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Abstract

This paper provides a survey of the implications of post-war European economic integration for trade and income. A particular focus is the impact on the United Kingdom. The literature clearly points to large effects of the EU on trade but is more ambivalent about EFTA. Conventional econometric models suggest that this extra trade meant that the level of income in 2000 in EU countries was about 9 per cent larger. Comparisons of the ex-post income gains of EU membership for the United Kingdom with ex-ante predictions show that the outcome was far better than optimists expected in the 1970s.

Keywords: economic integration; gravity model; growth effects; trade creation

JEL Classification: F15; N74

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1. Introduction

At the end of World War II, it is unlikely that anybody envisaged the extent of European economic integration over the next seventy years. The interwar period was notorious for a backlash against globalization that entailed competitive devaluations, rampant protectionism together with international rivalries that precluded effective economic co-operation. By 2014, the European Union comprised 28 countries with a combined population of about 500 million people of which 18 shared a single currency.

This raises a number of obvious questions which this chapter addresses. These include examining the chronology of economic integration and reviewing which countries participated and what the reasons were for their different decisions. Beyond explaining how European economic integration came about, it is also important to explore what were its economic effects both on the growth of international trade and also to evaluate its implications for levels and rates of growth of incomes.

Making such assessments is, of course, difficult. It requires prediction of the counterfactual, i.e., what would have happened in the absence of integration. The economic models and econometric techniques employed to carry out this analysis today are rather different from those which were commonly used at the time. For example, as we shall see, a modern approach to measuring the costs and benefits of EU membership for the United Kingdom is very different from the methods of the 1970s when the economic implications of the UK's accession to the EEC were hotly debated by British economists. The important developments in economics include thinking in terms of endogenous growth and gains from trade that go beyond welfare triangles while better procedures to address issues arising from endogenous variables and greater sophistication in the use of gravity models are notable advances in applied econometrics.

The chapter proceeds as follows. In section 2, a brief history of the contours of post-war European economic integration is provided while section 3 looks at the related issues of the implications for trade costs and trade volumes and the reasons for the evolution of the membership of the European Union. Section 4 investigates the effects on income levels and growth rates while in section 5 the history of the debate over the UK membership of the EU is reviewed. Section 6 concludes.

2. Economic Integration since 1950

The idea of European integration was, of course, not new at the end of World War II. The 19th century saw important steps towards reductions of policy barriers to trade with the unification of Germany and Italy and a proliferation of commercial treaties (Pahre, 2008). In the interwar period, in the context of the tensions resulting from World War I and its peace settlement, there was considerable interest in greater political integration of Europe which had its most notable manifestation in the Briand Plan for a 'United States of Europe' put forward by the French government in May 1930 with a view to managing the 'German problem' (Weigall and Stirk, 1992) but which was quickly overwhelmed by events.

A successful approach to European economic integration after World War II had to return to the question of how to manage the relationship between (West) Germany and the rest of Western Europe to obtain the benefits of economic cooperation and, linked to this, also to find a politically acceptable form of trade liberalization. The approach that developed was pragmatic and recognized

the continuing central role of the nation state, regulation of trade in key areas like agriculture and the pursuit of industrial policies (Milward, 1992). The design of the European Coal and Steel Community which became operational in 1952 provided an institutional blueprint which could be adapted for wider use. American support for integration as a bulwark against the spread of communism was made concrete through the provisions of the Marshall Plan (Crafts, 2013).

Against this background, this section provides a brief descriptive outline of the process of post-war European economic integration. As Sapir (2011) has reminded us, this can usefully be approached using the ideas of Balassa (1961). Balassa distinguished between different degrees of increasingly deep economic integration working up from free trade area to customs union, in which there is also pooling of sovereignty in a common external trade policy, to common market, within which factors of production can move freely, to economic union, in which some economic policies are harmonized, to complete economic integration, where there is political union with a supra-national authority. The last might be thought of as a 'United States of Europe'. A list of key dates is provided in Table 1.

The Organization for European Economic Cooperation (OEEC) which was established in April 1948 provided 'conditional aid' of about $1.5 billion to back an intra Western European multilateral payments agreement; in 1950 recipients of aid under the Marshall Plan were required to become members of the European Payments Union (EPU). The EPU was a mechanism that addressed the problem of the absence of multilateral trade settlements in a world of inconvertible currencies and dollar shortage. In such circumstances, the volume of trade between each pair of countries is constrained to the lower of the amount of imports and exports because a surplus with one country cannot be used to offset a deficit with another. The EPU provided a multilateral clearing system supplemented by a credit line for countries temporarily in overall deficit. This was facilitated by the United States through conditional Marshall Aid acting as the main 'structural creditor' to address the difficulty that would otherwise have arisen from the prospect that some countries were likely to be persistent debtors.[1]

In 1958 the European Economic Community was formed by the original six countries following the signing of the Treaty of Rome in 1957. The signatories pledged to lay the foundations of 'ever closer union' among the peoples of Europe and Article 2 committed members to form a customs union, to establish a common market and to harmonize policies. Article 3 spelt out what this would comprise including a common external tariff, a common agricultural policy, the abolition of barriers to trade and of obstacles to freedom of movement of capital and labour, a competition policy regime, and the coordination of policies to avoid balance of payments disequilibria. In contrast, the European Free Trade Association was set up in 1960 with the much more limited aim of establishing a free trade area. The EEC customs union was achieved in 1968 but the common market took much longer and awaited the Single European Act which addressed non-tariff barriers to trade, liberalized trade in services and ended capital controls and was (less than fully) implemented from 1992. The Maastricht Treaty of 1992 was a significant step towards economic union and paved the way to a single currency which further reduced trade costs as well as eliminating exchange rate instability; the Euro started in 1999, initially with 11 countries. Complete economic integration is still out of reach.

[1] For a fuller account of the intricate details of the operation of the European Payments Union, see Eichengreen (1993).

Over time, the membership of the EEC/EU expanded considerably through successive enlargements while that of EFTA has shrunk with defections to the EEC/EU. In 1973, the United Kingdom and two of its close trading partners, Denmark and Ireland joined the EU. In the 1980s, the newly democratic Greece, Portugal and Spain acceded and in 1995, following the establishment of the European Single Market, Austria, Finland and Sweden left EFTA to join the EU. In 2004, 8 former communist-bloc transition economies joined the EU together with Cyprus and Malta followed by further transition economies accessions by Bulgaria and Romania in 2007 and Croatia in 2013 while a number of these new members were admitted into the Eurozone soon after accession. These southern and eastern enlargements of the EU, especially the latter, considerably increased the range of income levels within the EU.

3. Implications for Trade

European economic integration has had significant impacts on the extent and direction of international trade. As these implications became apparent, this information influenced non-members' perceptions of the costs and benefits of membership of EFTA versus the EEC/EU. The integration process involved reductions in trade costs and, of course, this was conducive to increasing the volume of trade. However, regional trade agreements by their very nature discriminate between members and outsiders rather than applying most-favoured-nation principles to trade liberalization. The EEC and EFTA were acceptable under Article XXIV of the GATT but involved both trade creation and trade diversion as barriers to trade were unevenly reduced. In other words, while in most cases economic efficiency was increased through the replacement of higher-cost by lower-cost producers, there would be some instances where the opposite was true. This also implies the possibility that there were external losers as well as internal winners and that the overall economic outcome was a net sum of gains partly offset by losses.

Table 2 reports estimates of reductions in trade costs obtained using a gravity model.[2] Trade costs inferred in this way are a composite of all barriers to trade and therefore include the impact of transport costs as well as policy measures. However, the major influence in these decades, and certainly the major difference between these pairs of countries, accrued from the pace of trade liberalization as the protectionism of the interwar period was reversed. Overall, the picture is one of large reductions in trade costs to levels which were much lower than in 1929. It is also very striking that these reductions start sooner among the original 6 EEC members, were delayed for UK and Spain, and were quite modest for pairs of EFTA countries pre-1970, as Table 2 illustrates. Obviously, not all trade liberalization was under the auspices of the regional trade agreements, as is epitomized by the important Spanish reforms of 1959 (Prados de la Escosura et al., 2010). Finally, it is worth noting that on these estimates trade costs stopped falling during the late 1980s.

The volume of international trade increased very substantially between 1960 and 2000, as is shown in Table 3. Overall, the trade of EU15 countries grew faster than world trade and also trade between these countries grew faster than their trade with the rest of the world, although this was not true for all 15 countries where Ireland notably stands out as an exception to this generalization. This raises the question of how far the various components of European economic integration contributed to

[2] Strictly speaking, these estimates are reductions in the cost of international trade relative to domestic trade.

these trade patterns compared with other factors such as income growth or convergence in income levels.

The most widely-used approach to answering questions of this kind is to rely on some version of a gravity model of trade. As has become well-known, there are a number of serious econometric pitfalls which can lead to seriously biased results from such studies and which were prevalent in papers written before the mid-2000s. In what follows, results are reported from what I think are the most convincing papers available but necessarily some of these are of a relatively old vintage and may perhaps need to be treated with a degree of caution.

An analysis of the data in Table 3 using panel estimation of a gravity model by Badinger and Breuss (2004) found that by far the largest reason for the growth of intra-EU trade between 1960 and 2000 was income growth which accounted for about 70 per cent while reduction of tariff barriers accounted for 19 to 26 per cent depending on the specification. Since trade increased massively overall, this means that the tariff reductions had a major impact. The results appear somewhat different from those in Baier et al. (2008) who found that EU membership raises trade between two countries by an average of 100 to 125 per cent after 15 years or an average of 4.8 to 5.6 per cent per year; this implies that the reduction in trade barriers accounted for about 50 to 55 per cent of total intra-EU trade growth.[3] This suggests that EU membership reduces trade costs by more than is captured by tariff reductions per se. Similarly, Baier et al. (2008) compare EU membership with being in either EFTA or the EEA and find that its effects were considerably larger. The EEA effect is only about 1/5th that of the EU while the EFTA effect is similar to the EEA effect but less robust since in some specifications it is approximately zero.

The first step towards greater integration of European trade was the establishment in 1950 of the European Payments Union. The design for European trading arrangements was negotiated, notably with regard to British and French concerns, rather than imposed and the EPU did not match the original American plans for a free-trade customs union and early current-account convertibility (Milward, 1984). Nevertheless, the EPU represented an important success as a mechanism for restoring West Germany to its central role in the European economy (Berger and Ritschl, 1995) and for promoting trade growth. The EPU was a second-best way of reviving European trade and multilateral settlements compared with full current-account convertibility but it speeded up the process by solving a coordination problem. It lasted until 1958 by which time intra-European trade was 2.3 times that of 1950 and a gravity-model analysis confirms that the EPU had a large positive effect on trade levels, especially in the early 1950s when it is estimated to have raised intra-EPU exports by about 30 per cent compared with only about 10 per cent in 1958 (Eichengreen, 1993). As might be expected, the EPU increased trade relatively strongly (about 2 or 3 times more) within its boundaries but its effects on trade between EPU and non-EPU countries were nevertheless positive.

Analyses have also been undertaken for further steps along the path of European integration, notably by Bayoumi and Eichengreen (1995) whose results are summarized in Table 4. They worked with a gravity equation specified in terms of first differences and they found that each of the episodes which they examined entailed trade creation and trade diversion but that the former typically was the larger effect and quite sizeable. The question of the relative size of trade creation

[3] The EU effect does vary quite a lot depending on the precise specification of the gravity equation; the results quoted here come from the authors' preferred specifications.

and trade diversion was intensively studied for the early years of the EC6 through a variety of different methods which came to a consensus that trade creation was much bigger with an average estimate of about 20 per cent of EC imports compared with 3.8 per cent of extra-EC exports.[4] Much the same story comes from a long view with an explicit time-varying econometric specification provided by Straathof et al. (2008). They find that trade diversion was very small, that EFTA had much smaller (and possibly insignificant) effects on trade, and that trade creation rose appreciably after enlargements and with the Single Market.

Sapir (2001) extended these analyses by considering EC-EFTA trade relationships in more detail. He found that both intra-EFTA and intra-EC trade were boosted initially by fairly similar amounts relative to non-preferential trade. However, by the years 1989-92 intra-EFTA trade was estimated to be 1.6 to 1.7 times smaller than intra-EC trade and EC-EFTA trade 1.4 to 1.5 times smaller than intra-EC trade so that the advent of the Single Market appears to have increased trade diversion to the detriment of EFTA members. At the same time, 5 EFTA countries applied for EC membership and Sapir (2001) suggested that this reflected a further 'domino effect', as hypothesized by Baldwin (1993).[5] The domino hypothesis is that whereas initial decisions to participate in trade agreements are often motivated by political considerations, as was the case with the EC6 spurred on by the aim of securing the peace and, notably, with the UK's refusal to sign the Treaty of Rome prompted by issues of relationships with the Commonwealth and the United States, subsequent pressures to join emerge from the trade diversionary effects. The first domino effect was that the UK quickly changed its mind and its application was followed by countries for which the UK was a main trading partner, namely, Denmark and Ireland.

The final step in the reduction of western European trade costs came with European Monetary Union. This is a classic case where more sophisticated estimation procedures have made a huge difference. The currency union effect on trade volumes was initially thought to be very large but better econometrics and the opportunity to examine the actual impact of EMU led to estimates that trade volumes increased by only about 2 per cent (Baldwin et al., 2008) or possibly no effect at all (Berger and Nitsch, 2008; Straathof et al., 2008).

4. Implications for Income Levels and Growth Rates

Economic theory suggests various ways in which economic integration might increase prosperity including both static and dynamic effects. Over time, the range of possibilities that theory allows has increased considerably although most, if not all, of these were understood informally even in the early days. The economic historian might also want to distinguish between impacts that were only achieved through the formation of the European Economic Community (or indeed EFTA) and those which would have accrued through alternative routes to integration (Boltho and Eichengreen, 2008).

In terms of short-run static effects, trade liberalization can improve allocative efficiency and/or productive efficiency, i.e., given existing costs, factors of production are deployed more efficiently or production costs are lowered. The former might result from greater specialization along lines of comparative advantage and the latter from a new found ability to realize economies of scale.

[4] Badinger and Breuss (2011) report that the average of six studies published in the early 1970s was that trade creation raised imports of the EC6 by $9.52 billion and reduced extra-EC exports by $0.32 billion.
[5] Econometric support for the 'domino effect' hypothesis can be found in Baldwin and Jaimovich (2012).

Insofar as freer trade increases competition in product markets (through actual or potential entry), it may have both effects as market power is reduced and price-cost margins fall while managers of firms are pressured to reduce costs to the minimum feasible (principal agent problems are reduced). If trade integration increases the number of varieties that are available to consumers this may also be a source of welfare gains.

With a medium-term perspective, the capital stock adjusts to a higher level of productivity or perhaps a reduction in the price of capital goods and a further increase in the level of output can be expected. Furthermore, as barriers to capital mobility are reduced, relocation of economic activity may be a consequence, possibly based on matching industrial and regional characteristics on a factor endowments basis (Heckscher-Ohlin) or possibly based on market access considerations (New Economic Geography). Writers in the latter tradition envisage a strong possibility that the process of relocation can lead to divergence of income levels with some regions being disadvantaged, as in core-periphery models.

In terms of long-run dynamic effects, according to endogenous growth models, it is possible that the growth rate will rise as a result of economic integration. In a basic AK model if investment (or more generally the rate of growth of the capital stock) responds positively there is no tendency for diminishing returns to erode this initial effect so there is a 'permanent' impact on growth. Perhaps more plausibly, if a larger market and/or more competition in product markets ensues from economic integration this may raise the rate of innovation and TFP growth.

The simplest approach to measuring increases in (equivalent) income from European economic integration is to calculate welfare-triangle gains from improved allocative efficiency in the tradition of Harberger. An approximation is to use the formula $0.5*\Delta t*\Delta TC$ where t is the tariff rate and TC is the volume of trade creation. An early example was Balassa (1975) who estimated that trade creation in manufactures in 1970 for the original EEC6 was $11.4 billion, that the average tariff reduction was 12 per cent and the welfare gain was $0.7 billion = 0.15 per cent of GDP.[6] A more recent calculation for the impact of the European Single Market was that the welfare-triangles gain from reduced trade costs would be about 0.5 per cent of EU GDP (Harrison et al., 1994).

Balassa recognised that there would be other probably much more important impacts on income levels from competition, economies of scale and induced capital formation but did not really have any convincing way to estimate these. Owen (1983) provided an estimate of $8.5 billion for the gains from competition and economies of scale in manufactures for the EEC6 in 1970 based on extrapolating from a small sample of micro-level investigations; together with the welfare triangle gain the total is 1.8 + 0.15 = 1.95 per cent of GDP. A conventional, albeit crude, allowance for capital stock adjustment might raise this to about 2.8 per cent of GDP.[7]

Harrison et al. (1994), working with a CGE model that allows for increasing returns in some sectors, changes in price-cost mark-ups and capital stock adjustment projected that competition and scale effects resulting from the Single Market would raise EU GDP by 0.7 per cent and the total impact on

[6] Similar results would be obtained given the formula for any reasonable estimate of trade creation; the welfare gain is always small relative to GDP. Insofar as the Common Agricultural Policy entailed trade diversion, there would be a welfare triangles loss to offset the trade creation gain.

[7] This calculation assumes a Cobb-Douglas production function with a constant capital to output ratio in equilibrium. Then the total impact on output is $\Delta A/A/(1 - \alpha)$ where $\alpha = 0.3$ is the share of capital in income.

EU GDP of the Single Market would be 2.6 per cent.[8] Ex-post studies have suggested similar effects; for example, Ilzkovitz et al. (2007) estimated GDP had been raised by 2.2 per cent by 2006. Establishing a true Single Market in services could probably double this impact by reducing barriers to entry but governments still have considerable discretion to maintain these barriers notwithstanding the Services Directive (Badinger and Maydell, 2009). A recent estimate is that this implementation of this directive has so far raised EU GDP by about 0.8 per cent whereas full implementation would triple this (Monteagudo et al., 2012).[9]

These detailed studies of the impact of the original common market and the later single market suggest each had similar useful but not spectacular impacts on the level of income. Clearly, however, they do not encompass all the economic integration that has taken place and they do not necessarily capture all the impact it has had – for example, they are noticeably silent on dynamic effects. Alternative approaches which attempt to capture a wider range of impacts, albeit without identifying these individually, rely on regression techniques to identify the impact of economic integration on income or changes in income. Three variants of this approach that offer useful results are the following.

First, as noted by Boltho and Eichengreen (2008), the well-known paper by Frankel and Romer (1999) can be used to postulate a relationship between the ratio of total trade exposure (exports + imports)/GDP and the level of GDP. A conventional version of this might be to project that an exogenous 1 percentage point increase in trade exposure would raise GDP by 0.5 per cent.[10] Applying this to the EU in 2000 on the basis of the estimate by Baier et al. (2008) that the EU 'shock' had raised intra-EU trade by 100 to 125 per cent, from a counterfactual intra-EU trade exposure of 15.6 to 17.3 per cent of GDP to the actual intra-EU trade exposure of 34.6 per cent. The estimated impact on EU GDP is an increase of 8.6 to 9.5 per cent.

Second, growth regressions can be used to estimate the effect of European integration on income growth. Here the most useful paper is Badinger (2005) which made an index of the level of European integration for each EU15 country from 1950 to 2000 and in a panel-regression setting with suitable controls examined its relationship with growth and with investment. The integration index which took account both of GATT liberalization and European trade agreements shows that 55 per cent of the protectionism of 1950 was eliminated between 1958 and 1975, a figure which then rose steadily to 87 per cent by 2000. The results of the regressions were that changes in integration were positive for growth but that the level of integration had no effect and that changes in integration had somewhere between half and three quarters of their impact through investment with the remainder coming from changes in TFP. Across the EU15 as a whole GDP was estimated to be 26 per cent higher than if there had been no economic integration after 1950 with a narrow range from 21.6 per cent for Sweden to 28.9 per cent for Portugal. The peak effect on the level of income resulting from the rapid liberalization prior to 1975 would have raised the growth rate over the period by about 1 per cent per year – impressive but only about a quarter of the western

[8] This is well below the optimistic projections of the Cecchini Report issued by the European Commission which projected 4.8 to 6.4 per cent of GDP before any impact from capital stock adjustment but is in line with other academic ex-ante studies (Badinger and Breuss, 2011, Table 14.3).

[9] This does not include any impact from capital stock adjustment.

[10] Frankel and Romer (1999) offered a range of estimates of this coefficient with 0.5 at the bottom end. A similar value was used by HM Treasury in its assessment of the effects on the UK economy of joining the Euro.

European growth rate in a period of rapid catch-up growth (Crafts and Toniolo, 2008). The implication of the results in Badinger (2005) is that European economic integration has had a sizeable impact on the level of income but has not had a permanent effect on the rate of growth. This amounts to rejecting the endogenous growth hypothesis and is line with recent investigations of the impact of trade liberalizations using difference-in-difference approaches (Estevadeordal and Taylor, 2013).

Third, a new approach in the style of 'with-without' comparisons is available in the synthetic counterfactuals method of Campos et al. (2014). This compares growth in each post-EU accession country with growth in a weighted combination of other countries which did not accede and which are chosen to match the accession country before its entry to the EU as closely as possible. Results for countries which joined the EU between 1973 and 1995 are reported in Table 5. For these countries, the average impact of EU membership after 10 years is estimated to have been a 6.4 per cent income gain but with a wide range between Portugal at +16.5 per cent and Greece at -17.3 per cent.

The different experiences of Greece and Ireland after joining the EU raises the issue of whether European economic integration has been conducive to convergence or divergence of income levels across the EU and whether the common market has encouraged spatial concentration or dispersion of economic activity as firms have a wider choice of locations and capital stock adjustments take place partly across international borders.

Table 6 reports the results of convergence regressions for the set of European regions for which data exist for 1950 It provides evidence of unconditional convergence both before and after 1973 but in the latter period this is quite weak. Whilst peripherality per se does not seem to retard growth, population density is an advantage. Table 7 reports regressions similar to those performed in Venables (2005) for a common set of regions across three cross-sections. The results show that the level of real GDP per person was always higher in more densely populated regions and was always lower in regions relatively far away from the centre of Europe. Interestingly, however, both the disadvantages of peripherality and the advantages of density were greater in the disintegrated Europe of the 1950s. Reductions in the dispersion of real GDP per person across these European regions have reflected reductions in core-periphery inequality between countries rather than within countries with the Theil index of inequality of real GDP per person between countries falling from 0.055 in 1950 to 0.013 in 1973 and 0.002 in 2005 but the within country index changing little from 0.036 in 1950 to 0.034 in 1973 and 0.038 in 2005.

New economic geography models suggest that reductions in trade costs may lead to industry to move to locations with proximity to markets because they permit realization of economies of scale or because it is advantageous to locate close to either customers or suppliers. Empirical evidence suggests that market access has mattered for industrial location, becoming more important for industries with strong backward and forward linkages, but nevertheless only a subset of industries have become more spatially concentrated (Midelfart-Knarvik et al., 2000). A reason for this may be the very low level of international migration within the EU (Puga, 1999). Overall, EU countries have become slowly more specialized in production over time as economic integration has progressed with the average of the Krugman specialization index across the EU15 rising from 0.409 in 1970-3 to

0.445 in 1994-7, although at the end of the 20th century industries in the EU remained much less spatially concentrated than in the United States (Midelfart et al., 2003).

European integration has been accompanied by the patterns of spatial disparity highlighted by the new economic geography. Not only are there are agglomeration effects on productivity (Ciccone, 2002) but there is also clear evidence that market access, which, of course, exhibits a strong core-periphery profile, has a strong positive impact on levels of regional GDP per person. Breinlich (2006) found a crude elasticity of about 0.25 or about 0.07 controlling for human and physical capital stocks and density; using the latter estimate implies that moving the Algarve to Cologne would raise its labour productivity by 20 per cent.

It was about 15 years after acceding to the EU that Irish economic growth took off into very rapid (and belated) catch-up growth during its Celtic Tiger phase which lasted till the early 21st century. This success clearly was predicated on being within the EU but also was based on the development of appropriate supply-side policies to exploit this opportunity. Strong growth in employment was a key feature of the period as the NAIRU fell dramatically and migration flows reversed. Rapid TFP growth was underpinned by a large ICT production sector based on FDI.

A central aspect of the Celtic Tiger economy was the prominence of foreign direct investment (FDI). 'Export-platform' FDI transformed Ireland's revealed comparative advantage, dominated production in high-skill and knowledge-intensive sectors, and by 2000 accounted for almost half of manufacturing employment and 80 per cent of manufacturing exports (Barry, 2004). In terms of industrial policy, Ireland developed a sophisticated system to select projects for financial support through the Industrial Development Agency and made investments in telecommunications and college education that were conducive to FDI (Buckley and Ruane, 2006).

Nevertheless, the most important factor in Ireland's success in attracting FDI was the combination of its corporate tax regime together with EU membership (Slaughter, 2003). It is clear from the literature that the semi-elasticity of FDI with respect to the corporate tax rate is quite high, perhaps of the order of -2.5 or even -3.5 (OECD, 2007). At the start of the Celtic Tiger period the Irish tax rate for manufacturing FDI was easily the lowest in Europe and a study by Gropp and Kostial (2000) suggested that the stock of American manufacturing investment in Ireland was about 70 per cent higher than if Ireland had had a tax rate equivalent to the next lowest in the EU. As trade costs fell, the impact of low taxes on FDI appears to have been accentuated significantly and their relative importance for location compared with proximity to demand increased (Romalis, 2007).

5. Implications of EU Membership for the United Kingdom: Changing Perceptions

The UK's membership of the EEC or EU has always been somewhat controversial among British economists and politicians. Within 2 years of accession, the UK held a referendum in 1975 to decide whether to stay in and, if the Conservatives win the 2015 General election it is expected that a similar referendum will be held in 2017. This debate, and its evolution through time, deserves some attention. At the same time, it is interesting to compare the analyses made by economists before and after entry. The latter were made with superior information, obviously, but also with more sophisticated economics. The standard approach in recent years to evaluating the impact on trade and growth of the UK withdrawing from the EU or of the UK staying out of the Euro is rather different from the 1970s' approaches to measuring benefits and costs of membership.

Ex-ante analyses of the economic effects of UK entry into the EEC paid a lot of attention to the expected negative impact on the balance of payments, the downsides of the Common Agricultural Policy and net UK budget payments which were regarded as definite costs (albeit of somewhat debatable magnitude) to be borne in return for the potential (but unknowable) benefits in the industrial sector of economies of scale and greater competition.[11] The latter were seen as conducive to reductions both in market power and in X-inefficiency. The CAP (and the associated budgetary contributions) was relatively onerous for the UK as a food importer with a small agricultural sector. It was agreed that the welfare triangle gains from trade creation would be quite small. The welfare implications of predicted balance of payments effects were calculated via the terms of trade effects of the exchange rate adjustment required to correct a deficit using the Marshall-Lerner conditions. The findings of some well-known papers of the time are summarized in Table 8.

Ex-post analyses found similar results in terms of the direction of the effects but in some respects quite different magnitudes, notably, with regard to the balance of payments deficit in manufacturing (Winters, 1987) and the welfare gains from competition, even though analysis of these gains was restricted to the static effects of reductions in market power (Gasiorek et al., 2002). Both these papers used considerably more advanced methods to compute their estimates than had the ex-ante studies.[12] Adding up all the numbers in the ex-post column seems to give a more optimistic assessment of the net welfare impact of the UK's entry into the EEC – the gamble seems to have paid off with a larger payments deficit in manufactures being more than offset by greater benefits from competition. In fact, the estimates by Campos et al. (2014) reported in Table 5 of medium-term growth in the UK compared with a synthetic counterfactual (an 8.6 per cent rise in GDP) suggest that 'dynamic gains' not included in Table 8 rewarded this gamble handsomely.

However, in the 1970s a vocal group of economists argued that balance of payments deficits were much more costly to correct than orthodox economics assumed. In a world of relatively immobile international capital which seemed to exclude financing such deficits through the capital account this loomed large. The Cambridge Economic Policy Group model embodied an assumption of real wage rigidity which precluded the use of devaluation and required (permanent) reductions in aggregate demand to hold down imports. On this analysis, the welfare cost was about 3 times the balance of payments deficit (Bacon et al., 1978).[13] Thus, the overall impact of entry was seen by these economists as adverse, especially once the manufactured trade deficit had become clear (cf. Table 8).

Indeed, the CEPG argument went further than this since it embraced the need for permanent import controls to allow expansion of aggregate demand and avoid a balance of payments constraint on growth. This was plainly incompatible with the membership of the EEC and implied the need for exit. Analyses of this kind became popular with advocates of an 'alternative economic strategy' on the left of the Labour Party which held considerable sway. In 1981, the Labour Party adopted an

[11] The 'estimates' in column (2) of Table 8 were admitted by Williamson (1971) to be largely guesswork while the authors of column (1) did not even attempt any such estimates, merely noting how large these effects would have to be to offset the net welfare losses from the other elements of their estimates.

[12] Winters (1987) used a fully-articulated AIDS approach to modelling the demand for imports and Gasiorek et al. (2002) employed a computable general equilibrium model with imperfect competition and scale economies in some manufacturing sectors.

[13] Rather than about 1/3rd, as in Table 8; the assumption of real wage rigidity has no empirical validity and was soon rejected by mainstream economists, see, for example, OECD (1989).

official policy of withdrawal from the EEC and this was in its manifesto for the 1983 election. The rationale was to permit greater government intervention in the economy.

In retrospect, however, it seems clear that abandoning protectionism rather than embracing import controls served the British economy well, especially through favourable impacts on productivity performance consequent on stronger competition and entry threats in product markets. The average effective rate of protection fell from 9.3% in 1968 to 4.7% in 1979, and 1.2% in 1986 (Ennew et al., 1990). Trade liberalization in its various guises reduced price-cost margins (Hitiris, 1978; Griffith, 2001). A difference-in-differences analysis found that there was a substantial boost to productivity in sectors which experienced a large reduction in protection (Broadberry and Crafts, 2011).[14]

The welfare gains from the effect of EEC entry on competition were probably considerably bigger than those captured by the Gasiorek et al. (2002) model since reductions in market power effectively addressed long-standing impediments to productivity performance from weak management and industrial relations problems in British firms. Nickell et al. (1997) estimated that, for firms without a dominant external shareholder (the norm for big British firms at this time), a reduction in supernormal profits from 15 to 5 per cent of value added would raise total factor productivity growth by 1 percentage point. The 1980s saw a surge in productivity growth in unionized firms as organizational change took place under pressure of competition (Machin and Wadhwani, 1989) and de-recognition of unions in the context of increases in foreign competition had a strong effect on productivity growth by the late 1980s (Gregg et al., 1993). This goes a long way to explain the boost to growth found by Campos et al. (2014).

The contrast with today's economists' evaluations of the implications of a possible British exit from the EU is striking. This is partly because concern with (and measurement of) balance of payments effects has disappeared. Beyond this, however, the arguments relating to trade are about what future will offer more liberalization rather than whether trade liberalization will have positive effects well in excess of a welfare-triangles gain or whether protectionism could be good for growth. That said, new issues have come to the fore in political debate including issues relating to EU-imposed regulation and to immigration which did not feature 40 years ago.

Table 9 displays estimates of static welfare effects of a UK exit from the EU made by Ottaviano et al. (2014). These are based on a 'short-cut' method which avoids the need for estimation of a structural model but allows monopolistic competition and scale effects to be accommodated. Likely changes in tariffs and non-tariff barriers to trade are taken into account both in terms of the initial situation and the possibility of being excluded from further reductions in NTBs within the Single Market. This is seen as the biggest downside of exit and would contribute the lion's share of the welfare loss of 3.09 per cent in the pessimistic scenario.[15]

[14] Sectors which experienced a reduction of 10 percentage points or more in the effective rate of protection saw an additional increase of 1.4 percentage points in the rate of labour productivity growth in 1979-86 over 1968-79.

[15] An attempt to model the implications of complete removal of barriers to trade within the EU suggested that this could provide a welfare gain to the UK of 7 per cent of GDP (Aussilloux et al., 2011).

As has become standard in the literature on the impact of trade with the EU on the British economy, these authors also provide a variant of a Frankel and Romer (1999) type estimate which potentially captures a wider array of effects. This is based on the assumption that the reduction in trade associated with exit from the EU would be as predicted by the difference between being in EU and in EFTA in the gravity model of Baier et al. (2008). This is taken to reduce trade with the EU by 25 per cent or overall trade by 12.6% and income by 6.3 to 9.5 per cent.[16]

A case in favour of British exit has been made by Le et al. (2011). They note that the EU still imposes barriers against imports through the common external tariff and the CAP and argue that the UK could benefit by leaving the EU and adopting a policy of unilateral free trade.[17] The static welfare gains are put at 2.5 to 3.5 per cent of UK GDP. However, a bigger benefit might accrue through escaping possible future labour-market regulations which would raise unemployment. An illustrative calculation is provided that this could have a levels-effect impact of 6.4 per cent of GDP.

These days, Euro-sceptic voices in the UK frequently raise the issue of excessive EU regulation and the costs that it imposes on the British economy. However, this case has not yet been persuasively made. Gaskell and Persson (2010) reviewed the regulatory impact assessments of this legislation from 1998 onwards and found that overall it averaged a benefit-cost ratio of 1.02. It should also be noted that the UK has persistently been able to maintain very light levels of regulation in terms of key OECD indicators such as PMR (Product Market Regulation) and EPL (Employment Protection Legislation) for which high scores have been shown to have detrimental economic effects (Barnes et al., 2011). In 2013, the UK had a PMR score of 1.09 and an EPL score of 1.12, the second and third lowest in the OECD, respectively.

Unlike the 1970s, immigration from the EU has become a controversial issue in the UK recently. Partly, this may be because difficult economic times generate populist responses but it also reflects a much greater volume of migration and the accession of countries in which wages are much lower to the EU. The stock of EEA immigrants to the UK rose from 0.9 to 2.8 million between 1995 and 2011 of whom 0.4 million were employed in 1995 and 1.5 million in 2011. Despite its bad press, the economic impact of this immigration was most probably positive. Research suggests that the increase in the migrant share of the UK labour force between 1997 and 2007 might have raised labour productivity of domestic workers through spillover effects by between 0.27 and 0.40 percentage points (Rolfe et al., 2013) while a detailed study of the fiscal effects found that, contrary to much political discourse, EEA immigrants made a net fiscal contribution estimated at £28.7 billion (at 2011 prices) between 2001 and 2011 (Dustmann and Fratinni, 2014).

In sum, it seems that the UK has experienced welfare gains from its membership of the EEC/EU in excess of the expectations of even the optimists of 40 years ago. As the analysis of the economic impacts has developed, not only the magnitude but also the scope of the economic benefits of EU membership has become clearer. It is also clear that belonging to the EU has increased trade by much more than belonging to EFTA, originally the preferred form of integration for the UK with its

[16] This is based on a guess at the elasticity of income to trade of 0.5 or 0.75 following the approach proposed by Feyrer (2009). If this calculation is put on a similar basis to those in section 4 above, there would be a reduction in the trade to GDP ratio of about 8 percentage points with an implied income loss of about 4 per cent of GDP.

[17] Both Bradford (2003) based on a price-gap methodology and Fontagne et al. (2005) using a gravity model approach found that EU external barriers to trade were quite substantial around the turn of the century.

antipathy to 'ever-closer union'.[18] This suggests that the strongest case for a UK exit is political and relates to issues of sovereignty.

6. Conclusions

European economic integration especially through the EEC/EU has had a strong impact on trade flows. The effects of EU membership on trade appear to exceed that would have accrued from tariff reductions alone suggesting that this entails a deeper level of integration than would have accrued through a free trade area. This is also borne out by the evidence of much stronger trade creation from EU compared with EFTA membership. The process of European economic integration gathered momentum in part from 'domino effects' which resulted in EFTA members acceding to the EU to enhance their access to EU markets.

There is very good reason to believe that European economic integration raised income levels significantly but the there is little evidence in favour of the hypothesis that growth rates were permanently increased. The income gains are much greater than would be expected on the basis of a narrow welfare triangles approach and entail higher levels of productivity as competition was strengthened and investment adjusted to new opportunities. While it is clear that good market access (a relatively central location) has been favourable for achieving higher income levels, at the same time over the whole postwar experience of integration there has been evidence of catch-up and convergence in income levels between countries and 'peripheral' countries like Ireland which adopted well-designed supply-side policies have been able to take advantage of EU membership to stimulate periods of rapid growth.

The UK has clearly benefited in economic terms from EU membership. Indeed, the welfare gains it has obtained are much bigger than were expected even by optimists at the time of entry in the 1970s. In particular, increased competition in product markets was important for British productivity performance which had suffered under the protectionism of the early postwar decades. The problem for the UK is that, while economic integration under EU auspices has delivered gains which exceed those it would have obtained from staying in EFTA, the price paid in terms of reduced sovereignty is regarded by many British voters as too high.

[18] For example, using Baier et al. (2008, Table 5, equation1) both countries being in EU raises trade by $e^{0.65}$ -1 = 92% whereas both countries being in EEA raises trade by $e^{0.19}$ -1 = 21%.

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Table 1. A Chronology of Economic Integration of Markets

1950	European Payments Union starts
1952	European Coal and Steel Community established
1958	European Economic Community starts with 6 members (Belgium. France, Italy, Luxembourg, Netherlands, West Germany)
1958	European Payments Union discontinued
1960	European Free Trade Association starts with 7 members (Austria, Denmark, Norway, Portugal, Sweden, Switzerland and UK)
1962	Common Agricultural Policy begins
1968	EEC Customs Union completed and Common External Tariff established
1970	Iceland joins EFTA
1972	EEC-EFTA free trade agreements signed
1973	1st Enlargement: Denmark, Ireland and UK join EEC; Denmark and UK leave EFTA
1981	2nd Enlargement: Greece joins EEC
1986	3rd Enlargement: Portugal and Spain join EEC; Portugal leaves EFTA; Finland joins EFTA
1987	Single European Act comes into effect
1990	German unification: former East German lands join EEC
1991	Liechtenstein joins EFTA
1992	EEC and EFTA establish European Economic Area
1993	Maastricht Treaty establishing European Union comes into effect
1995	4th Enlargement: Austria, Finland and Sweden join EU and leave EFTA
1999	Eurozone established with 11 member countries (Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain)
2001	Greece joins Eurozone
2004	5th Enlargement: 10 countries join EU (Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia)
2007	6th Enlargement: Bulgaria and Romania join EU
2007	Slovenia joins Eurozone
2008	Cyprus and Malta join Eurozone
2009	Slovakia joins Eurozone
2011	Estonia joins Eurozone
2013	7th Enlargement: Croatia joins EU as 28th member
2014	Latvia joins Eurozone
2015	Lithuania joins Eurozone as 19th member

Table 2. Trade Costs

	Germany-France	*Germany-Italy*	*Spain-France*	*UK-France*	*UK-Italy*	*UK-Norway*
1929	0.99	1.10	1.18	1.00	1.22	0.87
1938	1.33	1.12	2.26	1.21	1.54	0.98
1950	1.12	1.27	1.55	1.22	1.36	0.98
1960	0.91	1.01	1.52	1.22	1.25	0.91
1970	0.73	0.79	1.24	1.10	1.21	0.90
1980	0.55	0.61	0.89	0.74	0.86	0.69
1990	0.53	0.56	0.74	0.70	0.84	0.77
2000	0.61	0.66	0.70	0.75	0.90	0.88

Note: trade costs are inferred using a gravity model and comprise both policy and non-policy barriers to trade; 1929-38 estimates are not strictly comparable with those for 1950-2000; estimates that include Spain are for 1939 not 1938.

Source: data underlying Jacks et al. (2011) generously provided by Dennis Novy

Table 3. Volume of Exports in 2000 (1960 = 100)

	Intra-EU15	***Extra-EU15***	***Total***
Austria	1395.6	1273.8	1346.3
Belgium-Luxembourg	1209.4	857.6	1088.3
Denmark	632.8	728.2	665.0
Finland	962.9	1268.2	1079.2
France	1766.1	843.1	1230.5
Germany	1002.2	874.7	942.1
Greece	1586.6	1946.3	1792.5
Ireland	3769.2	12587.6	5356.2
Italy	1820.2	1265.6	1520.0
Netherlands	1585.1	961.7	1389.2
Portugal	1043.2	197.4	555.1
Spain	2690.2	2009.2	2429.7
Sweden	811.2	1142.7	939.2
UK	1099.5	442.1	636.8
EU 15	1320.8	834.2	1075.6
World Trade			987.5

Sources: Badinger and Breuss (2004) and, for world trade, WTO website.

Table 4. Trade Effects of European Trade Agreements (% per year)

	Intra Trade		***Extra Trade***
1956-1973			
EC6	+3.2**	EC6-EFTA7	-1.5*
EFTA7	+2.3**	EC6-other OECD	-1.7*
		EFTA-other OECD	
1972-1980			
New EC-EC6	+5.9**	New EC-EFTA5	-1.2
		New EC-other OECD	+2.6**
		UK-Commonwealth	-6.7*
1975-1992			
Greece-EC9	+2.0**	Greece-other OECD	-1.7
Portugal/Spain-EC10	+2.9**	Portugal/Spain-other OECD	-0.4

Note: * = significant at 5%, ** = significant at 1%.

Source: Bayoumi and Eichengreen (1995)

Table 5. Post-Accession Differences between Level of Actual and Synthetic GDP per Person (%)

	After 5 Years	*After 10 Years*	*Total*
Denmark	10.3	14.3	23.9
Ireland	5.2	9.4	48.9
United Kingdom	4.8	8.6	23.7
Greece	-11.6	-17.3	-19.8
Portugal	11.7	16.5	18.4
Spain	9.3	13.7	19.8
Austria	4.5	6.4	7.2
Finland	2.2	4.0	4.4
Sweden	0.8	2.4	3.2

Source: Campos et al. (2014)

Table 6. Unconditional Convergence Regression Western European Regions.

	1950-73	***1950-73***	***1950-73***	***1973-2005***	***1973-2005***	***1973-2005***
Constant	6.660	5.292	5.633	3.218	2.340	2.419
	(39.755)	(17.567)	(13.926)	(19.608)	(9.731)	(7.913)
Initial Y/P	-0.051					
% Leader	(-14.487)					
Spain		0.920	0.826		0.793	0.660
		(3.537)	(2.975)		(4.243)	(3.350)
West Germany		1.046	0.917		-0.229	-0.265
		(4.346)	(3.683)		(-1.247)	(-1.514)
UK		-0.833	-0.798		0.195	0.082
		(-3.539)	(-3.198)		(1.088)	(0.469)
France		0.169	0.167		-0.044	-0.028
		(0.766)	(0.765)		(-0.263)	(-0.176)
Italy		0.716	0.645		0.085	0.023
		(3.017)	(2.661)		(0.492)	(0.131)
Density			0.0002			0.0002
			(1.895)			(2.930)
Distance to			-0.0001			0.0001
Luxembourg			(-0.462)			(0.807)
R^2	0.713	0.870	0.873	0.420	0.662	0.696

Sources: own calculations based on GDP per person relative to national average for France, Italy, Netherlands, Spain, UK and West Germany for set of same 85 regions obtained from Molle (1980), Martinez-Galarraga (2007) and Eurostat, *Regional Statistics*, various issues. These relativities were then applied to national estimates for real GDP per person reported in Maddison (2010). Density (= population/land area) calculated from same sources. Distances to Luxembourg from www.mapcrow.info plus intercept of 100 km.

Table 7. Geography and Real GDP per Person Regressions

	1950	***1973***	***2005***
Constant	10.032	10.646	10.678
	(19.196)	(24.422)	(23.835)
Log Density	0.206	0.122	0.103
	(4.318)	(3.178)	(2.633)
Log Distance to	-0.407	-0.306	-0.208
Luxembourg	(-5.816)	(-5.231)	(-3.477)
R^2	0.802	0.652	0.327

Note: dependent variable is the log of real GDP/Person, country dummies included but not reported and density instrumented using land area as in Ciccone (2002).

Sources: own calculations based on data from sources for Table 6.

Table 8. Balance of Payments and Static Welfare Effects of UK Entry into EEC: 1970s' and 1980s' Estimates (% GDP)

	Ex Ante (1)	*Ex-Ante (2)*	*Ex-Post*
Balance of Payments			
Manufactures	-0.3	-0.2	-2.6
Import Saving on Food	+1.0	+0.4	+0.7
Excess Food Cost	-0.3	-0.2	-0.1
Official Transfers	-1.0	-0.6	-0.6
Total	-0.6	-0.6	-2.6
Welfare			
Trade Creation	+0.1	+0.1	+0.4
Scale		+0.5	
Competition		+0.5	+1.7
Manufactures Deficit	-0.1	-0.1	-0.9
Import Saving on Food	+0.4	+0.2	+0.1
Excess Food Cost	-0.4	-0.2	-0.1
Official Transfers	-1.2	-0.8	-0.7
Total	-1.2	+0.2	+1.3

Notes: welfare effects based on orthodox correction of balance of payments deficits/surpluses, see text. Excess food cost refers to payments to EEC farmers for agricultural commodities purchased at EEC prices, i.e. at greater than world prices. Ex-post trade creation includes scale effects.

Sources:

Ex-Ante (1) general equilibrium based on Miller (1971); a later version of these estimates was published as Miller and Spencer (1977).

Ex-Ante (2): partial equilibrium based on Josling (1971) for agriculture and on Williamson (1971) for manufactures.

Ex-Post: compiled using Morris (1980) and Rollo and Warwick (1979) for agriculture, Gasiorek et al. (2002) for trade creation, scale and competition effects in manufacturing, and Winters (1987) for balance of payments effects in manufacturing.

Table 9. Modern Ex-Ante Estimates of the Static Welfare Effects of UK Exit from the EU (%GDP)

	Optimistic	***Pessimistic***
Increased EU/UK Tariffs	0	-0.14
Increased EU/UK NTBs	-0.40	-0.93
Future Falls in EU/UK NTBs	-1.26	-2.55
Fiscal Transfers	+0.53	+0.53
Total	-1.13	-3.09

Source: Ottaviano et al. (2014) using a methodology derived from Costinot and Rodriguez-Clare (2013).