Responding to the crisis: Are policies aimed at a strong indigenous industrial base a necessary condition for sustainable economic growth?

Bernadette Andreosso-O’Callaghan and Helena Lenihan¹

Abstract
We examine whether a strong indigenous manufacturing base is a necessary condition for sustainable economic growth in the case of two small, open economies, Ireland and Sweden. Sweden has been impacted by the economic crisis to a lesser degree than Ireland; we explore (through a manufacturing activity lens) the reasons for the asymmetric impacts and ask if the nature of the shock is related to ‘Economic Sovereignty’ and to the type of industrial policy. We argue Sweden was less affected given that its indigenous firms control the highly export-focussed and technology-based engineering sector whereas in Ireland high-technology sectors are controlled by foreign firms. In terms of policy implications, we suggest that industrial policy should aim for sustainable economic activity and growth such that industrial activity within the economy should be able to minimise the impact of asymmetric shocks such as the current global economic recession.

keywords: manufacturing base; economic vulnerability; shock; economic crisis; industrial policy.

¹Department of Economics, Kemmy Business School, University of Limerick, Ireland. Corresponding author. Email; helena.lenihan@ul.ie
Introduction

High-profile Multinational Enterprise (MNE) job losses have featured regularly in the Irish news of late contributing significantly to Ireland’s unemployment rate (13.4 per cent in December 2010; CSO 2010). Such developments have put into question the sustainability of Ireland’s industrial policy which, we argue, has focused most of its efforts on FDI/MNEs to the detriment of an indigenous (largely SME) sector. This paper argues that industrial economic development policy should aim for sustainable economic activity and growth; industrial activity within the economy should be able to minimise the impact of asymmetric shocks such as the current global economic recession.

In light of the above, the current paper asks whether a strong indigenous industrial base is a necessary condition for sustainable economic growth. We explore this issue in a number of ways. On a general level, we approach the question via the experience of two countries (Ireland and Sweden) comparable on the basis of their size and openness. We also look at whether Ireland can learn from the industrial development trajectory of the Swedish economy. Other countries (especially EU accession States) have held Ireland up as a role model for industrial development [e.g. Sapir et al, 2003; Sapir, 2005, 2006; and Acs et al., 2007], while others have taken a more nuanced and balanced view (Andreosso-O’Callaghan and Lenihan, 2006; Bailey et al., 2009). Our approach is radically different: we look at Sweden to assess the Irish industrial development strategy adopted to date and to garner lessons for future industrial policy. The economy of Sweden seems to have been less negatively impacted than Ireland by the recent economic downturn. We explore reasons for the asymmetric effects of the shock. Is it due to the fact that Swedish industrial policy has placed
more emphasis on having a balanced/diversified industrial sector in terms of firm ownership (whether indigenous/foreign); size; and sectors? In addressing these issues, we examine the growth impact at the level of the firm in terms of a number of indicators: e.g., employment, competitiveness, GDP, productivity and innovation, disaggregated by firm ownership. In particular, we explore the issue of whether economies less reliant on MNE activity and/or with a more thriving indigenous base are less vulnerable to the intensity of external shocks.

Section 1 introduces key conceptual issues and theoretical underpinnings of this paper by defining the term ‘sustainable economic growth’ in terms of industrial economic activity and policy. Section 2 depicts the impact of the shock on Ireland and Sweden in terms of growth rates, exports and employment. Section 3 outlines the development of Irish industrial activity and associated policies so as to shed light on the engine of structural change. For comparative purposes, Section 3 provides some brief insights into the industrial development trajectory in Sweden. Section 4 analyses the nationality of firms as an explanatory factor in the different impacts of the shock within the two economies. The analysis is somewhat hampered by the lack of data disaggregated by firm ownership (particularly in the case of Sweden), but key insights still emerge. Section 5 concludes the analysis and suggests some recommendations for policy.

Section 1: Sustainable Economic Growth

1.1. Definitional issues
Between the mid-1980s and mid-2008, the concept of ‘sustainable economic growth’ was overshadowed by that of short-term economic growth (by sustainable economic growth we mean positive and relatively high growth rates in the short-term that do not undermine long-term growth). A number of external shocks characterised this period of time (the collapse of the Berlin wall, the Asian economic crisis and the dot.com crash), but western economies rebounded relatively quickly. A major shock, such as the current banking crisis which has progressively been eroding the global real economy, brings to the fore the idea of ‘economic vulnerability’ (Andreosso-O’Callaghan, 2007 and Andreosso-O’Callaghan and Bassino, 2008). The same external shock can have a different impact on two economies, depending on their relative level of ‘vulnerability’. Economic vulnerability to external shocks can be minimised with increased independence or sovereignty. Economic dependence, as defined by Tiano (1982), means that a country lacks the essentials in terms of economic policy making, technology and finance; financial dependence arises when a country has a demand for financial capital which exceeds its domestic supply of financial assets leading to growing national debt. In turn, dependence implies diminishing (economic) sovereignty.

1.2. Implications for this research

With regard to industrial development, we define economic sovereignty on the basis of the relative importance of indigenous firms in the manufacturing sector (and in particular those manufacturing firms engaged in higher value-added activities), since economic independence is an inverse relationship of inward foreign capital. Post WWII globalisation has involved nearly every nation of the world and has encroached
on most aspects of economic activity, bringing with it the risk of decreased economic sovereignty. However, globalisation and diminished economic sovereignty should not be seen as synonymous; this implies that there is an optimal level of diminishing sovereignty (globalisation) (Bagwell and Staiger, 2001). Looking at the case of specific EU countries, can one ask whether economies closest to maintaining an optimal level of diminished sovereignty through appropriate industrial policies are less affected by the current economic crisis? And relatedly, are they more likely to benefit from sustainable economic growth?

Section 2: An analysis of the impact of the shock

2.1. Impact analysis

(i) Macroeconomic indicators

Table 1 depicts figures relating to a number of macroeconomic indicators before and since the crisis (2011 data are forecasts).

Table 1 here

According to Table 1, the current shock has had a more intense and lasting effect in Ireland than in Sweden. In Ireland, the decline in economic growth for 2009 is more pronounced than that of Sweden; whereas growth resumed in Sweden in 2010, this was not the case for the Irish economy. Of specific note is the size of the current account deficit in the case of Ireland, from 2006 to 2010, in sharp contrast with a continuous surplus in Sweden. Faced with negative growth prospects, the two countries have brought radically different policy measures to the crisis. Swedish authorities have responded to the crisis with an expansionary fiscal and monetary
policy, announcing in December 2008 a stimulus package (of €2.2bn over 3 years) and a low interest rate.\(^2\) This explains in part why GDP figures for 2010 and 2011 show a recovery and why price stability was maintained throughout the crisis. On the banking side, Swedish banks have a relatively high exposure to over-leveraged East European countries, in particular to the Baltic region (with real growth in Estonia and Lithuania having declined by more than 13 per cent in 2009 (EUROSTAT 2010), but this exposure is marginal when compared with the Irish banks’ property burden. Consequently and by contrast, the severe collapse in property related taxes in Ireland has led to an increasing budget deficit; as a result, a restrictive budgetary policy has been implemented so as to lessen the impact on the government debt, which is forecast to reach nearly 100 per cent of GDP in 2011. Sweden’s general government debt was 43.4 per cent in 2010, half that of Ireland’s. Through these figures, the success of Sweden compared to Ireland in relation to policy response, can easily be seen (Table 1).

(ii) Exports

By virtue of their size, both economies are highly dependent on exports. Swedish exports represent some 50 per cent of the country’s GDP, making Sweden dependent on the buoyancy of the world market in general and of the EU market in particular, since the latter absorbs almost two-thirds of its exports. According to recent figures, Swedish exports of manufactured products declined in 2009 by over 10 per cent compared with the previous year. However, 2010 saw exports reach 2008 levels,

\(^2\) It is estimated that thanks to this stimulus package, GDP would be higher by about 1.5 percentage points, and employment by about 1.0 percentage point in 2010.
reversing the decline experienced in 2009. This original decline affected primarily the manufacturing sector, which is the source of more than 70 per cent of all Swedish exports. The engineering sector (encompassing Machinery Equipment, Office Machinery, Electrical Machinery, Optical Instruments, Motor Vehicles and Other Transport) represents nearly 42 per cent of total Swedish manufacturing exports. This compares with nearly 36 per cent of all manufacturing exports in the case of Ireland. Chemical exports dominate in Ireland, representing 30 per cent of the total in 2006 – more than twice that of Chemicals in total manufacturing exports from Sweden. These figures indicate that both countries’ export structure is typical of countries specialising in technology-based industries. However, an important differentiating factor is Ireland’s narrow specialisation in some segments of these particular industries. Judging by CSO trade data for the years 2008-2010, the strong euro does not seem to have had a negative bearing on the Irish trade balance and, admittedly, on competitiveness. Although both imports and exports contracted at the beginning of the crisis, the Irish trade surplus increased by more than 50% between 2007 and 2009. This is in part owed to a vigorous tradable services sector. During the course of 2010, both countries have benefited from a weakening currency; the floating Swedish krona has depreciated with respect to all major currencies in 2010, but so has the euro-dollar (and also euro-sterling) exchange rate since the summer 2010. These factors contributed to a revival of exports in both cases.

(iii) Unemployment

Between December 2008 and December 2009, unemployment increased steadily in Sweden, resulting in an unemployment rate of 9 per cent in December 2009 (Figure

3 Swedish Trade Council (2010), Stockholm.
la). However, 2010 saw a reversal of this trend with unemployment falling rapidly. According to Statistics Sweden, by November 2010 Sweden’s unemployment rate had reduced to 7.1 per cent.

Figure 1a here

Figure 1b here

Figure 1.b. portrays the sudden increase in unemployment in Ireland. As can be seen, the unemployment rate gravitated around 4 to 5 per cent between 2005 and 2007. As of December 2010, unemployment had increased to 13.4 per cent. The increase in job losses during the current economic crisis is much higher in Ireland than in Sweden. Between 2006 and 2009, the unemployment rate increased by a third in Sweden (from 7 to 9%) and thereafter has fallen back to 7.1 per cent, whereas in Ireland the rate more than trebled (from 4.4 to 13.4%). Judging by this indicator alone, and in spite of a relatively favourable trade performance, the crisis seems to be an asymmetric shock, since it hit Ireland much harder.

Secondly, the drop in employment in Sweden took place primarily within the manufacturing industry whereas in Ireland, the construction sector was hardest hit. Figures released by the Swedish Statistical Office show that some 48 per cent of job losses during the year 2008 were attributable to contraction in the manufacturing sector, as opposed to 14 per cent in building and construction. In Ireland, the construction sector was responsible for about 30 per cent of all job losses in the same year, followed by manufacturing (24.8 per cent) and wholesale and retail trade (19 per
During 2009, although most of Ireland’s job losses were still in building and construction (24.4 per cent), manufacturing losses rose (22.7 per cent), and greater knock-on effects were felt in all services (except banking, finance and insurance). It should be noted that by 2008, the construction sector represented in Ireland 11.4 per cent of the total labour force; this compares with 6.2 per cent in Sweden in the same year, a ratio more in line with the stage of development of a mature economy. The manufacturing sector plays a stable role in economic growth, in contrast with the transitory nature of the building sector and with the derived nature of job creation in many services (e.g., buoyancy from building fuelling demand for real estate services, wholesale and retail trade). Although in any economy job losses and closures are typical negative indicators in a severe crisis, the increase in unemployment in Sweden’s manufacturing sector is linked to decreases in exports, due to a contraction of global trade from Swedish firms (be they indigenous or foreign). By contrast, Ireland’s manufacturing job losses can largely be explained by the withdrawal of mostly US-owned MNEs. MNEs in Ireland are characterised by higher export intensity than indigenous firms across all industries (Ruane and Ugur, 2004). This suggests that the increase in Swedish exports in 2010 directly influenced the reversal of the unemployment rate in that country, whereas the misfortunes of the US economy increasingly affected manufacturing, construction and non-tradable services employment in Ireland.

2.2. Explaining the severity of the shock

A number of indicators can be used to explain the ability of an economy to withstand external competitive and other adverse pressures. Cost-based indicators are among the

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4 Central Bank and Financial Services Authority of Ireland (2009) and Department of Enterprise, Trade and Employment (2009).
most popular. The performance of an economy can be appraised by its competitiveness level\(^5\), a concept used here in its most narrow sense, i.e. price (or cost) competitiveness. Figure 2 shows strikingly that Sweden, a rather (price) uncompetitive country in the 1980s and Ireland became more price competitive during the following decade. By contrast, the two countries lost price competitiveness, particularly in the first decade of the new millennium and up to the crisis.

*Figure 2 here*

*Figure 3 here*

Figure 3 shows the corporate tax rate for the two economies over the period 1981-2009. Ireland’s corporate tax rate has decreased steadily since 1988 with a particularly sharp decrease since 1994. In Sweden, the corporate tax rate has been reduced over time with a rate of 28 per cent since 1994. Both economies have reduced their corporate tax rates over the period 1989-1998, in line with the aim of tax harmonisation within the EU. Ireland, however, is advantaged by its 12.5 per cent corporation tax from 2003 onwards.

*Figure 4 here*

As can be seen from Figure 4, both Ireland and Sweden have seen an increase in unit labour costs throughout the period 1970-2009. The unit labour cost in Ireland has

\(^{5}\) A less narrow definition of competitiveness includes structural elements of performance (or non-price elements of competitiveness) such as product differentiation, quality, durability, brand and design. When making competitiveness comparisons across countries, we must bear in mind the ability of each country to re-balance after price or cost increases leading to a fall in competitiveness. In this regard, Ireland and Sweden differ in that a policy option open to Sweden, namely competitive devaluation, does not apply in the case of Ireland, which is restricted through its membership of the Euro area. Sweden’s control of its own monetary and exchange rate policies and Ireland’s lack of control must be recognised as salient differences here.
increased from 10.59 in 1970 to 108.0 in 2009. Over the same period, the index for Sweden increased from 15.85 to 111.6. We see that unit labour costs were higher in Sweden between 1970 and 1980, and again after 1989. Energy is another important cost for firms. Figure 5 shows the consumer price index of energy in the two economies; in Ireland, the consumer price index of energy increased smoothly over time from 18.0 in 1976 to 113.4 in 2009. In the same period, Sweden’s consumer price index increased from 11.6 to 116. The differential was highest over the period 1978-1992; from 1993 to 2002, the two economies’ CPI of energy was very similar. However, from 2002 onwards Sweden’s energy CPI has been higher than Ireland’s.

*Figure 5 here*

Across three of the four competitiveness indicators (CPI of energy, unit labour costs and energy), Sweden does not perform worse or any better than Ireland. There must therefore be another explanation for Sweden’s better macroeconomic performance in the current crisis. Why are manufacturing firms in Sweden less exposed to the impact of the shock than those in Ireland? We answer this question by turning to factors such as structural change; industrial/enterprise policy (section 3), and firm nationality (whether a firm is indigenous or foreign-owned) (section 4).

**Section 3: Structural change (1970-2007) and industrial development activity and policy**

**3.1. Industrial development activity and policy in Ireland**

In light of our focus on indigenous/foreign firm mix, we examine the various industrial/enterprise development policies pursued in Ireland over the decades. From 1970-2007, agricultural activity declining from a peak in the 1970s. As expected of a
prosperous economy, in the late 1990s and early 2000s, gross output in services as a share of total output trended upward, reaching a peak around 2007. The share of manufacturing output in total output rose steadily after 1980 (with brief declines in 1991, 1993 and 1996). It peaked in 1999 and has been on a steady decline thereafter.\(^6\)

**The Period 1950-1970**

Beginning with the Economic Development Plan (1958), Irish policymakers focussed on attracting FDI. In the 1960s, Ireland’s economic policy changed from inward-looking protectionism to external openness. Its industrial strategy became one of ‘industrialisation by invitation’. As outlined by Begley *et al.* (2005), in the 1960s a wave of predominately US-owned companies set up operations in Ireland. A key incentive during this period was Ireland’s zero per cent tax on profits generated through exports (when Ireland entered the Common Market in 1973, a 10% corporate tax rate was imposed on export-oriented firms). Most companies that came to Ireland were well-established, mature industries who simply transferred manufacturing and assembly line operations to Ireland in areas such as textile, electrical goods, and electrical and mechanical components. There were very few supply chain linkages between these companies and local indigenous companies (Begley *et al*, 2005).

**The Period 1970-1980**

From 1973 onwards, Ireland’s Industrial Development Authority (IDA) focussed on attracting FDI in sectors such as electronics, chemicals and other ‘high-technology’ industries. The 1970s brought new firms in new sectors, such as Pfizer in the pharmaceutical and chemicals sector and Wang in the computer industry. However,

\(^6\) National Institute for Economic and Social Research and the Groningen Growth and Development Centre (2009).
computer firms tended to engage in low-value assembly activities. From 1970-1980, the vast majority of those employed in manufacturing in Ireland (approx. 23%) were in the food and beverages industry. Approximately 16% were engaged in electrical and optical equipment industries. The situation remained broadly the same for the following decade (1980-1990).

The Period 1980-1990

In the 1980s, basic MNE software activity was attracted to Ireland. Additional pharmaceutical companies and MNEs in other sectors also began processing and manufacturing activities in Ireland. The 1980s also witnessed an industrial policy of creating sectoral and spatial clusters. Clusters were focussed around two sectors: electronics (microprocessors, software, computer products and printers) and chemicals/pharmaceuticals. While empirical evidence on the impact of industrial clusters in Ireland is limited, it suggests that there has been little sectoral clustering between MNEs and local firms (Gleeson et al., 2005 and Buckley and Ruane 2006).

The ‘crisis’ in the 1980s was partly due to the fact that the Irish government had embarked on deficit financed expenditure programmes following oil price rises in the early 1970s and early 1980s. MNEs responded to the crisis by reducing investment and repatriating profits (the same pattern as today), contributing to a deficit in the balance of payments amounting to approximately 10% of GNP. Industrial development policy was criticised for its failure to support indigenous industry (e.g. Telesis Report, 1982).

The 1990s onwards
As outlined previously, the food, beverage, and electrical/optical equipment industries dominated manufacturing employment for the period 1970-1990. Data from the EUKLEMS database (1990-2007)\(^7\) provides some interesting insights. Employment in the food, beverages industry declined from a peak of 23 per cent in 1990 to 19.3 per cent in 2007. In addition, the textile sector declined from 11 per cent in 1990 to a mere 2.6 per cent in 2007. Increases in the chemicals and electrical/optical equipment sectors occurred from 1990-2007. More specifically, employment in the chemicals sector increased from 7 per cent to 10.4 per cent; in the electrical/optical equipment sector, the increase went from 16 per cent to 23 per cent (reaching a peak of 25% in 2000).

A major industrial occurrence of the 1990s was the arrival of Dell Computer Corporation to Ireland. The company built on Ireland’s expertise in manufacturing, moved into supply-chain management, opened call centres and localised newly released software products for European markets. The 1990s witnessed the scaling down of Apple Computers manufacturing operation, to be replaced by software development and Apple’s main European support centre. Intel Corporation built three Irish plants in 1989, 1994 and 1997. The 1990s also saw the beginnings of a significant number of small indigenous software companies, in many cases spinoffs from MNE companies. Key MNEs in the medical devices sector included Boston Scientific Corporation and Guidant Corporation, which added critical mass to this particular sector.

\(^7\) GGDC (2010); most recent years for which data is available.
One of the most significant industrial policy documents relating to SMEs and indigenous companies was published in 1992.\textsuperscript{8} The Culliton (1992) Report critically appraised the state of industrial development in Ireland. It pointed out a serious dichotomy between indigenous and foreign-owned firms highlighting that there was little connection between the two. It also expressed concerns about the branch plant nature of MNE activity in Ireland. Another significant policy statement appeared in 1994 with the publication of the ‘Task Force on Small Business Report’ (Government of Ireland, 1994). As outlined by Andreosso-O’Callaghan and Lenihan (2006), this was the first formal policy document by the Irish government on the small firm sector, despite the fact that as far back as 1979 some 95% of all manufacturing units could be classified as SMEs. Given that most SMEs in Ireland are indigenous firms\textsuperscript{9}, one can reasonably argue that the Irish government overlooked the indigenous (largely SME sector) until the mid-1990s. More recently, industrial/enterprise policy statements have recognised the importance of entrepreneurship and a thriving SME/Indigenous base of firms (‘Report of the Small Business Forum’ (2006) and “Building Ireland’s Smart Economy” (Government of Ireland, 2008)).

The beginning of the new millennium saw some new entrants in software development, the e-business sector and bio-pharmaceutical, with some of these choosing to locate European and R&D activities in Ireland. High-profile examples included Google, which in 2003 opened its first overseas office (located in Dublin), e-Bay and Genzyme Corporation. Many of the world’s leading pharmaceutical

\textsuperscript{8} As Andreosso-O’Callaghan and Lenihan (2006) note, the significance of the 1992 Culliton Report is that for the first time it placed an emphasis on the overall competitive business environment in which firms operate.  
\textsuperscript{9} Data from 2004-2006 for example, shows that 89-90% of SME enterprises in Ireland are classified as Irish firms – CSO (2010).
companies set up operations in Ireland, including such household names as Pfizer; GlaxoSmithKline and Johnson & Johnson

Growth rates of over 8 per cent prevailed in Ireland in the late 1990s. It is interesting to note that high growth in Ireland was achieved without major inroads into innovation. According to EUROSTAT (2010), the number of applications to the European Patent Office (EPO) by priority year\textsuperscript{10} shows that for the general manufacturing category, Sweden has made significantly more patent applications every year than has Ireland (97 against 1 in 1977; 917 versus 60 in 1987; and 1,403 versus 144 in 2006).

In summary, in spite of many policy documents stating otherwise, the Irish industrial policy approach placed \textit{de facto} too much emphasis on FDI without recognising its limitations. Although FDI was a key contributor to the phenomenal growth rates of the late 1990s-2007 period (Gray, 1997), we argue that the overriding presence of FDI in policy implementation led to the neglect of the indigenous SME sector. In fact, Anyadike-Danes \textit{et al.} (2010) argue that this preoccupation with the role of FDI helps explain why entrepreneurship does not appear in mainstream analysis and discussion of the factors behind Ireland’s economic growth. We would argue that the poor evaluation culture in Ireland (Lenihan, 1999, 2004; and Lenihan and Hart, 2004 and Lenihan and Hart, 2006) did not help the Irish government to see the ‘error’ of its ways earlier. If on-going thorough evaluation at both the micro (firm) and macro levels had been an inherent part of the industrial policy process, this imbalance of focus by policymakers on indigenous versus MNE firms would in all likelihood have been recognised earlier.

\textsuperscript{10} EUROSTAT (2010), Science and Technology Database, Patent Statistics (pat_ep_nnac). Priority year is the first year of filing a patent application to protect an invention.
It is worth highlighting however that of late, the role of entrepreneurship in creating employment and driving economic growth is core in very recent enterprise policy documents (Innovation Taskforce 2010; Trading and Investing in a Smart Economy 2010). In terms of responding to the crisis from an enterprise policy perspective in Ireland, there have been no major developments of late (outside of for example, an enterprise stabilisation fund and a back to work allowance scheme). In our view, in this crisis it is not a shortage of ideas from policymakers and commentators (including academics) that is the problem but a lack of funding to deliver on such ideas. Given the strict austerity measures that the Irish Government has put in place (as part of an overall response to EU demands along with difficulties for Ireland in the banking sector and in sovereign debt markets in Europe) it is rather impossible to have any new enterprise policy interventions.

Currently, one of the problems in this enterprise sphere is the difficulty for SMEs in accessing finance. According to a report on Entrepreneurship from the Certified Public Accountants in Ireland (2010), the most pressing threat to entrepreneurship and start-up activity in Ireland is late debtor payments coupled with difficulties in accessing finance. The overriding conclusion here is that nothing of any major impact or significance with respect to new (and much needed) enterprise policy interventions will happen in Ireland until the banking sector is restructured. There is currently a conflict between industrial policy (real economy) and other policies (something which is not new as outlined by Välilä (2008)); the task of the Irish Government and of any Government should be to find an adequate balance between reordering the financial/banking sector and stimulating growth (industrial policy).
3.2. Industrial development activity and policy in Sweden

*From the industrial take-off to the 1960s*

In terms of industrial development, Sweden is considered a slow starter as well-known Swedish industries and companies took off only in the 1870s. Cheap electricity, due to the abundance of rivers and waterfalls, made Swedish products relatively competitive on the international (and European) market. An important infrastructural investment (in transport), as well as a growing labour force, were other factors behind the Swedish industrial take-off. At the end of the 19th century, vertically integrated and export-oriented company groups began to form and investment in innovation in machinery products facilitated the emergence of engineering companies such as Ericsson and ASEA. To bypass the resurgence of protectionism in late 19th century Europe, subsidiaries of Swedish firms were founded abroad. Several elements explain the unfolding broad anatomy of Swedish production over these critical decades of industrial take-off and development: extraction and processing of raw materials allowed the country to specialise in mechanical engineering technologies; major innovations in machinery products were intimately connected with export activities (Edquist and Lundvall, 1993). The ratio of engineering exports to total exports rose from 3 per cent in 1880 to 20 per cent in 1950, one of the highest ratios in the world after the USA (Edquist and Lundvall, 1993)

*Period: 1970s and 1980s (the 'decades of uncertainty’)*
Like most European countries, Sweden was sharply affected by the oil shocks of the 1970s. The economic crisis opened the door to an ‘offensive’ industrial policy focusing on state ownership and public support to industries, including those in sunset areas such as textiles and shipbuilding (Benner, 1997). In spite of its many limitations, this ‘offensive’ policy led to some important institutional developments: the creation of a Swedish Board for Technical Development (which was to become NUTEK), and initiation of a number of public-private projects geared to the development of new technologies in nuclear energy, telecommunications and military aircraft areas (Benner, 1997). The 16 per cent devaluation of the Swedish krona in 1982 created a short term competitive advantage, by boosting manufacturing exports. These decades were nevertheless marked by uncertainty in terms of industrial direction. The country was becoming increasingly specialised in low growth industries, to the detriment of more knowledge-intensive (high-tech and R&D intensive) industries. As documented by Edquist and Texier (1996), the proportion of production in R&D-intensive growth industries declined between 1975 and 1991.

The 1990s: EU membership and a new take-off

By putting an end to a few years of sharp banking and economic crisis, Sweden’s accession to the EU in 1995 allowed the country to exploit the economies of scale offered by the large EU market. The latter part of this decade was marked by a number of post-financial crisis positive changes perceptible in the production fabric of the country. In particular, Sweden was able to reverse previous trends of non-optimal export specialisation by increasing its export share in high-technology and high-demand manufacturing products. In particular, Sweden’s remarkable performance in telecommunication equipment and pharmaceutical products substantially improved
the country’s ranking as a high-technology world exporter (Braunerhjelm and Thulin, 2004). Structural change was initiated in the 1970s, when employment in sunset industries (textile and leather) plummeted as employment in the services sector increased. This structural change accelerated in the Swedish manufacturing sector during the 1990s, with an impressive growth of gross value added in telecommunication equipment and chemicals.\textsuperscript{11}

The engineering sector represents today nearly 40 per cent of total manufacturing VA, manufacturing employment and total exports. This sector captures 29 per cent of Swedish GDP. It operates at a high technological level and encompasses highly innovative large Swedish firms with a world dimension. This is the case for ASTRA, Pharmacia & Upjohn in the chemical industry; for SKF, the world producer of ball bearings; for ABB, which dominates power generation, power transmission and robotics; and for Volvo and SAAB in the transport industry. Over time, some firms have capitalised and diversified in sunrise industries; Ericson moved from mechanical engineering into electronics. The structure of production has been fairly stable, in that the engineering sector has been an important actor of industrial growth since WWII; structural change can nevertheless be seen in the case of chemicals and pharmaceuticals, a growing industry over time.

\textit{The contemporary period: the dawn of the new millennium and onwards}

With the advent of the new millennium, Swedish industrial policy saw a number of changes; for example, NUTEK was split, becoming NUTEK and The Swedish Agency for Innovation Systems (VINNOVA). Such changes transformed Swedish

\textsuperscript{11}National Institute for Economic and Social Research and the Groningen Growth and Development Centre (2009).
policy into an innovation as opposed to merely an industrial policy (Bitard et al., 2008). Also, in the 1980s venture capital initiatives were consolidated by numerous government schemes aimed at providing seed and early-stage financing for innovating firms. Consolidation and expansion took place in the area of the dissemination and commercialization of university-based research. This emphasis on domestically commercialised research addresses the ‘Swedish Innovation Paradox’, according to which high R&D intensity in Sweden is not matched by a high share of high-tech (R&D intensive) products in manufacturing (Edquist and McKelvey, 1998; Bitard et al., 2008).

As can be seen from this brief summary, the success of Swedish manufacturing firms, in particular Swedish MNEs abroad, is largely attributable to the country’s long tradition of high and appropriate governmental involvement at all levels of industrial affairs. Although state aids in the 1970s\(^\text{12}\) resulted in a sub-optimal allocation of resources, the industrial policy of the 1980s was redeployed towards forward-looking measures. Large efforts were made in favour of innovation, the introduction of new technologies across industries, fostering SMEs, and stimulating exports as well as a regional balance.

Swedish government policy has encouraged innovation-driven export manufacturing activities and SME development, particularly in latter years. The industrial policy response to the current crisis is again enshrined in a past, relatively successful, industrial trajectory. More specifically, additional funding of billion 8 Swedish krona has recently been allocated to University and public institutions R&D (OECD, 2009).

\(^{12}\) Sweden postponed the downturn caused by the oil shock through an expansionary fiscal policy; as a result, employment rates were maintained, but wage inflation led to dwindling export shares, particularly in the years 1974-76.
A number of indicators, such as a rapid upturn in exports followed by strong investment and higher consumption have made possible a strong rebound in both economic growth and employment (Statistics Sweden, 2010). It is as if a solid manufacturing base, nurtured by appropriate industrial policies, had been somewhat resilient to the current shocks thereby allowing output, export, and employment growth to continue. In contrast to the Irish case, the MNE/indigenous dichotomy in Sweden does not coincide with a divide between large (efficient) and small (less efficient) firms. In Sweden, foreign firms are evenly distributed across manufacturing and services; indigenous firms control the highly export-oriented and technology-based engineering sector. Is this expected possible rebound due to the ownership structure (indigenous versus foreign firms)?

Section 4: The indigenous/foreign issue: does it matter?
Next we explore whether firm ownership/nationality helps explain current trends within the manufacturing sector in Ireland and Sweden.

4.1. The case of Ireland
As evidenced from 2010 CSO data (Census of Industrial Production), employment in Irish firms is dominated by more traditional sectors such as food products and beverages; textiles and clothing; wood; paper products, publishing and printing. The ‘complex’ economy sectors are dominated by foreign-owned firms. For example, foreign firms account for 80 per cent of those employed in the chemicals and chemical product sector. This is also the case for the electrical/optical equipment sector and the transport equipment sector. A more even distribution of ownership
occurs in the machinery and equipment sector. In contrast, Irish firms dominate employment across all industries in the services sector.

Also, turnover is marginally dominated by Irish firms in the more traditional manufacturing sectors of food products and beverages, textiles and clothing, and wood (except furniture). Interestingly the opposite is the case for pulp, paper, paper products, publishing and printing. As expected, turnover in chemicals and chemical products is dominated by foreign-owned firms, but so is equally turnover in electrical/optical equipment, other transport equipment, and leather and petroleum products. Labour costs in Irish-owned firms are higher and have increased over time in the more traditional sectors of food products, beverages and textiles; labour costs in foreign firms tend to be higher in chemicals and chemical products, electrical/optical equipment, and transport equipment.

Labour productivity in foreign firms is higher than in Irish firms across all sectors, even those where Irish firms dominate. For example, labour productivity in the traditional sector of food products, beverages, textiles and clothing is almost 8 times higher in foreign-owned firms than in Irish-owned firms. In 1998 foreign firms in the chemicals sector were 8 times more productive than their Irish-owned counterparts; this increases to almost 10 times in 2006. The largest differential in the chemical sector occurred in 2002 when labour productivity in foreign owned firms was almost 16 times higher than that which prevailed in the case of Irish firms.

In all sectors over all years foreign-owned enterprises exported more than their indigenous counterparts (except in the case of non-metallic mineral products).
As of December 2008, there were 12,861 foreign-controlled enterprises in Sweden, representing a total of 621,721 employees, or approximately 15 per cent of total employment.\(^{13}\) Some 75 per cent of foreign-controlled firms are in the services sector. As shown in figure 6 the share of total employment in foreign-controlled firms has increased over time, particularly since Sweden entered the EU in 1995. In 2006, this share represented less than a quarter of employment in the business (or private) sector. A third of all manufacturing jobs and 20 per cent of all jobs in the services sector respectively are in foreign firms. Data from the Swedish Institute for Growth Policy Studies (2007) shows that six industries are dominated by foreign firms. These are the chemical industry (84 per cent of total employment), coke (79 per cent), air transport (70 per cent), and other non-metallic products (64 per cent). At a more refined level of analysis, electrical machinery (56 per cent) and motor vehicles (51 per cent) are also characterised by relatively high levels of employment in foreign firms.

**Figure 6 here**

However, the engineering sector (comprising in particular motor vehicles and electrical machinery) is mostly controlled by Swedish firms. Only a third of all employment in this industry group is in foreign controlled firms. This implies that, in spite of globalisation and EU membership, Swedish firms dominate employment in critical or high-tech industries – the reverse of Ireland. As implied above, industries in this category are also export-oriented. According to the Swedish Institute for Growth Policy Studies (2007), the motor vehicles and machinery & equipment (Swedish

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\(^{13}\) The definition of a foreign controlled enterprise is the one used by the OECD and the EU. An enterprise is defined as being foreign controlled, if more than 50 per cent of the voting rights are controlled by foreign institutional units.
controlled) industries represented 18.1 per cent and 16.8 per cent respectively of all manufacturing exports in 2007. They are also leaders in terms of labour productivity; electrical and optical equipment, a very indigenous industry, boasts the highest labour productivity rate.

In terms of size, most of Sweden’s foreign controlled enterprises (87 per cent) had fewer than 50 employees in 2008. However, these small enterprises accounted for only 12 per cent of foreign-controlled employment. Large foreign enterprises (250 or more employees) accounted for 4 per cent of all foreign-controlled enterprises, but for 67 per cent of foreign-controlled employment. Smaller foreign-controlled enterprises are more present in the services sector, whereas foreign-controlled large firms are more evenly distributed between manufacturing and services. This contrasts sharply with Ireland, where foreign firms tend to be larger than their indigenous counterparts in the manufacturing sector.

As seen above, job losses have been a direct and immediate consequence of the current economic crisis. In 2009, the Swedish manufacturing sector lost 65,000 jobs (a 9 per cent contraction); employment in the construction industry decreased by 19,000 persons (a 6.8 per cent decrease) (Statistics Sweden, 2009). Inevitably, the contraction of investment and consumption on world markets has impacted on export-oriented firms in Sweden with SAAB shedding 750 jobs in March 2009, and Skania and Volvo announcing job cuts. However, according to Statistic Sweden (2011), the Swedish economy experienced a quick recovery during 2010. Industrial production in the manufacturing industry increased by 12.7 per cent over the same time period. The construction sector also boomed. Domestically, household spending increased by 5.6
per cent in the third quarter of 2010 compared with the previous year. Exports too saw sustained growth throughout the year accounting for nearly 3 per cent of the 2010 GDP growth. These very encouraging results confirm a lower vulnerability of the Swedish economy (compared to the Irish economy) to the current crisis. The resilience of the Swedish economy to foreign shocks over longer periods had already been noted.¹⁴

**Section 5: Conclusions**

Both Ireland and Sweden have been greatly affected by the recent global economic shock, albeit in rather different ways. Sweden’s economy rebounded with GDP growth of 4.4 per cent in 2010 and 2.5 per cent in 2011 while Ireland’s economy contracted by a further 0.2 per cent in 2010 and is expected to grow by only 2.2 per cent in 2011. Why has Ireland’s economy suffered a greater impact than one of a similar size, namely Sweden’s? Does the comparative analysis of the structure of production, and in particular of the manufacturing sector provide any insights?

The growth in Ireland’s unemployment rate has been unprecedented, with (so far) most of the job losses affecting the construction sector. Growth emanating from asset price inflation, spurred on by a combination of low interest rates, reckless lending and speculation, has proven to be a poor foundation for sustainable growth in Ireland. The challenge for Ireland at this juncture is to offset the contraction of the cyclically-based construction sector with job increases in both manufacturing and services. Based on a comparative examination of Ireland’s industrial structure and strategy over a long period, the critical analysis of this paper assesses the chances that this adjustment can
occur, which depends on the ‘quality’ of Ireland’s productive structure, on its sustainability.

Although we agree that (price) competitiveness matters to some extent, the current paper highlights that a high cost economy such as Sweden can still have a more ‘sustainable’ growth rate than that of Ireland. This, we suggest, is due to the benefits of adopting a balanced approach in terms of firm ownership, and an industrial policy which makes innovative indigenous firms a cornerstone of its industrial strategy. Swedish industrial strategy led to the establishment of large Swedish firms in the growing engineering sector, to the assistance of industries in decline through redeployment of workers displaced from traditional lower value-added activities towards more complex industries in higher value-added activities, and to a relatively strong focus on SMEs and stimulating exports.

As a result of these different paths in industrial policy, our comparative analysis suggests the following findings: (i) the MNE/indigenous dichotomy exists in both countries, but in Sweden it is not reducible to a large (efficient) firms/ small (less efficient) firms dichotomy. (ii) In Ireland, foreign firms are highly concentrated in large and high-tech manufacturing activities, whereas in Sweden they are more evenly distributed across manufacturing and services. (iii) Foreign firms (mostly US-owned) control high technology manufacturing activities in Ireland. By contrast, indigenous firms control the highly export oriented and technology-based engineering sector in Sweden. Consequently, the US-dominated ‘complex’ manufacturing sector in Ireland, combined with the current disarray in the US economy, does not augur well in terms of allowing manufacturing activities to replace the building sector in securing
employment growth in Ireland. This contrasts with the resilience of Swedish manufacturing and of the Swedish economy, which seems to be linked to its ability to ‘master’ its own destiny.

The overall conclusion that emerges from preliminary analysis is that the degree of economic ‘sovereignty’ (defined for the purpose of this paper as the relative importance of indigenous firms in the manufacturing industry in a particular economy) plays an important role and is greatly shaped by industrial policy. The implication is that policies that emphasise an indigenous industrial development strategy decrease vulnerability (due to increased independence) to shocks which affect the manufacturing sector. Indigenous firms are more embedded into local/regional economies and are less likely than MNEs to exit when the going gets tough. When growth resumes, positive adjustments are easier and quicker in the case of Sweden, where expansion of production can be instantaneous thanks to a quality indigenous industrial/manufacturing base, than in Ireland, where such expansion primarily depends on inward FDI.

Industrial policy implications from this analysis include the following: adopting a more balanced approach (in terms of the mix of indigenous and foreign firm ownership); promoting structural change in indigenous firms; and promoting entrepreneurship and innovation (which has been making some progress from a relatively low base) are all key ingredients for Ireland’s future industrial policy. Also, finding the right balance between industrial policy and other policies so as to redress the current univocal Irish Government fixation with monetary and budgetary policies (aimed at re-shuffling a badly performing Irish banking sector) is an imperative.
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Statistics Sweden, (2011) *Key Indicators of Sweden*, accessed 12th January 2011 [available at http://www.scb.se/Pages/FigureList___4000.aspx]


Table 1: Selected Indicators (Annual percentage change and percent, respectively)

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
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<tbody>
<tr>
<td><strong>Ireland</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Real GDP (annual per cent change)</td>
<td>5.3</td>
<td>5.6</td>
<td>-3.5</td>
<td>-7.5</td>
<td>-0.2</td>
<td>2.2</td>
</tr>
<tr>
<td>(2) Current account (per cent of GDP)</td>
<td>-3.5</td>
<td>-5.3</td>
<td>-5.2</td>
<td>-3.0</td>
<td>-2.7</td>
<td>-1.1</td>
</tr>
<tr>
<td>(3) CPI (annual per cent change)</td>
<td>2.7</td>
<td>2.9</td>
<td>3.1</td>
<td>-1.7</td>
<td>-1.6</td>
<td>-0.5</td>
</tr>
<tr>
<td>(4) ECB marginal lending rate (%)</td>
<td>4.5</td>
<td>5.0</td>
<td>3.0</td>
<td>1.75</td>
<td>1.75</td>
<td>na</td>
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<tr>
<td>(5) Interest rate, 10-year government bonds (%)</td>
<td>3.9</td>
<td>4.5</td>
<td>4.5</td>
<td>5.2</td>
<td>5.3</td>
<td>na</td>
</tr>
<tr>
<td>(6) General government debt (% of GDP)</td>
<td>24.7</td>
<td>25.0</td>
<td>44.4</td>
<td>65.6</td>
<td>94.2*</td>
<td>*98.6</td>
</tr>
<tr>
<td><strong>Sweden</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(7) Real GDP (annual per cent change)</td>
<td>4.2</td>
<td>3.3</td>
<td>-0.4</td>
<td>-5.1</td>
<td>4.4</td>
<td>2.5</td>
</tr>
<tr>
<td>(8) Current account (per cent of GDP)</td>
<td>8.4</td>
<td>8.4</td>
<td>7.6</td>
<td>7.2</td>
<td>5.9</td>
<td>5.6</td>
</tr>
<tr>
<td>(9) CPI (annual per cent change)</td>
<td>1.5</td>
<td>1.7</td>
<td>3.3</td>
<td>2.0</td>
<td>1.8</td>
<td>1.8</td>
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<tr>
<td>(10) Repo rate (%)</td>
<td>3.0</td>
<td>4.0</td>
<td>2.0</td>
<td>0.25</td>
<td>1.25</td>
<td>2.0</td>
</tr>
<tr>
<td>(11) Interest rate, 10-year government bonds (%)</td>
<td>3.6</td>
<td>4.3</td>
<td>2.7</td>
<td>3.2</td>
<td>3.1</td>
<td>3.9</td>
</tr>
<tr>
<td>(12) General government debt (% of GDP)</td>
<td>51.0</td>
<td>45.9</td>
<td>40.5</td>
<td>38.0</td>
<td>43.4</td>
<td>Na</td>
</tr>
</tbody>
</table>

Figure 1a: Unemployment in Sweden (monthly 2005-2010; Per cent of the labour force unemployed)


Figure 1.b: Unemployment in Ireland (monthly 2005-2010; Per cent of the labour force unemployed)
Figure 2: Competitiveness indicator (relative consumer prices, CPI), overall weights, 1970-2009 (2005 = 100)

Source: OECD (2010a) database, Economic Outlook No 86: Annual and Quarterly data.

Figure 3: Corporate income tax rate, 1981-2010 (%)
Source: OECD (2010b) Tax Database, Centre for Tax Policy and Administration, Taxation of Corporate and Capital Income, table II.1

NB: For Ireland, the table shows only the higher rate of taxation for the earlier period. Between 1994 and 2003, this higher rate was gradually reduced from 40% to the now single rate of 12.5% applying to all business corporations.

Figure 4: Unit Labour Costs*, 1970-2009

*Index OECD base year 2005=100.

Figure 5: Consumer Price Index of Energy*, 1970-2009

Source: IEA (2009), Energy Prices and Taxes.

Base period 2005 = 100.
Figure 6: Number of Employees in foreign controlled enterprises and their share of employees in the business sector (Sweden, 1980-2006)