



Irish Government Economic and Evaluation Service

Primary and Post-Primary Education: 2015 - 2030

## Projected Expenditure Implications of Demographic Change

The analysis contained within this paper was carried out by members of the Irish Government Economic and Evaluation Service (IGEES). Those views contained within do not necessarily represent those of the Department, the Minister for Public Expenditure and Reform or the Government.

## **Education Demographics and Expenditure Pressures**

Ireland is experiencing substantial demographic growth. Pupil numbers at primary and post-primary level have increased by over 60,000 in the last 5 years. During this period a range of budgetary measures were implemented that impacted on the teacher allocations for schools. This was done in order to manage within tight budgetary constraints and to help offset the additional costs arising from increased demographics. The net effect is that the overall number of teachers now is broadly similar to what it was 4 years ago, notwithstanding the increased demographics. Had these budget measures not been introduced, the total number of teachers would be approximately 4,000 to 4,500 posts higher than current levels.

The budgetary framework out to 2014 takes into account demographic pressures in primary and post-primary schools. The post-2014 prospect now needs to be considered. Census 2011 provided a substantial basis for assessing future demographic trends with regard to school enrolment from 2015 onwards. The Department of Education & Skills has developed a number of scenarios based on the Census and this paper considers the budgetary implications of three scenarios within a 'no policy change' context. Three of these scenarios have been explored by the Department of Public Expenditure & Reform in conjunction with the Department of Education & Skills to assess the general scale of the expenditure implications of educational demographics.

The scenario considered most likely by the Department of Education & Skills, based on neutral migration and gradually declining fertility, projects an additional 15,000 pupils approximately in primary/post primary schools in 2015 compared to the previous year. Assuming no policy changes on teacher allocation arrangements and school funding, this scenario implies an additional €68m of expenditure in 2015 compared to 2014, gradually rising to a peak of an additional €378m nine years later in 2024, when the projection is for a total of approximately 979,000 pupils in schools, compared to 889,000 in 2014.

Two other scenarios, considered less likely, nonetheless also project substantial additional funding in 2015 (€71m or €63m) and funding peaks of €555m or €193m.

**Table 1: Expenditure Pressures Resulting from Demographics: 2015-2030**

<b>Scenario</b>	<b>Description</b>	<b>2015 additional annualised costs</b>	<b>Peak year additional annualised costs</b>
<b>Scenario One</b>	Neutral migration and a gradual decline in fertility over time	<b>€68m</b>	<b>€378m (in 2024)</b>
<b>Scenario Two</b>	A return to significant net inward migration by 2016 and a continuance of the currently high fertility rate	<b>€71m</b>	<b>€555m (in 2026)</b>
<b>Scenario Three</b>	Net outward migration and EU average fertility	<b>€63m</b>	<b>€193m (in 2020)</b>

## **1. Background**

In July 2012 the Department of Education & Skills produced demographic projections for primary and post-primary school students out to 2030<sup>1</sup>. These updated projections incorporated the population data from Census 2011.

From 2012 to 2014 the projections are reasonably robust as the school entry cohort has already been born. From 2015 the demographic projections diverge into nine scenarios based on different combinations of fertility and migration. Three of these scenarios have been explored by the Department of Public Expenditure & Reform in conjunction with the Department of Education & Skills to assess the expenditure implications.

The main cost drivers in primary and post-primary education are the number of pupils and the associated cost of teachers and school capitation grants and these drivers form the basis of the projections in this paper. It should be noted, however, that school expenditure programmes also include other elements such as administrative supports, Special Needs Assistant provision and the capital costs of school provision, all of which would be impacted by increases in pupil numbers.

<sup>1</sup>Department of Education & Skills, *Projections of Full Time Enrolment, Primary and Second Level, 2012–2030*, <http://www.education.gov.ie/en/Publications/Statistics/Statistical-Reports/Other-Statistical-Reports.html>

## 2. Purpose of this exercise

Because of its intrinsic demographic component, it is possible to project and analyse likely school expenditure into the medium term. In this exercise, the analysis goes up to 2030. It is considered valuable to highlight the expenditure implications of demographic trends for primary and post-primary education in the period out to 2030. The projections in this exercise are intended to inform and stimulate policy debate and analysis in a context of severely constrained resources generally.

## 3. Potential Scenarios

The Department of Education & Skills analysed a wide range of potential scenarios on the basis of the data arising from the 2011 Census. For the purposes of this exercise, three scenarios were selected:

- **Scenario One**, believed to be the most likely by the Department of Education and Skills, is based on neutral migration and a gradual decline in fertility over time;
- **Scenario Two** envisages a return to significant net inward migration by 2016 and a continuance of the currently high fertility rate; and
- **Scenario Three** projects net outward migration and EU average fertility.

## 4. Methodology and Costs Incorporated into Projections

Using the projected student numbers in each scenario, it is possible to project an indicative estimate of the likely expenditure implications, assuming that current policy on teacher allocations and school grants remain unchanged. The two main drivers of school costs are teacher numbers and general school capitation grants. Additional student numbers impact on both in a reasonably defined manner. Firstly, the school capitation grants are allocated on a per pupil basis. The figures used for capitation grants are based on the rates of payment in 2015, on the basis of current Government policy, including decisions on rates of capitation payments announced in Budget 2012. Currently, the 2015 projection for each pupil is €328 at primary and €497 at post-primary level.

Secondly, the Pupil Teacher Ratio (PTR – number of pupils as a ratio of total number of teachers) reflects the number of teachers required for a given number of pupils, allowing for classroom and non classroom teachers (non classroom teachers include additional teaching support provided for pupils with special needs, administrative principals etc.). For the years 2015 and 2016, it has been assumed, based on current average teacher costs, that the average cost to the Exchequer (including employer's PRSI, supervision and substitution

allowance costs, etc) of a teacher in primary school is €63,289 and of a teacher in a post-primary school is €65,860. It is also assumed that, from 2017 to 2030, the revised salary terms for teachers will be reflected in the cost of any new recruits. For analysis purposes, it has therefore been assumed that the average cost of a teacher appointed in the years 2017-2030 will be €54,616 for primary and €53,722 for post primary. While this will tend to somewhat overstate the costs in the earlier part of the period, it will tend to understate the costs towards 2030.

The projections are intended to show the potential extra costs after 2014 and which are additional to the level expected and provided for in 2014.

## **5. Other Costs Not Incorporated in Projections**

The expenditure implications in primary and post-primary education of upward demographic pressures are most readily identifiable with regard to the number of teachers and the school capitation grants. However, the pressure on other expenditure items also needs to be noted and factored into ongoing consideration of education expenditure.

Firstly, demographic pressures will create pressure on school accommodation and consequent pressure for capital investment. Much will depend in this regard on the location and distribution of the additional pupil numbers. To the extent that the increasing number of pupils could not be accommodated within existing schools, there would be pressure to provide new schools or extensions at both primary and post-primary levels. The Department of Education & Skills estimates that the construction cost of a new 16 classroom primary school is €5m. Similarly the estimated average construction cost of a 1,000 pupil post primary school is approximately €12m. These estimates do not include site acquisition costs. The Infrastructure and Capital Investment Framework 2011-16 includes provision for capital investment in schools up to 2016.

Secondly, the upward trend in pupil numbers will also put pressure on administrative costs and on Special Needs Assistants expenditure. At present, for example, SNAs are assigned on the basis of individual pupil assessment within an overall ceiling of 10,575 SNAs. Any upward move in pupil numbers, particularly in primary schools, will need careful management within the context of pupil needs and resource allocations.

## 6. Results

Each of the three scenarios examined has two peak years in the number of students, earlier for primary and later for post-primary schools, showing the transition of the current demographic bulge through the education system. Taking primary and post-primary school projections together gives a combined peak which represents the year with the overall largest school population, and associated costs. As can be seen in the table below, the additional expenditure, compared to 2014, is considerable across all scenarios. This effectively represents a no-policy change background against which future spending should be appraised.

**Table 2: Additional Pupils, Teachers and Expenditure at Combined Peak Compared to 2014**

<b>Scenario (Peak Expenditure Year)</b>	<b>Total Extra Pupils</b>	<b>Total Extra Teachers 2011/12 PTR</b>	<b>Total Additional Annualised Expenditure</b>
Scenario One (Year 2024)	90,810	6,257	€378m
Scenario Two (Year 2026)	133,189	9,179	€555m
<i>Scenario Three (Year 2020)</i>	48,968	3,210	€193m

## SUMMARY RESULTS

### SCENARIO ONE: Neutral Migration; Gradual Decline in Fertility\*

Based on 2011/12 PTR

Year	Primary Extra Pupils	Post- Primary Extra Pupils	Primary Extra Teachers	Post- Primary Extra Teachers	Annualised Additional Expenditure (million)
2015	12,057	3,165	744	228	€67.6
2016	22,711	6,711	1,402	483	€131.3
2017	35,387	9,734	2,184	700	€173.4
2018	44,318	14,182	2,736	1,020	€225.8
2019	48,873	20,779	3,017	1,495	€271.4
<b>Primary Peak 2020</b>	<b>52,863</b>	<b>25,854</b>	<b>3,263</b>	<b>1,860</b>	<b>€308.3</b>
2021	50,097	35,179	3,092	2,531	€338.7
2022	43,735	45,886	2,700	3,301	€361.9
2023	36,265	55,802	2,239	4,015	€377.6
<b>Combined Peak 2024</b>	<b>27,056</b>	<b>63,754</b>	<b>1,670</b>	<b>4,587</b>	<b>€378.2</b>
<b>2025</b>	16,350	70,039	1,009	5,039	€366
<b>Post- Primary Peak 2026</b>	<b>5,197</b>	<b>73,436</b>	<b>321</b>	<b>5,283</b>	<b>€339.5</b>
2027	-6,366	72,306	-393	5,202	€291.8
2028	-17,985	69,006	-1,110	4,964	€234.5
2029	-29,303	64,598	-1,809	4,647	€173.4
2030	-39,964	58,806	-2,467	4,231	€108.7

\*The metrics shown for each year are in comparison to the 2014 Base Year

## SCENARIO TWO: Significant Net Inward Migration by 2016; Continuing High Fertility\*

Based on 2011/12 PTR

Year	Primary Extra Pupils	Post- Primary Extra Pupils	Primary Extra Teachers	Post- Primary Extra Teachers	Annualised Additional Expenditure (million)
2015	11,619	4,248	717	306	€71.4
2016	22,632	8,915	1,397	641	€142.5
2017	36,692	13,006	2,265	936	€192.5
2018	47,746	18,668	2,947	1,343	€258.1
2019	55,089	26,527	3,401	1,908	€319.5
2020	62,460	32,933	3,856	2,369	€374.7
<b>Primary Peak 2021</b>	<b>63,588</b>	<b>43,796</b>	<b>3,925</b>	<b>3,151</b>	<b>€426.3</b>
2022	61,556	56,097	3,800	4,036	€472.4
2023	58,700	67,743	3,623	4,874	€512.6
2024	54,098	77,875	3,339	5,603	€539.8
2025	47,238	87,040	2,916	6,262	€554.4
<b>Combined Peak 2026</b>	<b>39,452</b>	<b>93,737</b>	<b>2,435</b>	<b>6,744</b>	<b>€554.8</b>
2027	30,841	96,250	1,904	6,924	€533.9
<b>Post- Primary Peak 2028</b>	<b>21,834</b>	<b>96,773</b>	<b>1,348</b>	<b>6,962</b>	<b>€502.9</b>
2029	12,872	96,128	795	6,916	€466.9
2030	4,395	93,708	271	6,742	€425

\*The metrics shown for each year are in comparison to the 2014 Base Year

## SCENARIO THREE: Net Outward Migration; EU average Fertility\*

Based on 2011/12 PTR

Year	Primary Extra Pupils	Post- Primary Extra Pupils	Primary Extra Teachers	Post- Primary Extra Teachers	Annualised Additional Expenditure (million)
2015	10,708	3,350	661	241	€62.9
2016	19,457	6,489	1,201	467	€116.4
2017	29,011	8,421	1,791	606	€144.1
<b>Primary Peak 2018</b>	<b>33,728</b>	<b>11,222</b>	<b>2,082</b>	<b>807</b>	<b>€173.7</b>
2019	32,976	15,673	2,036	1,128	€190.4
<b>Combined Peak 2020</b>	<b>30,608</b>	<b>18,360</b>	<b>1,889</b>	<b>1,321</b>	<b>€193.3</b>
2021	20,482	25,412	1,264	1,828	€186.6
2022	5,814	34,034	359	2,448	€170
2023	-11,029	42,198	-681	3,036	€143.3
2024	-30,377	48,480	-1,875	3,488	€99.1
2025	-50,670	52,454	-3,128	3,774	€41.4
<b>Post- Primary Peak 2026</b>	<b>-69,463</b>	<b>52,454</b>	<b>-4,288</b>	<b>3,774</b>	<b>-€28.2</b>
2027	-86,769	46,886	-5,356	3,373	-€116.5
2028	-102,312	38,110	-6,316	2,742	-€212.3
2029	-115,816	27,247	-7,149	1,960	-€309.6
2030	-127,020	14,433	-7,841	1,038	-€406.9

\*The metrics shown for each year are in comparison to the 2014 Base Year

## Assumptions

	Primary Schools	Post-Primary Schools
Teacher Unit Cost 2011 - 2016 <sup>2</sup>	€63,289	€65,860
New Entrant Teacher Unit Cost 2017 - 2030 <sup>3</sup>	€54,616	€53,722
Grants per Pupil <sup>4</sup>	€328	€497
<i>PTR</i> <sup>5</sup>	16.2:1	13.9:1

## Base Year: 2014

	Primary Schools	Post-Primary Schools (excluding PLC numbers)
Pupil Numbers	548,939	339,682
<i>Number of Teachers</i>	33,620 <sup>6</sup>	24,484 <sup>7</sup>

**Note:** All pupil number projections used in the three scenario tables have been sourced from the Department of Education & Skills publication “**Projections of Full Time Enrolment - Primary and Second Level, 2012 – 2030**”

This document is available on their website at the following link:  
<http://www.education.ie/en/Publications/Statistics/Projections-of-full-time-enrolment-Primary-and-Second-Level-2012-2030.pdf>

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<sup>2</sup> Department of Education & Skills figures for approximate teacher unit cost.

<sup>3</sup> Department of Education & Skills figures for approximate teacher unit cost.

<sup>4</sup> Figure provided by Department of Education & Skills, Estimated 2015 level of grant payments (after Budget 2012 changes out to 2015 have been implemented). Primary grants include basic and ancillary grant, plus standard book grant, while post primary grants are an average level of grant across the different school types and include basic grant and school services support fund grants. Does not include certain non-universal grants.

<sup>5</sup> Pupil Teacher Ratio for 2011/12 school year as published in Department of Education & Skills, Key Statistics 2011/2012, September 2012

<sup>6</sup> Department of Education & Skills numbers projection for end 2014

<sup>7</sup> Department of Education & Skills numbers projection for end 2014