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# The Northern Ireland Economy: Problems and Prospects

John FitzGerald and Edgar L.W. Morgenroth

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John FitzGerald[1] and Edgar L. W. Morgenroth[2] July 31st 2019

Abstract

This paper examines the performance of the Northern Ireland economy in recent decades and shows that it has suffered from very low productivity growth. This has meant that the regional economy has grown very slowly and this performance compares badly with that of other regional economies, such as Scotland and East Germany.

The key factor behind the poor productivity performance in Northern Ireland has been the low investment in physical and human capital. The failure to reform the education system to reduce the number of early school leavers and increase the numbers of graduates is the single most important factor in the low growth.

Large transfers from central government have ensured that the standard of living in Northern Ireland is close to the UK average and above that of Ireland. However, the dependence of Northern Ireland on these transfers leaves it very vulnerable to shocks. Brexit will, undoubtedly, have serious negative consequences for the Northern Ireland economy. Possibly more serious for Northern Ireland are the changes taking place in the politics of the UK which could see a reduction in transfers in the future.

The best economic outcome for Northern Ireland is one where future UK governments commit to providing continuing large transfers to Northern Ireland for at least a further decade in return for a change in regional economic policy aimed at promoting economic growth. Public expenditure needs to be reallocated from sustaining consumption, especially public services, to investing in education and infrastructure. While painful initially, it would move the Northern Ireland economy onto a sustainable growth path.

Another option, Irish unity, if it involved ending transfers to Northern Ireland, would produce a dramatic fall in the standard of living there. Alternatively, unification, where Ireland took over responsibility for the transfers to Northern Ireland, would necessitate a major cut in the standard of living in Ireland of 5% to 10% in order to allow Northern Ireland to maintain a standard of living between 10% and 20% above the Irish standard of living. Whatever form Irish unity took there would be a heavy economic cost for both Northern Ireland and Ireland.

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[1] TCD and the ESRI. Corresponding author: jofitzge@esri.ie
[2] DCU

## 1. Introduction

In recent decades the Northern Ireland economy has suffered from a lack of dynamism. For 30 years, from the late 1960s through to the Belfast Agreement of 1998, the ongoing violence had a huge negative impact on society, as well as on the local economy. While the signing of the agreement ushered in a new peaceful era, over the last 20 years the economy has not recovered any of the vigour it had shown in the 1940s and 1950s. This paper analyses some of the reasons for this poor economic performance, it discusses the risks posed for the Northern Ireland economy by changes in its external environment, and it makes some suggestions on how the very slow growth in productivity could be reversed in the coming years. In concluding, the paper considers some broad options for the Northern Ireland economy over the coming decade.

The decision of the UK government to leave the EU raises serious concerns about the future of the Northern Ireland economy. While Northern Ireland voted against Brexit, Northern Ireland still faces the prospect of a serious negative impact on its local economy. The Northern Ireland economy is not very export oriented and those firms that do export may be disproportionately affected by the departure from the EU. Also, the farming sector is very dependent on EU subsidies, subsidies that may not be replaced by corresponding new UK transfers after the process of Brexit is completed.

An even more serious long-term concern is that the Northern Ireland Economy depends on very large transfers from the UK government to maintain its current relatively high standard of living. Northern Ireland is more generously treated than some other relatively poor UK regions, such as the north-east of England. The rise of English nationalism, mirrored by Scotland's current disenchantment with the Union, may call into question the substantial regional support for Northern Ireland funded by the thriving economy in the South of England.

A worst case scenario, with Brexit resulting in the UK leaving the EU Customs Union, combined with a reduction in regional solidarity within the UK, could see Northern Ireland suffering a major loss of transfers just when the economy is already fairing very badly. The resulting major reduction in the Northern Ireland standard of living could be seriously destabilising.

This paper first looks at the Northern Ireland economy in a wider European context, considering some of the factors that affect convergence and divergence between regional economies. Neoclassical models suggest that regions and countries should converge in living standards. However, the recent literature has shown that convergence is far from automatic and that, in particular over recent decades, European regions have been characterised by persistent and increasing differences (Lammarino et al, 2019). The effects of the financial crisis have exacerbated this, with remote rural and urban regions performing relatively poorly while economically central regions and their surrounding rural areas have performed strongly (Dijkstra et al, 2015). Similar trends have also been observed at the regional level in Ireland (Morgenroth, 2014).

The Irish experience over the last century is instructive. For 50 years Ireland showed relatively little progress in converging on the standard of living of its neighbours in Northern Europe. However, since 1990 there was a very rapid convergence, so that today the Irish standard of living exceeds the average for the EU15.

At the regional level German unification and the subsequent progress of East Germany is an example of a relatively successful regional convergence, whereas the experience of the Mezzogiorno in Italy is one of a failed convergence process. When the trajectory of the Northern Ireland is considered within a wider UK regional context it appears to be closer to the Italian than the East German experience. Section 2 of this paper examines the diverse EU experience of regional convergence and what lessons can be learned for Northern Ireland.

As described in Section 3, the Northern Ireland economy has performed very poorly over the last 50 years. While the "Troubles" can explain many of the economic problems experienced in the period from 1969 to 1998, as considered in Section 4, in the 20 years since the Belfast Agreement the regional economy's performance has remained lacklustre. These more recent problems stem from policy failures by the Northern administration, frittering away the benefits of exceptional support from the central government in London.

Some of the factors underlying the North's poor economic performance in recent years are outlined in Section 5. The economic challenges that the Northern Ireland economy is likely to face over the coming decade are then set out in Section 6 and conclusions are presented in Section 7.

## 2. Regional convergence in the EU

In order to understand the performance of the Northern Ireland regional economy in recent years it is useful to consider examples of failed and successful regional convergence in output and productivity elsewhere in the EU. There are a number of factors that make convergence of regions within a national economy more complicated than in the case of convergence between national economies. In particular, because of the high level of integration within national economies, there is often much less difference in regional competitiveness to drive movement of investment to poorer regions. In addition, the extensive transfers, which are normal between regions within national economies, may either help or hinder convergence in output and productivity[3].

Thus, looking at other examples of economic convergence highlights some of the factors explaining the North's relatively poor economic performance. We first briefly consider the experience of national economies within the EU, exemplified by the case of Ireland. We then consider the case of the Mezzogiorno in Italy, where progress stalled in the 1970s. By contrast, the progress of East Germany is an example of a successful regional convergence story, though it still has some distance to run.

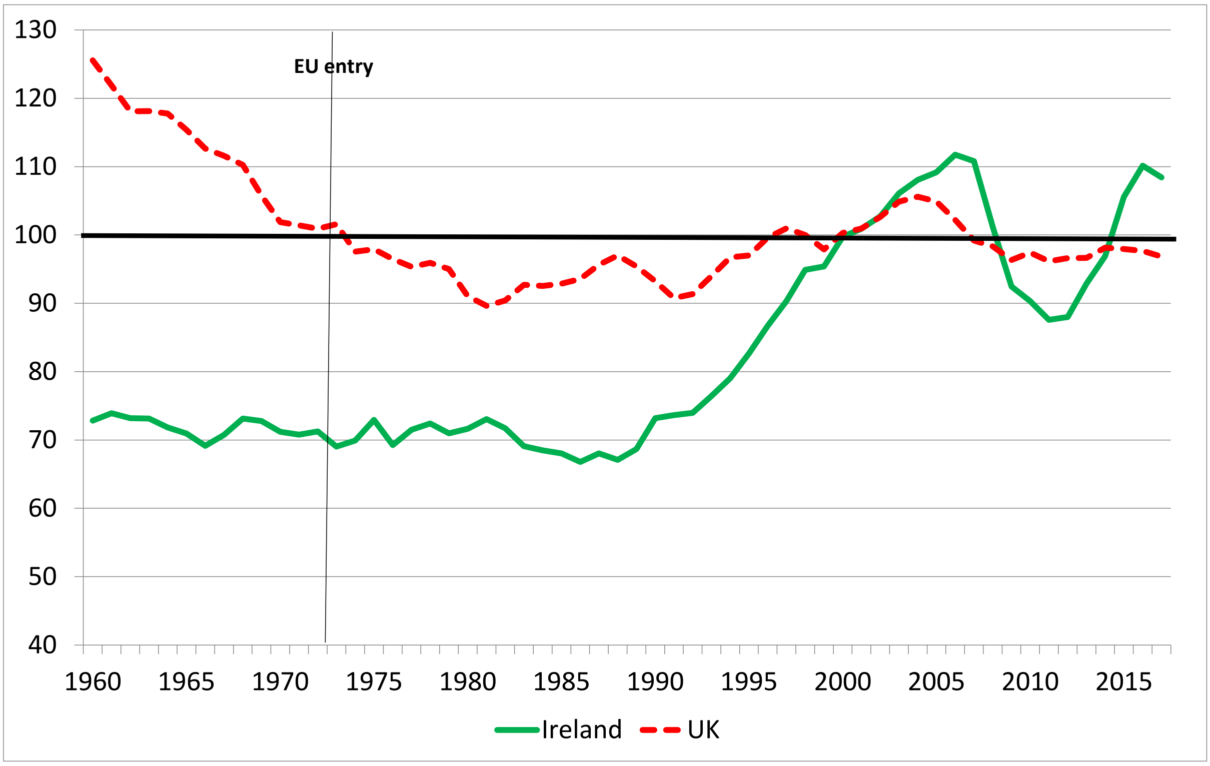
### 2.1 National Convergence

Since it was founded in 1956 the EU has played a huge role in promoting economic growth across the continent. While the experience of individual members is quite varied, the EU has been very successful in bringing about a gradual convergence in living standards between countries that began with very different economies.

One of the best examples of convergence is the Irish economy over the last 30 years. The contrast between this more recent experience and the first 60 years of independence highlights the fact that convergence is not inevitable, but that it depends on a range of different policies and supportive institutions, not least of which is EU membership.

[3] Morgenroth, 2010, showed how the system of taxes and public expenditure in Ireland acts as a regional redistribution mechanism.

Figure 1: Irish GNI* per person relative to EU 15 and UK GDP, adjusted for PPS[4]




Source: DG ECFin AMECO database and CSO National Income and Expenditure

The evolution of the standard of living in Ireland and the UK since 1960, relative to the average for the EU 15, is shown in Figure 1. In the Irish case the standard of living in 1960 was around 70% of the average for the EU 15. Its position relative to that at independence was probably rather similar. For Ireland, there was little progress in raising the relative standard of living until the early 1990s. However, since then, the Irish standard of living has risen dramatically relative to the EU15. While the financial crisis saw a substantial temporary deterioration, the economic recovery has seen the Irish standard of living rise once more above that of the average for the EU15.

The path for the UK has been rather different. In 1960 it had a living standard that was around a quarter higher than that for the EU 15. However, the rest of the EU 15 caught up over the 1960s. Since the early 1970s, when the UK joined the EU, the UK standard of living has hovered around the average for the EU 15.

The factors underlying Ireland's convergence to an EU-15 living standard have been discussed in a series of papers (Honohan and Walsh, 2002, O'Gráda, 2002, Barry, 2002 and FitzGerald, 2006). Central to the Irish experience was EU membership, which opened the wider EU market to Ireland. The EU Single Market from 1993 completed the process of opening up the economy. Foreign Direct Investment (FDI), encouraged by low corporation tax rates that exploited the opportunities of EU membership, proved very important. The low investment in human capital in the first 50 years of independence was replaced, over the following decades, by a major development programme,

[4] Purchasing Power Standard (PPS) is the technical term used by Eurostat for the common currency in which national accounts aggregates are expressed when adjusted for price level differences using Purchasing Power Parities (PPPs). Thus, PPPs can be interpreted as the exchange rate of the PPS against the euro.

which has today transformed the educational attainment of the working-age population (FitzGerald, 2019). Effective institutions, supported by EU membership have also played a vital role. However, throughout the period of EU membership, the continuing competitiveness of the economy, broadly defined, was essential to underpin the huge expansion in the tradable sector[5].

The collapse of the Berlin Wall saw a transformation in central Europe, with an immediate transition to a market economy affecting many countries. This began a process that has culminated in 11 of the former communist countries now being members of the EU.[6] In 1990 these countries in Central Europe had a very much lower standard of living than the EU 15. However, the countries that joined the EU in 2004 and 2007 have begun to replicate Ireland's convergence.

For these Central European economies adaptation began as soon as the Berlin Wall fell and progress was apparent before they formally joined. Twenty five years ago these countries had a standard of living ranging between 25% (Romania) and 65% (Slovenia) of the EU-15. Today these countries have a standard of living ranging between 45% (Bulgaria) and 85% (Czech Republic) of the average. In terms of the distance travelled, Poland has been the star performer of this group. For these more recent members, the economic crisis did not derail progress. All of them improved their position relative to the EU-15 since 2007 (Gros *et al.*, 2017).

A number of factors have been crucial to the success of economies in realising a convergence in living standards to that of the richest EU economies. For many of them their education systems have been successful in building their human capital (FitzGerald, 2019). They have benefited greatly from access to the EU Single European Market. However, they have also relied on their competitiveness to attract foreign investment and to allow their own native firms to grow. Not only have labour costs been well below those in the EU15, but the fact that other costs that affect competitiveness have also been well below those in richer countries has helped drive investment in the tradable sector of these economies.

While there have been significant EU transfers to the new member states, these have been used to fund substantial investment programmes. The transfers have generally not been used to temporarily boost living standards by cutting taxes or increasing current expenditure. Instead, the convergence in living standards has been underpinned by a convergence in productivity, ensuring a sustained convergence in living standards.

### 2.2 Regional Convergence

In principle, the same factors that drive convergence in living standards between richer and poorer countries explain convergence between regions within individual countries. Looking at large EU countries, such as the UK, Germany and Italy, the differences between richer and poorer regions are smaller than those between the full range of EU members across a range of dimensions: institutions, education and key factors driving competitiveness, such as labour costs[7]. In addition, a major difference for regional economies compared to national economies is that there are normally major transfers of resources between richer and poorer regions within a country, reflecting the greater solidarity within EU member states than between member states.

[5] By tradable sector we mean the part of the economy that exports the majority of its output.
[6] In addition, Cyprus and Malta have also joined the EU.
[7] For example the variance for the percentage of the population aged 25 and above that hold a third level qualification is 67.7 across the 28 EU Member States but just 22 across German NUTS 2 regions.

Transfers can make a difference because they can blunt some of the factors that may cause convergence between countries. Transfers make it possible to have a better standard of living in poorer regions, even if productivity there is lower. This may raise wage rates in poorer regions and it may reduce the incentive to move from an underperforming labour market within a country to one that is more successful. It may also reduce the incentive for firms to locate in these areas as the productivity differences are not fully reflected in lower wages. However, when the transfers are used to invest in human and physical capital they can be expected to promote convergence between regions in terms of output and productivity.

Recent research shows that living standards of poorer regions across the EU have also tended to converge on the EU average. However, this convergence is weaker than at a national level. Indeed poorer regions in Southern Europe (including those in Spain and Portugal) have actually reversed in relative terms over the last decade (Alcidi *et al.*, 2018).

For Central Europe the pattern is rather different. Some regions – the Bucharest region in Romania and the Bratislava region in Slovakia – have made exceptional progress. Interestingly, both these regions contain the national capital. The differential performance of individual regions within states shows that rapid growth tends to be driven by the presence of important cities. It also shows a much more diverse experience than at the national level.

Within the EU 15 two large countries show a contrasting experience in regional convergence: Germany and Italy. The differing experience within these two countries, as well as the actual performance of UK regions, holds important lessons on what makes for successful regional convergence.

A key determinant of the standard of living in an economy is the level of output per head. In the absence of significant transfers in a national economy output per head ultimately determines the sustainable standard of living. However, to minimise the need for such transfers regional policy generally aims to promote convergence in output per head.

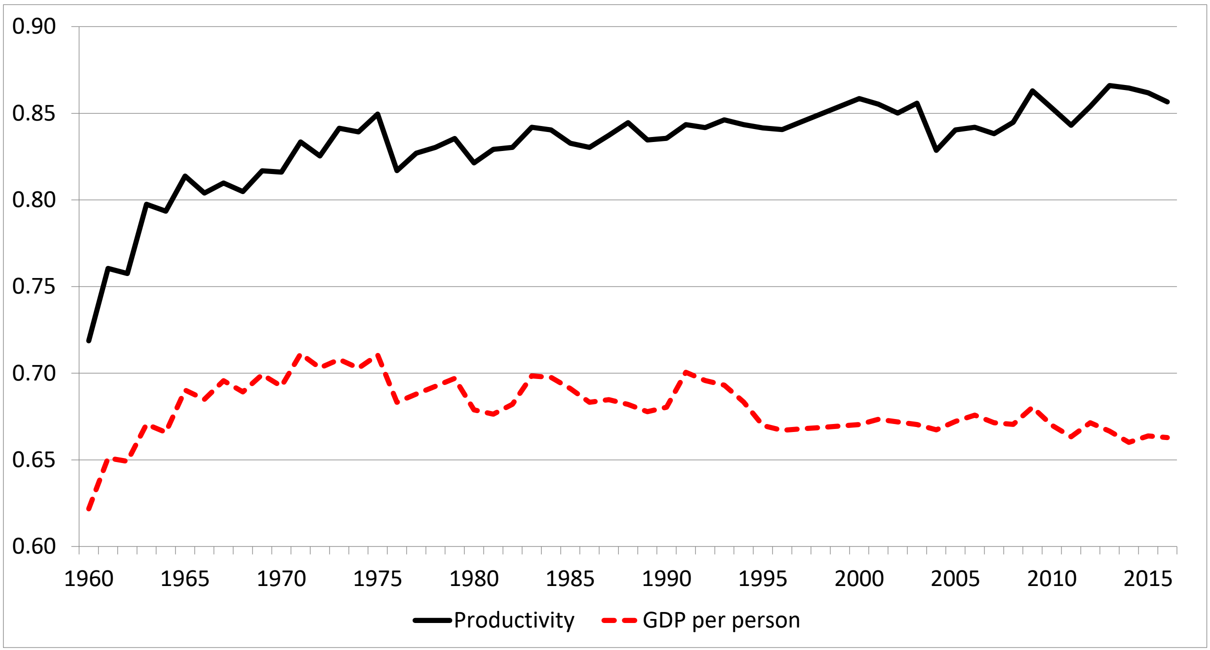
In the case of Italy there was some convergence in productivity between the Mezzogiorno (South) and the rest of the country up to 1970. Thereafter progress stalled. By contrast, East Germany has seen steady but slow progress since unification in 1990. These two examples are briefly outlined in the next two sections, with more detailed analysis provided in Appendix 1.

### 2.3 Italian Experience

The Mezzogiorno (south of Italy) was traditionally much poorer than the rest of the country, which reflects the fact that much of the vibrant Italian manufacturing sector was located in the North, with the south dominated by agriculture. Consequently, public policy sought to narrow the gap in output per head between the two regions. To address these differences programmes of public investment and other incentives have been implemented. While these helped growth, the effect of such programmes has been dependent on institutional quality (Papagnia, *et al.,* 2018).

Overall, in the period between 1950 and 1970 there was some success, with output per head rising from just over 60% of the national average to around 70%. However, Pench, 1993 and Papagnia, *et al.,* 2018 show that the progress slowed down around 1970 so that today output per head still stands at around two thirds of the national average (Figure 2).

Figure 2: Mezzogiorno GDP per head and per person employed relative to national, %




Source: [http://crenos.unica.it/crenos/databases/database-regio-it-1960-1996](http://crenos.unica.it/crenos/databases/database-regio-it-1960-1996) and Eurostat

While wages in the Mezzogiorno were significantly lower than those in Northern Italy, so were productivity levels. Furthermore, wage differentials did not fully reflect the productivity differences, which reduced investment. Simultaneously, higher wages in the North of Italy and in Germany incentivised more productive workers to emigrate, which put upward pressure on local wages.

Transfers from central government also directly supported employment through public expenditure on goods and services. By 1988 public expenditure (public consumption) on employing public sector workers amounted to 25% of regional GDP in the Mezzogiorno, whereas it amounted to 10% of regional GDP in the rest of Italy. This public expenditure was significantly funded by transfers so that for 1988 net borrowing by the public sector in the Mezzogiorno amounted to 35% of regional GDP whereas in the rest of Italy it amounted to around 3% of GDP.[8]

Pench, 1993, reflecting on these data, comments "A counterpart of the transfer process is also the displacement of the manufacturing sector by an abnormally large tertiary sector." He went on to suggest that it was desirable to shift resources in the south from income maintenance to supporting investment if greater convergence in output was to be achieved between the two regions of Italy.

Braunerhjelm, *et.al*., 2000, compared the policies adopted to promote convergence in the Mezzogiorno with those pursued in Ireland to promote national convergence to the EU15 level of output per head. They suggest that while the Mezzogiorno, like Ireland after EU membership, benefited from open trade, these benefits have been more than outweighed by the burden of some national policies, notably the national wage-setting policies adopted in the 1960s. Equally important, Italy's attempts to build a skilled and educated workforce have been half-hearted by comparison with Ireland's.

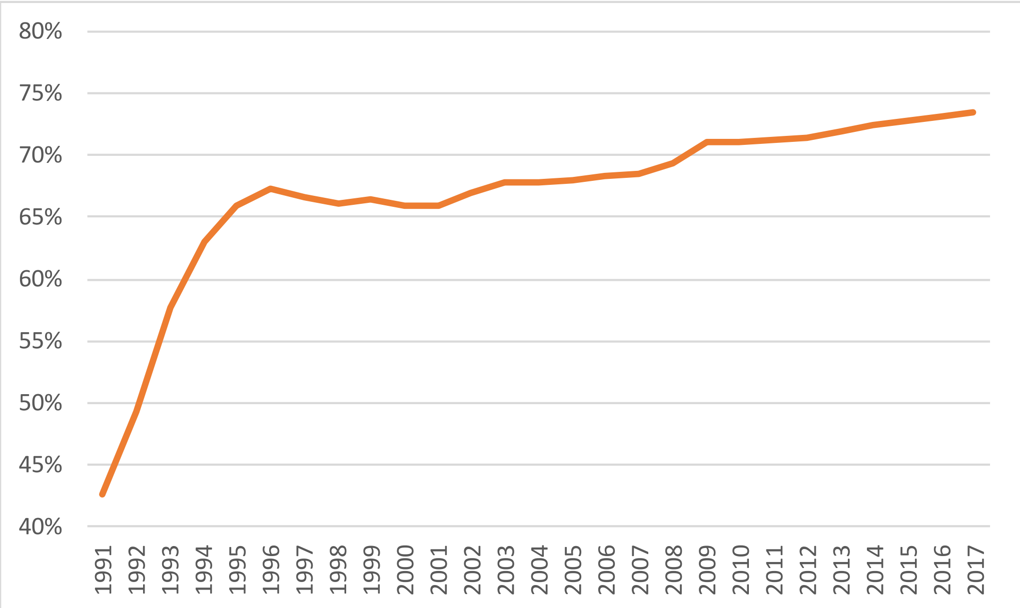
[8] Pench, 2003, Table 4

Italy has also relied heavily on wage subsidies and the promotion of employment in state-owned firms, neither of which involved any explicit requirement to promote internationally competitive production. This strategy is not sustainable in the longer term.

### 2.4 Germany

The context for the development of the East German economy is distinct from that of Northern Ireland and the Mezzogiorno, in that German re-unification constituted an extraordinary upheaval in a very short period, with a dramatic transition from a centrally planned economy to a market economy, currency union with West Germany, and significant institutional, administrative and political changes. When the transformation began it also enjoyed huge public support in both West Germany and East Germany.

Figure 3: East German GDP per capita relative to West German GDP per capita (%)




Source: Own Calculations using data from Statistische Ämter des Bundes und der Länder

The transition to a market economy meant that prices were no longer centrally controlled and a significant programme of privatisation of State Owned Enterprises (SOEs) was embarked on. While Germans often express disappointment with the pace of regional convergence (Ragnitz, 2015), the performance of the East German economy compared to that of the Mezzogiorno has been much better: it has been characterised by persistent convergence (Figure 3). Having started at just 42.6% of the West German level, per capita GDP reached 73.5% of the West German level in 2017.

Employment in East Germany fell from 9.2 million in 1989 to 7.1 million in July 1991. As a result, the unemployment rate in East Germany rose rapidly following unification, reaching 17.5% in 1994, having stood at just around 1% before the fall of the Berlin Wall. More recently the unemployment rates of East and West Germany rates have been converging and the latest statistics show that the unemployment rate in East Germany stands at 5.4% while that in the West was 3.3%. Importantly, the effects of reunification on unemployment could have been significantly worse, had it not been for large scale emigration of typically younger better educated and productive workers from the East to the West. Net emigration between 1989 and 2002 amounted to some 1.3 million people or 7.5% of the original population (Wolff, 2006).

As in the case of the Mezzogiorno, East Germany has benefitted from significant transfers. However the focus of these was more on infrastructure and less on social transfers. Conrad and Seitz (1994) suggested that 70% of East Germany's infrastructure was either outdated or beyond repair at the time of reunification, requiring very substantial resources, which were ultimately only available through transfers from West Germany. While the total scale of the transfers is a topic for debate, a recent summary produced by the research service for the German parliament suggests that the total transfers since unification have been of the order of €1.6 trillion (Deutscher Bundestag, 2018). This represents approximately 20% of the GDP of East Germany over the period 1991 to 2010. Additionally, EU transfers of just over €50 billion were received in East Germany. The effect of the EU European Regional Development Fund (ERDF) has been assessed by Alecke et al (2013), who found that for the most lagging regions a 1% increase in the subsidy could increase productivity growth by as much as 8%.

### 2.5 Lessons from Regional Convergence in Europe

As described above, the German experience involved quite a tough initial regime where many jobs were lost in a short space of time in uneconomic enterprises. However, at the time there was widespread acceptance of the wider benefits of the transformation, something which may not easily be replicated elsewhere. In most normal economies the process of convergence involves a more gradual approach.

The ability to undertake rapid transformation is also affected by the freedom of individuals to migrate. At the individual level it may be much faster to migrate to areas where productivity and the returns to labour are higher rather than to wait for the transformation of the local economy. In turn, this may result in the better qualified more able individuals leaving, which adds to the problems of the local economy.

Competitiveness matters but the freedom to migrate and substantial inter-regional transfers limit the scope for wages to differ by wide margins in regions within a country.

A key element in successful convergence is substantial investment in upgrading the public capital stock to support a higher level of economic activity. This has been very important in the German case and it was also important in the case of Italy.

A good educational system, ensuring a high level of human capital in the labour force is also essential for growth.

Finally, a large public sector can be a barrier to convergence. This is a particular problem if too much of the available resources are allocated to public consumption rather than to investment. Also, if a disproportionate share of the best educated in the local population work for the public service it can pose problems for the private sector.

# 3. The Northern Ireland Economy Before 1998

## 3.1 Output

The 1920s and the 1930s were a particularly difficult period for the Northern Ireland economy, with very low growth (Table 1) as local industry faced a problematic external environment. In the 1930s Northern Ireland was treated with greater parsimony by central government than other UK regions, in spite of being the poorest region (Barton, 2003). In 1938 the average unemployment rate in Northern Ireland was 30%, higher than in 1931 (Isles and Cuthbert, 1955). However, the Northern Ireland economy responded well to the challenges of the Second World War and it proved reasonably successful in its immediate aftermath. As a result, as shown in Kennedy *et al.,* 1989, in terms of output per head over the period 1938 to 1960 the Northern Ireland economy significantly outperformed the Irish economy, as well as the UK economy (Table 1).

Table 1: Northern Ireland, Ireland and UK, GDP per head, average annual % change

| | Ireland | UK | Northern Ireland |
|---|---|---|---|
| 1926-38 | 1.4 | 1.9 | 0.7 |
| 1938-50 | 1.1 | 1.4 | 3.1 |
| 1950-60 | 2.2 | 3.0 | 2.0 |
| 1960-70 | 3.9 | 2.4 | 3.1 |
| 1970-80 | 2.5 | 2.0 | 1.4 |
| 1980-90 | 1.3 | 2.8 | 2.2 |
| 1990-00 | 5.5 | 2.2 | 3.0 |
| 2000-10 | 0.5 | 0.9 | 0.4 |
| 2010-16[9] | 3.2 | 1.3 | 0.6 |

Source: Kennedy *et al.,* 1989, for Northern Ireland, The figures for the UK are revised using Bank of England historical series and Eurostat, For Ireland the data are for GNI, taken from various CSO publications and Duncan, 1938. For Northern Ireland see data appendix.

During the war years there was greatly increased demand for the output of key sectors of Northern Ireland manufacturing, such as shipbuilding and clothing. The result was a dramatic reduction in unemployment and some increase in productivity (Isles and Cuthbert, 1955). The fruits of these changes were seen in the particularly strong growth in output between 1938 and 1950.

However, major problems remained in the economy in the 1950s, as analysed by Isles and Cuthbert, 1957. Productivity was still well below the UK average and they identified significant difficulties with the quality of management, due to a tendency amongst Northern Ireland's family run businesses to resist modern business techniques and any dilution of personal control. Also, the war years had seen wage rates rising more rapidly than in the UK as a whole, reducing the competitiveness of the Northern Ireland economy relative to the rest of the UK.

While the development of world trade and technological change posed increasing problems for the outward facing part of the Northern Ireland economy, in the 1960s, there was a significant inflow of firms in new sectors. As a result, continued growth in Northern Ireland saw the economy outpacing

[9] For Ireland, because of problems with the national accounting data for 2015 and 2016, the average is for the years 2010-14.

that of the UK as a whole. Ireland, having performed poorly in the period 1938 to 1960, grew quite rapidly alongside Northern Ireland in the 1960s. Thus, in the 1960s, the progress of both economies on the island of Ireland compared favourably to that of the UK.

It was the advent of the "Troubles" from 1969 onwards which caused massive damage to the Northern economy, as well as to the wider society. Any chance of adapting to the changing world trading environment and EU membership through new investment was halted by the domestic turbulence. In the 1970s Northern Ireland became a very unattractive place to invest for both UK and foreign firms.

The 1970s was also a difficult period for the UK and the Irish economies, with oil crises in 1973 and again in 1979, resulting in a significant reduction in output growth. Nonetheless, both the UK and Ireland did increase output per head over that decade. As discussed in Bradley and Wright, 1993, the combination of the unfavourable external environment with the domestic unrest proved very damaging for the Northern Ireland economy, resulting in growth in output per head rising by only 1.4% a year over the decade. This increase was itself supported by a very substantial fiscal injection.

While the domestic unrest continued unabated in the 1980s, the Northern Ireland economy recorded a somewhat better headline performance than in the 1970s, though still growing more slowly than the UK as a whole. By contrast, Ireland grew very slowly over the decade as the bad policy choices of the late 1970s resulted in a major fiscal crisis. The need to tackle that crisis meant that fiscal policy in Ireland was consistently deflationary over the decade (Kearney *et al.*, 2000).

However, Hitchins *et al.* 1993, stress the high cost of the support for private investment in Northern Ireland that contributed to growth. Even in the 1970s subsidies and capital grants to industry were higher than elsewhere in the UK (Simpson, 1979). These subsidies were essential to overcome the other domestic obstacles to attracting the inward investment needed to keep the economy growing, but they became an essential feature of the Northern Ireland economy (Crafts, 1995). Even today Northern Ireland spends more per head on such supports to industry than in the rest of the UK.

The 1990s saw quite a good performance by the Northern Ireland economy, better than in the rest of the UK. The external environment was favourable, with reasonable growth in the UK and very rapid growth in Ireland. In addition, a ceasefire was called in 1997 and the 1998 Belfast Agreement permanently ended hostilities in the North, making it a much more attractive place to do business.

### 3.2 Employment

While the Northern Ireland economy recorded average growth of over 3% a year in the 1950s and the 1960s, there was almost no growth in employment over the period (Table 2). Ironically, employment growth in the 1970s, when the economy was severely hit by the troubles, was better than in the previous two decades. This reflected a dramatic policy intervention by the UK government, brought on by the Troubles: they implemented a very big increase in employment in the public sector.

Rowthorne, 1981, estimates that the Troubles cost Northern Ireland almost 25,000 manufacturing jobs in the 1970s.[10] Higher estimates by a number of authors are discussed in Borooah, 1993. These job losses were, of course, compounded by the oil price shocks and the performance of the wider UK

[10] With total employment of around 500,000 this represented a reduction in employment of around 5%.

economy, which was the major external market for the North. The result was a collapse in the manufacturing sector and, more broadly, in private sector employment.

Table 2: Employment, average annual change, %

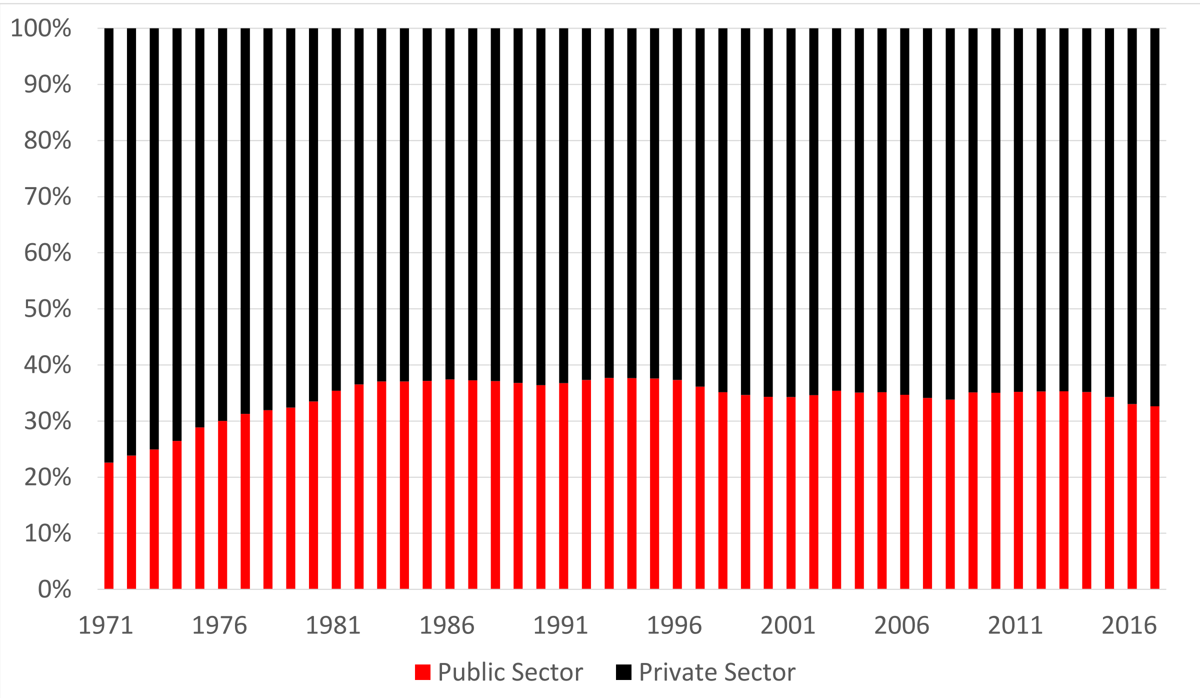
| | Ireland | UK | Northern Ireland |
|---|---|---|---|
| 1950-60 | -1.6 | 0.6 | -0.3 |
| 1960-70 | 0.0 | 0.2 | 0.2 |
| 1970-80 | 1.0 | 0.1 | 0.7 |
| 1980-90 | -0.2 | 0.7 | 0.2 |
| 1990-00 | 3.7 | 0.2 | 1.8 |
| 2000-10 | 0.8 | 0.6 | 0.9 |
| 2010-16 | 1.7 | 1.4 | 0.7 |

Source: Ireland: CSO, LFS and ESRI databank. UK: DG EcFin AMECO and Bank of England Historical statistics. Northern Ireland, Census to 1971, NISRA QES Employees

It was only with the very substantial increase in support from the UK that the loss of employment in the tradable sector of the economy was offset by an expansion of the public sector in Northern Ireland. Rowthorne suggests that 15,000 additional public sector jobs were created to offset the losses elsewhere in the economy. Some of this increase in public service employment reflected a major rise in employment in security related services.

The expansion in public service employment in Northern Ireland was broadly based, rising from around 110,000 in 1971 to 176,000 in 1980. Meanwhile employment in the private sector fell by around 50,000 over the same period. As shown in Figure 4, having been under a quarter of total employment in the economy in 1971, by 1980 public sector employment accounted for just over a third of total employment.

Figure 4, Public Sector Employment, Share of Total Employees



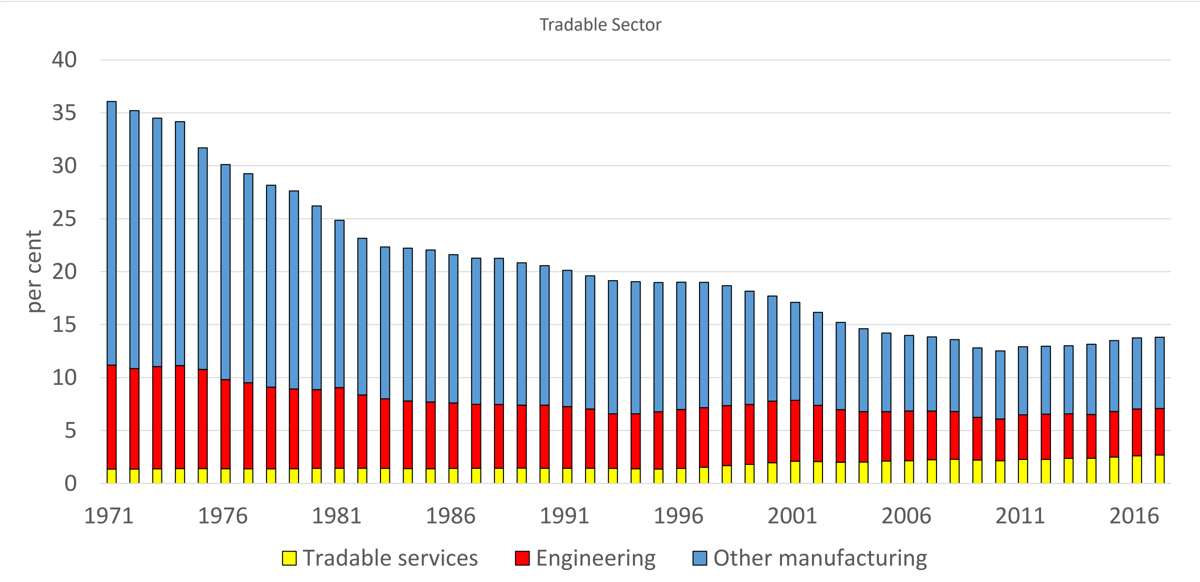
Source: NISRA Employee Jobs. https://www.nisra.gov.uk/publications/quarterly-employment-survey-historical-tables-march-2018

Tradable sector employment took a massive hit in the early 1970s. The combination of the Troubles, EU entry, and the inability to attract new investment all took their toll. As a result, tradable sector employment fell from 35% of total employee jobs in 1971 to around 20% in the early 1980s (Figure 5).

However, from the 1980s onwards there was a similar more gradual change in the composition of employment within the UK. Manufacturing sector employment fell, in particular in the 1980s. However, this fall in manufacturing employment in Great Britain (GB) was replaced, in particular in the south east of England, by skilled jobs in financial services and Information Technology. The replacement jobs in Northern Ireland were in different sectors requiring lower levels of education.

The financial support from the UK central government halted the slide in the Northern Ireland economy in the 1970s (Bradley and Wright, 1973). While output per head rose in the 1980s, there was no sign of a recovery in tradable sector employment and the total employment showed very little change over the decade. It was not until the 1990s that real progress was made in creating new jobs in Northern Ireland. The very favourable external environment in the UK and Ireland in that decade supported this progress, as did the ending of violence towards the end of the decade. However, employment grew at fairly similar rates in the public and the private sectors so that at the end of the decade public sector employment still accounted for 34% of all. While in other regions of the UK, especially in the south east of England, there was a major expansion in tradable services employment requiring high levels of education, this did not happen in Northern Ireland.

Figure 5: Tradable Sector Employment, Share of employees




Source: NISRA Employee Jobs. https://www.nisra.gov.uk/publications/quarterly-employment-survey-historical-tables-march-2018

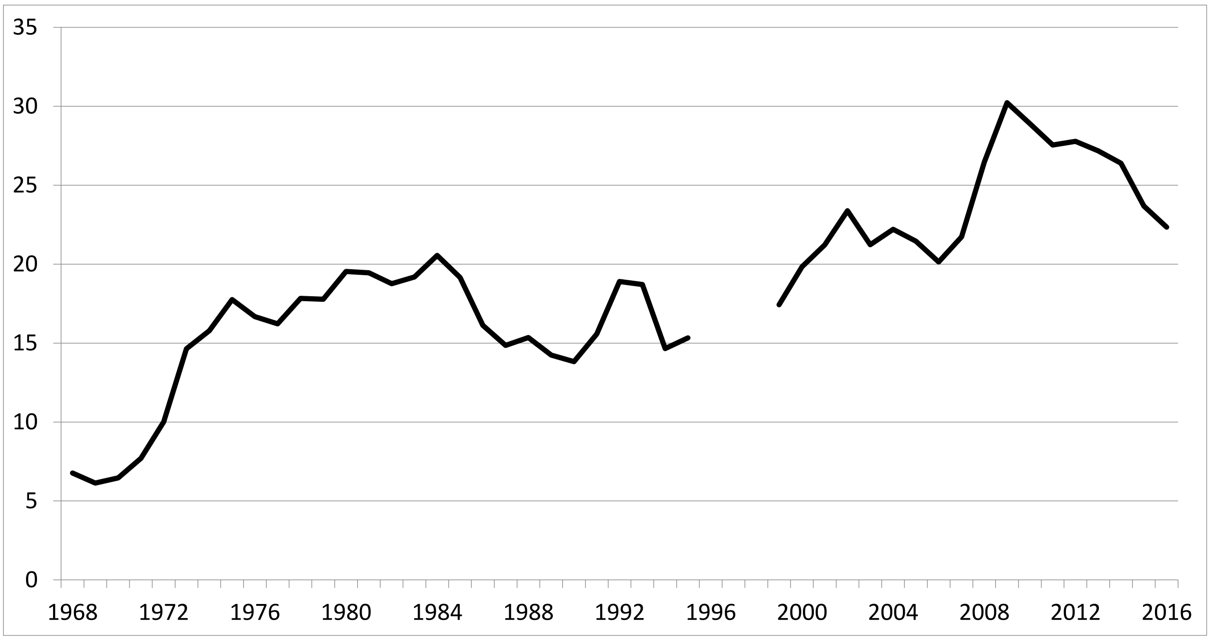
### 3.3 Central Government Subsidy

When the separate Northern Ireland administration was set up under the Government of Ireland Act 1920 it was envisaged that Northern Ireland would pay an "Imperial contribution" towards the costs of the UK. However, from the start, the economic weakness of Northern Ireland, and higher expenditure than expected on policing, meant that this contribution was not forthcoming as had been anticipated (Barton, 2003). Because of the very poor performance of the Northern economy, by 1938 it became necessary for the UK government to provide for a permanent subsidy for Northern Ireland.

By the mid-1960s, as shown in Figure 6, the public finance deficit in Northern Ireland, funded by a UK subsidy, was around 7% of regional GDP. However, the trauma faced by the Northern economy in the early 1970s saw a massive increase in this subsidy as the UK government tried to shore up the regional economy. In the early 1970s the subsidy rose to around 18% of GDP, averaging around 17% of GDP for the decade.

As this subsidy was ramped up in the early 1970s it was providing an injection into the Northern economy of over 1% of regional GDP each year. For a larger more open economy, such as Ireland, the multiplier for an injection of public consumption has been over one since the 1970s (FitzGerald and Keegan, 1982 and Bergin et al., 2013) – a one percentage point of GDP increase in public consumption would add substantially more than one percentage point to GDP. A similar or even greater multiplier would be expected for a more closed economy such as Northern Ireland. This would suggest that the increased fiscal injection in the 1970s accounted for growth of at least one per cent a year over the decade. With GDP per head rising by around 1.4% a year, this suggests that there would have been little or no growth in the economy without the fiscal injection.

Figure 6, Northern Ireland Government Deficit as % of GDP at current market prices.




Note: See separate data appendix for sources

The subsidy continued at this level till the mid-1980s. However, cuts in UK expenditure saw some reduction in the subsidy in the second half of the 1980s. Nonetheless, the subsidy continued to average 17% of GDP a year over the 1980s and 18% a year over the 1990s. This meant that, taking the whole period 1980 to 2000, fiscal policy had little impact on growth in Northern Ireland.

From the early 1970s the Northern Ireland economy became highly dependent on this large transfer from central government. Instead of being used to promote growth in output in the tradable sector of the economy, it was primarily used to support the very large public sector, which was so important as an employer. In the period up to the Belfast Agreement, there was no attempt to wean the Northern Ireland economy from dependence on this large transfer by investing in increasing productivity. The possible effect of this transfer in creating economic dependency was commented upon by Borooah, 1995.

### 3.4 Productivity

In the long run a key determinant of the growth in living standards in any national economy is the growth in productivity – output per employee. It is also very important in a regional economy, but transfers from central government can supplement the benefits of the growth in productivity for domestic incomes. However, unless the transfers continue to grow over time, their long-term effect on growth is limited.

Table 3 shows the growth in productivity[11] in Northern Ireland, the UK and Ireland since 1950. Over the half century from 1950 to 2000 productivity growth in the UK averaged 2.4% a year, supporting a steady rise in living standards. While slightly higher in the period to 1970, the average rate of growth showed relatively little variation over the half century to 2000. However, there appears to have been a significant slowdown since 2000. While this may have been understandable in the 2007-2010 period, due to the financial crisis, there is, as yet, no sign of a recovery in UK productivity towards the rates seen in the period to 2000, an issue that is causing significant concern among UK policy-makers.

Table 3: Productivity, annual average, %

| | Ireland | UK | Northern Ireland |
|---|---|---|---|
| 1950-60 | 3.2 | 3.0 | 2.8 |
| 1960-70 | 4.3 | 2.8 | 3.5 |
| 1970-80 | 2.9 | 2.0 | 0.7 |
| 1980-90 | 1.8 | 2.2 | 2.3 |
| 1990-00 | 2.5 | 2.2 | 1.7 |
| 2000-10 | 1.6 | 0.9 | 0.2 |
| 2010-16[12] | 2.9 | 0.7 | 0.8 |
| | | | |
| 1950-00 | 2.9 | 2.4 | 2.2 |

Note: Productivity is defined as output divided by employment. The sources are shown in Tables 1 and 2.

Ireland, by contrast, showed a more erratic pattern. Growth in productivity was, however, significantly higher than in the UK over the fifty years 1950 to 2000. With the exception of the

[11] Defined as output per person employed.

[12] For Ireland, because of distortions to the data from 2015, the average is for the period 2010-2014.

periods of the two economic crises, average annual growth in productivity has been at least 2.5% a year. Also, while the financial crisis had a significant negative impact, the growth in productivity has recovered in the subsequent period. This higher growth in Irish productivity than in the UK underpinned the convergence in Irish living standards to reach and even exceed UK levels since 2000.

For Northern Ireland the productivity performance was very satisfactory in the period 1950 to 1970, rising slightly faster than in the UK. However, the major crisis that faced Northern Ireland in the 1970s saw a very low growth in productivity. While output fell, employment had to be supported by a major expansion of the public sector. In the 1980s productivity growth in Northern Ireland exceeded that in Ireland and the UK.

Taking the 50 years to 2000, productivity averaged 2.2% a year, slightly slower than in the UK as a whole and more than half a percentage point below that in Ireland. As discussed in the next Section, since 2000, the productivity performance has deteriorated further, with Northern Ireland experiencing an even slower growth than the poor performance of the UK economy.

# 4 The Northern Ireland Economy since the Belfast Agreement

The signing of the Belfast Agreement in 1998 represented a huge step forward for Northern Ireland, but also for the UK and Ireland. It was achieved through a very substantial political commitment from both the Irish and UK governments, sustained over a long period. Support from the US administration also played an important role. As well as the vital benefits of peace for the wider society in Northern Ireland, it offered an opportunity to turn the Northern Ireland economy round. Having been unattractive for outside investors, the changed circumstances and general goodwill offered an opportunity for a fresh economic start. However, the reality is that, since the agreement was signed in 1998, relative to other relevant UK regional economies the Northern Ireland economy has fallen further behind in productivity and is today even more dependent on transfers from central government to sustain its standard of living.

Anticipating the 1998 Agreement, a symposium in the Statistical and Social Inquiry Society of Ireland in February 1995 considered the opportunities that peace might open up for the Northern Ireland economy. Bradley, 1995, warned: “If northern policy makers remain indifferent to the size of this deficit, and regard the subvention as an enduring aspect of their economy, then the Province risks becoming trapped in a Mezzogiorno-like problem of permanent dependency.” He argued that the best way to develop a more sustainable Northern Ireland economy would be to develop an “all-island” economy, exploiting the opportunities afforded by the EU Single Market.

Borooah, 1995, at the same symposium, also highlighted the need to develop a sustainable economy. He emphasised the need for investment to substantially improve the quality of the education and skills of the work force. He also talked of the importance of improving the quality of the intervention by the state in the Northern Ireland economy.

## The Public Finances

In the light of this discussion, it might have been anticipated that there would be a “peace dividend” after the Agreement in 1998, reducing the dependence on transfers from central government. However, as shown in Figure 6, over the last twenty years since the Belfast Agreement was signed, the transfer to Northern Ireland from central government, at almost 25% of Northern Ireland GDP, has been much higher than in the period 1985-1997, when it averaged 16% a year. However, a significant factor in this higher deficit was the fact that the UK national deficit during the period of the great recession was also exceptionally high

It is useful to consider the extent of this subvention in the context of regional transfers within the UK. As in all countries, resources are normally transferred from richer to poorer regions. Table 4 shows the difference in the average net fiscal balance for each region compared to the national balance for the period 2000-2016. It thus controls for changes in the net fiscal balance due to cyclical factors, in particular the great recession when the UK fiscal balance peaked at 10% of GDP.

Table 4: Average regional net fiscal balance, less national balance, 2000-2016, % of regional GDP

| | |
|---|---|
| North East | 14.6 |
| North West | 8.2 |
| Yorkshire & Humber | 6.3 |
| East Midlands | 2.3 |
| West Midlands | 6.4 |
| East of England | -5.6 |
| London | -8.1 |
| South East | -8.8 |
| South West | 0.6 |
| Wales | 17.9 |
| Scotland | 2.9 |
| Northern Ireland | 19.9 |
| England | -1.4 |

Source: ONS: Country and Regional Public Sector Finances, FYE 2017: Net Fiscal Balance Tables

This shows that the big increase in the transfer to Northern Ireland as a result of the great recession mirrored the rise in the UK deficit. When this cyclical factor is taken into account the transfer to Northern Ireland has been fairly constant at around 20% of GDP since the Belfast Agreement, having averaged under 15% of GDP between 1980 and 1999. While it is the highest inter-regional transfer in the UK, this partly reflects Northern Ireland’s relatively low GDP. The transfers to the UK’s next two poorest regions, the North-East of England and Wales, have also been consistently large over the last 20 years, though smaller than the transfer to Northern Ireland.

The transfer of resources from central government to poorer regions, which are normal in all economies, comes in two forms. With progressive tax and welfare systems, some of the transfers are made to households. This narrows the gap in personal disposable income per head between households in the richer and the poorer regions. As shown in Table 5, households in the south-east of England paid much more in tax than they received back in welfare payments. Thus while personal income in London was over 150% of the UK average, after taxes and welfare it was 140% of the average personal disposable income. By contrast, in Northern Ireland personal disposable income was over 80% of the UK average whereas, before taxes and welfare it was only 77% of the UK average.

Table 5: Personal Income per head as percentage of UK average, 2016

| | Before tax and transfers | After tax and transfers | Difference |
|---|---|---|---|
| North East | 74.8 | 80.3 | 5.5 |
| North West | 82.0 | 86.3 | 4.3 |
| Yorkshire & Humber | 80.7 | 84.2 | 3.5 |
| East Midlands | 86.0 | 87.7 | 1.7 |
| West Midlands | 83.3 | 86.3 | 3.0 |
| East | 106.5 | 104.3 | -2.2 |
| London | 153.4 | 139.7 | -13.7 |
| South East | 117.5 | 115.1 | -2.4 |
| South West | 92.5 | 98.2 | 5.7 |
| Wales | 75.0 | 81.5 | 6.5 |
| Scotland | 92.8 | 93.8 | 1.0 |
| Northern Ireland | 76.5 | 80.9 | 4.4 |

Source: ONS https://www.nomisweb.co.uk/sources

The second channel whereby resources are transferred to poorer regions is through support for public services. Public expenditure per head is shown in Table 6 for all the UK regions. (There is some overlap with the data shown in Table 5 as the public expenditure data include the funding of welfare expenditure). In recent years the level of public expenditure in Northern Ireland has ranged between 120% and 126% of the UK average, with the figure for 2016 being 120%. By contrast, for the next poorest UK regions, the North East of England and Wales, public expenditure per head was only 105% and 110% respectively of the UK average. Thus Northern Ireland has been treated much more generously through public expenditure than other regions with relatively low incomes.

Table 6: Public Expenditure per head, % of UK average

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| North East | 110 | 109 | 108 | 107 | 109 | 108 | 108 | 106 | 106 | 106 | 105 | 105 | 105 |
| North West | 104 | 103 | 104 | 105 | 104 | 104 | 105 | 103 | 104 | 103 | 103 | 104 | 103 |
| Yorkshire and The Humber | 97 | 97 | 97 | 96 | 98 | 98 | 98 | 97 | 97 | 97 | 97 | 97 | 96 |
| East Midlands | 90 | 90 | 90 | 90 | 90 | 90 | 91 | 90 | 91 | 91 | 92 | 91 | 91 |
| West Midlands | 96 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 96 | 98 | 96 | 97 |
| East | 85 | 86 | 86 | 86 | 87 | 88 | 89 | 88 | 88 | 88 | 89 | 90 | 89 |
| London | 115 | 115 | 115 | 115 | 113 | 114 | 113 | 116 | 114 | 113 | 112 | 112 | 111 |
| South East | 86 | 85 | 85 | 85 | 87 | 86 | 86 | 86 | 86 | 87 | 87 | 87 | 89 |
| South West | 91 | 91 | 91 | 90 | 92 | 92 | 92 | 91 | 92 | 93 | 93 | 93 | 93 |
| | | | | | | | | | | | | | |
| Scotland | 114 | 116 | 117 | 117 | 114 | 113 | 113 | 115 | 116 | 115 | 115 | 116 | 116 |
| Wales | 112 | 112 | 113 | 111 | 110 | 109 | 111 | 112 | 110 | 111 | 110 | 110 | 110 |
| Northern Ireland | 126 | 124 | 123 | 125 | 123 | 120 | 120 | 123 | 123 | 124 | 123 | 120 | 120 |
| UK | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

Source: HMT Public Expenditure Statistical Analyses (PESA)
https://www.gov.uk/government/collections/public-expenditure-statistical-analyses-pesa

Table 7: Northern Ireland – Allocation of Budget

| | Expenditure per head relative to UK, % | Share of NI Budget | Share of UK Budget |
|---|---|---|---|
| Public order | 152 | 5.9 | 4.7 |
| Economic affairs | 121 | 7.7 | 7.6 |
| Environmental protection | 84 | 1.2 | 1.8 |
| Housing | 258 | 3.7 | 1.7 |
| Health | 102 | 20.3 | 23.9 |
| Recreation and Culture | 219 | 2.3 | 1.3 |
| Education | 110 | 13.2 | 14.5 |
| Social Protection | 123 | 43.9 | 43.2 |
| Other | 123 | 1.7 | 1.3 |
| Total | 121 | 100.0 | 100.0 |

Source: HMT Public Expenditure Statistical Analyses (PESA)

While public expenditure per head in Northern Ireland is approximately 120% of the UK average, the allocation of resources in Northern Ireland differs somewhat from that in the rest of the UK.

As shown in Table 7, , health expenditure per head in Northern Ireland is very close to the UK average, so that it accounts for a significantly smaller share of the larger Northern Ireland budget than it does for the rest of the UK.

Northern Ireland spends much more on public order than elsewhere in the UK. While this is undoubtedly affected by the legacy effects of the Troubles, one might have expected a gradual winding down of this expenditure. Expenditure on housing is also out of line with expenditure elsewhere in the UK – there is clearly more extensive provision of social housing.

Expenditure on education is 110% of the UK average, representing 13% of the Northern Ireland budget, whereas in the rest of the UK education represents 14.5% of public expenditure. The two UK regions that devote a higher share of their budget to education than the national average are Scotland and London. However, in Scotland and London the educational outcomes are the best in the UK: the lowest share of early school leavers and the highest share of graduates. As discussed later, in spite of an above average expenditure on education, Northern Ireland has the lowest human capital in the UK.

Table 8: Employment in Public Sector, % of Total

| | Average 2008-2016 |
|---|---|
| Germany | 26 |
| East Germany | 28 |
| Italy | 20 |
| Mezzogiorno | 31 |
| UK | 30 |
| Northern Ireland | 33 |
| Ireland | 25 |
| BMW region | 26 |

Source: Eurostat

In considering the expenditure on education it is important to take account of the fact that in England and Wales there are very high student fees, which to some extent relieves the pressure on public support for third level education. In Northern Ireland (and Scotland), where the fees are lower, dependence on public expenditure is greater.

As a result, of the enhanced level of public expenditure in Northern Ireland, employment in the public sector represents a higher share of total employment than for the UK as a whole (Table 8). It is useful to compare the situation of Northern Ireland with that of two other poor regions located within large EU15 economies – East Germany (within Germany) and the Mezzogiorno (within Italy). The situation in Germany is that public sector employment is only slightly higher in East Germany than in the country as a whole, whereas the situation of the Mezzogiorno, with a high share of public employment, is much closer to the Northern Ireland experience. In the case of Ireland, the public sector share of employment today is around 25%, up from under 20% in the late 1990s.

In independent economies, the key to raising the standard of living is raising productivity. However, in regional economies, such as Northern Ireland, regional policy failures, resulting in a poor productivity performance, can be compensated for by transfers from central government. If such an under-performance continues for a long period, transfers have to grow continuously in size to maintain the regional standard of living. The experience with regional convergence, discussed earlier, suggests that if large transfers from Central Government are used to directly support living standards, this can make a region permanently dependent on the transfers. It is only if the transfers are invested in expanding the productive capital stock of a region that the central government support will stimulate productivity growth.

### Output

A useful way to decompose the factors affecting output growth over the period 2000 to 2017 is shown in Figure 6. This separates the changes in GDP per head into changes in productivity, the employment rate, the participation rate and the dependency rate. The resulting decomposition is then applied to data for the UK regions and Ireland, as shown in Table 9. While comparable figures are included for Ireland, they are heavily distorted by the relocation of activity by foreign multinational enterprises (MNEs) in 2015 and subsequent years.

Figure 6: Decomposition of Measure of GDP per head

$$\underbrace{\frac{GDP}{Pop}}_{\text{GDP per capita}} = \underbrace{\frac{GDP}{Emp}}_{\text{Productivity}} \cdot \underbrace{\frac{Emp}{LForce}}_{\text{Employment Rate}} \cdot \underbrace{\frac{LForce}{Pop1564}}_{\text{Participation Rate}} \cdot \underbrace{\frac{Pop1564}{Pop}}_{\text{Dependency Ratio (inverse)}}$$

Over the period 2000 to 2017 Northern Ireland had the lowest growth in GDP per head of any of the UK regions. The very large transfer from Central Government to Northern Ireland over the period represented a very large injection into the Northern Ireland economy. This was more than five percentage points higher than in the preceding 20 years. In an open economy such as Ireland, an injection of an additional 1% of GDP spent on public services could be expected to add around 1% to the level of GDP (FitzGerald and Keegan, 1981, Bergin, *et al.,* 2013). On this basis, the increased transfer to Northern Ireland since 1998, amounting to around 5 percentage points of Northern Ireland GDP, could be expected to have added at least 5% to the level of GDP or around 0.3

percentage points each year to the growth rate over the period to 2017. This would explain over a third of the growth in GDP per head over that period, suggesting a striking lack of dynamism in the local economy.

Table 9: Decomposition of growth in GDP per head, 2000-2017, percentage points

| | GDP per capita | Productivity | Employment rate | Participation rate | Dependency |
|---|---|---|---|---|---|
| Ireland | 3.2 | 3.1 | -0.2 | 0.4 | -0.2 |
| United Kingdom | 1.0 | 0.9 | 0.1 | 0.2 | -0.1 |
| North East | 1.3 | 0.7 | 0.2 | 0.5 | -0.1 |
| North West | 1.4 | 1.2 | 0.1 | 0.3 | -0.1 |
| Yorkshire and Humber | 0.8 | 0.7 | 0.1 | 0.1 | -0.1 |
| East Midlands | 0.8 | 1.0 | 0.1 | 0.0 | -0.3 |
| West Midlands | 0.9 | 1.0 | 0.0 | 0.1 | -0.2 |
| East of England | 0.8 | 0.9 | 0.0 | 0.1 | -0.2 |
| London | 1.5 | 1.0 | 0.1 | 0.2 | 0.1 |
| South East | 0.9 | 1.0 | 0.0 | 0.1 | -0.2 |
| South West | 0.7 | 0.8 | 0.0 | 0.1 | -0.2 |
| Wales | 1.0 | 0.7 | 0.1 | 0.4 | -0.2 |
| Scotland | 1.4 | 1.1 | 0.2 | 0.2 | -0.2 |
| **Northern Ireland** | **0.7** | **0.2** | **0.1** | **0.4** | **0.0** |
| England | 1.1 | 1.1 | 0.1 | 0.2 | -0.1 |

Source: Eurostat

Table 10: Participation rate by level of education, %

| | Total | Lower Secondary | Upper Secondary | Third Level |
|---|---|---|---|---|
| Ireland | 71.2 | 38.8 | 66.5 | 84.2 |
| United Kingdom | 75.9 | 58.3 | 75.5 | 84.1 |
| North East | 74.9 | 58.1 | 75.6 | 85.0 |
| North West | 75.1 | 56.3 | 75.6 | 84.6 |
| Yorkshire and Humber | 74.1 | 56.3 | 74.9 | 84.4 |
| East Midlands | 74.7 | 55.8 | 76.2 | 84.3 |
| West Midlands | 73.6 | 57.8 | 73.9 | 83.5 |
| East of England | 78.3 | 64.8 | 77.5 | 86.1 |
| London | 74.8 | 51.7 | 69.3 | 83.7 |
| South East | 79.5 | 65.2 | 79.7 | 84.0 |
| South West | 79.1 | 63.8 | 78.6 | 85.0 |
| Wales | 74.2 | 55.0 | 75.1 | 83.4 |
| Scotland | 76.2 | 60.6 | 76.6 | 81.8 |
| Northern Ireland | 70.5 | 48.7 | 70.0 | 86.0 |

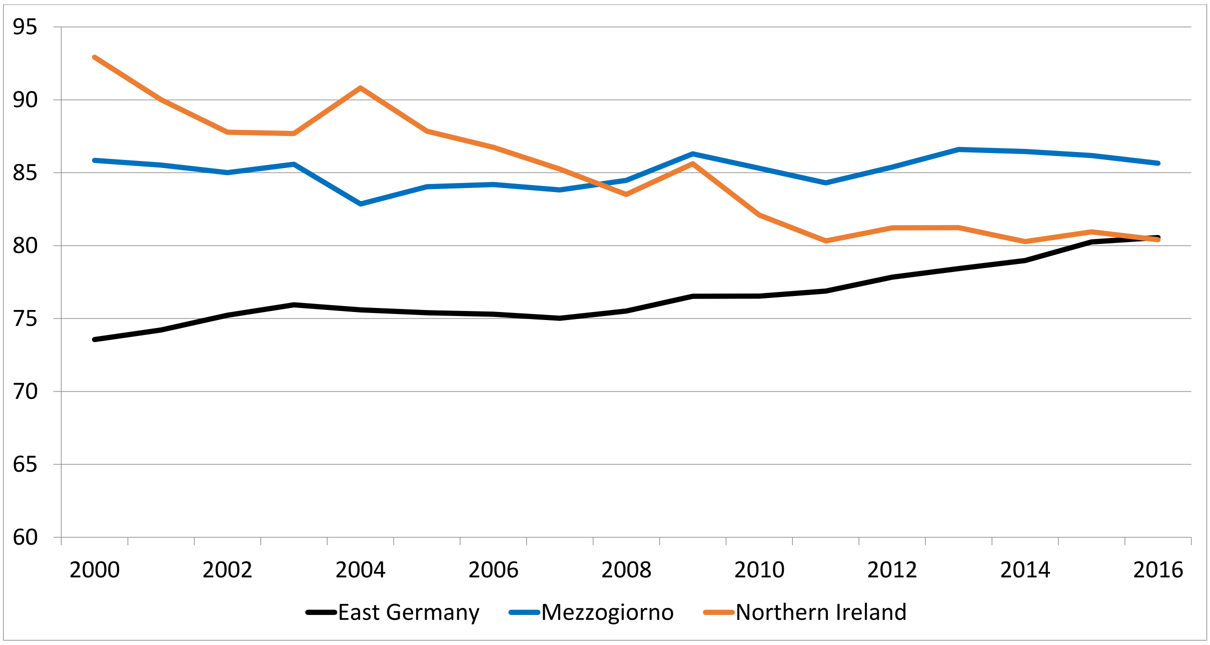
Source: Eurostat

A rising participation rate made a slightly bigger contribution to growth over the period in Northern Ireland than the UK average. However, as shown in Table 10, the Northern Ireland participation rate in 2017, like the rate in Ireland, was well below that in all other UK regions. While Northern Ireland had the highest participation rate for those with third level qualifications, participation rates were much lower for those with only a secondary education. In addition, as discussed later, Northern Ireland's population has a lower level of education than the other UK regions which, combined with the lower education specific participation rate, helps to explain the fact that the Northern Ireland participation rate was the lowest in the UK.

As shown in Table 9, the main reason for the underperformance in growth in GDP relative to the rest of the UK was the exceptionally slow growth in productivity over the period. The best performance in terms of productivity growth in the UK regions was in Scotland and the North West region of England. The figures for Ireland are seriously distorted by the exceptional growth of 2015. Nonetheless the growth in productivity in Ireland was very much higher than in any UK region, even though Ireland was worse affected by the great recession.

Figure 7 contrasts the Northern Ireland performance on productivity with that of two other regional economies, East Germany and the Mezzogiorno. Probably the most striking illustration of the problems of the Northern Ireland economy today is the fact that productivity has fallen pretty continuously relative to productivity in the wider UK economy. In turn, the poor UK productivity performance since 2000 is itself considered to be a major cause for concern. For East Germany there has instead been continuous progress since 2000, so that today productivity has reached 80% of the national average. For the Mezzogiorno there has been little change relative to the national average with the level in 2016 being 85% of the average for Italy.

Figure 7: GDP per person employed, Relative to national average




Source: Eurostat

The factors underlying this poor productivity performance in Northern Ireland are discussed in more detail in the next section.

## Standard of Living

Data published in 2016 by NISRA allow a comparison of the standard of living of Northern Ireland relative to the rest of the UK and Ireland for 2012. These data also provide clues as to the nature of the problems facing the regional economy in Northern Ireland. The NISRA data provide an expenditure side estimate of GDP for Northern Ireland, Scotland, and the UK. CSO data can be used to make comparisons with Ireland. To understand the relative standard of living, the UK national and regional data have been adjusted for differences in prices relative to Ireland using Eurostat PPS data. The UK data are also expressed in € per head to allow a direct comparison with the data for Ireland.

The use of the UK PPS data for Northern Ireland and Scotland may underestimate their standard of living as the price level for housing related consumption is lower in those regional economies. The comparable Irish data are for GNP, a more appropriate measure of welfare for Ireland than GDP.

Table 11 shows the adjusted figures in € per head for the two regional UK economies, the UK and Ireland. Table 12 expresses these data relative to the comparable data for Ireland. Measured in terms of personal consumption per head, the standard of living in Ireland in 2012 was around 97% of that in the North, 91% of that in Scotland and 87% of the UK figure. However, the gap in living standards was much greater for public consumption – expenditure on health, education and the public service. On that measure the standard of living in Ireland was 63% of that in Northern Ireland and 72% of that in Scotland and 78% of that in the UK as a whole. The superior character of public services in the UK is not that surprising with the NHS, for all its failings, providing a better service than the HSE.

Table 11: Expenditure per head in €, adjusted for PPS, 2012

| | NI | UK | Scotland | Ireland |
|---|---|---|---|---|
| Household Final Consumption (including NPISH) | 17.0 | 18.9 | 17.8 | 14.2 |
| Government final consumption (GGFCE) | 7.5 | 6.2 | 6.7 | 5.3 |
| Personal and public consumption | 24.5 | 25.1 | 24.5 | 19.5 |
| Gross Capital Formation (GCF) | 2.6 | 5.4 | 5.2 | 8.7 |
| **Gross Domestic Product at current market prices** | 23.7 | 30.0 | 27.8 | 34.8 |
| GNP | | | | 28.2 |

Source: NISRA for Northern Ireland, Scotland and the UK. CSO for Ireland. PPS data come from Eurostat

Table 12: Ireland Relative to UK and UK Regions, 2012, adjusted for PPS

| | North | UK | Scotland |
|---|---|---|---|
| GDP | 1.580 | 1.241 | 1.326 |
| Personal consumption | 0.973 | 0.870 | 0.914 |
| Government consumption | 0.627 | 0.784 | 0.718 |
| Investment | 3.212 | 1.626 | 1.694 |
| Personal and public consumption | 0.861 | 0.848 | 0.859 |

Source: NISRA for Northern Ireland, Scotland and the UK. CSO for Ireland. PPS data come from Eurostat

When private and public consumption are taken together, they suggest a significantly higher standard of living in the UK than in Ireland in 2012. The data also suggest that the standard of living in Northern Ireland was only marginally lower than in the rest of the UK because of the much more generous spending on public consumption.

The data also show a key difference between the regional Northern Ireland economy and those of Scotland, the UK and Ireland. In the case of Northern Ireland, investment accounted for only 10% of output in 2012 whereas in Scotland and the UK as a whole it was around 17%. For Ireland the comparable figure was 20% of GNP. Looking at the experience of developed economies in the EU, it is normal to devote around 20% of income to investment to maintain a reasonable rate of growth. The fact that Northern Ireland devoted most of its income to consumption rather than to investment helps explain its very poor performance in recent years in terms of the growth of productivity and output.

Since 2012 the growth in the volume of personal consumption per head in the UK and Ireland has been similar. However, the growth in public consumption has been significantly faster in Ireland. This suggests that the gap in living standards between Ireland and Northern Ireland, measured in terms of consumption per head, has not narrowed much since 2012 but that measured in terms of public consumption there has been a significant improvement in the Irish position. However, it almost certainly still leaves the standard of living in Northern Ireland significantly higher than in Ireland today, with higher expenditure on public services being the key reason for the difference.

## 5. Factors Explaining Northern Ireland's Weak Economic Performance

There is a range of factors that help explain why Northern Ireland's economic performance since 1998s has been less satisfactory than that of most other UK regions. The low level of investment is one key issue, though the reasons for this are less clear. A second factor is a poor performance in terms of the regional economy's competitiveness. A third, and probably the most important factor, is the low level of human capital (FitzGerald, 2019).Finally, the legacy effects of the past and the continuing divided nature of Northern Irish society impacts on the attractiveness of Northern Ireland for skilled labour and for Foreign Direct Investment (FDI).

As discussed above, the 2012 data for Northern Ireland indicate that a very small share of regional resources was devoted to investment in recent years. Table 13 shows public capital expenditure in Northern Ireland and the UK as a percentage of GDP. For Northern Ireland, total public investment amounted to 2.6% of GDP. Not that different from the rest of the UK. However, as total investment in Northern Ireland was only 10% of GDP in 2012, this suggests that private investment was exceptionally low. For the UK as a whole, private sector investment accounted for the vast bulk of total investment.

Table 13: Public Capital Expenditure, 2016, % of GDP

| | Northern Ireland | UK |
|---|---|---|
| Transport | 0.6 | 1.0 |
| Environment protection | 0.1 | 0.2 |
| Housing and community amenities | 0.7 | 0.4 |
| Health | 0.5 | 0.3 |
| Education | 0.5 | 0.5 |
| Recreation, culture and religion | 0.3 | 0.1 |
| Total | 2.6 | 2.4 |

Source: HMT Public Expenditure Statistical Analyses (PESA)

Looking at the composition of public investment, Northern Ireland invests much less in transport (roads) and environmental protection than the UK as a whole and significantly more in housing and recreation. While the latter investment does enhance the quality of life in the North, the lower priority accorded to investment in infrastructure to support economic growth probably contributed to the poor productivity performance.

Northern Ireland has fallen behind other UK regions and Ireland in investment in physical infrastructure. As shown here, there continues to be a low priority attached to such investment In Northern Ireland. Having invested heavily in transport infrastructure in the 1960s, investment since then has been limited. For example, the very poor quality of the roads linking Northern Ireland's second city, Derry/Londonderry, with Belfast and Dublin impacts on development in the region.

The very low level of private sector investment in Northern Ireland is not a problem that the government can address directly. Instead this issue must be tackled by removing the obstacles to private sector investment: basically problems with Northern Ireland's competitiveness, broadly defined, and its wider attraction for FDI need to be addressed. Siedschlag and Koecklin, 2019, looked at the attractiveness of Northern Ireland for FDI and they showed that the low human capital of the workforce was a significant negative factor for FDI that might otherwise have brought significant private investment.

A report published in 2016 benchmarked a range of factors affecting the North's competitiveness (Johnston and Heery, 2016). In this report Northern Ireland was compared with other relevant economies. The conclusion was that Northern Ireland faired particularly poorly on productivity, labour supply and prices and costs. The position on education and human capital had also deteriorated since 2010. Thus this report suggested quite a wide range of factors negatively affected the performance of the private sector. To date, no significant action has been taken to address these issues.

Probably the most serious problem for the Northern Ireland economy is that it has the highest share of early school leavers of all UK regions and the lowest share of the workforce with third level qualifications (FitzGerald, 2019). In turn, the evidence suggests that this explains much of the region's poor performance relative to Scotland, which has the highest human capital outside London.

The problems with human capital reflect failings in the education system over many years, as well as the effects of migration (Borooah and Knox, 2015). The selective nature of the second level education system means that the top 30% of children are selected on ability into grammar schools at the age of 11. The remaining children attend secondary schools. A critical assessment of the performance of secondary schools today in Northern Ireland today is provided by Borooah:

> "Taken collectively, Northern Ireland's post-primary secondary schools fail to meet the minimum acceptable standard for post-primary schools in England of 40% of Year 12 pupils.[13] However, this collective failure masks an even deeper failure at the level of individual schools. Of Northern Ireland's 142 secondary schools, 82 (or 58%) performed below the '40% standard' and, in these underperforming schools, the average proportion of Year 12 pupils obtaining the requisite GCSE passes was just 28% while, in the secondary schools that were not underperforming, it was 51%. So, there are two aspects to

[13] This standard is defined as obtaining 5 or more A* – C (E&M) GCSE passes, which is treated as being the standard for successfully completing high school.

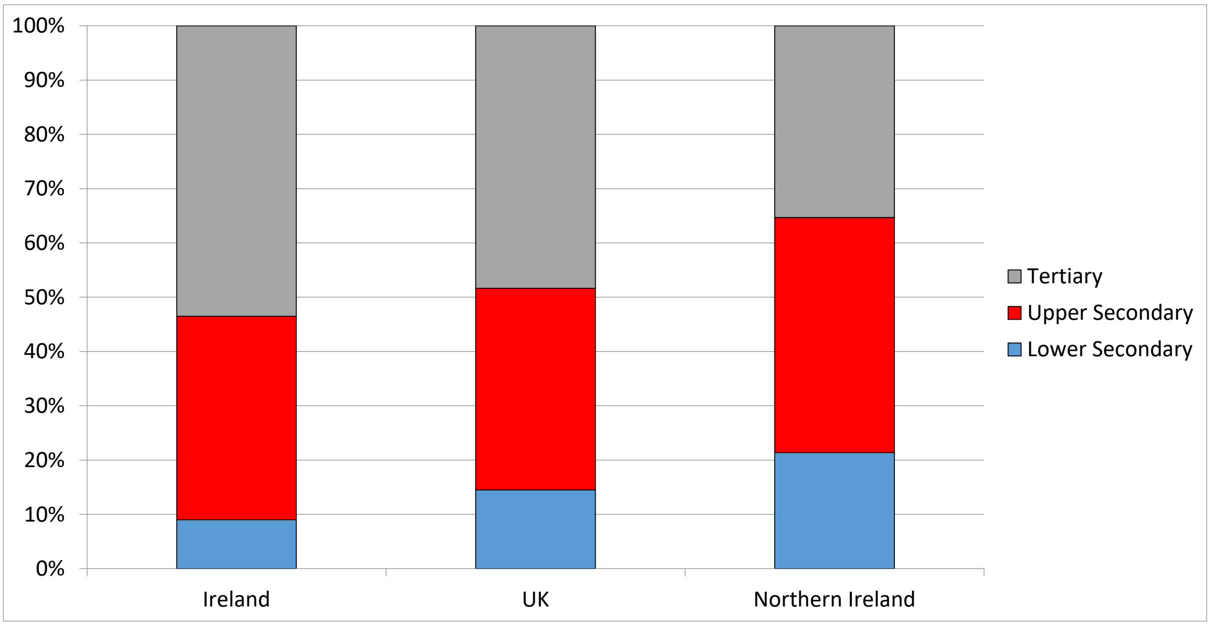
performance inequalities within Northern Ireland's schooling system: (1) inequality between grammar and secondary schools; and (2) inequality between secondary schools."

The result of this education system is a high proportion of children not completing high school and a reduced level of progression to third level. In addition, FitzGerald, 2019, shows that a substantial share of those who progress to third level emigrate.

The educational outcomes for Northern Ireland are shown in Figure 8 for 30-35 year olds in 2017. For Northern Ireland the share of this cohort with a third level education (35%) is well below that in the UK as a whole (50%) and even further below that in Ireland (55%). Also the share of the 30-35 year olds in Northern Ireland who had not completed high school education, at over 20%, is more than twice the figure for Ireland.

There is extensive research which shows that labour market outcomes are poor for those who have not completed high school. This poor performance relative to other UK regions and Ireland has persisted over a long period and is reflected in the educational attainment of older age groups (McErlean, 2018). However, the fact that the difference is so striking for those in their early 30s indicates that, even if action were taken today, it will take many years to make an impact on the labour force as a whole.

Figure 8: Population Aged 30-34, Educational Attainment




Source: Eurostat Labour Force Survey

The poor performance of the Northern Ireland educational system occurs in spite of the fact that public expenditure per head on education in Northern Ireland was over 110% of the UK average in recent years.

A further problem with the Northern Ireland education system is that, because of the duplication of facilities across Northern Ireland to provide parallel Catholic and Protestant grammar and secondary schools, the expenditure per head is necessarily increased and the productivity of the system is necessarily reduced.

The then Secretary of State for Northern Ireland, Peter Hain, speaking in 2006 said:

> "Nor will an economy which has to fund those differences be sustainable in the long term. The costs of division in Northern Ireland are staggering in almost every sector. In education, for example, there are now 50,000 empty school places in Northern Ireland (rising to 80,000 by 2015) - out of a school population of 333,000. This means a monumental waste of resources: teachers in the wrong places, empty class rooms, scores of small schools which are not viable. Two segregated primary schools in a village and doomed to closure where a merger might be viable and produce higher standards where separately they cannot. Secondary schools with inadequate facilities where a rational school estate with integrated or shared facilities could produce high quality."

However, Borooah and Knox argue very cogently that this high cost of duplication is the least of the problems with the educational system. They show that the key feature of the system which results in the poor educational outcomes is its selective nature. Borooah and Knox suggest that the gradual introduction of a "shared education" model, with children from Catholic and Protestant school sharing some facilities and courses, especially later in the secondary cycle, is likely to be a more successful approach to dealing with the religious divide. However, dealing with the poor outcomes, especially for children from a disadvantaged background should be a priority.

Northern Ireland has historically suffered a significant outflow of school leavers aged 19 to 21 as they go to study in third level institutions in Great Britain. In 2008 31% of Northern Ireland students studying full-time at third level were at institutions in Great Britain. By 2017 this had risen slightly to 33%. Because of the limitation on funding of third level education in Northern Ireland, the numbers entering universities has been capped in the last few years, suggesting a further increase in the outmigration for those seeking third level education. In recent years two thirds of the Northern Ireland graduates from institutions in Great Britain go on to find employment there rather than return to Northern Ireland.

Table 14: Regional growth and share of population with third level education

| | Real GDP Average growth 1999-2016 | Population Third Level aged 30-34 |
|---|---|---|
| United Kingdom | 1.7 | 48.3 |
| North East | 1.4 | 39.1 |
| North West | 1.8 | 43.7 |
| Yorkshire and Humber | 1.3 | 41.1 |
| East Midlands | 1.6 | 41.8 |
| West Midlands | 1.4 | 39.8 |
| East of England | 1.5 | 40.2 |
| London | 2.6 | 66.0 |
| South East | 1.7 | 47.7 |
| South West | 1.6 | 46.3 |
| Wales | 1.5 | 39.2 |
| Scotland | 1.9 | 57.5 |
| Northern Ireland | 1.3 | 35.3 |

Source: Eurostat

This outflow of young people has persisted over many years. Ireland has also seen such an outflow of young people, even during the boom years. However, in the Irish case this outflow traditionally occurs after students have completed third level. In the Irish case most of these emigrants have proved to be homing pigeons, returning after a few years abroad (Fahey, FitzGerald and Maître, 1998). This does not appear to be the case for many of the young Northern Ireland emigrants.

In the Irish case, over the last 30 years the returning emigrants have played a very important role in transforming the economy. They have returned with important experience, some with a foreign language. Research has shown that they earn 7% more as a result of their experience abroad (Barrett and Goggin, 2010). In turn this suggests that returning emigrants have higher productivity as a result of their experience, and that this is reflected in higher output. In 2011 15% of the population aged 35 and over were returned emigrants and a much higher proportion of those with third level education fell into this category.

Table 14, is taken from, FitzGerald, 2019, and it shows the average growth rate across the UK regions since 2000 and also the share of the population with third level education. As discussed earlier, Northern Ireland is at the bottom of the regions in terms of growth since 2000 and also for the share of those with third level education. With the exception of London, which has seen significant immigration of skilled labour, Scotland is at the top in terms of both growth and human capital.

These figures are highly suggestive of a link between human capital and growth within the UK. Using these data and the work by Borooah and Knox, FitzGerald, 2019, estimated that, if Northern Ireland had a Scottish level of educational attainment, growth would be between 0.25% and 1.0% higher each year. This would suggest that the vast bulk of Northern Ireland's poor economic performance is attributable to its low endowment of human capital. This conclusion is also consistent with the findings of Johnston and Heery, 2016, and Siedschlag and Koecklin, 2019.

The Troubles also saw a movement of population away from Belfast at a time when the economies of cities were playing an important role in growth elsewhere in the developed world. While this trend has been halted and reversed over the last 20 years, Northern Ireland has not fully exploited the potential benefits from the two main cities Belfast and Derry/Londonderry.

The legacy effects of the Troubles and the divided society also have an economic impact. The political system, instead of concentrating on taking the necessary steps to make the local economy work, has had to deal with a range of other issues. Also the legacy effects of the past may make Northern Ireland less attractive for potential returning emigrants. Northern Ireland has seen substantial immigration of people from outside the UK, especially in the last decade. For such immigrants the problems of the past have not proved an obstacle to moving and working in the North, providing some offset for the loss of local talent.

# 6 Challenges for Northern Ireland Economy

The performance of the Northern Ireland economy over the last 20 years highlights some key weaknesses which have manifested themselves in the very slow growth in productivity. Tackling these issues, especially the weakness of the educational system will, at best, take many years. Even if the education system were transformed tomorrow to reduce the number of early school leavers, it will be decades before the benefits of such a policy will work their way through the labour force.

Effective action to make Northern Ireland more attractive to its well-educated diaspora could, however, pay off in a shorter time scale, but it is not at all clear how this can be done effectively.

The sooner action is taken to redress these weaknesses the better, given that they will take time to turn around the economy. However, Northern Ireland faces two other major economic challenges over the coming decade: Brexit and the ongoing changes in the domestic politics and governance of the United Kingdom.

The most obvious and immediate threat to the Northern Ireland economy is the prospect of Brexit. Whatever form the final agreement between the UK and the EU takes, the outcome will be unfavourable for the UK economy (Erken, *et al.*, 2018) and it will have a significant negative impact on the Irish economy (Bergin *et al.*, 2016 and Conefrey *et al.*, 2018). While some of the better-off UK regions may be less exposed to the fall-out from Brexit, Northern Ireland is likely to be worse affected.

In recent years there have been significant political changes in the UK. The narrow miss on the Scottish independence referendum reflects a fracturing in UK politics. The current and likely future governments will probably be more English in character than was the case in the last century.

After the next election, and if and when the Brexit agreement is concluded, there is a serious danger that whatever government is in power in the UK will pay much more attention to the poorer English regions and Wales. The result could be a substantial reduction in the rate of subvention to Northern Ireland, bringing support for Northern Ireland more into line with that for poorer English regions. Such an adjustment, if undertaken rapidly, would pose huge problems for Northern Ireland.

With a very weak regional economy within the UK, there are a range of longer-term political options that may be considered over the coming decades. The option that would be the most successful from an economic point of view is if future UK governments give Northern Ireland, the poorest UK region, the time and resources to undertake major necessary reforms. However, other options have been canvassed including, in particular, unification of the two economies on the island. Whichever political option is eventually chosen, the need to raise investment in physical and human capital in Northern Ireland will remain. However, as discussed later, if the option on unification was chosen, the economic problems would be magnified by the fiscal and other costs of adjustment to the new regime. This could prove very expensive, both for Northern Ireland and for Ireland, reducing the probability of economic success.

## 6.1 Brexit

The Northern Ireland economy is highly integrated into the wider UK economy. The retail sector is an integral part of the UK-wide retail sector. In 2015, 60% of Northern Ireland's exports went to Great Britain while 15% went to Ireland (Table 15). The rest of the world accounted for only 25% of exports. For Imports Northern Ireland is even more dependent on Great Britain with 72% of goods imports and 82% of services imports coming from GB. Lawless, 2019, shows that whereas 41% of goods produced in Ireland are sold outside these islands, the corresponding figure for Northern Ireland is 17%. Thus the Northern Ireland economy is exceptionally concentrated on its neighbouring markets. This also means that any significant barriers to the flow of goods and services between Northern Ireland and its key markets could be very destabilising as it would raise the costs of doing business in Northern Ireland. These problems would, of course, be greatly magnified if Northern Ireland left the United Kingdom.

Table 15: Northern Ireland Exports and Imports by destination, %

| | GB | Ireland | Rest of World |
|---|---|---|---|
| **Exports 2015** | | | |
| Total | 60 | 15 | 25 |
| Goods | 59 | 15 | 26 |
| Services | 67 | 13 | 20 |
| **Imports 2012** | | | |
| Total | 74 | 9 | 16 |
| Goods | 72 | 10 | 18 |
| Services | 82 | 8 | 10 |

Sources: Exports: NISRA Northern Ireland Broad Economy Sales & Exports Data 2011 – 2015 and Imports: NISRA Supply and Use Tables

The Northern Ireland economy will be harmed whatever form Brexit takes. Because of the significant North-South linkages and the different industrial structure, Northern Ireland is more vulnerable to Brexit than other parts of the UK. In particular, the regional trade data for the UK show that Northern Ireland is more dependent on goods trade with the EU (including Ireland) than any other part of the UK. In particular food and live animals make up a disproportionate share of Northern Ireland's exports and imports. The more limited data on services exports shows that over 30% of services exports of high potential firms from Northern Ireland went to the EU (including Ireland) with the share for Architectural, Engineering Activities and Technical Testing and Analysis as high as 67% in 2013.

An important aspect of the trade relationship between Northern Ireland and Ireland is the close supply chain linkages. Lawless and Studnicka (2018) show that trade in intermediate products is significant. In particular 18% of traders were found to both import and export between Northern Ireland and Ireland, and their trade accounts for the majority of cross-border trade.

Lawless and Studnicka (2017) suggest that if Brexit were to result in the application of WTO tariffs and non-tariff barriers, together they would cause a 16% reduction in cross border trade, with approximately half the effect on exports from Northern Ireland to Ireland stemming from the effect of tariffs on milk and cream. Applying the methodology of Morgenroth (2015) to Northern Ireland exports suggests that Brexit would result in a reduction of total merchandise exports by over 12%.

InterTradeIreland, 2019, looked at the exposure of firms to Brexit on both sides of the border. They found that the share of firms in the highest risk category (lowest absorptive capacity) is greater than the share of employment, meaning that smaller firms are more represented in this category. This pattern is found for both goods and services firms in Northern Ireland and Ireland. This study found that 45% of Irish goods firms and 51% of Northern Irish goods firms are in an at-risk group for the effects of Brexit.

Siedschlag and Koecklin, 2019, looked at how Foreign Direct Investment in Northern Ireland would be affected by Brexit: they found a very negative effect from a hard Brexit. They suggested that if corporation tax were reduced to 12.5% this might offset the negative effects. However, the wider costs of the loss of revenue from this source of taxation were not assessed.

Lucey, 2019, shows how after Brexit, over the coming decade, Northern Ireland farmers are likely to lose the direct payments that currently come from the EU. As these constitute the bulk of farmers' incomes the loss will prove extremely serious. Lucey suggests that suggestions from the Northern Ireland Department for Agriculture that the future survival of NI agriculture can be secured are "totally detached from reality."

Looking across the range of studies which have considered both the goods and the services sector, it is clear that Brexit will have quite a negative impact. The best economic option for Northern Ireland would involve a special arrangement whereby Northern Ireland maintained access to the EU Single Market, while also being part of the UK market, something that the so-called "backstop" provision attempts to ensure. The research by Siedschlag and Koecklin would suggest that this could leave Northern Ireland as one of the more attractive UK regions for Foreign Direct Investment.

While some of the undoubtedly negative effects of Brexit on the Northern Ireland economy may weaken over time, the poor performance of the Northern Ireland economy under the more favourable conditions of the last 20 years suggests that it may prove less resilient than other UK regions to the change in circumstances that Brexit will represent. This increases the urgency of reform to enhance productivity.

### 6.2 Living within a changing United Kingdom

The evolving politics and governance of the UK poses a major long-term challenge for Northern Ireland. The changes which are taking place are partly a result of Brexit, but they also reflect some of the political pressures that led to Brexit.

Brexit, in whatever form, is likely to hit the standard of living of everyone in the UK. While it should not result in a sustained recession, it will certainly result in significantly slower growth over many years. In turn, this will put the public finances under increasing pressure. As Northern Ireland is treated more generously than other poor UK regions, such as the North-East of England and Wales, there may well be pressures to reallocate resources across the regions, changing the Barnett formula[14] and related arrangements which have favoured Northern Ireland.

While over the last century Scottish MPs have gone on to be Prime Minister, and a number of members of every cabinet up to 2010 represented Scottish constituencies, since then members of the Cabinet have almost all represented English constituencies. Given the weakness of Labour and the Conservatives in Scotland, this seems unlikely to change in the near future. The last Irish MP to hold a cabinet position in London was Edward Carson, who represented Belfast Duncairn in the 1918 election (having previously represented Dublin, TCD). Thus the UK government is more "English" in its outlook than on any occasion in the last century and there is little prospect of this changing in the near future. This will pose particular risks for Northern Ireland after the next election when the effects of Brexit may be clearer.

While the Scottish independence referendum was lost, a significant share of the Scottish population remain disaffected from the Union. The fact that Scotland voted by a large majority to remain in the

[14] This formula determines the regional allocation of resources within the UK.

EU has heightened the tension between London and Edinburgh. This leaves open the possibility that Scotland may choose independence at some point over the coming decades, leaving Northern Ireland a potential “orphan”, even more isolated within the UK.

With the UK already experiencing a poor performance on productivity, the medium-term prospect is for a squeeze of living standards and of budgetary resources in the coming decade. Future UK governments, with a strong English representation, may well decide to rebalance the internal transfers within the UK to better reflect relative incomes. The pressures for change may be more acute as the consequences of Brexit for the public finances become apparent.

Even before the Belfast Agreement there were concerns about the sustainability of the ongoing transfers to Northern Ireland. Borooah, 1995, argued that “Northern Ireland can expect a ‘soft’ rather than a "hard" landing - a gradual trimming of the subvention rather an abrupt reduction.” As discussed earlier, in fact the subvention was increased after 1998.

Just as the sudden increase in transfers to Northern Ireland in the early 1970s significantly offset the very serious negative economic shock arising from the Troubles, a sudden reversal of the transfers could impart a major negative shock to the Northern Ireland economy in the future. The net transfer to Northern Ireland currently stands at over 20% of Northern Ireland GDP. As discussed earlier, for every one percentage point of GDP reduction in the transfer from the UK, GDP is likely to fall by at least one percentage point. Even for a limited reduction in the transfers, this could wipe out the already anaemic growth in Northern Ireland for a number of years.

The best economic option for Northern Ireland is that it is given many years to put its economy in order. If the transfer rate were sustained for a decade, and if, as suggested by Brownlow and Birnie, 2018, there was a major reallocation of public resources in Northern Ireland to promote a more productive economy, this could help move the Northern economy onto a sustainable growth path.

Substantial savings will need to be realised in areas of public expenditure to free up resources for other necessary investment. The second level school system needs to me rationalised to replace the current system, where children are selected by ability at age 11, with a system that is inclusive of children of mixed ability, providing genuine equality of opportunity for children from disadvantaged backgrounds. In addition to investing to ensure higher completion rates in high school, significant investment in third level education is needed to expand the number of students studying at third level institutions in Northern Ireland. The fact that a quarter of young people attend university in GB and that two thirds of these end us as emigrants when they graduate, taking jobs outside Northern Ireland, highlights the importance of such an expansion.[15] In addition, resources need to be reallocated to infrastructural investment to support increasing productivity and output across Northern Ireland.

The failings identified in the report on the competitiveness of Northern Ireland need to be addressed (Johnston and Heery, 2016). In addition, the factors that discourage emigrants from Northern Ireland returning, especially those emigrants with third level education, need to be identified and tackled. These obstacles to returning go beyond the realm of economics.

[15] https://www.economy-ni.gov.uk/publications/destination-leavers-uk-higher-education-institutions-northern-ireland-analysis-201617

The major danger for Northern Ireland is that future "English" governments will be out of sympathy with Northern Ireland, and lose patience with the failure to develop a successful regional economy. If Northern Ireland has not already taken action to move its economy onto a sustainable growth path before a UK government began cutting back on its transfers to the North, it would be very difficult to make progress. Having to implement significant cuts, affecting the standard of living of the community, at the same time as reallocating resources to build a successful economy, could prove very challenging even for a successful political system.

### 6.3 Irish Unity

In the case of Irish unity there would, of course, be a very wide set of social, political, and administrative challenges to be addressed, but these are not considered in this paper.[16] Instead we concentrate on some of the economic challenges that would arise in the case of unification. As we have seen in the case of Brexit, the economic effects of a massive constitutional change can be very far reaching, involving many different channels and affecting all sectors of the economy. This paper focuses on only one of the key economic channels: the impact on the fiscal support for Northern Ireland.

Since Ireland left the UK in 1922, in the case of other "orderly" break-ups of political unions it has been normal for the assets and liabilities of nations to be shared out when the divorce is agreed.[17]

Under the 1921 Treaty Ireland accepted responsibility for a share of the UK national debt. This share would have amounted to over 80% of Irish GDP (FitzGerald and Kenny, 2017). However, this debt was written off in 1925 in return for Ireland accepting the existing border with Northern Ireland.[18] When the Soviet Union broke up, the assets and liabilities of the Union were divided up by the Alma-Ata Protocol of 1991. A similar orderly agreement was reached in 1992 on the separation of Czechoslovakia into two states. If Scotland had voted for independence they would have shouldered their share of the net liabilities of the UK. The Brexit divorce will also include a protocol assigning assets and liabilities between the UK and the EU.

Thus if Northern Ireland were to leave the United Kingdom, for example to join a united Ireland, following other international precedents this could trigger an ending of transfers from the UK central government and Northern Ireland could also have to share responsibility for its share of the net liabilities of the UK. This can be considered as one possible option. An alternative option, which might be considered the most favourable terms for Northern Ireland leaving the UK, might involve an agreement to waive Northern Ireland's liability for the UK net debt and to phase out the transfers from London over a period of 5 or 10 years.

Whatever the form of an agreement underpinning Northern Ireland leaving the UK, as a region within a United Ireland it would still have a very large fiscal deficit. However, under the most favourable exit scenario the deficit would be only reduced by a quarter. As set out in Appendix 2, even if Northern Ireland joined a united Ireland debt free, so that there was no contribution towards national debt interest payments, the 2016 deficit of £9.3 billion (€11.4 billion) would be reduced to

[16] Some of these issues were considered as part of the work of the New Ireland Forum in 1983.

[17] There have been many cases where this approach has been adopted – the break-up of the Soviet Union, the break-up of Czechoslovakia and, today Brexit. If Scotland had voted for independence they would have shouldered their share of the net liabilities of the UK.

[18] Treaty (Confirmation of Amending Agreement) Act, 1925.

£6.9 billion (€8.4 billion). However, if the usual approach to the break-up of a Union was taken, and Northern Ireland took its share of UK net liabilities, the deficit would be £8 billion (€9.8 billion).[19]

This would be the cost of funding existing services in Northern Ireland at existing welfare rates and rates of public service pay with UK tax rates. However, there would be an issue of whether public service pay and welfare rates should be harmonised. While an Irish tax regime applied within Northern Ireland might bring in some additional revenue, there would be a very substantial cost to raising Northern Ireland welfare rates and rates of public service pay to Irish levels. In the case of welfare rates alone, this could add around £3 billion (€3.7 billion) to the cost of financing Northern Ireland services. In this paper we make the simplifying assumption that, in the event of unification, harmonisation of pay and welfare rates would be postponed indefinitely.

In the case of German unification, a constitutional change that had overwhelming support from all citizens, a decision was made to rapidly apply West German welfare and pay rates, as well as undertaking a massive investment programme in East Germany. However, it was also decided to fire a large number of public servants and to let existing businesses, which could not survive unification, close. As discussed earlier, the result was that, while in East Germany there had previously been full employment, after unification unemployment peaked at over 20%. Though it has since come down, massive emigration has also been part of the solution. The result of this tough policy approach has been that, after the initial shock, East Germany has seen higher growth in productivity, bringing about a steady but slow convergence with the rest of Germany.

However, the case of Northern Ireland is rather different. It is much larger relative to Ireland than was the case of East Germany relative to West Germany. This means that the option of raising welfare rates and funding a massive investment boom would put massive pressure on the Irish economy.

In the case of a united Ireland there would be a range of options on how the Northern Ireland funding gap could be closed. Here we consider 3 options. At one extreme, Northern Ireland could adjust its expenditure and revenue to rapidly become self-financing. At the other extreme, Ireland could shoulder the burden of funding Northern Ireland. There are also intermediate options, in particular if the UK agreed to continue providing some funding for 5 or 10 years after Northern Ireland exited the Union.

If Northern Ireland had to very rapidly adjust to fund its own services, the economic shock would be extreme. Cutting expenditure (or raising taxes) by 20% of GDP would be much more severe than any of the fiscal adjustments undertaken in the crisis countries during the great recession.[20] The result

[19] Daly, 2018, has argued that the transfer to Northern Ireland from London is lower than the headline figure published by the ONS. He suggests that, as a result, the burden that would arise for Ireland under unification would be much reduced. However, his paper suggests, firstly, that even after unification the UK would continue to pay £2.7 billion to Northern Ireland for ever – just under a third of the current transfer. The paper assumes that the population in Northern Ireland would not pay for debt interest, overseas aid, defence, the Department of Foreign Affairs and other common services if it remained in the UK or was part of a united Ireland. A further £0.7 billion would be saved by firing approximately 50,000 public servants in the North. The residue of between £0.7 billion and £1.8 billion would then be paid by Ireland as a continuing transfer. These assumptions are clearly unrealistic.

[20] This would be the consequence of Northern Ireland electing for independence.

would be a sudden reduction in GDP of over 20%.[21] The increase in unemployment could well exceed that in East Germany where the unemployment rate peaked at over 20%. In turn, many of those with skills, especially those in the younger age groups, would emigrate to escape the economic misery in Northern Ireland. This was what happened in East Germany when it suffered the shock of unification. This would further reduce the tax base and could contribute to a complete collapse in the regional economy.

The fact that such a scenario could prove so economically disastrous makes it exceptionally unlikely it would be chosen voluntarily by the people of Northern Ireland. Also, for its neighbours in Ireland and in Great Britain, the destabilising effects of such an outcome on society and politics in Northern Ireland would be of grave concern.

The alternative polar case would be for Ireland to take on the task of supporting the Northern Ireland economy through replacing the large transfer from London with a transfer from Dublin. As discussed above, the full economic consequences of this would depend on the terms under which unification occurred. Here we first assume that Northern Ireland, in leaving the UK, would carry with it a share of the UK debt.

In the past the huge burden that this would impose on Ireland was discussed in a number of papers. Writing in 1972, FitzGerald, while acknowledging the size of the subsidy to Northern Ireland, took an optimistic approach: “Only the problem posed by UK subsidies to Northern Ireland’s agriculture – which will be largely solved by EEC membership – and to the Northern Ireland social services are real obstacles to reunion.” However, writing two years later in 1974, Dowling considered the economic impact on Ireland of unity estimating that “the likely cost to the economy is nearer to 15% of GNP when the induced effects of the transfer have taken place.” Since then the size of the transfer to Northern Ireland has substantially increased.

In 1983 The New Ireland Forum, in a report prepared by DKM, also considered some of these issues. In the absence of continued transfers from Northern Ireland, this study concluded that:

> “A total and precipitate absence of such transfers would in our view require what can only be described as catastrophic economic adjustments. The disappearance and non-replacement of the British subvention would result, as already indicated, in an immediate loss of income equivalent to 8 per cent of GDP of the combined economies”.

While the Irish economy is much stronger today than in 1983, funding the Northern Ireland deficit would pose a massive challenge for Ireland. As discussed in Appendix 2, while the current transfer to Northern Ireland is of the order of €12 billion, in a united Ireland, where Northern Ireland carried a share of the UK debt, the deficit would be of the order of €9.8 billion, 6.5% of adjusted Irish Gross National Income, about two thirds of the deficit in Ireland (excluding support for the banks) at the height of the financial crisis. Based on the experience in dealing with the financial crisis in Ireland, to fund this transfer would require a fiscal adjustment in Ireland amounting to cuts or tax increases of €20 billion to €30 billion[22]. If the transfer to Northern Ireland were all funded by increasing direct

[21] See the discussion earlier in this paper on the effects of fiscal injections or cuts in small economies.
[22] This takes account of the negative effects on tax revenue and expenditure which result from a major fiscal adjustment.

taxes in Ireland, using the HERMES model (Bergin *et al.*, 2013)[23] it is estimated that this would reduce GNI by around 4% and also reduce consumption per head by around 9% and employment in Ireland by around 4%. The effects on GNI would be significantly greater if the transfer were funded by cuts in expenditure in Ireland.

As discussed earlier, living standards are today still significantly higher in Northern Ireland than in Ireland as a result of the huge subsidy for public services from the UK government. The effect of such an approach to Irish unification, where Ireland took over responsibility for the transfer currently coming from the UK central government, would be that those living in Northern Ireland would be between 10% and 20% better off than those living in Ireland, purely due to a huge continuing transfer from Ireland. This would still leave welfare levels significantly lower in Northern Ireland than in Ireland. As discussed earlier, if they were equalised the transfer would be much higher and the difference in living standards on the island of Ireland would be even greater.

While such a once-off shock could possibly be sustained, the long-term economic problem would be that, without major cutbacks in existing programmes in Northern Ireland, there would be no resources to fund the transformative programme of investment in human and physical capital needed to raise productivity in the long term. This would make it highly probable that the dependent relationship of Northern Ireland on Ireland would continue indefinitely. While there are many examples in Europe of regional transfers from richer to poorer regions, such a transfer of resources to provide a much higher standard of living in recipient region than in the donor regions would be unprecedented.

A third possibility would be the case where Northern Ireland left the UK without taking responsibility for any of the UK debt. Under these circumstances it is estimated that this would reduce GNI in Ireland by over 3% and also reduce consumption per head by around 8%. Even if the UK were, in addition to the debt waiver, to continue to pay transfers to Northern Ireland for 5 or 10 years this would postpone but would not avoid the long-term shock to the Irish economy. Achieving public acceptance in Ireland for such a permanent substantial reduction in living standards resulting from unification could be very challenging.

A study by Hubner, *et al.*, 2015, using a gravity model, argues that a surge in trade on an all-island basis would have a lasting very positive effect on growth in the North. However, they do not apply the same model to measure the dislocation to the Northern Ireland's trade with Great Britain from leaving the United Kingdom. All the research on the effects of Brexit on Northern Ireland has highlighted how the dislocation to its economy from the erection of trade barriers with Great Britain would be far greater and more immediate than the gains from increased trade with Ireland. As Hubner *et al.* state, "numerous studies done in a variety of settings (the US and Canada, among Canadian provinces) demonstrate that 'borders matter' to a much greater degree than most observers would expect." With the UK leaving the EU, and given the very close integration of the Northern Ireland economy with that of GB, the dislocation of departure from the UK would be all the greater. Even if the UK were still a member of the EU, because so much more of Northern Ireland's existing trade is with Great Britain, such a change would still have a very significant negative effect on the North.

[23] Because the Irish economy is significantly larger today than it was in 2013 the shock of the €12 billion increase is scaled down by the ratio of GNI* today relative to 2013.

The Hubner, *et al.*, study also makes the assumption that more Foreign Direct Investment would produce convergence in productivity levels within the island of Ireland within 15 years. As discussed above and in FitzGerald, 2019, the fundamental problem with the Northern Ireland economy is its weak capital base, especially its very weak human capital. As Siedschlag and Koecklin, 2019, show, the inadequacy of Northern Ireland's human capital would severely militate against additional FDI in Northern Ireland. Reforming the education system to tackle the fundamental cause of low productivity in Northern Ireland would take many years to pay off. Thus, there would be no prospect of rapid convergence in productivity between the two economies on the island, so that there would be very strong pressure for continuing transfers from Ireland.

Finally this study assumed that Ireland would take over responsibility for continuing to make the very large transfer to Northern Ireland after unification. However, as discussed, here the serious implications of this for living standards in Ireland are not considered.

## 7. Conclusions

The Northern Ireland economy has been not been well managed since the Belfast Agreement in 1998. Subsequent to the Agreement there was a major increase in the already very large transfer from the UK government. Today the transfer amounts to over 20% of Northern Ireland GDP. However, this very large transfer has been used to sustain a high standard of living in Northern Ireland, on a par with that in the UK as a whole, rather than allocating the increase in resources to investing in Northern Ireland's future.

As a result of the policies pursued by the Northern Ireland administration, over the last 20 years productivity in Northern Ireland has fallen relative to the UK average. In turn, UK productivity has itself performed very poorly over the same period. This is the central problem of the Northern economy.

This performance contrasts with that of East Germany where there has been steady progress since unification in 1990, with productivity gradually converging towards the national average. In the case of the Mezzogiorno, while productivity has not risen relative to the rest of Italy, it has at least maintained its position.

The key factor behind the poor productivity performance in Northern Ireland has been the low rate of investment in physical and human capital. In particular, the failure to reform the education system to provide equal opportunity for children of different abilities means that Northern Ireland today has the highest rate of early school leaving in these islands. Borooah, 2015, shows how this failing has a very high economic and social cost. In addition, the limited capacity of the Northern Ireland third level system means that a high proportion of talented young people take their first degree in GB third level institutions. Most of these emigrant students never return to Northern Ireland. The stock of highly educated people from Northern Ireland who are living abroad represents a potential resource if they could be persuaded to return. However, it is not clear what policies would be needed to achieve such an outcome.

The dependence of the Northern Ireland economy on very large transfers leaves it very vulnerable to shocks. Brexit will, undoubtedly, have serious negative consequences for the Northern Ireland Economy. Possibly more serious for Northern Ireland are the changes taking place in the internal politics of the UK. If greater attention is paid to the problems of poorer regions of England there could be a major change in the approach of the UK Treasury to Northern Ireland in the next decade. Any move to reallocate some of the transfers currently going to Northern Ireland to other poor English regions could prove very disruptive for Northern Ireland and its standard of living.

The best policy, to guard against these risks, is for a Northern Ireland administration to rapidly make a major change in economic policy. This should involve a large reallocation of resources from sustaining consumption, especially public consumption (public services), to investing in human and infrastructural capital. While painful initially, it would move the Northern Ireland economy onto a sustainable growth path where it would be less dependent on the whims of a London government.

Finally, because of the state of the Northern Ireland economy and its dependence on transfers, the other possible options of unification (or independence) are made exceptionally expensive. Unification, with a rapid ending of transfers, would produce a dramatic fall in the standard of living in Northern Ireland. Unification, where Ireland took over responsibility for the transfers to Northern Ireland, would necessitate a major cut in the standard of living in Ireland in order to allow Northern Ireland to maintain a standard of living between 10% and 20% above the Irish standard.

The best outcome for Northern Ireland is one where future UK governments commit to providing continuing large transfers to Northern Ireland for at least a further decade in return for a change in economic policy in Northern Ireland aimed at moving the economy onto a sustainable growth path. This will involve some pain up front as resources are reallocated. In particular, while it will be very difficult to achieve the necessary transformation in the education system, this is essential if Northern Ireland is to prosper in the long term.

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# Appendix 1: Italian and German Growth Experience

## Italian Experience

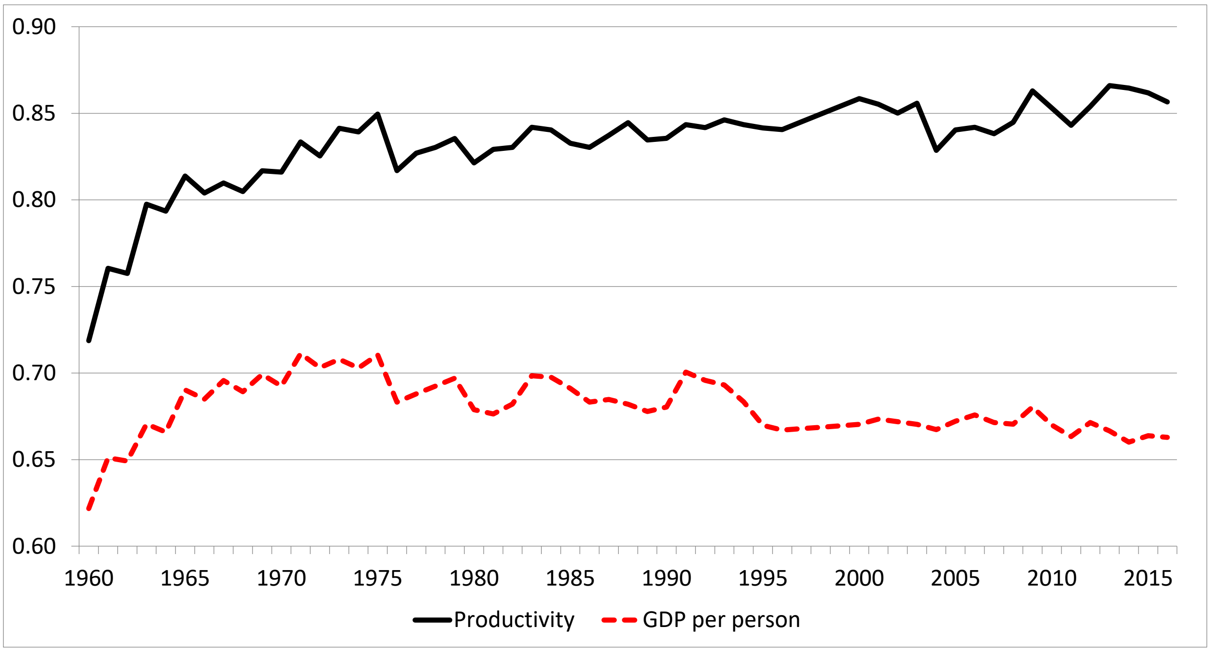
The Mezzogiorno (south of Italy) was traditionally much poorer than the rest of the country. After the Second World War the vibrant Italian manufacturing sector was located in the North with the south dominated by agriculture. However, public policy, through a range of measures, sought to narrow the gap in output per head between the two regions. There was a major programme of investment in the poorer region and industrial incentives also played a role. Papagnia, *et al.,* 2018, find a statistically significant positive effect of public investment on the growth of the Mezzogiorno in the period 1951-1995. Their paper suggests that public capital may have a significant positive role in episodes of growth acceleration if the quality of the institutional environment is high, but it can lose its effectiveness if bureaucratic corruption and rent-seeking strongly affect public policy.

The improvement in productivity in the period to 1970 relied disproportionately on the movement of state owned enterprises to the Mezzogiorno, rather than growing a privately owned tradable sector in the region, and this latter policy did not prove very successful in the long run.

In the period between 1950 and 1970 there was some success, with output per head rising from just over 60% of the national average to around 70% (Pench, 1993 and Papagnia, *et al.,* 2018). Figure A1 shows that the progress slowed down around 1970 so that today output per head stands at around two thirds of the national average.

Figure A1 also shows that, as a result of the policies pursued in the 1960s, productivity (output per person employed) rose quite rapidly from 72% of the national average in 1960 to 85% of the national average in 1975. Thereafter it has remained at roughly the level reached in 1975.

Figure A1: Mezzogiorno GDP per head and per person employed relative to national, %




Source: [http://crenos.unica.it/crenos/databases/database-regio-it-1960-1996](http://crenos.unica.it/crenos/databases/database-regio-it-1960-1996) and Eurostat

The failure to grow the tradable sector in the Mezzogiorno left the economy unusually dependent on the public sector. By the end of the 1980s manufacturing accounted for 27% of Gross Value Added (GVA) in the rest of Italy compared to only 13% in the Mezzogiorno. By contrast non-market services accounted for 11% of GVA in the rest of Italy and 19% in the Mezzogiorno.

One of the factors which contributed to higher growth in the Mezzogiorno in the immediate post-war years was that wage rates were significantly lower than in the rest of Italy. The Mezzogiorno was more competitive than the North for certain labour intensive processes. However, because higher wages were available in the North of Italy and in Germany, there was significant emigration from the south of Italy. This contributed to raising wages in the south, so that by 1970 wage rates were much closer to the Italian average. In addition, Pench, 1993, suggests that generous income maintenance payments may have raised the reservation wage in the south. By the late 1980s wage rates in the Mezzogiorno were at least 84% of the rates in the rest of Italy. Eurostat data on average earnings suggest that in 2000 rates were 87% of the national average, though by 2016 they had fallen back again to 84%.

Table A1: Income per capita, Mezzogiorno as % of rest of Italy

| | 1970-74 | 1980-84 | 1987 | 2000 | 2016 |
|---|---|---|---|---|---|
| Disposable Income before tax and transfers | 62 | 63 | 60 | 68 | 68 |
| Disposable Income after tax and transfers | 69 | 72 | 67 | 73 | 75 |

Source: Pench, 1993 and Eurostat

With productivity much lower in the Mezzogiorno than in the rest of Italy, while wage rates have not been very different, there were only limited incentives for firms to invest in the south. The Mezzogiorno needed to be significantly more competitive across a range of other dimensions if sufficient investment was to take place to produce higher growth than in the rest of Italy and generate convergence in productivity levels.

As Pench, suggests, a further factor limiting growth in output per head in the Mezzogiorno was that by 1970s there were very substantial governmental transfers, which greatly narrowed the gap in living standards between the Mezzogiorno and the rest of Italy. Table A1 shows that disposable income per head (after taxes and transfers) was significantly closer to the national average over the last 50 years compared to personal income before transfers and taxes. It was not necessary to migrate to enjoy an "Italian" standard of living. However, this reliance on transfers from richer to poorer regions is normal and it does not provide an adequate explanation of Italy's poor performance.

Transfers from central government also directly supported employment through public expenditure on goods and services. By 1988 public expenditure (public consumption) on employing public sector workers amounted to 25% of regional GDP in the Mezzogiorno, whereas it amounted to 10% of regional GDP in the rest of Italy.

To fund this much larger public sector in the Mezzogiorno there had to be major transfers of resources from the rest of Italy. For 1988 it is estimated that net borrowing by the public sector in the Mezzogiorno amounted to 35% of regional GDP whereas in the rest of Italy it amounted to around 3% of GDP.[24] For Italy as a whole borrowing amounted to around 11% of GDP in that year. Thus the vast bulk of the debt being accumulated by Italy in the late 1980s was required to fund the public sector in the Mezzogiorno.

Pench, 1993, reflecting on these data, comments “A counterpart of the transfer process is also the displacement of the manufacturing sector by an abnormally large tertiary sector.” He went on to suggest that it was desirable to shift resources in the south from income maintenance to supporting investment if greater convergence in output was to be achieved between the two regions of Italy.

Braunerhjelm, *et.al*., 2000, compared the policies adopted to promote convergence in the Mezzogiorno with those pursued in Ireland to promote national convergence to the EU15 level of output per head. They suggest that while the Mezzogiorno, like Ireland after EU membership, benefited from open trade, these benefits have been more than outweighed by the burden of some national policies, notably the national wage-setting policies adopted in the 1960s. Equally important, Italy’s attempts to build a skilled and educated workforce have been half-hearted by comparison with Ireland’s.

Italy has also relied heavily on wage subsidies and the promotion of employment in state-owned firms, neither of which involved any explicit requirement to promote internationally competitive production. This strategy is not sustainable in the longer term.

### Germany Experience

The context for the development of the East German economy is distinct from that of Northern Ireland and the Mezzogiorno, in that German re-unification constituted an extraordinary upheaval in a very short period, with a dramatic transition from a centrally planned economy to a market economy, currency union with West Germany, and significant institutional, administrative and political changes. The latter included the adoption of the West German legal and administrative system, as well as the creation of new federal states including the unified Berlin. The West German Deutschmark was also introduced and the East German currency was exchanged on a one to one basis. Savings, up to a certain amount, were also converted on a one to one basis and amounts above the threshold at a two to one basis.

Apart from the internal changes, unified Germany, including East Germany, was also confronted with the disintegration of the Soviet Union led trade block, the Council for Mutual Economic Assistance (COMECON). This required a reorientation of external trade.

The transition to a market economy entailed a number of changes. Centrally controlled prices were now allowed to be determined by the market and the East German currency was converted one to one to the Deutsch Mark. A crucial aspect of the transition to a market economy was the privatisation of East German enterprises, to which end a new agency called the Treuhand Anstalt (THA) was formed. Of the over 12,000 businesses that the THA was administering 7,853 were either privatised or integrated into the local and regional public sector by the end of 1994 when the THA was wound down[25]. Some 1,600 of these were simply returned to their previous owners, who had been dispossessed by the East German government, and about 2,700 had been part of a

[24] Pench, 2003, Table 4

[25] See Bundeszentrale fűr Politische Bilduung http://www.bpb.de/nachschlagen/lexika/handwoerterbuch-politisches-system/202195/treuhandanstalt?p=all

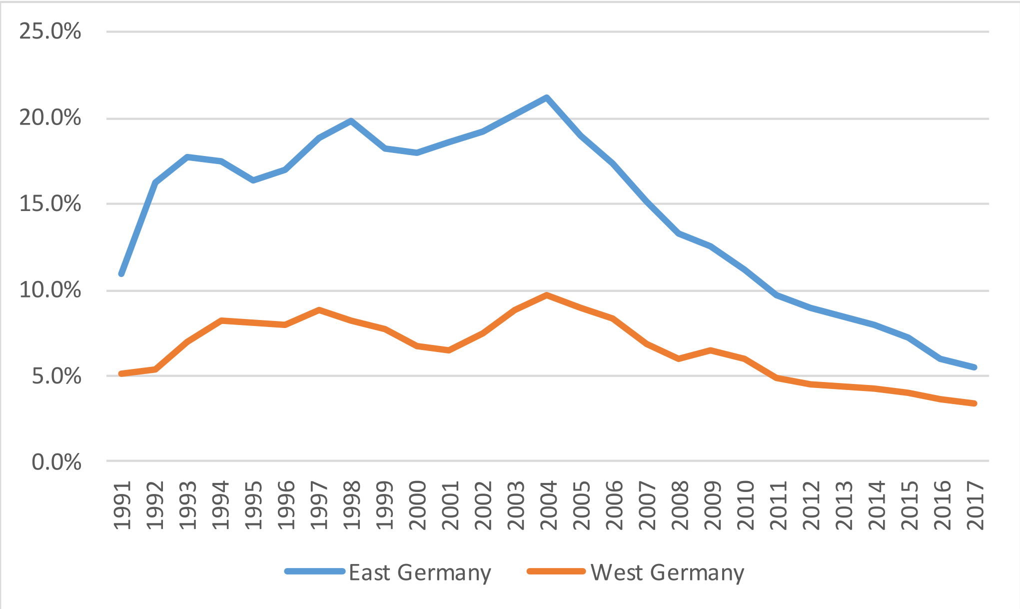
management buyout, which was subject to particularly favourable conditions for those acquiring the business.

This process of privatisation was difficult and controversial. Many businesses were not competitive in a market economy and overall the industrial structure of East Germany at the time of reunification was similar to that of West Germany in the 1960s (Buechtmann and Schupp, 1992). The introduction of the Deutschmark also meant that significant currency depreciation could not be used to improve the competitiveness of East German firms. In addition these firms now had to compete for labour with West German firms that paid substantially higher wages.

**Population and Unemployment**

Employment in East Germany fell from 9.2 million in 1989 to 7.1 million in July 1991. The unemployment rate in East Germany rose rapidly following unification, reaching 17.5% in 1994 (see Figure A2), having stood at just around 1% before the fall of the Berlin Wall. While it dipped slightly subsequently, after 1998 the unemployment rate rose again until 2004, when it hit 21.2%. In contrast the unemployment rate in West Germany was less than half that of East Germany until 2008. More recently the two rates have been converging and the latest statistics show that the unemployment rate in East Germany stands at 5.4% while that in the West was 3.3%.

Figure A2: German Unemployment Rate, %



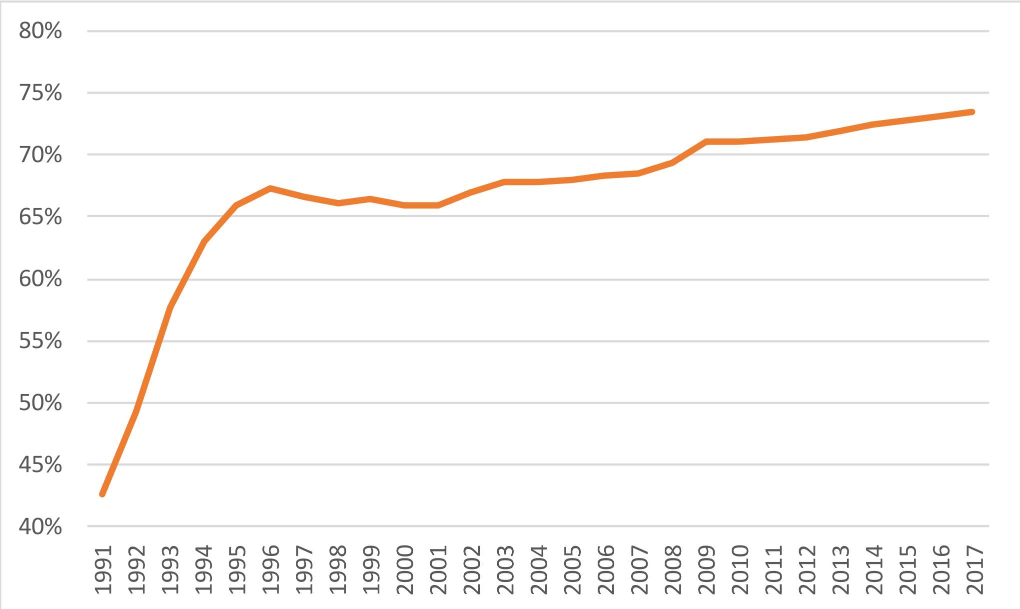

Source: Own Calculations using data from Statistische Ämter des Bundes und der Länder

While the unemployment rate increased with the reorganisation and privatisation of the economy, this increase would have been much greater without the significant emigration from East Germany to West Germany. Between 1989 and 2002 some 2.7 million people migrated from East Germany to the West. Once east to west migration is accounted, for East Germany lost 1.3 million people over that period. This represents a reduction of the population of 7.5% of the original population (Wolff, 2006). Given that the younger and more skilled were more likely to emigrate, the migration has had a long-run effect on both the evolution of the population and productivity growth. Relative to that in 1991 the East German population in 2017 is 12% smaller while that of West Germany is 6.6% larger.

**Output**

Germans often express disappointment with the pace of regional convergence (Ragnitz, 2015), compared to the Mezzogiorno, However, recognising the much shorter period over which East Germany has had to improve its relative economic position, the East German economy has had a very positive development, where the East has been consistently converging. There was rapid convergence in GDP per capita between 1991 and 1996 as can be seen from Figure A3 below. Between 1996 and 2001 the convergence stalled, but GDP per capita has been converging since then and reached 73.5% of the West German level in 2017, having started at just 42.6% in 1991. East German growth has thus made up 50% of the gap in output per capita with West Germany in 26 years. However, at the rate of improvement over the last 10 years it will take a further 50 years to close the gap completely. Analysis has shown that productivity growth implied by the convergence was significantly driven by privatisation and foreign investment (Barrell and Te Velde, 2000).

Figure A3: East German GDP per capita relative to West German GDP per capita (%)

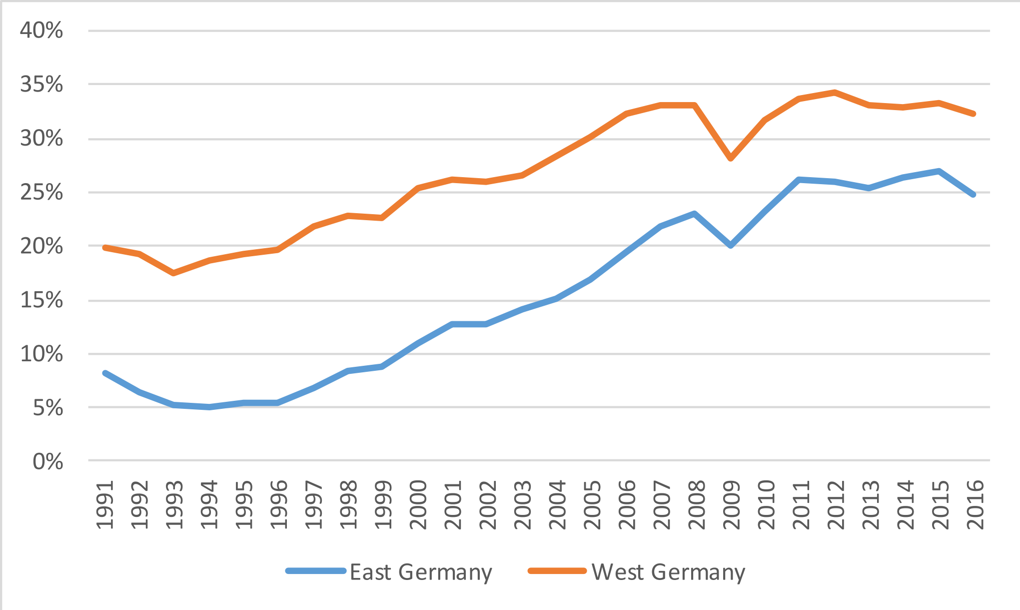



Source: Own Calculations using data from Statistische Ämter des Bundes und der Länder

**Trade**

As noted above, German unification precipitated wider changes across communist countries, which culminated in the break-up of the Soviet Union and the disintegration of the Council for Mutual Economic Assistance. This meant that the formerly close trade relationships among communist countries were also badly damaged. Figure A4 shows that the East German export share was less than half of that in West Germany in 1991, with just 8.2% of GDP accounted for by exports. This share fell further to 5.1% in 1994, but steadily increased thereafter until the global financial crisis struck in 2008. Overall there has been strong convergence in export shares but the East German economy still lags behind the West in this regard.

Figure A4: Export Share Whole Economy (including services)



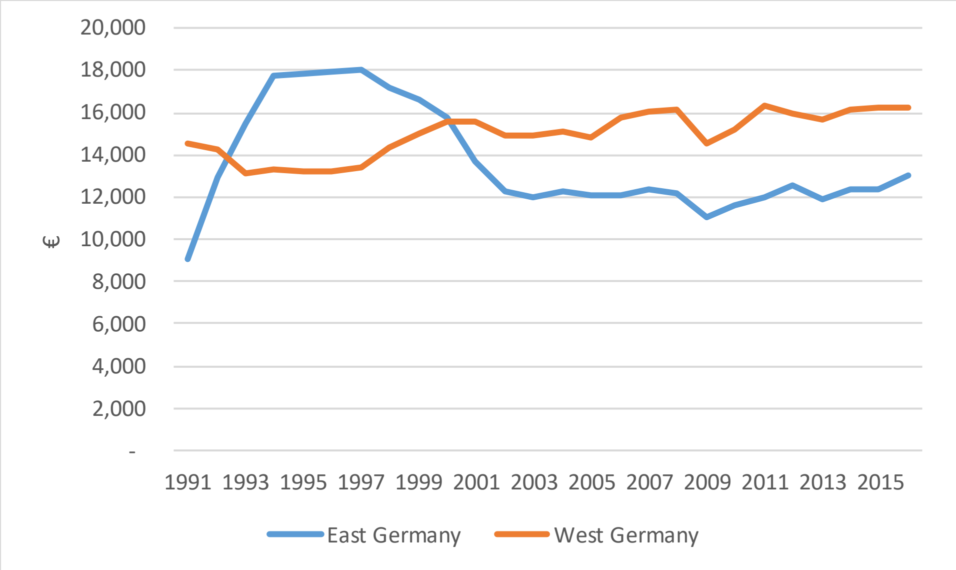
Source: Own Calculations using data from Bundesministerium für Wirtschaft und Energie (BMWi)

Apart from the reduction in international trade, Nitsch and Wolf (2013) show, that despite the elimination of legal, administrative and institutional barriers due to unification, pre-unification inter-German trade patterns persisted after unification. This might be due to inadequate transport linkages, which would have increased transport costs. Nitsch and Wolf (2013) show that transport infrastructure investment helped trade. Overall they show that economic integration, as measured by trade flows, takes longer than political and administrative integration, and their estimates suggest that trade patterns will take 40 years to fully adjust.

**Investment and Transfers**

The East German economy had suffered from low investment over decades. Figure A5 shows investment per worker for both West and East Germany. It shows that investment in East Germany grew rapidly after unification and exceeded that in West Germany for the period 1993 to 2000. Since then investment in East Germany has, on average, been running at just under 80% of the West German level.

Figure A5: Real Gross Investment per Worker, €




Source: Own Calculations using data from Statistische Ämter des Bundes und der Länder

An important regional development policy has been the availability of a number of measures that subsidise private investment in lagging regions, either supported by the EU, the European Regional Development Fund (ERDF) or the Federal German Government. Their effect has been assessed by Alecke et al (2013), who found that for the most lagging regions a 1% increase in the subsidy could increase productivity growth by as much as 8%. This reflects the persistent underinvestment in East Germany before unification, and the major effort needed to upgrade the productive capacity of the East German industry.

In relation to East German infrastructure, the amount, type, and condition fell way short of that available in West Germany at the time of unification. Conrad and Seitz (1994) suggest that 70% of East Germany's infrastructure was either outdated or beyond repair at the time of reunification, requiring very substantial resources, which were ultimately only available through transfers from West Germany. Uhde (2010) showed that, while further transport infrastructure investment in West Germany would have a negative impact on per capita GDP, investment in East Germany would result in higher GDP per capita, reflecting the relative stocks of infrastructure. His result also points to the positive return to further investments in human capital.

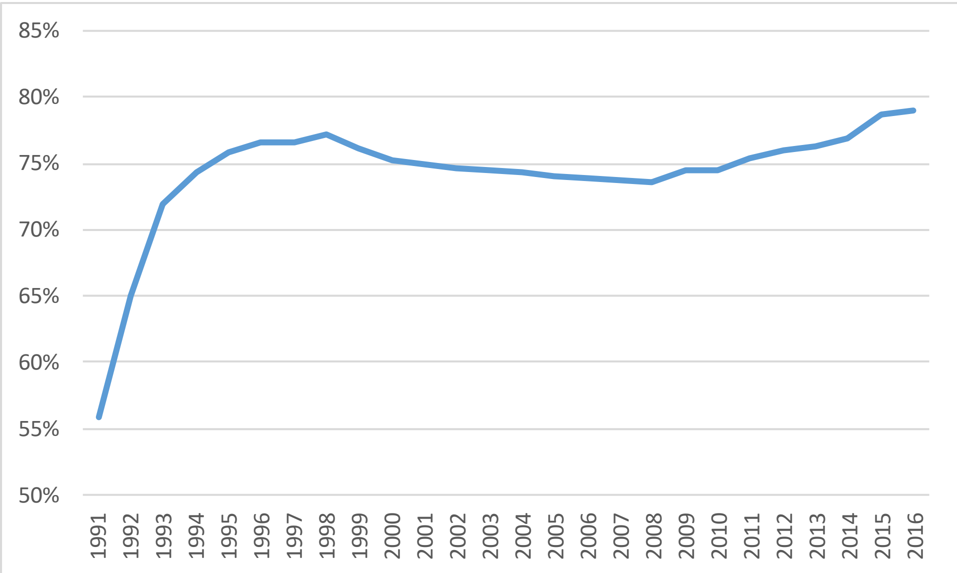
Given the system of interregional transfers in Germany and the lower level of economic development and the investment needs in East Germany, East Germany has been in receipt of substantial transfers from West Germany. While the total scale of the transfers is a topic for debate, a recent summary produced by the research service for the German parliament suggests that the total transfers since unification have been of the order between €1.5 trillion and €3.4 trillion with the latter figure being a gross figure that equates to a net transfer of €1.6 trillion (Deutscher Bundestag, 2018).

**Wages**

Figure A6 shows the convergence of East German average real wages relative to those in West Germany. As with other key variables, the graph shows the rapid convergence until 1998, which was followed by some divergence until 2007, after which there was renewed convergence. By 2016 East

German average real wages had converged to 79% of the West German level, up from 55.9% in 1991. This convergence was initially controlled by sectoral wage agreements, which specified wage rates in East Germany as a specified proportion of the West German level. Research shows that the rapid convergence in average real wages was relatively homogeneous and that the wage structure was more compressed (Krueger and Pischke, 1995). However, they found greater convergence for white collar workers' wages than for wages of other workers and concluded that it would take a long time before the wage structure of East Germany equated to that of the West.

Figure A6: East German Average Real Wage relative to the West German Average Real Wages (West Germany=100%)



Source: Own Calculations using data from Statistische Ämter des Bundes und der Länder

## Appendix 2: Northern Ireland Subvention from Central Government

Using a range of UK official statistics, this Appendix sets out details of the subvention to Northern Ireland from the central government of the United Kingdom. It first considers the revenue side of the accounts and then considers the expenditure side. Finally, it considers what subvention would be necessary to sustain the current level of services in the event of an independent Northern Ireland or a united Ireland.

Table A.2 gives the standard presentation of the revenue and expenditure for Northern Ireland, with the deficit being covered by a subvention from London.

Table A.2: Northern Ireland Subvention, £ million

| | Revenue | Expenditure | Deficit |
|---|---|---|---|
| 1999 | 8669 | 12928 | -4259 |
| 2000 | 9354 | 14168 | -4814 |
| 2001 | 9406 | 14718 | -5312 |
| 2002 | 9750 | 15826 | -6076 |
| 2003 | 10853 | 16881 | -6028 |
| 2004 | 11523 | 18030 | -6507 |
| 2005 | 12348 | 18930 | -6582 |
| 2006 | 13124 | 19713 | -6589 |
| 2007 | 13741 | 21155 | -7414 |
| 2008 | 13529 | 22537 | -9008 |
| 2009 | 13346 | 23530 | -10184 |
| 2010 | 14434 | 24218 | -9784 |
| 2011 | 15068 | 24652 | -9584 |
| 2012 | 15150 | 25244 | -10094 |
| 2013 | 15114 | 25291 | -10177 |
| 2014 | 15633 | 25885 | -10252 |
| 2015 | 15960 | 25526 | -9566 |
| 2016 | 16668 | 26015 | -9347 |

Source:
https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/publicsectorfinance/datasets/countryandregionalpublicsectorfinancesrevenuetables

https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/publicsectorfinance/bulletins/publicsectorfinances/june2018

## Northern Ireland Revenue

The apportionment of UK revenue to Northern Ireland is partly done based on actual figures and partly done using a series of formulae based on factors such as population share. The result is set out below for 2016.

Table A.3: Northern Ireland Revenue for 2016, £ million

| | 2016 |
|---|---|
| Corporation Tax | 742 |
| Other taxes on income and wealth | 2,764 |
| Total Taxes on income and wealth | 3,506 |
| Taxes on production | 7,339 |
| Other current taxes | 854 |
| Taxes on capital | 50 |
| National Insurance Contributions | 2,633 |
| Gross operating surplus | 1,945 |
| Interest and dividends | 178 |
| Rent and other current transfers | 162 |
| Total Current Receipts | 16,667 |

Source:
https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/publicsectorfinance/datasets/countryandregionalpublicsectorfinancesrevenuetables

Two items of note in the revenue attributed to Northern Ireland are the gross operating surplus and the figure for corporation tax.

The net operating surplus for Northern Ireland is the "profit" of the government. For Northern Ireland, and the UK as a whole, it is zero – governments do not make a profit. However, the gross operating surplus is equal to the net operating surplus plus depreciation. The effect of this is that in Table A.3 the revenue of Northern Ireland is increased by the amount of the depreciation. The figure for the gross operating surplus is almost identical to that shown for depreciation in the expenditure accounts, shown below in Table A.5. Thus depreciation is added both to Northern Ireland revenue and expenditure, having no net effect on the deficit.

The one significant item of revenue, where the allocation of UK revenue to Northern Ireland might change in the event of an independent Northern Ireland or a united Ireland, is corporation tax. Here, for illustrative purposes, it is assumed that current UK corporate tax rules and rates would still apply in the North, whatever its status, and a more appropriate allocation of revenue under these circumstances is estimated.

Within a state, corporation tax is paid by the head office of a company, rather than by its individual businesses in different regional locations. With many companies that have branch plants in Northern Ireland having their head office elsewhere in the UK, this could result in an under-estimate of the tax related to profits actually earned by branches in Northern Ireland. To allow for this, the corporation tax could be allocated, instead, based on the share of profits (the national gross operating surplus[26]) earned in Northern Ireland.

As shown in Table A.4, the NISRA data for 2012 show that the gross operating surplus in Northern Ireland in 2012 was 2.3% of that in the UK as a whole. However, in 2016 only 1.4% of the tax on corporation profits for the UK of £53.7 billion was attributed to Northern Ireland. If instead, the

[26] The national gross operating surplus represents the sum of the profits in the economy. This is obviously completely different from the gross operating surplus of the government sector, discussed earlier.

revenue from corporation profits taxes had been allocated to Northern Ireland based on its share of national profits (the gross operating surplus), then the revenue of Northern Ireland would have been around £1,250 million compared to the £740 million that was actually attributed to Northern Ireland for 2016 – an increase of just over £500 million.

Table A.4: Corporation Tax Allocated to Northern Ireland.

| | UK | Northern Ireland | |
|---|---|---|---|
| | £b | £b | share |
| Gross operating surplus | 613.4 | 14.3 | 2.3 |
| Corporation tax as allocated | 53.73 | 0.74 | 1.4 |
| Corporation allocated based on GOS | 53.73 | 1.25 | 2.3 |

Source: NISRA and https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/publicsectorfinance/datasets/countryandregionalpublicsectorfinancesrevenuetables

## Northern Ireland Expenditure

Table A.5 sets out details of public expenditure in the UK and Northern Ireland, using the classifications of the ONS in their statistics on regional expenditure. There are three main categories of expenditure: identifiable expenditure, non-identifiable expenditure, and accounting adjustments. The identifiable expenditure data cover direct expenditure in Northern Ireland on items such as social welfare, employing public servants and subsidies to the private sector. The non-identifiable expenditure covers items that benefit the whole of the UK and don't specifically benefit a particular region. These items include development aid, the foreign office, the contribution to the EU, defence, and national debt interest. The first three are generally spent outside the UK and the latter two are considered as being spent in the UK. In Table A5 the non-identifiable expenditure is shown separately for expenditure inside the UK and outside the UK.

Table A.5: Public Expenditure in UK and Northern Ireland, £ million

| | UK | Northern Ireland | |
|---|---|---|---|
| | £m | £m | share |
| Total Public expenditure | 771,986 | 26,015 | 3.4 |
| Accounting adjustments | 60,869 | 2,693 | 4.4 |
| Depreciation | 40,781 | 2,069 | 5.1 |
| Other accounting adjustments | 20,088 | 624 | 3.1 |
| Non-Identifiable | 109,845 | 2,760 | 2.5 |
| Non-identifiable UK | 85,615 | 2,149 | 2.5 |
| Non-identifiable outside UK | 24,230 | 611 | 2.5 |
| Total Identifiable expenditure | 601,272 | 20,562 | 3.4 |

Source: https://www.gov.uk/government/statistics/public-expenditure-statistical-analyses-2018

As discussed above, depreciation is responsible for the bulk of the accounting adjustments, and this has no net effect on the Northern Ireland deficit or the subvention as it is also included as revenue. However, if Northern Ireland were independent or part of a united Ireland the calculation of the non-identifiable expenditure would be rather different.

Here the cost of supporting the current level of public services in an independent Northern Ireland or a Northern Ireland within a united Ireland is considered, assuming no change in taxes or expenditure in Northern Ireland. The calculations shown here are based on a number of assumptions.

- It is assumed that Northern Ireland would leave the UK without accepting any liability for existing public debt.
- No provision is made for an equalisation of the tax systems or benefits systems between Northern Ireland and Ireland.
- No account is made for the major macro-economic implications of such a change and its effects on tax revenue and expenditure.
- It is assumed that Northern Ireland would contribute to common services in a united Ireland. Thus some of the non-identifiable expenditure, currently paid to central government in the UK, would be paid to the central government in a united Ireland. However, because of a different composition of national expenditure in a united Ireland, there would be some change in the size of this contribution.

On the basis of these very restrictive assumptions, the existing Northern Ireland deficit is adjusted to deal with the changed circumstances. This provides an estimate of the deficit needed to fund the current level of services in Northern Ireland.

Table A.6: Northern Ireland Non-Identifiable Public Expenditure within the UK, 2016

| | UK | Northern Ireland | |
|---|---|---|---|
| | £m | £m | Share |
| **Non-identifiable UK** | **85,615** | **2,149** | **2.5** |
| Defence | 36,431 | 1,033 | 2.8 |
| Debt Interest | 40,150 | 1,139 | 2.8 |
| EU Transactions | -4,081 | -392 | 9.6 |
| Residual | 13,115 | 369 | 2.8 |

Table A.6 shows certain components of the non-identifiable expenditure within the UK currently attributed to Northern Ireland. The two main elements are a contribution towards UK defence expenditure and towards the UK national debt interest bill.

The negative EU transactions arise because the UK government receives significant receipts from the EU which cover some of the government expenditure actually undertaken in Northern Ireland. It is assumed that this would not change with a change in the status of Northern Ireland.

On the basis of these assumptions Table A7 sets out an estimate of the non-identifiable expenditure attributable to Northern Ireland within a united Ireland.

Because of the assumption that Northern Ireland would leave the UK debt free there would be no increase in the national debt of Ireland – hence there would be not net cost for Ireland and this item is set to zero. While Northern Ireland as part of a united Ireland would, of course, be assumed to contribute to common services, including debt interest, such a contribution would be counter-balanced by a reduction in expenditure within the Republic of Ireland.

Table A.6 shows an alternative allocation in a united Ireland, where defence expenditure in the united Ireland expanded to maintain a constant share of the combined GNI*of the two jurisdictions.

The residual non-identifiable expenditure is assumed to be unchanged.

Table A.7: Northern Ireland Non-Identifiable Public Expenditure within Ireland, 2016

| | Ireland | Northern Ireland | | |
|---|---|---|---|---|
| | €m | €m | Share % | £m |
| **Total Non-identifiable Ireland** | | **235** | | **192** |
| Defence | 906 | 263 | 29 | 215 |
| Debt Interest | 6165 | 0 | | |
| EU Transactions | | -478 | | -392 |
| Residual | | 450 | | 369 |

On this basis there would be a substantial reduction of around £2 billion in non-identifiable expenditure within the jurisdiction from the £2.2 billion shown in Table A.5 to the £0.2 billion shown in Table A.7.

For the non-identifiable expenditure outside the UK the exact allocation for Northern Ireland is not readily available. However, Table A.8 gives a reasonable approximation. The EU contribution and the foreign office expenditure are allocated based on relative GDP whereas the international aid is assumed to be allocated based on population.

Table A.8: Northern Ireland Non-Identifiable Public Expenditure outside the UK, 2016

| | UK | Northern Ireland | |
|---|---|---|---|
| Outside UK | £m | £m | Share |
| EU Contribution | 12,169 | 259 | 2.1 |
| Foreign Office | 2,058 | 44 | 2.1 |
| International Development | 7,413 | 211 | 2.8 |
| Residue | | 97 | |
| Total | | 611 | |

In modelling what this expenditure would look like in a united Ireland it is assumed that the Northern Ireland contribution to the EU Budget would be 1% of regional GDP. It is also assumed that the expenditure on the Department of Foreign Affairs and Irish Aid would rise in line with GNI* for a united Ireland. Table A.9 shows the results.

Table A.9: Northern Ireland Non-Identifiable Public Expenditure outside Ireland, 2016

| | Ireland | Northern Ireland | | |
|---|---|---|---|---|
| Outside Ireland | €m | €m | share | £m |
| EU Contribution | 2023 | 510 | 25.2 | 418 |
| Foreign Affairs | 215 | 62 | 29.0 | 51 |
| International Development | 700 | 203 | 29.0 | 167 |
| Residue | | 119 | | 97 |
| Total | | 776 | | 636 |

The fact that the EU Budgetary contribution paid by the UK is so low (due to the rebate) means that, within the UK, the Northern Ireland contribution to this charge is less than it would be in a united Ireland. The contribution for the expanded Department of Foreign Affairs would also be slightly higher than the contribution towards the Foreign Office in 2016, reflecting the economies of scale in a larger country. The contribution for Irish Aid would have been slightly lower due to the lower aid rate in Ireland in 2016.

Thus the total non-identifiable expenditure outside the jurisdiction attributable to Northern Ireland in a united Ireland would show a very small increase in a United Ireland

## Conclusion

In 2016 the Northern Ireland deficit, which was funded by a subvention from the UK central government, amounted to £9.3 billion (€11.4 billion). However, as indicated above, a more appropriate attribution of UK corporation tax revenue would have reduced this to around £8.8 billion (€10.8 billion).

On the basis of the 2016 figures, in a united Ireland, if Northern Ireland did not take on a share of the UK's existing net liabilities, the total Northern Ireland deficit would have amounted to around £6.9 billion or around €8.4 billion. If, instead they did take on a share of the UK's net liabilities the deficit would be £8 billion (€9.8 billion).