

Staff Paper 2015

Primary and Second Level Education: 2016-2033

Expenditure Implications of Demographic Change

Labour Market & Enterprise Policy Division

Christopher Ryan
December 2015

** This paper has been prepared by the Labour Market and Enterprise Policy Division of the Department of Public Expenditure & Reform. The views presented in this paper are those of the author alone and do not represent the official views of the Department of Public Expenditure and Reform or the Minister for Public Expenditure and Reform. The paper was prepared in the context of an on-going budget negotiation process and reflects the data available to the author at a given point in time.*

Abstract

In the context of multi-annual budgeting and the EU Fiscal Rules, an accurate estimate of future expenditure pressures is vital to inform the allocative decisions of Government. Over recent years pupil number increases - along with enhanced special needs provision and cyclical economic factors - is one of the three core drivers of expenditure in the Education Vote (Gross Voted Current Expenditure €8.48 billion)¹.

Using different combinations of fertility and migration the [“Projections of Full-Time Enrolment: Primary and Second Level, 2015 – 2033”](#)², provides six scenarios for demographic change in the school system. Three of these scenarios have been examined by the Department of Public Expenditure and Reform, in conjunction with the Department of Education and Skills, to assess the expenditure implications of educational demographics.

The scenario considered most likely by the Department of Education and Skills (M2F1: medium migration and gradually declining fertility), projects an additional 13,751 pupils in primary and post primary schools in 2016 (2016/17 academic year) compared to 2015. Assuming no policy changes on teacher staffing schedules and school funding, this implies additional expenditure of €57.8m in 2016 compared to 2015. Under this scenario combined pupil numbers peak in 2021 with an extra 42,253 compared to 2015. With the academic year commencing in September, the associated peak in funding is forecast for the following year: an additional €225 million expenditure in 2022 compared to 2015³. A high and low scenario have 2016 funding requirements €62m and €58m respectively, with funding peaks of €266m and €204m. Importantly, all three scenarios suggest large reductions in pupil numbers and expenditure from 2021/22/23 out to 2033.

¹ Revised Estimates for Public Services 2016

² Department of Education and Skills, June 2015

³ 2016 funding requirement excludes Budget 2016 staffing schedule changes. These are incorporated into subsequent years and are reflected in the peak funding requirements in all 3 scenarios

Summary of key findings

	2016	2017	2018	Cumulative Expenditure Increase 2015 – Peak Expenditure (Year)	Cumulative Expenditure Decrease Peak Expenditure Year – 2033
Scenario One	€62.0m	€56.7m	€45.6m	€266.2m (2023)	-€493.7m
Scenario Two	€57.8m	€51.3m	€40.7m	€226.6m (2022)	-€498.4m
Scenario Three	€57.8m	€50.9m	€38.7m	€203.8m (2021)	-€620.1m

Scenario One:
High Enrolment
(M1F1)

- Net migration will return to positive by 2015 and rise steadily thereafter to return to levels similar to those seen in the early 2000's.
- Total Period Fertility Rate will gradually decline in the coming years, reaching a level of 1.8 by 2025 and remain constant thereafter.

Scenario Two:
Medium Enrolment
(M2F1)

- Scenario considered most likely by DES
- Net migration will return to zero by 2017, and begin rising to slightly positive inward migration again from 2019 onwards.
- Total Period Fertility Rate will gradually decline in the coming years, reaching a level of 1.8 by 2025 and remain constant thereafter.

Scenario Three:
Low Enrolment
(M3F2)

- Net migration will remain neutral for the whole period of the projections.
- Total Period Fertility Rate will decline to 1.65 over by 2025 and remain at that rate thereafter.

1. Introduction

In July 2015 the Department of Education and Skills produced a set of updated projections of full-time enrolment in first and second level schools to 2033. Because of its intrinsic demographic component it is possible to use these to project school expenditure into the medium term.

Previous pupil projections, published in July 2012, were converted into expenditure estimates in a joint Department of Public Expenditure and Reform – Department of Education and Skills paper on the “Demographic Projections and Implications for Education Expenditure, 2015-2030” published in the Budget 2013 Expenditure Report. This analysis formed the basis for agreed additional teacher and capitation funding requirements for 2014/15 and 2015/16 in Budget 2014 and Budget 2015.

The purpose of the current paper is threefold:

- to update the analysis for the Budget Years 2016-2018;
- to examine the additional expenditure requirement at combined peak enrolment;
- to investigate the potential reduction in expenditure that may occur post peak

It is intended that these projections will inform policy debate and analysis in the context of constrained resources.

2. Department of Education and Skills Pupil Projections

In the Medium Scenario considered most likely by the Department of Education and Skills, primary enrolments are projected to increase to 574,469 by 2018 (an additional 19,335 pupils⁴). From 2019 to 2033 pupil numbers in the primary school system are set to continually decline by 147,000 in total or an average of nearly 10,000 per annum.

Second level enrolments are also projected to rise by approximately 13,853 by 2018 and will continue to rise until 2025, at which point enrolments at second level are expected to be in excess of 400,000 pupils for the first time in the history of the State. From 2025, a reduction in enrolments of 65,396 is projected to 2033, an average of over 8,000 per annum.

⁴ As the September 2015/16 intake has already been provided for this analysis examines the 2016/17-2018/19 school years.

In total therefore, for the years 2016-2018⁵, an additional 33,188 pupils are expected to enter the system across first and second level education, and further increases of just over 9,000 are expected in the period 2019 to 2021. From combined peak enrolment in 2021, pupil numbers are set to enter a period of cyclical decline - reducing by 168,693 to 2033.

2.1 Potential Scenarios

The Department of Education and Skills has produced 6 different scenarios, reflecting different combinations of the fertility and migration assumptions. For the purposes of this exercise, three scenarios were selected representing high, medium, and low enrolment:

**Scenario One:
High Enrolment
(M1F1)**

- Net migration will return to positive by 2015 and rise steadily thereafter to return to levels similar to those seen in the early 2000's.

- Total Period Fertility Rate will gradually decline in the coming years, reaching a level of 1.8 by 2025 and remain constant thereafter.

**Scenario Two:
Medium Enrolment
(M2F1)**

- Scenario considered most likely by DES
- Net migration will return to zero by 2017, and begin rising to slightly positive inward migration again from 2019 onwards.

- Total Period Fertility Rate will gradually decline in the coming years, reaching a level of 1.8 by 2025 and remain constant thereafter.

**Scenario Three:
Low Enrolment
(M3F2)**

- Net migration will remain neutral for the whole period of the projections.
- Total Period Fertility Rate will decline to 1.65 over by 2025 and remain at that rate thereafter.

⁵ 2016/17-2018/19 school years.

3. Methodology

The key drivers of current school costs are teacher numbers and school capitation grants⁶. Additional student numbers impact on both in a reasonably defined manner. Using the projected student numbers in each scenario, it is possible to estimate the likely expenditure implications, assuming that current policy on pupil-teacher ratios and school grants remain unchanged.

Firstly, the school capitation grant is distributed on a per pupil basis, in 2016 the grant per pupil including the standard book grant will be €334 for primary and €526 for second level. This is assumed to hold constant for the duration of the projections.

Secondly, the Pupil Teacher Ratio (PTR) is a calculation based on the overall number of teachers and the total number of pupils, including classroom and non-classroom teachers (learning support teachers, administrative principals etc.). In addition to learning support teachers who are allocated to schools on a general basis to provide extra assistance for pupils including those with learning support needs and with high incidence (less complex) special educational needs, schools can also receive extra resource teaching hours to assist pupils with low incidence (more complex) special educational needs. These resource teachers are allocated separately by the National Council for Special Education (NCSE) on the basis of individual applications from schools. Since the number of these Resource Teachers is increasing at a rate higher than demographics and separate Government decisions exist around the provision of additional resources for special needs, this work excludes resource teachers. The standard PTR is recalculated without resource teachers and then fixed for the duration of the projections.

For the years 2015 to 2021, it is assumed that the average cost to the Exchequer (including employer's PRSI, supervision and substitution allowance costs etc.) of a teacher in primary school is €59,740 and of a teacher in a post-primary school is €63,334. This is reflective of the number of existing teachers with service prior to the introduction of the new salary scales in 2011. From 2022, it is assumed that

⁶ Other significant drivers of current school costs are numbers of Resource Teachers and Special Needs Assistants. As explained later in this paper however growth in numbers of these posts is impacted by factors additional to demographic changes.

new entrant teachers will be appointed at an average cost of €48,736 for primary and €49,314 for second level⁷.

4. Results

Each of the three scenarios examined has two peaks in the number of students, earlier for primary and later for second level schools, showing the transition of the current demographic bulge through the education system. Taking primary and second level school projections together gives a combined peak which represents the year with the largest overall school participation, and associated costs.

As can be seen in the table below, the additional expenditure, compared to 2015, is considerable across all scenarios. This effectively represents a no-policy change background against which future spending should be appraised.

Of significance is the immediate yet temporary nature of the increases, particularly in the primary school system. With pupil enrolment forecast to peak in 2018, the implications of declining pupil numbers on teacher numbers need to be analysed in greater depth. For example, does the current age structure of primary teachers lend itself to a natural decline in numbers or could the transfer of teachers between primary and second level be facilitated in line with the demographic trends?

Table 1: Projected Expenditure Increases and Decreases

	2016	2017	2018	Cumulative Expenditure Increase 2015 – Peak Expenditure (Year)	Cumulative Expenditure Decrease Peak Expenditure Year – 2033
Scenario One	€62.0m	€56.7m	€45.6m	€266.2m (2023)	-€493.7m
Scenario Two	€57.8m	€51.3m	€40.7m	€226.6m (2022)	-€498.4m
Scenario Three	€57.8m	€50.9m	€38.7m	€203.8m (2021)	-€620.1m

⁷ If the Lansdowne Road Agreement is accepted by the Teaching Unions these figures will be revised. See footnote 8.

5. Other Costs Not Incorporated

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 on the location and distribution of the additional pupil numbers. It is worth noting here that demographic increases are likely to occur in cities and commuter belts while more rural areas may experience continuing population decline. This potentially imposes a dual cost: maintaining a dense network of small schools that are experiencing declining enrolment; providing new schools or extensions in largely urban and commuting areas to cater for the projected expansion in pupil numbers. In addition, even in the “post peak” period of projected declining enrolments nationally, there may be specific areas where populations will increase, requiring additional capital investment.

To give an idea of the cost of new school provision, the Department of Education and Skills estimates that the construction cost of a new 16 classroom primary school with a special needs unit is €5m. Similarly the estimated average construction cost of a 1,000 pupils post primary school including a special needs unit is approximately €17m. These estimates do not include site acquisition costs.

The upward trend in pupil numbers also puts pressure on administrative and Special Needs Assistants expenditure. At the moment, special needs assistants are assigned on the basis of individual pupil assessment within an overall ceiling for 2015 of 11,940 SNAs. Any upward move in pupil numbers, particularly in primary schools, will need careful management within the context of pupil needs and resource allocations. Additionally, as explained above, the expenditure projections in this paper do not include the costs of extra Resource Teachers allocated by the NCSE.

6. Summary Results

Table 2: Scenario ONE: High Enrolment

Budget Year	Primary Extra Pupils	Second Level Extra Pupils	Primary Extra Teachers	Second Level Extra Teachers	Additional Expenditure €m
2016	9,326	5,933	515	381	€62
2017	7,385	4,878	407	314	€56.7
2018	5,609	4,068	309	262	€45.6
2019 Peak: Primary Pupils	45	7,106	2	457	€36.8
2020	-4,734	9,373	-261	603	€30.2
2021	-8,215	9,926	-453	638	€22.1
2022	-9,996	9,033	-552	581	€11.2
2023 Peak: Expenditure	-13,985	11,383	-772	732	€1.7
2024	-14,986	9,261	-827	595	-€4.2
2025 Peak: Second Level Pupils	-14,179	3,213	-782	207	-€18
2026	-13,275	-1,911	-732	-123	-€36.5
2027	-12,799	-4,816	-706	-310	-€50.2
2028	-12,149	-7,389	-670	-475	-€58.8
2029	-11,188	-10,210	-617	-656	-€66.3
2030	-9,978	-10,804	-551	-695	-€70.7
2031	-8,367	-10,305	-462	-663	-€67.5
2032	-8,217	-9,867	-453	-634	-€62.3
2033	-6,444	-9,961	-356	-640	-€59.3

Table 3: SCENARIO TWO: Medium Enrolment (Most Likely)

Budget Year	Primary Extra Pupils	Second Level Extra Pupils	Primary Extra Teachers	Second Level Extra Teachers	Additional Expenditure €m
2016	7,959	5,792	439	372	€57.8
2017	6,469	4,526	357	291	€51.3
2018 Peak: Primary Pupils	4,907	3,535	271	227	€40.7
2019	-458	6,397	-25	411	€31.8
2020	-5,516	8,493	-304	546	€24.5
2021	-8,710	8,859	-481	570	€15.3
2022 Peak: Expenditure	-10,208	7,897	-563	508	€5.1
2023	-14,063	10,358	-776	666	-€2.9
2024	-15,012	8,413	-828	541	-€7.9
2025 Peak: Second Level Pupils	-14,130	2,514	-780	162	-€20.9
2026	-13,156	-2,438	-726	-157	-€38.6
2027	-12,614	-5,136	-696	-330	-€51.4
2028	-11,969	-7,488	-660	-481	-€59.2
2029	-11,022	-10,201	-608	-656	-€66.0
2030	-9,829	-10,708	-542	-688	-€70.1
2031	-8,237	-10,195	-454	-656	-€66.7
2032	-6,903	-9,668	-381	-622	-€60.2
2033	-5,336	-9,562	-294	-615	-€54.5

Table 4: SCENARIO THREE: Low Enrolment

Budget Year	Primary Extra Pupils	Second Level Extra Pupils	Primary Extra Teachers	Second Level Extra Teachers	Additional Expenditure €m
2016	7,958	5,792	439	372	€57.8
2017	5,983	4,526	330	291	€50.9
2018 Peak: Primary Pupils	3,978	3,468	219	223	€38.7
2019	-1,721	6,189	-95	398	€27.9
2020	-6,736	8,079	-372	519	€19.3
2021 Peak: Expenditure	-10,078	8,243	-556	530	€9.3
2022	-11,760	7,084	-649	455	-€1.9
2023	-15,790	9,379	-871	603	-€10.3
2024	-16,905	7,338	-933	472	-€16.4
2025 Peak: Second Level Pupils	-16,252	1,486	-897	96	-€30.4
2026	-15,574	-3,304	-859	-212	-€48.9
2027	-15,400	-5,766	-850	-371	-€62.3
2028	-14,939	-8,071	-824	-519	-€70.5
2029	-13,989	-10,938	-772	-703	-€77.9
2030	-12,767	-11,694	-704	-752	-€82.8
2031	-11,014	-11,412	-608	-734	-€80.1
2032	-8,348	-11,254	-461	-724	-€73.0
2033	-6,628	-11,315	-366	-728	-€65.6

Assumptions

	Primary	Second Level (excluding PLC)
Unit Cost Per Teacher 2015/16-2021/22	€59,740	€63,334
Unit Cost Per Teacher 2022/23-2033/34 ⁸	€48,736	€49,314
Grants per Pupil ⁹	€334	€526
PTR (including Resource Teachers) ¹⁰	16.2	13.9
PTR (excluding Resource Teachers)	18.1	15.6

2014/15	Primary Schools	Second Level Schools
Pupil Numbers ¹¹	544,698	339,210
Number of Teachers ¹²	33,613	24,455
Number of Resource Teachers ¹³	3,558	2,645
Teachers Pay ¹⁴	€2,041,429,000	€1,107,053,000
Grants	€193,128,000	€101,695,000 ¹⁵

Note: All pupil numbers used in the three scenario tables have been sourced from the Department of Education’s publication “**PROJECTIONS OF FULL TIME ENROLMENT Primary and Second Level, 2015 – 2033**” which is available on their website at the following link:

<http://www.education.ie/en/Publications/Statistics/Statistical-Reports/Projections-of-Full-Time-Enrolment-Primary-and-Second-Level-2015-2033.pdf>

⁸ Figure provided by Department of Education and Skills and is based on the 1 November 2013 rate of the incremental salary scale for post-1 January 2011 entrants to teaching. The rate includes credit for previous service in a casual capacity, allowances in respect of academic qualifications, payment in respect of Supervision due to be restored under the terms of the Haddington Road Agreement, related increases in the costs of substitution together with the cost of Employer’s PRSI. If the new salary scales proposed under the Lansdowne Road Agreement are applied this cost is likely to increase.

⁹ Figure provided by Department of Education and Skills. (Primary grant total is composed of €170 capitation, €153 ancillary grant and €11 standard book grant. Post-primary grant is composed of €296 capitation grant, €206 school services support fund and €24 standard book grant)

¹⁰ PTR as published in Department of Education and Skills, Key Statistics 2014/2015, June 2015

¹¹ Department of Education and Skills, Key Statistics 2014/2015, June 2015

¹² Department of Education and Skills, Key Statistics 2014/2015, June 2015

¹³ Numbers provided by Department of Education and Skills.

¹⁴ Revised Estimates for Public Services 2015

¹⁵ Second level grants also paid through non pay allocations for the Education and Training Boards and Comprehensive/Community Schools which are not included in this total.