

## **A Critical Reflection on Irish Industrial Policy: A Strategic Choice Approach**

David Bailey, Economics and Strategy Group, Aston Business School, Aston University, Birmingham, UK. +44(0) 121 2045262: e-mail [d.bailey@aston.ac.uk](mailto:d.bailey@aston.ac.uk)

Helena Lenihan, Department of Economics, Kemmy Business School, University of Limerick, Ireland. +353(0) 61 202079: e-mail [helena.lenihan@ul.ie](mailto:helena.lenihan@ul.ie)

*ABSTRACT This paper offers a critical evaluation of recent Irish industrial policy (IP) experience. It argues that whilst Ireland managed to get some things ‘right’ through its IP, substantial tensions arose through making foreign direct investment (FDI) attraction the centrepiece of policy, without at the same time adopting a more holistic approach in IP which inter-alia also placed an emphasis on indigenous firms and entrepreneurship more generally. In particular, greater efforts should have been made much earlier in attempting to better embed transnational corporation (TNC)-led activity into the wider economy, in fostering domestic small firms and entrepreneurship, in promoting clusters, and more generally in evaluating IP more fully – notwithstanding the context which mitigated against such actions. As a result, Ireland as an economy remained vulnerable to strategic decisions made elsewhere by TNC decision-makers, with IP effectively contributing to a situation that can be characterised as institutional and strategic failure. Overall, the paper suggests that wholesale emulation of the Irish IP approach is problematic.*

*Keywords:* Ireland; industrial policy; foreign direct investment (FDI); transnational corporations (TNCs); policy evaluation; strategic choice.

*JEL codes:* L52, O25, P51, R11, R58.

### **1. Introduction**

Both before and after the recent ‘bursting of the bubble’, Ireland has been held up as a role model for other states (Acs et al. 2007; Andreosso-O’Callaghan and Lenihan, 2006; World Bank, 2009; Sapir et al. 2003). With growth rates of over 8% p.a. in the late 1990s, Ireland went from having an income per capita of two-thirds that in the UK in 1990 to parity with the UK and

EU average by 2000. Continued growth until 2008 resulted in the third-lowest unemployment rate in the EU-27, at 4.1% in May 2007 (Eurostat, 2007). Yet more recently, the success story has soured, with the economy going into recession in late 2008, and with unemployment rising even before the worst effects of Global Financial Crisis (GFC) impacted (Eurostat, 2008). By May 2012, Ireland had one of the highest unemployment rates in the EU27 at 14.7% - the fourth worst record in the EU27 - (Eurostat, 2012) and the economy has faced severe budgetary pressure after the rescue of its banking system (with a government debt to GDP ratio for the first quarter of 2012 at 106.8%, well above the EU27 average—Eurostat, 2013). At the end of 2013, this stood at 125.7% (Eurostat, 2013). Despite this, Ireland has yet again been granted ‘role model’ status, albeit this time in terms of implementing austerity measures (O’Toole, 2012; Trichet, 2010).

Yet given the scale of the downturn in Ireland which is amongst the worst in the EU (Honohan, 2009; New York Times, 2012), it is timely to offer a more balanced appraisal of the successes and failures of Irish industrial policy in recent years. It should be noted that this analysis focuses on the period *before* the GFC, as questions over the sustainability of Irish policy were actually evident well before then (see Bailey, De Ruyter and Kavanagh, 2007).<sup>1</sup> In analysing the Irish story, much of the commentary- from outside Ireland at least - has focused on a narrow range of “conventional” policies in promoting success (as long as it lasted). Typical of such analyses has been the influential Sapir Report and follow ups (Sapir et al. 2003), which stressed the role of FDI and an attractive environment for investors including flexible labour markets, administrative capacity and supportive macroeconomic environment. This paper moves the analysis on a step further in exploring the successes and failures of industrial policy and whether Ireland with its classic ‘FDI-led’ industrial policy can indeed still provide ‘lessons’ for other small EU states.

This is a rather different approach to the work of Acs et al. (2007) who consider the question of whether the so-called ‘Irish miracle’ as such could be repeated in other countries. Rather, the approach adopted here asks *whether* Ireland can anyway provide industrial policy lessons for other economies, recognising of course that other economies have their own specific contexts and specific forces at work, and any consideration of the applicability of Ireland’s IP approach needs to take these into account. In particular, the paper suggests that Ireland has provided an example for other (such as central and eastern European, hereafter CEE) countries to

follow in some respects but very much not in other ways. In particular, Ireland can offer “lessons” in terms of the need to position and embed FDI, building administrative capacity and encouraging domestic entrepreneurship, although as subsequently argued the latter has come far too late in the day. The discussion that follows argues that there are severe challenges in adopting the ‘Irish approach’, especially as it risks entrenching concentrated strategic decision making and heightened risks of institutional failure as evident in the “strategic choice” approach (Cowling and Sugden, 1999; Tomlinson and Cowling, 2011). In particular, the industrial policy lessons that Ireland can provide for other small EU states are examined, given that industrial policy is “back on the agenda” of late (Bailey et al, 2015). Here, the argument is that there is no ‘silver bullet’ (such as FDI) for economic development. Rather, states need to adopt a broader and more holistic industrial policy development approach and perspective than that which is normally discussed in the context of Ireland, and one which pays attention to strategic decision making and economic diversity.

The structure of the paper is as follows: Section 2 reviews recent developments in industrial policy; Section 3 explores the strategic choice perspective in the context of Irish experience; Section 4 details the evolution of FDI-focused industrial policy in Ireland; and section 5 explores the impacts of FDI-led policy and growth. Section 6 concludes in relation to industrial policy “lessons” arising from the Irish experience for other small EU states.

## **2. Recent Developments in Industrial Policy: beyond a “market failure” approach?**

Whilst now seen as “back on the agenda” at government and EU levels, historically the theoretical rationale for industrial policy (hereafter IP) has been primarily seen in quite narrow terms, in the sense of addressing “market failure” (Bailey, Cowling and Tomlinson, 2015). Of late, however, this conventional approach to IP has moved on to be more concerned with enabling successful economic adjustment within a country or region as industries decline and change, within the context of mobile global capital flows. In this perspective, firms are then seen as interacting with a plethora of other organisations such as research centres, financial institutions and government agencies. Within this approach, natural “systems” of innovation and clusters are seen as fundamental policy frameworks. In this regard, Aiginger (2007) characterizes “systemic industrial policy” as that which supports education, training and entrepreneurship,

promotes FDI and exports in catching-up economies and merges with innovation strategies, cluster policy and dynamic competitiveness in higher income countries. In so doing “it goes beyond combating market failures. It acknowledges limited knowledge of policy makers, mutual learning and co-operation between firms, institutions and government” (Ibid, 297). More recently, Rodrik (2008) has emphasised the role of IP as a *process* of discovery requiring strategic collaboration between the private sector and state in unlocking growth opportunities. Overall, commonly adopted definitions of IP are too narrow, and there is a need to recognise that “good practice” IP is much more “holistic” in its approach and focuses simultaneously on both demand and supply side factors of industrial development.

In a sense, this had been recognised to some extent in the Irish context more than twenty years ago, but – critically - was not effectively acted upon, in part because of contextual factors which mitigated against such an approach. In a seminal report, Culliton (1992) emphasised the need for an IP which took a much more holistic approach and which included: reform of the tax system; provision of infrastructural needs; re-focusing of education and training system; increased funding for science and technology; and a greater emphasis on technology acquisition. The desirability of fostering clusters of related industries building on leverage points of national advantage was also highlighted. As for indigenous industry, Culliton argued for the increased use of equity as opposed to cash grants; the expansion of the indigenous sector; and a reorganisation of support agencies into two, with one addressing the needs of foreign-owned industries, and the other the needs of indigenous ones. Ironically, the latter in turn created an effective policy divide, mitigating against the creation of a more holistic policy approach. While recognising some of the significant factors which mitigated against developing a more effective IP approach earlier, change in IP could be characterised as “too little, too late”, with IP remaining over-ridingly FDI-orientated.

More generally, Pitelis (2009, 97) distinguishes four main extant IP frameworks on competitiveness and catching-up: the neoclassical economic theory-based approach; the Japanese practice-based one; the “systems” of innovation view; and Porter’s Diamond, all with quite different implications for the role of FDI in catching up and economic development. Under the neo-classical approach, FDI is seen as a mechanism for the transfer of resources and factors from abundant to scarce locations, thereby contributing to catch-up. Under the Far-Eastern development state approach, FDI is a means to an end and used when necessary but not used

exclusively where alternatives are possible; for example, large economies attractive to FDI were able to use licensing (in Japan) or Joint Ventures (in China) at certain stages of development. Where FDI is deemed necessary for industrialisation it has been positioned within a broader context of industrial and competitiveness strategy objectives, even if proactive policies were used to attract FDI - as seen in Singapore and Taiwan (see Pitelis, 2009). In the systems framework, FDI is viewed as being part of the wider system and may either assist in strengthening linkages or may be of limited value if “footloose and stand-alone” (Ibid). Finally, in the Diamond approach, FDI is itself seen as a measure of success or even competitiveness (Ibid).

Finally, the development of a holistic IP needs to recognise the phenomenon of uneven development (Hymer, 1972) and strategic choice (Cowling and Sugden, 1999). In this context, an undue emphasis on FDI attraction towards multinational firms may serve to reinforce patterns of development whereby major world cities and regions attract high-level activities and investment, whilst in contrast peripheral countries and regions attract lower-level production activities – thereby serving to exacerbate patterns of inequality (Ibid). The implication here is that special attention needs to be paid to these more peripheral locations and regions; both in terms of improving local/regional capabilities; but also in terms of transport and infrastructure support, so as to increase their relative competitive advantages. In a similar manner, one can also refer to a holistic IP as addressing uneven development through promoting genuine capability endowment in local communities. It is to such issues that the focus of the paper now turns.

### **3. Bringing in a strategic choice perspective on Irish experience**

A central theme of this paper is built on the strategic choice perspective developed by Cowling and Sugden (1999); Bailey et al. (2006); Tomlinson and Cowling (2011) and Branston, Tomlinson and Wilson (2012). This literature sees a key role being played by the modern TNC. By switching investments around the world these large and powerful firms are able to determine the global distribution of economic activity (Dicken, 2010). The transnationals can, at one and the same time, deindustrialise the “older” industrial countries (and regions therein) and industrialise the “new”. And within themselves, only certain actors matter in this process: strategy within the corporation, that is the direction and type of development, is determined by those who control the corporation. Exactly *who* controls the corporation and determines strategy

has been the subject of much debate amongst economists; some argue that corporate control remains with senior managers, others focus on certain powerful shareholders, whilst others see such groups as basically the same people anyway. Nevertheless, whilst recognising the possibility of “heterogeneity” across firms in terms of the composition of elites, there is a consensus amongst economists that control of firms rests with a subset of those having an interest in a firm’s activities, and certainly does not rest with the workforce. Rather, strategic decision-making is concentrated in the hands of an elite (Branston, Tomlinson and Wilson, 2012).

Others involved and affected by such strategy may object but ultimately they cannot reverse such policies. The fundamental point is that a small elite will dictate strategy and thus such strategy will reflect their aims and ambitions: the aims and ambitions of others will be neglected. A distinction can thus be drawn between “corporate” and “community” strategies. “Corporate” strategies are viewed as strategies for development conceived by, and in the interests of, strategic decision makers within giant firms, whereas “community” development strategies are those devised by, and in the interests of, a wider set of actors in the community . The implication is that if strategic decision-making in modern transnationals is the preserve of only a few, there arises the potential for what the strategic choice literature terms “strategic failure” (which may be seen as a form of institutional failure), where the objectives of the elite making strategic decisions conflict with wider interests in society, with the result that the economic system fails to deliver the most appropriate outcomes for the community. Precisely because so-called “free markets” concentrate strategic decision-making in the hands of elites, “development paths based upon an especially prominent role for transnational corporations are inherently problematic” (Cowling and Sugden, 1999, 363). This applies whether the firm is domestically or foreign owned, and where firms control multiple plants.

It is therefore the case that strategies for development of the developed world have often not met the aims and ambitions of the majority of the population within them. Such strategies have not necessarily been in the wider interest - the public interest (Bailey and De Ruyter, 2007). The playing out of transnationals’ strategies has involved both centrifugal and centripetal development: work has been put out by transnationals (either within the firm or under their control via sub-contracting) from the older industrial centres to countries where labour costs are much lower (centrifugal forces), but high-level strategic control over such work has been increasingly brought to the centres of the new transnational system (centripetal forces). Indeed as

Collins and Grimes note with specific reference to the Irish case “a territory can compete on costs only for so long” (2011, 422).

Ireland’s position within this international division of labour is especially interesting. Ireland is a textbook Small Open Economy, where exports represent over 90 per cent of GDP<sup>1</sup> and the move from “boom to bubble” mirrored the dynamic in the country’s exports growth. FDI was a key contributor to rapid growth rates during the 1990s (Barry and Bradley, 1997; Breathnach, 1998; Buckley and Ruane, 2006). Ireland benefited “disproportionately from the global FDI boom” during this period; from 1993-2003 it was the largest net FDI recipient in the OECD (Gunnigle, Lavelle and McDonnell, 2009, 52). The majority of these TNC were in a small number of export-oriented high-technology sectors, notably electronics, pharmaceuticals and healthcare, software, and international services (Gunnigle, Lavelle and McDonnell, 2009). As explored below, Ireland pursued an FDI-led IP which sought to attract foreign (mainly US) transnationals (TNCs) to Ireland in search of low labour costs (Forfás, 2011; Gunnigle, Lavelle and McDonnell, 2009; O’Connor, 2001), as well as quality labour, knowledge, a favourable economic/business climate and supporting institutions, all features the Industrial Development Authority (IDA<sup>2</sup>) has “attempted to nurture for the past 20 years” (Collins and Grimes, 2011, 422). This brought benefits in terms of economic growth, job creation and exports (Barrios, Görg and Strobl, 2006) but left the country vulnerable to decisions made elsewhere by elites of decision makers within TNCs (along the lines suggested by Cowling and Sugden, 1999). While efforts were made over time through IP to improve the spillovers from FDI to the wider economy and to improve linkages with domestic firms, these efforts – we argue - came too late in the day, notwithstanding the weakness of the local sector which meant that building such links were by their very nature difficult. Similarly, efforts at upgrading the operations of TNCs from branch plant (Level III operations in the language of Hymer) to higher level functions did develop over time, but only slowly.

Indeed, from a holistic IP perspective, such efforts should have come much earlier and this is one of the key lessons from other economies looking to the Irish case. The slow response by Irish policy makers may have been exacerbated by the rapid growth experienced in the 1990s (averaging 7.1 per cent between 1991 and 2000- see World Bank; 2012) which took pressure off the need for policy reflection and reform. As argued by O’ Toole (2009), policy during the Celtic Tiger period was ‘clientelist’, reactive and short-sighted in its focus and orientation. Moreover,

Honohan (2009, 7) argues that “the lengthy period of success lulled policy makers into a false sense of security, not to say invulnerability”. With the emergence of lower cost locations in CEE states that joined the EU, Ireland later began to lose FDI, manufacturing capacity and jobs: The Forfás 2008 and 2013 Employment Surveys (Forfás, 2009 and 2014) reported a steady decline in the numbers employed in manufacturing by foreign owned firms from 112,178 in 2001 to 93,950 in 2006. Likewise, 2013 data from the same source shows a decline from 93,950 in 2006 to 80,780 in 2013 (see figure 1a).

Strategic decision makers within such TNCs could see little advantage in remaining in Ireland when faced with the alternative of regions elsewhere with significantly lower costs, whether they be in lower cost locations within trade blocs such as the EU (such as central and eastern Europe) or in “developing” countries. Overall, Ireland offers an interesting IP case study as it attempted first to establish new industries via FDI-led “industrialisation”. However, this paper argues that this facilitated a situation of concentrated strategic decision-making, with IP effectively serving the interests of incoming TNCs. It was only much later in the day that attempts were made to broaden policy so as to consider smaller domestic firms and linkages between FDI and such firms, and to upgrade TNC activities. This change began to some extent in the early 1980s with an explicit strategy to attract more hi-tech multinationals to “jumpstart the virtually nonexistent indigenous hi-tech sectors” (Barrios, Görg and Strobl, 2006, 86).

Although prior to EU accession, Ireland showed a revealed comparative disadvantage in the non-traditional sectors (Chemicals and Metals and Engineering sectors), its use of low corporation tax rates to attract FDI encouraged the influx of foreign firms in these sectors post-accession (Barry and Hannan, 2001). The authors also note that several CEE countries have followed Ireland’s example of attracting FDI with the use of low corporation tax rates. Similarly, Buckley and Ruane (2006, 5) argued that, notwithstanding the lack of a tradition in high-tech sectors such as electronics and pharmaceuticals, “policy makers believed that, with its relatively well-educated population, Ireland could be a competitive production base for TNCs as their low per-unit-value transportation costs made them readily suited to exporting from an Island economy”. However, as argued elsewhere Anyadike-Danes, Hart and Lenihan (2011) this preoccupation with the role of FDI may go some way towards explaining why entrepreneurship was overlooked in mainstream analysis and commentary of the factors that drove Ireland’s economic growth. Any approaches to pursue a more holistic approach to industrial economic development and policy

came too late and the unbalanced situation eventually impacted on economic activity, with the TNCs which dominated the Irish economy relocating labour intensive activities elsewhere in search of labour costs, thus promoting a “hollowing out” process, with a significant run-down in manufacturing employment over the period 2001-2013 (Forfas,2009, 2014) as evidenced in Figures 1a and 1b. The latter figure illustrates that indigenous manufacturing firms were as likely to shed employment as foreign owned firms, suggesting that both sets of firms responded in a similar manner to the changing domestic and global contexts for manufacturing.

**[INSERT FIGURE 1a HERE]**

**[INSERT FIGURE 1b HERE]**

The beginning of the current recession hit Ireland hard with some iconic TNC “pull-outs” such as Dell’s manufacturing plant which left Limerick in search of lower labour costs in Lodz in Poland. Lenihan and Bailey (2009) highlighted the fragility of a strategy that had largely relied on one large TNC to act as a significant generator of employment in the fourth largest city in Ireland, with the loss of 2,000 direct jobs at Dell in Limerick and wider multiplier effects (some 2,600 jobs lost in the wider economy amongst Dell suppliers). A key problem here was that the supply chain had not diversified beyond Dell and so was particularly vulnerable to cutback. This was rather typical of a wave of redundancies amongst multinational affiliates in Ireland over the 2009 to mid-2010 period in particular (others exits and job redundancies by TNCs included Boston Scientific, Amann, Georgia-Pacific, Teva, Element Six and many more).<sup>4</sup> A similar outcome occurred much earlier in relation to the relocation of Fruit of the Loom (US-owned) from Donegal to Morocco in 2006. The decision was motivated by lower wage costs in Morocco which were less than 20 per cent of the equivalent level in Donegal at the time (McGowan, 2000). Some thirty years earlier, there had been the closure of the Dutch-owned Ferenka factory in Limerick with the loss of 1,400 jobs in 1977 (MacSharry and White, 2000), In a similar vein, there was the high-profile closure of Digital Equipment Corporation (DEC) in Galway in the

early 1990s, with the luring of the activities hitherto carried out in Galway to Scotland by attractive incentives.

The centrifugal and centripetal tendencies connected with this new globalism, with production leaving the old manufacturing regions of the core for the low wages of the periphery (initially Ireland), and with control over this process being concentrated within the core, provided the backdrop for what has unfolded in Ireland, and was encouraged to a large extent by IP measures enacted in Ireland, to which we turn next.

#### **4. Industrial Policy in Ireland (the so-called “Celtic Tiger”)**

In summarising the Irish policy experience, the area where Ireland had been particularly cited as a “role model” for other states had been in its ability to attract FDI - particularly from the United States. Relative to the size of the economy, by 2008 Ireland had one of the highest levels of FDI inflows in the world. The innovative character of Irish FDI-related policies should be noted, as well as the continual policy innovation in making Ireland a competitive market site for FDI (Rio-Morales and Brennan, 2009).

Beginning with the publication of the Whitaker Report, *Economic Development* in 1958, there was a shift in Irish industrial policy from protectionism to free trade. The Whitaker report criticised the existing policy which protected infant industries, and recommended a policy aimed at promoting foreign capital with the use of tax concessions and other incentives (Donovan and Murphy, 2013). Successive Irish governments have since welcomed FDI and engaged in a strategy of “industrialisation by invitation” (Begley, Delaney and O’Gorman, 2005). Attractive FDI inflow policies were put in place, initially through the provision of generous financial assistance (mainly for capital investment) and also by granting tax holidays (up to 15-20 years) on the incremental profits emanating from export sales (Buckley and Ruane, 2006). One of the key “carrots” during the early years was Ireland’s 0% tax on exports (Begley, Delaney and O’Gorman, 2005). From the early 1970s onwards, the Irish government approach shifted towards a greater emphasis on selectivity and more careful targeting of FDI (in particular of high-tech sectors), with pharmaceutical and electronics especially targeted as possessing promising opportunities, leaving Irish entrepreneurs to operate in the traditional sectors. As part of this targeted effort, computer industries were very much attracted to Ireland, however, the types of

activities that computer industries tended to engage in were often low-value assembly operations (Begley, Delaney and O’Gorman, 2005). Additionally, in highlighting the shortcomings of the foreign-owned manufacturing sector in Ireland, the *Telesis Report* (1982, 151) noted that “foreign-owned industrial operations in Ireland with few exceptions do not embody the key competitive activities of the businesses in which they participate, do not employ significant numbers of skilled workers; and are not significantly integrated into traded and skilled sub-supply industries in Ireland”. In other words, although the high-tech sector FDI was targeted by the government, the generous incentives offered to attract firms often did not have the desired effect. Rather, these incentives encouraged transfer pricing practices and a high degree of profit repatriation, such that foreign firms in Ireland carried out low level activities, which were subject to relocation decisions, with low R&D components (Gunnigle and McGuire, 2001).

Over time Irish policy makers adopted a four-pronged approach with regards to selecting and influencing the pattern of TNC investment in Ireland, involving the following elements: (1) targeting niche high value/volume product markets with European growth potential; (2) identifying enterprises in the above markets; (3) actively courting these enterprises and enticing them (via a range of incentives and also a low corporation tax<sup>3</sup>) to consider Ireland as an investment base; (4) agreeing a “package” of incentives with such investors. As aptly summed up by Buckley and Ruane (2006, 6), policy was “project based rather than sectoral” whereby “Irish policy makers recognised the heterogeneity of TNCs and their different potentialities”. On this, Smeets (2008) acknowledged the heterogeneity of FDI in terms of the ownership (whether minority or majority FDI shares and the nationality of ownership) and FDI motives (e.g. horizontal FDI motivated by market-seeking incentives, vertical FDI motivated by efficiency or resource-seeking incentives or export platform FDI driven by the desire to find an efficient location from which to more profitably export to third countries). As outlined earlier, a significant proportion of FDI flow into Ireland originates from US firms seeking to gain access to European markets. The motivation for FDI could also be analysed in the context of global value chains or fragmentation of production across firms or international boundaries, in the sense that firms may source intermediate inputs from foreign affiliates, which in turn, generates FDI (Dahlby, 2011). Following on from the above, export platform FDI is most relevant in the Irish context, with foreign firms engaging mostly in the transformation of imported intermediate inputs into manufactured goods which are later exported (Lane and Ruane, 2006). Furthermore,

Sweeney (2008) notes that relative to the rest of Europe, Irish policy makers were at the forefront of recognizing the heterogeneity of FDI.

With the benefit of hindsight, it is clear that the promotion and assistance of particular sectors by Irish industrial policymakers from the 1970s onwards was well timed. It is also widely acknowledged that the development agency (namely, the IDA) played a key role in encouraging, welcoming and providing an after-care service for firms locating in Ireland.<sup>6</sup> As outlined by Collins (2007), the Irish government also ensured that its education policies were cognisant of the needs of TNCs. In effect, of key importance was how the Irish government managed (via the support of their agencies) “to attract and keep huge FDI through all manner of incentives packages” (Ibid, 60). In summary, Ireland’s success in attracting FDI can be attributed to the following factors: (1) EU membership; (2) Western European governance standards; (3) Being English-speaking; (4) An educational system highly interwoven with its FDI-oriented policy; (5) A low corporation tax rate; (6) The experience, influence and resources of the IDA and (7) specialisation in high value added to volume ratio products which it could produce competitively (Barry, 2008; Sweeney, 2008). Furthermore, the IDA has been credited for its foresight and success achieved in identifying and targeting selected growth in high-tech industries such as computers, computer software, telecommunications, pharmaceuticals and chemicals, thus providing Ireland with first-mover advantage in these industries (Donovan and Murphy, 2013). Taken together, the above factors meant Ireland was well positioned to take advantage of the ‘high tech revolution’ in the 1990s serving as an intermediary between Silicon Valley and Europe, without which “it is quite likely there would have been no Celtic Tiger” (Donovan and Murphy, 2013, 27). However, the same factors which stimulated rapid growth in the Irish economy, that is, the localisation of FDI in selected high-tech industries and over-reliance on FDI originating from the US also made it vulnerable to global shocks within the high tech industries, as well as to a downturn in the US economy (Murphy, 2006) as well as low cost competition with European enlargement.

Without doubt, we concur with Killeen (1975) in that Ireland needed FDI for economic growth and that a reliance on purely indigenous firms would not have delivered sustainable economic growth. However, the argument here is that an over-reliance on FDI (without a concomitant commitment to indigenous firms) in turn also failed to deliver in terms of *sustainable* long-run economic growth. A more holistic/sustainable approach to economic

development which has a form of diverse “ownership mix” at its heart is therefore suggested below as a key lesson of experience. In essence, for much of its recent history Ireland simultaneously combined an IP approach orientated virtually completely towards attracting FDI via policies such as low tax rates, alongside weak mechanisms to build domestic capabilities and wider resilience (Kirby, 2010). As Bradley (2002, 26-73) has stressed, the state simply adapted to the needs of the firm in the global corporate environment in what Kirby (Ibid, 46) terms a “reflexive dependence” on incoming multinationals. Similarly, Jacobson and Kirby (2006, 28) refer to the neglect of policy support for indigenous firms outlining that “the state built a strategy for deriving economic benefits from globalization”.

The assumption by successive Irish Governments was that FDI infusion would result in wider economic benefits through spill-over effects generated by the presence of TNCs in a host economy. In terms of the Irish experience in this regard, what does the evidence say about the existence of linkages and spillovers? And related to this, did a strategy of pursuing FDI led growth lead to a neglect of the indigenous sector (largely SMEs) in Ireland? It is to these questions that the paper turns next, with the section concluding by examining the related issue of the creation or otherwise of successful industrial clusters in Ireland.

## **5. The Impacts of FDI-led Policy and Growth**

As noted, the Irish government, on recognising the limitations of purely focusing on FDI as an engine of growth, also sought to develop indigenous SMEs and entrepreneurship more generally (see Bailey, De Ruyter and Kavangh, 2007; Bailey, Lenihan and Singh, 2012). Whilst acknowledging this, it is argued here that the focus on indigenous SMEs and entrepreneurship by Irish policymakers should have come at a much earlier stage of development. As Barry and Bradley (1997, 21) note, “the attention of policy makers may have been distracted from the requirements of indigenous manufacturing by the high profile attached to the attraction of multinationals”.

Despite the fact that “even as far back as 1979, some 95% of all manufacturing units could be classified as SMEs” (Andreosso-O’Callaghan and Lenihan, 2006, 282), it is surprising that there was not a formal focus by the Irish government on the small firms sector until 1994, culminating in the publication of the “Task Force on Small Business Report”. However, it needs

to be acknowledged, as Barry and Bradley (1997) recognise, that one reason for this “neglect” by policymakers of indigenous industry may also have been due to the fact that there was little actual potential for the vast majority of indigenous industries which had grown up under the protectionist policies (operating until the early 1960s) and that Irish policymakers could have done little anyway by means of intervening to reorientate these indigenous industries towards the international market place. This raises an important point regarding disciplining domestic firms and industries built up through IP, as noted by Bailey, Lenihan and Singh (2012), in the context of East Asian experience with IP from the “development state” perspective.

To explore the issue of “balance” and the “ownership mix” in Ireland, the paper examines the contribution of indigenous and foreign-owned firms in Ireland specifically as regards employment and export performance.

**[INSERT FIGURE 2 HERE]**

As evident from Figure 2, in 2011 there were 4,516 manufacturing enterprises<sup>4</sup> in Ireland. This was a decrease of 473 enterprises since 2008 (CSO, 2013a). A breakdown by country of ownership shows that the number of Irish-owned enterprises declined by 1,325 enterprises, while the number of foreign-owned firms increased from 444 firms in 2008 to 1,296 firms in 2011.

As can be seen in Figure 3, data from the Irish Central Statistics Office (CSO) and in particular the CSO’s Census of Industrial Production for 2008 to 2011 suggest that foreign firms represent just under 50% of manufacturing employment in Ireland.<sup>5</sup> Meanwhile, Forfás (2014) indicates that total employment in manufacturing fell by 26.8% over the period 2001 to 2013 with a fairly consistent increase (138.9%) in Business, Financial and Other Services over the same period.

**[INSERT FIGURE 3 HERE]**

Forfás also highlight that foreign firms represented much of the decline in manufacturing (27.9% 2001-2013), implying perhaps that foreign owned TNCs in Ireland were undertaking

their manufacturing in locations outside Ireland. The decline in Irish-owned manufacturing employment was slightly lower at 25.6 % over the same period.

Related to this, Barry, Bradley and O'Malley (1999) highlight the weak performance of the indigenous manufacturing sector historically. They allude to the restrictions placed on the ability of indigenous firms to perform better than they did on past economic policies (through protectionism in the 1930s) and much later, a lack of policy attention in favour of a concentration on TNC-led inward FDI. However, they also go on to stress that the specific policy needs of the indigenous sector were met more vigorously during the 1980s and 1990s, thus providing for a strong resurgence in the fortunes of indigenous Irish manufacturing; "by 1998 employment in the sector was up 9% on its 1988 figure...we see that the proportion of indigenous industrial output that was exported rose from 26.6% in 1986 (unchanged from the 1973 and 1976 levels) to 33.4% in 1990 and 35.9% by 1995" (Ibid, 33-34). In a related vein, O'Donnell (1998) notes that in manufacturing, the exports of Irish-owned firms grew at an annual rate of 11% in the period 1986-1995, slightly ahead of the EU (10.2%) and the OECD (10.5%) (Ibid,14).

Given such figures, a key question arising as to the increased presence of FDI over time is its impact on indigenous firms. Our view is that the improved performance of indigenous manufacturing firms in the 1980s can only be ascribed to the presence of TNCs in a minimal way. Supporting this view, Barry, Bradley and O'Malley (1999) "ascribe this (their performance) to the benign economic environment of the 1990s, to the fact that only the most resilient and outward-oriented of indigenous firms would have survived the traumatic decade of the 1980s, and to the increased focus of IP on the development of a strong indigenous sector" (Ibid, 38). It is fair to say that by the 1990s, the spillover effect arising from the presence of TNCs was starting to take place on the ground, in terms of the transfer to the indigenous sector of advanced human capital, the transfer of learning and knowledge and know-how from the superior systems and processes of the TNCs to some of indigenous firms and the opening up of channels and networks overseas (Giarratana, Pagano and Torroso, 2005; Andreosso-O'Callaghan, Lenihan and Reidy, 2014). Related to this was the emergence of the Irish indigenous software sector based on linkages from foreign firms (see below). Whilst acknowledging this, the point here is that the Irish government largely neglected the indigenous (largely SME sector) until the mid-1990s,

despite an increased policy focus from a very low base during the 1980s. This is highlighted in comments from various reviews of IP over the years; for example the *Telesis Group* (Telesis, 1982), which highlighted Ireland's over-emphasis on foreign industry as well as the *Culliton Report* (Culliton, 1992). Yet as detailed earlier, it was not until the 1994 *Task Force on Small Business Report* that SME policy finally began to move to centre stage. Various steps were taken by policy makers to support small business following policy recommendations outlined in the 1994 *Task Force on Small Business Report*. These included the disbursement of loans and grants, lowering the threshold for firms to qualify for the 12.5 per cent corporation tax on trading income, reducing the higher tax rate of personal income tax to 42 per cent, as well as the establishment of City and County Enterprise Boards (Department of Jobs, Enterprise and Innovation, 2003).

#### *Linkages and Spillovers?*

There was, it is fair to argue, the hope that indigenous SMEs would “grow from foreign firms through linkages and spillovers” (Andreosso-O’Callaghan and Lenihan, 2006, 280). In reality, how successful (when they finally happened) were Irish Government policy interventions in achieving positive linkages and spillovers between TNC and indigenous (largely SME) firms?<sup>6</sup> Despite the rhetoric of FDI-led adjustment, there is considerable evidence to suggest that the Irish economy operated according to a “Lewis-type” dualism (Ugur and Ruane, 2004), with little relationship between the foreign (FDI) and domestic sectors. As such, each sector appears to have developed according to its own pattern. Nevertheless, there was evidence from some sectors at least of increased linkages over time (such as in electronics, as discussed by Görg and Ruane [2001]), even if foreign firms had lower linkages – perhaps due to the necessary scale needed to supply such firms (Ibid). Other authors (see Kearns and Ruane, 2001) suggest that the level of R&D activity in a plant is a key determinant with regards to firstly, lengthening the duration over which that plant will stay in Ireland and secondly, with respect to improving the quality of the employment generated in the plant. For high-technology sectors, the evidence of spillover effects is even more apparent (Barry and Van Egeraat, 2008; Görg and Strobl, 2003). Here, there is evidence to suggest that the presence of TNCs in high-technology sectors had a “life-enhancing”

effect on indigenous plants in Ireland, improving indigenous entry rates, and improving links between manufacturers and components suppliers in sectors such as IT.

Yet more generally the picture is much less clear, as reflected in the work of a range of researchers (Forfás, 2004; Heanue and Jacobson, 2003) who explore the issue of linkages in Ireland. The National Linkages Programme (NLP) introduced in 1985 shifted policy towards the building of supply networks and chains as opposed to actual direct local company linkages, but with mixed success: Forfás (2004) argue that the NLP stopped short of reaching its potential, while Heanue and Jacobson (2003) argue that there was some success up to the 1990s but thereafter the impact was insignificant. Similarly, Brennan and Breathnach (2009) also refer to the limited success of the NLP. The overriding conclusion on the success or otherwise of linkages in Ireland was summed up by Ruane (2001, 12) who concluded that “it is hard to either totally prove or disprove” whether linkage policies have been successful. What is clear, however, is that more could have been done earlier by Irish policy makers to promote linkages. This view is supported, for example, by Tavares and Young (2005) who argue that “it was only in the mid-1990s that there was a policy shift to promote the indirect impacts of FDI, through building linkages between the domestic and foreign sectors and supporting manufacturing agglomerations” (Ibid, 8). This would appear to have come almost 40 years too late given that as far back as the “First Programme for Economic Expansion” (1958), Irish policymakers had targeted FDI. More specifically, Tavares and Young (2005) attribute poor linkages to the fact that employment generation was the key – if not the sole - objective of the Irish industrial development strategy for many years. Other authors such as Kennedy (1991) and Tansey (1998) also cite the level of domestic linkages created by multinationals as a cause for concern. The seemingly weak linkages between foreign and domestic firms may have been related to Ireland’s poor national system of innovation as highlighted by Mjoset (1993), drawing out the need for the adoption of a systems of innovation approach.

The IT sector was seen as being of particular importance in the Irish case, as software firms have been regularly cited by commentators as one of the most successful examples of FDI spillovers (see Acs et al. 2007, 2007; Andreosso-O’Callaghan and Lenihan, 2006). On this, Buckley, Leddin and Lenihan (2006) argued that a number of factors contributed to maximising productivity spillovers to the indigenous software industry in Ireland, including: (1) the fact that TNCs choosing Ireland could be described as technologically superior; (2) the TNC software

sector in Ireland was almost entirely export focused; (3) former TNC employees who subsequently went on to establish their own new ventures were key transmitters in terms of knowledge transfers to the indigenous software firms; (4) indigenous software firms demonstrated a high absorptive capacity; (5) the clustering of indigenous and TNC firms; and (6) the indigenous software sector had been enhanced by Irish government policies which focused on a reorientation of the education system in the 1980s so as to provide a pool of graduates for technology focused industries.

From a policy perspective, small EU states studying the Irish case might find it worthwhile to pay due attention to identifying the myriad of factors that are likely to contribute towards maximising productivity spillovers. Yet as noted, this success in attracting high-quality FDI brought with it a vulnerability to strategic decision making by TNCs headquartered outside Ireland. Jacobson and Kirby (2006) also echo this point more specifically; citing the work of O’Heara (1988, 2000), they questioned the vulnerability of Ireland’s reliance on high levels of FDI. This was starkly illustrated through the case of the Canadian software firm Corel which was widely viewed as the star “success story” of plant upgrading in the 1990s only to be closed down in 2000 when corporate needs for closure out-weighed the benefits of the strong local links built up by the firm (White, 2004). It is important to note that as part of a multiplant enterprise, the need for cutting local production can come from two distinct sources: first, the cutting of output in response to changes in local costs and second, in response to changes in demand conditions in the plant’s industry e.g. in declining industries (Kneller, McGowan, Inui and Matsuura 2012).

### *Clusters and Sectors*

Also necessary for maximising FDI spillovers and linkages is the development of industry clusters. On this, efforts to build sectoral and spatial clusters in Ireland really only began in the 1980s (Buckley and Ruane, 2006); again the key point is that this policy focus should have come earlier. Such efforts were focused around key high technology sectors, namely, electronics, medical devices and chemicals and pharmaceuticals. In line with this, particularly for IT, some of the key names in these sectors (namely, Intel and Microsoft) were attracted to set up operations in Ireland. As such, with the location of such firms, and subsequently Hewlett Packard in printing, Ireland to all purposes had an “electronics hub” and the “spokes” were soon populated

by dozens of smaller enterprises (Ibid). Yet while Ireland could be said to have been a significant beneficiary of the formation of clusters, evidence regarding the actual impact of clusters in Ireland is limited and inconclusive (Barry, 2008). What evidence exists has tended to suggest that there has been relatively little sectoral clustering between TNCs and local firms, at least in low-tech sectors and manufacturing overall (Buckley and Ruane, 2006).

The Irish government (Government of Ireland, 2008; Small Business Forum, 2006) recognised, however, that as more low-value-added activities were shifted by footloose TNCs to lower-cost countries, a greater proportion of GNP would have to be produced by indigenous firms. Whilst welcoming this fresh focus, this should have come much earlier and provides an important “lesson” for other small EU states in their IP. This only serves to reiterate the point that a holistic IP needs to account for the limitations and fragilities of FDI-led growth and hence also promote measures to grow domestic capacity.

In addition, from around 2003 onwards, development agencies (e.g. IDA) to an extent turned the focus of their attention from manufacturing towards service sector firms. This change of focus was largely driven by the standard rate of corporation tax of 12.5% which was levied on all manufacturing and services companies operating in Ireland. An example of its impact was highlighted by Barry and Van Welsum (2005), with employment in the International Financial Services Centre (IFSC, located in Dublin) significantly increasing as a result (see figures 1a and 1b), as well as in services enterprises in industrial parks throughout the country. One could also argue that this led to the neglect of a manufacturing focus and may even in turn have fuelled wage inflation (as services tend to have a larger labour input) and a resultant loss in competitiveness. Indeed, as Forfás (2007) outline with specific reference to services sectors “since 2003 unit labour costs have increased in a range of sectors ...as firms in these sectors experienced high labour costs growth and limited productivity growth” (Ibid, 14). Overall, to quantify this structural change occurring in the economy (i.e. a shift in focus from manufacturing to services), it is worth noting that since 2001, despite an ongoing reduction totaling 60,968 (26.7%) in the number of Manufacturing jobs, there has been fairly consistent growth (28,047 jobs; 138.9%) in Business, Financial and Other Services over the same period, with a relative consolidation of employment over the past year (Forfás, 2009, 2014). A breakdown of the manufacturing job losses by ownership over the period 2001- 2013 indicates a loss of 31, 398 jobs (27.9%) in foreign-owned firms and 29, 570 jobs (25.6%) in Irish-owned firms. By contrast,

job growth in Business, Financial and Other Services was higher in Irish-owned firms (19,173 jobs; 167.5%) relative to foreign-owned firms (8,874 jobs; 101.6%).

In summary, it would be unfair to paint a too “negative” picture of the role of FDI in Ireland. On the contrary, it is acknowledged here that the exports and employment of these firms constituted a significant part of Ireland’s economic transformation (Görg, and Strobl, 2002; O’Donnell, 1998). In addition, it is also acknowledged that over time the “quality” of FDI in Ireland did indeed improve - a point articulated in the writings of, *inter alia*, Barry and Van Egeraat (2008) and Grimes and White (2005). More specifically, Barry and Van Egeraat (2008), studying the case of the computer industry in Ireland, argue that this “upgrading” took several forms including the replacement of TNCs that left Ireland by new TNCs which operated in higher wage and higher technology segments. In a related vein, they also point out that many of the assembly plants that did remain moved away from assembly into higher value-added non-manufacturing functions (see also Grimes and White, 2005, 2173). Whilst acknowledging this “upgrading” of TNC activity overtime, the real policy lesson here is that a concerted policy focus along these lines should and could have happened earlier notwithstanding some of the mitigating factors recognised in this paper. Noting Barry and Van Egeraat (2008), it was not until the mid to latter part of the 1990s that the IDA started to be more selective *vis-à-vis* the type of TNC activity targeted to come to Ireland; “in 1996 the IDA started to actively discourage large companies from locating certain manufacturing operations in Ireland, due to increasing competition from low-wage economies” (Ibid, 46). In terms of policy, the lesson here is that it is the quality of FDI that matters for development and not just the quantity.

### *Beyond “Boom-Bust”*

Early warning signs of iconic TNCs leaving Ireland during the GFC might lead one to conclude that the story of FDI in Ireland is one of “boom and bust” in FDI. Yet more nuanced approaches such as that provided by Barry and Bergin (2010) suggests that while indigenous manufacturing firms performed poorly relative to the TNC sector with regard to job losses from 2008 to 2009, the opposite is the case for services, where indigenous firms were more buoyant over the same time period, therefore an even share of job losses appears to have occurred overall. Most recent evidence by Barry and Bergin (2012) demonstrated that Ireland ended up bucking

the trend after the collapse in international FDI flows. Throughout 2008 and 2009, job losses and firm closures were fairly equally spread between indigenous and MNC sectors.. However, employment growth in the pharmaceutical sectors has been mostly strong and sustained with these jobs displaying the highest level of wage increases (Barry and Bergin, 2010) (interestingly this has been portrayed as a sector where a “proactive and resource-intensive industrial policy” did help to underpin a “significant strategic upgrading” and the growth of high-wage, high-skill jobs – [Hannon et al. 2011, 3693]). Also of note is earlier work by Barry and Kearney (2006) which found that Ireland’s FDI sectors may indeed have a stabilising effect on the economy due to their sectoral composition. Giblin and Ryan (2012), find that although there have been closures in multinational companies in Galway for example, (third largest city in Ireland), most notably Abbott in 2007, the number of medical technology firms continue to rise.

**[INSERT FIGURE 4 HERE]**

Indeed, a “boom-bust” scenario is not apparent from examining FDI data over the 1990-2009 period, although Figure 4 (which provides data on inward FDI investment) becomes more volatile as it moves right. While 2008 did see a large outflow, it was not as large as the 2005 outflow, when there was no recession in Ireland (on the background to the 2005 outcome, see Brennan and Verma, 2010). Furthermore, 2009 saw inward investment in Ireland rebound once more. Thus, our overall conclusion here is that FDI in Ireland is not a simple “boom-bust” story. Aggregate figures tend to mask the impact on local economies in Ireland when a TNC pulls out. Examples of the latter include *inter alia*: Aetna in Castle island Co Kerry in existence for 20 years but closed in 2011 with the loss of all 101 jobs; Biotech Engineering with the loss of 200 jobs in Louth (May 2010); and Stiefel Laboratories with the loss of 250 jobs in Sligo (November 2009).<sup>7</sup> Additionally, as Collins and Grimes (2010, 4) note “in a six month time period (August 2008 to February 2009) the Irish technology sector lost nearly 10,000 jobs, over 8,000 of which were offshored to different territories”. What seems clear, however, is that Ireland is now suffering from competition for FDI from emerging economies - and is no longer a cheap country in which to do business, due to rises in wages and raw material costs.<sup>8</sup> In the recently published Ireland’s Competitiveness Performance Report (2013), Ireland had the 11<sup>th</sup> highest net labour

costs level in the OECD).<sup>9</sup> Additionally, Ireland had the 12<sup>th</sup> highest hourly compensation costs for manufacturing and remains the 7<sup>th</sup> most expensive country in the euro areas measured by Eurostat's Price Level Indices (Forfás, 2013,8).

The challenge set by Forfás is to continue to support and attract FDI as well as to enhance the success of indigenous enterprises (Forfás, 2011). Recent government strategic and planning publications pertaining to recovery and sustainable growth have placed strong emphasis on the importance of the export-led growth model. As outlined by the Department of Enterprise, Trade and Innovation (2010, 1), a key government high-level objective to be achieved by 2015 is to “increase the value of indigenous exports by 33 per cent” (Ibid, 1). In the recent Irish budget, a significant emphasis was also placed by the Irish government on measures to support indigenous firms and entrepreneurship. Such measures included *inter-alia* the continued delivery of over €2 billion in new (non-bank) credit schemes, targeted at the full spectrum of businesses from micro-enterprises through SMEs to mid-sized Irish exporting businesses and high-growth technology firms<sup>10</sup>. As argued throughout this paper, this strategic refocusing of IP from an almost singular concentration on FDI to supporting indigenous enterprises should have come much earlier for Ireland.

## **6. Conclusion: Learning the “Right” Policy Lessons**

Despite the more positive aspects of the FDI experience for Ireland highlighted above, this paper sends a warning to those who would simply point to the virtues of FDI-focused IP. In essence, the Irish case demonstrates that the economy is vulnerable to both external shocks and decision-making at corporate headquarters elsewhere, with an over-reliance (certainly in the past) on FDI bringing with it the dangers of institutional and strategic failure. It is important however, to take a nuanced view of events and for that reason the importance of pursuing an IP strategy that acknowledges the (widely recognised) benefits of FDI coupled with a clear strategy for indigenous firms and entrepreneurship more generally is emphasised. The latter, although finally pursued by Irish policy makers to some degree, should have occurred much earlier, notwithstanding the significant factors mitigating against such an approach.

This was a critical mistake in policy development, and has important implications for other small EU states which might wish to learn from lessons with FDI experiences in peripheral

regions of the EU and take on board elements of “good practice”, for example, in terms of positioning FDI policy within a broader, more holistic IP. More specifically, it could focus on targeting strategic sectors and linking FDI to cluster development, building trust with local managers in order to try to upgrade local plants, undertaking sector specific research on the strengths and weaknesses of local industry, providing aftercare support, targeting financial assistance at specific upgrading needs (e.g. investment in R&D rather than general support), and the evaluation of performance (see Amin and Tomaney, 1995).

Whilst recognising the potential benefits of FDI for economic development in Ireland, the limitations of FDI-led growth have been increasingly – if belatedly – recognised. Ireland - particularly of late - has been vulnerable to the downturn in the US economy, given its overwhelming reliance on US-based FDI (and the construction sector) (Central Bank of Ireland, 2007; Hennigan, 2009). Additionally, the apparent failure to achieve more significant spillovers from the FDI sector to the indigenous sector only reiterates the need to facilitate domestic capacity and innovation.

Overall, such a heavy reliance on FDI to drive industrial development and upgrading “worked” in a limited sense for a limited period of time in Ireland, but reached its limits when faced with changing TNCs’ strategies, new technologies, rising wages, adverse exchange rate movements, and the failure to maintain a social consensus over distributing the benefits of growth (see Bailey, De Ruyter and Kavanagh, 2007). Most recently, Ireland has been profoundly affected by the GFC. As Lall (2006) has noted in the context of East Asian ‘tigers’, in the longer run the only way to promote successful industrial development is through developing and diversifying local capabilities, and that whilst TNCs can assist in this they will do so only up to the point where it is profitable for them. More broadly, it is up to the government to provide the quasi-public goods needed for domestic capability development, upgrading and collective learning (all essential features to address the problem of uneven development, as referred to earlier). Whilst this has been belatedly realised to some extent in Ireland, a more holistic approach to policy development at a much earlier stage – notwithstanding the barriers to such an approach - could have avoided some of the problems identified above and could have enhanced economic development.

In concluding this paper, it would be remiss not to acknowledge the major contribution that FDI continues to make to the Irish economy. For example, according to recent available data from the Industrial Development Authority Annual Report and Accounts (2012), FDI accounts for 1 in every 2 jobs and €122 billion in estimated exports (IDA, 2013, 3&6). Additionally, FDI is worth €9 billion to the Irish economy and FDI companies accounted for almost 20% of overall business spend on Research, Development and Innovation (IDA, 2012, 6). Clearly, FDI is crucial to Ireland's economic development; we do not argue against this. However, if there is one lesson that other similar type economies can derive from the Irish experience, it is that industrial diversity in terms of the type of firm ownership, size of firms and sector is likely to lead to a more sustainable and less vulnerable economic growth path in the medium to long-run. In summary, a more holistic approach to IP along the lines as outlined in the current paper is likely to be a better strategy in the long-run. Our overriding conclusion therefore, is that wholesale emulation of the Irish IP approach is problematic, even recognising other economies have their own specific contexts and specific forces at work, and any consideration of the applicability of Ireland's IP approach needs to take these into account.

## Endnotes

1. There are a number of factors that can be seen as having undermined Ireland's long-run economic growth; note, for example high energy costs which are recognised as having adversely affected competitiveness (National Competitiveness Council, 2009).
2. Exports of goods and services (€145,902m) as a % of "GDP at current market prices" in 2009 and €157,673 in 2010, €176,736million in 2012. Source: CSO 'Quarterly National Accounts (Table 2), Quarter 2, 2012.  
<http://www.cso.ie/en/releasesandpublications/er/na/quarterlynationalaccountsquarter22013/> (accessed 23<sup>rd</sup> October 2013).
3. Initially there was a 10% corporation tax on profits of manufacturing companies, later rising to 12.5%. Over time this was extended to all sectors (Buckley and Ruane, 2006).
4. Based on Structural Business Statistics (SBS) used by the CSO, which surveys enterprises with 3+ employees. Enterprises with less than 3 employees are considered statistically insignificant (CSO, 2012b).
5. Survey of annual census of employment in all manufacturing and services companies supported by the enterprise development agencies (IDA Ireland, Enterprise Ireland, Shannon Development and Údarásna Gaeltachta).
6. See Pike, Rodríguez-Pose and Tomaney (2006).
7. See Collins and Grimes (2010).
8. See National Competitiveness Council (2009a, 9), which highlights a sharp decline in Irish cost competitiveness from 2000 to 2008.

9. Note also higher electricity costs: by 2011, electricity costs were the 5<sup>th</sup> most expensive in the Eurozone (National Competitiveness Council, 2012).

10. Minister Bruton's Budget 2014 Published on Tuesday 15<sup>th</sup> October 2013 "Over 48,000 new jobs to be supported in 2014 through DJEI Budget – Minister Bruton"

<http://www.merriestreet.ie/index.php/2013/10/over-48000-new-jobs-to-be-supported-in-2014-through-djei-budget-minister-bruton/>

## References

Acs, Zoltan, Colm O'Gorman, Laszlo Szerb, and Siri Terjesen. 2007. "Could the Irish Miracle be Repeated in Hungary?" *Small Business Economics* 28 (2/3): 123-42.

Aiginger, Karl. 2007. "Industrial Policy: A Dying Breed or a Re-emerging Phoenix." *Journal of Industry, Competition and Trade* 7 (3/4): 297-323.

Amin, Ash, and John Tomaney. 1995. "The Regional Dilemma in a Neo-Liberal Europe." *European Urban and Regional Studies* 2 (2): 171-188.

Andreosso-O'Callaghan, Bernadette, and Helena, Lenihan. 2006. Is Ireland a Role Model for SME Development in the New Member States? *Journal of European Integration* 28 (3): 277-303.

Andreosso-Callaghan, Bernadette, Helena Lenihan, and Padraic Reidy. 2014. "The Development and Growth of the Software Industry in Ireland: An Institutionalized Relationship Approach." *European Planning Studies*. DOI: 10.1080/09654313.2014.892572.

Anyadike-Danes, Michael, Mark Hart, and Helena Lenihan. 2011. "New Business Formation in a Rapidly Growing Economy: The Irish Experience." *Small Business Economics* 36 (4): 502-516.

Bailey, David, and Alex De Ruyter. 2007. "Globalisation, Economic Freedom and Strategic Decision-Making: A role for industrial policy?" *Policy Studies* 28 (4): 383-398.

Bailey, David, Lisa De Propris, Roger Sugden, and James R. Wilson. 2006. "Public Policy for Economic Competitiveness: An Analytical Framework and a Research Agenda." *International Review of Applied Economics* 20 (5): 555-572.

Bailey, David, Alex De Ruyter, and Noel Kavanagh. 2007. "Lisbon, Sapir and Industrial Policy: Evaluating the Irish Experience." *International Review of Applied Economics* 21(3): 453-467.

Bailey, David, Helena Lenihan, and Ajit Singh. 2012. "Tiger, Tiger, Burning Bright? Industrial Policy Lessons from Ireland and East Asia for Small African Economies." In *Good Growth and Governance in Africa. Rethinking Development Strategies*, edited by Akbar Norman, Kwesi Botchwey, Howard Stein, and Joseph E. Stiglitz, 406-431. Oxford: Oxford University Press.

Bailey, D, P Tomlinson and K Cowling, ed.s, 2015. *New Perspectives on Industrial Policy for a Modern Britain*. Oxford: OUP.

Barrios, Salvador, Holger Görg, and Eric Strobl. 2006. "Multinationals' Location Choice, Agglomeration Economies, and Public Incentives." *International Regional Science Review* 29 (1): 81-107.

Barry, Frank. 2008. "Foreign Direct Investment, Industrial Policy and the Emergence of an Irish Indigenous Software Cluster." Accessed August 27 2013.  
<http://www.tcd.ie/business/staff/fBarry/papers/FDI,%20Industrial%20Policy%20and%20the%20Emergence%20of%20an%20Irish%20Indigenous%20Software%20Cluster.pdf>

Barry, Frank, and Adele Bergin 2010. "Ireland's Inward FDI over the recession and Beyond." *IIRS Discussion Paper* no. 321, Dublin: Trinity College.

Barry, Frank, and Adele Bergin. 2012. "Offshoring, Inward Investment and Export Performance in Ireland." *Working Paper* no. 430, Dublin: ESRI.

Barry, Frank, and John Bradley. 1997. "FDI and Trade: The Irish Host-Country Experience." *The Economic Journal* 107 (445): 1798-1811.

Barry, Frank, John Bradley, and Eoin. O'Malley. 1999. "Indigenous and Foreign Industry: Characteristics and Performance". In *Understanding Ireland's Economic Growth*, edited by Frank Barry, 45-75. Basingstoke: McMillan Press.

Barry, Frank, and Aoife Hannan. 2001. "FDI and the Predictive Powers of Revealed Comparative Advantage Indicators." March 2001, Dublin: University College.

Barry, Frank, and Colm Kearney. 2006. "MNEs and Industrial Structure in Host Countries: A Portfolio Analysis of Irish Manufacturing." *Journal of International Business Studies* 37 (3): 392-406.

Barry, Frank, and Chris Van Egeraat. 2008. "The Decline of the Computer Hardware Sector: How Ireland Adjusted." *Quarterly Economic Commentary*. Spring 2008. Dublin: ESRI.

Barry, Frank, and Desiree Van Welsum. 2005. "Services FDI and Offshoring into Ireland. Paper prepared for the panel session on ICT-enabled offshoring: Country experience and business perspectives at the meeting of the OECD Working Party on the Information Economy, Paris, June 9-10.

Begley, Thomas, E. Delaney, and Colm O'Gorman. 2005. "Ireland at a Crossroads: Still a Magnet for Corporate Investment?" *Organizational Dynamics* 34 (3): 202-217.

Bradley, John. 2002. "The Computer Sector in Irish Manufacturing: Past Triumphs, Present Strains, Future Challenges." *Journal of the Statistical and Social Inquiry Society of Ireland* 31: 26-73.

- Branston, J. Robert, Philip Tomlinson, and James R. Wilson. 2012. "Strategic Failure in the Financial Sector: A Policy View." *International Journal of the Economics of Business* 19 (2): 169–189.
- Breathnach, Proinnsias. 1998. "Exploring the 'Celtic Tiger' Phenomenon: Causes and Consequences of Ireland's Economic Miracle." *European Urban and Regional Studies* 5 (4): 305-316.
- Brennan, Nicola, and Proinnsias Breathnach. 2009. "The Spatiality of Irish Manufacturing Linkages in the 'Celtic Tiger' era." *Irish Geography* 42 (1): 7-22.
- Brennan, Louis and Rakhi Verma. 2011. "Ireland Inward FDI and its Policy Context, 2010." In *Inward and Outward FDI Country Profiles*, edited by K. P. Sauvart, T. Jost, K. Davies and Ana-Maria Poveda Garces, 130-142. New York: Vale Columbia Center on Sustainable International Investment.
- Buckley, Rita, Anthony Leddin, and Helena Lenihan. 2006. "An Assessment of the Contribution of MNEs to the Irish Economy." *ILL Foro de Economia Regional, FPRG Economico de la Rioja*, Logrono, La Rioja, Spain, May 9 -11.
- Buckley, Peter J., and Frances Ruane. 2006. "Foreign Direct Investment in Ireland: Policy Implications for Emerging Economies." *The World Economy* 29 (11): 1611-1628.
- Central Bank of Ireland. 2007. "*Financial Stability Report*." Dublin: Central Bank of Ireland.
- Collins, Patrick. 2007. "Information Age Ireland: The Attraction, the Reality and Never Ending Geography." *European Planning Studies* 15 (1): 67-86.
- Collins, Patrick, and Seamus Grimes. 2010. "Cost Competitive Places: The Winners and Losers in the Global Flows of Foreign Direct Investment." *CISC Working Paper* no. 33, Galway: National University of Ireland.
- Collins, Patrick, and Seamus Grimes. 2011. "Cost Competitive Places: Shifting Fortunes and the Closure of Dell's Manufacturing Facility in Ireland." *European Urban and Regional Studies* 18 (4): 406-426.
- Cowling, Keith, and Roger Sugden. 1999. "The Wealth of Localities, Regions and Nations: Developing Multinational Economies." *New Political Economy* 4 (3): 361-378.
- CSO. 2012. Census of Industrial Production Database (Manufacturing Enterprises by Country of Ownership, Persons Engaged, Year and Statistic Table AIA40). Accessed October 12 2013. <http://www.cso.ie/px/pxeirestat/Statire/SelectVarVal/Define.asp?maintable=AIA40>).
- CSO. 2013a. Central Statistics Office Database (Manufacturing Enterprises by Country of Ownership, Industry Sector NACE Rev 2, Year and statistic. Table A1A39;). Accessed October 12 2013.

<http://www.cso.ie/px/pxeirestat/Statire/SelectVarVal/Define.asp?maintable=AIA39>.

CSO. 2013b. "Structural Business Statistics." Central Statistics Office. Accessed October 12 2013.

<http://www.cso.ie/en/aboutus/organisation/businessstatistics/structuralbusinessstatistics/>.

Culliton, Jim. 1992. "A Time for Change: Industrial Policy for the 1990s." Report of the Industrial Policy Review Group. Dublin: Stationery Office.

Dahlby, Bev. 2011. "Global Value Chains, Foreign Direct Investment, and Taxation." *Trade Policy Research* 2011, 241-287.

Department of Enterprise, Trade and Innovation. 2010. "Trading and Investing in a Smart Economy: A Strategy and Action plan for Irish Trade, Tourism and Investment to 2015." Dublin: The Stationery Office.

Department of Jobs, Enterprise and Innovation. 2003. "Review of Industrial Performance and Policy." Dublin: Stationery Office.

Dicken, Peter. 2010. "Global Shift: Mapping the Changing Contours of the Global Economy." London: Sage.

Donovan, Donal, and Antoin E. Murphy. 2013. "The Fall of the Celtic Tiger: Ireland and the Euro Debt Crisis." Oxford: Oxford Press.

Eurostat. 2007. Euro Area Unemployment Down to 7%, Euro-indicators, News-Release 93/2007. Brussels: Eurostat.

Eurostat. 2008. Euro Area Unemployment Up to 7.5%, EU27 Stable at 6.9%, News-Release STAT/08/136. Brussels: Eurostat.

Eurostat. 2012. Employment and Unemployment (LFS). Code: tsdec450 and teil020. Accessed November 10 2013. <http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes>.

Eurostat. 2013. Government statistics: Quarterly government debt. (gov\_q\_ggdebt). Accessed November 10 2013.

[http://epp.eurostat.ec.europa.eu/portal/page/portal/government\\_finance\\_statistics/data/database](http://epp.eurostat.ec.europa.eu/portal/page/portal/government_finance_statistics/data/database)

Forfás. 2004. "Innovation Networks." Dublin: Forfás.

Forfás. 2007. "Annual Competitiveness Challenge." Dublin: Forfás.

Forfás. 2008. "Annual Employment Survey 2007." Dublin: Forfás.

Forfás. 2009. "Annual Employment Survey 2008." Dublin: Forfás.

Forfás. 2011. “*Annual Employment Survey 2010.*” Dublin: Forfás.

Forfás. 2012. “*Annual Report 2011.*” Dublin: Forfás.

Forfás. 2013. “*Ireland’s Competitiveness performance 2013.*” Dublin: Forfás.

Forfás. 2014. “*Annual Employment Survey 2013.*” Dublin: Forfás.

Giarratana, Marco, Alessandro Pagano, and Salvatore Torroso. 2005. “Links between Multinational Firms and Domestic Firms: A Comparison of the Software Industry in India, Ireland and Israel.” In *From Underdogs to Tigers: The Rise and Growth of the Software Industry in Brazil, China, India, Ireland, and Israel*, edited by Ashish Arora and Alfonso Gambardella, 207–235. Oxford: Oxford University Press.

Giblin, Majella, and Paul Ryan. 2012. “Tight Clusters or Loose Networks? The Critical Role of Inward Foreign Direct Investment in Cluster Creation.” *Regional Studies* 46 (2): 245-258.

Görg, Holger, and Frances Ruane. 2001. “Multinational Companies and Linkages: Panel-Data Evidence for the Irish Electronics Sector.” *International Journal of the Economics of Business* 8 (1): 1-18.

Görg, Holger, and Eric Strobl. 2003. “Multinational Companies, Technology Spillovers and Plant Survival.” *Scandinavian Journal of Economics* 105 (4): 581-595.

Görg, Holger, and Eric Strobl. 2002. “Multinational Companies and Indigenous Development: An Empirical Analysis.” *European Economic Review* 46 (7): 1305-1322.

Government of Ireland. 2008. “*Building Ireland’s Smart Economy: A Framework for Sustainable Economic Renewal.*” Dublin: Department of the Taoiseach.

Grimes, Seamus, and Mark White. 2005. “The Transition to Internationally Traded Services and Ireland’s Emergence as a ‘Successful’ European Region.” *Environment and Planning A* 37 (12): 2169–2188.

Gunnigle, Patrick, Jonathan Lavelle, and Anthony McDonnell. 2009. “Subtle but Deadly? Union Avoidance Through ‘Double Breasting’ among Multinational Companies.” In *Advances in Industrial and Labor Relations*, edited by David Lewin, and Bruce E. Kaufman, 16: 51-74. Bingley: Emerald Group.

Gunnigle, Patrick, and David McGuire. 2001. “Why Ireland? A Qualitative Review of the Factors Influencing the Location of US Multinationals in Ireland with Particular Reference to the Impact of Labour Issues.” *The Economic and Social Review* 32 (1): 43-67.

Hannon, Edel, Kathy Monks, Edel Conway, Gráinne Kelly, Patrick Flood, Katie Truss, and Michele Mastroeni. 2011. “The State and Industrial Policy in Ireland: A Case Study of the Irish

Pharmaceutical Sector.” *International Journal of Human Resource Management* 22 (18): 3692-3710.

Heanue, Kevin, and David Jacobson. 2003. “Low tech policy.” *PILOT-Newsletter* no.1 (May): 9-18. Dublin: Dublin City University.

Hennigan, Michael. 2009. “‘Leading’ ‘Top’ or Idiot Irish Economists Glowing with Wisdom in these Challenging Times.” *FinFacts*, March 1. Accessed August 27 2013.  
[http://www.finfacts.com/irishfinancenews/article\\_1016074.shtml](http://www.finfacts.com/irishfinancenews/article_1016074.shtml)

Honohan, Patrick. 2009. “What went wrong in Ireland?” Prepared for the World Bank. Accessed September 15 2013. <http://homepage.eircom.net/~phonohan/What%20went%20wrong.pdf>

Hymer, Stephen. 1972. “The Multinational Corporation and the Law of Uneven Development. In *Economics and World Order: From the 1970s to the 1990s*, edited by Jagdish N. Bhagwati. London: Macmillan.

IDA. 2012. “Strong Flow of Foreign Direct Investment (FDI) Continues in First Half of 2012.” Accessed September 10 2013.  
<http://www.idaireland.com/news-media/press-releases/strong-flow-of-foreign-di/>.

IDA. 2013. “*IDA Ireland Annual Report & Accounts 2012*”. Accessed September 10 2013.  
[http://www.idaireland.com/news-media/publications/annual-reports/2012/IDA\\_Annual\\_Report\\_2012.pdf](http://www.idaireland.com/news-media/publications/annual-reports/2012/IDA_Annual_Report_2012.pdf).

Ireland’s Competitiveness Scorecard. 2012. National Competitiveness Council. Dublin: Forfás. Accessed September 10 2013.  
[http://www.forfas.ie/media/NCC19072012-Irelands\\_Competitiveness\\_Scorecard\\_2012-Publication.pdf](http://www.forfas.ie/media/NCC19072012-Irelands_Competitiveness_Scorecard_2012-Publication.pdf).

Jacobson, David, and Peadar Kirby. 2006. “Globalisation and Ireland. In *Taming the Tiger: Social Exclusion in a Globalised Ireland*, edited by David Jacobson, Peadar Kirby and Deiric Ó Broin, 23-44. Dublin: TASC/New Island Publishing.

Kearns, Allan, and Frances Ruane. 2001. “The Tangible Contribution of R&D Spending Foreign-Owned Plants to a Host Region: A Plant Level Study of the Irish Manufacturing Sector (1980-1996).” *Research Policy* 30 (2): 227-244.

Kennedy, Kieran. A. 1991. “Linkages and Overseas Industry.” In *Overseas Industry in Ireland*, edited by Anthony Foley, and Dermot McAlesse, 82-105. Dublin: Gill and Macmillan.

Killeen, Michael. J. 1975. “A Symposium on Increasing Employment in Ireland.” *Journal of the Statistical and Social Inquiry Society of Ireland* **XXIII**: 50-64.

Kirby, Peadar. 2010. "Lessons from the Irish Collapse: Taking an International Political Economy Approach." *Irish Studies in International Affairs* 21: 43-55.

Kneller, Richard, Danny McGowan, Tomohiko Inui, and Toshiyuki Matsuura. 2012. "Closure within Multi-Plant Firms: Evidence from Japan." *Review of World Economics* 148 (4): 647-668.

Lall, Sanjaya. 2006. "Industrial Policy in Developing Countries: What can we learn from East Asia?" In *International Handbook on Industrial Policy*, edited by Patrizio Bianchi and Sandrine Labory. 79-97. Cheltenham: Edward Elgar.

Lane, Philip R., and Frances Ruane. 2006. "Globalisation and the Irish Economy." *IIIS Occasional Paper*, no.01, March 2006, Dublin: Institute for International Integration.

Lenihan, Helena, and David Bailey. 2009. "Intervention Essential for Those Who Lose Dell Jobs," *Irish Times* (Op-Ed), 27<sup>th</sup> November.

Lenihan, Helena, Mark Hart, and Stephen Roper. 2005. "Developing an Evaluative Framework for Industrial Policy in Ireland: Fulfilling the Audit Trail or an Aid to Policy Development?" *Quarterly Economic Commentary*, Summer: 69–85, Dublin: Economic and Social Research Institute.

MacSharry, Ray, and Padraic A. White. 2000. "*The Making of the Celtic Tiger: The Inside Story of Ireland's Boom Economy.*" Cork: Mercier Press.

McGowan, Kieran. 2000. "The Celtic Tiger: Ireland's Economic Success Story." *Maine Policy Review* 9 (1): 12-17.

Mjoset, Lars. 1993. "*The Irish economy in a comparative institutional perspective.*" NESC Report no. 93, Dublin: National Economic and Social Council.

Murphy, Alan P. 2006. "An Assessment of the Implications of EU Enlargement for Foreign Direct Investment and Jobs in Ireland." *Quarterly Bulletin* 1, Dublin: Central Bank and Financial Services Authority of Ireland.

National Competitiveness Council. 2009. "*Statement on Energy*". Dublin: Forfás.

National Competitiveness Council. 2009a. "*Annual Competitiveness Report 2009. Ireland's Competitiveness Challenge –Creating a Better Future.*" 2, Dublin: Forfás.

National Competitiveness Council. 2012. "*Ireland's Competitiveness Scorecard*". Dublin: Forfás.

New York Times. 2012. Ireland, December 31. Accessed December 13 2013.  
<http://topics.nytimes.com/top/news/international/countriesandterritories/ireland/index.html>).

O'Connor, Tom P. 2001. "Foreign Direct Investment and Indigenous Industry in Ireland". *ESRC Project Working Paper* no. 5. Accessed October 5 2013.  
<http://www.inti.gob.ar/cadenasdevalor/documentacion/ireland.pdf>

O'Donnell, Rory. 1998. "Ireland's Economic Transformation: Industrial Policy, European Integration and Social Partnership." *Centre for West European Studies Working Paper* no. 2, Pittsburgh: University of Pittsburgh.

O'Toole, Fintan. 2009. "*Ship of fools: How stupidity and corruption sank the Celtic Tiger.*" London: Faber and Faber.

O'Toole, Fintan. 2012. "Dummies in the Shop Window of a Failing Ideology." *Irish Times*, April 10. Accessed September 15 2013.  
<http://www.irishtimes.com/newspaper/opinion/2012/0410/1224314568160.html>.

Pike, Andy, Andrés Rodríguez-Pose, and John Tomaney. 2006. "*Local and Regional Development.*" London: Routledge.

Pitelis, Christos. 2009. "The Sustainable Competitive Advantage and Catching-up of Nations: FDI, Clusters and the Liability (Asset) of Smallness." *Management International Review* 49 (1): 95-120.

Rios-Morales, Ruth and Louise Brennan. 2009. "Ireland's Innovative Governmental Policies Promoting Internationalization." *Research in International Business and Finance*, 23 (2): 157-168.

Rodrik, D (2008) *One Economics, Many Recipes: Globalization, Institutions, and Economic Growth*. Princeton: Princeton University Press.

Ruane, Frances. 2001. "Reflections on Linkage Policy in Irish Manufacturing-Policy Chasing a Moving Target." Paper presented at the UNECE/ERBD Expert Meeting- Financing for Development, Geneva, December 3.

Sapir, Andre, Philippe Aghion, Giuseppe Bertola, Martin Hellwig, Jean Pisani-Ferry, Dariusz Rosati, José Vinals and Helen Wallace. 2003. "*An Agenda for a Growing Europe: Making the EU Economic System Deliver.*" Brussels: European Commission.

Small Business Forum. 2006. "*Small business is big business.*" Report of the Small Business Forum. Dublin: Small Business Forum: Forfás.

Smeets, Roger. 2008. "Collecting the Pieces of the FDI Knowledge Spillovers Puzzle." *World Bank Research Observer* 23 (2): 107-138.

Sweeney, Paul. 2008. "*Ireland's Economic Success: Reasons and Lessons.*" Edinburgh: Dunedin Academic Press.

Tansey, Paul. 1998. *Ireland at Work: Economic Growth and the Labour Market 1987 – 1997.* Dublin: Oak Tree Press.

Tavares, Ana, and Stephen Young. 2005. "FDI and Multinationals: Patterns, Impacts and Policies." *International Journal of the Economics of Business* 12 (1): 3–16.

Telesis Consultancy Group. 1982. *"A Review of Industrial Policy."* NESC Report No. 64. Dublin: Telesis Consultancy Group.

Tomlinson Phil, and Keith Cowling. 2011. "Post the Washington Consensus: Economic Governance and Industrial Strategies for the 21st Century." *Cambridge Journal of Economics* 35 (5): 831-852.

Trichet, Jean-Claude. 2010. "Statement to the European Parliament in March 2012".  
<http://www.ecb.int/press/key/date/2010/html/sp100325.en.html>.

Ugur, Ali, and Frances Ruane. 2004. "Export Platform FDI and dualistic development." *Institute for International Integration Studies Discussion Paper* no. 28, Dublin: Trinity College Dublin.

UNCTAD. 2013. *"FDI Statistics Database"*. New York: United Nations Conference on Trade and Development.  
<http://unctadstat.unctad.org/TableViewer/tableView.aspx>

White, Mark. 2004. "Inward Investment, Firm Embeddedness and Place: An Assessment of Ireland's Multinational Software Sector." *European Urban and Regional Studies* 11 (3): 243-260.

World Bank. 2009. *"World Development Report 2009: Reshaping Economic Geography"*. Washington DC: The World Bank.

World Bank. 2012. World Bank Database (World Development Indicators; accessed May 27 2014).  
<http://databank.worldbank.org/data/views/variableSelection/selectvariables.aspx?source=world-development-indicators>.

## Figure captions

**Figure 1a.** Sectoral trends in permanent full-time employment in all agency-assisted companies, 2001 – 2013.

**Sources:** Forfás 2008 Annual Employment Survey (Forfás, 2009).  
Forfás 2013 Annual Employment Survey (Forfás, 2014).

**Figure 1b.** Sectoral trends in permanent full-time employment within foreign-owned agency-assisted companies 2001-2013.

**Source:** Forfás 2008 Annual Employment Survey (Forfás, 2009).  
Forfás 2013 Annual Employment Survey (Forfás, 2014).

**Figure 2.** Number of manufacturing enterprises in Ireland (2008-2011).

**Source:** Manufacturing Enterprises by Country of Ownership, Industry Sector NACE Rev 2. Year and statistic. Table A1A39 (CSO 2013).

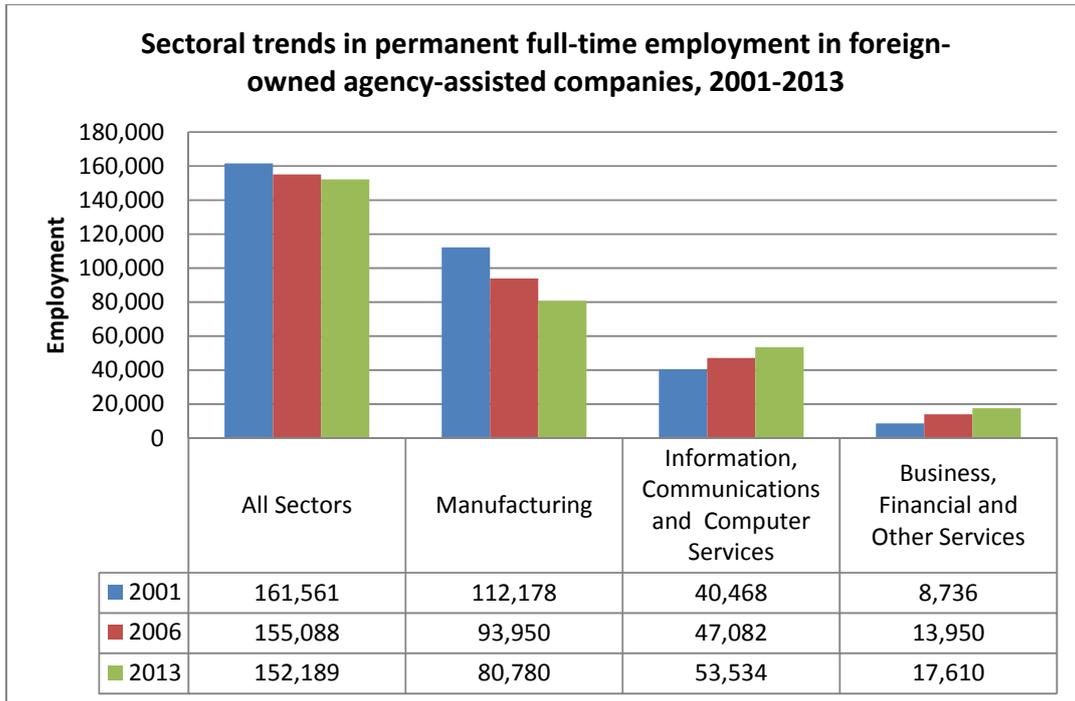
**Figure 3.** Number of persons engaged in manufacturing enterprises by country of ownership.

**Source:** Persons engaged in Manufacturing Enterprises NACE 2 (10-33) by country of ownership Table A1A39 (CSO, 2013).

**Figure 4.** 1990-2012 Inward FDI investment flows (US\$m) 1990-2012.

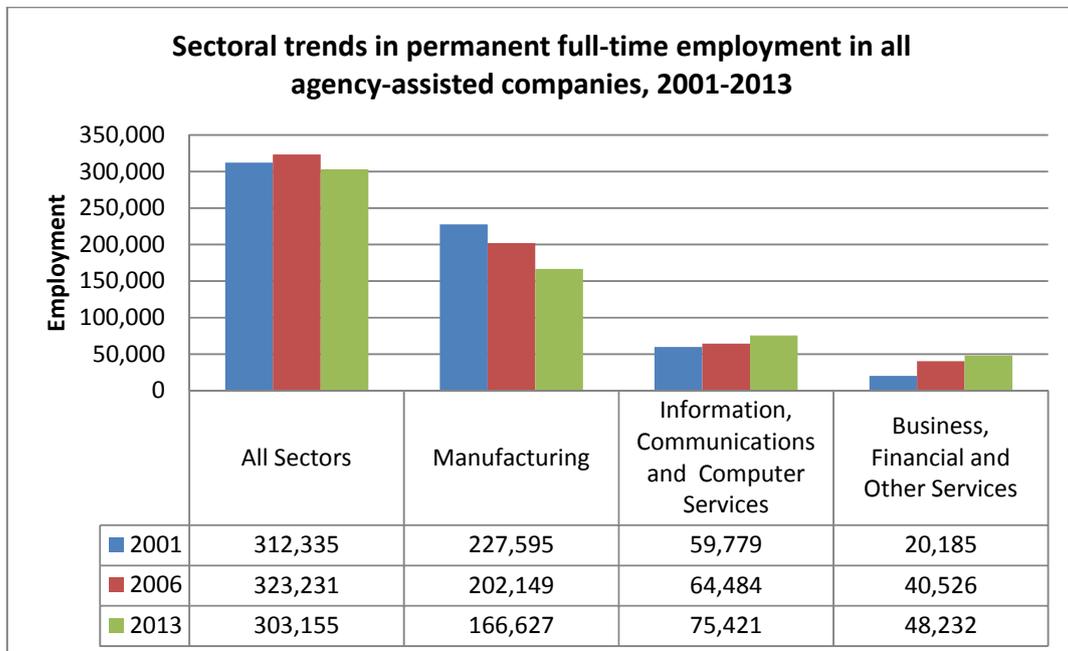
**Source:** UNCTAD Data: FDI Statistics Database (UNCTAD, 2013).

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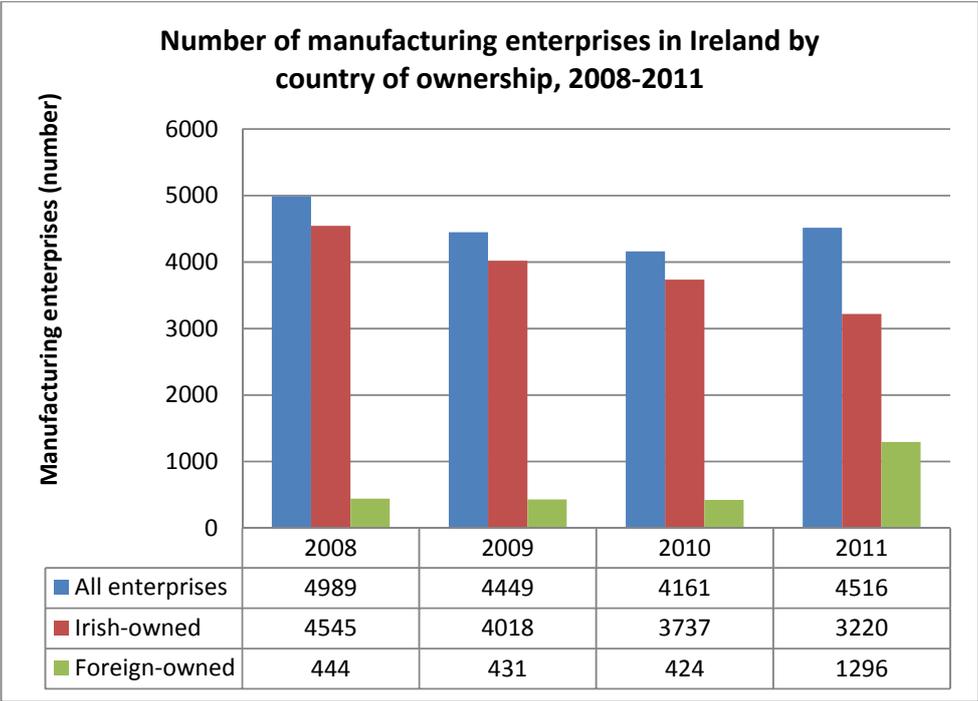


(Note: all Forfás figures (unless otherwise indicated) are for agency-assisted companies).

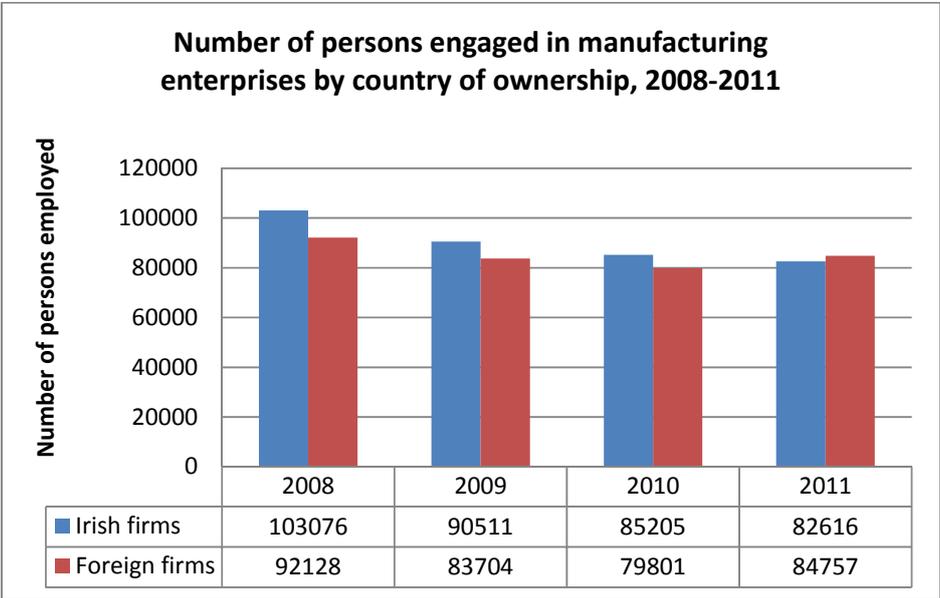
**Figure 1(a)**



**Figure 1(b)**



**Figure 2**



**Figure 3**

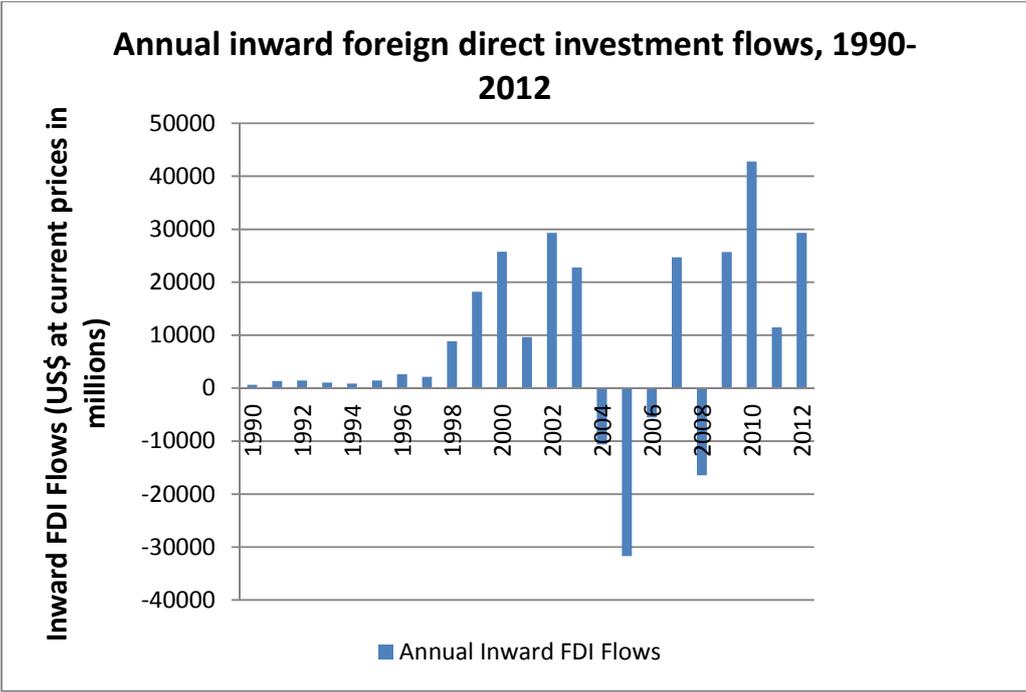


Figure 4