmental protection standards, or which seek to enter a free trade agreement with industrialised countries. Generally, the NAFTA serves as a suitable example for elucidating the environmental policy implications of economic conditionality. International harmonisation is likely to occur if countries (with different regulatory levels) decide to join or form a supranational or an international organisation, in which national governments are legally required to adopt policies and programmes as part of their obligations. Which of these concepts applies depends on the definition of economic integration and to a certain extent also for which country the environmental impacts are evaluated.

While these concepts still do not produce unambiguous theoretical expectations, they can easily be adapted to the corresponding analytical context. As a result, they provide an ideal basis for differential hypotheses on the environmental impact of international trade. Our findings, together with the fact that different causal factors are often operating in parallel, indicate that an environmental dumping is indeed an unlikely scenario. Most importantly, we argue that not competitiveness pressures *per se* but rather additional forces neutralising them are responsible for environmental improvements. In this regard, it should also be kept in mind that freer markets were accompanied by more public interventions in the economy, which in turn has positive implications for the level of environmental protection. Nevertheless, our findings do not automatically imply that we should be overoptimistic about environmental problem solving at the national or international level. For industrialising countries, in particular, the costs of complying with stricter environmental protection standards are high. Therefore, it is important to emphasise that there is a strategic dimension to environmental policy making, which is characterised by 'symbolic' environmental standards set by governments of industrialising countries.

Overall, however, we should also be aware that particular forms of economic integration and environmental policy are more mutually supportive than often thought. This overall finding matches with research on other policy areas that are also associated with race to the bottom scenarios, such as labour standards (see, for example, Mosley and Uno, 2007).

Despite lively research on economic integration and environmental policy, there are still several questions which could be addressed by future research – especially in terms of empirical testing. First, the analysis of the implementation of environmental policy could be improved. The focus of this treatise has clearly been on the explanatory variable.

However, there is still much that can be done to develop more-reliable measures of the dependent variable. Several studies tend to use outcome data as a proxy for environmental policy. Since we do not know how much environmental outcomes correlate with environmental outputs, this approach may be imprecise and therefore unsatisfactory. Other studies concentrate on one or a few environmental policies, for example, the limit values for the lead content of gasoline. While this approach surely represents a more direct measurement of government activity, it does not allow for drawing conclusions with regard to the entire or substantive areas of the policy field. Thus, it would be worthwhile to scrutinise changes in entire environmental policy areas against the background of economic integration to be able to compare whether there are differences across different areas. [6]

A second interesting research exercise would be to assess whether economic conditionality indeed entails a direct transfer of environmental protection standards from industrialised countries to the industrialising ones. There is some empirical work (for example, Knill et al., 2008b) hinting that conditionality triggers policy transfer, but whether this behaviour represents an empirical regularity has not been analysed yet. Furthermore, it would be worthwhile to systematically assess the degree of similarity between the 'original' and the 'emulated' legislation. Carefully designed comparative research could shed light on this research question.

Finally, with regard to economic conditionality and international harmonisation it could be worthwhile to shed light on the characteristics of the policy adoption process. Do industrialising countries merely adopt relatively 'costless' environmental policies? Such behaviour could be rational as it grants industrialising countries a better basis for negotiating free trade arrangements due to their 'revealed' commitment to environmental policy issues.

SUMMARY

The interaction between international trade and environmental policy has become an important issue in the last few years. Despite the vast body of literature on the linkage between trade and environment, there are hardly any studies which attempt to conceptualise actual policy responses of governments to economic integration. To fill this gap, we suggest a theory-based disaggregation of the compound variable economic integration for deriving more precise expectations on its differential impact on environmental policy arrangements. Drawing on findings of our current research, such as in the field of cross-national policy convergence, this chapter seeks to develop a better understanding of the effects of economic integration on environmental policy.

Keywords

International economic integration, government policy, environment and trade.

JEL Classification

F15, Q48, Q56.

NOTES

1. In a similar vein, agricultural policies are often perceived as non-tariff barriers (see Anderson and Valenzuela, this volume, ch. 11; van den Noort, this volume, ch. 9).
2. For an overview of the different concepts of economic integration, see, for examples, Prakash and Hart (2000); Jovanović (2006, pp. 15–21).
3. Of course, the pollution haven hypothesis and the environmental Kuznets curve are not the only topics addressed by economic research. As a comprehensive review would reach well beyond the scope of this chapter, we point to detailed reviews by Anderson and Blackhurst (1992a), Huang and Labys (2002) and Copeland and Taylor (2004).
4. For a more general discussion of plant location decisions, see, for example, Ando (this volume, ch. 5).
5. In the EU, for instance, this possibility is regulated in Article 95 TEU.
6. The research project CONSENSUS ('Confronting Social and Environmental Sustainability with Economic Pressure: Balancing Trade-offs by Policy Dismantling or Expansion?') funded by the EU's Seventh Framework Programme is currently trying to address this precise question. Briefly, it seeks to document and explain changes in different environmental and social policy subfields. For further information, see: www.fp7-consensus.eu.

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PART III

QUANTIFICATION OF EFFECTS OF INTEGRATION

13 Estimating the effects of integration

Nigel Grimwade, David G. Mayes and Jiao Wang

1 INTRODUCTION

In the early phases of post-war regional integration there were many estimates of the economic impact in both prospect and retrospect. On the whole they came up with rather small numbers, less than 1 per cent of GDP (Lipsey, 1960; Mayes, 1978; Winters, 1987). This seems in contradiction to the political enthusiasm for those changes. More recently the European Commission (Cecchini et al., 1988; Emerson et al., 1988) came up with considerably more significant numbers for the possible impact of the completion of the European single market (5–7 per cent of GDP). However, these estimates subsequently proved controversial and it is noticeable that the Commission was much more reticent about publishing estimates of the likely gain from Economic and Monetary Union (EMU) or subsequent enlargements.

There are many problems in estimating the effects of regional integration on the economic welfare and main variables of interest for the countries involved and the world as a whole. Regional integration has a variety of effects, some of which improve welfare, others which reduce it. The effects depend on the period of time considered.

While the early stages of integration were mainly concerned with tariff liberalisation, they now go much further, tackling non-tariff barriers and services as well as goods. Some arrangements also incorporate measures for promoting intra-regional investment and even labour mobility. A few have also included measures for stabilising intra-regional exchange rates or the adoption of a common currency. In most cases, there are complex procedures for achieving gradual liberalisation over different time periods. The measurement of the impact of integration must, therefore, go further than simply looking at the impact of the integration process on trade flows.

The major obstacle that researchers face is establishing a counterfactual so that the impact of economic integration can be isolated from other factors at work at the same time. This necessitates making some judgement about what the value of different variables would have been had integration not taken place. This is necessarily hypothetical and these other factors can never be fully eliminated. Thus estimates of the impact of integration have to be treated with caution and different studies of the same effect can come up with widely differing estimates.

In this chapter, we examine some of the main methods used to measure the impact of regional integration and take a look at the results obtained. We compare and contrast the different approaches, identifying in each case their major strengths and weaknesses.

This chapter is structured as follows. Section 2 begins with an overview of the major economic effects that are worthy of investigation. Section 3 discusses the empirical methodology. The following sections examine residual models (Section 4), the intensity of trade approach (Section 5), gravity models (Section 6), other stochastic economic

approaches (Section 7) and computable general equilibrium models (Section 8). Section 9 concludes.

2 THE EFFECTS OF ECONOMIC INTEGRATION

Analysis of the effects of integration has developed in line with the increasingly close regional integration, particularly in the European Union (EU). Although regional integration had proceeded far further in the United States and indeed in the former Soviet Union and the Council for Mutual Economic Assistance (CMEA), this did not generate a matching interest in the underlying economic theory. The initial concern was simply with reducing trade barriers.

Trade Effects

The major concern of the orthodox theory of free trade areas (FTAs) and customs unions (CUs) was with the impact of integration on trade. In his pioneering work on this subject, Jacob Viner distinguished between two effects of integration on trade (Viner, 1950).[1] On the one hand, the removal of tariffs on imports coming from other member states results in *trade creation* – defined as the displacement of high-cost domestic production of a particular product in one member state by lower-cost imports from another member state. Viner argued that trade creation is welfare improving, because it results in a better allocation of global resources and, as such, represents a step in the direction of free trade. On the other hand, the fact that tariff reductions are applied only to imports from other member states (that is, they are discriminatory) results in *trade diversion* – defined as the displacement of lower-cost imports of a product from a non-member state by higher-cost imports from a member state – and hence in a less optimal allocation of global resources. It is welfare reducing and, therefore, a step towards protectionism. Hence, the removal of tariffs and other barriers may not be welfare improving in aggregate and may well harm excluded countries. This led to the concern in the General Agreement on Tariffs and Trade (GATT) that only those agreements that are generally welfare improving should be permitted (internal tariffs have to be abolished, not simply reduced, for example).

However, the formation of an FTA or a CU may result in *external trade creation*, for example, if faster economic growth inside the area or union due to integration leads to the member states importing more from the rest of the world. Regional integration is the archetypal context of the theory of the second best. Welfare would generally be maximised by the removal of all barriers and distortions. Removing only some of them does not necessarily move affairs in the direction of this first best, and further offsetting measures may be required to ensure this.

There are of course other ways in which trade may develop as barriers fall, as Vinerian analysis makes strong assumptions about the nature of competition and implicitly about production functions. Increased trade typically allows the exploitation of economies of scale and scope. However, it may also result in increased concentration and the ability to exact oligopoly rents, thus failing to exploit the full welfare gains without matching antitrust rules.

The Vinerian analysis also makes no reference to the time path of change and purely relates to comparative statics. Outcomes will vary according to the rate at which firms can respond and develop a position of market strength. Thus modern analysis has to be much more complex.

Income Effects

Typically, the trade effects in themselves are of limited magnitude since their welfare is a typical 'Harberger triangle' and not the full extent of the trade change, which may be large even for small price differentials. Thus for example, using a simple partial equilibrium model, the welfare gain from trade creation is given by multiplying half the reduction in tariffs by the increase in imports.[2] The loss of economic welfare from trade diversion is given by the difference between the world price of the product and the price of the product inside the area or union. This, in turn, must be multiplied by the volume of trade diverted. However, as trade diversion increases the exports of another member state, account must be taken of the welfare gain from such diversion for the exporting country. This can be measured by taking the volume of additional exports multiplied by half the increase in price, following the adoption of the common external tariff.[3] Each country benefits from the net impact of the various welfare gains and losses on its consumers and producers.

These are the *static* welfare gains from integration, which are quantitatively less important than the long-run, *dynamic* effects that integration gives rise to. These effects accrue mostly in markets that are characterised by imperfect competition – with differentiated not homogeneous goods and increasing rather than constant or decreasing returns to scale. In such markets, integration tends to result in intra- rather than inter-industry trade. Whereas inter-industry trade involves countries exchanging the products of different industries, intra-industry trade involves countries exchanging products belonging to the same industry (for example, different models of motor cars). The gains from intra-industry trade are different from those of inter-industry trade. Whereas inter-industry trade benefits countries through lower prices and improved resource allocation, the gains from intra-industry trade come more in the form of a greater variety of goods for consumers to choose from. Lower prices may also result, but as a consequence of increased competition and a fall in average costs of production as firms enlarge the scale of their production. The dynamic effects of integration on real incomes are clearly much more difficult to measure than the more conventional static effects. However, it is clearly important to do so.

Balance of Payments Effects

Economic integration will also have an effect on the balance of payments of individual countries, which may be of great importance. This could be favourable (if exports increase by more than imports) or unfavourable (if imports expand more than exports). It is especially likely that, where one country lags behind another one in economic development, the balance of payments effect will be unfavourable. Equally, where one country is making bigger tariff reductions than the others, the trade balance effect will be negative. An adverse balance of payments effect, however, need not be a matter for concern

as long as the country in question is prepared to let the real exchange rate fall. Where the exchange rate is floating, the nominal rate may well fall anyhow if the balance of payments deteriorates, although this may not be the case if large inflows of capital from abroad create greater demand for the currency on foreign exchange markets.

By affecting the country's terms of trade, devaluation will lead to a resource loss for the country. It will, therefore, reduce any welfare gain from integration. If the size of the effect is too large, it may even result in the welfare effect being negative. However, the balance of payments effect becomes more serious where the exchange rate cannot be lowered. This will be the case if the country operates a fixed exchange rate against the currencies of the other member states or where integration has resulted in all member states adopting a common currency. In this case, adjustment will take place through a lowering of domestic output and incomes. A fall in the real exchange rate will be achieved through a lowering of the domestic price level rather than any change in the nominal exchange rate. In this case, depending on the flexibility of domestic costs and prices, the country will experience a resource loss measured by the resulting loss of output and employment in the short run. The measurement of these effects will necessitate a study of the effects of integration on macroeconomic aggregates such as output, employment and prices in individual countries.

Growth Effects

In addition to the effects on real income, economic integration can be expected to have an effect on the rate of economic growth in individual countries. The relationship between integration and economic growth is a complex one. However, the fact that integration will stimulate growth is not in dispute. The only matter in dispute is whether the growth stimulus will be temporary or permanent. In the *neoclassical theory of growth*, integration can bring about only a temporary increase in the growth rate. Once the shock of the change passes through the economy it returns to the same steady-state growth path.

In *new growth theory*, however, capital accumulation is treated as an endogenous variable in the growth process and includes investment in human or knowledge capital as well as physical capital. While the rate of return on capital invested by the individual firm may fall as the stock of capital increases, the *public* rate of return from new investment, which determines the total amount of investment undertaken by firms as a whole, may continue rising. In effect, a wedge is created between the private and public rates of return on investment. One reason for this is that, as firms invest in knowledge capital, they create technological spillovers to other firms, which offsets any tendency towards diminishing returns. There are grounds for expecting integration to play a positive role in stimulating knowledge capital accumulation. For example, by widening the market for new products, trade boosts the profitability of investment in research and development (R&D). By lowering import barriers, trade increases competition and competition spurs firms to innovate, providing that firms are able to hold on to the profits that innovation yields. Baldwin (1989) offers some estimates of the effects of the creation of the European single market along these lines and discusses problems of estimation in Baldwin (1993).

Capital market integration may also stimulate greater investment in R&D by eliminating imperfections in capital markets and reducing the costs of borrowed funds. This has led new growth theorists to expect a more permanent stimulus to growth from

integration. However, the impact can be very different from what is implied by more traditional theory. Not only that but it may reflect what has been described as the 'new economic geography' (Fujita et al., 2001; Neary, 2001), where how production agglomerates, given a range of demand and supply determinants, reflects a much more dynamic and integrated view of the development of trade and production than traditional theory, in many ways similar to the ideas of Michael Porter (1990) and others who have developed theories of clustering of activities. Breaking down the barriers between countries can lead to intensification of existing clusters, but it can also lead to the creation of new clusters as large changes in relative prices can lead to major movements of capital and firms.

Further Integration

Extending the analysis to include non-tariff barriers to trade and indeed to eliminating a wide range of barriers while trying to create a 'single market' and harmonising on single standards all have impacts of the same form as tariff changes, although it can be extremely difficult to quantify what the changes are. In such cases it becomes easier to observe the effects than it does to estimate contributions from a specific cause. However, once barriers to inhibit the movement of labour and capital are also removed it becomes much more difficult to assess the impact, and growth can increase simply because the factors of production available are enhanced through foreign direct investment (FDI), migration and skill and technology transfer (Mayes and Kilponen, 2007). Openness to a more advanced country's technology is likely to increase the rate of catch-up for the less advantaged, as clearly evidenced by the strong performance of the transition economies.

Clearly as countries move towards a closer union, they can also reap gains from policy coordination and of course from transfers towards the less advantaged, which may focus deliberately on facilitating growth, as in the case of the cohesion funds in the EU. Perhaps the largest gain from monetary union is that smaller, inflation-prone countries gain the benefits of lower real interest rates and more stable policy.

3 EMPIRICAL METHODOLOGY

We can distinguish four broad approaches to the empirical analysis of the effects of economic integration. The first and simplest approach is to construct an '*anti-monde*', showing what would have happened to trade flows in the absence of integration according to a set of clear hypotheses and to treat any difference between actual and predicted trade flows as being a measure of the integration effect. Such an approach is often referred to as the 'residual approach'. As we shall see, although such an approach has the attraction of great simplicity, there are considerable problems in predicting the path that trade would have taken had integration not happened. Clearly, there is no way of knowing what would have happened and, therefore, some assumptions have to be made as to how trade flows would have behaved. A common approach in such models is to assume that the changes would have been the same in the post-integration period as in the pre-integration one. However, even this is a sweeping assumption, as factors may

have influenced trade in the post-integration period that did not in the pre-integration period.

The second approach is an extension of the first. It consists of an attempt to formalise a model of the factors that determine the amount of bilateral trade taking place between any two countries or the so-called 'intensity of trade'. It then seeks to compare the actual level of bilateral trade with the amount of trade that the model predicts to determine the extent to which trade between any two countries is geographically biased. Clearly, geographical bias is to be expected where two countries are geographically close to each other or share a common border, as distance between countries gives rise to transaction costs. However, other factors may also give rise to such a bias, including membership of the same regional trading bloc or the use of a common currency. In short, the intensity of trade approach measures the extent to which any two countries are economically integrated, although without distinguishing between market and institutional integration effects. However, as factors such as distance do not change over time, any increase in bias over time may be taken as being due to institutional factors, such as the formation of a regional trading bloc.

The third approach is largely an extension of the second and has come into renewed prominence over the last decade in the context of currency unions (Frankel and Rose, 2002). It uses focused stochastic *econometric models* to estimate the impact of integration on trade. This, too, involves the construction of a model capable of explaining most of the factors that determine the amount of trade one country does with another or the change in the level of this trade over time. This will include factors such as membership of the same regional trading bloc or the use of the same currency. The model is then applied to bilateral trade over the relevant period of time and the coefficients of the different variables are estimated. The most commonly used model for this kind of exercise is the gravity model of trade, first proposed by Tinbergen (1962), later developed by Linnemann (1966) and widely used by others since. This treats trade between two countries as being a function of two masses, GDP and population, and the distance between them. However, gravity models have been criticised as lacking any sound theoretical basis. In particular, it is often argued that gravity models leave out relative prices of goods in the two countries and changes in the real exchange rate. For this reason, other analytic models are often used instead, which attach relatively less importance to gravitational factors.

The fourth approach is to use a multicountry, static or dynamic *computable general equilibrium* (CGE) model. Such models seek to explain the main equilibrium relationships between the different sectors of the economy of each country and between the different countries themselves. Once a model has been constructed, the task is to calibrate the model for a particular year. Having done so, the model is simulated for a later year to see the extent to which different economic variables have been affected by the integration process. The difference between the actual level of different variables and the level predicted by the simulated version of the model measures the impact of economic integration. Such an approach has much appeal because the model can be designed to capture all the economic relationships that exist in the economy of each country. It is also possible to introduce real-world complexities such as imperfect competition and increasing returns to scale into relevant markets within each country.

Moreover, the model will include the feedback effects whereby changes in one set of variables in any one country cause changes in other variables in another. In the dynamic

version of the model, this makes possible the measurement of long-run effects that may accrue over many years and which are known to be statistically more important than the purely static effects that occur only in the short run. Thus, CGE models are especially useful for measuring the effects of integration on economic growth. However, CGE models are not without their critics. In particular, some see such models as unduly abstract and divorced from reality because they describe a purely hypothetical situation of what will happen at some stage in the future with and without integration. Even applied to the past they require strong assumptions.

4 RESIDUAL MODELS

The essence of the residual approach is to construct an *anti-monde* for the period following integration and to compare what actually happened after integration with the hypothetical outcome predicted by the *anti-monde.* This approach was widely used in the early days of post-war European integration to determine the *ex post* effects of the formation of the European Economic Community (EEC) and European Free Trade Association (EFTA). The important question that all such studies faced is the construction of an appropriate *anti-monde*.

The simplest approach is to assume that the value of imports coming from partner countries would have continued to grow at the same rate after integration as before, had integration not taken place. It is clear, however, that this is far too simplistic. There are no grounds for supposing that the growth in imports that had taken place in previous years would have been repeated. The volume of imports in any given year is highly sensitive to the particular point reached in the business cycle, so that the pre- and post-integration periods would, at the very least, have to cover the full length of the cycle. However, these will be different for different countries. Changes in relative prices, including changes in the exchange rate, can also be expected to affect the growth of import volume. Any fall in the price of domestic goods relative to imports, including any fall brought about by a decline in the real exchange rate, might be expected to result in a slower growth in import volume. Structural changes within the country affecting both the composition of demand and output might also impact on the demand for imports, if some sectors or products have a greater import propensity than others. Finally, reductions in multilaterally negotiated tariffs either in the pre- or post-integration period could be expected to cause imports to grow at different rates in the two periods.

A somewhat better approach is to extrapolate *trade shares* illustrated in Table 13.1 for many of the main trading blocs in the period since 1970. However, such a procedure is subject to much the same objections as the simple extrapolation approach. There is no reason to assume that these shares would have remained the same, as different factors can be expected to have affected them in the post- rather than in the pre-integration period. A further problem with this method is that it provides no way in which a distinction can be made between trade creation and trade diversion. An increase in the intra-area trade share (and decrease in the extra-area trade share) could be due to either imports from partner countries displacing high-cost domestic production or imports from partner countries displacing lower-cost imports from third countries.

A clear pattern is not observable. Although the intra-regional share rose in some regions

Table 13.1 Intra-regional export shares, 1970–2001

	1970	1980	1985	1990	1995	2000	2001	Year in force
Europe and North America								
CEFTA	..	..	..	..	14.6	11.5	12.4	1993
EU	59.5	60.8	59.2	65.9	62.4	62.1	61.2	1957
NAFTA	36.0	33.6	43.9	41.4	46.2	55.7	54.8	1994
Latin America and the Caribbean								
CACM	26.0	24.4	14.4	15.4	21.7	13.7	15.0	1961
Andean Group	1.8	3.8	3.2	4.2	12.2	8.8	11.2	1988
CARICOM	4.2	5.3	6.3	8.1	12.1	14.6	13.4	1973
MERCOSUR	9.4	11.6	5.5	8.9	20.3	20.7	20.8	1991
Africa								
CEMAC (UDEAC)	4.8	1.6	1.9	2.3	2.2	1.2	1.3	1999
COMESA[a]	7.4	5.7	4.4	6.3	6.0	4.8	5.2	1994
ECCAS	9.8	1.4	1.7	1.4	1.5	0.9	1.1	1983[c]
ECOWAS	2.9	9.6	5.1	8.0	9.0	9.6	9.8	1975[c]
SADC[b]	4.2	0.4	1.4	3.1	10.6	11.9	10.9	1992[c]
UMEOA	6.2	9.9	8.7	12.1	10.3	13.0	13.5	2000
Middle East and Asia								
ASEAN/AFTA	22.4	17.4	18.6	19.0	24.6	23.0	22.4	1992
GCC	4.6	3.0	4.9	8.0	6.8	5.0	5.1	1981[c]
SAARC	3.2	4.8	4.5	3.2	4.4	4.3	4.9	1985[c]

Notes:
a. Prior to 2002, data unavailable for Namibia and Swaziland.
b. Prior to 2000, data unavailable for Botswana, Lesotho and Swaziland.
c. Year of foundation.

Key:
CEFTA= Central European Free Trade Agreement.
EU = European Union.
NAFTA = North American Free Trade Area.
CACM = Central America Common Market.
CARICOM = Caribbean Common Market.
MERCOSUR = Common Market of South America.
CEMAC (UDEAC) = Economic and Monetary Community of Central African States.
COMESA = Common Market for Eastern and Southern Africa.
ECCAS = Economic Community of Central African States.
ECOWAS = Economic Community of West African States.
SADC = South African Development Community.
UEMOA = Economic and Monetary Union of East Africa.
ASEAN (AFTA) = Association of South East Asian Nations (ASEAN Free Trade Area).
GCC = Gulf Cooperation Council.
SAARC = South Asian Association for Regional Cooperation.

Source: WTO (2003).

following integration (for example, NAFTA, the Andean Community, CARICOM, MERCOSUR), it was stable or falling in others. Even when it did increase, this was often not sustained or even reversed in later years. One of the reasons, of course, is that membership changed. As we shall see below, the intra-regional trade share measure is highly sensitive to the number of countries and the size of the trading bloc. Also, the integration process may have occurred at a more or less intensive rate at different times following the signing of the original agreement.

Other variables and parameters used for extrapolation include the share of imports to GNP/GDP or to the share of imports in apparent consumption (domestic production less exports plus imports). Of these, apparent consumption is the preferred measure. One possibility is to assume that the share of apparent consumption coming from domestic sources, partner sources and the rest of the world would have remained constant, had integration not taken place. Then, any decrease in the share of apparent consumption coming from domestic sources is evidence for gross trade creation. An increase in the share of imports coming from partner countries is evidence for net trade creation (gross trade creation less trade diversion) and any decrease in the share of imports coming from the rest of the world is evidence for trade diversion. In this way, the different effects of integration on trade can be identified and measured. An early example of a study of the effects of European integration that used such an approach was Truman (1969). Using such a methodology, he estimated that, by 1968, the formation of the EEC had created new intra-regional trade in manufactured goods equal to $9.2 billion (or 26 per cent of trade) as well as new external trade of $1.0 billion (or 7 per cent of trade).

Several studies preferred to make a different assumption, namely, that the share of imports in apparent consumption would have changed by the same amounts in the post-integration as in the pre-integration period had integration not taken place. Such an approach was used by the EFTA Secretariat (1969, 1972) to estimate the trade effects of both the EC and EFTA. They estimated trade creation for EFTA at $2.3 billion and trade diversion at $1.1 billion, respectively. In a later study, Truman (1975) allowed for increases in the share of imports in apparent consumption over time. This resulted in an estimate for trade creation of $2.5 billion (or 7 per cent of trade) and trade diversion of $0.5 billion (or 4 per cent of trade) for 1968.

A fourth approach used by Balassa (1967, 1974) was to use the income elasticity of demand for imports. He assumed for the *anti-monde* that the income elasticity of demand for imports for the pre-integration period would have been the same for the post-integration period if integration had not taken place. A rise in the income elasticity of demand for intra-area imports following integration was, then, defined as gross trade creation. However, as this may have resulted from either imports displacing domestic production (trade creation proper) or imports from other member states displacing imports from the rest of the world (trade diversion), only a rise in the income elasticity of demand for imports from *all* sources taken together would constitute trade creation proper. A fall in the income elasticity of demand for extra-area imports would indicate that trade diversion had taken place. On the other hand, a rise in this ratio would be evidence for external trade creation. His results suggested that trade creation had occurred in all product groups, except temperate-zone food, beverages and tobacco and other manufactures, while trade diversion occurred in temperate-zone food, beverages and tobacco, chemicals and other manufactured goods. However, in several categories (fuels,

machinery and transport equipment), substantial external trade creation also took place. Expressed in absolute terms, trade creation was estimated at $11.3 billion (or 21 per cent of trade) and trade diversion at $0.3 billion (or 1 per cent).

Some studies constructed an *anti-monde* by using parameters for the same period taken from some third country or group of countries, in effect, using this third country or group of countries as a 'normaliser' or control group. Thus, in measuring the effects of European integration, Kreinin (1972) used the United States as the normalising country, but made additional adjustments for differences in the rate of growth of incomes and prices. He estimated trade creation in manufactured goods and processed foods at $7.3 billion, compared with trade diversion at $2.4 billion. Using the United Kingdom as the normalising country, trade creation was estimated to amount to $9.3 billion and trade diversion at $0.4 billion. There are serious drawbacks to this *anti-monde* approach, however sophisticated; Mayes (1971), for example, shows that Japan exhibits a greater gain during the process of creation of the EEC than any of the member countries by applying exactly the same methodology over the years in question. Thus if one used Japan as a normaliser, all the EEC countries would appear to have lost by membership.

5 INTENSITY OF TRADE APPROACH

The second approach to measuring the impact of integration introduces the notion of trade intensity. This is based on the idea that there is some 'natural' amount of trade that will take place between two trading partners, given their geographical features. Thus, if trade is greater than this natural amount, it implies that their trade is biased by other factors. These other factors will include membership of a regional integration scheme such as a trading bloc, common market or currency union. If the degree of bias tends to increase over time, this provides a measure of the effects of integration.[4]

The major task is to find a suitable index for measuring trade intensity. The starting point is to return to the intra-regional trade share index referred to above. As Anderson and Norheim (1993), Frankel (1997) and others have shown, this index suffers from two problems. First, the indicator is biased by the number of countries making up the region (Anderson and Norheim, 1993). The greater the number of countries, the higher will be the intra-regional trade share. Second, it is biased upwards by the share of world trade accounted for by the region. As Anderson and Norheim have demonstrated, the solution to this problem is to divide the intra-regional trade share by the region's share in total trade[5] creating an 'intra-regional trade intensity' or 'trade concentration ratio'. The index will be equal to one if the intensity of bilateral trade between two countries exactly equals the importance of the region in world trade. This would mean that there is no geographical bias in the trade between the two countries. If the index exceeds one, trade is geographically biased. Of course, this may be due to natural factors (such as a common border, distance or common language) or institutional factors (such as membership of the same trading bloc, a new regional trading agreement or the adoption of a common currency). There is no way of knowing which of the two influences is the greater. However, as natural factors do not change over time, any increase in the index implies that institutional factors have affected trade. Table 13.2 illustrates recent trends in the trade concentration ratio for different trading blocs.

Table 13.2 Intra-regional export concentration ratios

	1970	1980	1985	1990	1995	2000	2001	Year in force
Europe and North America								
CEFTA	..	..	..	..	9.1	6.2	5.5	1993
EU	1.5	1.6	1.6	1.5	1.6	1.7	1.6	1957
NAFTA	1.9	2.2	2.7	2.6	2.8	2.9	2.9	1994
Latin America and the Caribbean								
CACM	74.8	103.0	75.4	122.4	151.1	46.9	52.1	1961
Andean Community	1.1	2.5	2.6	4.5	15.4	8.7	9.6	1988
CARICOM	10.7	10.1	19.2	51.4	86.1	128.3	92.6	1973
MERCOSUR	6.2	8.0	3.1	6.6	14.9	15.2	13.6	1991
Africa								
CEMAC (UDEAC)	34.5	7.0	8.4	12.9	19.4	7.0	7.9	1999
COMESA[a]	5.5	12.1	8.9	15.6	17.8	11.6	12.9	1994
ECCAS	18.6	4.5	4.2	4.3	7.2	3.1	3.8	1983[c]
ECOWAS	3.1	28.5	5.3	14.5	22.0	20.0	20.6	1975[c]
SADC[b]	2.2	0.2	1.3	3.1	14.0	20.1	16.1	1992[c]
UEMOA	2.2	42.0	34.9	80.7	89.3	137.3	140.4	2000
Middle East and Asia								
ASEAN (AFTA)	11.4	4.9	5.1	4.6	3.9	3.4	3.5	1992
GCC	5.7	0.4	1.5	3.2	3.4	1.9	2.0	1981[c]
SAARC	3.3	7.5	6.6	4.1	4.9	4.2	4.6	1985[c]

Notes:
a. Prior to 2000, data unavailable for Namibia and Swaziland.
b. Prior to 2000, data unavailable for Botswana, Lesotho and Swaziland.
c. Year of foundation.

Source: WTO (2003).

First, we should note that all of the ratios in the table are greater than one, indicating regional bias in trade. This is not itself a measure of the effect of discriminatory policy arrangements, as the bias may equally be due to natural factors, such as distance, common borders, common language or common culture. However, as these natural factors do not change, an increase in the ratio over time is evidence of an effect from policy changes. Second, the trend in the ratios over time suggests a confusing picture. In the case of the EU and NAFTA, there is virtually no change in the ratio over the relevant period. However, for the Latin American countries (Andean Community and MERCOSUR), there is an upward trend, although for ASEAN, the trend is downwards. In the case of the African countries, the overall picture is a mixed one, although the trade data are less reliable.

In recent years, a wide variety of alternative methods of measuring for regional bias in

world trade have been proposed.[6] Anderson and Norheim (1993) calculate what they call 'the propensity to trade extra-regionally'. This takes into account the fact that regional integration in recent decades has often taken place against the background of growing openness in the trade policies of countries. Unfortunately, the evidence suggests that results are highly sensitive to the particular measure used. As we have seen, the simple measures, such as the intra-regional trade share and the trade intensity index, suffer from serious problems. However, there is as yet no obvious alternative to these measures if we wish to base our measurement on the concept of relative trade intensity.[7] However, the major problem with the trade intensity approach is that it measures the integration effect simply by observing the difference between two figures – the actual level of trade between two partners and the normal level of trade based on each country's trade with the rest of the world. This is clearly not satisfactory. We cannot treat the integration effect as simply being the difference between two observed values. Instead, what we need is an accurate estimate of the contribution made by all the different determinants of trade between any two countries, so that we can isolate the precise impact of actual trade policy changes. This leads us to the third approach.

6 GRAVITY MODELS

Gravity models build on this notion of the 'natural' level of trade between two countries. However, they do so, first, by identifying the factors that determine trade intensity and, second, by measuring the relationship between these factors and bilateral trade flows over the relevant period. The original gravity model[8] viewed bilateral trade flows as being affected by two basic forces – trade potential and trade resistance. Trade potential is shaped by two factors – the size of each country's GNP or GDP and the population of the two countries – and thus by per capita GNP/GDP. These two masses act in the same way as in the theory of gravity to increase trade between the two partners. Trade resistance was seen as being a function of distance, which acts negatively to reduce trade between countries. However, as the gravity model has evolved, a large number of other variables have been added to increase the explanatory power of the model.

The influence of population is not as straightforward as first thought. While the population of the importing country can be expected to increase trade through demand, the population of the exporting country is more likely to have a negative effect. This is because the bigger the country, the larger the domestic market and the more inwardly oriented the country will be. Large countries may also be better able to exploit economies of scale than small countries, resulting in less trade. Small countries may also have fewer natural resources and, therefore, be more dependent on trade. Third, some gravity models include *geographical size* as a separate, additional variable to capture the specific effect of physical area or land mass on the need to import natural resources.

Several variables are used to capture the influence of trade resistance. While *distance* raises the costs of trade and, therefore, has a negative effect on trade, it also plays an important role by raising the costs of shipping goods from one country to another, by increasing the time spent by goods in transit and by raising the 'psychic' or 'cultural' cost resulting from consumers being less familiar with the goods of a more distant country. For similar reasons, it is common to include dummy variables for countries that are

adjacent to one another and for countries that share a *common language* or cultural affinity. Third, a dummy variable is added to capture the effect of countries being members of the same *regional trading arrangement*. Other dummy variables are often included for factors such as where one country is a landlocked or island economy, where two countries operate a common currency or where one country is a former colony of another.

Such a model has the attraction of being able to isolate the effect of each of the major variables entering into the determination of trade between two countries and thus to obtain a more accurate measure of the integration effect. However, gravity models have often been criticised for lacking any robust theoretical basis. In particular, prices are excluded entirely from the model, it being assumed that markets adjust to equate demand and supply. However, as Bergstrand (1985) and others have shown, gravity models can be made consistent with trade theory. Furthermore, the explanatory power of most applications of the gravity model has been quite high, with an adjusted *R*-squared as high as 70 or 80 per cent.

Many of the early studies that made use of a gravity model to measure the impact of regional integration were used in relation to the formation of the EEC and EFTA. Two approaches were used. One was to estimate the amount of trade that would be expected to take place between member states in the absence of economic integration and then to compare this with the actual level of trade several years after integration. The unexplained element of trade or the residual was then treated as being the result of integration. The alternative was to include a dummy variable for integration for intra-bloc trade, and thereby measure more directly the impact of integration. Aitken (1973) was the first to make use of a dummy variable to measure the effects of integration in a study of the impact of the formation of the EEC and EFTA. However, the estimated coefficient measures only gross trade creation, not distinguishing between trade-creation and trade diversion effects. Bayoumi and Eichengreen (1995) and Frankel (1997) provided a solution to this problem through the inclusion of a second dummy variable to represent trade between the member and non-member states. If the importing country is a member of the bloc and the exporting country is not, the dummy variable takes a value of one and vice versa. A positive relationship between this and the increase in intra-regional imports is taken to indicate a diversion of trade from non-members to members. The value of the coefficient thus measures the amount of any increase in intra-regional trade that is due to trade diversion.

Bayoumi and Eichengreen (1995) found that the formation of both the EC and EFTA had significant effects on intra-European trade. In the first period covering the formation of the EEC and EFTA, trade among the Six grew by an estimated 3.2 per cent per annum faster, and among the Seven by an estimated 2.3 per cent per annum faster, as a result of integration. However, in the case of the EEC, this was accompanied by some trade diversion, which was not the case for EFTA. Following both of the first two enlargements of the EEC, similar effects were apparent. After 1972, trade between the United Kingdom, Eire and Denmark increased significantly faster than predicted by the model, as a result of both trade creation and trade diversion. Following the accession of Greece in 1981 and Spain and Portugal in 1986, trade between the Nine and the newly acceding countries grew faster than predicted by the model, which, in the case of Spain and Portugal was due entirely to trade creation.

Frankel (1997) used a gravity model to estimate the integration effects of six trading

blocs over the period from 1965 to 1994: EC/EU, NAFTA, MERCOSUR, the Andean Group, ASEAN and ANZCERTA (Australia–New Zealand Closer Economic Relations Trade Agreement). Bilateral trade flows from the United Nations trade matrix covering some 63 countries were included. An estimated 75 per cent of all bilateral trade flows were explained by the model. All the variables were significant and showed the expected relationship. For individual trading blocs, however, the results were variable. In all cases, intra-bloc trade was found to be higher than could be explained by the other factors in the model. The strongest effects were found for the two Asian trading blocs, ASEAN and ANZCERTA, with intra-bloc trade being five times higher than would have taken place with other similar, non-member states. Strong effects were also found for the two South American blocs, MERCOSUR and the Andean Community. With regard to Europe, however, much depended on whether the EU15 or the EC12 was taken as the relevant bloc. For the EU, there was no statistically significant effect until after 1985, which is not surprising given that the EU did not come into being until the end of the period covered. By 1990, trade between members of the EU was found to be 35 per cent more than trade between two similar countries. The EC bloc effect was stronger, but not statistically significant until 1980. Again, however, membership of the EC was not complete until 1986, with the accession of Spain and Portugal. Frankel's results showed that, by 1992, bilateral trade between any two EC member states was 65 per cent higher than it would have been had the EC not existed. Both of the two enlargements in 1973 and 1985 were found to have contributed about one half of the increase.

Soloaga and Winters (1999) used a gravity model to estimate the impact of regional trading agreements on bilateral trade flows between some 58 countries over the 1980–96 period and covering nine trading agreements. These countries were members of one of six trading blocs – EU, NAFTA, MERCOSUR, the Andean Group, ASEAN and CACM. They introduced two additional bloc-related dummy variables to capture abnormal levels of trade that might be attributable to the formation of the trading blocs. As usual, one variable captures the effect on intra-bloc trade of both countries being members of the bloc. A second dummy variable takes the value of one if the importing country is a member of the bloc and zero otherwise. This measures the overall openness of the importing country to imports from other members of the same bloc. A third dummy variable takes the value of 1 when the exporting country belongs to the trading bloc of the importing country. The last two variables are designed to capture, to a greater extent than in previous models, the effects of greater openness on the part of the trading bloc. In this way, the specific effect of regional integration on the trade of each member state can be measured. Soloaga and Winters's results show that, over the period covered, regional integration had no significant effect on intra-bloc trade. For the EU and EFTA, they found convincing evidence that trade diversion had taken place. On the other hand, trade liberalisation in Latin America had a positive impact on intra-bloc imports, although the results were only statistically significant for CACM and MERCOSUR. Finally, they found evidence for export diversion in the case of the EU and EFTA.

Clarete et al. (2002) adopted the same approach as Soloaga and Winters (2001) in their study of the effects of regional integration on Asian trade. The model was estimated for the period from 1980 to 2000 and covering 11 trade blocs, mostly from the Asian region. Between 68 and 73 per cent of the variation in trade flows was explained by the variables in the model. Their results showed great variations across trading blocs.

Clarete et al.'s study identified three groups. The first were trading blocs which enjoyed increased intra-bloc trade mainly at the expense of exports to and imports from the rest of the world. These included the Andean Pact, ECO, EFTA, MERCOSUR, SAPTA and SPARTECA.[9] The second enjoyed increased intra-bloc trade without leading to reduced trade with the rest of the world. These included countries that practised 'open regionalism' such as APEC, ANZCERTA and the EU. A third group, comprising AFTA and NAFTA did not change their intra-bloc trade but reduced their trade with the rest of the world. Overall, their estimates showed that regional trading agreements had contributed to an expansion of trade at both a global and a regional level. However, there are regional trading agreements that do result in significant net trade diversion, in the Commonwealth of Independent States (CIS) and the EFTA for example, to say nothing of colonial arrangements.

7 OTHER STOCHASTIC ECONOMETRIC APPROACHES

As we have seen, gravity models have (wrongly) been criticised for lacking any solid basis in economic theory. In particular, critics have questioned the exclusion from the model of key variables, such as relative prices and real exchange rates. An alternative is, therefore, to construct a model for trade flows between country pairs that includes these variables. At a simple level, the main determinants of *total* imports in any year are the level of economic activity (with GNP or GDP or apparent consumption as the most suitable proxy) and the prices of domestic products relative to the price of imports. The relationship between GNP/GDP and imports is given by the income elasticity of demand for imports and between relative prices and imports by the price elasticity of demand for imports. However, in order to measure the impact of integration on imports, it is necessary to distinguish between *total*, *intra-area* and *extra-area* imports. Intra- and extra-area imports will be determined by the relationship between the prices of import from partner countries and the price of imports in non-partner countries. This will depend on the elasticity of substitution of imports with respect to price changes between partner and non-partner countries.

The integration effect may be assumed to work through changes in relative prices. However, this assumes that tariff changes are fully passed on to prices, which may not be the case where goods are differentiated and/or markets are less than perfectly competitive. A further difficulty is that tariff changes may have an effect on imports other than through changes in relative prices. Balassa (1974) and others have drawn attention to the possible 'promotional effects' of integration, whereby integration stimulates imports through increased information flows, direct investment by firms in sales and distribution outlets and a reduction of risk and uncertainty. For this reason, some models have preferred to include a separate variable for tariff changes.

Once the model is agreed, the next task is to estimate the coefficients in the equation for a suitable period of time, and then to use the completed equation to estimate what trade would have been had integration not taken place. Actual trade flows may then be compared with flows predicted by the model, and the residual treated as the integration effect. In this case, the *anti-monde* is based on actual estimates of how income and relative prices have affected trade flows over the integration period. If the purpose is to

make an *ex ante* prediction as to how integration will affect trade flows in the future, the coefficients in the equation may be used to compare the effects with and without integration. For this purpose, integration may be treated as a separate dummy variable, taking the value of one or zero according to the simulation. Rather than estimating the model for the EC for a different period during which integration took place, an alternative is to estimate the equation for a comparable country or group of countries for the same period. Ideally, the estimation should be done at as disaggregated a level as possible, as individual countries and products do not behave in the same fashion.

Various studies have been carried out using models of this kind. Resnick and Truman (1974) used one to measure the impact of European integration on trade in manufactured goods. Coefficients were obtained by estimating the equations for EC trade for the period from 1953 to 1968. The model was then simulated to estimate the impact of integration by altering the 1968 values of the relative price variables for tariff changes in the EC and EFTA. Trade creation was estimated at $1.2 billion ($1.4 billion including EFTA) and trade diversion at $2.7 billion ($3.6 billion including EFTA). Interestingly, these figures were much lower than the estimates obtained by other studies, with trade diversion actually exceeding trade creation.

Another example of an analytic model is Winters (1984, 1985) who used a model based on the Almost Ideal Demand System (AIDS) proposed by Deaton and Muellbauer (1980) to estimate the effects on the UK of accession to the EC. For each industry, the share of the market taken by an individual supplier is denoted by s_{ik} where i denotes the ith supplier's share of the kth country's market for a particular industry. This is given by:

$$S_{ik} = \alpha + \Sigma\lambda_{ij} \ln p_{jk} + \beta \ln Y_k / P_k,$$

where p_{jk} is the price of the jth country supplier into the kth country market, Y_k is total nominal expenditure by k residents and P_k is a price index covering supplies from all sources. The attraction of this model is that it accounts for the allocation of consumer expenditure on manufactures among all suppliers, not just between domestic and foreign suppliers. The effects of tariff reductions on intra-area imports are incorporated into the model through the use of dummy variables. In this way, the effects of non-price factors can be included, and possible data constraints regarding prices overcome.

CEPR/EU Commission (1997) used a similar approach to estimate the effects of the creation of the Single Market. They used three demand equations for 15 three-digit sensitive goods sectors for four principal countries, namely, Germany, France, Italy and the UK. The equations estimated the share of nominal, sectoral expenditure accounted for by domestically produced goods, intra-EU imports and extra-EU imports. A separate dummy variable was included to capture the effect of the creation of the Single Market. The Single Market was expected to affect trade flows not only through the *direct* effects of reductions in trade costs on demand, but also through the *indirect* effects of increased competition and reductions in price–cost margins. Separate price equations for each of the sectors covered were used to estimate these indirect, supply-side effects. The estimated impact of the Single Market on price–cost margins was then used to simulate the impact of price reductions on trade flows using the estimated demand equations. CEPR/EU Commission found that the overall impact of the Single Market Programme was to

cause a decrease in the domestic producers' share in the 15 sectors covered of 4.2 per cent and a rise in the share of EU producers of 2.1 per cent and of the rest of the world of 2 per cent. A similar exercise was carried out for the manufacturing sectors as a whole in order to be able to examine the effects of the Single Market on other manufacturing sectors. For manufacturing as a whole, the fall in the domestic producers' share was 2.3 per cent, with EU producers increasing their share by 0.5 per cent and the rest of the world by 1.8 per cent. In other words, the impact of the Single Market was, overwhelmingly, one of both internal and external trade creation.

8 COMPUTABLE GENERAL EQUILIBRIUM MODELS

CGE modelling has become steadily more popular in recent years. The models require strong assumptions and in many cases have been calibrated rather than econometrically estimated. Until 1995, most models were largely static, so while they could compute a theoretical end point after the consequences of the change had worked themselves out, they could not suggest the time path, which is essential if there is a degree of path dependency in the process. Two main kinds of CGE models have been used to study economic integration.[10] The first group is multiregional (for example, GTAP,[11] MEGABARE,[12] WorldScan[13]) while the remainder relate to single countries (for example PRCGEM, ORANI, Monash Model and so on).[14]

Devarajan (1998) shows that CGE models are powerful tools for policy analysis for three main reasons: first, they are able to generate a new set of equilibrium prices following a shock, which will in turn serve to determine outputs, consumption, employment and income and so on; second, they are able to capture not just the primary effects of a shock or change in policy but also the full effects as well; third, they are able to capture the changes in economic structure, such as the proportions of agriculture, industry and services in GNP, the shares of payments to labour and capital in value added, and the composition of government revenue.

CGE models were first used extensively in integration with the NAFTA negotiations. Most CGE models incorporate imperfect competition in all markets and imperfect substitution in all markets and imperfect substitution between foreign and domestic goods, and between alternative sources of imports (see Armington, 1969, model of trade[15]). Among the CGE models, GTAP Model[16] is the most popularly used tool to study the multi-trade flows among all sorts of economic integration. The literature reveals that developing countries make substantially larger gains than developed countries.[17] In contrast, comparable cuts in agriculture and services benefit developed countries relatively more.

NAFTA[18] and its Enlargement

CGE models have been used extensively to analyse NAFTA and its enlargement to Central and South America. Various issues related to this (mostly from the US perspective) have been fully reviewed by Harris and Cox (1985), Brown and Stern (1989), Brown (1992), Brown et al. (1992, 2004, 2005), Kehoe and Kehoe (1994), Hilaire and Yang (2004), Trefler (2004), USITC (2004) and Georges (2008).