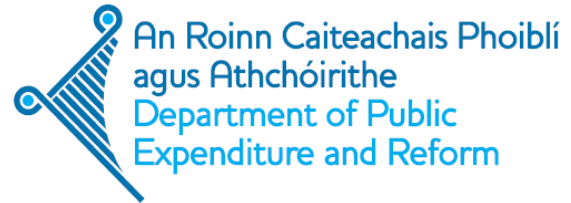




Irish Government Economic & Evaluation Service



Spending Review 2017

Public Service Obligation (PSO) Funding for Public Transport

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This paper has been prepared by IGEES staff in the Department of Public Expenditure and Reform in the context of the Spending Review 2017. The views presented in this paper do not represent the official views of the Minister for Public Expenditure and Reform or the Department of Transport, Tourism and Sport.



Summary

This paper provides an overview analysis of State funding of public transport. Public Service Obligation (PSO) payments are made to subsidise the majority of public transport services in the State. The overall objective of the programme is to ensure that socially beneficial but financially unviable transport services are provided. The paper focuses on PSO services delivered by the three main operators in Dublin Bus, Iarnród Éireann and Bus Éireann.

Findings

- The total number of passenger journeys and total revenue on PSO services has increased since 2013, in line with wider economic growth.
- Across the operators we can observe that PSO funding per passenger journey has reduced in recent years indicating that more passenger journeys are occurring for each euro of subsidy.
- The total operating cost for PSO services is lower than 2008 and is lower on a per passenger basis than in 2012 at Iarnród Éireann and Dublin Bus.

Considerations/Next Steps

- In terms of central budgetary expenditure policy, future decisions related to the size of the PSO allocation should be closely linked to the actual output delivered for the funding and should take into consideration developments in a range of relevant factors, including passenger numbers and fare revenue.
- There are a number of areas for future consideration that could help to inform policy development and expenditure management including the potential use of key performance indicators related to efficiency/effectiveness and further analysis of PSO services at a more disaggregated level.

1. Introduction

The paper provides an overview analysis of State funding of public transport. The majority of public transport in Ireland is subsidised through Public Service Obligation (PSO) Payments. This current expenditure stream is in place to ensure that socially beneficial but financially unviable transport services are provided. This paper will review PSO funding across a number of areas including the rationale and objectives of PSO funding, trend analysis of PSO funding in recent years and some overview analysis of output and efficiency. This paper primarily focuses on the main providers of PSO services in Ireland in Dublin Bus, Bus Éireann and Iarnród Éireann, excluding any commercial (non-PSO funded) services at those operators¹. Services provided on the Luas network are also excluded as Luas does not currently receive PSO payments.

The paper has been completed as part of the 2017 Spending Review. The Spending Review, as noted in the 2017 Expenditure Report, is focused on ensuring all expenditure is considered when Government are making budget decisions and generating analysis to further embed the principles of expenditure efficiency and effectiveness into the wider budgetary process. As stated, this paper provides high level analysis of expenditure dynamics in relation to the PSO programme. Separate analysis has been completed by the Department of Transport, Tourism and Sport (DTTaS) in relation to the effectiveness and impact of the programme.

2. Methodology

This section briefly sets out the methodology that has been utilised in completing the paper. Each of the Spending Review papers completed by the Department of Public Expenditure and Reform (DPER) as part of the 2017 process has included a methodological statement.

This paper has been completed as a desk based review. The main analysis set out is a trend analysis of relevant areas such as passenger numbers, PSO subsidy expenditure and cost data for PSO public transport services. The paper then presents an exploration of some key indicators which are typically utilised to assess public transport operations internationally. The indicators focus on the level of subsidy, revenue and operating cost per passenger and per service output (seat km); and are analysed over time to provide some high level findings in relation to cost and efficiency developments. Further detail on the approach and limitations is included in section 5. The data sources used in the analysis are set out as relevant throughout the paper. In the main, the data utilised has been provided to DPER by the National Transport Authority (NTA) and the Department of Transport, Tourism and Sport (DTTaS). As noted throughout the report, there are a number of areas where the data provided by the NTA represents an estimate due to format or availability issues. Other data sources include the DPER databank on expenditure, the CSO and the OECD.

¹ E.g. Expressway for Bus Éireann which catered for 7 million passenger journeys in 2015 or commercial services at Dublin Bus (largely tours and Airlink services) which catered for almost 2.6 million passengers in 2015.

3. PSO Funding for Public Transport

This section outlines the rationale for providing subsidies to public transport, the legal framework associated with such provision and then looks at the levels of funding provided for PSO services in recent years.

3.1 PSO Subsidy Rationale and Objectives

The rationale for the subsidisation of public transport revolves around both the provision of services that wouldn't be provided by the private market and the incentivisation of public transport use. As such, a typical rationale for providing public transport subsidies is that by encouraging and enabling public transport use, subsidies can lead to a situation whereby society gains more overall. It is thus seen as a policy tool available to increase the allocative efficiency, or best use, of the transport system which can be seen as a scarce resource. Importantly, the efficient and effective operation of public transport services are critical to ensuring that subsidisation provides the outlined benefits. There are three primary rationales linked to this general concept.

First, at a simple level, as passengers take account of the value of a trip to themselves rather than the wider social value, a sub-optimal point is reached. In simple terms, and for example, if using a car to get to work is preferable for an individual to getting public transport then there will be a high level of road use resulting in congestion, higher emissions and increased costs. Thus, in economic terms, road use is typically seen as having negative externalities such as emissions, congestion and safety. By encouraging and providing services for public transport use through subsidisation, society can reduce these negative externalities and thus reach a more optimal outcome.

A typical second rationale is that by providing a subsidy for public transport services we can garner a higher level of public transport use which in and of itself can produce higher benefits for public transport users. Typically described as scale economies or a positive externality, the rationale is that when overall public transport use increases, services increase and waiting times decrease thus benefitting all users. In addition, a higher level of public transport use can increase passenger density and thus reduce the costs to the travel provider and in turn reduce fares and further increase passenger numbers.

A third rationale relates to the contribution that a public transport subsidy can make from a social perspective. Subsidised public transport can facilitate mobility and affordable transport services to lower income groups and other vulnerable members of society in situations where the services are otherwise financially unviable. Lower income groups tend to have less access to private transport than other groups² and, in the absence of public transport, these groups may face barriers or impediments in terms of mobility. Vulnerable and socially

² E.g. Nolan, A. (2010) 'A Dynamic Analysis of Household Car Ownership'. Analysis found that income exerts a positive and highly significant effect on the probability of household car ownership.

disadvantaged groups are also likely to be reliant on public transport. As such, public transport services can contribute to improved social mobility and social inclusion.

The objectives of the PSO programme are directly linked to the established rationale. It is also important to note that capital funding, on new projects or on renewal/maintenance, is also important in the achievement of these objectives. The three primary objectives are:

- To provide transport services that are socially beneficial but financially unviable
- To encourage modal shift and public transport use through higher service provision and lower fares
- To increase accessibility and social equity

Finally, it is worth noting that while not a central objective, the services facilitated by the PSO programme also enable economic activity by contributing to more flexible labour markets and enabling other economic activities such as retail and leisure (agglomeration effects in economic terms). For employers, public transport expands the available labour supply, which can be an important element in a firm's location decision. In addition, PSO services play a significant role in facilitating access to education.

3.2 Legal and Regulatory Framework

The legal and regulatory framework governing the provision of PSO payments has been significantly altered in recent years. Prior to 2009, payments were made directly by the then Department of Transport to CIÉ. In 2003 Memoranda of Understanding (also known as Service Level Agreements) were put in place between the Department and the individual CIÉ operating companies which outlined the level of service expected and, from 2005 onwards, introduced an element of incentivised performance through linking payment increases with performance.

However, that framework has been completely overhauled in recent years and the organisation and provision of PSO services is now governed in detail by both EU and Irish legislation. Regulation 1370/2007 is the EU-wide legal framework governing the regulation of public bus and rail passenger services and sets out the methodology in terms of awarding contracts for service delivery and providing compensation for the provision of such services. The Regulation states that contracts can be awarded following a competitive tendering procedure, or alternatively, can be directly awarded (without a competitive tendering procedure) to a publicly controlled operator, known as an internal operator.

Contracts which are directly awarded to internal operators are known as direct award public service contracts and must conform to the Regulation's provisions regarding such contracts. The Annex to the Regulation sets out the rules applicable to how direct award public service contracts are compensated; these rules are designed to ensure that operators are not overcompensated, but that the amount paid is appropriate and reflective of a desire to improve the efficiency and quality of service. The Dublin Transport Authority Act 2008 builds upon this European framework and sets out how it is applied in Ireland. The NTA awarded the first direct

award public service contracts in 2009 when it entered into contracts with Dublin Bus and Bus Éireann for a period of 5 years and Iarnród Éireann for a period of 10 years. These direct award public service contracts are operated on a net cost basis - the operators retain passenger revenues and also receive PSO subsidy payments.

In 2014, following a public consultation period, the NTA announced it had entered into a second set of contracts with Dublin Bus and Bus Éireann for a further period of 5 years, except for a number of routes comprising approximately 10% of the total PSO bus network. These routes have been contracted to both bus companies until the completion of competitive tendering processes, which are currently underway and relate to current Dublin Bus operated routes (Dublin Metropolitan competition) and current Bus Éireann operated routes (Dublin Commuter and Waterford competitions). The results of these three competitions are expected to be announced by late summer/early-autumn 2017.

In addition to the direct award public service contracts, the NTA has also entered into public service contracts with Whartons Travel Limited (2014), M&A Coaches Limited (2013), Bernard Kavanagh & Sons Ltd (2015) and Bus Éireann (2015). These contracts relate to specific routes in certain counties and were awarded following a competitive tendering competition and operate on a gross cost basis. That means that the NTA pay the operators in line with the contractual agreement and the NTA (rather than the operators) takes the risk on fare revenue.

Public service contracts set performance standards for the operators with regard to the reliability, punctuality and quality of services provided. The NTA monitors the performance of the transport operators on a quarterly basis to ascertain whether the operators meet the required performance-related standards set out in the contracts. The NTA continually reviews these performance targets and this has resulted in enhanced performance standards being set. All public service contracts, and quarterly performance monitoring reports, are published on the NTA's website³.

3.3 Expenditure Trend

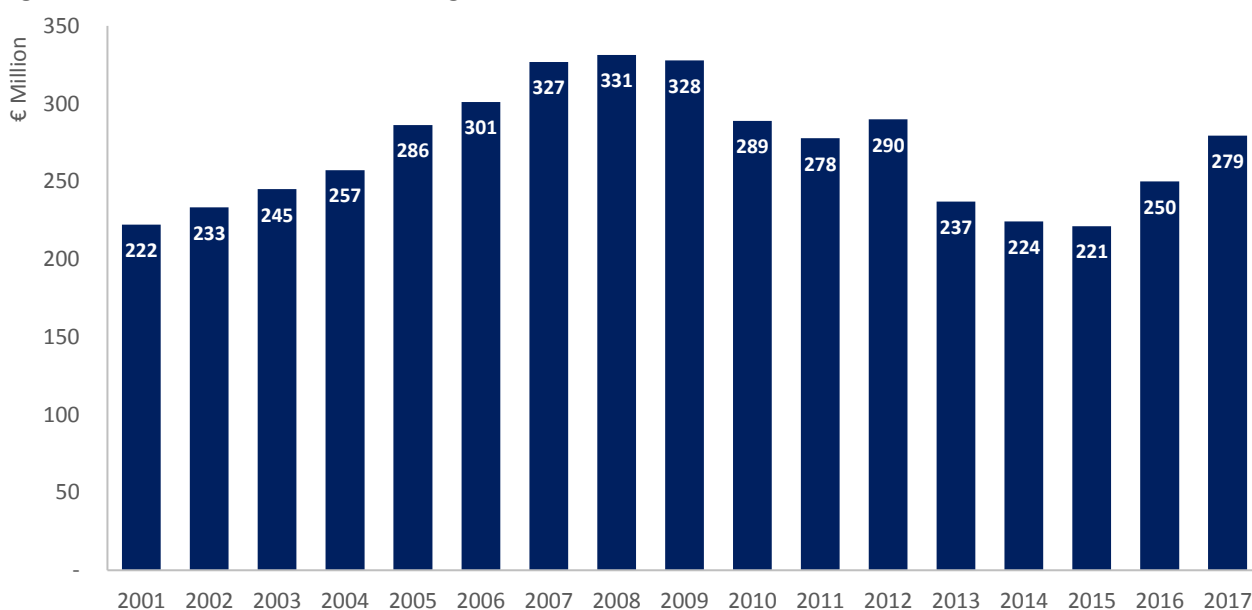
Funding for public transport services is provided under the Public Service Provision Payments expenditure programme. However, the programme is broader than just the PSO subsidy provided to the main operators and has included other programmes such as the Rural Transport Programme and the Green Schools Programme as well as PSO payments to minor operators. As such, there is a distinction between the Public Service Provision Programme and the PSO funding to the three main operators. The analysis below details both the total level of funding under the Public Service Provision Payments programme and the PSO funding to the three main operators of PSO services, which will be the focus for the remainder of the paper.

³ www.nationaltransport.ie.

Figure 1 demonstrates the trend in expenditure for the Public Service Provision Programme between 2001 and 2017. As can be observed the level of expenditure grew significantly between 2001 (€222 million) and the peak in 2008 (€331 million). Over that time period, expenditure grew by €109 million with an average annual growth rate of 6%. Following the economic crash in 2008, expenditure was cut with the overall level falling to €221 million in 2015.

For Budget 2016, an increase of €28 million was announced bringing total expenditure back to around €250 million. Budget 2017 saw a further increase of €29 million to an allocation of €279 million. Thus, expenditure rose sharply in the period to 2008 which also saw rapid expansion in the economy and transport demand. During the economic downturn, expenditure on the overall programme was cut substantially. 2016 and 2017 represent the first significant increases in a number of years as total funding has increased by 26% since 2015.

Figure 1: Public Service Provision Programme, 2001-2017



Source: DPER Databank. 2017 is allocation. 2017 allocation includes €18.4 million in capital

From the budgetary allocation for Public Service Provision Payments, DTTaS makes a specific amount of money available to the NTA, which is informed by submissions made by the NTA to the Department outlining the objectives it is seeking to achieve across the PSO programme for the coming year. The vast bulk of the PSO funding programme consists of payments to the three CIÉ operating companies – Dublin Bus, Bus Éireann and Iarnród Éireann - in respect of services provided under their direct award public service contracts. It should be noted that in more recent years, the PSO programme also includes minor payments made to other companies operating PSO contracts, as well as other costs associated with the management and monitoring of the PSO programme.

The breakdown of PSO expenditure by the three primary transport operators is demonstrated in Table 1. The breakdown includes the three main operators of Iarnród Éireann (rail services nationally and DART service in

Dublin), Dublin Bus (bus services in Dublin) and Bus Éireann (bus services nationally). It is important to note that PSO funding does not cover services that are run commercially (e.g. expressway for Bus Éireann or tours/Airlink for Dublin Bus) and also does not cover related services such as School Transport. The primary operators also receive additional funding for the Free Travel Scheme⁴.

Table 1: PSO Funding by Operator, 2001-2016

	Iarnród Éireann €m	Dublin Bus €m	Bus Éireann €m	Other PSO Costs €m	Total €m
2001	146.0	52.4	23.8	0	222.2
2002	155.5	56.1	21.8	0	233.3
2003	168.3	53.9	22.9	0	245.0
2004	171.4	61.8	24.0	0	257.2
2005	180.0	64.9	25.2	0	270.1
2006	188.7	69.9	26.5	0	285.0
2007	189.9	80.1	36.6	0	306.6
2008	181.2	85.6	41.9	0	308.6
2009	170.6	83.2	49.4	0	303.2
2010	155.1	75.7	45.0	0	275.9
2011	148.7	73.1	43.4	0	265.2
2012	166.4*	74.8*	36.9	0	278.1
2013	127.0	64.5	34.4**	0.03	225.9
2014	117.4	60.0	34.4	0.4	212.2
2015	117.3***	57.7	33.7	1***	209.6
2016	133.0***	59.6	40.8	3.6***	236.9

Source: 2001-2006, NTA Statistical Bulletins; 2006-2014, NTA; 2015-2017 DTTaS. Note: All € Million. Rounding applied *2012 figures for Dublin Bus and Iarnród Éireann includes supplementary funding provided during the year; figures amounted to €6 million for Dublin Bus and €30 million for Iarnród Éireann. **2014 figures includes €2.5 million in supplementary funding for Bus Éireann PSO services. ***In 2015 and 2016 Iarnród Éireann received €19.17m and €22.5m respectively for Heavy Maintenance expenditure which has been capitalised as a fixed asset, this expenditure was funded by PSO and is recorded as Deferred Grant Income in the balance sheet. The Deferred Grant Income will be released in line with the depreciation of the Heavy Maintenance Asset. 2017 split unavailable.

As can be observed, the trend described for overall expenditure can be seen across the three operators. The level of subsidy grew substantially across all three operators between 2001 and 2008 and subsequently reduced significantly. Since 2014, the subsidy provided to Bus Éireann and Iarnród Éireann has increased by

⁴ Scheme funded by Department for Social Protection for those over 66 and recipients of specific benefits. In 2016, Iarnród Éireann received €14.6 million, Dublin Bus received €20.6 million and Bus Éireann received €12 million for the scheme on PSO services.

18.6% and 13.3% respectively while the funding provided to Dublin Bus has decreased slightly (0.7%). 2016 funding levels are below the peak in 2008 for Dublin Bus and Iarnród Éireann. Individual funding levels will increase further in 2017 with an 11.6% increase in overall programme allocation as part of Budget 2018. In terms of overall expenditure composition, there has been a slight shift since 2008. Iarnród Éireann accounted for 59% of PSO funding in 2008 and 56% in 2016. Dublin Bus has reduced its share slightly from 28% to 25%. Bus Éireann has increased its share of funding from 14% to 17%. Beyond the funding provided by DTTaS for PSO public transport services there are two other relevant areas of support from an Exchequer perspective as detailed below.

Firstly, the Department of Social Protection provides funding for the Free Travel Scheme, which is a non-statutory scheme run by the Department of Social Protection that provides eligible people in the State (mainly those aged over 66 years) with free travel on bus (including participating licensed commercial bus services), train and tram services. In 2016, the Department of Social Protection allocated €80 million toward the Free Travel Scheme⁵. Funding is provided by DSP to CIÉ in the form of a block grant and CIÉ then allocates that funding among the three operating companies. Until 2012, the rate of payment provided under the Scheme was reviewed annually and adjusted on the basis of fares and numbers of eligible customers. However, the level of funding for the scheme was frozen at just over €75 million as part of the National Recovery Plan 2011-2014. While not considered in detail here, further analysis of the scheme is contained within an Inter-Departmental report entitled 'Going Forward – A Review of Free Travel'⁶ (2014) and has been considered as part of previous IGEES work⁷.

Secondly, public transport usage and operation is also supported through the use of tax expenditures. In this regard the main scheme is the Tax saver Commuter Ticket Scheme. The scheme was introduced in 1999 and is a tax expenditure which seeks to incentivise the use of public transport among employees and thus supports the delivery of the PSO programme generally through incentivising the use of public transport. The Department of Finance estimate that the scheme costs the Exchequer €3.5million per annum⁸ and all three CIÉ operating companies, as well as Luas and a number of other commercial licensed bus operators, are approved transport providers under the scheme.

⁵ DPER Databank

⁶ DSP (2014) 'Going Forward – A Review of Free Travel'. http://www.welfare.ie/en/downloads/Free_Travel_Review_Oct2014.pdf

⁷ Meaney, K. (2014) 'Expenditure Review of State Pension and Related Supplementary Benefit Schemes'. <http://igees.gov.ie/wp-content/uploads/2014/11/Expenditure-Review-of-State-Pension-and-Related-Supplementary-Benefit-Schemes.pdf>

⁸ Department of Finance (2016) 'Report on Tax Expenditures'. http://www.budget.gov.ie/Budgets/2017/Documents/Tax_Expenditures_Report%202016_final.pdf

4. Overview of Service Usage, Revenue and Costs

To contextualise the analysis of PSO funding it is necessary to consider developments in public transport usage, service revenue and operating costs. The data and trends set out here will be explored in more detail in the next section. This section will, in turn, discuss trends in passenger numbers and public transport usage, PSO funding in the context of total service revenue and dynamics in the service operating cost over time.

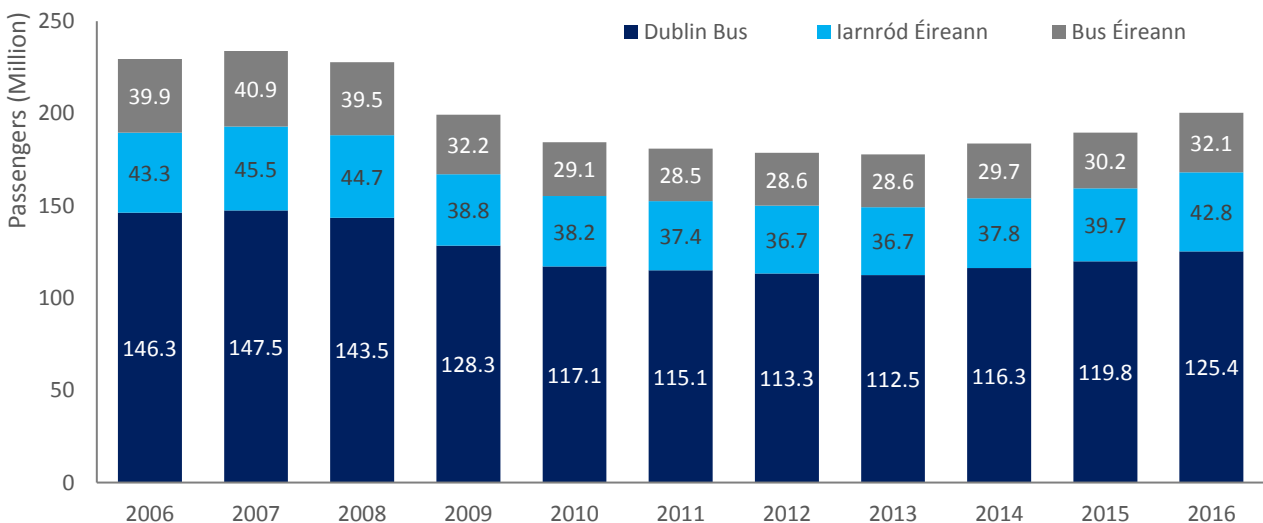
4.1 Usage and Passenger Numbers

Public transport demand and activity has picked up in recent years in line with economic and employment growth and increased passenger journeys can be seen across all three primary operators. This follows significant decreases in service usage after 2007.

Given that the objective of PSO payments is to fund and support the use of public transport, it is important to analyse trends in public transport use over time. Figure 2 sets out the developments in total annual passenger journeys across the three operators on PSO services between 2006 and 2016. The data represents total passenger numbers and thus includes recipients of the Free Travel Scheme.

Passenger journeys across all three operators experienced a significant fall in the 2007 to 2013 period. Iarnród Éireann saw a decline in passengers of 19% between 2007 and 2013 to 36.7 million. Dublin Bus passenger numbers fell by 24% in the same time period to a total of 112.5 million passenger journeys. Bus Éireann has seen a 30% fall over these years to a total of 28.6 million passenger journeys. Data since 2013 is indicative of a recovery in activity with particularly strong growth in the last two years. This mirrors developments across the economy highlighting the link between transport demand and economic performance. Iarnród Éireann saw a growth in passengers of 17% between 2013 and 2016 to 42.8 million. Dublin Bus has grown passenger numbers by 11% in the same time period to a total of 125.4 million passenger journeys. Bus Éireann has seen a 12% increase in PSO passenger journeys over these years to a total of 32.1 million.

Figure 2: Passenger Journeys on PSO Services by Operator, 2006-2016



Source: NTA Statistical Bulletins and NTA

Data has also been provided by the NTA on the number of passengers that are availing of the Free Travel Scheme and it is important to take this into account in the analysis of public transport usage. Table 2 details the number of passenger journeys that are availing of the Free Travel Scheme. As can be observed, the total number of journeys on the scheme remained relatively constant between 2007 and 2011. Since 2011 passenger numbers have increased by 5.2 million or 15%.

Table 2: Free Travel Scheme Passenger Numbers on PSO Services, 2006-2016

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
IE	3.5	3.9	3.9	3.9	3.9	4.2	4.5	4.5	4.6	4.6	4.8
DB	20.2	22.9	23.4	22.2	22.8	22.8	23.8	23.1	23.8	24.0	25.6
BE	7.6	7.5	7.2	7.9	7.9	7.9	8.1	8.8	9.3	9.2	9.8
Total	31.3	34.3	34.5	34.0	34.6	34.9	36.4	36.4	37.7	37.8	40.1

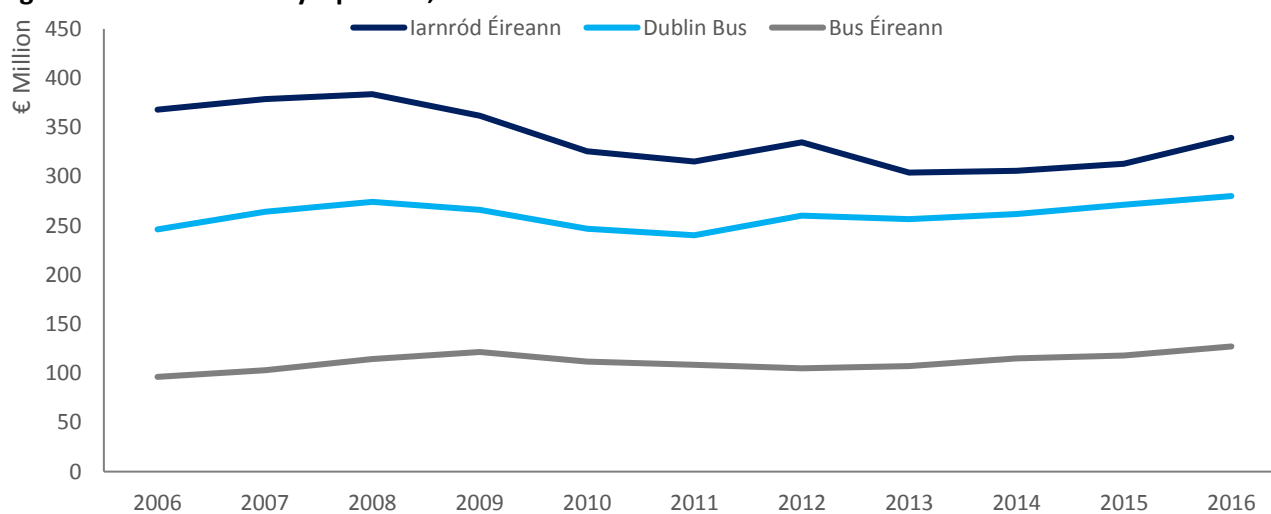
Source: NTA

4.2 Revenue

Total revenue for PSO services (consisting of government funding and fare revenue) has increased by 12% since 2013. However, this is in the context of a significant decrease following 2008 and recent recovery puts total revenue at 3% lower than 2008. Renewed growth has been led by increased fare revenue as a result of higher passenger numbers and an increased fare revenue per passenger.

The revenue that funds public transport services provided under the PSO programme comes from the aforementioned public funding (through the PSO programme and the Free Travel Scheme programme) and through fare revenue generated from passenger journeys. Figure 3 sets out the trend in revenue on PSO services by operator between 2006 and 2016. As can be observed, all three operators witnessed increasing revenue on these services between 2006 and 2008 before a decrease driven by lower PSO funding and lower fare revenue (as depicted in Figure 4). Since 2013, total revenue has increased by 19% at Bus Éireann, 12% at Iarnród Éireann and 9% at Dublin Bus.

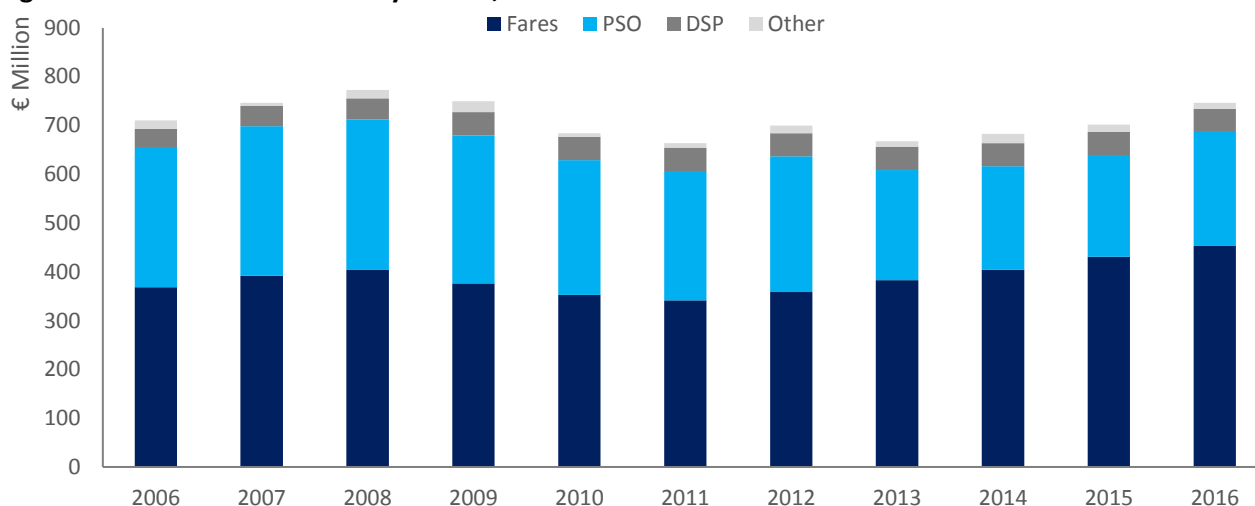
Figure 3: PSO Revenue by Operator, 2006-2016



Source: Source: NTA/DTTAs. Note: Other revenue for IE estimated by NTA for years 2006-2009

Figure 4 sets out the total revenue for PSO services by source. As can be seen, total revenue has increased by 12% since 2013 to a total of €746.8 million. This is 3% lower than the peak level of revenue in 2008. In terms of composition we can also observe a change with PSO funding accounting for 31% of total revenue in 2016 compared to around 40% between 2006 and 2012 while fare revenue has increased to 61% while previously it was at 50-53% between 2008 and 2012.

Figure 4: PSO Service Revenue by Source, 2006-2016



Source: NTA/DTTAs. Other revenue for IE estimated by NTA for years 2006-2009 and payroll split between total company and operator estimated between 2006 and 2013.

By analysing the proportion of total revenue that the companies receive through PSO we can observe the relative importance of the funding stream. Table 3 demonstrates the ratio of PSO funding to total revenue on PSO services for each of the main operators between 2006 and 2016. The data shows in general that the PSO subsidy has fallen as a percentage of total revenue on those services from an average across the operators of 36% in 2006 to an average of 31% in 2016. We can also observe that the PSO subsidy accounts for a larger share of revenue on PSO services at Iarnród Éireann and Bus Éireann than at Dublin Bus.

Table 3: PSO as a Proportion of Total Revenue, 2006-2016

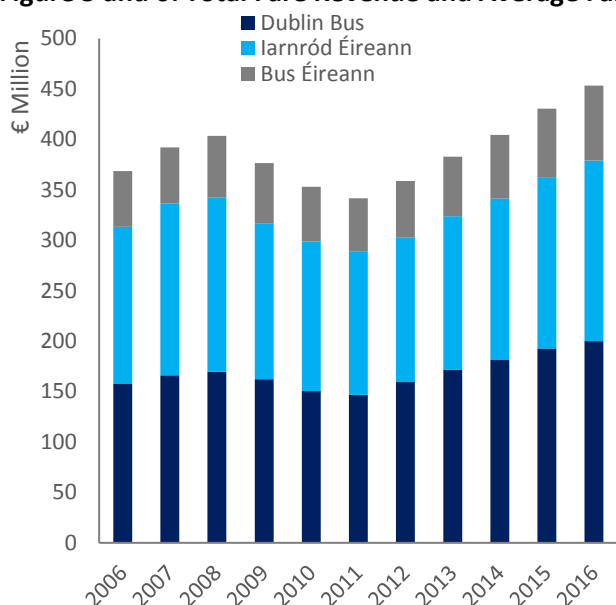
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
IE	51%	50%	47%	47%	48%	47%	50%	42%	38%	37%	39%
DB	28%	30%	31%	31%	31%	30%	29%	25%	23%	21%	21%
BE	27%	35%	37%	41%	40%	40%	35%	32%	30%	29%	32%

Source: Author Analysis of NTA/DTTAs data.

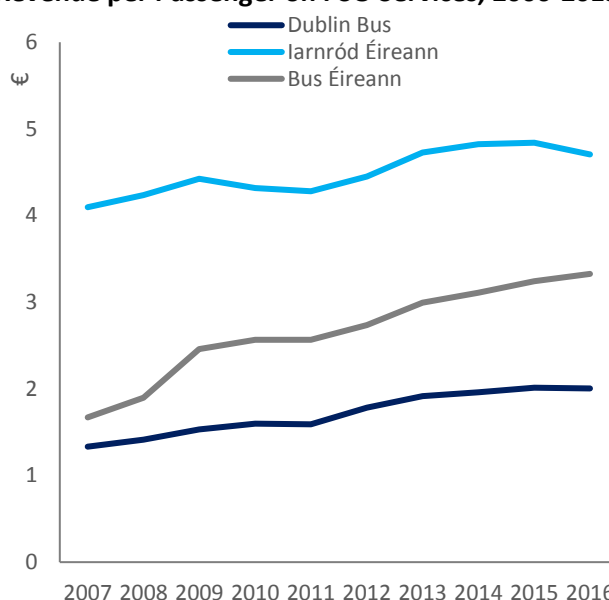
In terms of analysing developments in revenue it is useful to assess and understand the trend in fare revenue in more detail. As can be seen in Figure 5, the total level of fare revenue on PSO services has increased since 2011 by 33% to €453 million. This growth is as a result of the increased number of passengers utilising PSO services (as detailed in section 3.1) and also an increase in the average level of fare revenue per passenger. This trend is described in Figure 6.

There are a variety of factors which contribute to the observed fare revenue per passenger including journey type within the services and the average distance of trips. The primary factor is the fare structure set out at each operator. As such it should be noted that there were a number of substantial fare price increases between 2011 and 2014. While the impact of these increases was ameliorated for many by the introduction of the Leap Card, which offered significant discounted fare structures, it is noteworthy that from 2011 to 2014 cash fares on buses increased by about 25% and Iarnród Éireann fares increased by approximately 13%⁹. As can be observed fare revenue per passenger has increased across the three operators. Fare revenue per passenger at Iarnród Éireann is 10% higher in 2016 (at €4.70) than in 2011. Meanwhile, the fare revenue per passenger journey at Dublin Bus and Bus Éireann has increased by 26% and 30% to €2.00 and €3.33 respectively over the same period.

Figure 5 and 6: Total Fare Revenue and Average Fare Revenue per Passenger on PSO Services, 2006-2015



Source: Author Analysis of NTA data. Note excludes free travel scheme passengers.



Source: Author Analysis of NTA data. Note excludes free travel scheme passengers.

4.3 Operating Costs

Total operating costs for PSO services have reduced across the operators since the peak in 2008 but are above 2006 levels. This has largely been driven by reductions in payroll expenditure and materials, service and other costs while, in contrast, fuel costs have increased. It should be noted that operating costs have many external drivers, such as international fuel costs and capital investment levels, which impact developments in costs.

A further relevant area of consideration is the level of cost entailed in delivering the services. As with the delivery of any service, there are a number of significant costs associated with PSO transport services which

⁹ Figures provided by DTTaS

in turn influence the level of funding required to deliver services. Figure 7 sets out the operating cost¹⁰ of delivering PSO services across the three operators. As demonstrated, since the peak total cost in 2008 of €716.9 million, the cost of PSO services in total has reduced by 8% as of 2016. As shown in Figure 8, both payroll and materials, service and other costs have decreased (-15% and -4% respectively) while expenditure on fuel has increased by 12%. In terms of composition, the total operating costs of PSO services in 2016 amounts to 53% payroll expenditure, 36% materials, service and other costs and 12% on fuel.

In analysing the trend and composition of operating costs it is worth noting that a number of the elements have significant external influences that make it difficult for individual operators to fully control. For instance, fuel prices are largely dictated by international markets and exchange rate dynamics while expenditure on maintenance may be impacted by previous levels of capital investment and renewal as well as the effectiveness of infrastructure management.

Figure 7: Operating Cost for PSO Services by Operator, 2006-2016

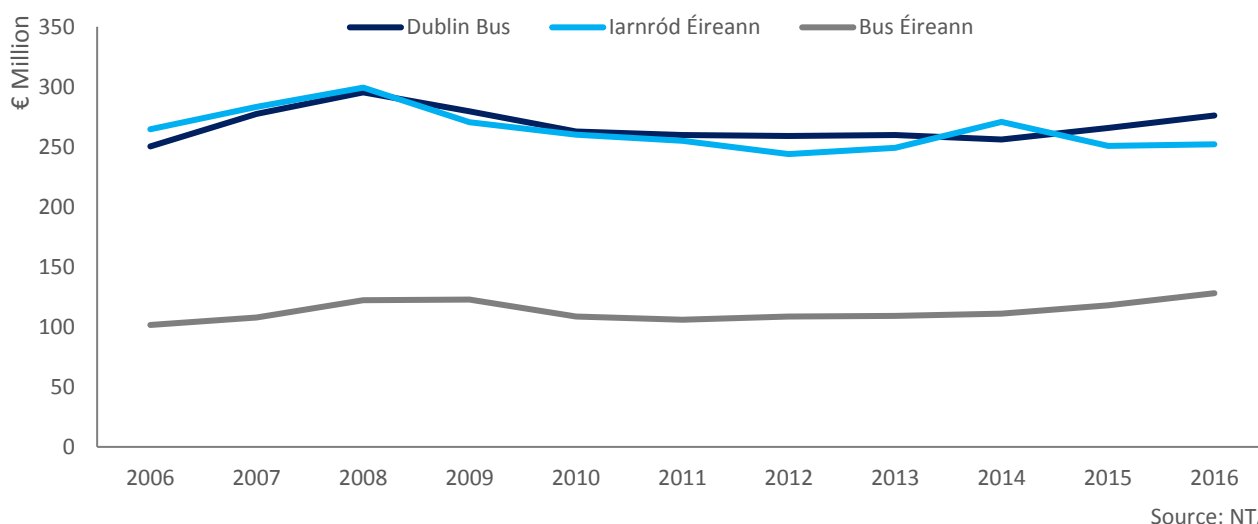
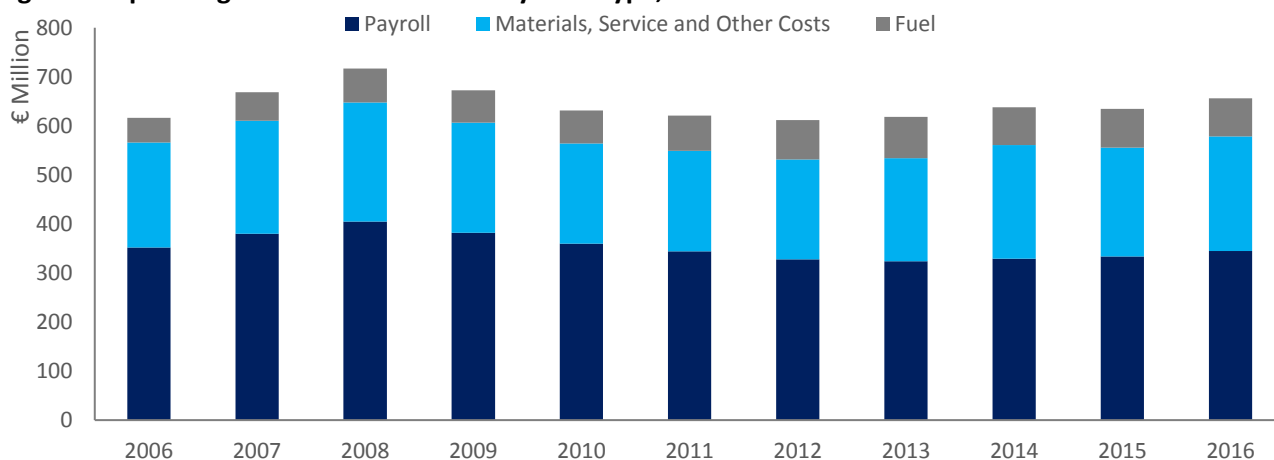


Figure 8: Operating Cost for PSO Services by Cost Type, 2006-2016



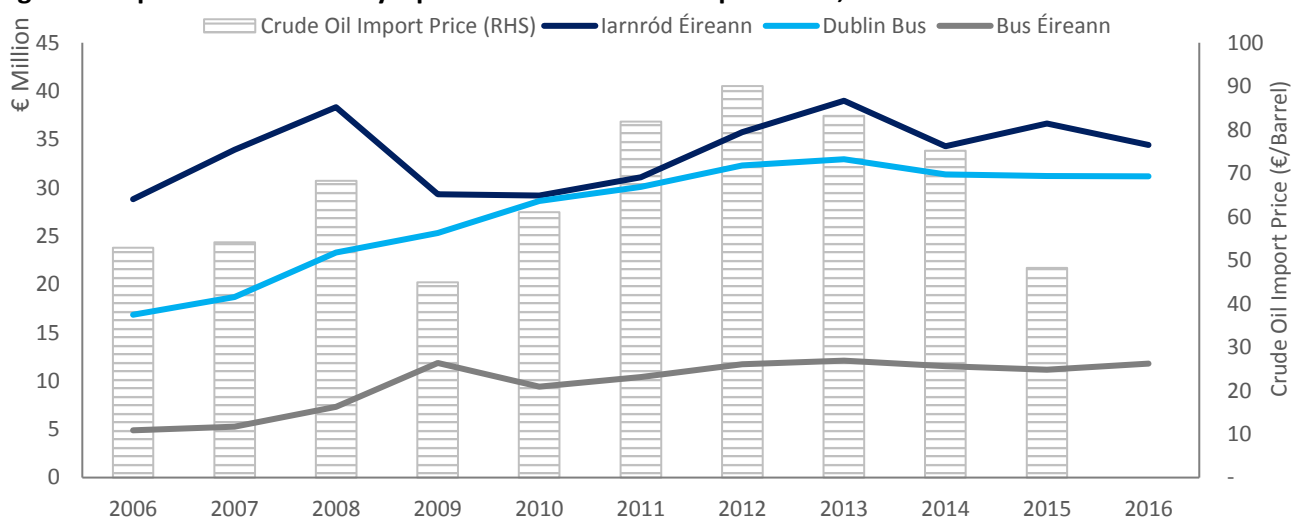
Source: NTA. Note: Cost data breakdown estimated by NTA for Iarnród Éireann between 2006 and 2013 as breakdown between operator and total company unavailable.

¹⁰ Operating costs do not include other costs associated with delivering public transport services, such as capital investment.

For fuel costs it is worth noting the general trends across the operators in the context of international price dynamics. While expenditure on fuel may be largely influenced by international prices and exchange rates they are also impacted by changes in taxes and excise duty, the level of PSO services provided and the fuel efficiency of the PSO operations. As Figure 9 shows there has been significant fluctuation in the level of expenditure on fuel over the time period and in the crude oil import price for Ireland, as measured by the OECD¹¹.

All three operators can be seen to have a higher annual expenditure on fuel in 2016 than in 2009/2010. DTTaS have stated that in relation to fuel costs, the removal of the excise duty rebate for road transport operators in 2008 was a significant reason as to why costs for both bus companies increased by over 20% between 2008 and 2009, despite a reduction in the average price per barrel of crude oil. DTTaS have stated that the significant decrease in fuel costs for Iarnród Éireann in the same period is attributable in part to the introduction of new fleet, which are substantially more fuel efficient than older rolling stock.

Figure 9: Expenditure on Fuel by Operator and Crude Oil Import Price, 2006-2016

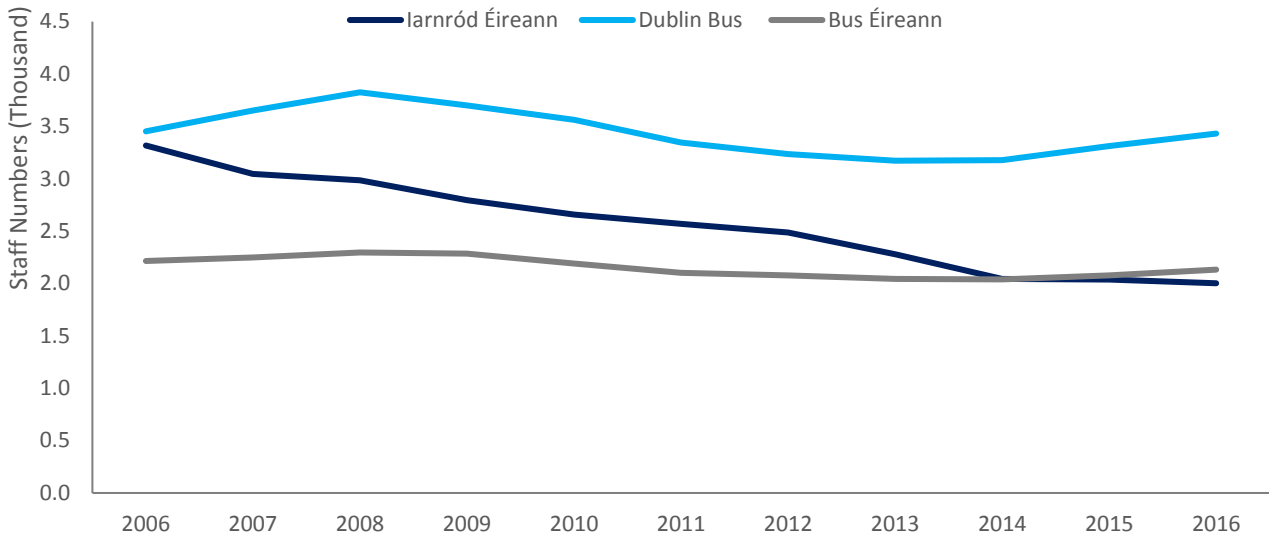


Source: NTA, OECD. Oil Price is average per barrel for Ireland. Adjusted to € using Central Bank average exchange rate data. 2016 Oil Price not available

Another significant element of operating costs is that associated with labour and it is worth briefly considering this in more detail. Each of the three operating companies has witnessed a reduction in overall employee numbers since 2006, with this downward trend particularly evident in the case of Iarnród Éireann. There has been a modest increase in the total number of employees delivering PSO services in recent years as the operating environment has improved and services have expanded. In total there has been a 40% reduction in staff at Iarnród Éireann (railway undertaking only) between 2006 and 2016 to a total of 2,002. At Dublin Bus (total company) and Bus Éireann (total company minus part time school drivers) there has been a 1% and 4% reduction over the same time period to 3,431 and 2,133 respectively.

¹¹ OECD (2017), Crude oil import prices (indicator). doi: 10.1787/9ee0e3ab-en.

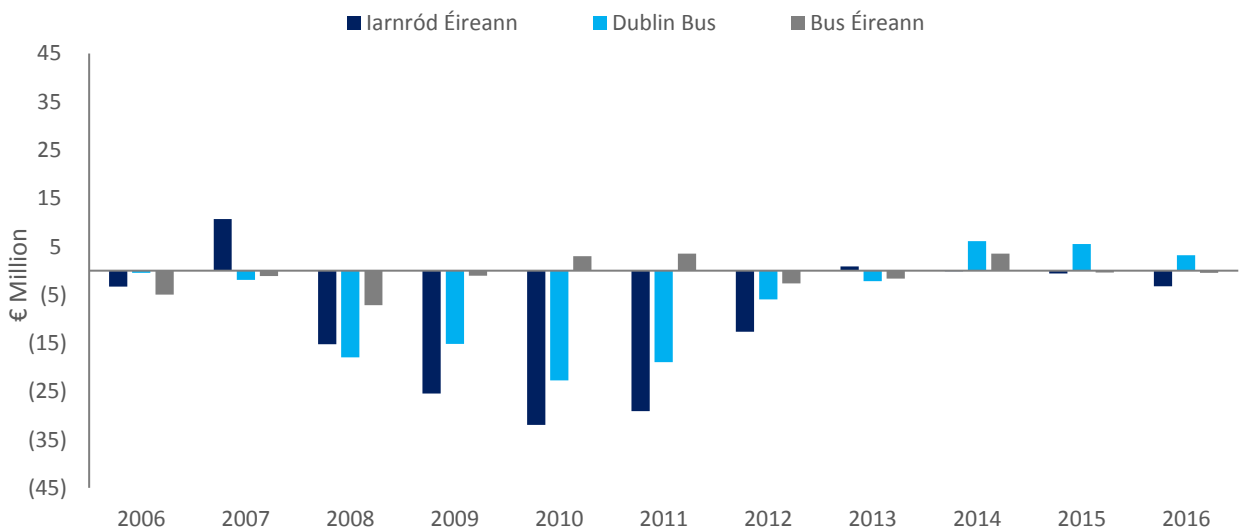
Figure 10: Staff Numbers by Operator, 2006-2016



Source: NTA. Dublin Bus is total company, Bus Eireann is total company minus part time school drivers and Iarnród Éireann is total staff in railway operator. All annual averages.

Finally, it is worth noting that at an aggregate level the operating environment between 2008 and 2012 can be seen to have had an impact on the financial position of the operators. Figure 11 sets out the net position in relation to PSO services using data provided by the NTA and highlights the surplus/deficit position in each year. As can be observed, the period 2008-2012 saw a negative trend in terms of financial impact. However, recent years have seen the return to a more balanced position. It is expected that the 2017 position will reflect further improvement given the increases in passenger journeys and PSO funding.

Figure 11: Net Operator Surplus/Deficit on PSO Services, 2006-2016



Source: NTA

5. Overview Indicator Analysis

The following section details some high level analysis related to the operation of the PSO public transport services. The objective is to look at trends in relevant metrics over time to assess the level of output (in terms of provided public transport services) in the context of public expenditure and costs.

There are a number of approaches that could be taken in terms of assessing metrics relevant to the performance/efficiency of public transport operations. The international literature¹² sets out a variety of metrics that are typically used. These range across the various objectives of public transport operations and can relate to both efficiency and effectiveness. Typically, they can focus on infrastructure utilisation (operated kms per infrastructure kms), labour productivity (operated kms per staff), cost efficiency (cost per km), revenue generation (revenue per km), cost recovery (revenue/operating cost) and modal share (% of journeys being taken on mode). In addition, there are a number of approaches used to assess other effectiveness considerations such as punctuality, service quality and customer feedback. As such, there are a range of approaches that could be used. For the purposes of this paper, the analysis focuses on PSO funding and cost development and is presented on the following areas:

- PSO funding per passenger journey
- PSO funding per seat kilometre
- Total revenue per passenger journey
- Operating cost per passenger journey
- Operating cost per seat kilometre

In assessing the level of subsidy and cost in this manner the analysis focuses on two different measures of output. Firstly, the analysis related to passenger journeys explores output in terms of actual passenger journeys undertaken. Secondly, the analysis related to vehicle seat kilometres examines output in terms of the level of service provision on the network. An indicator typically utilised internationally is passenger kilometres, which essentially accounts for a combination of the two approaches above by looking at the level of passenger journeys and accounting for the distance travelled. As data is unavailable across the three operators, this paper doesn't explore this type of analysis.

A further approach that could be taken would be to benchmark the performance of public transport operators against international comparators. However, there are a number of issues in carrying out such an analysis. At a simple level, we can observe that public transport operations will differ substantially depending on a variety of factors such as population density, market structure and transport infrastructure. As such, identifying a suitable comparator for Ireland would be challenging. The OECD have highlighted a number of potential issues

¹² E.g. European Commission (2015) 'Study on the Cost and Contribution of the Rail Sector'. CIE (2015) 'Efficiency of NSW Public Transport Services'. OECD (2000) 'Transport Benchmarking: Methodologies, Applications & Data Needs'.

including data availability/comparability¹³. In carrying out any such analysis account would have to be taken of these complex factors and such analysis is not included here.

There are a number of limitations to the presented analysis which should be kept in mind when interpreting the output, including:

- The analysis presented is high level in nature and should be interpreted as such. There are a number of interrelated drivers at play, the precise nature of which are not explored here. A more detailed evaluation (e.g. Value for Money Review or Focused Policy Assessment) would be required to produce a comprehensive assessment of efficiency and effectiveness.
- While this paper highlights some initial headline trends in relation to PSO services at the three main operators it does not provide analysis of trends within sub-sectors of these operators. For instance, it is likely the case that the different sub-elements of PSO services (e.g. particular services, routes and/or lines) are distinct in terms of how the chosen metrics are performing. A more detailed evaluation would be required to analyse this.
- In 2014 and 2015, Bus Éireann and Dublin Bus respectively changed the method used to calculate the annual operated vehicle kilometres and then restated their records for 2013 and 2014 to reflect the changed methodology. This change in methodology may impact the interpretation of trends over the entire period 2010 to 2015.
- As highlighted where relevant, some of the data provided by the NTA is estimated given issues with format and availability.

Finally, it is worth noting that a number of reviews have been previously published which analyse the issues touched upon in this paper. Most notably, the NTA published a Rail Review in 2016¹⁴ which provides a more detailed and disaggregated analysis of the rail network and rail services. Other reviews completed in the past include a cost and efficiency review of Dublin Bus and Bus Éireann and an international review of subvention levels for public transport¹⁵.

¹³ ibid

¹⁴ NTA (2016) 'Rail Review 2016'. https://www.nationaltransport.ie/wp-content/uploads/2016/11/151116_2016_Rail_Review_Report_Complete_Online.pdf

¹⁵ Deloitte (2009) 'Cost and Efficiency Review of Dublin Bus and Bus Éireann'. Reynolds-Feighan, A. Durkan, J. and Durkan, J. (2000) 'Comparison of Subvention Levels for Public Transport Systems in European Cities'.

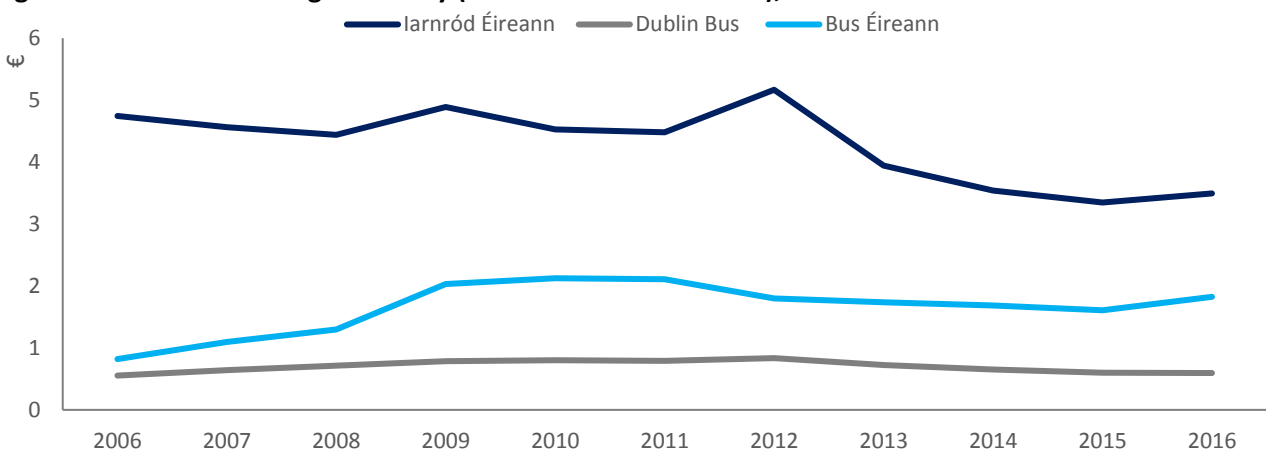
Analysis of PSO Funding

Across the operators we can observe that PSO subsidy funding per passenger journey has reduced in recent years, indicating that more passenger journeys are occurring for each euro of subsidy. In comparison to 2006, PSO funding per passenger is higher at both bus operators while it is significantly lower at Iarnród Éireann.

Figure 12 and Table 4 show the level of PSO funding per passenger (excl. free travel scheme passengers) across the three operators between 2006 and 2016. As previously set out, the level of subsidy per passenger is a commonly used metric to assess public transport operations. While not a comprehensive measure, this gives an overview indication of the average level of subsidy provided for each given unit of output as measured through passenger journeys. The analysis shows increases in the amount of PSO funding per passenger for both bus companies when comparing 2006 and 2016 with a 26% decline observable in the case of Iarnród Éireann over the same period. In terms of more recent years, the PSO per passenger has largely fallen from levels seen in 2011 with the level being 22% lower at Iarnród Éireann, 25% lower at Dublin Bus and 13% lower at Bus Éireann.

Furthermore, the analysis details a significant divergence between operators in terms of the level of subsidy per passenger with Iarnród Éireann having a level much greater than that of bus services. However, the analysis doesn't take account of a myriad of factors, most notably journey distance. As such, simple comparative interpretation is not appropriate based on this analysis. As previously discussed, analysis of passenger kms would be more appropriate as this would take account of journey distance but data is not available across all three operators. To account for this, the analysis which follows makes an assessment based on vehicle seat kms. In summary, from a central budgetary perspective, the number of passenger journeys for each euro of subsidy has improved in recent years. However, as was detailed in section 3.2, this has occurred in the context of increases in fare revenue driven by passenger growth and increases in the average fare per passenger.

Figure 12: PSO Per Passenger Journey (excl. Free Travel Scheme), 2006-2016



Source: Author Analysis of NTA/DTTaS data

Table 4: PSO Funding Per Passenger Journey (excl. Free Travel Scheme), 2006-2016

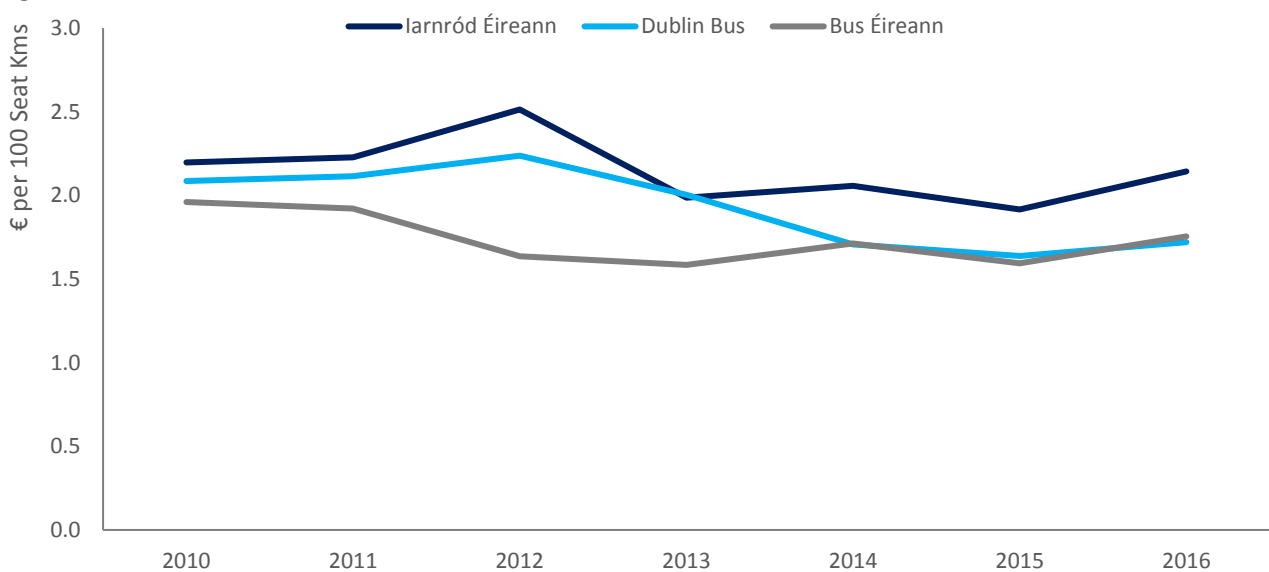
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
IE	4.74	4.57	4.44	4.89	4.52	4.48	5.17	3.94	3.54	3.35	3.49
DB	0.55	0.64	0.71	0.78	0.80	0.79	0.84	0.72	0.65	0.60	0.60
BE	0.82	1.10	1.30	2.03	2.12	2.11	1.80	1.74	1.69	1.61	1.82

Source: Author Analysis of NTA/DTTaS data

When analysing the level of subsidy provided per seat km (a measure of service provision) we can observe that all three operators are at a similar level and that overall there has been a reduction in the level of subsidy per level of output between 2010 and 2016.

In addition to an analysis comparing subsidies to passenger numbers it is also of interest to compare to the actual level of service provided (i.e. vehicle seat kms), as this accounts for the level of operated service including distance and capacity. Figure 13 provided below gives an overview of the level of PSO subsidy per seat km. Iarnród Éireann can be seen to be receiving a relatively higher level of PSO per 100 seat kms when compared to the bus operators with 2016 levels at €2.14 for Iarnród Éireann, €1.72 for Dublin Bus and €1.75 for Bus Éireann. The level of subsidy versus the level of capacity and service provided can be seen to have decreased between 2010 and 2016 with a 2% fall in PSO per 100 seat kms at Iarnród Éireann, an 18% reduction at Dublin Bus and an 11% decrease at Bus Éireann. While an analysis of the level of subsidy per seat km is likely more appropriate as it accounts for the level of capacity provided, it would also be possible to assess the level of subsidy per vehicle km. In taking this approach we would see that the subsidy per vehicle km is much higher at Iarnród Éireann, highlighting the higher capacity levels of rail services as opposed to bus services. In a similar sense to the previous indicator (per passenger) not being a definitive measure, this indicator should also be seen in the same way as it doesn't account for passenger density on provided services.

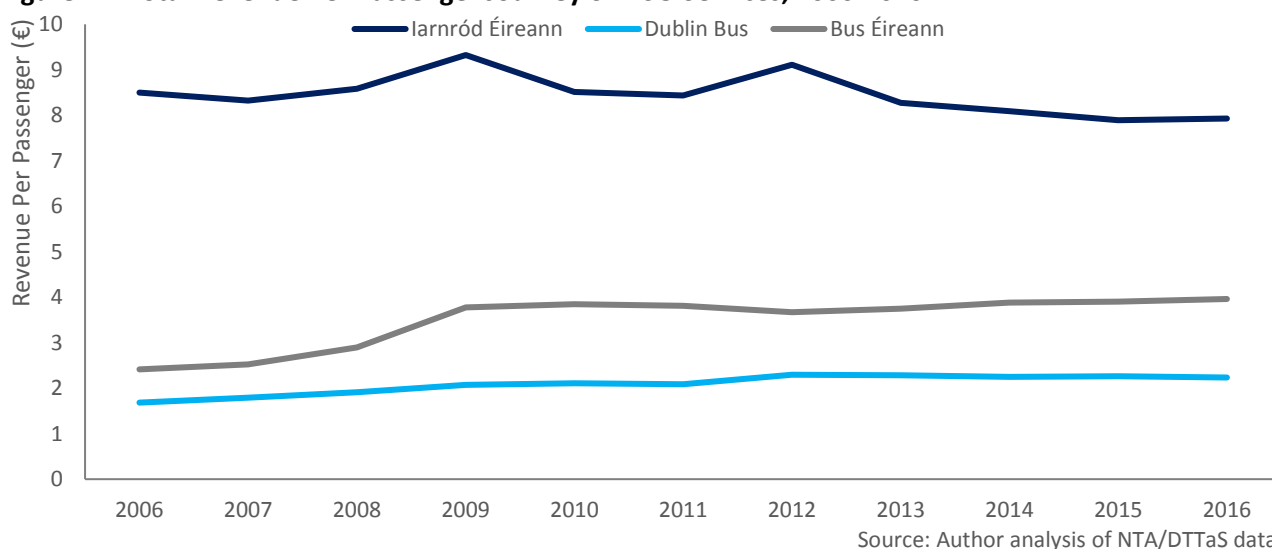
Figure 13: PSO Per 100 Seat Kms, 2010-2016



Source: Author Analysis of NTA/DTTaS data

Finally, it is also of interest to analyse the level of revenue generated per passenger journey to observe trends in the total level of revenue generated in comparison to the number of passenger journeys. It can be seen that the level of total revenue per passenger has increased substantially between 2006 and 2016 at both bus operators. Dublin Bus’s revenue per passenger on PSO services has increased by 33% over the period while Bus Éireann’s has increased by 64%. In contrast, the total revenue per passenger has decreased by 7% at Iarnród Éireann.

Figure 14: Total Revenue Per Passenger Journey on PSO Services, 2006-2016



Analysis of PSO Service Operational Costs

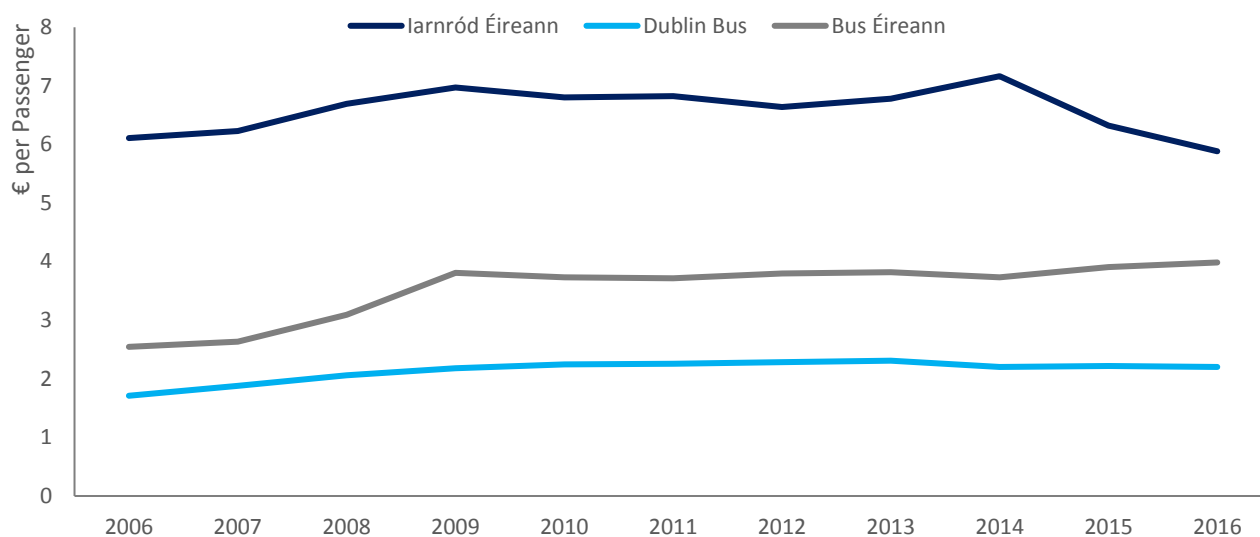
In recent years, compared to 2012, the cost per passenger has decreased at both Iarnród Éireann and Dublin Bus while there has been an increase at Bus Éireann. When comparing 2015 to 2006, the estimated cost of providing PSO services per passenger has increased substantially on bus services while there has been a slight decrease in the case of Iarnród Éireann.

In terms of analysing efficiency, it is the level of actual cost that is of most interest. As the programme has the objective of providing services that are socially beneficial but financially unviable, the level of revenue generation required is generally linked to the operating costs incurred by the operators in the provision of those services. While the previous analysis detailed the level of PSO and total revenue per passenger and per seat km, it was not a comprehensive reflection of the actual cost of service provision. As noted in section 4, there are a number of factors which underpin the cost of providing PSO services and the impact of these factors is evident in the analysis below. It should also be highlighted that no account is taken here of service quality or related improvements such as the Leap card and Real Time Passenger Information.

Figures 15 and Table 5 analyse data provided by the NTA on the operating cost of providing PSO services at the main PSO transport operators. As can be seen, the operating cost per passenger for each of the operators

grew between 2006 and 2009. Since 2009 the operational cost per passenger has been more stable with a recent uptick for Bus Éireann in 2015 and 2016 and an increase followed by a decrease at Iarnród Éireann. However, in comparing 2016 to 2006 we can observe that Iarnród Éireann is 4% lower (€6.11 to €5.88) while Dublin Bus (€1.71 to €2.20) and Bus Éireann (€2.55 to €3.99) have increased by 29% and 57% respectively. Again, it is worth noting that it is not appropriate to draw straight forward comparative conclusions from this analysis, as it doesn't take account of a number of issues such as journey length/type and capital costs.

Figure 15: Operating Cost Per Passenger Journey on PSO Services, 2006-2016



Source: Author analysis of NTA data

Table 5: Operating Cost per Passenger, 2006-2016

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
IE	6.11	6.23	6.70	6.97	6.80	6.82	6.64	6.78	7.17	6.32	5.88
DB	1.71	1.88	2.06	2.18	2.24	2.26	2.28	2.31	2.20	2.22	2.20
BE	2.55	2.63	3.09	3.81	3.73	3.72	3.80	3.82	3.73	3.90	3.99

Source: Author analysis of NTA data

It is worth noting that when the analysis is carried out in real terms (adjusting for inflation), we can observe that in comparison to 2006 the operational cost per passenger has decreased on Iarnród Éireann services (down 11%), while we observe increases at both bus operators of 19% for Dublin Bus and 45% for Bus Éireann. It is again worth noting the previously outlined points in relation to the level of control that the companies have over costs (e.g. fuel costs).

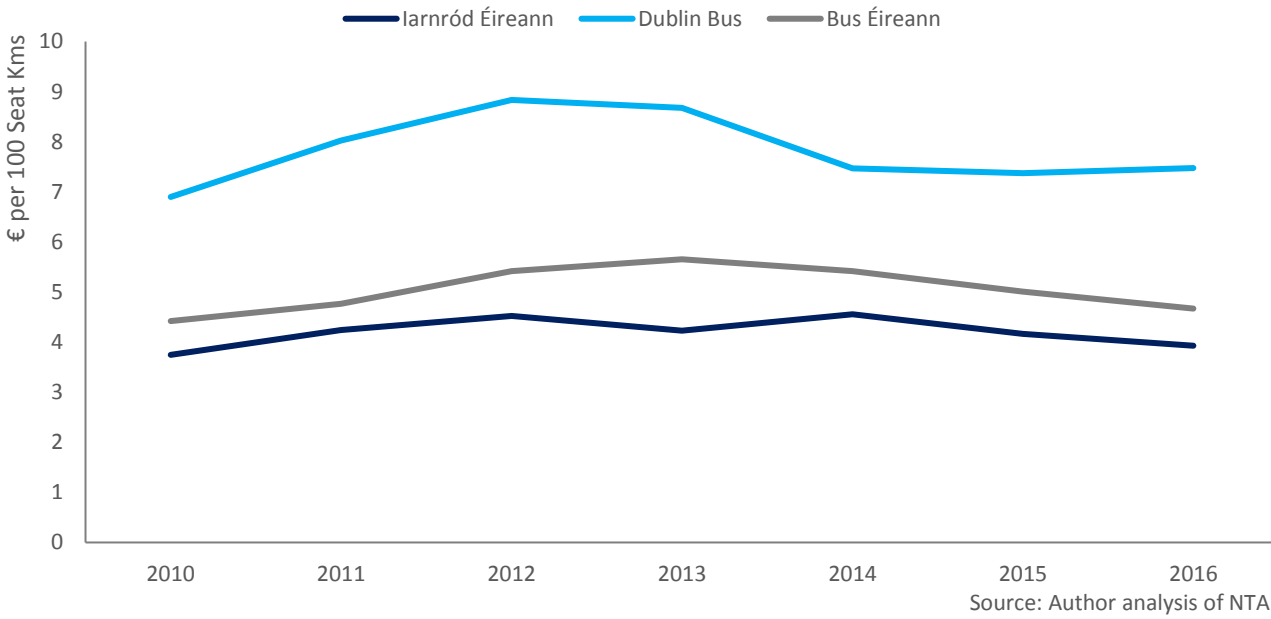
In assessing the level of operating cost per seat km we can observe that the cost of delivery has decreased since 2012 but is at a level above that seen in 2010.

When analysed on a per vehicle seat km basis in Figure 16 we can observe that this metric has decreased across the three operators between 2012 and 2016. In this time period the cost per 100 vehicle kms has

decreased by 13% at Iarnród Éireann, 15% on Dublin Bus and 14% on Bus Éireann to levels of €3.93, €7.48 and €4.57 respectively. However, this decrease follows a period of significant increases between 2010 and 2012.

As such, costs per vehicle seat km in 2016 remain above 2010 levels across all three operators. This result can be interpreted in the context of a decrease in operated seat kms across the three operators and the previously discussed cost dynamics which have significant external drivers (e.g. fuel costs). Finally, it is also notable that the cost per vehicle seat km at Iarnród Éireann is lower than those at the bus operators highlighting the high capacity of provided train services. However, cognisance should again be taken of the fact that the analysis focuses on operating costs and as such does not include capital costs which are significant in the case of rail.

Figure 16: Operating Cost Per 100 Vehicle Seat Kms on PSO Services, 2010-2016



6. Other Considerations and Further Evaluation

In analysing PSO payments for public transport there are a number of other pertinent and related issues that are not considered in detail here. As previously stated, the analysis presented here is high level and does not represent an in-depth and comprehensive review of public transport operations. A number of relevant issues are briefly highlighted below.

The analysis provided in this paper does not take into account capital expenditure that interacts with PSO services. Of particular interest here is capital expenditure on maintenance and renewal such as bus replacement or capital infrastructure renewal costs related to railway lines. While this paper has provided an overview analysis of the operation of PSO public transport services by the main PSO providers it was outside its scope to analyse capital expenditure. This is particularly relevant to the provision of heavy rail services where capital costs are a large element of exchequer support to service provision. Furthermore, this paper has only looked at the operation of PSO services and has not looked in detail at the overall financial position

of the primary PSO providers. As State owned entities the underlying financial position of the companies is of policy interest but again is outside the direct remit of this paper. In particular, no analysis is provided on the operation of other non-PSO services. Finally, there are a number of other minor PSO providers which are not included in the assessment here. While representing a small element of the PSO programme it will be important to track performance in this area over time.

In terms of next steps, consideration could be given as to how best to evaluate the programme in the future and on an on-going basis. This could include more detailed analysis of public transport operations by location, route and/or region. Existing evaluation frameworks such as the Value for Money Review initiative and Focused Policy Assessments¹⁶ could provide a framework through which issues around programme efficiency and effectiveness could be considered in more depth. A more specific analysis with in-depth detail could be considered as part of a future Spending Review. This could, for instance, focus on the PSO services of a specific operator.

Finally, the use and publication of key performance indicators for the programme could also be considered in more detail. While the NTA publishes quarterly performance reports to monitor the service levels and general operational performance of the operators, there may be scope for a wider range of KPIs relating to efficiency and effectiveness. It is of note that other jurisdictions such as the UK do regularly publish indicators such as subsidy per passenger journey or subsidy per kilometre¹⁷. As previously highlighted, measures such as these, while not perfect or definitive, can provide a high level insight into cost developments and efficiency. Consideration could be given as to whether this would be appropriate in an Irish context given the structure and operation of public transport services in Ireland.

7. Conclusions

In conclusion, this paper has made the following findings:

- Total programme expenditure has increased from €221 million in 2015 to an allocation of €279 million in 2017, a 26% rise.
- Total passenger numbers on the main PSO services have increased by 13% between 2013 and 2016 to a total of 200 million; 14% lower than the previous peak in 2007.
- Total revenue for the main PSO services in 2016 was 12% higher than 2013 and only marginally lower (3%) than the previous 2008 levels. The renewed growth was led by increased fare revenue as a result of higher passenger numbers and an increased fare revenue per passenger.

¹⁶ Public Spending Code, Department of Public Expenditure and Reform.

¹⁷ Department for Transport (UK). <https://www.gov.uk/government/publications/bus-subsidy-per-passenger-journey> and <https://www.gov.uk/government/publications/rail-subsidy-per-passenger-mile>

- Total operating costs have reduced across the operators between 2008 and 2016 but are above 2006 levels. The decrease has largely been driven by reductions in payroll expenditure and materials/service costs while, in contrast, fuel costs have largely increased. However, a number of drivers of costs are outside the direct control of the operators (e.g. fuel costs influenced by international prices).
- Across the operators we can observe that PSO funding per passenger journey has reduced in recent years indicating that more passenger journeys are occurring for each euro of subsidy.
- In recent years, compared to 2012, the operating cost per passenger has decreased at both Iarnród Éireann and Dublin Bus while there has been an increase at Bus Éireann.
- Comparing PSO operations is difficult given the different types of services that are provided in terms of routes, distances and level of service. At a basic level, Iarnród Éireann can be seen to have a higher relative operating cost per passenger but when analysed in terms of service distance and capacity (operating cost per seat km) the rail operator can be seen to be at a more similar level to the bus operators. However, this doesn't take into account a variety of factors including capital costs, a significant factor in the case of rail, and the disaggregation of PSO services (e.g. by route/type).

In terms of next steps and areas for consideration the following are of note:

- In terms of central budgetary expenditure policy, future decisions related to the size of the PSO allocation should be closely linked to the actual output delivered for the funding and should take into consideration developments in a range of relevant factors including passenger numbers and fare revenue.
- There are a number of areas for future consideration which could help to inform policy development and expenditure management including the use of key performance indicators related to efficiency/effectiveness and further analysis of PSO services at a more disaggregated level.

Quality Assurance Process

In completing this paper the author consulted with the Spending Review Working Group in the Department of Public Expenditure and Reform and officials from both the Department of Transport, Tourism and Sport and the National Transport Authority.