An Economic Analysis of Public Private Partnerships: The Case of the Ireland’s National Roads Programme

Eoin Reeves,
Department of Economics,
University of Limerick,
Ireland.

Presented to the conference on “Highways: Cost and Regulation in Europe”, Universita Delgli Studi Di Bergamo, Italy, November 27th 2004.

Contact Details

Department of Economics, University of Limerick, Ireland.

Telephone - 00-353-61-202401, Email – eoin.reeves@ul.ie
**Introduction**

Rapid economic growth in recent years has imposed enormous pressures on the capacity of the Irish economy and brought the critical requirement for upgrading Ireland's physical infrastructure to the fore. As a response, the *National Development Plan 2000-2006* (NDP) which was published in November 1999, planned for an overall investment of €52 billion in the Irish economy with investment of €22.4 billion specifically earmarked for economic and social infrastructure. One of the prominent features of Ireland’s NDP is the promotion of Public Private Partnerships (PPPs). In the run-up to the publication of the NDP the Irish government, in conjunction with other interests (business groups) actively promoted the use of PPPs as a vehicle for providing large-scale infrastructural investment. As a consequence, €2.34bn of investment under the NDP was earmarked for procurement under the PPP model.

The biggest element of both overall and PPP-specific investment within the economic and social infrastructure operational programme (ESIOP) of the NDP is in the roads sector. This paper details the planned contribution of the PPP model to Ireland’s road investment programme under the NDP. More specifically it examines the experience with the PPP model in the roads sector to date in terms of the economic theories of relevance to the PPP model of procurement and explicit government objectives.

**Background:**

**Ireland’s Infrastructure Deficit and the National Development Plan (NDP)**

Ireland's low stock of quality infrastructure is well recognised. A period of fiscal stabilisation in the 1980s meant a necessary curtailment of the capital expenditure programme and expenditure (in real terms) on Ireland's public capital programme (PCP) fell each year over the period 1982-89. Although the rapid growth of the Irish economy since the early 1990s resulted in a convergence towards EU living standards measured by GDP per capita, accumulated wealth in terms of physical infrastructure and accumulated human capital, remains considerably lower than that for countries at or above the EU average income levels. Prior to publication of the NDP the Department of Finance (2000) published the following details on the country’s infrastructural deficiencies.

*Roads:* High quality roads in Ireland, as measured by the motorway network, were very poorly developed. By 1996 the network had reached 13% of a EU index weighted for population and land area, which is by far the lowest figure for any EU member state.

*Railways:* Total rail length in 1996 was 91% of the EU average, again weighted for population and area. However, only 27% of the network was double tracked, while electrification (2%) was confined to the Dublin area. The passenger rail network is largely concentrated in the southern eastern region.

*Environment:* Ireland’s principal environmental shortcomings include almost total dependence on landfill as a means of disposal and there are concerns with regard to
the quality of drinking water (particularly in rural areas). In addition, only 45% of waste-water treatment works are capable of providing secondary treatment of sewage.

Within this context the NDP set out plans for overall investment of €22.4 billion in economic and social infrastructure (see table 1) with major emphasis placed on investment in the national roads.

**Table 1: Breakdown of Economic and Social Infrastructure Programme in NDP**

<table>
<thead>
<tr>
<th>Category</th>
<th>Total Allocation for 2000-2006 (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Roads</td>
<td>5,968</td>
</tr>
<tr>
<td>Public Transport</td>
<td>2,837</td>
</tr>
<tr>
<td>Waste and Waste Water</td>
<td>3,168</td>
</tr>
<tr>
<td>Coastal Protection</td>
<td>45</td>
</tr>
<tr>
<td>Energy</td>
<td>185</td>
</tr>
<tr>
<td>Social and Affordable Housing</td>
<td>7,618</td>
</tr>
<tr>
<td>Health Capital</td>
<td>2,540</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>22,360</strong></td>
</tr>
</tbody>
</table>

**Ireland’s Road Investment Programme**

In their evaluation of investment in the Irish road network, Fitzpatrick and Associates (2002) describe the network in terms of two road classes - “national” and “non-national” roads. National roads are divided into the sub-categories of “national primary” routes (i.e. major long distance through-routes linking the principal ports and airports, cities and large towns) and “national secondary” routes (i.e. medium distance through-routes connecting important towns, serving medium to large geographical areas and providing links to national primary routes). Non-national roads are all other roads in the network, consisting of regional roads (i.e. feeder routes into, and providing main links between, national roads) and local roads (including such roads in urban areas).

The data in table 2 shows that prior to the publication of the NDP, national roads accounted for 6% of the total road network and 38% of all road traffic, with non-nationals accounting for the remaining 94% of road network and 62% of all road traffic. In relative terms, Ireland’s road network is very distinct by international standards. The data in table 3 shows that the road network is extensive relative to population, however a very small proportion of this network is currently of motorway standard.

**Table 2: Road Types and Extent in Ireland**

<table>
<thead>
<tr>
<th>Road Type</th>
<th>Sub-Type</th>
<th>Length (km)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>National roads</td>
<td>Primary/Secondary</td>
<td>5,670</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>5,670</td>
<td>6</td>
</tr>
<tr>
<td>Non-national roads</td>
<td>Regional</td>
<td>14,175</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Local</td>
<td>74,655</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>88,300</td>
<td>94</td>
</tr>
<tr>
<td><strong>All Roads</strong></td>
<td></td>
<td><strong>94,500</strong></td>
<td>100</td>
</tr>
</tbody>
</table>

Table 3: Ireland’s Road Network in an EU Context

<table>
<thead>
<tr>
<th></th>
<th>Ireland</th>
<th>EU(15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of roads (km)</td>
<td>94,500</td>
<td>3,960,000</td>
</tr>
<tr>
<td>Density of total road network (roads per km²)</td>
<td>1.34</td>
<td>1.22</td>
</tr>
<tr>
<td>Road network (km per 1,000 of population)</td>
<td>24.9</td>
<td>10.5</td>
</tr>
<tr>
<td>% of roads of which motorway</td>
<td>0.3</td>
<td>1.17</td>
</tr>
</tbody>
</table>


The National Roads Programme 2000-2006 in the NDP therefore seeks to increase the proportion of the network that is of motorway standard and can be viewed as the current roads programme. The content of the programme is divided into five groups of schemes (or categories of projects) according to the class of route or nature of the projects involved:

- Major Inter-Urban Routes (MIUs)
- Dublin Area Projects
- Other National Primary Routes
- National Secondary Routes and
- Support Measures

It is worth noting however that most of this programme is specified in terms of routes requiring improvement rather than specific projects. Projects have only been specified and time-bound for completion by 2006 in the case of MIUs (31 projects) and Dublin Area projects (5 projects).

Public Private Partnerships and the National Roads Programme

The identification of the public private partnership (PPP) model of procurement for a number of individual road projects is a key feature of the National Roads Programme 2000-2006. In June 1999 the government identified three PPP road pilot projects (with the added commitment of ensuring the potential of a fourth named project) as part of the NDP. The PPP programme was subsequently extended and currently consists of eleven PPP contracts, which are detailed, in table 4. In 2000 it was estimated that they represented investment of €1.3 billion (2000 prices), which included a potential private finance investment of €889m (Fitzpatrick, 2002, p. B63).

All PPP road projects are planned as concession contracts. The private consortia are responsible for the design, build, operation and finance elements of the projects. Payment will be secured via a combination of direct tolls and unitary payments by the public sector. The National Roads Authority (NRA) is the primary authority for the day-to-day delivery of the NDP roads strategy on behalf of the government. It conducts the procurement process in the case of all PPP projects and it acts as the contracting party in contrast to conventional contracts, which are signed by the local authorities.

According to Fitzpatrick and Associates (2002:B62) the NRA established the following key principles for guiding its policy on PPP schemes:
• Only schemes that were not already so far advanced under traditional planning and procurement process that the PPP procurement would significantly delay their delivery were considered for selection;
• The alternative toll-free route (to the PPP tolled scheme) had to be available for users;
• Tolled roads had to be spread across the main national routes in order to create an equitable distribution of user charging on the newly constructed network;
• A project would have to be of sufficient size to project value for money in the PPP process (a cut-off of €38m was used)
• The aim was to secure complete projects from the private sector but where necessary, a public subsidy will be considered for high cost schemes which cannot be solely financed from hard tolls;
• Only hard tolling will be considered

Table 4 provides details on all PPP projects in the roads sector to date. In terms of forecasted costs the PPP programme represents over 20% of planned investment in major inter-urban roads over the period 2000-2006. Given the unique features of the PPP model of procurement such as the long duration of concession contracts (30-years), and hard tolling arrangements this paper aims to examine the experience to date with road PPPs. In particular the paper seeks to analyse the experience to date in terms of economic theories of relevance to the PPP model of procurement.

Table 4 : PPP Road Projects 2004

<table>
<thead>
<tr>
<th>Route</th>
<th>km</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>N6 Ballinasloe East/Oranmore PPP</td>
<td>57.6</td>
<td>56km dual carriageway and 1.7 km single lane</td>
</tr>
<tr>
<td>N4 Kilcock-Kinneegad*</td>
<td>39</td>
<td>All dual carriageway</td>
</tr>
<tr>
<td>N1/M1 Dundalk Western Bypass</td>
<td>11</td>
<td>Construct and operate 11km. Operate and maintain existing 42km of motorway which includes a tolled section.</td>
</tr>
<tr>
<td>N6 Portlaoise/Cullahill Bypass and N7 Castletown/Nenagh (1)</td>
<td>40</td>
<td>Two projects grouped as one PPP contract. 40 km dual carriageway.</td>
</tr>
<tr>
<td>N7 Nenagh/Limerick</td>
<td></td>
<td>No longer PPP. Subsequently changed to Design Build</td>
</tr>
<tr>
<td>N7 Limerick Southern Ring Phase II*</td>
<td>10</td>
<td>Includes tunnel under river</td>
</tr>
<tr>
<td>N8 Rathcormac Fermoy Bypass</td>
<td>18</td>
<td>Includes a 450km viaduct</td>
</tr>
<tr>
<td>2nd Westlink Bridge*</td>
<td></td>
<td>340-metre bridge alongside existing Westlink bridge opened in 1990. Concession for 2nd bridge grated to existing concessionaire.</td>
</tr>
<tr>
<td>N25 Waterford Bypass*</td>
<td>37</td>
<td>23km dual carriageway, 14km single lane. Includes a river crossing of 475m.</td>
</tr>
<tr>
<td>N3 Clonee Kells</td>
<td>75</td>
<td>50km dual carriageway, 11km single lane, 24km link road.</td>
</tr>
<tr>
<td>M50 Upgrade</td>
<td>24</td>
<td>Includes upgrade of 24km of dual carriageway to 3-lane standard and upgrading of junctions</td>
</tr>
</tbody>
</table>

Notes: * Original pilot projects
Analysing Public Private Partnerships

Over the last 20-30 years, governments worldwide have sought new means of improving the delivery of public services. A common characteristic of many of the arrangements that have been adopted has been the engagement of the private sector in the delivery and/or financing of public services. This has resulted in the adoption of different forms of privatisation, which have effectively re-drawn the boundaries between the public and private sectors. Prominent among these reforms have been the privatisation of public enterprises, the contracting out of local authority services, the introduction of market-based mechanisms in areas such as health and education and the establishment of public private partnerships (PPPs).

There is no single definition of PPPs but for the purpose of this paper a PPP is described as an agreement between the public sector and a private sector company to provide an asset or service, which would traditionally be provided by the public service, but as part of a PPP project will be provided by the private sector or jointly by the public and private sectors. The essence of a PPP project is that the private sector will do one or more of the following:

1. provide private finance to fund the project;
2. enter into a long term [greater than 5 years] service contract;
3. undertake the design and construction of an asset on the basis of an output specification prepared by the public sector and designed to meet broad performance targets;
4. enter into a joint venture arrangement with the public sector to provide a service or asset.

This differs from the traditional model of procurement practice in the public sector where the construction of publicly owned assets such as roads or prisons is typically carried out to detailed specifications by private contractors following a competitive tender.

The principal PPP models are as follows:

**Design and Build (DB)** – where the private sector is contracted to design and construct a facility which, upon completion is transferred to public ownership. The private sector contractor(s) receive payment from the public sector.

**Design, Build and Operate (DBO)** – where the private sector is contracted to design, build and operate an asset. The project is fully financed by the public sector.

**Design, Build and Operate and Finance (DBOF)** – where the private sector funds the capital investment and recovers the costs over the life of the project (usually over 30 years) via payments from the public sector e.g. 'shadow toll' road schemes.

**Concession** – where payment or part payment for the service is provided through direct charging of the end user e.g. direct toll road schemes.

PPPs therefore involve a major re-configuration of public service delivery. They share many of the characteristics of reforms such as privatisation, de-regulation, and
quasi-markets. Among these characteristics is the centrality of contracts. Deakin and Michie (1997) assert that if there is a single strand, which runs through these neoliberal reforms, it is the revival of contract as the foremost organizing mechanism of economic activity (1997:1).

PPPs involve contracting between government and the private sector under conditions of imperfect information. Significant developments in the ‘economics of contracting’ literature, (for example, principal-agent theory and transaction costs theory over the last twenty years or so) illuminate our understanding of the practice of PPPs. In this paper we draw on these theoretical contributions for the purpose of assessing the PPPs used for investment in Ireland’s roads sector.

Context for Examination - Economics of Contracting and PPPs

A useful starting point in examining the economics of contracting is the ‘privatization theorem’ devised by Sappington and Stiglitz (1987). This sets out conditions under which “all government objectives can be attained by an appropriately designed auction for the rights to produce a given product or service” (1987: 568). Government objectives are stated as economic efficiency, equity (i.e. the desire to fulfil certain distributional objectives) and rent extraction (i.e. the extraction of as much profit as possible from producers). Sappington and Stiglitz establish that if an ideal set of conditions are satisfied then government objectives are attained. In essence these conditions involve an auction system that requires bidding from two or more risk neutral forms that have symmetric beliefs about the least-cost production technology. Despite the simplicity of this system the authors assert that there are a number of reasons why the ideal outcome will not be generally attainable in practice. These are discussed with reference to economic perspectives on contracting drawn from agency theory and transaction cost theory and can be reduced to (1) difficulties in extracting rents from the chosen producer and (2) the cost of negotiating, monitoring and enforcing contracts (i.e. transaction or agency costs).

While the Sappington and Stiglitz theorem was not devised in the context of long term contracts like PPPs it provides a useful basis for deriving criteria for examining PPPs. These criteria include:

- Competition for the Market;
- Efficiency/Value for Money;
- Risk Allocation;
- Innovation;
- Rent Extraction.

Economic Criteria for Examining PPPs

Competition for the Market

Competition is a central feature of the ‘privatisation theorem’. Demsetz (1968) argues that competitive tendering provides an effective alternative to regulation and state monopoly. By putting the right to be a monopoly provider of a service up for auction and awarding that right to the bidder offering the lowest consumer price, competition for the market replaces competition in the market. The benefits of
competitive tendering in terms of improvements in productive efficiency (cost reduction) are well documented (see Domberger and Jensen (1997), for a review). Moreover there is evidence to suggest that there is a positive relationship between the intensity of the competition and cost reductions (Szymanski, 1996). Conversely, contracting problems can arise as a result of a limited pool of bidders. Williamson (1975) explores the costs of ‘small numbers exchange’. In these imperfect markets it may be difficult to drop those who have behaved opportunistically in the past at the time of renewing contracts.

Efficiency and Value for Money (VfM)

For policy makers, the potential for accruing efficiency gains is a major attraction of the PPP model. In Ireland, the Framework for PPPs (2001) – the definitive government statement of the scope, goals and principles of the PPP programme – stresses the objective of “value for money for the taxpayer, inter alia, through optimal risk transfer and risk management” (2001: 3).

It is worth noting that the value for money (or efficiency) concept advanced in official policy documents goes beyond the limited concept of efficiency used by Sappington and Stiglitz. Whereas these writers employ the static concepts of technical and allocative efficiency, the concept of efficiency embodied in PPPs is dynamic. Dynamic efficiency refers to the “capacity of the productive system to innovate and adapt to changing external circumstances” (Deakin and Michie, 1997: 30). This requires features which are commonly attributed to PPPs such as long term co-operative relations based on sharing of authority, information, planning, decision-making, financial risk, responsibility and accountability over a protracted period (Langford, 2002).

Risk Allocation

Risk allocation is an important issue in the economics of contracting. The economic theory of principal and agent focuses on the design of ‘optimal contracts’ in the face of differences (asymmetries) in the information and objectives of contracting parties. Emphasis is placed on the optimal allocation of risk as a means of ‘incentivising’ agents to achieve principal’s objectives.

The case for PPPs in Ireland is explicitly articulated in terms of transferring appropriate risk levels to the private sector. According to the Framework for PPPs (2001) a key characteristic of PPPs is the scope for “shared responsibility for the provision of infrastructure or services with a significant level of risk being taken by the private sector” (2001: 1). In PPP contracts this generally takes the form of identifying categories of risk and agreeing on whether they are borne by the client (principal) or contractor (agent). Moreover, as PPP contracts can link different elements of infrastructure projects (for example, link the design and construction with one or all of the finance, operation and maintenance elements) there is better scope for transferring risk compared to traditional procurement methods. For example, payment may be withheld until assets are in operation thereby ‘incentivising’ contractors to complete construction on time and within budget.
**Innovation**

Proponents of PPPs assert the model encourages private sector innovation thereby improving the (dynamic) efficiency and quality of public services. This enhanced scope for innovation is attributed to the move from input specification under traditional procurement to output specification under PPP. Under traditional procurement the public sector specifies the asset to be built (e.g. school building). Once this is completed the public sector assumes responsibility for its continuing operation and maintenance. Under PPP the public sector provides an output specification wherein they specify the requirements for the service to be provided. This allows competing bidders the scope to create innovative solutions that may offer better value for money.

**Rent Extraction and Re-financing**

The privatisation theorem devised by Sappington and Stiglitz (1987) specifies rent extraction as a government objective in the context of privatisation. Under certain conditions the scope for excess private sector profits is minimised. Evidence from PPPs in the UK however highlights the problem of imperfect rent extraction due to aspects of deals to re-finance PPPs. When the construction stage of some projects has been completed some contractors have returned to capital markets and re-financed deals at significantly lower costs. The resultant financial gains represent economic rents. A well-documented example is the case of the Fazakerley Prison project. In this case the re-financing gains amounted to £10.7m with the prison services receiving only £1m (IPPR, 2001).

**Analysing Ireland’s Roads PPPs**

**Speed of Delivery**

In the Irish context one of the principal reasons for adopting the PPP model has been its potential for speeding up the delivery of infrastructural assets and related services. Advocates of the PPP model argue that investment in infrastructure under PPP is more time and cost-efficient than under traditional procurement. This is attributable to crucial distinctions between the PPP and traditional procurement models. Under traditional procurement methods, the contractor is responsible for building an asset subject to a specification provided by the public sector client. PPP models such as DBO, DBOF, and ‘concession’ allow for the integration of design with project execution and maintenance. The effect of this integration is to align the incentives of parties responsible at different stages of the investment cycle which can provide a basis for more efficient and timely service delivery. Furthermore, the PPP model provides a basis for designing incentives within the terms of the contract between client and contractor (e.g. make payment conditional on completing certain stages). Against this however, it must be noted that the PPP approach involves a negotiating process, which is longer, more complex and more expensive than conventional projects. Ball et al (2000) found in their examination of PFI projects in the UK, that the process of negotiation can extend to eighteen months or more.

Table 5 shows the stage of development on the eleven PPP projects as of November 2004.
Table 5: Progress to Date on Road PPP Projects within NDP

<table>
<thead>
<tr>
<th>Route</th>
<th>Current Stage</th>
<th>Date of Award</th>
<th>Next Event</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTRACTS SIGNED</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd Westlink Bridge*</td>
<td>Completed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N4 Kilcock-Kinnead*</td>
<td>Scheme Construction</td>
<td>March 2003</td>
<td>Scheme Completion 2006</td>
<td></td>
</tr>
<tr>
<td>N1/M1 Dundalk Western Bypass</td>
<td>Scheme Construction</td>
<td>February 2004</td>
<td>Scheme Completion Spring 2006</td>
<td></td>
</tr>
<tr>
<td>N8 Rathcormac Fermoy Bypass</td>
<td>Scheme Construction</td>
<td>June 2004</td>
<td>Scheme Completion Summer 2007</td>
<td></td>
</tr>
</tbody>
</table>

PROJECTS UNDER PROCUREMENT

<table>
<thead>
<tr>
<th>Route</th>
<th>Current Stage</th>
<th>Date of Award</th>
<th>Next Event</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>N25 Waterford Bypass*</td>
<td>Awaiting BAFO Tenders</td>
<td>Contract Award</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N3 Clonee Kells</td>
<td>Awaiting ITN Submissions</td>
<td>Shortlist ITN Tenderers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N7 Limerick Southern Ring Phase II*</td>
<td>Announcement of Pre-Qualification Tenders</td>
<td>Commencement of Tender Process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M50 Upgrade</td>
<td>Announcement of Pre-Qualification Tenders</td>
<td>Issue of ITN Documentation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PRE-PROCUREMENT

<table>
<thead>
<tr>
<th>Route</th>
<th>Current Stage</th>
<th>Date of Award</th>
<th>Next Event</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>N7 Portlaoise/Cullahill Bypass and N8 Castletown/Nenagh</td>
<td>Preparation of EIS/CPO</td>
<td>Issue of OJEC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N6 Ballinasloe East/Oranmore</td>
<td>Preparation of EIS/CPO</td>
<td>Issue of OJEC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NO LONGER A PPP

<table>
<thead>
<tr>
<th>Route</th>
<th>Current Stage</th>
<th>Date of Award</th>
<th>Next Event</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>N7 Nenagh/Limerick</td>
<td>No Longer PPP</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Table 5 shows that:

- One project has been re-designated for procurement on a traditional basis;
- The construction of a second Westlink bridge in Dublin has been completed although it should be noted that this project is an extension of an existing concession, which dates back to 1987. The project was effectively re-labelled a PPP when the pilot projects were announced in 1999;
- Contracts have been signed in three cases;
- Four projects are at the early stages of procurement (announcement of pre-qualification tenders) and
- Two projects remain at the pre-procurement stage.

This level of progress indicates that the targeted date for completion of the PPP programme is 2009 – three years behind schedule. This delay can be attributed to a number of reasons some of which are not necessarily attributable to the characteristics
of the PPP model. These include factors that have contributed to a significant slowdown in delivering the overall roads programme under the NDP such as the extraordinary rise in the cost of road building since the NDP was launched. The NRA has estimated that the cost of building a kilometre of road has doubled since 1999 and the entire cost of the road building programme is now forecasted at €15.7 billion compared to an initial forecast of just under €6 billion. This is attributed to soaring land acquisition costs and inflation in the building sector which rose by 15, 10 and 5 per cent in the years 1999-2001, respectively. Other factors which have delayed the overall programme include (i) measures taken to prevent the spread of Foot and Mouth disease in 2001 which delayed site investigations and the Environmental Impact Statement (EIS) and (ii) the refusal of the Irish Farmers Association to allow access to land for site investigations and EIS work.

With specific regard to the PPP model, one of the principal reasons for delays in completing projects is the length of the procurement process. In an early examination of PPP projects in the roads sector, Fitzpatrick Associates (2002) estimated that the PPP procurement process takes around five months longer than traditional contracts due to the requirement for additional stages to the process such as the “Public Sector Comparator” stage.

The NRA asserts that measures are being taken in order to speed up project delivery under all methods of procurement. An important example is the decision by government in the 2003 budget to implement a multi-annual funding arrangement to replace the long standing practice of an annual budgetary allocation process. This new arrangement commits to continued substantial investment in national roads with exchequer funding of €7bn guaranteed over the years 2004-2008. In addition Murphy (2004) points to new legislation that has been passed to resolve problems regarding archaeological national monuments and measures have also been taken to streamline the statutory approval process (e.g. consideration of Environmental Impact Statements).

Ultimately the potential for PPPs to contribute to faster delivery of vital infrastructure depends on whether the model is used to provide investment that is additional to investment in the Public Capital Programme (PCP). The most recent policy statement on the scope, principles and goals of the Irish PPP programme is the Framework for Public Private Partnerships published by the Department of Finance in September 2001. It states that "private finance in PPPs should be additional to public finance" (2001: 3). The recognition of the principle of additionality reflects one of the principal criticisms of the Private Finance Initiative (PFI) in the UK. Available evidence suggests that the PFI did not contribute to additional public sector investment. Instead the PFI has been accompanied by successive cuts in the PCP suggesting that private finance has been used as a substitute for rather than an addition to public sector investment (Hall, 1998).

Some statements in relation to the Irish roads programme raise concerns. For example in 2002 the Minister for the Environment and Local Government, Mr. Martin Cullen warned against opposition to tolling on new roads and asserted that if opposition to tolling halts the proposed Waterford Bypass (a PPP project) there
"would be other areas with projects and they would be quite happy to fill the gap".\textsuperscript{1} The implication of such statements is that the choice is between a toll-based PPP or no project. This is bad policy. The bypass should be built on the basis that it generates positive economic and social returns. The method of finance (e.g. tolling) is a separate question and should not be the determinant of whether the project is approved or not.

**Value for Money**

**Competition for Contracts**

On the basis of number of pre-qualification submissions the early indications were that the market for contracts in road PPPs were competitive with over ten expressions of interest for the first three projects. The norm has been to invite 3-4 submissions thereby encouraging a competitive procurement process (see table 6). In each of the contracts signed to date two detailed bids were received.

**Table 6 : Competition for Contracts in Irish Roads PPPs**

<table>
<thead>
<tr>
<th>Project</th>
<th>Pre-Qualification Submissions</th>
<th>Detailed Tender Submissions (ITN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waterford Bypass</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>N4 Kilcock-Kinnegad</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>N8 Rathcormac-Fermoy Bypass</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>N1/M1 Dundalk Western Bypass</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>N3 Clonee-Kells</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>N7 Limerick Southern Ring Phase II</td>
<td>2</td>
<td>N/A</td>
</tr>
<tr>
<td>M50 Upgrade</td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>

It is noteworthy however that the number of expressions of interest has fallen as deals come to the market. In the cases of the N1/M1 and N3 routes, expressions of interest have fallen to seven and five respectively. This observed pattern has raised questions over the sustainability of competition for PPP contracts and the following two factors have been advanced to support this contention:

(1) the level of costs incurred in the tendering process are too high and
(2) too much risk is transferred to the private contractors.

O’Rourke (2003) interviewed a representative sample of construction companies and in relation to the question of bidding costs he concluded that the levels observed were not sustainable. O’Rourke illustrates this on the basis of the following set of assumptions. Where four contractors reach the pre-qualification stage the costs per contractor are likely to average €1.5m. Where two contractors are short-listed and they submit best and final offers (BAFO), the estimated costs of this stage amount to a further €2m per bidder. Overall, the costs incurred (lost) by contractors who fail to progress through the stages of the process amount to €7m.

\textsuperscript{1} Irish Times, November 5\textsuperscript{th} 2002.
On the basis of responses from construction companies O’Rourke made the following recommendations

(i) The costs of the BAFO stage should be covered by the Contracting Authority;
(ii) A contribution to the costs of tendering should be paid by the Contracting Authority;
(iii) A review of the process should be undertaken to reduce the cost of bidding.

To date Irish authorities have resisted calls for cost recovery but continuing concerns about the slow roll out of PPP contracts indicates that this question will remain on the policy agenda in the short term.

Risk Transfer

A second potential obstacle to generating competition for PPP road projects concerns the level of risk that the NRA seeks to transfer to the private sector contractors and on the basis of a review of the Irish PPP programme O’Rourke (2003) concluded that the requirements are ‘extreme’ compared to other countries.

One of the biggest elements of risk concerns the model of tolls. Compared to countries such as Spain and Portugal who led the field in PPP toll road projects in Europe, a striking feature of Ireland’s programme is the use of hard tolls as opposed to shadow tolls. Besides the risk of alienating the road-using public, hard tolls increase the risk borne by the concessionaire who must take usage risk (Project Finance, April 2001). Beyond this fundamental concern a number of aspects of the Irish PPP roads programme have been the subjects of criticism from the private sector. According to O’Sullivan (2003: 41) these include:

- Retention by government of the power to set and reset tolls;
- Reservation by government of the right to order the concessionaire to upgrade to variant tolling mechanisms;
- Absence of compensation to provide for termination due to operator default.
- Transfer of significant competing route risk as the state has maintained the commitment to provide a toll-free alternative route between all destinations (although this is met already by existing roads around the concession areas).

The validity of the first two criticisms has been undermined by the fact that contracts are now signed for four PPP contracts suggesting that the due diligence process undertaken by funders have indicated that sufficient protections were in place. On the question of compensation for termination, it should be noted that this clause is standard on road deals under the Private Finance Initiative in the UK. In relation to the issue of alternative routes it should be stressed that while the key risk is that local authorities are free to duplicate infrastructure, the practical reality is that they are poorly resourced and therefore unlikely to present concessionaires with such risks.

Private sector concerns over the question of risk transfer are an inevitable feature of the PPP experience. The early indications are that the NRA has pursued an exacting policy on risk sharing with some of the transferred risks particular to the Irish case
(e.g. alternative route risk). The argument that this approach to risk transfer threatens the competition that is fundamental to the PPP model appears less plausible as more contracts are signed and as the extent of debt syndication increases, which has been the case to date in Ireland.

Innovation

As the assets and services provided under the PPP model are designed on the basis of output specification, as opposed to prescriptive input specification, there is potential scope for greater private sector innovation. One review of the Irish roads PPP programme to date conducted by O’Rourke (2003) found that

It is the unanimous view of all those interviewed that the amount of design input from the private sector is minimal. Despite their description as “Design, Build Finance and Operate” projects the current crop of road projects remain largely building projects….the emphasis in the roads programme, according to contractors, remains resolutely on input specification as in traditional procurements (2003:9)

Two of the principal obstacles commonly identified are the detailed and prescriptive nature of the Environmental Impact Statement (EIS) and a lack of flexibility in the planning process in Ireland. It should be noted however that these restrictions apply to all the NRA’s procurement processes and are not solely related to the PPP model. Nevertheless, if scope is to be created for innovation, which is crucial to the case for PPPs, significant reforms of the statutory approval process are required.

Evidence of Value for Money (VfM)

The VfM objective has been central to the case for PPPs in Ireland. Much of the commentary on PPPs focuses on the measurement of VfM in the strict financial sense. This measurement however, is an exercise that is highly subjective and sensitive to assumptions with respect to cost and value. In Ireland, VfM is tested by comparing the net present value of the PPP project with the so-called public sector benchmark (PSB). The PSB represents the hypothetical cost of providing the facility using conventional means of finance. This comparison provides an ex ante estimate of VfM and whether this is accrued over the life of the contract is not known.

There are at least two major obstacles to achieving VfM under PPP. First, the PPP model must yield efficiencies that outweigh the higher costs of borrowing faced by the private sector. Ball et al (2000) refer to a Treasury Taskforce document (2000) that identifies the current weighted average cost of private sector capital on PPP projects in the UK as between one to three percentage points higher than public sector borrowing. This represents a substantial amount of money over a 25-30 year contract. The second obstacle to VfM is the costs of the tendering process. O’Rourke (2003) estimates that bid costs in Ireland amount to €2m - €4m.

Detailed information in relation to calculation of the PSB is not published in Ireland as a matter of government policy. In the case of roads however, the NRA website provides the bottom-line PSB figure which is compared with the financial details of the agreed PPP contract. The details (see table 7) indicate that the achievement of VfM depends critically on traffic flows, the level of toll revenues and resultant revenues foregone by the state over the 30-year life of contracts.
Table 7: Details of Payments on Irish PPP Contracts.

<table>
<thead>
<tr>
<th>Project</th>
<th>PSB (€m)</th>
<th>Payments to Concessionaire (€m)</th>
<th>Payment Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>N4 Kilcock-Kinnegad</td>
<td>550</td>
<td>152*</td>
<td>€146m over period of construction. €6m during period of operations. Share of tolls to State</td>
</tr>
<tr>
<td>N1/M1 Dundalk Western Bypass</td>
<td>340</td>
<td>0</td>
<td>All tolls on Dundalk Bypass accrued by operator. 95% of tolls on existing motorway paid to the State during construction (valued as €18m). A share of future revenues thereafter</td>
</tr>
<tr>
<td>N8 Rathcormac-Fermoy Bypass</td>
<td>320</td>
<td>120</td>
<td>€80m over period of construction. €40m during period of operations. Revenue sharing applicable after traffic volumes exceed 21,000 vehicles per day.</td>
</tr>
</tbody>
</table>

Source: NRA Project Tracker http://WWW.nra.ie/Public Private Partnership/Project Tracker
Notes: All values in 2003 prices. * Excludes land/preparatory costs. ** This contract involves operation and maintenance of existing motorway and procurement of Dundalk bypass as concession PPP.

Rent Extraction/Re-Financing

The need to appropriate a share of the gains from re-financing PFI/PPP deals has been one of the principal lessons learned by policy makers in the UK. In 2002 the National Audit Office reported that 91 per cent of contracts signed since 2001 include mechanisms for sharing the gains from re-financing PPP deals. The comparative figure for contracts signed before 2001 was 54 per cent.

In interviews conducted for the purpose of this research, officials in the NRA Ireland specifically referred to taking the UK experience into account when negotiating the PPP contract in this case. As a result, the DoES successfully has extracted rents by negotiating the sharing of gains from refinancing PPP deals. In each of the three contracts signed to date the sharing of gains on a 50:50 basis has been agreed.

Conclusions

The Irish government has shown considerable commitment to the PPP model of procurement as a means of addressing the country’s deficit of physical infrastructure. Since 1999 the PPP model has been promoted as a means of securing investment in sectors ranging from roads and public transport, to schools and social housing. The experience to date has not however been positive. Five years after the announcement of the first PPP projects only a small number of contracts have been signed (in the roads and schools sectors) and the government’s implementation of the PPP programme has been the subject of fierce criticism from the private sector and other sources. These difficulties reached a critical point in November 2004 when the Minister for Finance excluded capital spending from the estimates of government spending for 2005 citing the slow roll-out of the PPP programme as the reason for postponing the announcement of relevant details.
This paper examines the PPP experience in the roads sector, which accounts for most PPP activity (measured in terms of investment expenditure). The details presented in this paper reveal that the PPP programme is at least three years behind schedule. However, it is shown that this is partly attributable to factors that affect all models of procurement projects in the roads sector. These include cost inflation, uncertainty in relation to annual allocations from government and problems with the statutory approval process. There are however factors that are specific to the PPP model of procurement, which also account for delays, not least the relatively longer procurement process involved in PPP.

Whether PPPs achieve desired outcomes such as faster delivery of infrastructure and related services while achieving value for money remains to be seen. The experience to date indicates that the degree of competition for contracts is being threatened by loss of private market enthusiasm due to factors such as high bidding costs. Moreover, there is little to suggest that the model is providing scope for private sector innovation, which is central to its legitimacy. On a positive note the indications are that the NRA is achieving significant risk transfer and that the contracts, which have been signed, are ‘bankable’ with providers of finance achieving syndication of debt. Whether value for money is achieved in the long run ultimately depends on traffic flows and the precise details of revenue sharing.

References


O’Rourke, C. (2003), Public Private Partnerships in Ireland - How they can be Streamlined, Construction Industry Federation, Dublin.

