

Oxford Economic Forecasting

Trade liberalisation and CAP reform in the EU

*A report for Open Europe
by*

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1. Executive Summary

Europe has underperformed relative to its peers and to its own previous performance over the last two decades. That underperformance reflects a range of factors, from structural rigidities in labour and capital markets, to inappropriate macroeconomic policy. But one set of economic policy measures that could contribute to improved economic performance in the future is trade liberalisation and reform of the Common Agricultural Policy (CAP).

Trade liberalisation – the removal or reduction of import tariffs and quotas or other regulatory constraints on the free movement of goods and services between countries – boosts the productivity of all participating economies in the long run. The removal of restrictions on international trade means that more international trade will occur. And increased trade implies that the underlying patterns of comparative advantage across countries can be more fully exploited; greater economies of scale can also be realised; innovation and technology transfer will increase; competition will be fostered; the incentives for investment will improve; and even macroeconomic policy might become more conducive to stability and long-run growth. There is little dispute among economists (a rarity) that these effects boost the long-run average productivity and living standards of all participating countries.

Overall, the direct cost of the CAP to Europe was €122 billion (\$150 billion) in 2004, or 1.2% of EU GDP. Of that, €44 billion represented transfers to farmers from the EU (nearly half of the total EU budget in that year) and about €20 billion was in the form of transfers from national governments to their own farmers. The remainder - about €58 billion – was the result of higher-than-market prices paid by consumers for agricultural products. If the CAP were to be removed that would boost GDP in Europe through the same channels as general trade liberalisation, with a reallocation of resources away from the agricultural sector and towards other sectors that can be competitive without those levels of government and consumer subsidy. At the same time, consumers in the EU would benefit from lower prices of agricultural goods. And other countries outside the EU – particularly developing and less-developed countries (eg in Africa) – would also benefit from the increased access to European markets and from the reduction in subsidised agricultural exports from the EU.

In this paper we assess the benefits of trade liberalisation and CAP reform for the EU, UK and global economies.

Goods trade liberalisation effects

Barriers to trade in services are essentially a question of regulation, a wider subject which we will address in future research. Here, we focus on the impact of the removal of the restrictions on trade in goods, assessing a number of different scenarios under which trade liberalisation might come about. We find that:

- The biggest global gains are achieved if all restrictions on trade are removed in all countries. If that were to happen, we estimate that global GDP would increase by \$1,300 billion a year in today's prices, or 2¼%, by 2015, relative to a base scenario in which current restrictions on trade remain in place. The main beneficiaries, in proportional terms, of such a global goods trade liberalisation are the developing economies, particularly in Asia and Africa. Developed economies would also gain, although for them the proportional impact on GDP and living standards would be smaller.

- Similarly, goods trade liberalisation by the EU, if it were reciprocated by the EU's trading partners ("bilateral" liberalisation), would yield substantial long-run benefits for the EU. Our estimates suggest that GDP across the EU as a whole could be some \$130 billion (€110 billion) a year higher in today's prices, or 0.9%, by 2015 if all tariffs and quotas on imports to and exports from the EU were removed.
- Even unilateral goods trade liberalisation – the removal of trade barriers only by EU members – yields substantial economic benefits for the liberalising countries in the long term. For example, if the UK alone were to liberalise its goods trade unilaterally, this would boost UK GDP by \$4.8 billion (£2.6 billion) a year in today's prices, or 0.2%, by 2015. The benefits of goods trade liberalisation result as much from the reduction in a country's own barriers to trade as from reductions in trade barriers elsewhere.

Effects of reforming the CAP

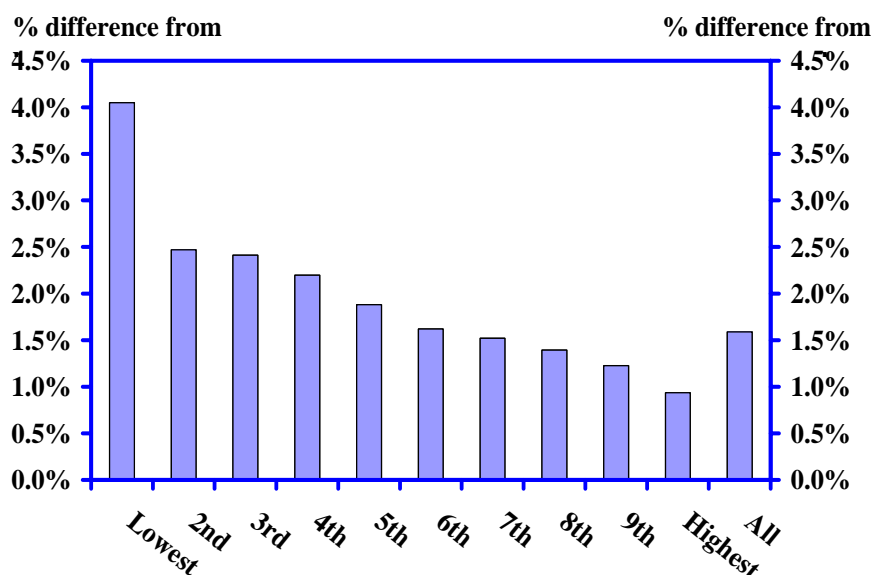
- The Common Agricultural Policy (CAP) is intended as a means of protecting the income of the European agricultural sector. But employment and incomes in European agriculture have been falling over recent decades.
- Removing the CAP would be likely to reduce further the number of people employed in the European agricultural sector over the long term, but it would also generate substantial benefits. Consumers and other sectors would gain from lower prices for agricultural products. Other countries would benefit from increased demand for their exports and a more level playing field on which to compete in their own markets. Trade would increase, providing a modest benefit for growth in the EU and elsewhere. And net contributors to the EU via the CAP – countries like the UK – would benefit from those contributions being removed.
- Moreover, if the government funds that are currently spent on maintaining the CAP were to be diverted towards other, more productive forms of spending, such as R&D or structural funds, the impact on growth across the EU could be substantial.
- Our estimates suggest that CAP removal combined with a more efficient recycling of the revenues currently spent on the CAP could boost EU GDP by \$170 billion (€140 billion) in today's prices by 2015, or by 1.2%.

Overall effects

- Taking all these together, trade liberalisation combined with reform of the CAP and recycling of the CAP funds to R&D would provide a substantial boost to the European and UK economies: in this sense, the cost of maintaining the CAP and other restrictions on EU goods trade is between 1% and 2% of GDP in Europe and the UK. Such a scenario would boost UK GDP by over £20 billion – providing total benefits to the typical household of four worth around £1,500 a year.
- The boost to average household real incomes would particularly benefit the poorest households – in part, because they spend a larger proportion of their income than richer households and also because their spending is concentrated on the basic goods – food and clothing – which attract the highest tariff rates. While the gains from recycling CAP related expenditure would be reasonably evenly distributed, the gains from trade liberalisation would benefit those in the lowest ten percent of the income distribution in the UK roughly six times as much as those in the top tenth. The overall impact is set out in the chart below.

Chart 1.1

Impact of trade liberalisation and CAP removal* on living standards by income decile



Source: OEF

* with revenues recycled on R&D

Ideally, trade liberalisation and CAP reform would be planks in a much wider package of economic reforms, which would also address structural rigidities in the European labour and capital markets, the responsiveness of macroeconomic policy and the burden of bureaucracy that stifles entrepreneurial activity. Taken together, such a package of reforms could improve European economic performance significantly.

Summary table: impacts on GDP of different goods trade liberalisation scenarios

% differences from base forecast in 2015	Goods trade liberalisation					Goods trade liberalisation & CAP reform with R&D effects		
	Global	EU Bilateral	EU Unilateral	UK Bilateral	UK Unilateral	CAP only	Global & CAP	EU Bilateral & CAP
SCENARIO								
COUNTRY								
UK	0.7	0.9	0.5	0.5	0.2	1.0	1.6	1.8
EU 15	0.6	0.9	0.4	0.1	0.0	1.2	1.9	2.1
Global	2.3	0.7	0.2	0.0	0.0	0.3	2.9	1.3
NAFTA	0.8	0.4	-0.1	0.0	-0.1	0.0	0.9	0.5
Asia Pacific	4.5	0.7	0.2	0.0	-0.1	0.4	5.3	1.4
Latin America	1.0	0.2	0.2	0.0	0.0	0.1	0.8	0.4
Africa	4.1	2.6	0.0	-0.1	-0.1	0.1	4.3	2.8
Africa excluding S. Africa	5.4	3.5	0.0	-0.1	-0.1	0.1	5.7	3.6

Chart 1.2

Impact of global trade liberalisation on GDP with R&D effects

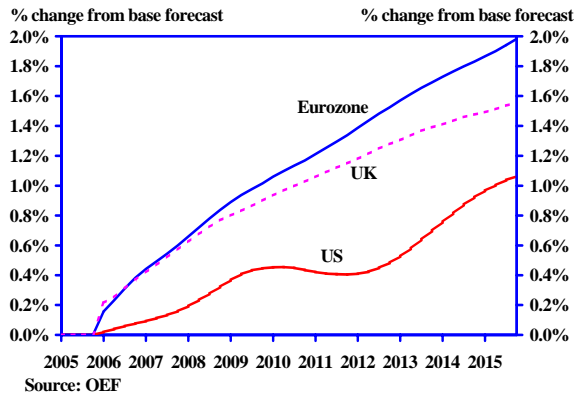
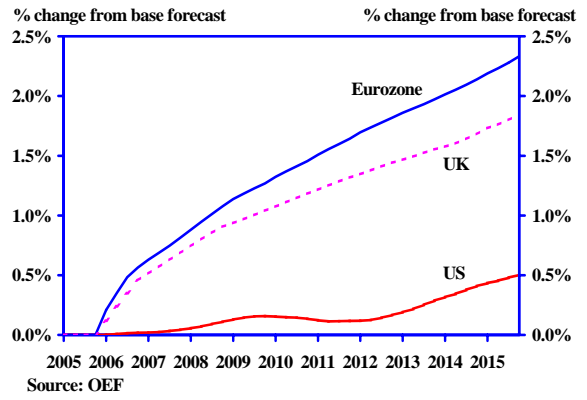


Chart 1.3

Impact of EU bilateral trade liberalisation on GDP with R&D effects



2. Introduction

2.1. The need for reform: Europe's economic under-performance

The economic performance of the European Union has been poor for more than a decade, both relative to its own past and relative to the performance of its peers, most notably the US economy. GDP growth in the EU has averaged 2.2% a year since 1995, 1% points lower than in the US, and GDP per capita in the EU has risen by about 3% less than that in the US over the same period. And EU unemployment has remained stubbornly high: it is just under 9% - similar to its average in the 1980s – whereas unemployment in the US has fallen to around 5%.

Not all of Europe's economies have performed poorly over the last decade. Ireland, Spain, Greece and Finland have enjoyed particularly strong growth, falling unemployment and low or falling inflation. The performance of the UK economy has also been strikingly good, with GDP growth on average 0.7% higher than that in the EU since 1995. But some of the large, 'core' continental European economies – most notably, Germany and Italy – have struggled in recent years, to such an extent that some commentators have even questioned the sustainability of European Monetary Union.

Chart 2.1

GDP growth: US, EU and UK

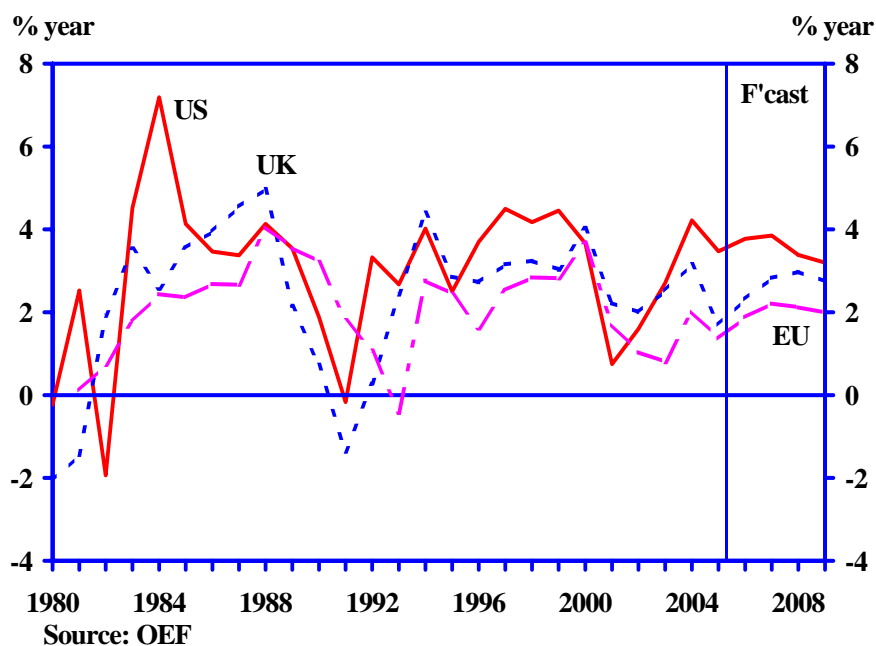


Table 2.1: European economic performance

	EU-15	Eurozone	UK	US	World
	GDP growth				
1985-94	2.3%	2.4%	2.5%	3.0%	3.1%
1995-04	2.2%	2.1%	2.9%	3.2%	2.9%
2005-14*	2.0%	1.8%	2.5%	3.5%	3.4%
	Unemployment rate				
1985-94	8.6%**	8.7%**	9.1%	6.4%	-
1995-04	9.3%	9.6%	6.1%	5.1%	-
2005-14*	7.0%	7.5%	4.8%	5.0%	-

* including OEF's central forecast to 2015

** estimates based on national data

There are a number of factors that have contributed to the weak economic performance of the EU as a whole, from structural rigidities in labour and capital markets, to inappropriate macroeconomic policy. But one set of economic reforms that could contribute to improved economic performance in the future is trade liberalisation and reform of the Common Agricultural Policy (CAP).

Some politicians and interest groups claim that a 'protectionist' stance on extra-EU trade is good for the EU economy. They would argue that promoting 'national champions' ensures strategic industries can maintain their presence in the region. Certain industries – agriculture, to name one – within Europe would be vulnerable if they were exposed fully to competition from outside the EU, and most governments would claim that large benefits accrue from having a secure domestically produced food sector. However, it is also important to consider the costs of maintaining the protectionist stance that is currently in place. If they are significant, then they should be weighed against the benefits that protectionism is perceived as delivering.

The removal of restrictions on international trade leads to more international trade. And increased trade means that the underlying patterns of comparative advantage across countries can be more fully exploited; gains from economies of scale are also realised; innovation and technology transfer will increase; competition will be fostered; the incentives for investment will improve; and even macroeconomic policy might become more conducive to stability and long-run growth. There is little dispute among economists (a rarity) that these effects lead to an increase in the long-run average level of productivity and living standards of all participating countries.

This paper quantifies the benefits that would accrue to the EU, UK and global economies from the liberalisation of trade in goods and from the replacement of the current CAP with other, more productive forms of spending. It is part of a wider research programme that will also investigate the impact of regulatory reform, including reducing barriers to trade in services and Foreign Direct Investment (FDI), labour market reform and product market deregulation.

The rest of this paper is organised as follows:

- Chapter 3 considers the impact of liberalisation of trade in goods, either at a global level or by the EU and/or some of its members both on a bilateral and a unilateral basis. We outline the history of trade liberalisation in Europe and elsewhere; assess the insights that can be drawn from the existing literature and practical experience in this area; describe the key channels through which trade liberalisation has an impact on growth; and undertake our own analysis of the 'static' and 'dynamic' effects (on the level and growth of GDP respectively) of trade liberalisation.
- Chapter 4 assesses the economic impact of reform of the CAP. We take as our benchmark the agricultural reforms undertaken in New Zealand. We go through the various measures that are currently in place; assess the channels whereby their removal would have an impact on the European economy; and quantify how large that impact might be – including possible effects of redirecting the funds that are currently spent on maintaining the CAP to other, more productive forms of spending, such as R&D or structural funds.
- Chapter 5 quantifies the benefits of combining both trade liberalisation and CAP reform, with a more efficient use of the funds currently allocated to the CAP; assesses the impact of trade liberalisation and CAP reform on the average household in the UK and the EU; describes how that impact is distributed across households according to their income group; and draws out a number of implications for policy.

Our estimates are based on a series of modelling exercises using both the model of the General Trade Analysis Project (GTAP) and the Oxford Global Macroeconomic Model. The annexes provide an overview of these models, together with a summary of estimates from previous studies of the effect of liberalisation of trade in goods.

3. The economic impact of liberalisation of trade in goods

3.1. Introduction

In this Chapter we quantify the impact of the liberalisation of the EU's trade in goods – that is, *the removal or reduction of import tariffs and quotas or other regulatory constraints on the free movement of goods between countries.*

The European Union as a Single Market is a region within which the barriers to international trade in goods are very low. But the external barriers to trade are substantial in some areas, preventing the free movement of goods into and out of the European Union as a whole.

We begin by assessing recent trends in European and global trade, and summarising the global trade barriers and restrictions that currently exist. We then review the evidence from previous research on the economic impact of trade liberalisation and describe the modelling approach that we have adopted in this study. Finally, we present the results of a series of different scenarios under which goods trade liberalisation could come about, ranging from full global liberalisation to liberalisation by the EU and/or a subset of its members on either a bilateral or unilateral basis.

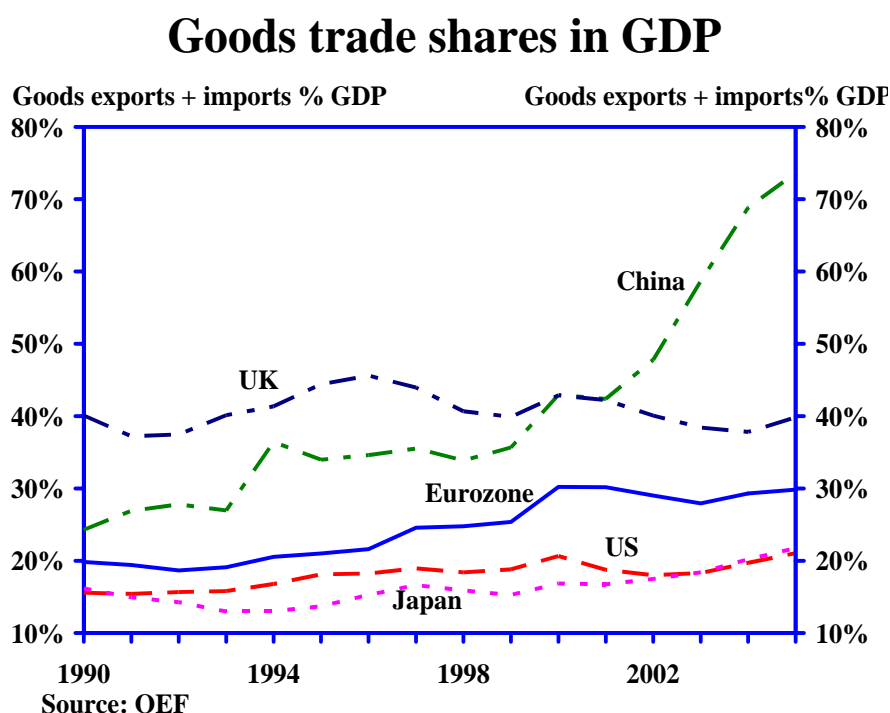
Key Points

- The EU is middle-ranking among developed economies in terms of its restrictions on trade when it comes to average import tariffs. But the EU is close to the top of the league in terms of the number of tariff quotas in place. Trade liberalisation would involve removing some or all of these barriers to trade.
- Economic theory suggests that trade liberalisation will lead to increased volumes of international trade, and that increased trade will yield economic benefits to all participating economies in the long run in the form of higher productivity and living standards.
- According to our estimates, the increase in world GDP following a multilateral elimination of import barriers would build up to around US\$1,300 billion a year, or 2.3% of global GDP, by 2015. Developing economies would particularly benefit from global trade liberalisation.
- Our scenarios suggest that goods trade liberalisation might boost GDP in Europe and in the UK by up to 1% by 2015. The effects are generally larger in the UK than in the other large member states, although the UK is close to the EU average overall.
- The biggest increase in EU and UK GDP would come from bilateral goods trade liberalisation, which helps to improve the competitiveness of EU / UK exports relative to exports from other countries which do not fully liberalise their trade.
- A large proportion of the benefits of goods trade liberalisation are accrued whether or not the measures to remove barriers to trade are reciprocated by other trading partners: unilateral trade liberalisation provides long-run benefits that are substantial in their own right.

3.2. Europe's barriers to trade

External trade to and from Europe – the sum of exports and imports – represents a relatively small share of EU GDP. Measured in this way, the openness of the European economy to trade in goods is broadly comparable to the two other principal developed economies, the United States and Japan (Chart 3.1). Trade is substantially lower as a share of GDP for the EU than for many of the faster-growing developing economies such as China. But that largely reflects the size of their respective domestic economies and their stage of development.

Chart 3.1



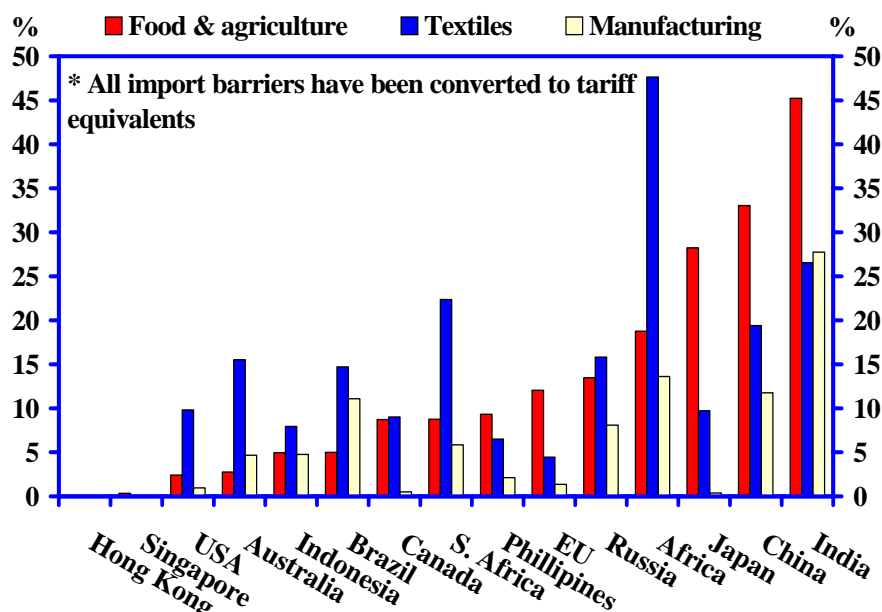
There are, however, many and various restrictions on trade in Europe, and these are much more pronounced when it comes to extra-European trade than to intra-European trade.

In a global context, price-based measures such as import tariffs in the EU appear relatively modest. The EU is a participant in the series of GATT and WTO trade negotiations, designed to reduce trade barriers across the globe. The principle of these global trade agreements is, first, that all signatories should benefit from the terms that each other signatory extends to its Most Favoured Nations (MFNs) – in other words that all signatories to the WTO should be treated as MFNs by every other signatory – and, second, that the level of tariffs charged on imports from MFNs should progressively be reduced.

While these trade rounds have been only partially successful, they have nevertheless been associated with a progressive reduction in price-based barriers to trade, particularly in developed economies such as the EU. As a result, the highest levels of tariffs on imports are in developing or less-developed economies. Chart 3.2 shows how average import tariffs compare across a selection of countries, on imports of agriculture, textiles and manufactured goods.

Chart 3.2

Comparison of import barriers*



Source: GTAP

Higher import tariffs in developing economies are to be expected. The arguments in support of trade barriers often focus on providing temporary support for new and fragile industries. Such industries are likely to be more prevalent in developing or less-developed economies than in mature, developed economies such as the EU. In a world market dominated by well-established big players, it is difficult for new entrants to win and maintain a share of the market. It is even more difficult, it is argued, if they are exposed to the chill winds of international competition in full strength from the start.

However, average import tariff rates tell only part of the story. Other restrictions on imports are also important, such as quotas. In a sense, however, tariffs and quotas are equivalent: both effectively push up the price of imported goods, one by levying a tax on those goods, the other by restricting the supply of those goods. The difference is who gets the rent – who profits from the restriction. With a tariff, the government that levies the import tax also increases its own revenue as a result. With a quota, a shortage of supply increases the price that foreign exporters achieve, and that is reflected in their revenue.

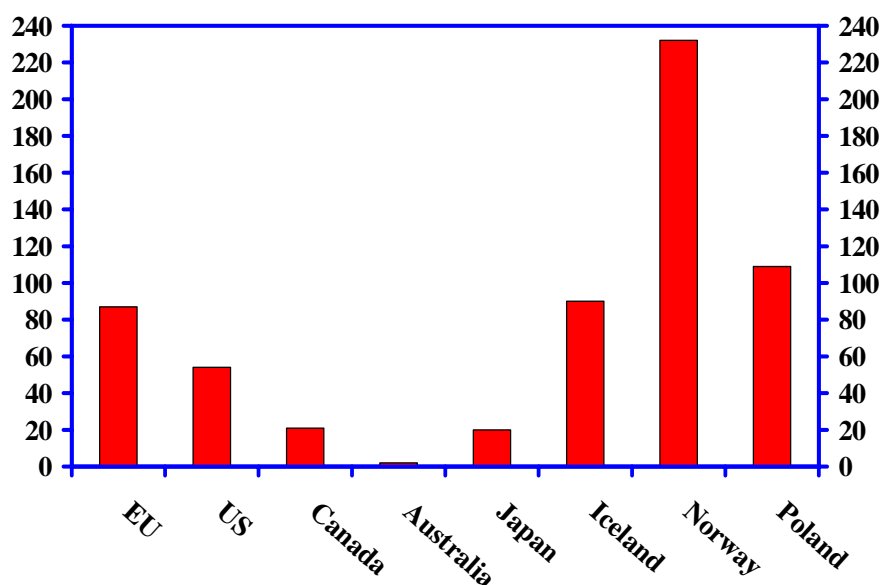
In general, quantitative restrictions such as quotas contravene the regulations of the WTO, except in as far as they extend to agricultural products (and, more recently, textile imports to the EU from China). But tariff quotas on agricultural products are common – more than 1,400 are in place across the WTO as a whole. Unlike straightforward quotas, which simply limit the number of items which can be imported, tariff quotas mean that there is a tariff which applies as long as only a certain number of items are imported. If this ceiling is exceeded, a much higher rate is applied on these excess items. Tariff quotas have been used in WTO negotiations as an intermediate step between quotas and simple tariffs.

The EU is relatively restrictive when it comes to quantitative restrictions such as tariff quotas:

- In terms of the ratio between the out-of-quota and the in-quota tariff rate (that is, the average penalty paid by exporters to the EU for exceeding their tariff quota), the EU is broadly in the middle of the spectrum. Some developing countries have a much higher penalty for exceeding the quota, but in others the penalty is lower than in the EU.
- But in terms of the number of tariff quotas, the EU is close to the top of the league of the most restrictive economies, with 87 tariff quotas in place in 2004, compared to 54 in the US and 20 in Japan. Of 43 members of the WTO in 2004, only Iceland, Norway and Poland had more tariff quotas in place than the EU.

Chart 3.3

Number of tariff quotas



Source: WTO

The EU, like others, has been reducing import tariffs in recent years. But the evidence suggests that it has some way to go before it is as unrestrictive on trade as many of its peers.

The relatively heavy restrictions on extra-EU trade are likely to imply that the importance of the EU as a whole in global trade will decline in future. The Institut Français des Relations Internationales (IFRI), for example, predicts that the EU's share of world exports will fall from 23% to 17% by 2020. And, according to the IFRI:

*"The enlargement of the European Union will not suffice to guarantee parity with the United States. The EU will weigh less heavily on the process of globalisation and a slow but inexorable movement onto history's exit ramp is foreseeable."*¹

The restrictions on extra-EU trade damage the prospects for long-term growth in the EU. And they damage the prospects for the EU's potential trading partners too. Chart 3.4

¹ 'World Trade in the 21st Century' IFRI 2004

shows the distribution of average tariff rates on manufactured imports into the EU across the EU's trading partners. Two points are worth highlighting. First, the average tariff on manufactured imports has been falling since 1990 – testimony to the partial success of the global trade negotiations over that period. Second, the bias has been shifting over that period – early on, developed economies and South East Europe and the CIS were hit most by these tariffs, but more recently tariffs have been higher on imports from developing economies. Tariffs on imports from least-developed economies have been small or zero throughout. Chart 3.5 shows how EU import tariffs or tariff equivalents on agriculture or textiles are distributed across the world.

Chart 3.4

Average import tariffs on manufacturing in EU

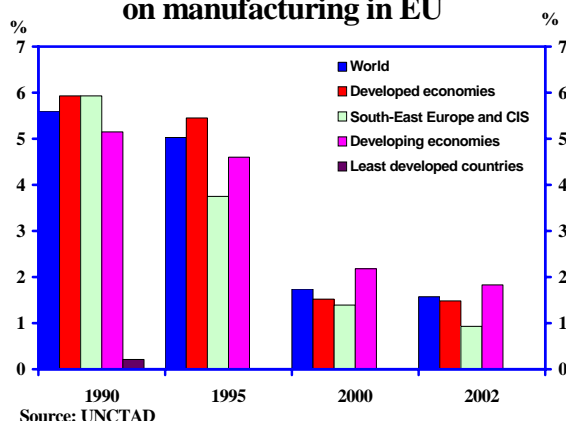
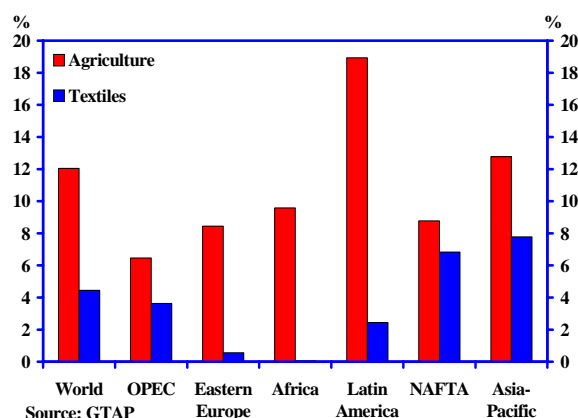


Chart 3.5

Tariff equivalents applied by the EU



So, developing countries outside Europe are those worst affected by import tariffs in Europe, at least in the manufacturing sector. This largely reflects the distribution of trade agreements between the EU and other countries, summarised in Table 3.1.

Table 3.1: Typology of the EC's regional agreements, May 2004

Type of trade regime	Name of agreement	Countries involved
Single market	European Economic Area (EEA)	Iceland, Liechtenstein, Norway
Customs union		Turkey, Andorra, San Marino
Free-trade area		Bulgaria, Chile, Croatia, Faroe Islands, FYROM, Israel, Jordan, Lebanon, Malta, Mexico, Morocco, Palestinian Authority, Romania, South Africa, Switzerland, Tunisia
Partnership and cooperation agreements (MFN treatment)		Russia and other former Community of Independent States countries
Non-reciprocal: contractual preferences	Mediterranean Agreements, Cotonou Agreements	African, Caribbean and Pacific countries, Algeria, Egypt, Syria
Non-reciprocal: autonomous preferences	Generalized System of Preferences (GSP), and Stabilization and Association Agreements.	Other developing countries and members of the Commonwealth of Independent States Albania, Bosnia and Herzegovina, and Serbia and Montenegro (including Kosovo)
Purely MFN treatment		Australia; Canada; Chinese Taipei; Hong Kong, China; Japan; Republic of Korea; New Zealand; Singapore; and the United States.

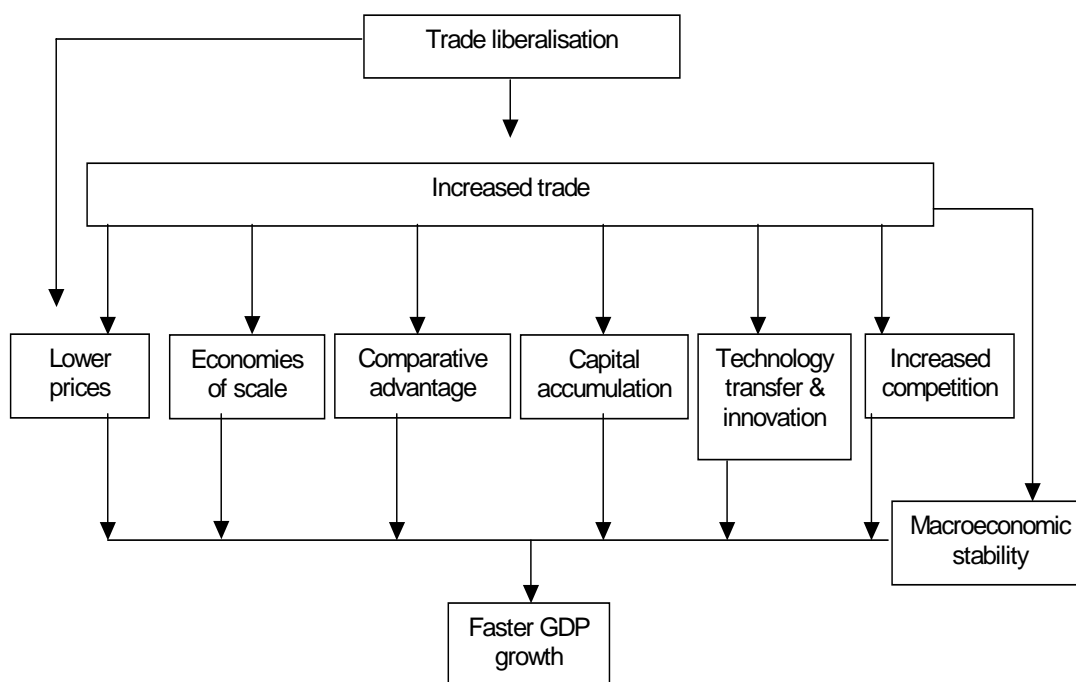
Source: WTO trade policy review 2004

3.3. Review of previous research on the impact of trade liberalisation

3.3.1. The theoretical gains from trade

In a closed economy, the speed and pattern of economic development is determined by the labour, capital, natural resources and technology available in the domestic economy. Opening up the country to free movement of goods and services across national borders enables these constraints to be relaxed to some extent. As a result, economies that trade more also tend to grow faster.

In order to model the impact of trade liberalisation it is important first to identify the channels through which lower barriers and increased trade affect output, productivity and employment. The economics literature identifies seven such channels, as illustrated in Diagram 3.1. Some of these are what is known in the literature as 'static' effects, shifting up the level of GDP in the long run; while others are 'dynamic' effects, contributing to a change in the long-run growth rate of GDP. Below, we go through each in turn.

Diagram 3.1: The channels of economic impact of trade liberalisation**i) Comparative advantage**

The wealth of any economy comes from its resources – people, fixed capital, raw materials, land – and the way in which those resources are exploited to produce goods and services. In a closed economy, with no international trade, the real price of one type of good or service is best thought of as the *opportunity cost* of devoting finite resources to the production of that good or service. The price of each refrigerator, say, is a certain number of loaves of bread foregone: the resources devoted to producing the refrigerator could have been devoted to producing loaves of bread.

But an open economy benefits from the fact that the price of refrigerators (in terms of loaves of bread foregone) is different in other economies. Where those relative prices are different, it is efficient for the two economies to trade: both will end up better off as a result. If countries specialise in what they are relatively good at producing, we can all, through trade, end up having more of everything.

Relative to other economic theories, there is a remarkable degree of agreement among economists about the theory of comparative advantage. International trade is the mechanism that ensures that the underlying patterns of comparative advantage are fully exploited, benefiting everyone in the end.

ii) Economies of scale

The basic economic model of the firm assumes that the world is ‘perfectly competitive’ and therefore, in order to survive, firms must be operating in the most efficient way possible. But real markets are usually characterised by a variety of imperfections, which together imply that firms could be operating more efficiently than they actually are. One such imperfection is known as ‘increasing returns to scale’. This implies that, if the typical firm in a certain industry could produce more, the average cost of production

would fall. That reduction in cost would be passed on (in part) into prices, and everybody would benefit. Often, the reason why firms do not produce more when faced with increasing returns to scale is that the market in which they are operating is too small: they could produce more, and more cheaply, but nobody would want to buy it.

International trade allows exploitation of increasing returns to scale by expanding production or service delivery to larger markets. In the absence of trade, economies of scale are constrained by the size of the domestic market. Wacziarg (2001) suggests that the gains from trade via this channel could be quite significant, with investment and therefore the stock of fixed capital responding to openness and the increase in market size that this implies.

iii) Lower prices

The gains from trade liberalisation for a country do not just occur through increased access for domestic producers to external markets, but also through cheaper imports and lower prices in general. Firms import some of the inputs into their production process, and the removal of import tariffs will imply a reduction in their costs, as well as in prices to the consumer. Moreover, better exploitation of comparative advantage and economies of scale mean that prices fall: if product markets are competitive, firms will have to pass on some or all of the cost savings into the price of their goods or services to the market. Consumers benefit directly from these reductions in price. And other firms also stand to benefit, to the extent that the cheaper output of one producer is an input to the production process of another firm. If the price of inputs to the production process falls, then firms are also able to pass on those cost savings into their output prices, benefiting both firms and consumers once again.

iv) Capital accumulation

If trade allows firms to exploit economies of scale, as above, that implies additional investment and more rapid accumulation of fixed capital. However, there are other effects on capital accumulation:

- Trade liberalisation benefits the economy by reducing the costs of financing new investment, as it opens up foreign capital markets, where there might be more of an appetite for investment at cheaper rates than those prevailing in the home market.
- Increased trade allows economies to import capital goods that might previously have been unavailable, or to do so at a cheaper price than previously prevailed.

Cheaper capital and cheaper capital goods should deliver an improved trade-off between the cost of investment and the return on investment, leading to higher investment.

v) Technology transfer and innovation

Trade can provide domestic consumers with goods and services that embody new technologies. That puts pressure on domestic producers to emulate their foreign rivals by making use of the same or similar technology. And, as domestic consumers develop a taste for the new products and services they can access via international trade, there is also an incentive for foreign firms to invest in the domestic economy and produce those goods and services locally. Either way, international trade is a conduit for the transfer of new technology into the domestic economy.

Moreover, more competition will encourage domestic firms to innovate – to invent new technologies for themselves. The necessary investment in R&D is costly, but competitive pressure from abroad can increase the return on that investment for domestic firms. And the larger international markets that domestic firms can access as a result of increased

international trade means that the revenue base to support increased R&D expenditure is larger, so the costs can be spread across more sales.

Increased trade is a trigger for domestic firms to copy foreign innovation and to innovate themselves. The result of such innovation is better products and services, more cheaply produced, benefiting domestic firms and consumers in the long run.

vi) Increased competition

Increased competition is a trigger for innovation of other kinds. That includes the adoption of international best practice in management techniques, labour relations, corporate governance, firm structure, supply-chain and inventory management, etc. It is likely that the typical domestic firm can learn some useful lessons from the best-performing firms in their sector globally. Learning those lessons will result in more efficient production, while the least efficient firms may be forced to exit the market. That 'productive churn' means lower prices for other domestic firms and for domestic consumers. Indeed, the UK Treasury estimate that this churn could have accounted for "around half of labour productivity growth, and as much as 90% of total factor productivity growth over a twelve-year period."²

vii) Macroeconomic stability

Increased international trade makes economies more vulnerable to rises in domestic prices relative to import prices, implying that the profits of domestic firms are likely to respond much more dramatically to a change in costs than when international trade was less important. Some of the literature suggests that this effect might make it politically easier for domestic policy-makers to create a stable macroeconomic environment: the trade-off for policy-makers between short-term growth and long-term stability is shifted in favour of long-term stability as a result of increased international trade. If – and admittedly this is a big if – that shift in incentives means that the actual practice of macroeconomic policy becomes more conducive to long-term stability, that should favourably affect growth by reducing price uncertainty and moderating public deficits, as well as reducing the risk premium associated with the domestic economy.

Finally, it should also be noted that trade theory suggests that gains from liberalisation for smaller or less developed countries could be relatively large: for a small country with no trade there is very little scope for large scale investment in advanced capital equipment, and the scope for specialisation is limited by the extent of the market. But if a poor small country can trade, there is some prospect of industrialisation and of dispensing with traditional methods of production.

3.3.2. Review of estimates of quantitative impacts of trade liberalisation

There have been a number of previous studies quantifying the impact of reducing barriers to trade. These papers can be split into two different approaches. The first is an econometric estimation of the impact of trade on GDP; and the second is Computable General Equilibrium Modelling (CGE). We assess each of these approaches in turn.

i) Econometric Analysis

Econometric approaches to this issue are typically conducted at a fairly aggregate level, aiming to find a direct correlation between trade liberalisation and economic growth. The first step is to identify measures of trade restrictiveness or the openness of a country to

² 'Trade and the Global Economy: the role of International Trade in Productivity, Economic Reform and Growth', HM Treasury 2004.

trade, and then to find some way of relating that measure of openness to GDP growth – either directly or indirectly, via a number of channels of influence.

In general, the econometric literature suggests that the impact of trade or trade liberalisation on growth is large and positive. Frankel and Romer (1999), for example, found that an increase in trade exposure of 1% point – that is, a 1% point increase in the importance of exports and imports in GDP - increases income by 0.5%. However, Rodrik and Rodriguez (2000) amongst others have questioned previous empirical results on trade and growth, pointing to problems in the openness measure and arguing that omitted or poorly measured variables are also captured by trade openness, which means the impact of openness is over-stated.

More recently, Wacziarg (2001) and Wacziarg and Welch (2003) have provided new measures of trade openness that include time-series of tariffs and non-tariff barriers. This has enabled them to exploit the timing of liberalisation within a country and to break down the change in the growth rate caused by increased openness into its component parts - addressing some of Rodrik and Rodriguez's concerns. They identified investment and technology transfers as the most important channels through which trade liberalisation improves economic performance.

ii) **Computable General Equilibrium Approach**

One alternative to the data-oriented econometric approach is the Computable General Equilibrium (CGE) model. Rather than using statistical techniques to identify historic correlations between different variables, these models provide a more detailed analysis of the economy including bilateral sectoral trade flows. As a result, these models capture both the direct impact of any policy changes and some indirect 'feedback effects' of such changes on economic activity and trade patterns. These models are derived from economic theory but, as a result, the impact of liberalisation therefore depends to a large extent on the theoretical assumptions in the model. These include: economies of scale versus constant returns to scale; monopolistic competition versus perfect competition; goods and services versus goods only; and parameter values. CGE models are very good at estimating the impact of trade liberalisation in a world that conforms to the theoretical model that they embody. But typically they do not fit the actual data very well.

General equilibrium models also tend to capture effects that shift GDP from one level to another – ie the 'static' effects of trade liberalisation. But they often struggle to pick up 'dynamic' effects that change the long-run growth rate of GDP. The literature on the dynamic impacts of trade is less comprehensive than that on the static gains. Nevertheless, there are a number of studies that try to capture possible dynamic gains from trade liberalisation.

Most studies that estimate dynamic effects allow productivity growth to be positively related to an economy's openness to trade. The World Bank (2002), for example, made productivity growth a function of trade, capturing knowledge transfers, competitiveness effects and greater economies of scale. They present a range of results based on different assumptions linking productivity and trade, rather than estimating the effect directly. They conclude that dynamic effects could quadruple the estimated static effects. Their central estimate shows total global gains of \$832 billion per year by 2015 from full liberalisation of agriculture and manufacturing trade, compared to static gains of \$355 billion. The OECD (2003) estimates production functions that include openness and also find that the dynamic impacts are much more important than the static gains from trade, scaling up their estimated static gains by a factor of over ten. The study finds global gains of \$98 billion a year from the static analysis, but the gains rise to \$1,212 billion per year with the inclusion of dynamic effects.

Annex 2 summarises the estimates of the impact of trade on the wider economy drawn from the literature. The range of estimates is very wide, with global benefits from a complete removal of all barriers to trade as low as \$82 billion in some studies and as high as \$1,212 billion in others. And some studies find permanent impacts on the growth rate of output, suggesting that the benefits of liberalisation keep on increasing in the long run.

3.4. Our approach to modelling the effects of goods trade liberalisation

As we have seen in the previous section, there are numerous different approaches to estimating the impact of trade liberalisation on growth. Each has its advantages and its shortcomings. In this section, we outline our own approach to quantifying the gains to be achieved from different trade liberalisation scenarios.

We take a two-stage approach to quantifying the impact of liberalisation, in order to fully account for both static and dynamic gains from trade:

- First, we estimate the static economic impact of removing trade barriers on the allocation of resources across different economies and different industrial sectors, using the model of the General Trade Analysis Project (GTAP) centre at Purdue University.
- Second, the output from this model is then used as an input into Oxford Economic Forecasting's (OEF's) Global Macroeconomic Model to quantify the overall (static and dynamic) effects, taking into account all of the channels of influence outlined above.

The GTAP model is the benchmark database and model for 'static' analysis of trade policy and for estimating the impact of trade on output via the reallocation of resources across countries. It is a multi-region model, identifying 87 economic regions and 57 economic sectors. For each region and sector, trade flows are identified, as are the tariff equivalents of restrictions applied to trade in imports³.

The GTAP model tells us how increased trade enables economies to exploit the underlying patterns of comparative advantage more fully. But it does not take into account a range of other dynamic impacts of liberalisation. To model those dynamic effects, we have used OEF's Global Macroeconomic Model⁴. This is a quarterly macroeconometric model which covers 45 economies in detail together with five blocs which account for the rest of world GDP and trade. As well as reflecting all of the different ways in which economies interact with one another – eg through trade, capital flows and exchange rates, global commodity markets etc – the OEF model incorporates a dynamic treatment of the determination of potential output, and hence long-term GDP, in each economy. This allows us to model explicitly the impact of trade liberalisation on, for example, incentives for investment in each economy and hence on the evolution of the capital stock. And for the purposes of this exercise, we have extended the OEF model to incorporate a link between openness to trade and the behaviour of total factor productivity, to reflect the effects that trade liberalisation has on, for example, the exploitation of economies of scale and incentives for investment in R&D.

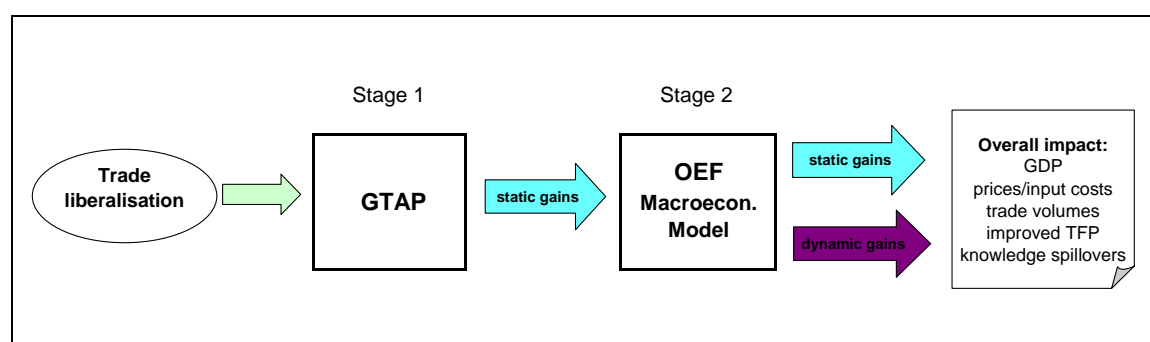
The impact of openness - defined as the ratio of exports and imports to GDP - on total factor productivity (TFP) was estimated using econometric techniques. We found that a 10% point increase in the openness ratio boosted GDP by 0.7% via the TFP channel. This elasticity is to the lower end of the range found in other research. The methodology

³ For a more detailed description of the GTAP model and database see the Annex 3.

⁴ See Annex 4 for more details on OEF's Global Macroeconomic Model.

adopted was similar to that used in Dessus, Fukasaku and Safadi (1999), who found a 10% rise in the openness ratio resulted in GDP rising by 0.8-0.9%. But, as noted earlier, Frankel and Romer (1999) found that an increase in trade exposure of 1% increases income by 0.5%. And the World Bank (2002, 2004) assumed a range of elasticities linking productivity and openness (the exports-to-GDP ratio in this case), which ranged from 0 to 1.5. Our estimates of the dynamic effects of liberalisation would therefore appear to be reasonably cautious.

Diagram 3.2: Schematic overview of the modelling approach



3.5. The economic impact of goods trade liberalisation

We have analysed seven different scenarios for the liberalisation of trade in goods:

- a) **Multilateral goods trade liberalisation** – complete removal of import barriers on goods at the global level.
- b) **Unilateral and bilateral goods trade liberalisation by the EU** – in these scenarios, the EU reduces the common external tariff on all product lines to zero and lifts all quantity restrictions on imports. Other countries leave their existing restrictions in place in the unilateral scenario, or remove such restrictions as apply to imports from the EU in the bilateral scenario.
- c) **Unilateral and bilateral trade liberalisation by the UK** – this implicitly assumes that the UK remains a member of the European Economic Area but does not apply the common external tariff, instead removing all import restrictions⁵. We assume that the UK no longer adopts the price support mechanism in the CAP, although its state aid for the farm sector remains in place. Other countries leave their existing restrictions in place in the unilateral scenario, or remove such restrictions as apply to imports from the UK in the bilateral scenario.
- d) **Unilateral and bilateral trade liberalisation by a subset of European economies** – this implicitly assumes that a group of eight EU economies (the UK, Sweden, Denmark, Finland, Ireland, the Netherlands, Portugal and Spain) remain as members of the European Economic Area but do not apply the common external tariff, instead removing all import restrictions. Other countries leave their existing restrictions in

⁵ This scenario does not make an adjustment for the extra costs involved in the UK not being part of the EU's custom union.

place in the unilateral scenario, or remove such restrictions as apply to imports from the 'EU-8' in the bilateral scenario.

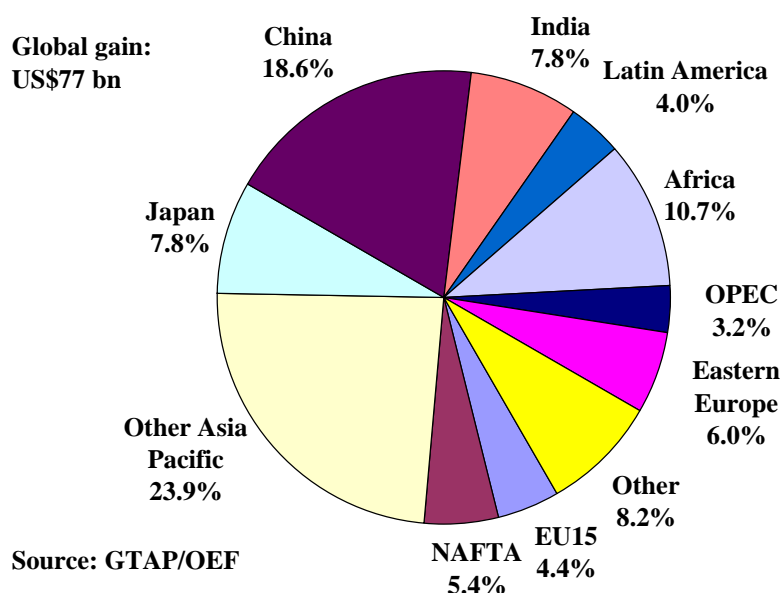
3.5.1. Global goods trade liberalisation

i) Impact through resource reallocation: Static gains

According to the GTAP model, the gains from removing all global restrictions on imports are US\$77 billion or 0.25% of world GDP. These gains are concentrated in the Asia-Pacific region and Africa, while the EU and NAFTA share relatively little in the rewards. This reflects the currently low level of protection applied to goods imports in the EU and NAFTA. The sectors that currently do receive higher levels of protection – textiles and agriculture – are those in which many Asia-Pacific and African countries enjoy high levels of competitiveness. Chart 3.6 shows how the static benefits of trade liberalisation are distributed across the world according to the GTAP model.

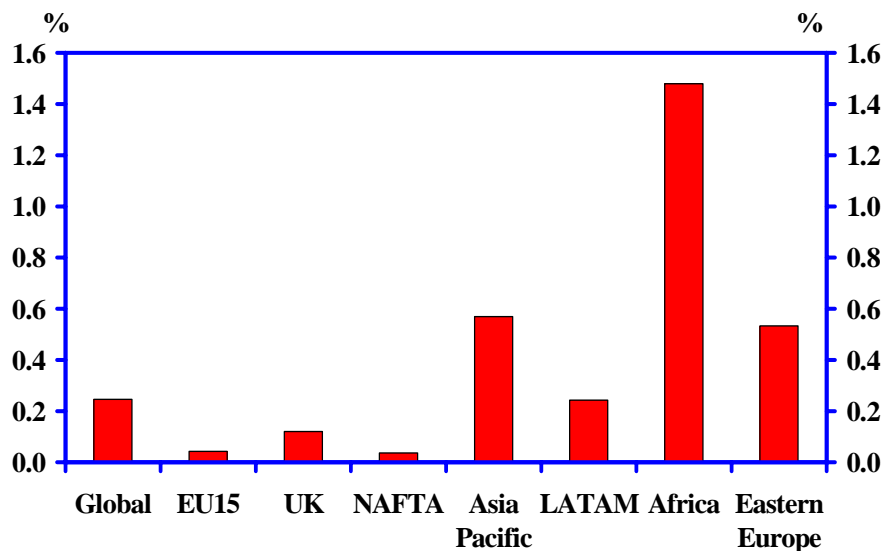
Chart 3.6

Distribution of static GDP gains



While the lion's share of the global gains from trade liberalisation accrue to the Asia Pacific region, the biggest beneficiary of trade liberalisation in terms of the proportional increase in its GDP is not Asia Pacific but Africa. The impact of trade liberalisation on GDP in each region is shown in Chart 3.7. The gains to the EU and NAFTA are small compared to GDP levels. The UK, however, benefits more from liberalisation than the average for the EU15.

Chart 3.7

GDP impacts of trade liberalisation: static

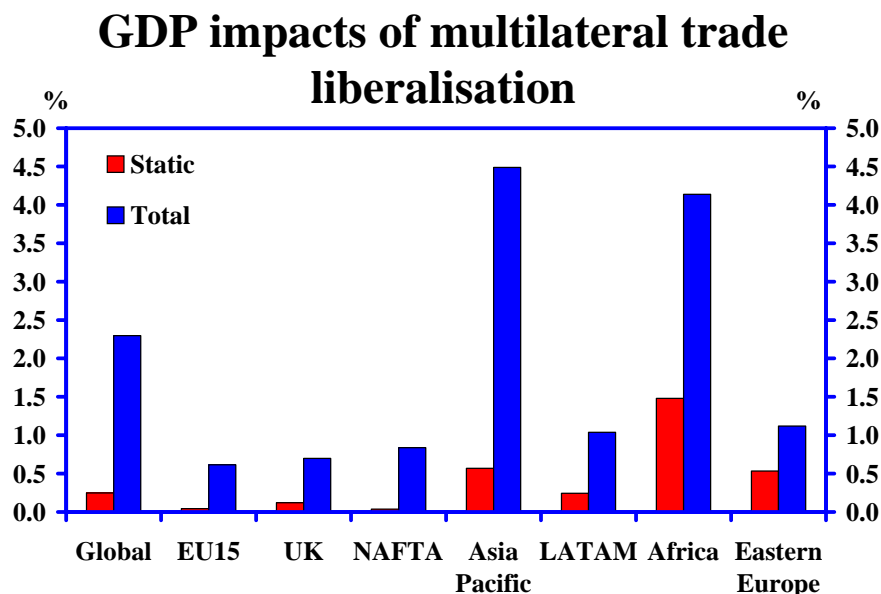
Source: GTAP/OEF

ii) Total impacts including dynamic effects

The static results of global liberalisation estimated from the GTAP model are small, particularly for developed economies. However, that does not take into account the dynamic effects of liberalisation. Allowing for these significantly boosts the gains to be achieved. According to our estimates, the increase in world GDP following a multilateral elimination of import barriers would build up to around US\$1,300 billion a year in today's prices, or 2.3% of global GDP, by 2015.

Chart 3.8 shows how the total effects of trade liberalisation are distributed around the world. The overall impacts are now much larger for the major developed economies than estimated from GTAP, reflecting the influence of the dynamic effects of increased trade. Nevertheless, the Asia-Pacific region and Africa still realise the biggest proportional GDP gains overall. Clearly, the large impacts from the GTAP model seen in Asia Pacific and Africa also translate into large overall gains once the other effects have been taken into account.

Chart 3.8



Source: GTAP/OEF

Differences in the size of the impact of liberalisation on GDP across regions can be traced in turn to the initial increases in openness in those regions, and the knock-on effects on productivity, investment and employment, which we set out below. Charts 3.9 and 3.10 show the change in openness for a selection of developed and developing economies resulting from the global trade liberalisation scenario.

Openness – the ratio of imports plus exports to GDP – increases by around 1.5% to 4% in the UK, the Eurozone and the United States as a result of global liberalisation. But the impact on openness in developing economies is around ten times larger. That increase in openness leads to extra innovation and increased competition, driving down average prices and driving up underlying productivity. Moreover, the extra openness leads to lower prices of capital goods and higher returns to investment, so the accumulation of fixed capital increases and the capital stock shifts to a higher level. Charts 3.11 and 3.12 show the impacts on underlying productivity and on the stock of fixed capital in developed economies. These effects are much larger in developing than developed economies.

Chart 3.9
Impact of multilateral trade liberalisation on openness*

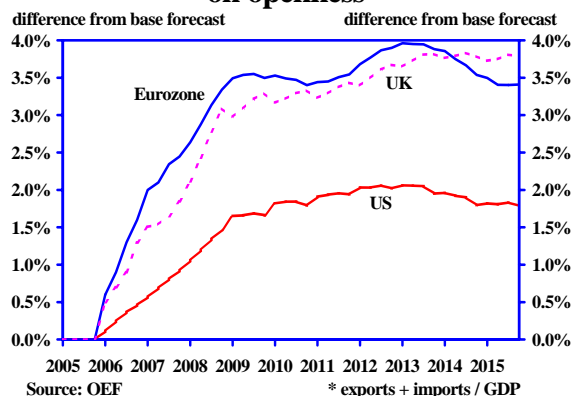


Chart 3.10
Impact of multilateral trade liberalisation on openness*

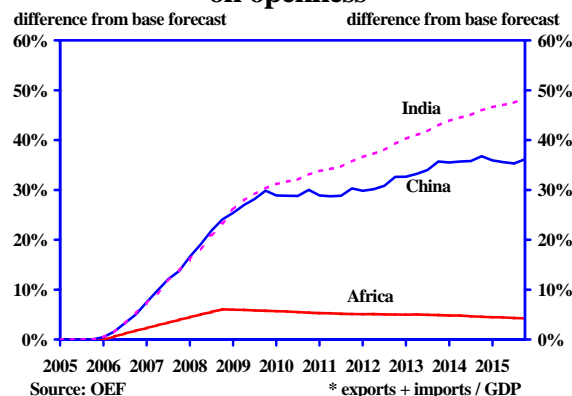


Chart 3.11
Impact of multilateral trade liberalisation on underlying productivity

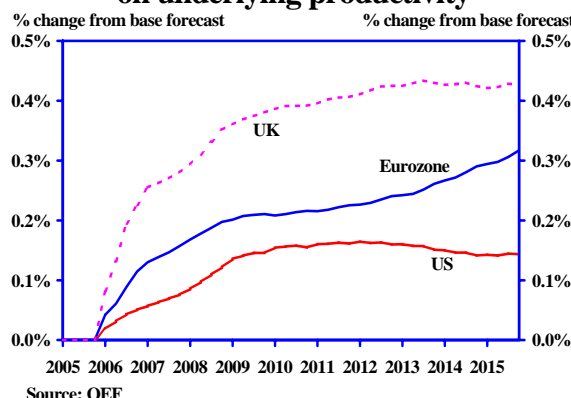
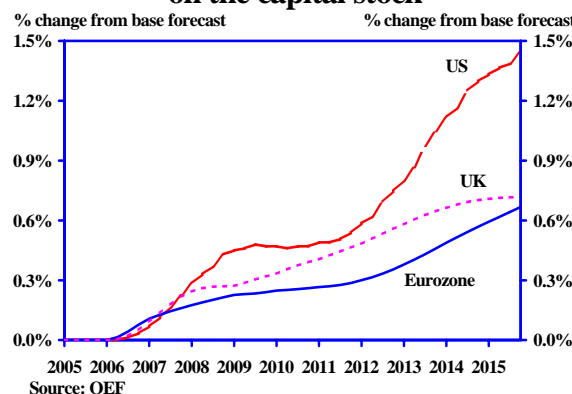


Chart 3.12
Impact of multilateral trade liberalisation on the capital stock



Underlying productivity as a result of trade liberalisation benefits by up to 0.5% according to our estimates, while the impact on the stock of fixed capital is markedly more pronounced in the US, at around 1.5% by 2015, than in either the UK or the Eurozone, where the effects are less than half. This difference reflects the fact that the impact on the price of investment goods is much larger in the US than in other developed economies. Such import tariffs as exist in the US tend to be levied disproportionately on investment goods, so the impact of removing those tariffs will be skewed towards the effect on the capital stock.

Higher underlying productivity and a larger stock of fixed capital leads to an increase in labour productivity and, as a result, an increase in the demand for labour. As the demand for labour increases, so does the real wage, and a higher real wage encourages more people into the labour market. But these effects on employment are not permanent: in the end, employment returns to base. Higher employment in the short run, and more fixed capital and higher underlying productivity in the long run, all contribute to higher GDP. Charts 3.13 and 3.14 summarise these effects.

Chart 3.13

Impact of multilateral trade liberalisation on employment

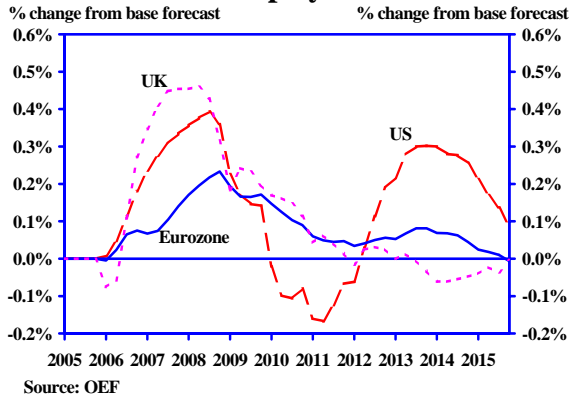
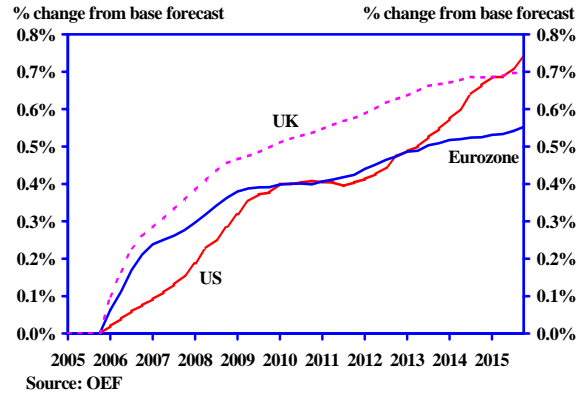


Chart 3.14

Impact of multilateral trade liberalisation on GDP



GDP in the Eurozone, UK and US increases by between 0.5% and 1.0% by 2015. In today's prices GDP would rise by \$17 billion (£9 billion) in the UK and \$87 billion (€73 billion) in the EU as a whole. The larger impacts on US GDP result from the more pronounced effects on capital accumulation there. As we have seen, the GDP effects are proportionally much larger in developing economies, as the impact of trade liberalisation on openness is larger.

Higher employment in the short run means lower unemployment. Chart 3.15 shows the gains in terms of unemployment of implementing trade liberalisation. In the end, prices and wages will adjust to bring employment back to its levels in the base scenario, and monetary policy will stabilise inflation. But the price level will fall permanently as a result of trade liberalisation. Chart 3.16 shows the impact on the consumer price index. The stronger price falls in Europe are partly due to a reduction of the agriculture price support mechanism resulting from relaxing import tariffs.

Chart 3.15

Impact of multilateral trade liberalisation on unemployment

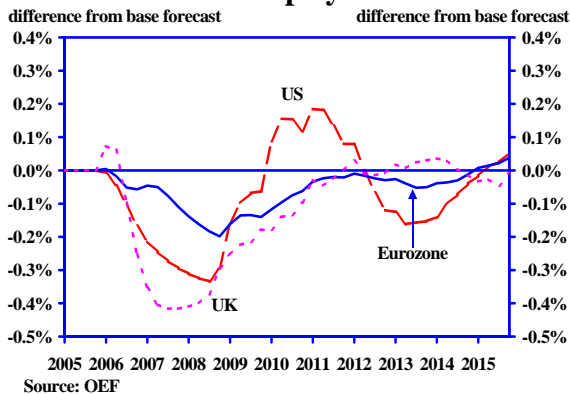
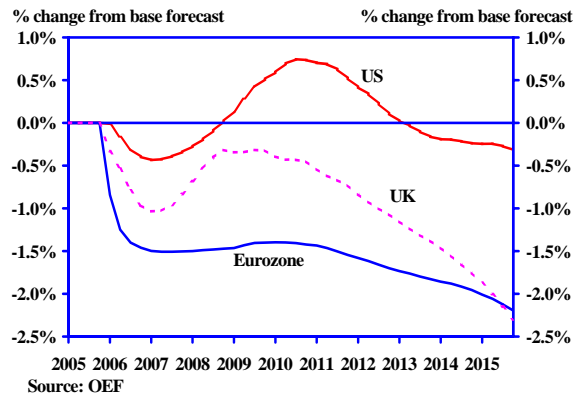


Chart 3.16

Impact of multilateral trade liberalisation on CPI



High unemployment has been a persistent problem in much of continental Europe and, as a result, the potential for permanent labour market gains is higher in the Eurozone

than in the US and the UK. Achieving these permanent gains would depend on the adoption of appropriate macroeconomic policies and reforms to the labour market similar to those underway in Germany. But a reform agenda that combined trade liberalisation with labour market reform would provide a boost to employment in the short term and the potential for sustained higher employment in the long run.

As the charts above demonstrate, the long-run effect of trade liberalisation is the end-product of an adjustment period. But this adjustment can be difficult for some people and for some industrial sectors. Indeed, some firms within sectors currently protected by trade barriers could be forced to contract their operations if that protection were removed. The people currently employed in those sectors could also face the prospect of having to find employment in alternative sectors. These dislocations should be weighed against the benefits accruing to the economy as a whole.

3.5.2. Unilateral liberalisation by the EU

This scenario assesses the impact of removing barriers to trade in Europe without any reciprocal trade liberalisation among Europe's trading partners.

The gains derived from the GTAP model at a global level in this scenario are much smaller than under full multilateral liberalisation, amounting to under US\$10 billion. Most of these gains are concentrated in the EU (including the new EU members grouped in the Eastern Europe bloc), but Asia-Pacific also benefits from increased market access in the EU.

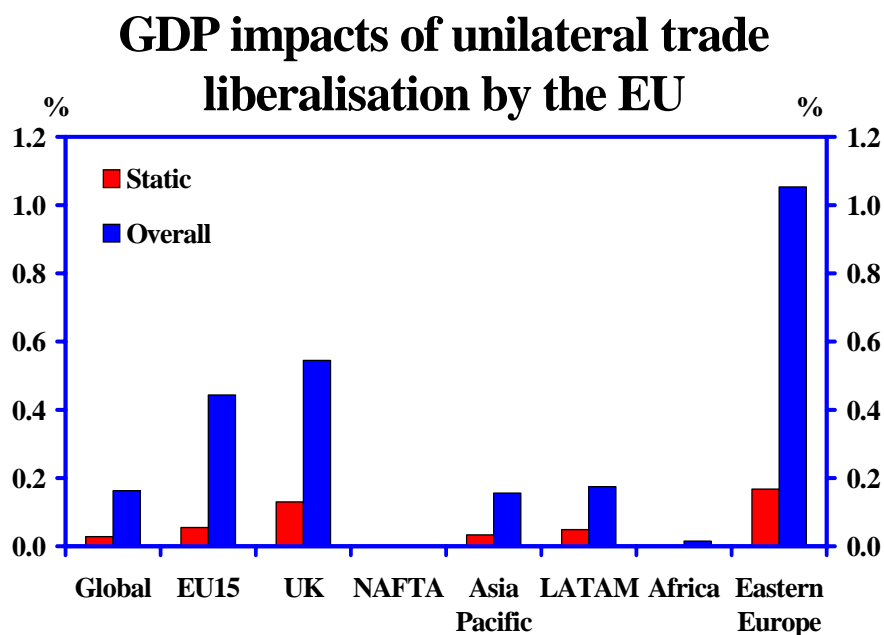
However, the resource reallocation gains for the EU itself are similar under unilateral liberalisation to those realised under the multi-liberalisation scenario. Although EU exporters do not benefit from lower trade restrictions in partner countries, unilateral liberalisation lowers imported input prices and this feeds through the supply chain and improves the competitiveness of EU exporters on the world market.

Taking account of the range of other dynamic effects increases the gains from liberalisation, as before. Overall, world GDP rises by US\$95 billion, or 0.2% when the EU liberalises unilaterally. However, the impacts on the EU and on the UK are almost as large under unilateral liberalisation as they are under the global liberalisation scenario above. EU GDP rises by 0.4% (\$58 billion, €49 billion) and UK GDP by 0.5% (\$12 billion, £7 billion) in 2015. This result makes the following key point very clearly:

A large proportion of the benefits to developed economies result from reductions in their own restrictions on trade, not those of other countries.

Chart 3.17 shows how the impacts of unilateral EU trade liberalisation in 2015 are distributed across the world.

Chart 3.17



Source: GTAP/OEF

It should be noted that openness does improve in countries outside the EU in this scenario to a limited extent. That is mainly because the removal of restrictions on imports to the EU means other countries' overall exports tend to increase. But there is also a marginal effect as EU exporters benefit from lower costs and are able to reduce their prices, encouraging other countries to increase their imports from the EU. Charts 3.18 and 3.19 show the impact of unilateral EU trade liberalisation on openness and underlying productivity in developed economies.

Chart 3.18

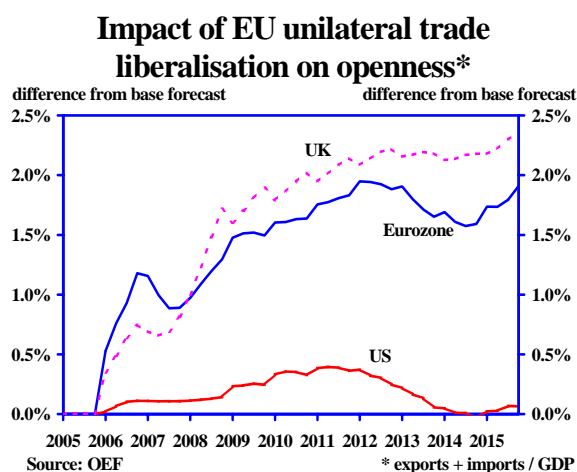
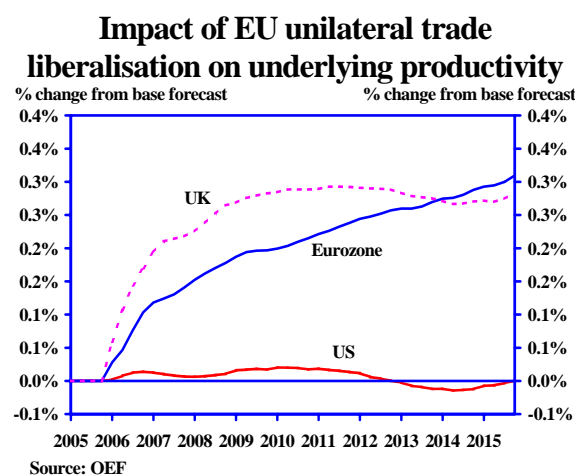


Chart 3.19



However, that increase in openness does not translate into significant gains in output for countries outside the EU. Although underlying productivity increases slightly in the US, the capital stock actually falls. Lower relative prices in Europe lead to a depreciation of

the dollar and higher prices for imports of capital goods. The impact of higher underlying productivity and lower capital accumulation are broadly offsetting: US GDP in the long run is barely affected. Charts 3.20 and 3.21 show the impact of EU trade liberalisation on the capital stock and on GDP in developed economies.

Chart 3.20

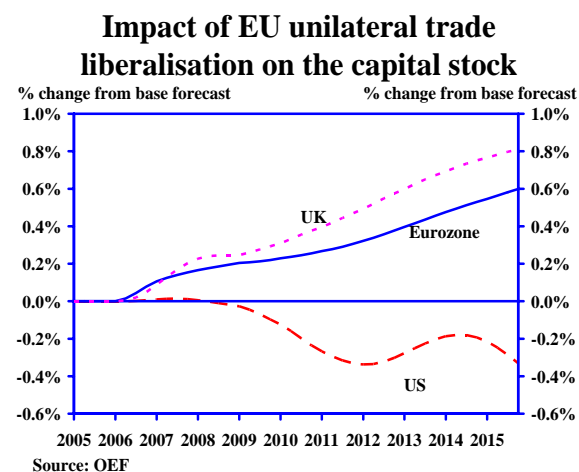
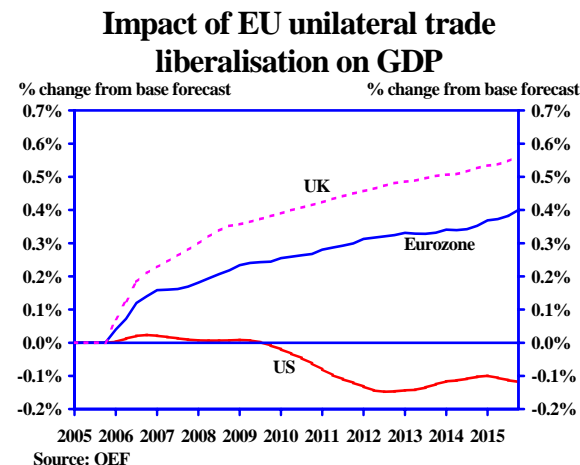


Chart 3.21



Another interesting feature of these results is that the UK benefits more from unilateral EU trade liberalisation than does the EU as a whole. This is because the UK imports a greater proportion of its capital equipment from outside the EU than EU countries on average. As a result, liberalisation has a greater effect on the price paid for capital goods by UK firms than firms elsewhere in Europe and so a greater impact on the stock of fixed capital.

3.5.3. Bilateral liberalisation by the EU

This scenario assesses the impact of removing barriers to trade in Europe and reciprocally in all Europe's trading partners. As a result, it is assumed that there are no tariffs on any imports to Europe, or on any exports from Europe, although existing tariffs on bilateral trade between other countries (US and Japan, for example) remain in place.

In this scenario, Europe benefits from cheaper imports and from an improvement in competitiveness that causes other countries to increase their demand for European exports. As a result, both sides of the European trade account increase. For other countries, trade with Europe increases in both directions, but trade with third countries falls.

Charts 3.22 and 3.23 show the impact of this scenario on openness in a selection of developed and developing economies. Openness in the Eurozone and the UK increases more rapidly in this scenario than in either the global trade liberalisation scenario or the unilateral EU liberalisation scenario. That is because competitiveness effects are benefiting EU exports relative to the global liberalisation scenario, while both sides of the trade account are increasing, rather than just imports as in the EU unilateral liberalisation scenario.

Chart 3.22

Impact of EU bilateral trade liberalisation on openness*

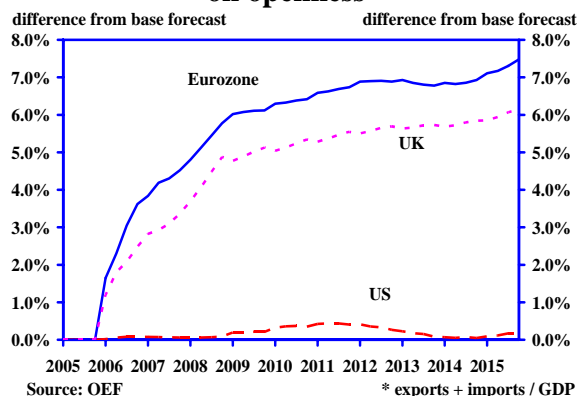
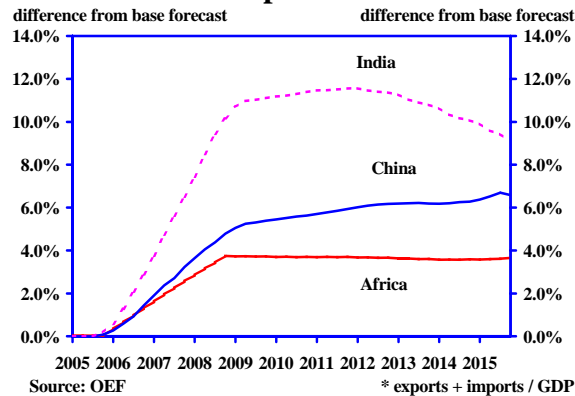


Chart 3.23

Impact of EU bilateral trade liberalisation on openness*



The impact on GDP in the Eurozone and the UK are consequently larger in this case than in the case where the whole world removes all barriers to trade. Moreover, although the impact on its overall openness is slight as trade with other countries falls, the impact on US GDP is also significant. This reflects the fact that a high proportion of US capital goods imports is sourced from Europe, so bilateral trade liberalisation with Europe causes the price of capital goods imports to the US to fall, driving up the capital stock and GDP in the US. Charts 3.24 and 3.25 show the impact of this scenario on the capital stock and on GDP. Overall, world GDP rises by US\$375 billion, or 0.7%, with EU GDP rising by US\$130 billion (€110 billion) and UK GDP by \$22 billion (£12 billion) in today's prices.

Chart 3.24

Impact of EU bilateral trade liberalisation on the capital stock

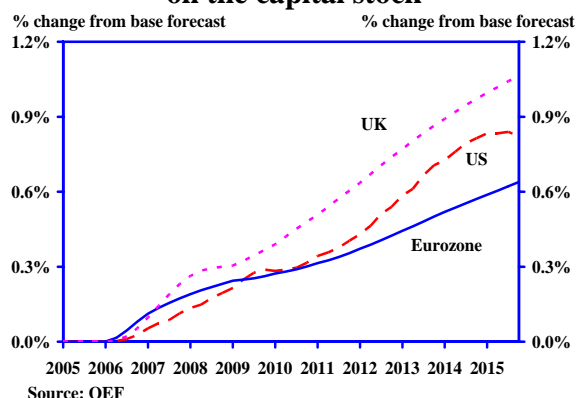
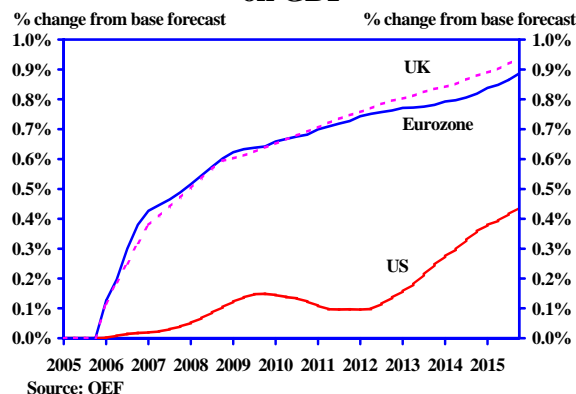


Chart 3.25

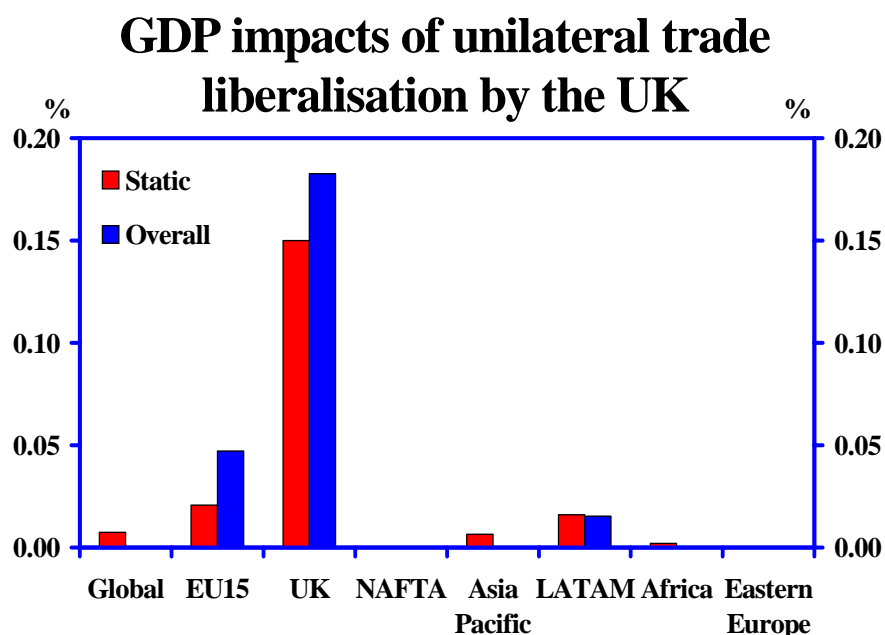
Impact of EU bilateral trade liberalisation on GDP



3.5.4. Unilateral liberalisation by the UK

The impact of unilateral trade liberalisation by the UK is too small to register at a world level. However, just as with the EU case above, the UK itself does stand to gain significantly from unilateral trade liberalisation. In this scenario UK GDP rises by \$4.8 billion (£2.6 billion), or 0.2% of GDP, by 2015. The gains from reallocation of resources are similar to the other liberalisation scenarios. But once all the other effects are taken into account, the impact on the UK is around half as large as the impact on the UK of EU trade liberalisation. Chart 3.26 shows how the benefits of unilateral UK trade liberalisation are distributed across the world.

Chart 3.26



Source: GTAP/OEF

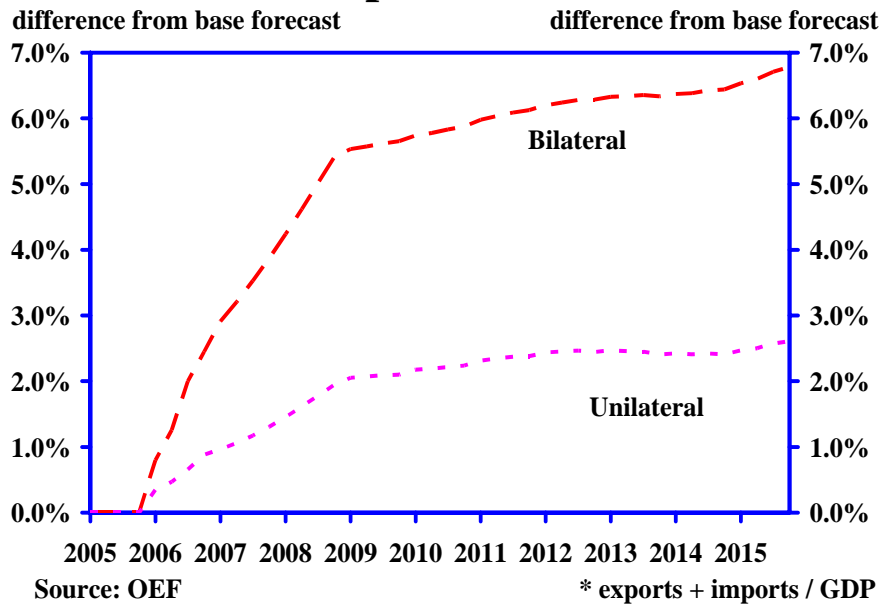
3.5.5. Bilateral liberalisation by the UK

If trade liberalisation by the UK were to be reciprocated by its trading partners, the impact on the rest of the world would still be very small. But the impact on the UK would increase substantially, as UK exports would benefit from an improvement in their competitiveness relative to exports from other countries. Both sides of the UK trade account would increase, and the result would be substantially higher openness in the UK. UK GDP rises by \$12 billion (£7 billion) in today's prices by 2015, which would correspond to just over ½% of GDP.

Chart 3.27 compares the impact on UK openness of unilateral UK trade liberalisation and bilateral UK trade liberalisation. In the latter case, all tariffs and restrictions are removed from UK trade in both directions, but existing tariffs and restrictions between other countries remain in place.

Chart 3.27

Impact of UK trade liberalisation on openness*



As a result, the impacts on output in the UK would be larger, and those on employment more positive in the short term, if the UK's trading partners were to reciprocate and all restrictions on UK trade were removed. Charts 3.28 and 3.29 compare the impacts on UK GDP from a unilateral and a bilateral liberalisation of UK trade.

Chart 3.28

Impact of UK trade liberalisation on employment

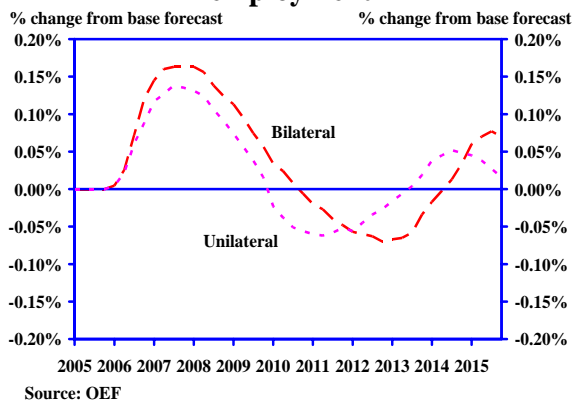
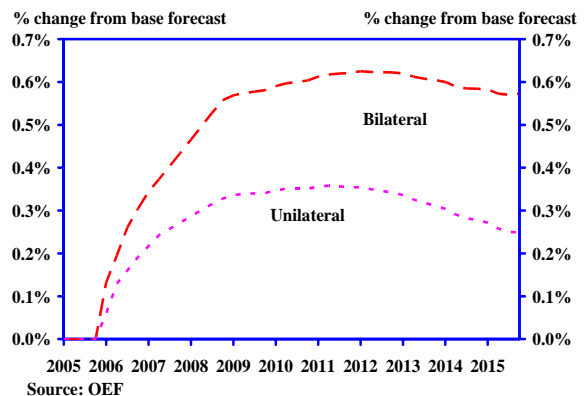


Chart 3.29

Impact of UK trade liberalisation on GDP



3.5.6. Trade liberalisation by the 'EU 8'

These scenarios assess the impact of trade liberalisation by a subset of eight European economies: the UK; Sweden; Denmark; Finland; Ireland; the Netherlands; Portugal and Spain (the 'EU-8'). The 'core' Eurozone economies maintain tariffs and other barriers to extra-European trade in this scenario, while the others pursue a policy of increased trade openness.

The first scenario sees unilateral trade liberalisation by the EU-8, while the second is bilateral trade liberalisation by the same group of countries. These scenarios mirror the unilateral and bilateral liberalisation for the EU15 as a whole, but with the gains being concentrated in the EU-8 countries. The openness of the EU-8 increases sharply, while the rise in openness of the other seven EU economies is much more modest. The impact on GDP is distributed in a similar fashion.

Chart 3.30

Impact of EU8 unilateral trade liberalisation on GDP

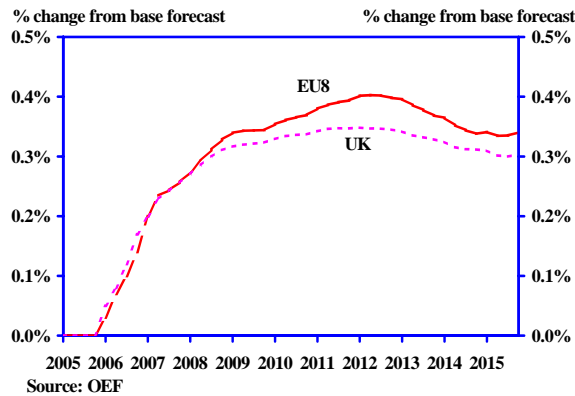
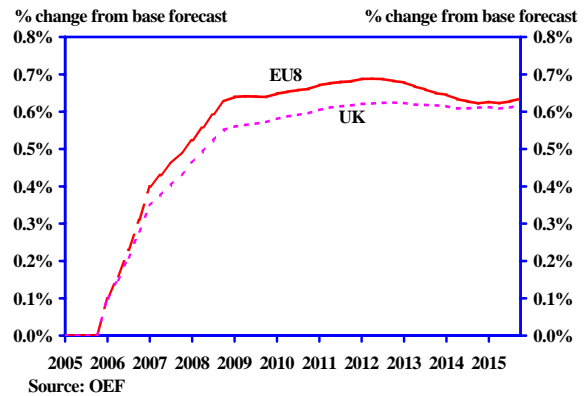


Chart 3.31

Impact of EU8 bilateral trade liberalisation on GDP



3.6. Conclusions – Comparing the benefits of alternative approaches to liberalisation

Table 3.2 shows the outcomes for GDP in the Eurozone and the UK under each of the scenarios above:

- In general, these scenarios suggest that goods trade liberalisation might boost GDP in Europe and in the UK by up to 1% by 2015: the effects are generally larger in the UK than in the rest of Europe.
- Within that range, the biggest effects come from bilateral goods trade liberalisation, which helps to improve the competitiveness of EU / UK exports relative to exports from other countries who do not fully liberalise their trade.
- A large proportion of the benefits of goods trade liberalisation are accrued whether or not the measures to remove barriers to trade are reciprocated by other trading partners: unilateral trade liberalisation provides long-run benefits that are substantial in their own right.

Table 3.2: impacts on GDP under different goods trade liberalisation scenarios

% difference in GDP in 2015	Eurozone	UK
Global trade liberalisation	0.5%	0.7%
EU unilateral liberalisation	0.4%	0.5%
EU bilateral liberalisation	0.9%	0.9%
UK unilateral liberalisation	0.0%	0.2%
UK bilateral liberalisation	0.0%	0.5%

The benefits to the UK from global, bilateral or unilateral liberalisation of EU trade exceed those to the rest of Europe. That reflects the composition of trade into and out of the UK compared to the rest of the EU: UK trade flows are more heavily oriented to extra-EU trade than the EU average. Table 3.3 shows the extra-EU proportion of trade in the EU economies in 2004.

Table 3.3: Extra-EU share of trade, 2004

	Extra-EU proportion of trade in goods (exports plus imports)	Extra-EU proportion of current account¹ (credits plus debits)
Austria	35.4	33.4
Belgium	27.6	26.0
Denmark	33.3	34.5
Finland	43.9	38.6
France	35.9	35.5
Germany	44.7	42.9
Greece	48.2	44.1
Italy	45.1	39.6
Ireland	37.0	42.3
Netherlands	36.6	34.3
Portugal	23.0	24.5
Spain	32.5	29.5
Sweden	39.8	40.1
UK	45.8	50.2
Eurozone	38.5	38.8

¹Latest available data (four year average)

Source: Eurostat

The UK has the highest extra-EU proportion of trade of any EU country except for Greece, some 7% points higher than the Eurozone average. Since trade barriers on extra-EU trade are larger than those on intra-EU trade, removing those barriers in global, bilateral or unilateral EU trade liberalisation will tend to have a bigger impact on countries with a higher proportion of extra-EU trade, such as the UK.

Discrepancies in the proportion of extra-EU trade also explain some of the differential impacts across other EU economies. But the most significant explanatory variable here is the overall degree of openness of different EU economies: trade liberalisation will tend to have a greater impact on GDP as trade is more important in GDP.

Charts 3.34 and 3.35 show the relationship between the long-run impact of trade liberalisation on GDP and, on the one hand, openness and, on the other hand, the proportion of extra-EU trade in a selection of EU economies. The two outliers on Chart 3.34 are Belgium and the Netherlands, where trade represents a very high share of GDP. But a high proportion of the trade that passes through these economies is en route to other countries, so it is not clear that a high measure of openness necessarily implies a high impact of trade liberalisation on the GDP of those economies: the reduction in import prices, and the growth in exports that trade liberalisation implies, in the end

benefits other economies, the ultimate source and destination of those imports and exports.

Aside from those two economies, the impact of trade liberalisation is strongly positively related to openness. Note that since UK openness is close to the EU average, it does not play a key role in explaining the extra impact of trade liberalisation on the UK – that is down to the extra-EU share of trade, as described above.

Chart 3.34
Role of openness in explaining the impact of trade liberalisation

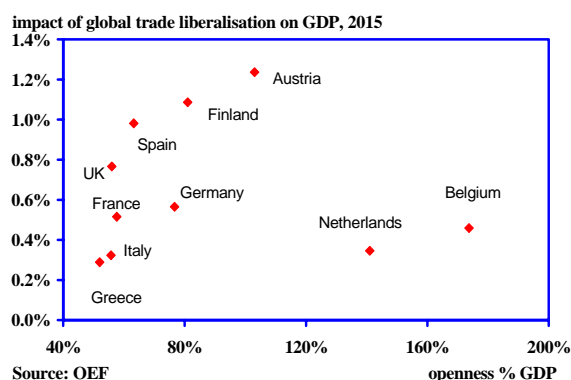
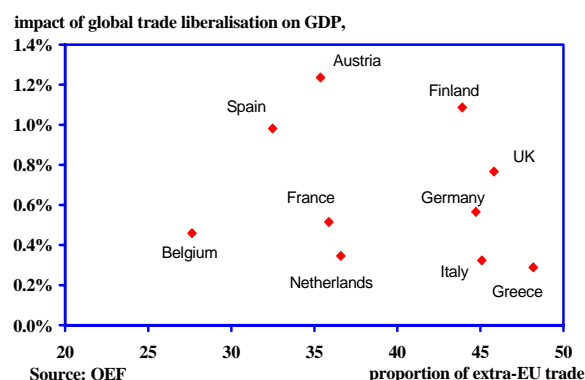


Chart 3.35
Role of extra-EU trade in explaining the impact of trade liberalisation



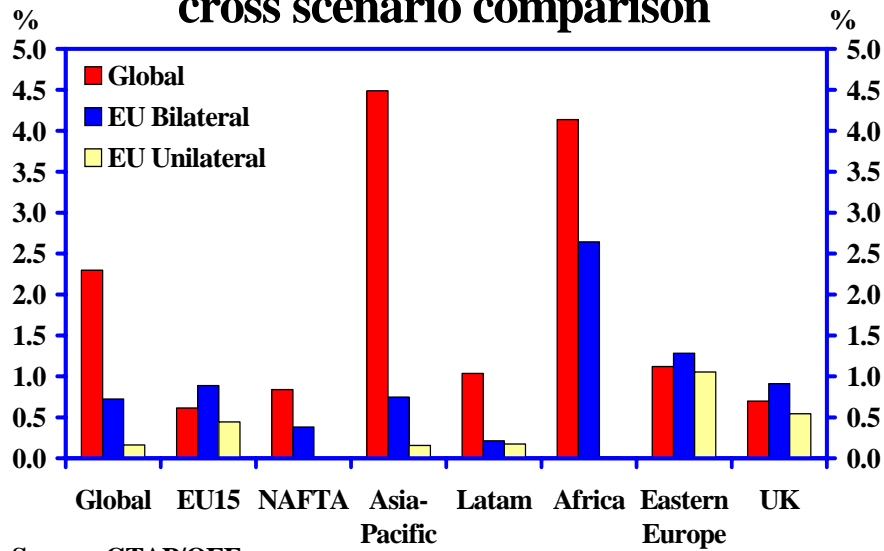
The wide dispersion of the impact of trade liberalisation on GDP across European economies reflects the degree of openness of those economies and, to a lesser extent, the proportion of extra-EU trade in total trade for each economy. And, to the extent that the impact on a given Eurozone economy is greater than or smaller than the Eurozone average, the response of monetary policy will be inappropriate for that economy, since monetary policy is set for the Eurozone as a whole. This effect widens the differential between the biggest and the smallest gainers from trade liberalisation across the Eurozone.

The biggest winners from global goods trade liberalisation in the Eurozone are Spain, Austria and Finland, while the smallest gains accrue to Italy, Greece and Belgium. The fact that Italy, the third largest economy in the Eurozone, is among the smallest gainers from global goods trade liberalisation, while the other two big countries (France and Germany) are around the middle, suggests that it might be difficult to achieve a consensus right across the Eurozone in favour of trade liberalisation.

Chart 3.36 summarises the impacts of different scenarios on GDP region by region. It emphasises the point that the biggest proportional beneficiaries of global trade liberalisation are developing economies, and the biggest proportional beneficiaries of EU trade liberalisation are the economies in Eastern Europe. But, among developed economies, the UK benefits more than most.

Chart 3.36

**Total GDP impact of trade liberalisation:
cross scenario comparison**



4. Quantifying the impact of CAP reform

The previous section explored the effect of goods trade liberalisation on Europe, the UK and the global economy. In this section, we assess the implications specifically of reforming the Common Agricultural Policy (CAP), one plank within the wider trade liberalisation agenda.

We begin by describing the key features of the agricultural sector in the EU and explaining the history and operation of the CAP, including its various reforms. We then set out the implications of the CAP for transfers across countries within the EU, and the evidence from previous studies and the experience of other countries of the impact of agricultural reform. This helps to inform our own assessment of the benefits of the removal of the CAP, which we find depend critically on how the budget savings are then recycled.

Key Points

- The Common Agricultural Policy (CAP) is intended a means of protecting the income of the European agricultural sector. The cost is substantial – total cost of support for the agricultural sector amounted to €122 billion (\$150 billion) in 2004: 1.2% of EU GDP. This includes a fiscal cost to the EU of some €44 billion combined with fiscal cost to national governments worth another €18 billion, and transfers (via supported prices) from consumers worth another €60 billion.
- While removing the CAP would be likely to reduce further the number of people employed in the European agricultural sector over the long term, it would generate substantial benefits too. Consumers and other sectors would benefit from lower prices for agricultural products. Other countries would benefit from increased demand for their exports and a more level playing field on which to compete in their own markets. Trade would increase, providing a modest benefit for growth in the EU and elsewhere. And net contributors to the EU via the CAP – countries like the UK – would benefit from those contributions being removed.
- Moreover, if the government funds that are currently spent on maintaining the CAP were to be diverted towards other, more productive forms of spending, such as R&D or structural funds, the impact on growth across the EU could be substantial.
- Our estimates suggest that CAP removal combined with a more efficient recycling of the revenues currently spent on the CAP could boost EU GDP by \$170 billion (€140 billion) in today's prices by 2015, or by 1.2%.

4.1. What is the Common Agricultural Policy?

4.1.1. Background: Economic contribution of the agricultural sector

The share of agriculture in GDP in the EU-15 has been declining since the beginning of the European project in 1958. Agriculture's share in EU GDP has fallen from 4.4% in 1980 to 1.9% in 2003 – a similar share to the US (1.6%). But agriculture is still much more important in developing and less-developed economies. For instance, agriculture still accounts for about 16% of GDP in sub-Saharan Africa.

The employment picture is similar. The share of the labour force engaged in agriculture in the EU-15 has been falling for decades, and particularly since 1980. Currently, less than 4% of the EU-15 labour force is employed in agriculture, compared to nearly 50% in China and nearly 70% in Sub-Saharan Africa.

Table 4.1 shows how the shares of agriculture in GDP and total employment around the world have evolved over the last few decades.

Table 4.1

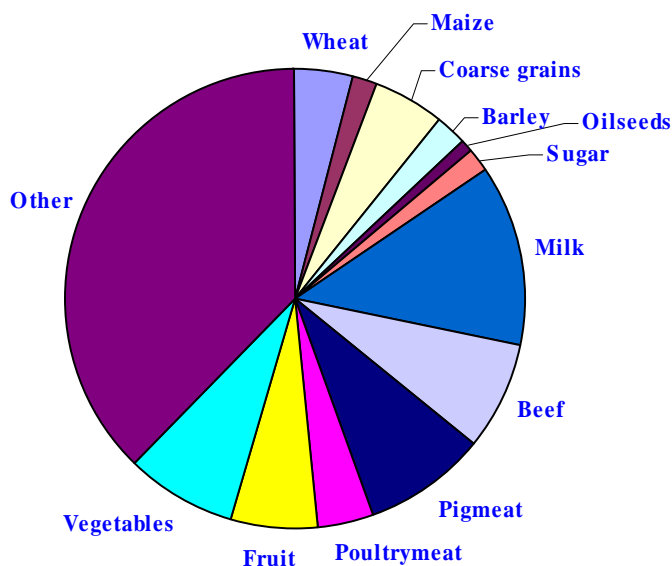
Agriculture's share of GDP and total employment										
	EU-15		US		China		Latin America		Sub-Sah. Africa	
(circa)	% GDP	% Emp	%GDP	%Emp	%GDP	%Emp	%GDP	%Emp	%GDP	%Emp
1980	4.4	10.5	2.9	3.6	30.1	68.7	10.0	23.0	15.8	76.1
1990	3.3	6.1	2.1	2.9	27.0	53.5	8.9	15.2	18.3	74.7
2002	1.8	3.8	1.6	2.4	14.6	46.9	7.0	17.1	15.8	68.8

Source: Latin America's sectoral employment from OxLAD; otherwise WDI and FAO

Chart 4.1 shows that agricultural output in the EU is dominated by grains, dairy and other livestock. Because of geography, the composition of agricultural output is similar to that of the US, which is its main competitor (USDA, 2004).

Chart 4.1

Composition of agricultural output in the EU-15, 2004



Products covered in the CAP include wheat, maize, barley, oats, rice, rapeseed, soybean, sunflower, refined sugar, milk, beef, sheep meat, pig meet, poultry and eggs. These products represented about 85% of total agricultural output in the EU-15 in 2004.

4.1.2. Europe's role in international markets for agriculture

The EU-15 is a major player in international agricultural trade, being the largest importer and the second-largest exporter of foodstuffs (after the US). Charts 4.2 and 4.3 show the EU share of world exports and imports for a selection of products in 2004.

Chart 4.2

EU shares of world exports by volume, selected products in 2004

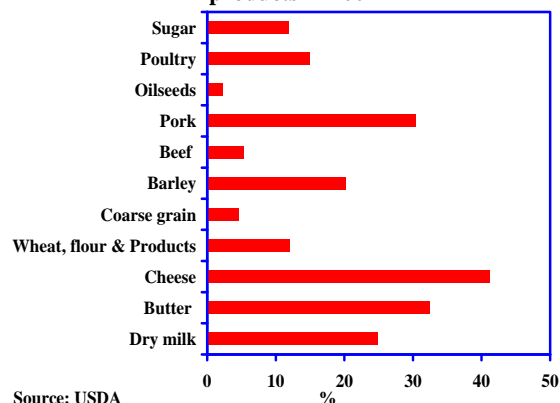
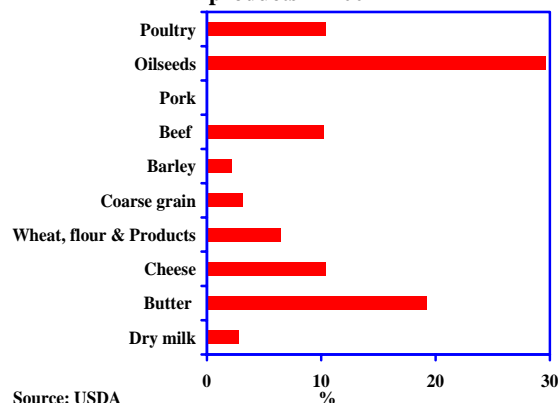


Chart 4.3

EU shares of world imports by volume, selected products in 2004



Charts 4.4 and 4.5 show the composition of EU agricultural exports and imports by foodstuff in 2004. Out of the total agricultural exports about 40% are in categories covered by the CAP; while the share on imports is about 30%.

Chart 4.4

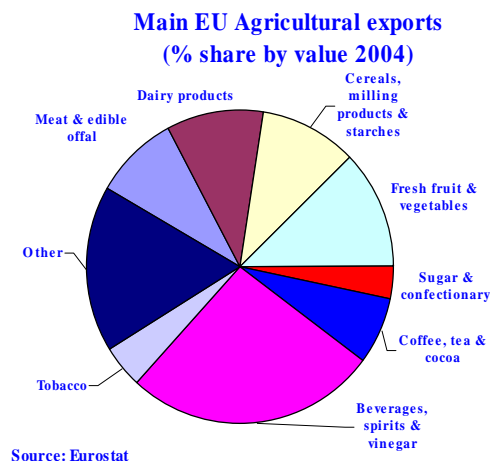
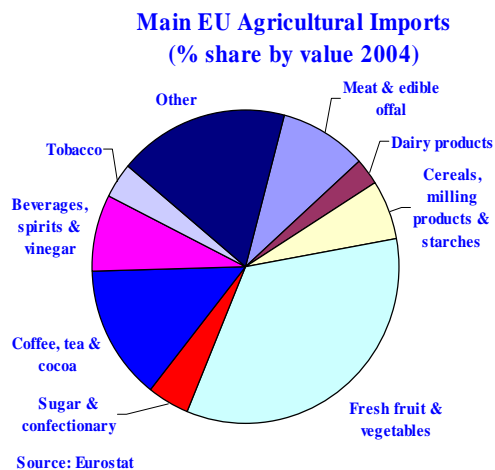


Chart 4.5



4.1.3. Price differentials between CAP support prices and world prices

According to the information provided by the Consumer Nominal Assistance Coefficient (CNAC), on average, agricultural prices paid by consumers are 23% higher than those prevailing in international markets, despite significant reductions over the past 20 years. Price differentials vary significantly across products. Currently, EU producers of grains and oil seeds are, on average, competitive in international markets. However, the intervention policies are still delivering important price premiums in key products such as milk (33%), beef (99%) and sugar (195%).

Table 4.2

Price differential ratio in selected CAP products				
	1986	1992	2000	2004
TOTAL	1.67	1.37	1.26	1.23
Wheat	1.49	1.34	1.04	1.03
Maize	1.10	1.07	1.02	1.06
Oil Seeds	0.99	1.00	1.00	1.00
Sugar (refined equiv.)	3.73	2.91	2.49	2.95
Milk	4.18	2.02	1.50	1.33
Beef	2.88	1.92	2.13	1.99
Pigmeat	1.51	1.00	1.33	1.28
Poultrymeat	1.79	2.18	1.60	1.96

As measured by the Consumer Nominal Assistance Coefficient. This is the ratio between the price paid by consumers at farm gate and the border price. 1986: EU-12; 1992, 2000: EU-15; 2004: EU-25

Source: EC (2004)

4.1.4. What is the economic cost associated with the CAP?

EU spending on the CAP amounted to €43.6 billion in 2004, about 47.5% of the EU budget. That is only part of the support: excluding administrative costs, according to OECD estimates the total support from taxpayers and consumers to the EU farmers reached €122 billion (\$150 billion) in 2004. This includes transfers from taxpayers via the EU budget (about €44 billion, as above); transfers from taxpayers via the national budgets (about €20 billion); and transfers from consumers due to the wedge between EU and world prices (about €58 billion).

In addition to its distributional implications, the CAP generates deadweight losses, both in terms of consumer surplus and producer inefficiencies. Thomson (1989) estimates the deadweight and other losses of price support policies at 15% of the income transferred from taxpayers and consumers to agricultural producers. According to his calculations, the removal of the CAP in 1986 would have benefited EU households by 19.9 billion ECU as taxpayers and by 50.3 billion ECU as consumers, or about 2% of GDP in total. Meanwhile, De Veer (1989) puts the deadweight losses at as high as 39% of the income transferred by taxpayers and consumers to the agricultural sector.

4.1.5. How does the CAP operate?

The Common Agricultural Policy is a complex system of price support, import tariffs, export subsidies, quotas and set asides, and direct payments. When it was originally created the CAP largely utilised price support measures. However as problems mounted with this system, and there were external pressures to reform, direct payments to farmers increased.

Recent reforms have also split the CAP into two separate pillars. Pillar one is the traditional support farmers receive, and pillar two is focused on rural development, which is aimed at projects to support the countryside environment and local communities. The EU's aim is gradually to move all support into the second pillar, in order to make the CAP seem more environmentally friendly and to bring it more in line with WTO commitments. However, there still remains disagreement as to the speed and the scope of that course of action.

Two of the major purposes of the CAP are to guarantee farm incomes on the one hand, and improve the efficiency of farm production where possible on the other.

i) Measures to guarantee farm incomes

This is mainly done by a combination of support prices (so as to minimise adverse effects of price fluctuations) and protection from foreign imports. Broadly speaking, the main features of the price intervention mechanism are:

- A target price (P^T) for each product is set based upon the cost (including a profit mark-up) in the highest-cost area of production within the EU
- The Commission sets an intervention or guaranteed price (P^I) for each product in the highest-cost area (about 7 to 10% below the target price)
- If the current price (P) is below the intervention price ($P < P^I$), then the Commission buys up production so as to keep prices in line with P^I
- In order for this scheme to work, farmers are protected from lower-priced imports from overseas. The tariff level is set as:

$$\text{Tariff} - (P^T - P^W) - \text{transport costs, where } P^W \text{ stands for world prices}$$

- The level of protection is calculated taken as reference the EU highest-cost area
- In case of excess supply (above that consistent with the intervention price), the EC will pay an export subsidy equal to $(P^I - P^W) * (Q^X)$, where Q^X is the quantity exported. Alternatively, it will buy up the extra supply in order to avoid undesirable effects on domestic prices.

ii) Measures to improve efficiency in agriculture

These include policies to support structural change in the sector. They favour larger farmer units, more capital-intensive production and a reduction in agricultural land. These measures were originally introduced by the Mansholt Plan (1968), and later led to the creation of the Common Structural Policy in 1972. Import levies of CAP were to provide funds to promote large-scaled farmers and to encourage small farmers to leave.

4.1.6. Main CAP reforms to date

The EU became a net exporter of many agricultural products during the 1980s. The need to subsidise exports and the drop in tariff revenues added an extra burden to the EU budget. The budget has been faced with the cost of intervention and with the payments of export subsidies to manage the surplus production. As a result, there have been numerous attempts to reform the CAP over the last twenty years:

i) Late 1980s

Reforms to address the incentives to over-production created by the CAP:

- Introduction of Maximum Guaranteed Quantities (MGQ) for most products. If production in a given year is above the MGQ, then the intervention price is to be cut by 3% the following year.
- Introduction of national production quotas in milk (1984). In the case of oil-seeds markets, intervention to buy up excess output will only take place outside the harvest period, to create incentives for the farmers to sell produce in the market.
- 1988: limit to the CAP budget. Set at 27.5 billion ECU

ii) Reform of 1992 (MacSharry proposal)

This aimed to control further agricultural output and to improve competitiveness in the sector by lowering support prices. These reforms focused on major crops (cereals, oilseeds and beef). The principal measures were:

- The intervention price was cut by 30% for cereals and 15% for beef.
- Farmers were compensated for the price cuts – as long as farmers continue to produce – with direct payments based on historical yields and animal numbers.
- In order to reduce output, direct payments were linked to a mandatory 10% land set aside for farmers. These payments were coupled to production through a requirement to produce on land not set aside.

iii) Agenda 2000

This reform was largely prompted by the need to prepare the EU for enlargement to 25 countries and to address WTO commitments – under the Uruguay Round agreement future surpluses could not have been disposed with on world markets. The Commission's aim was to replace price support mechanisms with direct payments linked to other measures to make the CAP more of a complete rural policy. It also allowed governments of member states to transfer funding away from farmers and into rural development.

Further gradual reductions of price support were agreed (20% on guaranteed prices for beef and 15% for cereals). In order to compensate farmers, a reduction in intervention prices for several products was accompanied with compensatory direct payments.

iv) Reform of 2003 (Fischler reforms)

As part of an evolutionary process that started with the MacSharry reforms in 1992, the EU passed a third major reform of its CAP in June 2003, followed by a reform of Mediterranean commodities in April 2004, and a sugar reform in mid-2005. The key features of these reforms are:

- Move to merge the product-specific direct payments for various commodities into a single farm payment (SFP), which will ultimately be fully decoupled from production decisions. Policy measures can be considered decoupled if they do not affect relative prices of agricultural commodities or the inputs used to produce them. Rather than being based on levels of production, the SFP is calculated on the area of land or the numbers of cattle that the farmer held in a previously defined period.
- The introduction of decoupled direct payments is expected to reduce distortions in production decisions and thus improve efficiency. However, member states still can opt to retain part of the coupled payments for some commodities (eg equal to 25% of the area for arable crops).
- Set-aside restrictions have been given the additional objective of reinforcing environmental benefits. In order to qualify for the payment, farmers would also have

to meet with environmental, animal welfare and food quality standards. These are known as “cross-compliance” standards. It is estimated that a total of 6.1 million hectares of agricultural land have been left idle under set-aside schemes in EU-15 in 2002/03 (EC, 2004, p39). According to Keyzer et al. (2003), the welfare loss of set aside is around €1.2 billion.

- However, despite the reforms, intervention prices for major commodities still remain an important element of the CAP. Moreover, the 2003 reform did not address market access issues as the EU still maintains high tariffs. Export subsidies are still available for surplus production within WTO limits, though lower intervention prices will reduce the size of the subsidies (USDA, 2004).
- A reduction in direct payments (modulation) for bigger farms to finance the new rural development policy.
- Budgetary discipline imposed on market support and direct payments: €42.8 billion in 2004 and reaching €48.6 billion in 2013.

However, despite the extensiveness of the 2003 reform, its impact is likely to be limited. First, the overall level of subsidy is barely changed, falling by just 1.5%. Second, much of the decoupling will be partial and also largely optional – in many areas subsidies will remain tied to production or inputs. Thirdly, insofar as there is a shift between types of subsidy, it will mainly be from existing area payments to historic entitlement payments. The most distortionary types of subsidy (market price support and input subsidies) will remain the dominant form of subsidy.

v) Enlargement and the CAP

In relative terms agriculture plays a much greater role in many of the new member states than in the EU-15 members. This is evident when looking at indicators such as farming population and the size of agricultural land. With the 2004 enlargement, the farming population increased by 4 million farmers to the existing 7 million. The new members add about 38 million hectares of agricultural land to the 130 million hectares in the EU-15 (nearly a 30% rise). However, due to a lower productivity of the newcomers, production in the EU-25 is expected to expand by about 10 to 20% for most products.

By far the larger trade partner of the newcomers is the EU-15 group, which account for more than 60% of trade flows in most of the new member states. These trade ties are going to be strengthened in the coming years.

At present the consequences of enlargement for the workings and costs of CAP are still unclear. This is largely a political decision to be postponed at least until dealt 2006. On paper, producers in the accession countries are to have access to the benefits of the CAP, as well as to the obligations in terms of environmental, food and safety standards. However, this is a gradual process with a number of conditions that are needed before a new member can received an equal status in the CAP with the existing members.

According to the European Commission, the starting level at which direct payments would be granted for 2004 to the accession countries would be set at a rate equivalent to 25% of the present system. The transition should proceed over a period of 10 years, i.e. the level then applicable in the current EU member states would be reached in 2013, taking place in a two-stage process. In a first stage direct payments would be slowly increased by two steps of 5% per year. This would allow an intensive restructuring effort. In the second phase, levels of aid would be further increased to reach the full level in 2013.

4.2. The implications of the CAP for transfers across countries

The CAP, as we have seen, is a mixture of subsidies paid directly to farmers by the EU and by national governments, and artificially supported prices for agricultural products that secure a further transfer to farmers from consumers. So farmers benefit in three ways, all of which end up hurting consumers, either through higher taxes or higher prices. In 2004, the cost of supporting EU farmers amounted to €122 billion (\$150 billion) in total.

However, that total transfer is not distributed uniformly across countries. In part, the CAP is a means of redistributing resources within the European Union. Farmers in all EU countries benefit at the expense both of consumers in EU countries and elsewhere and of farmers in countries outside the EU. But farmers within some EU countries benefit by more than the total cost (taxes and prices) to consumers in each of those countries, thus securing a net transfer, via the CAP, from other countries to themselves. Most of that transfer comes from other EU economies. Table 4.3 shows how large these intra-EU transfers are, on a country by country basis.

Table 4.3

	Intra-EU transfers associated with the Common Agricultural Policy (CAP), 2004								Overall net position	
	Intra-EU budgetary transfers				Intra-EU consumer transfers on agricultural products ²					
	Receipts €million	Contributions ¹ €million	Net budget transfer €million	% of GNI	Receipts €million	Outlays €million	Net consumer transfer €million	% of GNI	€million	% of GNI
AUSTRIA	1145	938	206	0.09	296	231	65	0.03	271	0.12
BELGIUM	1084	1765	-681	-0.24	1127	664	463	0.16	-218	-0.08
CYPRUS	8	44	-36	-0.30	3	10	-8	-0.06	-44	-0.36
CZECH REPUBLIC	91	259	-168	-0.21	66	96	-30	-0.04	-198	-0.24
GERMANY	6065	9275	-3210	-0.15	1855	1457	398	0.02	-2812	-0.13
DENMARK	1222	889	332	0.17	583	303	280	0.15	612	0.32
ESTONIA	16	25	-10	-0.12	31	17	14	0.17	4	0.05
SPAIN	6345	3844	2502	0.32	655	541	114	0.01	2616	0.33
FINLAND	870	662	209	0.14	34	55	-21	-0.01	187	0.13
FRANCE	9429	7342	2088	0.13	1556	1253	303	0.02	2390	0.15
UNITED KINGDOM	4056	5356	-1300	-0.07	461	1626	-1166	-0.07	-2466	-0.14
GREECE	2780	799	1981	1.20	18	375	-357	-0.22	1624	0.98
HUNGARY	61	246	-186	-0.24	185	47	138	0.18	-48	-0.06
IRELAND	1846	573	1272	1.04	873	217	657	0.54	1929	1.58
ITALY	5040	6320	-1280	-0.10	409	1551	-1142	-0.09	-2422	-0.18
LITHUANIA	50	55	-5	-0.03	30	27	4	0.02	-1	-0.01
LUXEMBOURG	39	106	-67	-0.30	28	58	-30	-0.13	-97	-0.43
LATVIA	33	31	2	0.02	5	28	-23	-0.22	-22	-0.20
MALTA	3	15	-12	-0.28	0	17	-16	-0.37	-29	-0.65
NETHERLANDS	1333	2416	-1083	-0.23	1736	873	863	0.19	-220	-0.05
POLAND	297	601	-304	-0.16	265	85	181	0.09	-123	-0.06
PORTUGAL	828	611	217	0.16	43	264	-220	-0.17	-3	0.00
SWEDEN	850	1229	-379	-0.13	59	249	-191	-0.07	-570	-0.20
SLOVENIA	49	78	-29	-0.11	17	25	-8	-0.03	-36	-0.14
SLOVAKIA	41	101	-60	-0.18	34	42	-7	-0.02	-67	-0.20
EU	43579	43579	0	0.00	10111	10371	260	0.00	259	0.00

¹ Estimated as % of total contribution to the EU's budget multiplied by EU agricultural expenditure
² Estimated using intra-EU trade data

Taking the United Kingdom as an example, the UK received €4 billion (\$4.8 billion) in fiscal transfers – i.e. subsidies - to farmers from the EU via the CAP, but contributed €5.4 billion (\$6.5 billion), for a net fiscal contribution from the UK of €1.3 billion (\$1.6 billion), or 0.1% of Gross National Income.

At the same time, UK farmers received transfers from EU consumers outside the UK worth nearly €0.5 billion (\$0.6 billion), over-and-above the revenues they would have received at market prices for agricultural products (in addition to transfers from UK consumers). And UK consumers paid more than €1.6 billion (\$1.9 billion) for agricultural imports from the rest of the EU relative to what they would have paid at market prices. The net inter-country consumer transfer was therefore €1.2 billion (\$1.4 billion) from the UK to the rest of the EU.

So, the UK is a substantial net loser in terms of inter-country transfers within the EU as a result of the CAP, with a big net fiscal outflow magnified by a big net consumer outflow. The overall net cost to the UK of the transfers under the CAP was €2.5 billion (\$3 billion) in 2004.

However, the inter-country transfers reported in Table 4.3 do not reflect the full benefits of the CAP to farmers within each country. The missing elements are subsidies from each national government to its own farmers, and transfers from consumers in a given country to farmers in the same country - both of which in the end shift resources from consumers to farmers within that country.

Table 4.4 sets out the transfers farmers receive from the EU budget and consumers in the EU as a result of the CAP, country by country, including inter-country transfers and transfers within any one country. Expressed as a proportion of GDP these transfers are relatively small, since agriculture represents only a small proportion of whole-economy output. But expressed as a proportion of agricultural output, they are large: in some countries, the total value of transfers to the agricultural sector is close to the total value of output of that sector. In the UK, for example, farmers received total CAP-related transfers worth nearly €12 billion (\$14.4 billion) in 2004, some 50% of the total output of the UK agricultural sector in that year. So, if those transfers were to be removed, the impact on the agricultural sector in Europe would also be large.

Table 4.4

	Transfers to the agricultural sector in the EU, 2004								
	Budgetary transfers			Consumer transfers ¹			Total		
	Receipts from EU budget								
	€ million	% of GNI	% of agricultural output	€ million	% of GNI	% of agricultural output	€ million	% of GNI	% of agricultural output
AUSTRIA	1145	0.5	21.3	819	0.4	15.2	1964	0.9	36.5
BELGIUM	1084	0.4	16.4	1311	0.5	19.9	2395	0.8	36.3
GERMANY	6065	0.3	14.1	6347	0.3	14.7	12411	0.6	28.8
DENMARK	1222	0.6	14.4	1227	0.6	14.5	2448	1.3	28.9
SPAIN	6345	0.8	15.1	4372	0.6	10.4	10717	1.4	25.5
FINLAND	870	0.6	22.6	486	0.3	12.6	1357	0.9	35.2
FRANCE	9429	0.6	14.7	8509	0.5	13.3	17939	1.1	28.0
UNITED KINGDOM	4056	0.2	16.9	4098	0.2	17.1	8154	0.5	34.0
GREECE	2780	1.7	23.8	837	0.5	7.2	3617	2.2	30.9
IRELAND	1846	1.5	57.6	1268	1.0	39.6	3114	2.5	97.2
ITALY	5040	0.4	11.2	4900	0.4	10.9	9941	0.7	22.1
LUXEMBOURG	39	0.2	14.5	49	0.2	18.4	88	0.4	32.9
NETHERLANDS	1333	0.3	6.9	2506	0.5	12.9	3838	0.8	19.7
PORTUGAL	828	0.6	13.1	659	0.5	10.4	1487	1.1	23.5
SWEDEN	850	0.3	18.4	691	0.2	15.0	1541	0.5	33.4
EU15	42932	0.4	14.8	38078	0.4	13.1	81009	0.8	27.9

¹ OEF estimates using Eurostat data on agricultural production and intra-EU trade

4.3. The effect of removing the CAP – evidence from previous studies and other countries

To an extent, CAP reform would be part of the wider global and EU trade liberalisation scenarios, explored above. The CAP imposes restrictions on agricultural imports to the EU, and puts in place mechanisms to fix prices of agricultural products, mechanisms that effect a transfer from governments, the EU and consumers to farmers across the EU. All of these would be removed in the event of a general global or EU liberalisation of trade.

But removal of the CAP would also involve releasing funds for the EU and for national governments that could be spent on other things. The decision as to what other things these funds should be spent on, and with what effect on the wider economy, is not considered as part of our general global and EU trade liberalisation scenarios above,

although all the other features of CAP removal are. We assess the impact of removing the CAP and of different spending options in this section.

4.3.1. Transmission mechanisms and potential effects of removing the CAP

Removal of the CAP would have two separate but inter-related effects. The first would be the impact of increased extra-EU trade and a change in global agricultural prices on growth in the EU and elsewhere. The second effect is the impact of removing government and consumer support for the agricultural sector in the EU.

The first effect works like the wider trade liberalisation scenarios explored in Chapter 3, with one or two nuances as follows:

- On the whole, eliminating the CAP will lead to a reduction in the size of the agricultural sector – with transitory unemployment in that sector – as the resources are reallocated globally and within the EU, in line with underlying patterns of comparative advantage. Some producers in some EU countries may still be able to compete in world markets – but the EU agricultural sector as a whole would shrink.
- There are no major economic externalities that justify protecting the agricultural sector from foreign competition, so nothing significant in economic terms would be lost, outside the agricultural sector, in the event of the CAP being removed.
- Changes in agricultural prices are unlikely to have a significant direct effect on capital accumulation or on underlying productivity outside the agricultural sector. That reduces the potential of eliminating CAP to boost aggregate productivity in the EU.
- However, redirecting the current public money earmarked to the CAP into funding research and development activities or infrastructure projects could have a significant impact on long-term economic growth (we explore this scenario below).

So the impact of removing the CAP on the EU economy via its impact on trade will be smaller than the impact of a more general trade liberalisation (see section 5.1 for estimates of the GDP impact under these two scenarios).

However, the CAP is not only a restriction on trade; it is also a means of subsidising EU agricultural exports. The CAP intervention price policy reduces EU imports and shifts the world import-demand schedule inwards, while subsidised EU exports shift the export supply schedule outwards. Both movements act to reduce world prices.

Given the inelastic nature of supply and demand for agricultural products and the EU market power in this market, international prices are expected to be highly responsive to a full CAP liberalisation - particularly prices for key commodities covered by the CAP, such as wheat, barley, beef, butter, powder milk and sugar. Previous research suggests that the elimination of protectionist measures in agriculture in the developed world could result in a rise in world prices of 5-10%, with the strongest increases expected in dairy products and meat (Nucifora, 1994).

4.3.2. Results from previous empirical research on CAP reform

The European Commission (2004) has summarised the results of a number of studies attempting to estimate the income gains arising from the elimination of the CAP based on the use of Computable General Equilibrium models such as GTAP:

- Borell and Hubbard (2000) put the cost of current CAP policies at US\$75 billion for the world, of which US\$49 billion are borne by the EU.

- Phillipidis and Hubbard (2001) estimated a much lower gain of US\$18 billion for the EU assuming the dismantling of the CAP in 2005.
- The IMF (2003) has estimated the income effect of a removal of CAP to be about US\$29 billion for the world as a whole.

The majority of the studies aiming to quantify the economic implications of the CAP indicate that it imposes significant costs on both the EU-15 economies and on third parties, particularly in the developing world.

4.3.3. Practical lessons of previous agricultural reforms - The New Zealand experience

New Zealand implemented drastic agricultural reforms in the 1980s. Farm subsidies were gradually introduced in the early 1960s, and steadily increased until 1984 when it was announced that most of them would be eliminated. It is estimated that by 1984 subsidies represented about 30% of agricultural output. But they were phased out by 1987.

Although New Zealand farmers were highly dependent on state funding, they survived the subsidy cuts by reducing their own spending, and implementing more efficient methods of production and taking steps to diversify according to their comparative advantage. For instance, farmers moved into new forms of farming, such as wine and dairy, and reduced the number of sheep while increasing that of cattle. Additionally, suppliers were forced to cut prices, knowing that farmers were no longer receiving generous public help (Fitzgerald, 2003).

By pursuing these cost-effective measures, most New Zealand farmers were able to stand the structural changes that followed the agricultural reform. In fact, in New Zealand, growth in this sector has outpaced growth in the economy as a whole. During the period 1990-2000, agricultural output grew by an annual average of 2.4%, slightly above GDP (in the period 2001-2004, agriculture expanded at a much lower average annual rate of 0.5%). Meanwhile, share of the labour force employed in agriculture at present is around 8%, compared to 9% in 1998 and 11% in 1980. In addition, the advantages of reform extend beyond economic growth to include significant environmental benefits, resulting from more efficient use of land, irrigation and fertilizer.

In analysing the impact of CAP reform we take the New Zealand experience as a benchmark for thinking about how agricultural support might be removed in Europe.

4.4. Short- to medium term impacts of CAP removal

The removal of the CAP would have a direct impact on jobs and output in agriculture as transfers to farmers were sharply reduced. And there would also be an indirect effect on employment in the industrial sectors in the supply chain to the agricultural sector: manufacturers of farm equipment, fertilisers etc.

Given the potential fall in agricultural production, around 1.4 million direct jobs could be lost in farming in the EU, with a further 715,000 indirect job losses. As Table 4.5 shows, the number of jobs lost in agriculture would be particularly large in Germany, France, Italy, Ireland, and Spain.

Table 4.5

	Sectoral impact of removing CAP (changes from base)					
	Agriculture and food production			Indirect employment effects	Total employment effects	
	Output	Sectoral jobs	Total employment		'000s	%
%	'000s	%	'000s	'000s	%	
AUSTRIA	-16	98	-2.6	59	158	-4.1
BELGIUM	-18	35	-0.9	24	59	-1.6
GERMANY	-8	157	-0.4	86	243	-0.7
DENMARK	-23	36	-1.3	25	61	-2.2
SPAIN	-13	188	-1.0	84	272	-1.5
FINLAND	-11	17	-0.7	12	30	-1.3
FRANCE	-16	246	-1.0	123	368	-1.4
UNITED KINGDOM	-8	62	-0.2	56	118	-0.4
GREECE	-5	32	-0.7	13	44	-1.0
IRELAND	-84	125	-6.8	56	181	-9.8
ITALY	-8	127	-0.5	38	165	-0.7
NETHERLANDS	-38	159	-2.1	95	254	-3.3
PORTUGAL	-10	66	-1.3	36	102	-2.0
SWEDEN	-8	13	-0.3	8	21	-0.5
EU15	-14	1360	-0.9	717	2076	-1.4

Source: GTAP and OEF calculations

However, this is only the sectoral impact of CAP reform. To calculate the overall impact of CAP reform, we also have to take into account three other effects:

- What the government does with its extra revenue once agricultural subsidies have been removed. In the UK, that includes the boost to government revenues from the removal of the net contribution to the EU via the CAP.
- What consumers do with their extra real income once agricultural prices have fallen. In the UK, that includes the removal of the net CAP-related outflow from UK consumers to the rest of the EU.
- The impact on aggregate demand, and therefore real incomes of consumers, from the deterioration in net trade.

The mix of effects and their relative strengths will determine the short-term impact on overall GDP and employment: higher real incomes for consumers and for the government will boost aggregate demand, offsetting falling employment and real incomes in the agricultural and related sectors and deteriorating net trade.

In what follows, we assume that agricultural subsidies are recycled via other forms of government spending, so total nominal government spending is unchanged. And the same is true for the consumer. Since the aggregate price level falls as agricultural prices fall, government and consumer spending increase in real terms. But some of that increased real spending is on extra imports of agricultural products: we assume that total real spending on agricultural products is unchanged, and that imports therefore increase to fill the gap left by reduced domestic production.

Charts 4.6 and 4.7 show the impact on GDP and total employment in the Eurozone and the UK over the next five years as a result of the removal of the CAP. Agricultural employment falls immediately as a result of the removal of the CAP but, in the case of the UK, those negative effects on employment are offset by the impacts of higher real government and consumer spending on aggregate demand. In the case of the UK, that boost to aggregate demand is two-fold: it reflects the lower general price level and the

impact of that on real incomes, and the removal of the net CAP-related transfer out of the UK.

Chart 4.6

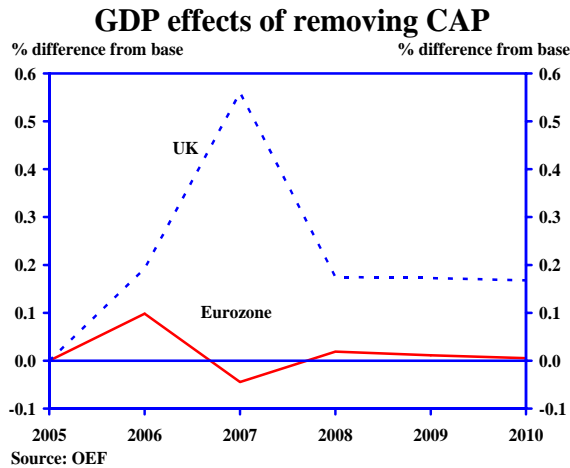
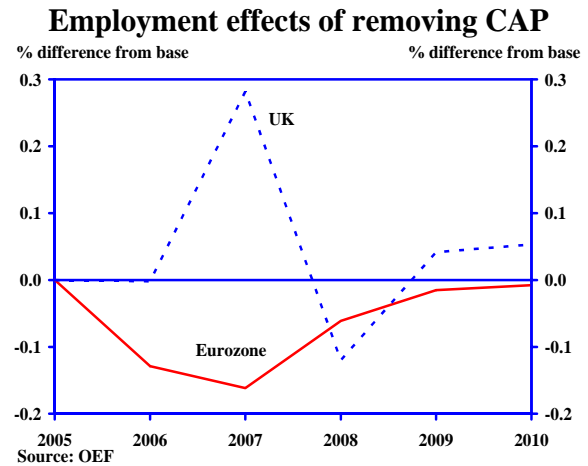


Chart 4.7



In the case of the Eurozone, the impact on aggregate demand is smaller, as it comes from the impact of lower prices on real incomes alone, since the Eurozone is a small net beneficiary of intra-EU CAP-related transfers. As a result, the negative impact of CAP removal on agricultural employment in the Eurozone comes through to aggregate employment more fully in the short term.

Charts 4.8 and 4.9 show the impact on the price level and on the level of labour productivity in the UK and the Eurozone as a result of removing the CAP. The price level falls by a little under 1% permanently. But most of the effects on productivity are temporary and after five years they are already starting to wane: this result is driven by the movement of labour out of agriculture into sectors with relatively low productivity (eg, services), and by the absence of significant dynamic gains that can translate into sustained increases in productivity.

Chart 4.8

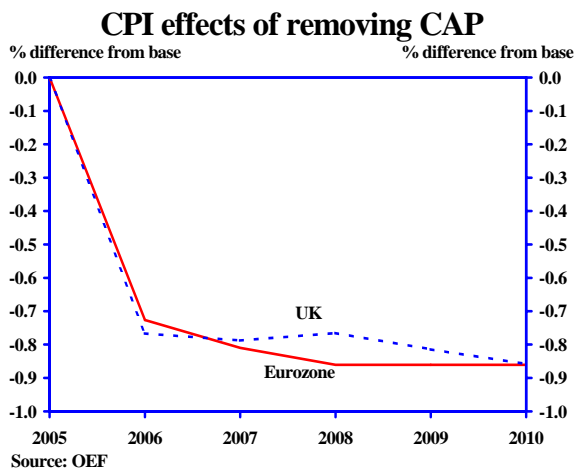
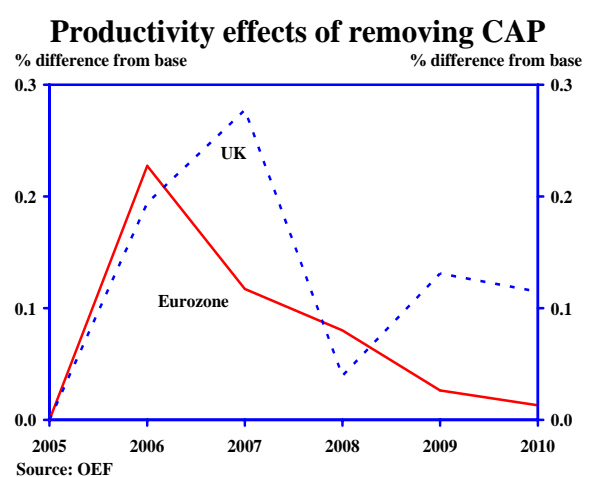


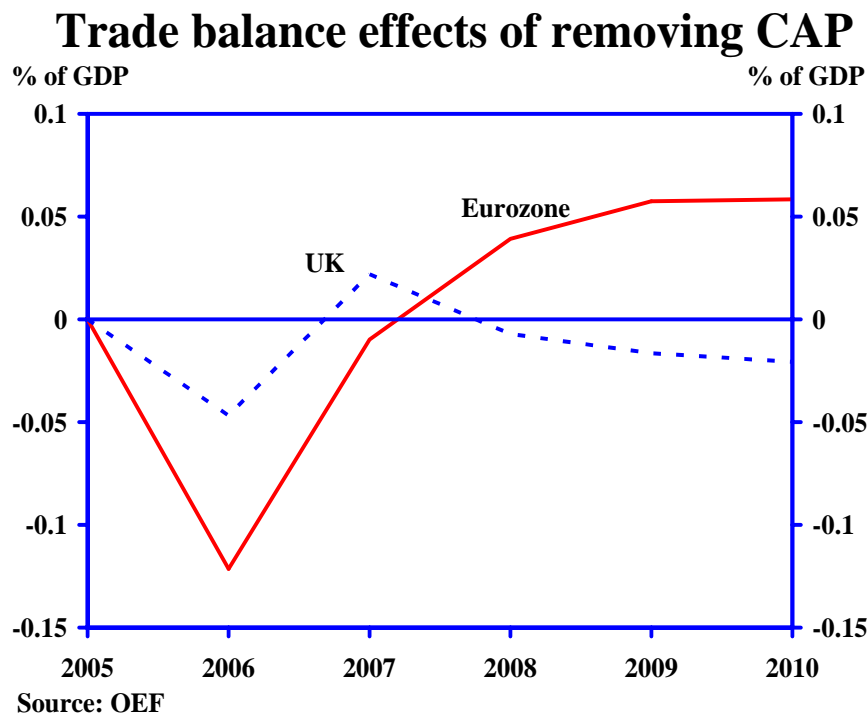
Chart 4.9



Another important impact of removing the CAP is on the current account of the balance of payments. Chart 4.10 shows the impact of CAP removal on the balance of trade in the Eurozone and the UK, expressed as a proportion of GDP. The trade balance deteriorates

in all countries in the short term as agricultural exports fall and imports increase. But in the long run, it returns to its equilibrium, driven there by changes in the nominal exchange rate and in relative prices.

Chart 4.10



4.5. Long-run impacts of CAP removal

Section 4.4 showed how aggregate output and employment adjust to the removal of the CAP over the short to medium term, driven by a mixture of positive impacts on aggregate demand and negative impacts on employment and output in agriculture and related sectors. But in the long run our scenarios suggest that the impacts on both GDP and employment are likely to be small.

CAP reform leads to an increase in extra-European trade, as a greater proportion of agricultural products are imported. But the effects of that increased openness on growth are small since:

- The reallocation of resources away from agriculture and into other sectors resulting from CAP removal has a very small impact on whole economy productivity: agriculture is a small sector of the economy, and other sectors are not dramatically more productive on average.
- Higher agricultural imports do not stimulate higher productivity in Europe at a whole economy level: the technical innovations, the impact of increased competition and so on are really restricted to the agricultural sector, in which output and employment fall from their already low levels.
- The spillovers into productivity in other sectors, from technical improvements in agriculture, are likely to be very small.

As a result, CAP reform alone has only a small effect on employment and output in the long run at the whole economy level, even though it triggers a significant shift from the agricultural sector to other sectors of the economy. Table 4.6 shows the long-run impact on output and prices of the removal of the CAP, country by country. Some member states, including the UK, see a small positive impact in the long run. But most countries see no long-run impact on GDP like Germany, the Netherlands and Spain or experience a small negative impact.

Table 4.6: Long-run impacts of CAP removal

	Impact on GDP	Impact on CPI
Austria	0.0	-0.9
Belgium	+0.1	-0.8
Finland	-0.1	-1.1
France	-0.1	-0.9
Germany	+0.0	-0.7
Greece	0.1	-0.8
Ireland	-0.1	-1.2
Italy	-0.1	-0.8
Netherlands	0.0	-0.9
Portugal	+0.2	-1.0
Spain	0.0	-0.8
Eurozone	0.0	-0.9
Denmark	-0.1	-1.1
Sweden	-0.1	-0.8
UK	+0.1	-0.9
EU15	0.0	-0.9

Those long-run effects reflect the reallocation of resources across and within the various economies as a result of the removal of the CAP. Agricultural output and employment fall everywhere. Eventually, the jobs lost in agriculture are made up elsewhere in the economy, and the impact on output reflects what that reallocation means for average productivity. In most economies, it is a small plus. But in some economies it works out as a small minus. In either case, the long-run impacts on GDP are small.

The long-run impacts on the average price level, by contrast, are larger. Average prices fall everywhere, by between 0.7% (in Germany) and 1.2% (Ireland). The variation in these responses reflects a range of factors, including the importance of agricultural prices in the overall basket of consumer prices, and the nature and impact of the monetary policy response in different countries. Countries with control over their own monetary policy, such as the UK, generally see a smaller long-run fall in consumer prices because

monetary policy responds more aggressively to offset the impact of the short-term loss of output and employment in the agriculture sector on overall economic growth.

4.6. Other options for revenue recycling

Section 4.5 showed how the long-run effects of removing the CAP, considered on its own, are small for most European economies. But that is not the end of the story. CAP removal provides national governments and the EU as a whole with higher net revenues, and options for recycling those revenues. Some ways of recycling those revenues might be more efficient – in the sense of having bigger positive impacts on long-run productivity – than others.

The CAP acts in part like a tax on consumers that is transferred to farmers. It is not obvious that this transfer does anything to improve or worsen the long-run productive potential of the economy. But other, more efficient ways of allocating that money exist.

Below, we explore two of these options:

- National governments and the EU could put the money they save by abolishing the CAP into incentives for Research & Development spending – or directly spend that money on R&D themselves. There is a great deal of evidence that suggests R&D has substantial positive ‘externalities’ that help to improve economic performance: the social return to R&D substantially exceeds the private return that can be captured by the firms undertaking that R&D. If that is true, R&D is a candidate for government support, to realise those social benefits that would otherwise be lost. Our own research⁶ suggests that the social return to R&D spending could be as high as 70% (compared with a private return of around 15%).
- The EU could choose to recycle the saved revenues by increasing structural funds – funds for investment in transport infrastructure, for example, are also widely believed to have positive ‘externalities’ for society as a whole.

Either of these options would probably improve economic outcomes across the EU in the long run, relative to the current choice of spending on the CAP. The impacts could be large. To try and estimate how large, we have assumed that the government and EU money currently spent on the CAP is, after its removal, spent as follows. National governments spend what they save on R&D, increasing the total spending on R&D in their economy by the same amount (no ‘crowding out’). The EU spends what it saves on CAP removal on increased structural funds, distributed across the EU as structural funds are currently distributed. Moreover, we assume that the social return to structural spending is equal to the social return to R&D.

Table 4.7 shows our estimates of the impact on underlying productivity of removing the CAP and spending the money instead on R&D or on structural spending. The gains are large, but they can take a long time to come through in full – perhaps a decade or more. And it is very likely that R&D spending exhibits ‘diminishing returns’ – generating smaller improvements in productivity for each marginal increase in spending.

The estimates in Table 4.7 are indicative, and the range of uncertainty around them is large. For example, estimates of the social return to R&D spending range from 20% to 310% in the literature. But they illustrate how much the EU and national governments

⁶ Research by OEF to examine the economic impacts of BAE Systems, of Rolls Royce, and of the British Aerospace sector as a whole, that focuses on the impact on whole economy productivity of the R&D undertaken in the aerospace sector.

could have to gain by abolishing the CAP and spending the money instead on something that contributes more substantially to the long-run performance of the economy.

Table 4.7: revenue recycling

Long run impact of diverting CAP expenditures to R&D or structural funds											
	Contributions ¹ € million	CAP		R&D			Structural Funds				
		Receipts € million	Net € million	Receipts € million	Net € million	GDP impacts Year 1	GDP impacts Year 10 ²	Receipts € million	Net € million	GDP impacts Year 1	GDP impacts Year 10 ²
AUSTRIA	938	1145	206	938	0.0	0.1	0.8	402	-536	0.0	0.3
BELGIUM	1765	1084	-681	1765	0.0	0.1	1.2	449	-1316	0.0	0.3
CYPRUS	44	8	-36	44	0.0	0.1	0.7	7	-37	0.0	0.1
CZECH REPUBLIC	259	91	-168	259	0.0	0.1	0.6	207	-53	0.1	0.5
GERMANY	9275	6065	-3210	9275	0.0	0.1	0.8	5924	-3351	0.1	0.5
DENMARK	889	1222	332	889	0.0	0.1	0.9	234	-655	0.0	0.2
ESTONIA	25	16	-10	25	0.0	0.1	0.6	48	23	0.1	1.1
SPAIN	3844	6345	2502	3844	0.0	0.1	0.9	12299	8456	0.3	3.0
FINLAND	662	870	209	662	0.0	0.1	0.9	462	-199	0.1	0.6
FRANCE	7342	9429	2088	7342	0.0	0.1	0.9	3069	-4272	0.0	0.4
UNITED KINGDOM	5356	4056	-1300	5356	0.0	0.1	0.6	2823	-2533	0.0	0.3
GREECE	799	2780	1981	799	0.0	0.1	0.9	3632	2834	0.4	4.3
HUNGARY	246	61	-186	246	0.0	0.1	0.6	259	13	0.1	0.7
IRELAND	573	1846	1272	573	0.0	0.1	0.9	1072	499	0.2	1.7
ITALY	6320	5040	-1280	6320	0.0	0.1	0.9	5773	-548	0.1	0.8
LITHUANIA	55	50	-5	55	0.0	0.1	0.6	121	66	0.1	1.3
LUXEMBOURG	106	39	-67	106	0.0	0.1	0.9	37	-69	0.0	0.3
LATVIA	31	33	2	31	0.0	0.1	0.5	83	52	0.2	1.5
MALTA	15	3	-12	15	0.0	0.1	0.7	8	-7	0.0	0.4
NETHERLANDS	2416	1333	-1083	2416	0.0	0.1	1.0	454	-1962	0.0	0.2
POLAND	601	297	-304	601	0.0	0.1	0.6	1078	477	0.1	1.1
PORTUGAL	611	828	217	611	0.0	0.1	0.9	4435	3825	0.7	6.7
SWEDEN	1229	850	-379	1229	0.0	0.1	0.8	522	-707	0.0	0.4
SLOVENIA	78	49	-29	78	0.0	0.1	0.6	31	-47	0.0	0.2
SLOVAKIA	101	41	-60	101	0.0	0.1	0.6	148	48	0.1	0.9
EU	43579	43579	0	43579	0.0	0.1	0.8	43579	0	0.1	0.8

¹ Estimated as % of total contribution to the EU's budget multiplied by EU agricultural expenditure
² Assuming 2% growth and inflation

The UK would be a substantial beneficiary from this more efficient way of spending EU and national resources – after ten years, the effect could boost GDP by 0.6% from the additional R&D spending, or by 0.3% if the CAP spending were reallocated into structural funds, via the proportion of the structural spending that the UK would receive – compared to a benefit of 0.8% of GDP for the EU as a whole. Within that, some of the biggest beneficiaries could be those economies that benefit most from the current allocation of EU structural funds – countries including Spain, Portugal, Greece and Ireland.

Moreover, the direct effect of higher R&D or increased resources for structural funds would be amplified by an indirect effect via capital accumulation. If productivity increases because of R&D or structural spending, then the marginal product of capital also increases, encouraging increased investment and faster capital accumulation.

Charts 4.11 and 4.12 show our estimates of the overall impacts on productivity and on GDP of removing the CAP and recycling the revenues into R&D.

Chart 4.11

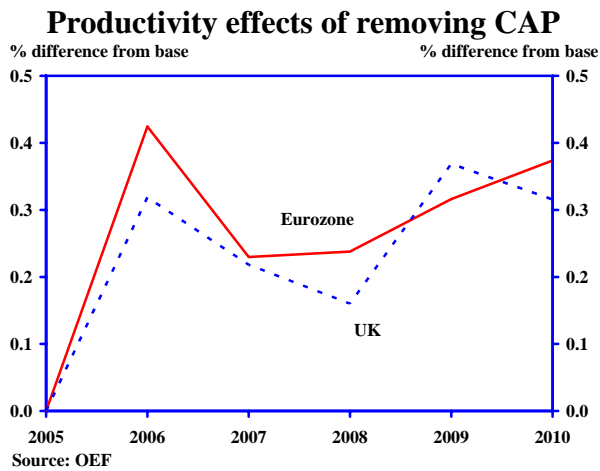
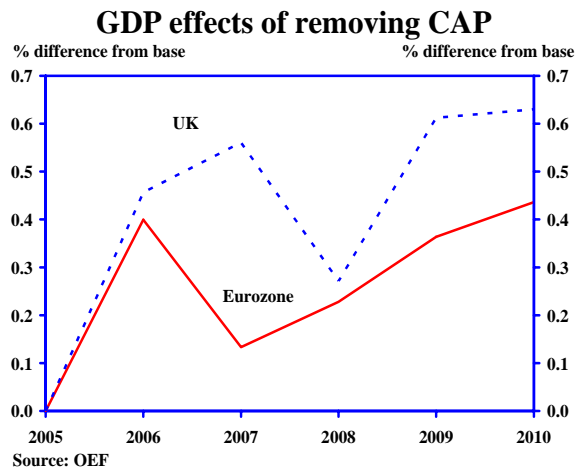


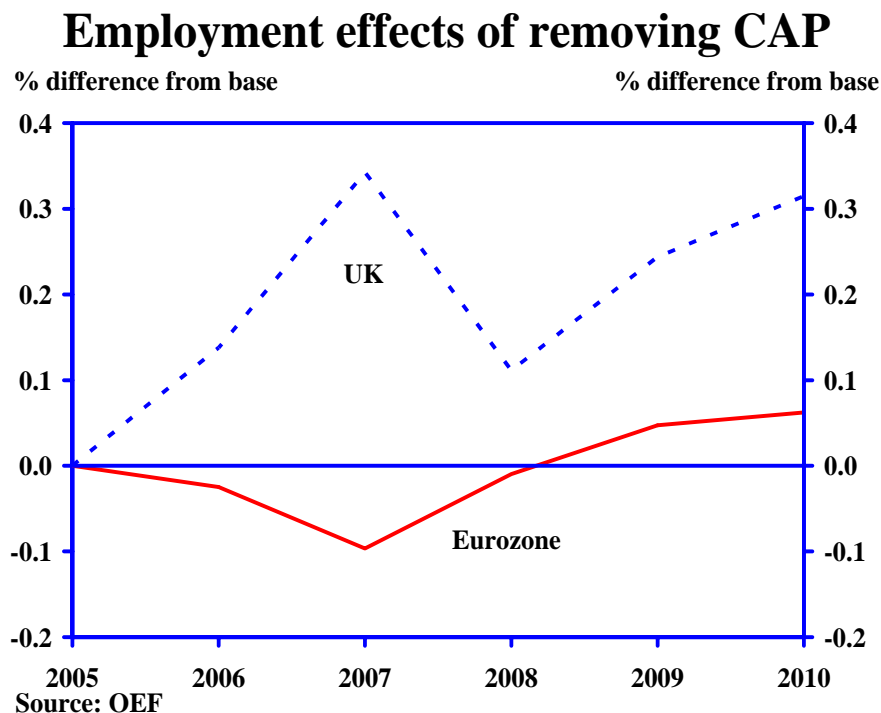
Chart 4.12



Both the Eurozone and the UK benefit in the long run. The long-run benefit for both comes almost entirely from the boost to productivity via higher R&D spending and faster capital accumulation. But the UK benefits by more than the Eurozone in the medium term. The UK gets the productivity benefits of higher R&D, and the additional benefits on aggregate demand deriving from the removal of the consumer and fiscal transfer to the EU.

Chart 4.13 shows the impact on employment in the Eurozone and the UK of removing the CAP and recycling the revenues into R&D. In the long-run, the employment impact will tend to zero. But the boost to growth, particularly in the UK, generates positive effects on employment in the short term.

Chart 4.13



The extra benefit to the UK would be smaller in the event that CAP revenues were recycled via structural funds, since the UK is only a small beneficiary of those structural funds. Moreover, in principle, the structural funds could be reallocated so as to provide greater benefits to the new accession countries in Eastern Europe. Then the impact on those countries would be proportionately higher.

4.7. Impacts of CAP reform on other countries

Removing the CAP would generate significant long-run benefits for Europe. But the CAP also has an impact on other regions. In this section we look at the implications for the developing world, in particular for Africa and Latin America.

The CAP affects other countries in a number of key ways: by increasing world supply, thus lowering world prices; by artificially raising EU prices; by excluding others from its markets; by heavily subsidising exports and by undermining world price stability (Commission for Africa, 2005).

By subsidising exports, the CAP has allowed European farmers to export their goods at prices below the actual production cost. This process makes it possible to penetrate markets in developing countries at the expense of local producers. In addition, export subsidies paid by the CAP put downward pressure on world market prices, reducing the export revenues of farmers in less developed countries. Moreover, trade barriers and subsidies have distorted international markets of agricultural commodities while exacerbating price volatility.

Not only are poor producers undercut by their richer rivals, they are also given only very limited access to EU markets. For instance, in the case of sugar, current EU arrangements allow poor countries access that is equivalent to 1% of total EU consumption (Oxfam, 2004).

A far-reaching reform of the CAP, removing all obstacles to agricultural imports from Africa, could set in motion a virtuous cycle, where the combination of the increase in export market potential and higher long-term commodity prices induces the investment required to boost agricultural production in the continent. Countries that succeed in securing political and macroeconomic stability will be in better position to attract investment and to develop further their export potential in agricultural products.

According to the World Development Indicators, Sub-Saharan Africa had 0.2 hectares of arable land per capita in 2000-02, the same as in EU-15, while there were 0.3 hectares per capita in Latin America. However, major disparities appear when looking at indicators of the use of capital in agriculture: only 15 tractors per 100 hectares of arable land in Sub-Saharan Africa, versus 119 tractors in Latin America and 973 in the EU-15. The poor level of mechanisation is reflected in dismal gap in labour productivity: only 1.6% of the EU-15 value and 11% of the figure for Latin America.

The impact of agricultural liberalisation for the developing countries would largely depend on whether the countries are net food importers or exporters. The Latin American countries with the potential to benefit the most from the removal of the CAP are those with well-developed agricultural exports sectors and with comparative advantages in producing a mix of products similar to those covered by the CAP. Argentina and Brazil belong to this group. Coffee producing countries such as Colombia and those in Central

America are unlikely to experience a significant increase in their export to the EU-15 in a post-CAP scenario.⁷

Results from a number of general equilibrium models surveyed in Nucifora (1994) suggest that developing countries as a group are likely to gain from trade liberalisation in agriculture. However, the largest income gains derived from industrial countries' liberalisation tend to be concentrated on the main agricultural exporters such as Argentina and Brazil (Roningen & Dixit, 1989).

The results of our simulations show that, on the whole, the full liberalisation of the EU-15 agricultural sector will benefit the developing world in terms of higher dollar values of agricultural exports.

Table 4.8 shows our estimates of the impact of removing the CAP on the dollar value of agricultural exports from a selection of developing and less-developed economies outside the EU.

Table 4.8

Global impact of CAP reform <i>(changes from base)</i>			
	Agricultural exports		
	% increase	US\$ bn	% of GDP
Africa	31.9	8.8	1.5
Latin America	33.5	28.5	1.6
India	20.7	1.7	0.3
China	24.9	6.5	0.3
Indonesia	10.8	3.2	0.5
Thailand	16.9	2.1	1.4
Russia	8.5	1.1	0.3
World price	3.4		

The biggest single beneficiary in dollar terms is Latin America. But Africa sees as large a proportional increase in agricultural exports as a percentage of GDP from CAP removal (1.6%).

The contrast between Africa and Latin America is interesting. Agricultural exports to Europe from Africa are generally subject to lower import tariffs, unlike those from Latin America. But both countries suffer from the fact that European farmers are subsidised by

⁷ In 2001 Latin America was the source of 8.5% of imports of primary products to the EU-15, slightly lower than the 9% share recorded in 1990 (ECLAC, 2003). The MERCOSUR trade bloc (Argentina, Brazil, Uruguay and Paraguay) is the main source of primary products (totalling US\$12.5bn in 2001). The principal products entering the EU-15 which originate in Latin America are oil seeds (Argentina and Brazil), meat (Brazil), soybeans (Brazil), tobacco (Brazil), maize (Argentina), fruits (Chile), and sugar (Jamaica).

the CAP, and able to undercut African and Latin American producers, both in the European market, in each of their domestic markets and in third countries. In the case of Africa, the impact of European exports of subsidised surplus agricultural products on the African market is probably more important than the restricted access to the EU market.

These EU agricultural export subsidies undermine the growth of the agricultural sector in Africa, and, indirectly, the growth of agricultural exports too. The Commission for Africa report also notes (as reflected in our results) that Africa has had some benefits from the CAP, because of the favoured treatment of its exports to Europe relative to those from other countries. But the costs of the CAP outweigh the benefits – and even more so in countries like Latin America which pay the import tariffs and face subsidised competition from European farmers.

We see the removal of the CAP as a necessary but not a sufficient condition for a sustainable improvement in the African economies. If it were accompanied with political and economic reforms in Africa, such as would encourage inward investment and entrepreneurship, then it could contribute to improved prosperity in the region. Of course, we do not know whether or to what extent these political and economic reforms might take place, so there is a great deal of uncertainty around the numbers in the table above. The impact on Africa could be zero or, in the right political/economic environment, it could be much larger than we estimate it to be.

4.8. Conclusions – The benefits of CAP reform

Reform of the CAP, along the lines of the agricultural sector reform undertaken in New Zealand would provide a number of benefits:

- It would lead to lower prices of agricultural products across the EU, benefiting the consumer, although the agricultural sector in Europe would contract.
- It would lead to higher prices for agricultural products for developing economies, boosting the income they earn from agricultural exports.
- It would have a modest positive effect on trade in the EU and therefore on the long-run performance of the EU economy.
- It would have a more pronounced positive impact on the prospects for the UK, since the UK government and consumer is a substantial net contributor to the EU via the CAP.
- If the funds that are currently allocated to maintaining the CAP were recycled into other, more productive forms of spending, the impact on EU and UK growth could be substantial.

Removal of the CAP would be one plank in a desirable, wider trade liberalisation across Europe, itself one contributor to the raft of economic reforms that could transform the prospects for the European economy as a whole.

5. Conclusions: The overall impact of trade liberalisation and CAP reform

The previous two chapters of this report have highlighted the macroeconomic impacts of trade liberalisation and of CAP reform for Europe, the UK and the global economy. In this Chapter, we pull all the results together, focusing first on the macroeconomic impact in different countries. We then go on to draw out the implications for the living standards of the average household and for different income groups within the UK.

Key Points

- Trade liberalisation benefits all participating countries in the long run, boosting their average productivity, as we demonstrated in Chapter 3.
- The CAP is in part a restriction on trade in Europe, and its removal would benefit Europe and other countries, especially developing countries, as a result. But the CAP is also a means of transferring resources between countries and between sectors within Europe. So its removal would benefit some countries (net contributors like the UK) more than others (net beneficiaries like France), as we demonstrated in Chapter 4.
- And the revenues that are currently devoted to the CAP could in principle be diverted to R&D or structural funds, which would contribute to higher productivity in the EU in the long run (see Chapter 4).
- Taking all these together, trade liberalisation combined with reform of the CAP and recycling of the CAP funds to R&D would provide a substantial boost to the European and UK economies: in this sense, the gain of eliminating the CAP and other restrictions on EU trade would be between 1% and 2% of GDP in Europe and the UK by 2015.
- Such a scenario could boost average household incomes UK by £1,450 (€2,175; \$2,600) per year by 2015 (in 2005 prices), compared to £1,360 (€2,020, \$2,436) across the EU on average (for a household of four).
- That boost to average incomes would particularly benefit the poorest households, with the standard of living of the lowest UK income decile boosted by 4%, compared with 1.6% on average and only 0.9% for the highest income decile.

5.1. Global macroeconomic implications of trade liberalisation and CAP removal

Below, we focus on three scenarios which highlight the key insights from our research.

Scenario 1 sees a global removal of all barriers to trade, including those embedded in the CAP. And, in this scenario, the funds currently spent by the EU and by national governments in supporting the CAP are diverted into spending on R&D across Europe.

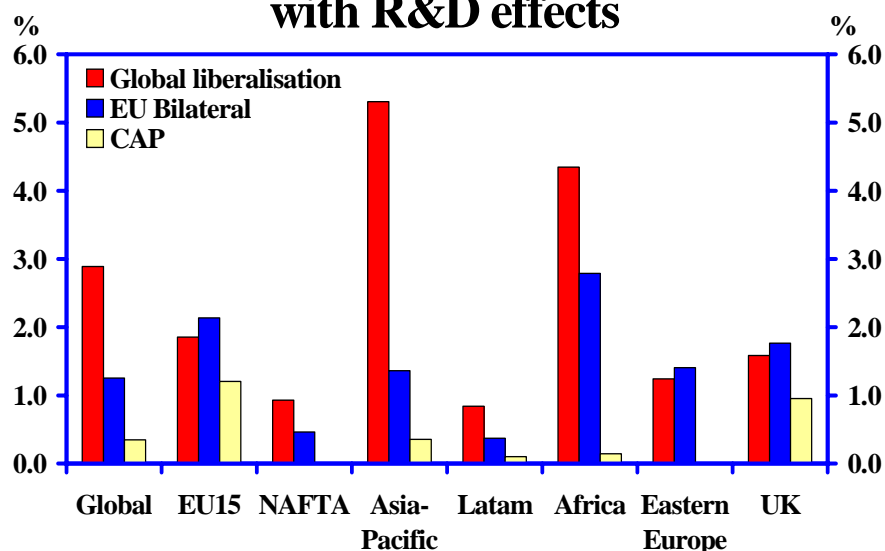
Scenario 2 sees a bilateral European trade liberalisation – the removal of all barriers to trade into and out of Europe. That implies tariffs and quotas are removed by Europe on all its imports, and by Europe's trading partners on all their imports from Europe. And the CAP is also removed, with the revenues being recycled into R&D spending.

Scenario 3 sees the barriers to trade and price support mechanisms embedded in the CAP removed, and the revenues recycled into R&D spending, while all other trade restrictions remain in place.

Chart 5.1 shows the global impact of these three trade liberalisation scenarios.

Chart 5.1

Total GDP impact of trade liberalisation with R&D effects



The first scenario represents the most extensive global trade liberalisation. The world economy could be nearly 3% more productive by 2015 if all barriers to trade were removed and CAP-related revenues were channelled into R&D spending in Europe. And the biggest gains would accrue to developing and less-developed countries in Africa and Asia-Pacific.

The second scenario boosts the European economy by more than 2% by 2015, as barriers to trade including the CAP are removed, and the CAP revenues spent on R&D. Other countries in Asia and Africa also benefit substantially, with overall world GDP more than 1% higher by 2015.

The third case is a more limited reform, focused on the removal of the CAP and recycling of CAP-related spending into R&D. However, this still boosts European GDP by more than 1% by 2015. And there are significant gains for both the Asia Pacific and African economies.

The UK gains significantly from all three of these trade liberalisation scenarios. Its GDP would be around 1.6% higher by 2015 in the event of global trade liberalisation and more efficient recycling of the CAP revenues. And a bilateral European trade liberalisation would boost UK GDP by around 1.8% in the long term. But, as a net contributor to the CAP, the UK also stands to gain significantly from its reform, with GDP in this case around 1% higher in the long term.

Charts 5.2 and 5.3 show how the impact on the UK and the Eurozone evolves over the short to medium term in the first two scenarios. Eurozone GDP increases by more than UK GDP in the long term because it is able to devote even more resources than the UK to R&D investment following the removal of the CAP.

Chart 5.2

Impact of global trade liberalisation on GDP with R&D effects

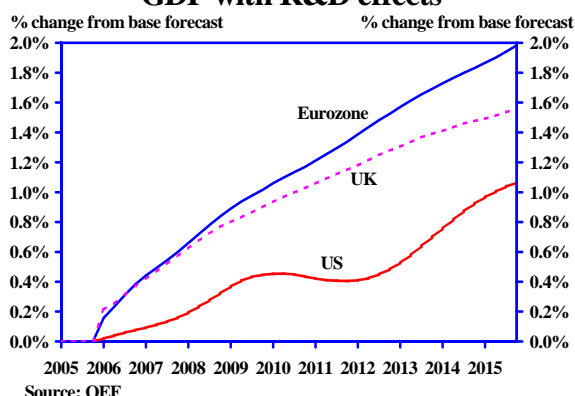
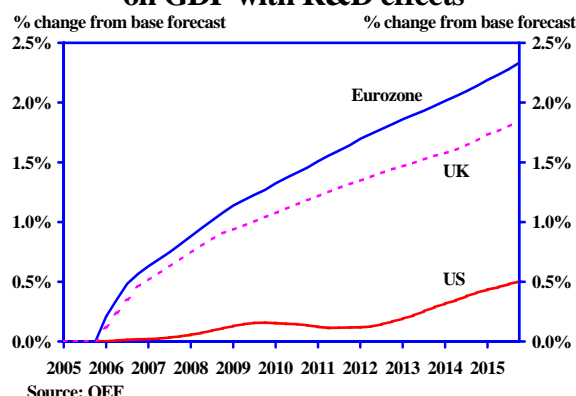


Chart 5.3

Impact of EU bilateral trade liberalisation on GDP with R&D effects



It is clear from this analysis that trade liberalisation combined with reform of the CAP and recycling of the CAP funds to R&D would provide a substantial boost to the European and UK economies: in this sense, the cost of maintaining the CAP and other restrictions on EU goods trade is between 1% and 2% of GDP in Europe and the UK. Such a scenario would boost UK GDP by over £20 billion – providing total benefits to the typical household of four worth around £1,500 a year.

Charts 5.4 and 5.5 show the impacts on employment that result from the global and EU bilateral trade liberalisation scenarios with R&D impact. Although the long-run impact is small and will converge on zero, the short-term impact in both scenarios is to boost employment significantly.

Chart 5.4

Impact of global trade liberalisation on employment with R&D effects

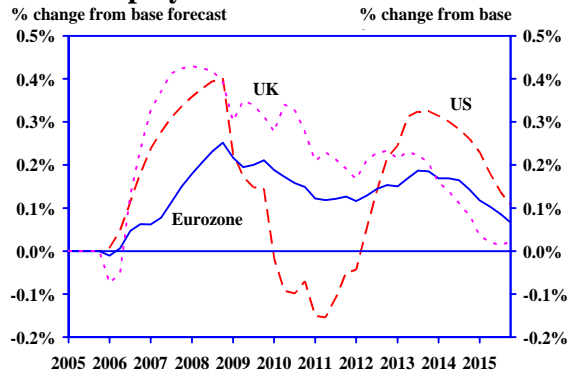
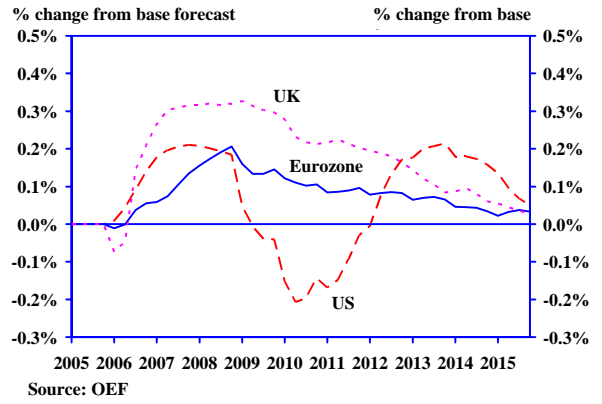


Chart 5.5

Impact of EU bilateral trade liberalisation on employment with R&D effects



5.2. Impacts on households in the UK and Europe

The UK and European macroeconomies would benefit substantially from trade liberalisation. That would result in higher real incomes for the average UK and European household. Below, we disentangle the different effects on household incomes that are incorporated in scenario 1 – global trade liberalisation combined with CAP removal and recycling of CAP revenues into R&D spending.

Trade liberalisation alone would deliver substantial benefits to UK and EU households. Removing global barriers to trade – including those embedded in the CAP⁸ – would boost the standard of living in the average household of four in the UK by the equivalent of £710 (€1,050, \$1,260) per year (by 2015, at 2005 prices), compared to £420 (€630, \$756) per year across the EU as a whole, for a typical household of four.

The CAP is one aspect of the trade barriers that currently exist within Europe. Therefore, the benefits to the UK from CAP reform are, to an extent, already taken account of in the benefits from trade liberalisation more generally. However, the UK government, and the EU, could choose to devote the resources that are currently devoted to supporting the CAP to other, more efficient areas, including R&D and structural spending at the EU level. Were they to do so, that could increase the long-run productive potential of the UK and European economies substantially – perhaps by up to 0.6% (UK) or 0.8% (EU) by 2015. Moreover, since underlying productivity would be higher, so would the marginal return on fixed capital, so the capital stock would increase, boosting GDP even further.

All told, more efficient use of the funds devoted to the CAP⁹ could benefit the average UK household by a further £740 (€1,125, \$1,340) per year, compared to £940 (€1,390, \$1,680) per year across the EU as a whole.

Overall, the average UK household of four could be around £1,450 (€2,175; \$2,600) per year better off in ten years' time, compared to £1,360 (€2,020; \$2,436) across the EU on average, if all global trade were liberalised, including removal of the CAP, and the government and EU monies devoted to the CAP were spent instead on R&D.

But that impact would not be distributed uniformly across all household types. As noted above, lower-income households tend to spend a higher proportion of their income than higher-income households. So, to the extent that trade liberalisation and removal of the CAP would result in lower prices, that would benefit lower-income households disproportionately.

Moreover, the spending of low-income households in the UK is not distributed in the same way across different types of goods and services as in high-income households. In fact, a higher-than-average proportion of the spending of low-income households is devoted to agricultural goods and clothing and textiles – the goods most affected by EU trade restrictions. Trade liberalisation combined with the removal of the CAP would reduce the average price of agricultural products in the UK by 11%, and that of clothing and footwear by 5%. Table 5.1 shows the proportion of total expenditure devoted to each of those types of goods in the UK, by income decile.

⁸ This scenario assumes that the net consumer transfer from the UK to the EU is removed, but the net fiscal transfer remains in place, contributing to overall EU funds.

⁹ This scenario assumes that the net fiscal transfer from the UK to the EU is removed, and the UK spends the entire value of its current contribution to the CAP on R&D.

Table 5.1: proportion of total spending in each income decile devoted to agricultural goods and clothing

Income decile	Proportion of total spending devoted to food, beverages and tobacco, plus clothing and footwear %
Lowest	24
2nd	23
3rd	23
4th	22
5th	19
6th	19
7th	19
8th	18
9th	17
Highest	16
Average	18

Source: Family Expenditure Survey, OEF

The lowest income groups devote nearly a quarter of their total spending to these products, compared with less than a sixth for the highest income groups. That, along with the fact that lower-income groups spend more of their income, means that those groups stand to benefit most from trade liberalisation and the removal of the CAP.

Table 5.2 and chart 5.6 show the impact of trade liberalisation and CAP reform on average incomes in different income groups in the UK. The impacts in this table do not include any impacts from more efficient revenue recycling by the UK government or the EU, which would probably provide a similar proportional boost to the standard of living across all income groups.

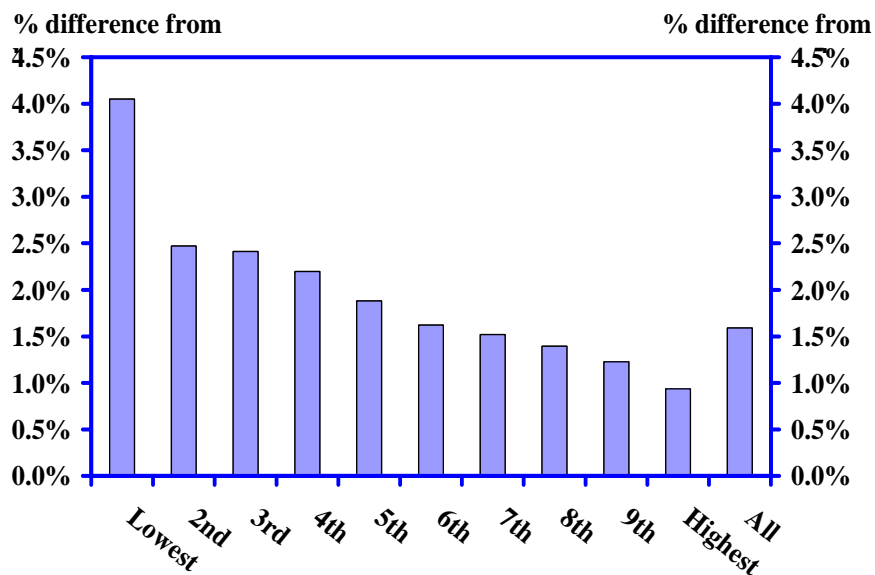
Table 5.2: impact of global trade liberalisation and CAP reform (with revenues recycled into R&D) on average UK household living standards, by income group

Income decile	Impact on average household standard of living (£ per year, 2015)	Proportion of total income
Lowest	1,049	4.0%
2nd	995	2.5%
3rd	1,167	2.4%
4th	1,344	2.2%
5th	1,364	1.9%
6th	1,367	1.6%
7th	1,446	1.5%
8th	1,606	1.4%
9th	1,692	1.2%
Highest	2,163	0.9%
Average	1,450	1.6%

Source: Family Expenditure Survey, OEF

Chart 5.6

Impact of trade liberalisation and CAP removal* on living standards by income decile



Source: OEF

* with revenues recycled on R&D

The impact on the highest-income households in absolute terms is larger than on low-income households: although high-income households spend a lower proportion of their income, because they earn more, the absolute quantity that they spend is still higher than in low-income households.

But the proportional impact is far higher in low-income households, who stand to benefit from trade liberalisation and CAP removal (combined with a more efficient use of the funds currently devoted to the CAP) by a 4% increase in their real standard of living, compared to a 1.6% increase for the average household, and a 0.9% increase for the highest income decile. Restrictions on trade, including the CAP, are a form of regressive taxation, which disproportionately penalise the poorest sections of society.

5.3. Conclusions

Trade liberalisation provides long-term benefits for all participating countries, which should be weighed against the benefits that are perceived as accruing from existing restrictions on free trade. The benefits from trade liberalisation include the following:

- More trade allows underlying patterns of comparative advantage to be more fully exploited, and contributes to a reduction in the average price level, and therefore an increase in real incomes for consumers, and particularly for the real standard of living of low-income households. These are what are known as 'static' gains from trade: effects that shift GDP and real incomes to a new, higher level.
- More trade fosters competition and encourages innovation by exposing domestic firms to the most productive firms in their sector worldwide; it spurs investment by allowing firms to exploit economies of scale and by reducing the price of capital

goods; and it increases the incentives for policy makers to target macroeconomic stability. All of these effects contribute to higher growth rates in the long-run: they are known as 'dynamic' effects.

Restrictions on trade prevent these long-term static and dynamic benefits from being realised.

There are a large number of restrictions on trade in Europe. Removing them would boost European GDP and average incomes – both their levels and their growth rates - significantly in the long term. That is true in the context of global trade liberalisation, a bilateral liberalisation in which the EU removes barriers to imports and its trading partners do the same with regard to exports from the EU, or whether the EU unilaterally removes import barriers without any reciprocal action on the part of its trading partners. Unilateral trade liberalisation works because the long-term gains from trade for all countries come to a significant degree from a reduction in their own import barriers and quotas.

One of the trade restrictions in Europe is the Common Agricultural Policy. This policy restricts imports of agricultural goods into the EU and subsidises EU agricultural exports. The CAP also implies substantial transfers of resources between countries and across sectors within the EU.

Removing the CAP could represent part of a wider trade liberalisation agenda in the EU, and EU countries would benefit from it in the same way. In addition, net contributors to the CAP, via fiscal and consumer transfers, would benefit even more than the average. One such net contributor is the UK: removal of the CAP would benefit the UK more than the EU average, since the net CAP-related transfer into the EU from the UK would be abolished.

But an even bigger benefit, for all EU economies, would come about if the resources devoted to maintaining the CAP were diverted into something that would have a bigger impact on the long-run productivity of the EU economy: something like R&D expenditure, or structural funds to help the poorer EU economies to catch up with developed economies.

Overall, the current barriers to trade in the EU, and the resources dedicated to the maintenance of the CAP, are set to cost the EU some 2% of GDP by 2015, if they remain in place over that horizon. This cost should be balanced against the benefits these restrictions are perceived as delivering.

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ANNEXES**Annex 1: Studies on effects of liberalisation of trade in goods**

Study	Scenario	Approach	Gains (Billions \$US unless otherwise stated)
Frankel and Romer (1999)	1 percentage point increase in the trade to GDP ratio	Econometric	Per capita income increases by 2.0-3.0%.
Wacziarg (2001)	8.5ppt increase in trade measure	Econometric	0.6ppt increase in growth
Shakur, Rae and Chatterjee (2002)	100% liberalisation of Agriculture and Manufacturing tariffs plus removal of all subsidies.	Static CRS and PC	\$82 (USA suffers negative terms of trade)
OECD (2003)	100% reduction by OECD, and reduction by non-OECD to 5% max.	Static CRS and PC	\$98 (LDC \$27)
Lippoldt and Kowalski (2003)	100% reduction in Agriculture and Manufacturing plus trade facilitation	Static CRS and PC	\$173 (LDC \$80)
Hertel et al (2000)	40% cut on protection by in goods and services	Static CRS and PC	\$130 (LDC \$85)
Anderson et al (2002)	Full pre Uruguay round liberalisation goods	Static CRS and PC	\$254 (LDC \$108).
Francois (2001)	50 percent cut in pre Uruguay round trade barriers and 1 percent reduction in trade costs	Static CRS and PC	\$231 – \$370 (LDC \$138 –191)
World Bank (2004)	Abolition of trade barriers	Static CRS and PC	\$291 (LDC \$59)
World Bank (2002)	Abolition of all trade barriers by 2015	Static CRS and PC	\$355 (LDC \$184)
Dee and Hanslow (2000)	100% decrease in Agriculture and Manufacturing	Static MC and IRS	\$133

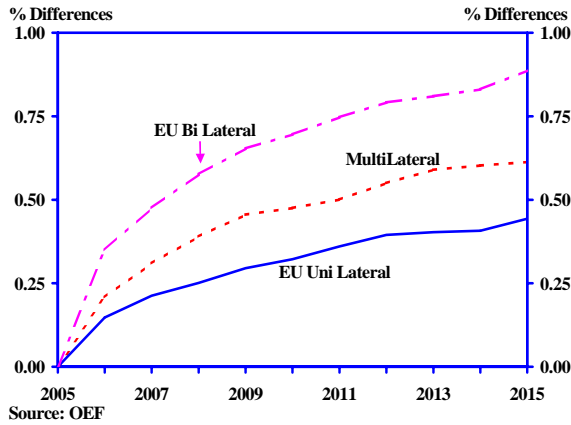
Study	Scenario	Approach	Gains (Billions \$US unless otherwise stated)
Francois, van Meijl and van Tongeren (2003)	Full liberalisation of goods and services	Static MC and IRS	\$367 (LDC \$113)
Brown et al (2002)	33 percent cut in tariffs on goods	Static MC and IRS	\$163 (LDC \$50)
World Bank (2004)	Agriculture and manufacturing cut.	Dynamic	\$518 (LDC \$349)
World Bank (2002)	Full liberalisation of goods trade	Dynamic	\$832 (LDC \$539)
OECD (2003)	100% reduction by OECD, and reduction by non-OECD to 5% max.	Dynamic	\$1212 (LDC \$459)
OEF (2005)	100% reduction in global goods trade restrictions	Static and dynamic	\$1,300

Note: CRS: Constant returns to Scale, IRS is increasing returns to scale, PC is Perfect competition, MC: Monopolistic competition, LDC: Less developed countries

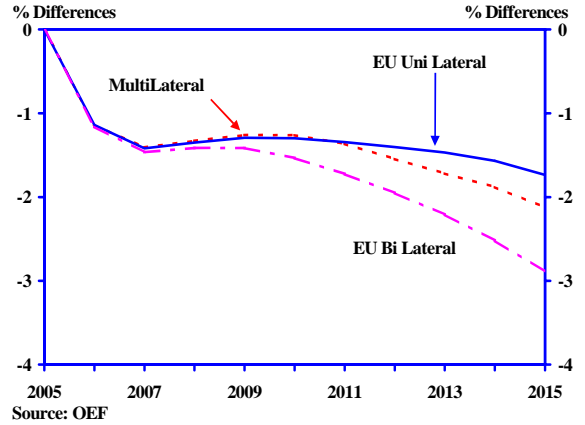
Annex 2: Detailed results

EU15

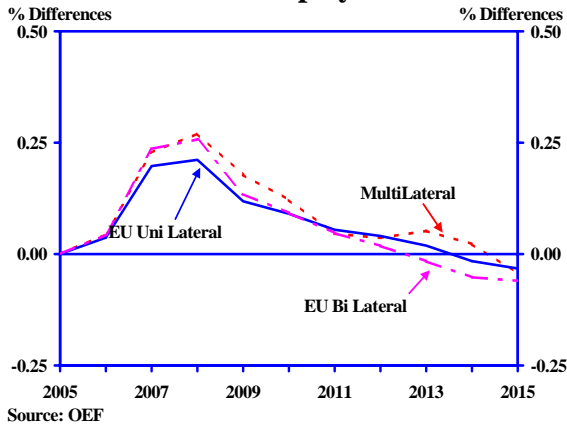
EU15 : GDP



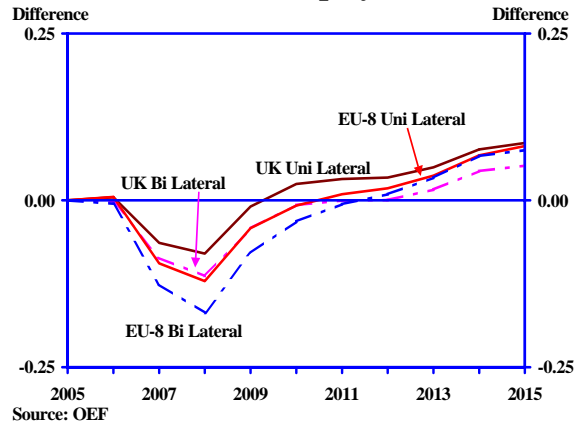
EU15 : CPI



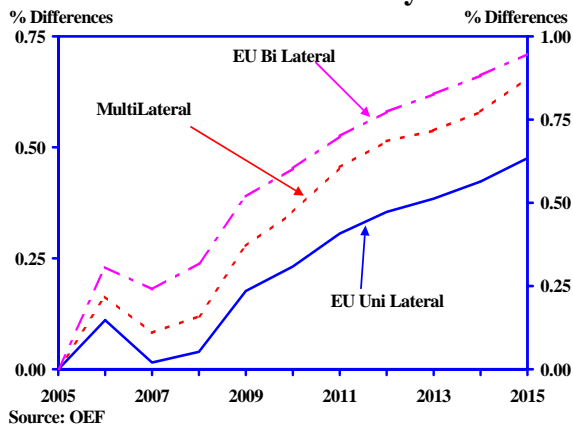
EU15 : Employment



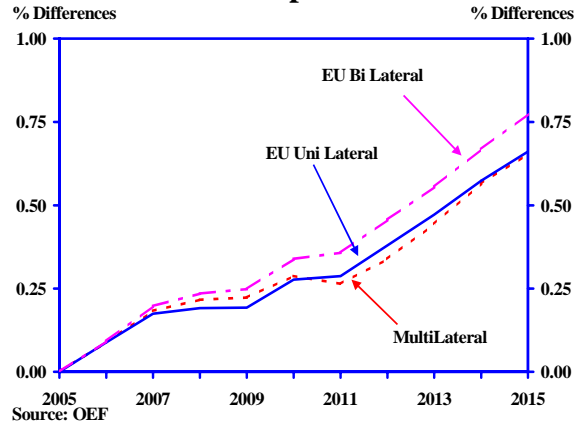
EU15 : Unemployment



EU15 : Productivity

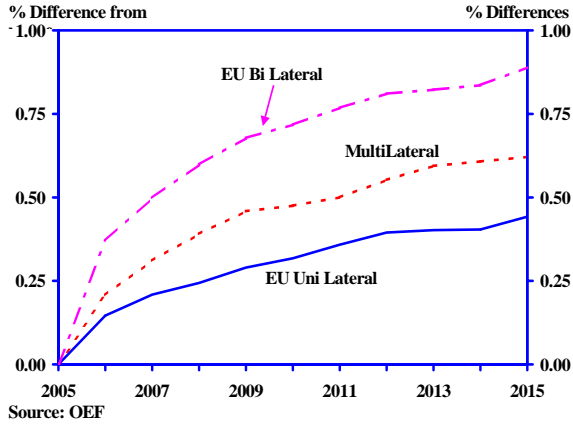


EU15 : Capital Stock

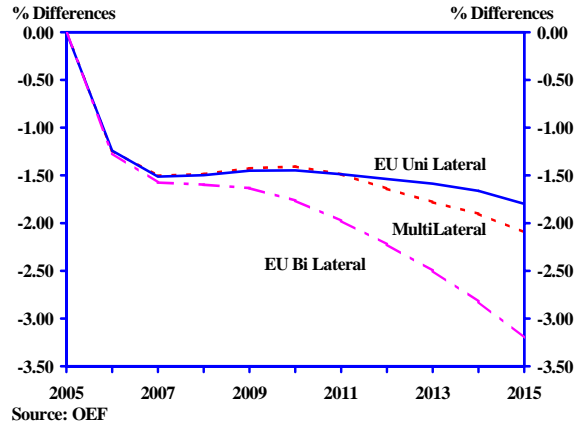


Eurozone

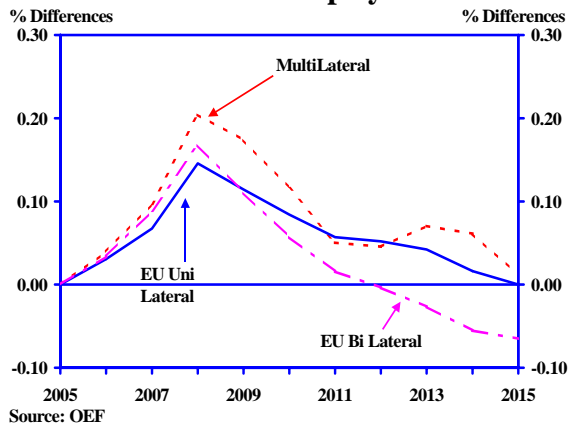
Eurozone : GDP



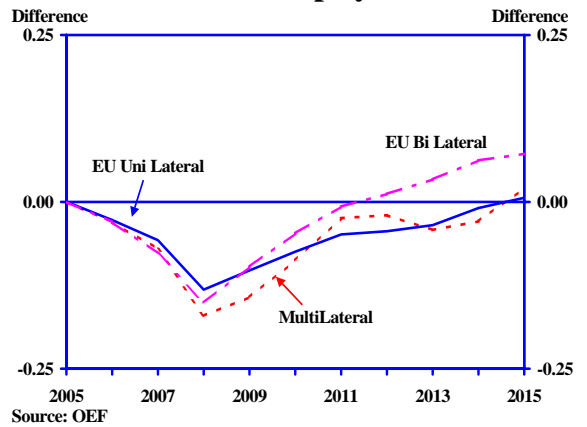
Eurozone : CPI



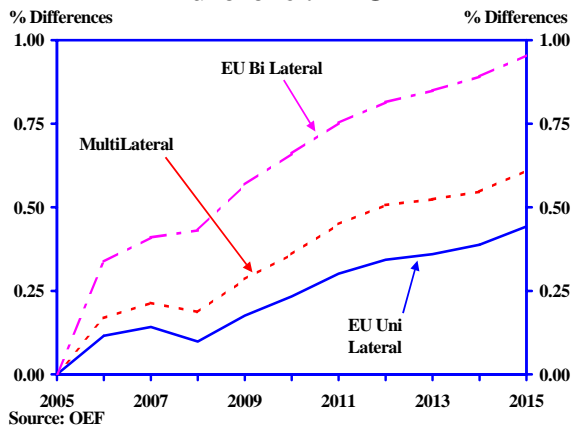
Eurozone : Employment



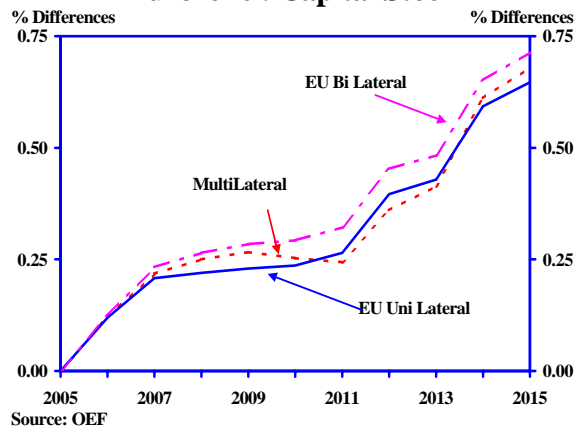
Eurozone : Unemployment rate



Eurozone : PROD

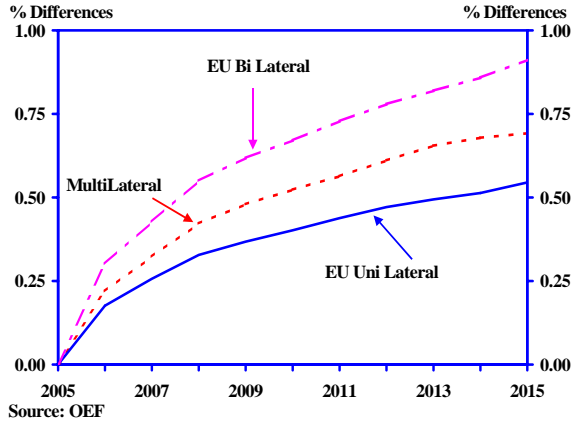


Eurozone : Capital Stock

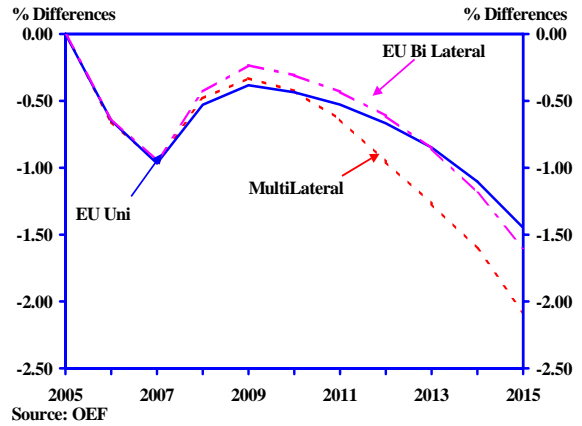


UK

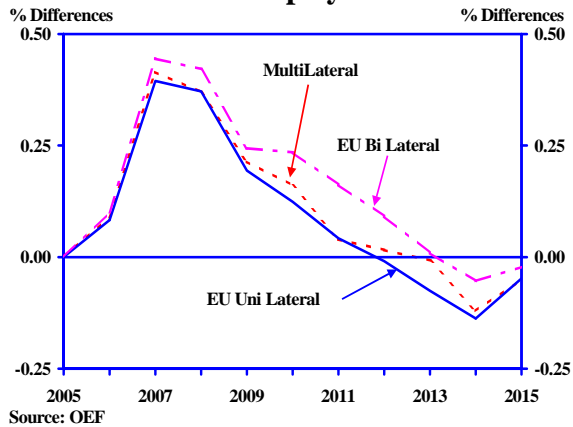
UK : GDP



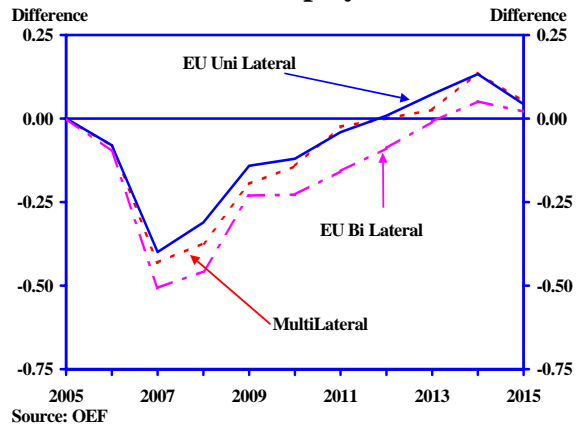
UK : CPI



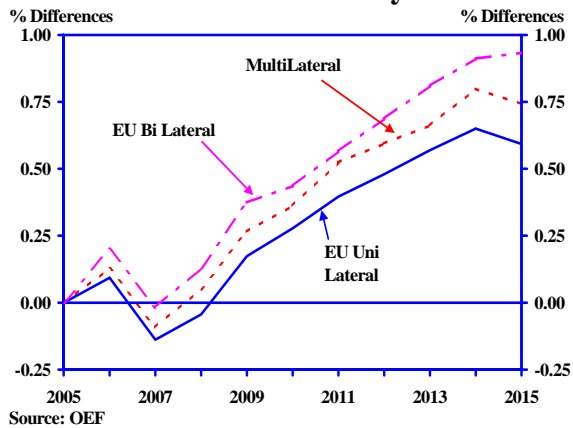
UK : Employment



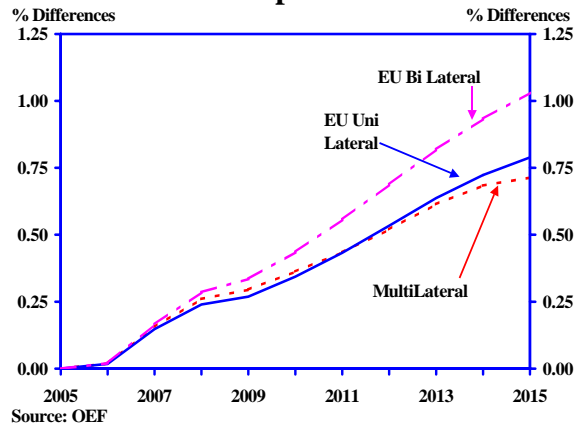
UK : Unemployment



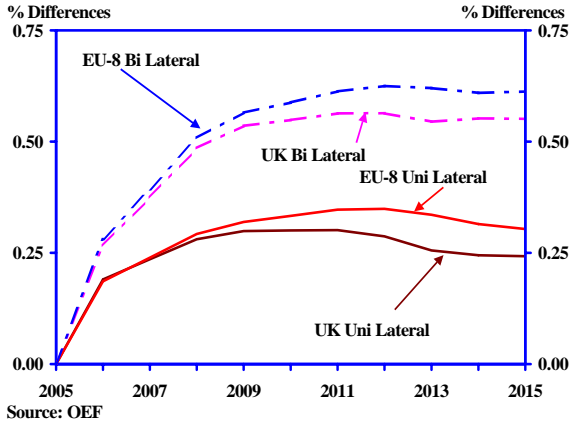
UK : Productivity



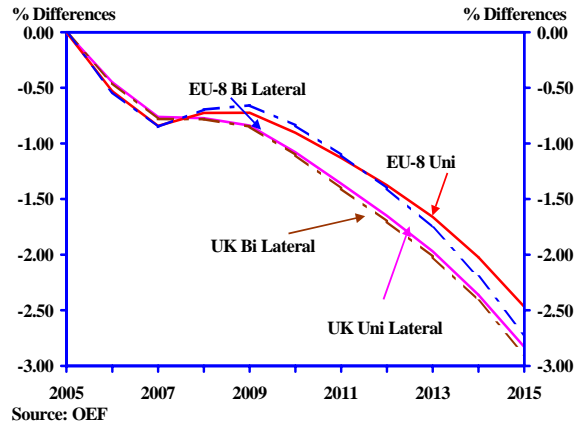
UK : Capital Stock



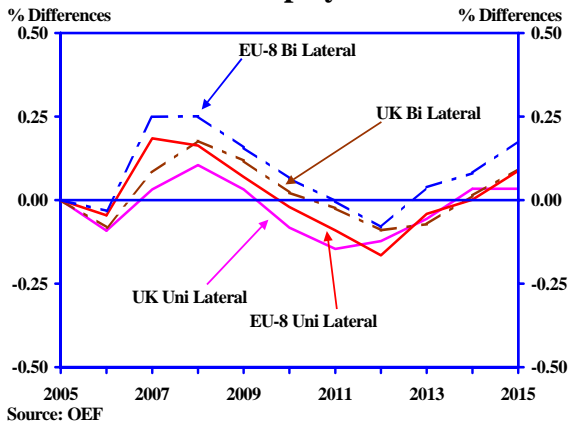
UK : GDP



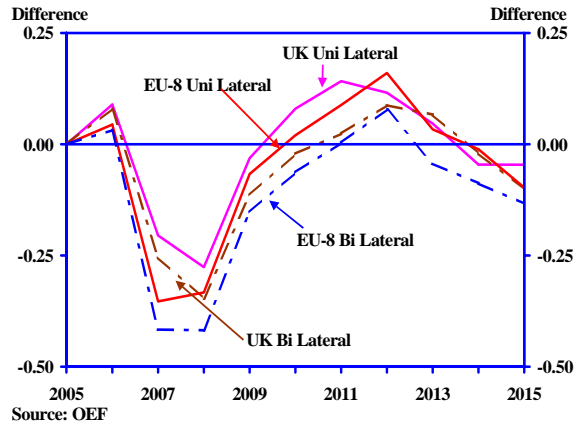
UK : CPI



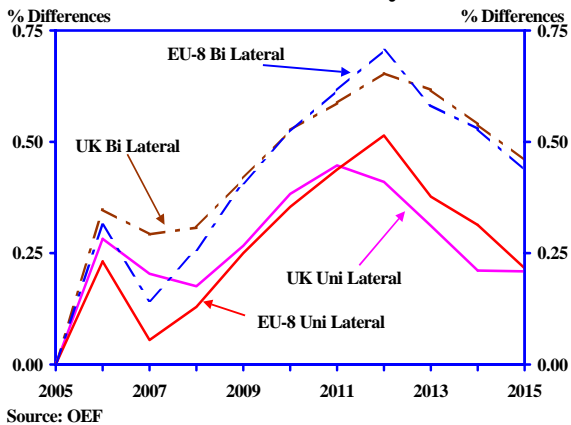
UK : Employment



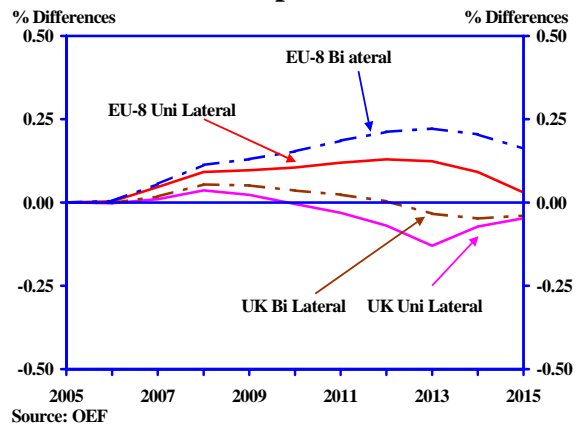
UK : Unemployment



UK : Productivity



UK : Capital Stock



Other countries

Long-run Impact on GDP (% change from base)									
Simulation/Country	Without R&D and CAP effects						With R&D effects and CAP		
	Multi	EU Uni	EU Bil	UK Uni	UK Bil	CAP	Multi	EU Bil	CAP
GLOBAL	2.3	0.2	0.7	0.0	0.0	0.0	2.9	1.3	0.3
EU15	0.6	0.4	0.9	0.0	0.1	0.0	1.9	2.1	1.2
NAFTA	0.8	-0.1	0.4	-0.1	0.0	0.0	0.9	0.5	0.0
ASIA PACIFIC	4.5	0.2	0.7	-0.1	0.0	0.0	5.3	1.4	0.4
LATINAMERICA	1.0	0.2	0.2	0.0	0.0	0.0	0.8	0.4	0.1
AFRICA (ex S.AFRICA)	5.4	0.0	3.5	-0.1	-0.1	0.0	5.7	3.6	0.1
AFRICA	4.1	0.0	2.6	-0.1	-0.1	0.0	4.3	2.8	0.1
EASTERN EUROPE	1.1	1.1	1.3	-0.1	0.0	-0.1	1.2	1.4	0.0
UK	0.7	0.5	0.9	0.2	0.5	0.1	1.6	1.8	1.0
GERMANY	0.5	0.3	0.9	0.0	0.0	0.0	1.9	2.3	1.3
FRANCE	0.5	0.3	0.7	0.0	0.0	-0.1	1.8	2.1	1.2
ITALY	0.3	0.2	0.6	-0.1	-0.1	-0.1	1.7	2.0	1.2
AUSTRIA	1.2	0.6	0.6	0.1	0.1	0.0	2.2	1.7	1.1
BELGIUM	0.4	0.4	1.2	0.1	0.1	0.1	3.8	4.6	1.5
FINLAND	1.0	0.4	0.8	0.3	0.4	-0.1	2.3	2.1	1.2
GREECE	0.3	0.2	0.5	-0.1	-0.1	0.1	1.6	1.8	1.3
IRELAND	1.0	0.6	0.4	0.0	0.8	-0.1	2.1	1.5	0.9
NETHERLANDS	0.3	0.4	1.0	0.0	0.0	0.0	1.9	2.6	1.5
PORTUGAL	4.4	3.5	3.2	0.2	0.5	0.2	4.0	2.9	1.2
SPAIN	0.9	0.9	1.4	0.1	0.1	0.0	2.0	2.5	1.2
DENMARK	0.1	0.6	1.3	0.1	0.2	-0.1	1.5	2.6	1.3
SWEDEN	0.3	0.1	0.6	0.0	0.1	-0.1	0.4	1.5	1.2

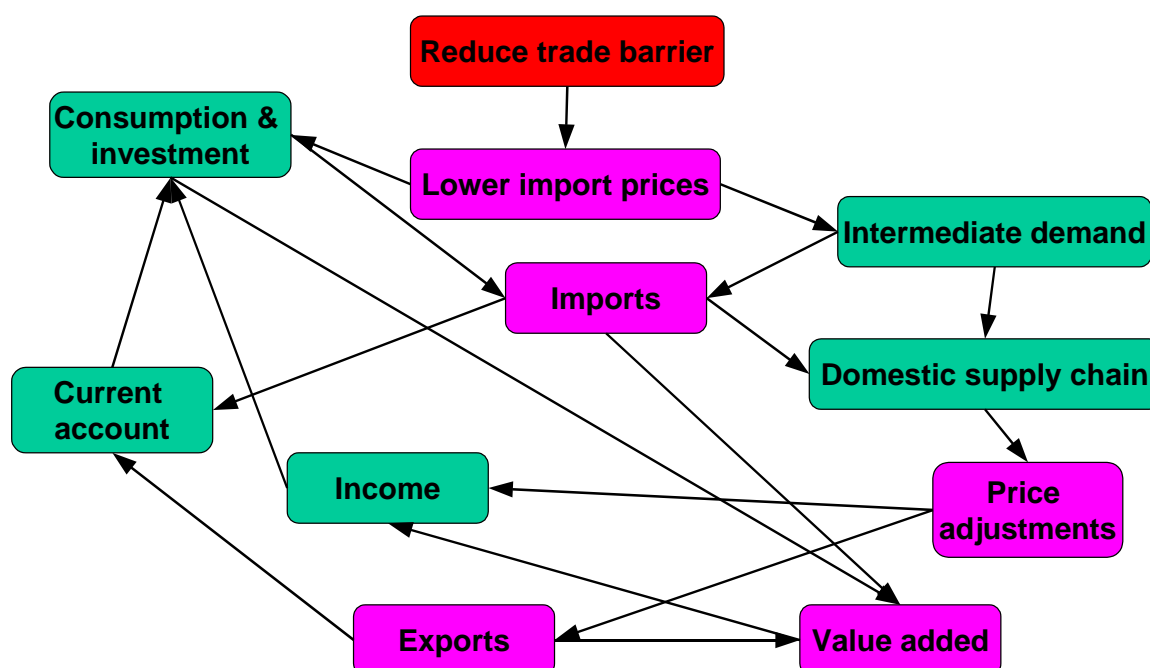
Annex 3: Overview of GTAP

The analysis presented in section 4 is conducted using the model of the General Trade Analysis Project (GTAP) centre at Purdue University and the most recent version of the GTAP database. The Version 6 GTAP data base contains detailed bilateral trade, transport and protection data characterizing economic linkages among regions, linked together with individual country input-output data bases which account for intersectoral linkages among the 57 sectors within each of 86 Regions. GTAP also includes information on applied bilateral tariff equivalents, which incorporates *ad valorem* tariffs, as well as *ad valorem* tariff equivalents of specific tariffs and tariff rate quota measures from CPII/ITC Market Access Maps (MACMaps) database.

The standard GTAP model is a multi region, computable general equilibrium model, with perfect competition and constant returns to scale. Bilateral trade is handled via the Armington assumption. Trade elasticities vary between sectors but are constant across countries and these elasticities are crucial in determining the results of the GTAP model. Other aspects of this model include: the treatment of private household preferences using the non-homothetic CDE functional form, explicit treatment of international trade and transport margins, and a global banking sector which intermediates between global savings and consumption.

A schematic overview of GTAP

Static Impact of Lower Trade Barriers (GTAP)



The transmission mechanisms for a trade liberalisation policy in GTAP are:

- Lower barriers to trade lead to lower import prices – country specific impacts of liberalisation depend on existing level of protectionism and composition of imports
- Changes in relative prices results in households and firms switching demand out domestic produced goods into imports, as well as between importers
- Changes in input prices feeds through the supply chain (the economic structure is important for relative effects across countries)
- Changes in relative producer prices cause adjustments to domestic demand and export demand
- Depending on whether liberalisation is multi-, bi- or unilateral, the effect is reciprocated in the rest of the world.
- Terms of trade and demand shifts impact upon the current account
- Investment determined by global savings

Annex 4: The OEF Global Macroeconomic Model

OEF's Global Macroeconomic Model is a quarterly macroeconometric model which covers 45 economies in detail together with six blocs which account for the rest of world GDP and trade. As well as reflecting all of the different ways in which economies interact with one another – eg through trade, capital flows and exchange rates, global commodity markets etc – the OEF model incorporates a dynamic treatment of the determination of potential output, and hence long-term GDP, in each economy.

Coverage of the Oxford Model

The models can be classified into five groups:

I	II	III	IV	V
US	Sweden	Poland	Denmark	Eastern Europe
Japan	Switzerland	Hungary	Finland	Latin America
Germany	Belgium	Russia	Norway	Africa
France	Netherlands	Czech Rep	Ireland	OPEC
Italy	Spain	Brazil	Portugal	Rest of OECD
UK	Austria	Argentina	Bulgaria	Rest of World
Canada	Mexico	Chile	Croatia	
China	Australia	South Africa	Greece	
	South Korea	Indonesia	Romania	
	Taiwan	Malaysia	Slovakia	
	Hong Kong	Philippines		
		Turkey		
		Singapore		
		Thailand		
		India		

Typical number of variables:

250+	150-200	100-200	25-100
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The model also includes a bloc of world variables such as oil and commodity prices, world GDP and industrial production, OECD average inflation, aggregates covering the euro-11 group etc. The country models (I-IV) are similar in structure but the bigger models incorporate greater disaggregation and more financial sector detail. The trading blocs (V) identify the key aggregates - GDP, consumer prices, exchange rate and current account - for a further 39 countries.

An outline of the Oxford country models

The structure of each of the country models is based on the income-expenditure accounting framework. However, the models also have a much more coherent treatment of supply. In the long run, each of the economies behaves like the textbook description of a one-sector economy under Cobb-Douglas technology in equilibrium. Countries have a natural growth rate, which is ultimately beyond the power of governments to alter, and is the result of population and productivity growth. Output cycles around a deterministic trend, so at any point in time we can define the level of potential output, corresponding to which is a natural rate of unemployment. Firms are assumed to set prices given output and the capital stock, but the labour market is imperfectly competitive. Firms bargain with workers over wages, but they get to choose the level of employment. Countries with high real wages get high unemployment in the long run, and countries with rigid real wages get persistently high unemployment relative to the natural rate.

Inflation is a monetary phenomenon in the long run. All the models have vertical Phillips curves, so expansionary demand policies put upward pressure on inflation. Unchecked, these pressures would cause the price level to accelerate away without bound, and in order to prevent this we have endogenised monetary policy. For the main industrialised countries, the latter is summarised in an inflation target, and interest rates are assumed to move up whenever inflation is above the target rate, and/or output is above potential (a so-called 'Taylor rule'). The coefficients in the interest rate reaction function, as well as the inflation target itself, reflect our perceptions of how hawkish different countries are about inflation.

Consumption is a function of real incomes, real financial wealth, real interest rates and inflation. Investment equations are influenced by "q-theories", in which the investment rate is determined by its opportunity cost, after taking taxes and allowances into account. Countries are assumed to be "small", in the sense that exports are determined by demand and a country cannot ultimately determine its own terms of trade. Consequently, exports are a function of world demand and the real exchange rate, and the world trade matrix ensures adding-up consistency across countries. Imports are determined by real domestic demand and competitiveness.

The Asian crisis clearly illustrated the need to improve information and interlinkages with respect to the SE Asian countries as well as other areas such as Latin America and Eastern Europe. This coverage also needed to focus much more on the balance of payments and financial sectors than is typical in standard small macro models. OEF's emerging market models are designed to look at three critical issues in particular. Firstly, the impact of trade developments in these countries on each other and on the rest of the world. Secondly, the impact the industrialised countries have on the emerging market economies. Thirdly, issues relating to financial risk and capital flows are examined in much greater detail than is common in macro models. Each model has around 70-200 variables with full interlinkage with the rest of the OEF World system.