4. Public Capital Investment and Public Private Partnerships in Ireland 2000-2014: A Review of the Issues and Performance

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Introduction

Public capital spending in Ireland has followed the bust-boom-bust cycle of the wider economy over the last 20 years. Ireland's last period of prolonged economic stagnation in the 1980s coincided with severe reductions in public investment in infrastructure. This was followed by a period of record levels of expenditure (2000-2008) and a return to significant reductions in the current period of fiscal consolidation. While large-scale investment, especially during the boom years resulted in real improvements in the stock and quality of Ireland's physical infrastructure, major infrastructure gaps remain in areas such as water, broadband, energy and housing infrastructure. This raises a number of issues and questions for our policy makers including:

- What level of overall public capital spending will be necessary to meet Ireland's future infrastructure requirements?
- What sectors and projects should be prioritised?
- How should investment be financed and funded?

This paper seeks to address these issues and is structured as follows:

- First, it reviews the history of public capital expenditure in Ireland since 2000. It examines the investment levels that will be necessary to meet the needs of the economy going forward and whether such investment is economically justifiable.
- Second it examines the areas where investment needs appear most urgent;

- Third is explores how investment may be financed and funded. Specifically, it addresses the question of private sector participation in infrastructure deliver and public-private partnerships (PPP) in particular.

Background: Trends in Public Capital Expenditure and Requirements Going Forward

Rapid economic growth in the mid-1990s revealed an acute deficit of quality physical infrastructure in sectors such as transport (roads and public transport), environment (water and waste management), housing and education (schools and third-level facilities). The turnaround in Ireland's public finances in the mid 1990's however, enabled the implementation of the *National Development Plan 2000-2006,* which led to unprecedented levels of public capital investment that continued until 2008. It is widely recognised that major increases in investment under the NDP led to significant improvements in sectors including motorways, public transport, and airports.[26] Nonetheless, when the economy crashed in late 2008 significant infrastructure gaps remained in sectors such as water services, high-speed broadband, schools and social housing. The ensuing period of fiscal consolidation has meant that these infrastructural shortcomings have not been addressed. Ireland therefore faces stern challenges if its stock of infrastructure is to support the prospects for economic growth in the coming years. [27]

Figure 1 shows that public capital investment (exchequer and non-exchequer expenditure)[28] peaked in absolute terms in 2008 (expenditure of €12.5 billion). Relative to national income (GNP and GDP) public capital expenditure also peaked in 2008 (at 7.82 per cent GNP and 6.69 per cent of GDP). Severe cutbacks which commenced in 2009 led to marked reductions in expenditure in absolute terms and also relative to national income. In 2013, total (estimated) exchequer capital spending amounted to €5.67 billion (3.84 per cent of GNP and 3.24 per cent of GDP).

[26] It should be noted that a number of commentators expressed concerns about the scale of the public investment programme during the boom years and how it was prioritised (Fitzgerald, 2012).

[27] The biggest single element of private investment infrastructure was the expenditure on new housing (Fitzgerald, 2012).

[28] Exchequer Public Capital Expenditure is defined as comprising both voted capital and certain non-voted capital. Non-Exchequer Expenditure includes spending from EU Funds and from the internal resources of bodies such as public enterprises and other state agencies.

Figure 1: Public Capital Expenditure 1997-2014

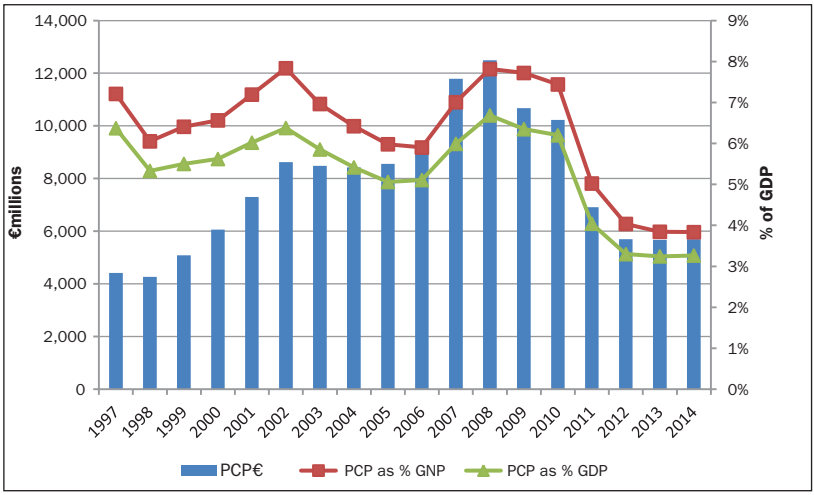

Figure 2 shows that reductions in public capital have been recorded across all sectors since 2008. These were highest in the transport and housing sectors where spending, in proportionate terms, fell by approximately three quarters (see table 1).

Reductions in public capital investment coincided with an even more severe contraction in private sector investment. This was largely driven by the decline in investment in 'private dwellings' which fell from a peak of 41 per cent of overall investment in 2005 to 12 per cent in 2013.[29] As a consequence, the overall rate of investment in the domestic economy has been at an all-time low for the last three years. According to the ESRI's *Medium Term Review* (2013) the long-run average rate of investment in the Irish economy was over 26 per cent of GDP. In 2013 this rate had fallen to approximately 15 per cent. It should be of particular concern that this overall investment rate is also low in comparative terms. Duggan (2013) conducted a comparative analysis of investment in OECD countries and found that Ireland's investment rate in 2011 was less than half the OECD average, half the Eurozone average, and lower than rates recorded for Greece, Portugal, Italy and Spain.

[29] Source: CSO - Measured as Investment in Private Dwellings as percentage of Gross Domestic Fixed Capital Formation.

Figure 2: PCP by Sector 1999-2014

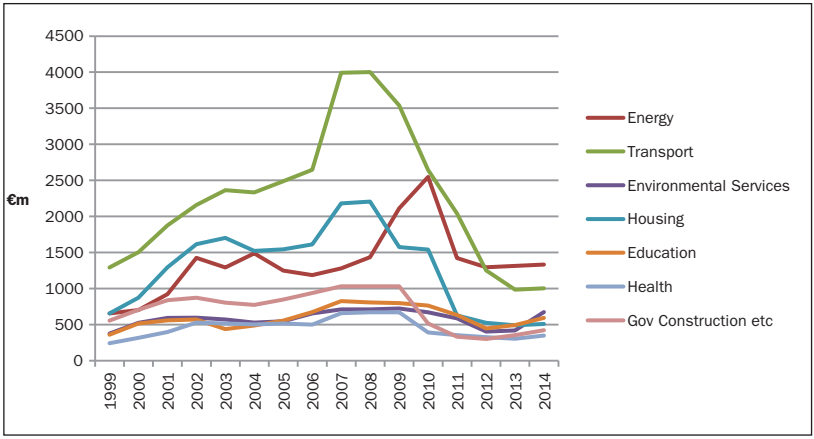

Table 1: Percentage Changes in Public Capital Programme By Sector 1999-2014 and Expenditure 2014

	1999-2008 - % Change	**2008-2014 – % Change**	**Expenditure 2014 (€m)**
Energy	+119.08	-7.11	1,333
Transport	+209.83	-74.89	1,005
Environmental Services	+88.59	-5.06	675
Housing	+236.28	-76.84	511
Education	+123.48	-26.70	593
Health	+175.82	-48.14	349
Gov Construction etc	+85.13	-59.05	423
Change in All Sectors above	+162.31	-55.02	
Change in Total PCP	**+145.58**	**-51.82**	

The recorded reductions in public investment provide grounds for real concern, especially when viewed in the context of overall investment levels that are low in historic and comparative terms. Nevertheless, it should be noted that there were sound justifications for a significant proportion of the observed reductions in nominal expenditure. For example, the fall in tendering prices that was precipitated by the collapse of the construction industry meant that reductions in investment were not as dramatic when measured in real terms. Construction tender prices fell by approximately 30 per cent between early 2007 and late 2011. As construction costs account for the lion's share of capital spending, it is clear that a significant proportion of reductions in nominal public capital spending is price-related so the impact on the volume of infrastructure output was significantly ameliorated.

Another important factor to be considered is that the demands of the shrinking economy were not nearly as great as that of the economy that was experiencing strong growth before the crisis. Reduced economic activity means there are fewer demands on physical infrastructure. This point was explicitly made by the Department of Finance when it presented its first major revision of the *National Development Plan 2007-2013*. In its *Infrastructure Investment Priorities 2010-2016* the Department points to lower numbers in employment, reduced commuter numbers and lower numbers of car registrations and trunk traffic, all of which reduced the medium-term demands on the country's transport infrastructure.

To a large degree therefore, the reductions in planned investment levels that commenced in 2009 were justifiable especially in the context of the overall fiscal constraints that have prevailed since the crisis. Today however, with the prospects for increased growth in the economy improving, a number of important infrastructural challenges must be met in the short to medium term. These include:

1. setting an appropriate level of public capital expenditure that meets the needs of the economy;

2. prioritising sectors and projects for investment,

3. adopting optimal funding and financing models for capital projects.

Setting an Appropriate Level of Public Capital Expenditure

Although reductions in public capital expenditure were a necessary part of the overall need for fiscal consolidation there are now a number of justifications for reversing the downward trend observed since 2009. Unexpected rates of growth in national income in 2014 (and improved prospects for 2015) provide significant scope for increasing public capital expenditure levels beyond the levels planned for in the multi-annual capital investment framework (MACIF) 2012-2016.[30] Moreover, with long-term borrowing costs currently running at 2 per cent, there does appear to be real potential for investment in infrastructure that will yield a return in excess of this level. Investment that is justified on this economic basis will have a stronger positive impact on Ireland's balance sheet than reducing the size of the annual deficit (Aherne, 2014).

Arguments in favour of fiscal stimulus via public investment are typically dismissed on the grounds that relevant fiscal multipliers are not high enough to justify this approach. Recent evidence however indicates that multiplier effects are stronger than previously thought and the case against stimulus via public capital investment has been revised.

Duggan (2013) reviews some recent evidence on this question. He quotes Blanchard and Leigh (2012) who estimated that short-term fiscal multipliers are close to 1.7 which is markedly higher than the 0.5 level that was previously assumed. This means that an injection of €1 billion results in an increase in GDP of €1.7 billion. More recently the IMF (2014) has advocated public infrastructure investment in economies where unemployment is high and resources need not be allocated at the expense of economic activities. In these cases, the positive stimulus effect is found to be greater if investment is financed by borrowing rather than cutting other spending and raising taxes.

Although the Irish economy is characterised by such spare capacity its openness means that that fiscal multipliers are expected to be smaller due

[30] At the time of writing the ESRI forecasts real growth in GDP of 5.0 and 5.3 per cent in 2014 and 2015 respectively. Forecasts for GNP in both years are 4.9 and 5.2 per cent respectively.

to leakages attributable to imports. Nevertheless, the available evidence indicates that fiscal multipliers for investment are as high as 1.6. This was measured by O'Farrell (2012) who used the *Hermin* model to examine the effects of an investment stimulus on GDP and employment. In addition he finds that €1 billion of stimulus by public investment would yield 16,750 short-term jobs and between 675 and 850 long-term sustainable jobs. The latter is attributable to the long term supply-side effects of productive investment that improves productivity and competitiveness. As former US Secretary of the Treasury, Lawrence Summers (2014) points out, these investments in public infrastructure can potentially pay for themselves as long term increases in tax revenues offset the interest repayment on initial capital outlays.

If the case for increased public capital expenditure is accepted two subsequent questions arise: (1) At what level should expenditure be set and (2) where should the incremental investment be invested?

On the question of setting an appropriate level of capital expenditure it is worth emphasising that levels of Exchequer spending planned under the current MACIF (2014-16) are historically low when measured in terms of national income. The average annual Exchequer provision for 2014-2016 is €3.3 billion or 2.3 per cent of annual GNP which is markedly lower than average provisions of 4 per cent which prevailed over the period 1999-2014. Given the ongoing deficits of infrastructure in some key sectors and the strong case of a fiscal stimulus via capital spending (discussed below) a 4 per cent target appears reasonable notwithstanding fiscal constraints that continue to apply.[31]

Even if the ratio of public capital spending to national income is held at levels set at the end of 2013, the recent upward revisions in forecast economic growth indicate that public capital investment is set to increase in absolute terms. This gives rise to the question of where increased levels of capital spending should be allocated.

[31] It is noteworthy that in their recent review of global infrastructure needs, the McKinsey Global Institute (2013) also recommend that countries set capital spending at 4 per cent of national income.

Prioritising Sectors for Investment

The allocation of Exchequer funding to public investment should be determined by a number of considerations including the current stock and quality of infrastructure in different sectors, demographic forecasts and the future demand for infrastructure, and the potential for individual projects to deliver net social benefits.

The priorities for future investment were last identified in the *Infrastructure and Capital Investment Framework 2012-16* which was published in November 2011. As most capital investment within this framework has been directed towards maintenance and upkeep of existing infrastructure there is now a visible need to address infrastructure gaps in a number of sectors.

Clearly identifiable priorities include:

(i) *Water services* - focusing on reducing leakage levels, improving drinking water quality, ensuring secure supply and statutory compliance in relation to wastewater discharges;

(ii) *Broadband* - particularly the delivery of high-speed broadband to the regions;

(iii) *Public transport* – including the long term integration agenda for the Greater Dublin Area and smarter travel initiatives;

(iv) *Roads* – completion of the motorway network between major cities (e.g. N17/N18 Gort – Tuam link which is under construction) and linkages between major and secondary network routes (Society of Chartered Surveyors Ireland, 2014);

(v) *Energy* – especially energy conservation measures such as improved insulation of buildings;

(vi) *Education* – Demographic change means that between 2010 and 2020, approximately 104,000 additional students will enter primary schools with 37,000 of these students entering in the period 2015-2020 (SCSI, 2014:42). A major school building and refurbishment programme is therefore required to meet these needs in the medium term.

(vii) *Health* – The requirements for health care infrastructure in the current MACIF include priority projects such as the National Children's Hospital, Central Mental Hospital and the National Project for Radiation Oncology. These projects are still in development. Other priorities in the medium term will include primary care facilities, long-term care facilities as well as maintenance and refurbishment of existing facilities.

(viii) *Social Housing* –Public investment in social housing was reduced by 77 per cent over the period 2008-13. The legacy of these reductions is a major shortage in social housing with nearly 100,000 households on waiting lists and in need of social housing supports. Major investment in housing infrastructure will be required over the next few years if a new housing crisis is to be avoided.

Funding and financing investment in these priority sectors will be a major challenge for policy makers over the next 5-10 years. The *Stimulus Package* announced in July 2012 clearly demonstrates that the government will look beyond the Exchequer for sources of funding and adopt alternative procurement models such as public-private partnerships (PPP) that are based on private finance. The following sections examine issues around financing and funding infrastructure and the experience with the PPP model of procurement.

Choosing a Procurement Model - Optimal Funding and Financing

Large-scale capital investment involves a number of challenges which, if not met successfully can lead to significant economic and social costs. In international terms, the history of public procurement of major infrastructure is characterised by a high frequency of time and cost-overruns that have prompted policy makers to experiment with new and different forms of procurement. Over the last 20-25 years, governments (including Ireland) seeking to address the shortcomings of traditional procurement approaches have increased the involvement of the private sector in the delivery of public infrastructure. The adoption of alternative procurement models such as public-private partnerships (PPPs) significantly alters the roles of the public and private sectors across different stages of the project

life-cycle. Moreover it has implications for the financing and funding of public capital investment. These include the initial financing of investment, which under some models of PPP is based on privately owned entities sourcing finance from private capital markets. As governments are likely to incur lower borrowing costs, the use of private (instead of public) finance is likely to have implications for the overall cost and efficiency of infrastructure investment.

The use of private finance also has implications for how infrastructure is funded. Funding (as opposed to financing) infrastructure refers to how the asset is paid for over time. Under traditional procurement methods investments are mainly (although not necessarily) funded from tax revenues. On the other hand, privately-financed PPPs tend to rely on a mix of funding sources including tax revenues and user charges (e.g. toll-roads). Greater reliance on the latter has potential equity consequences in terms of limiting citizen's access to public infrastructure.[32]

In international terms, Ireland is ranked among the countries with the most extensive use of the PPP model for procuring infrastructure. Moreover, since the announcement of its 'Stimulus Package' in July 2012 the Irish government has clearly signalled that PPP will continue to account for a significant proportion of public infrastructure investment. In this context it is worth examining how the PPP procurement model has performed since it was first adopted in Ireland in the early 2000's.

Public Private Partnerships – A Brief Review of the Irish Experience

PPPs for infrastructure are long term contracts under which the private sector undertakes to design, build, operate and (in many cases) finance the investment in physical assets such as schools, roads and public transport. Collaborations between public and private sectors are nothing new but the form of PPP described above has become internationally popular since the UK launched the Private Finance Initiative (later re-branded as PPP) in 1992. The scale of global PPP activity grew consistently until the global financial

[32] Concerns around the equity issue are currently illustrated in the case of the Irish water sector and introduction of household water charges.

crisis. Although accurate estimates of global PPP investment are difficult to establish, Burger and Hawkesworth (2011) provide one indication of the scale of global PPP activity when it peaked before the global financial crisis. Using the database compiled by *Public Works Finance* (2009) they find that the total value of all PPPs exceeded $600 billion. Europe accounted for half the total value of PPP activity and one third of the number of projects. The same authors ranked Ireland with countries such as Greece, South Africa and the United Kingdom where PPP accounts for between 5-10 per cent of the total investment in public infrastructure.

PPP was 'officially' adopted in Ireland in June 1999 when the Minister for Finance announced a pilot programme of eight PPP projects. Since then, PPP has been utilised as the procurement method for important infrastructure such as roads, school buildings, courts buildings and the National Convention Centre. Procurement under PPP ground to a halt with the onset of the economic crisis in 2008 but it received a major boost in July 2012 when the government announced a new 'Stimulus Package' which is largely based on PPP.

As almost fourteen years have elapsed since PPP was first adopted there is scope for a sober assessment of how it has performed in terms of 'official' policy objectives. These objectives can be discerned from the *Framework for PPPs* (2001) which set out the scope, principles, goals, guiding structures and processes of Ireland's PPP programme. According to the Framework the main PPP objectives include:

1. speedy, efficient and cost-effective delivery of projects and alleviation of capacity constraints and bottlenecks in the economy;

2. value for money for the taxpayer, *inter alia*, through optimal risk transfer and risk management;

3. accountability for the provision and delivery of quality public services through an incentivised performance management/ regulatory regime.

Objective (1) –
Speedy Delivery of Infrastructure and Alleviation of Bottlenecks

Procurement under PPP has accounted for a significant proportion of investment in public infrastructure since the early 2000's. The data in table 2 shows that in April 2013 there were 63 PPP projects in operation and the contracted capital value of these projects accounted for 7.6 per cent of spending under the Public Capital Programme over the period 2002-2013. The procurement of water and wastewater treatment plants – which are not privately financed - account for the vast majority (71 per cent) of projects to date. However, the motorway sector accounts for 80 per cent of the total contracted capital value of PPPs to date.

Given the urgency of Ireland's infrastructure deficit in the late 1990s, PPP was viewed as a means of securing speedy delivery of projects in addition to what was provided for by Exchequer capital spending. Given the historically elevated levels of expenditure under the public capital programme in the 2000's it is reasonable to conclude that PPP did not substitute for Exchequer-financed investment and did provide *additional* investment in important infrastructure such as schools and motorways. In this sense PPP has made an appreciable contribution to addressing infrastructure bottlenecks in such sectors.

It cannot however be concluded that PPP has fast-tracked the delivery infrastructure. By late 2009 the total number of PPP projects in operation remained low with just 23 projects (including 17 DBO projects for water infrastructure) included in the data on PPP activity provided by government departments. This slow rate of project completion was attributable to a number of factors including the relatively complex procurement process that applies under PPP. Reeves et al (2013) estimated that the average tendering period for Irish PPPs has been 34 months with durations ranging from 22 months (social housing) to 58 months (waste to energy). These lengthy tendering periods, which are similar to those observed in the UK, highlight some of the challenges that arise in implementing an extensive PPP programme. Lengthy tendering periods increase transaction costs and reduce the scope for achieving value for money under PPP.

Table 2: Number of PPP projects and stage of project cycle by sector, April 2013

Sector	In Procurement	In Construction	In Operation	Contracted Capital Cost (€m)	Total
Motorways	0	1	10	4,345	11
Courts	0	0	1	130	1
Education	0	1	5	404	6
Arts/Tourism	0	0	1	170	1
Waste to Energy	0	1	0	N/A	1
Water	9	1	3	-	13
Wastewater	16	5	42	373	63
Social Housing			1	N/A	1
Total	25	9	63	5,422	97

Notes (1) Data for non-water projects is derived from the PPP website housed by the Department of Finance. This data was last updated in September 2012. (2) The Department of Finance website does not keep a complete record of water and wastewater projects. Data for these projects was provided following request by the Department of the Environment, Community and Local Government in April 2013 (3) Data for roads projects provided following request by the National Roads Authority in April 2013 (4) Contracted Capital Values were provided by Department of Finance, January 2013. (4) Capital value for wastewater projects includes also covers PPP for water treatment plants.

Objective 2 – Value for Money

PPP is commonly justified on the grounds that it is more cost-effective compared to traditional procurement methods. In other words it has the potential to achieve greater value for money (VFM) in asset delivery and service provision. This is achieved when PPP produces "a flow of services of at least equivalent quality to that provided by the public sector, but at lower overall cost (taking everything into account, particularly the transfer of risk)" (Ball and King 2006: 37).

The achievement of VFM is a clearly articulated objective of PPP policy in Ireland but there are a host of methodological difficulties involved in establishing whether or not VFM has been achieved in any given case. These include the fact that a complete assessment of VFM (if any) is not possible until the end of the lengthy contract period that applies in the case of PPP.

Hence, most studies of VFM are based on *ex-ante* tests that are normally conducted as part of the process used to decide on the procurement method adopted in individual cases. In basic terms, an *ex-ante* VFM assessment can be reduced to a comparison between two numbers: (1) the contractual value of the providing the asset and related service by PPP and (2) the hypothetical whole life cost of constructing and operating an asset using conventional procurement methods. The calculation of the latter (referred to as the public sector benchmark (PSB)) is an exercise that has proved to be controversial. A number of commentators have highlighted the subjective nature of some elements of the calculation (e.g. probabilities of risks occurring) and the potential for manipulation of figures for the purpose of justifying politically driven agendas in favour of PPP (Shaoul, 2005; Quiggan, 2004).

It must be stressed that detailed evidence on the question of PPP and VFM in Ireland is difficult to access since procuring agencies are not required to put VFM details into the public domain. In order to gain insights into the performance of PPP in VFM terms it is therefore necessary to rely on independent research and the limited amount of information made available by 'official' sources such as the Comptroller and Auditor General (C&AG)

The data provided in table 2 provides a summary of *ex ante* VFM estimates that are sourced from reports published by the C&AG and information provided in Dail debates. The data covers fifteen PPP projects (including twelve water service PPPs) and indicates that PPP promises to deliver VFM in all cases with estimates ranging from 0.1 to 47.0 percent of the hypothetical cost using traditional procurement methods.

The data covers just three privately financed PPPs. In these cases the magnitude of VFM ranges from 0.01 per cent (the National Convention Centre) to 6 per cent (for the Grouped Schools Pilot Project and Courts Buildings). These VFM levels are modest and it is worth noting that the estimate for the Grouped Schools PPP was revised by the C&AG (2004). In its audit of the original VFM assessment the C&AG found a number of significant errors. The principal errors were in relation to the timing and discounting of payments and the calculation of the residual value of the school buildings at the end of the contract. Having corrected for these errors the C&AG estimated that the PPP would be between 13 per cent and 19 per cent more expensive. The C&AG also accounted for elements of the deal that changed after the VFM exercise (namely, changes in interest rates

and treatment of VAT). Including these elements ultimately led the C&AG to conclude that the final PPP deal was in the range of 8 to 13 per cent more expensive than under traditional procurement.

Table 3: Reported Value for Money on Irish PPP Projects

No.	Project	Date of Contract Award	Final Overall VFM
1	Courts (Note 2)	Nov. 2001	6% (€22m)
2	National Convention Centre (Note 3)	April 2007	0.01% (€6m)
3	Schools (Pilot) (Note 4)	April 2007	6% (€7.2m)
	Water Treatment (Note 5)		
4	Barrow	April 2011	21.3%
5	Clareville – Limerick	Dec. 2006	12%
	Wastewater:		
6	Castlebar	Sept. 2008	23%
7	Dublin Bay	March 2001	18.8%
8	Mullingar	April 2008	2.3%
9	Letterkenny	Feb 2011	3.5%
10	Fingal	Feb. 2010	46.7%
11	Shanganagh	Sept. 2008	13.3%
12	Tullamore	April 2010	8.1%
13	South Tipperary	March 2007	9.4%
14	Wicklow	Sept. 2007	30%
15	Waterford City	Sept. 2006	19.3%

Notes: (1) VFM measured by comparing whole-life cost of delivery under PPP compared to traditional procurement. The difference in costs is expressed as a percentage of cost using traditional under procurement. (2) Source – C&AG Annual Report (2008). The cost of transferred risk was estimated as €76m when the Business Case Analysis was conducted. The magnitude of VFM (6%) equals €22m in NPV terms. (3) Source - C&AG Annual Report (2009). The magnitude of VFM (0.1%) equals €6m in NPV terms. (4) Source: C&AG (2004). The magnitude of VFM equals €7.2m in NPV terms. (5) Data for all water and wastewater PPPs provided by Minister for the Environment in Dail (Parliamentary) Debates July 13th 2013.

The estimates of VFM for water service PPPs were provided by the Minister for the Environment, Community and Local Government in answer to a parliamentary question in 2013. The data is not supported by publicly available information on the calculation of VFM. However it is noteworthy Reeves (2011) sheds light into the practice of VFM assessment in a number of water service PPPs. He provides case-based evidence from two PPPs where procuring authorities engaged in a process of stakeholder consultation around VFM assessments. In one case, the initially estimated VFM under PPP was revised downwards from 9.5 per cent to 0.8 per cent (of whole-life cost under traditional procurement) following consultation. In another case Reeves (2013) shows that after consultation, estimated VFM was revised from 2.3 per cent in favour of PPP to 2.25 per cent in favour of traditional procurement. These revisions were attributable to a number of shortcomings in the original VFM analyses. These included the omission of relevant costs including: (i) costs incurred following the re-deployment of existing labour if PPP was adopted; (ii) transaction costs; (iii) the costs of monitoring and supervising the PPP contract over the 20 year period and (iv) the omission of sensitivity analysis.

Subjecting these *ex ante* estimates of VFM to scrutiny has raised doubt over original estimates. On the basis of the available evidence therefore, it is not possible to conclude that PPP has delivered VFM compared to traditional procurement methods. The evidence is however scarce and incomplete which highlights some of the principal governance issues that arise under PPP including the accountability of PPP actors and the transparency of the PPP process and outcomes.

Objective 3 – Accountability for the Provision of Public Services under PPP

The adoption of PPP raises a number of issues around accountability, transparency and governance. By delegating direct responsibility for public service delivery to private sector agents there is a potential weakening of the thread of accountability between citizens, parliament and those with overall responsibility for service delivery (i.e. executive government). Accountability is therefore part of the wider governance challenge that arises under PPP. The term governance is widely used yet seldom defined. In the context of PPP however, Skelcher (2010) provides a useful description of governance "as the rules that prescribe who should be accountable for the conduct of a PPP, and in what way that conduct should be exercised, for

example through consultation with interested parties, transparency in decision making and so on" (2010: 293).

The adoption of PPP involves a new set of accountability mechanisms compared to those that apply under traditional procurement methods. These include written contracts that specify long-term performance and the allocation of risk. Other tools of accountability include stakeholder consultation processes, VFM assessments that are used to judge the suitability of the PPP model and performance measurement systems that may be put in place for monitoring purposes.

Since PPP was originally adopted in Ireland a detailed and formal institutional framework covering a number of accountability mechanisms has evolved. As in other jurisdictions with relatively mature PPP markets (e.g. UK, Canada, Australia) these institutional requirements place much emphasis on the demonstration of VFM and calculation of the public sector benchmark (PSB).

It is difficult to make a thorough assessment of how PPP-appraisal is governed in the Irish case as government bodies and other state agencies are notoriously cautious about releasing detailed financial information in relation to PPP contracts, mainly on the grounds that such information is commercially sensitive. This raises immediate concerns about transparency and accountability which are part of the overall governance challenge under PPP. As noted earlier, where evidence is available it is mainly in the form of reports by the C&AG. But since PPP was first adopted there has been just one in-depth analysis of VFM assessment by the C&AG. In that case (the first PPP for the procurement of schools) the original forecast of VFM was reversed. In addition, Reeves (2011) found that in the case of the water services sector the sponsoring government department explicitly describes PPP as the 'preferred method of procurement' and has rejected VFM assessments that indicate better VFM under traditional procurement. Such practice does little to improve accountability under PPP.

Difficulties with gaining access to financial information about PPP are not confined to independent researchers or citizens. In 2007, the Public Accounts Committee of Dail Eireann expressed frustration over PPP:

The PAC in recent years has held several plenary sessions relating to significant PPP projects. [...] While the circumstances applying to each of

these projects vary widely, and the history of each differs, some common threads have appeared. The largest common factor has been the frustration expressed at the Committee of either not having appropriate access to information relating to these projects, or being publicly unable to refer to information deemed to be commercially sensitive. This committee believes that this obstacle needs to be overcome. Public accountability and value for money are very important issues (2007:7-8).

The Dublin Waste to Energy (Poolbeg) PPP provides a salient example of a PPP where efforts at public scrutiny have been thwarted by vested interests. In this case the contract was formally awarded in 2007 but construction remained suspended until September 2014. One of the complex array of factors that bedevilled this contract was a stand-off between the contracting authority (Dublin City Council) and the overseeing minister for the environment who opposed the project on environmental grounds. In this case the opaque world of PPP was exemplified by the fact that the overseeing minster encountered well-documented difficulties in accessing information about the precise terms of the contract.

Such examples provide fertile grounds for suspicion and concern about the governance of PPP in Ireland where it appears the experience is resonant with Skelcher's (2010) conclusion that "in general, the governance of PPP has predominantly been used to remove them from public scrutiny and informed debate, justified on the grounds of commercial confidentiality or managerial discretion" (2010:303). These point to the difficulties that policymakers in Ireland and elsewhere have faced in developing appropriate governance mechanisms under PPP that strike the delicate balance between protecting the public interest under delegated authority and encouraging private sector innovation and risk-taking in the provision of infrastructure and related public services.

Overall the available evidence indicates that PPP has made an important contribution to the delivery of infrastructure in Ireland. However, the actual delivery of projects is just one measure of success and there are strong grounds for doubting that PPP has succeeded in terms of meeting other objectives such as achieving value for money and improved accountability for public service delivery.

Conclusions

It is widely recognised that investment in physical infrastructure in sectors such as transport, energy, and telecommunications is positively associated with productivity gains and economic growth. It also brings direct benefits to citizens by providing the basis for delivering important public services that improve quality of life and serve important public policy goals around inequality and deprivation. Advanced economies, including Ireland however, face major challenges in maintaining and upgrading the stock and quality of public infrastructure. The McKinsey Global Institute (2013) estimates that in global terms, $57 trillion in infrastructure investment will be required between now and 2030 – simply to keep up with projected GDP growth.

With economies such as Ireland continuing to operate below their potential level there is growing evidence that supports the case for increasing public capital investment. When consideration is taken of features of the Irish economy such as high unemployment and mortgage arrears the potential benefits of a fiscal stimulus via capital investment become more attractive.

If public investment is to receive a major boost however, it is vital that the allocation of resources is supported by rigorous appraisal that justifies investments on welfare grounds. Unfortunately there is ample evidence of wasteful spending on projects that would not have gained approval if they had been subject to proper appraisal. Recent examples include motorways, airport facilities and electricity generation (wind energy) where charges of over-investment appear to have merit.

Investment in infrastructure need not be confined to spending on costly new projects. Significant gains can often be made from getting more from existing capacity. A clear example in the Irish case is the benefit that can be accrued from repairing leakages in the water supply network. There is also scope for exploiting technological developments and making more of user charges (e.g. congestion pricing) to achieve greater benefits from past investments.

Looking forward, a key question will be how the precise roles and responsibilities of the public and private sectors should be established. The private sector has a potentially bigger role to play if infrastructure is to be

delivered efficiently and effectively. It is however imperative that the adoption of relatively new models such as PPPs is evidence-based. At this stage Ireland has over a decade of experience with PPP procurement. However, citizens and policy makers cannot be expected to have faith in this approach unless solid evidence in support of PPP is publicly available. A well-resourced independent review of Ireland's PPP experience is long overdue especially since the government is basing most of its plans for stimulus on the PPP model.

The issues discussed in this paper merely scratch the surface of the many issues around infrastructure policy that challenge our policy makers now and will continue to do so into the future. How these challenges are met will have an enormous impact on the lives of citizens as it will determine whether or not they will have access to vital resources like water, health and education and public transport. There is much to be learned from past experience both at home and abroad. Learning from these experiences is an urgent national priority.

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