



PROJECTIONS OF FULL TIME ENROLMENT

Primary and Second Level, 2015 - 2033

July 2015

This report and others in the series may be accessed at:
www.education.ie

For further information please contact:
Gillian Golden at 01 – 889 2260 or by e-mail at
Statistics@education.gov.ie

Table of Contents

<i>Introduction</i>	4
<i>Projected Enrolments for 2015-2017</i>	5
<i>Fertility and Migration Scenarios</i>	6
<i>Primary Level Projections</i>	7
<i>Second Level Projections</i>	10
<i>Review of 2014 Projections</i>	13
<i>Appendix A – Supplementary Tables and Methodological Notes</i>	15

List of Tables

<i>Table (i)</i>	<i>Overview of Enrolment Trends 2014-17</i>	<i>5</i>
<i>Table 1</i>	<i>Projection of Enrolment at Primary Level 2015-2033</i>	<i>7</i>
<i>Table 2</i>	<i>Projection of Enrolment at Second Level 2015-2033</i>	<i>10</i>
<i>Table 3</i>	<i>Comparisons with 2014 projections</i>	<i>13</i>
<i>Table A.1</i>	<i>Projected Births under each Fertility Assumption 2015-2028</i>	<i>16</i>
<i>Table A.2</i>	<i>Projected Migration at Primary Level under each Migration Assumption, 2015-2030</i>	<i>17</i>

List of Graphs

<i>Figure 1</i>	<i>Projection of Enrolment at Primary Level</i>	<i>8</i>
<i>Figure 2</i>	<i>Projection of Enrolment at Second Level</i>	<i>12</i>
<i>Figure A1</i>	<i>Total Period Fertility Rate 1990-2014</i>	<i>15</i>

Overview

This report provides the latest set of projections of full-time enrolment in first and second level schools aided by the Department of Education and Skills. This release updates the previous set of first and second level projections published in July 2014. A separate document on third level projections will also shortly be made available. This document covers all years from 2015 to 2033 for students in first and second level institutions aided by the Department of Education and Skills only.

The three migration assumptions and two fertility assumptions have been updated slightly from last year on the basis of new data which has become available since the previous publication, giving rise to six scenarios in total for which projected enrolments data are presented. The Department has chosen M2F1, a scenario encompassing a medium migration assumption and an assumption of gradually declining fertility, as the most likely scenario going forward.

The projections show a continuing increase in both primary and post primary enrolments into the future, at a slightly increased level than projected previously given updated assumptions.

Primary enrolments, which have already risen substantially in recent years, are projected to rise by an additional 25,000 pupils by 2017, and will continue to rise to a peak of over 574,000 in 2018 before beginning to reduce. This peak figure is reflective of primary enrolment levels last seen in Ireland in the early 1980s, where enrolments rose to a peak of 566,000 pupils in 1985 before beginning to reduce.

Post-primary enrolments are also projected to rise by approximately 15,000 by 2017 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.

In total therefore, for the three years ahead an additional 40,000 pupils are expected to enter the system across first and second level education, and continuing increases are expected up to close to the end of this decade at primary level, and until 2025 at post primary level.

Projected enrolments for 2015-2017

The following table shows the final enrolments at first and second level for 2014, based on the annual returns of primary and post primary schools, and the projected enrolments at first and second level for the following three academic years under scenario M2F1.

It should be noted that each year refers to the beginning of a school-year when enrolment is recorded in September of that year. Hence, the year 2015 refers to enrolment in September 2015 of the school-year 2015/16.

Table (i) Overview of Enrolment Trends 2014-17

Year beginning	First Level	Second Level
2014 (final)	544,696	339,210
2015	555,134	343,972
2016	563,093	349,764
2017	569,562	354,290

As can be seen from the table, a continuing increase in enrolments is expected at both first and second level. At first level, the increases in births in recent years are reflected in the corresponding continuing increase in the levels of enrolment up to 2017, as increasing births in the years up to 2010 continue to be reflected in the primary enrolments data.

At second level there is also a year-on-year increase projected from 2014 to 2017. The second level projection follows directly from the trend seen at primary level in recent years of consistent year-on-year increases in enrolments, as the increased numbers of pupils at primary level in recent years begin to transition to post primary education.

Fertility and Migration Scenarios

The most recent data from the 2014 Annual Returns of primary schools shows that the pattern of net outward migration from primary schools continued during the 2013/2014 academic year, but at a lower level than seen in the 2012/2013 academic year, suggesting that possibly the level of outward migration from the primary system peaked during 2012/2013. In recent years births and the Total Period Fertility rate have decreased significantly below the projected figures in the national projections, with the 2014 TPFRR now standing at 1.95.

Taking the above information into account the migration and fertility assumptions for the 2015 projections have been adjusted slightly as follows.

Migration

For migration at primary level the following set of assumptions were used:

M1: 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

M2: Net migration will return to zero by 2017, and begin rising to slightly positive inward migration again from 2019 onwards.

M3: Net migration will remain neutral for the whole period of the projections.

At post primary level, it is difficult to distinguish the true number of emigrants from the system from the data available, given the higher numbers of departures from the second level system particularly after the ending of compulsory school age. A flow-based approach which includes migration flows is therefore taken at second level, using overall numbers of entrants and leavers from the system at each programme level, retention rates and the "cohort survival" rates from one year to another.

Fertility

Assumptions were also made on the direction of the Total Period Fertility Rate (TPFR), a synthetic indicator of fertility, which shows the average expected number of children a woman would have by the age of 49 based on the current year's information on births and age of mothers. The most recent evidence shows the fertility rate in Ireland fell sharply from the 2010 level of 2.09 to 1.95 in 2014, and has now been below replacement rate for a number of years. The following slight adjustments to 2014 assumptions were made on TPFRR

F1: TPFRR will gradually decline in the coming years, reaching a level of 1.8 by 2025 and remain constant thereafter.

F2: TPFRR will decline to 1.65 over by 2025 and remain at that rate thereafter.

These two sets of assumptions combine to give a total of six scenarios under which enrolments are projected from 2015 to 2033. The Department is currently considering **M2F1** as the most likely scenario over this period.

1 Primary Level Projections

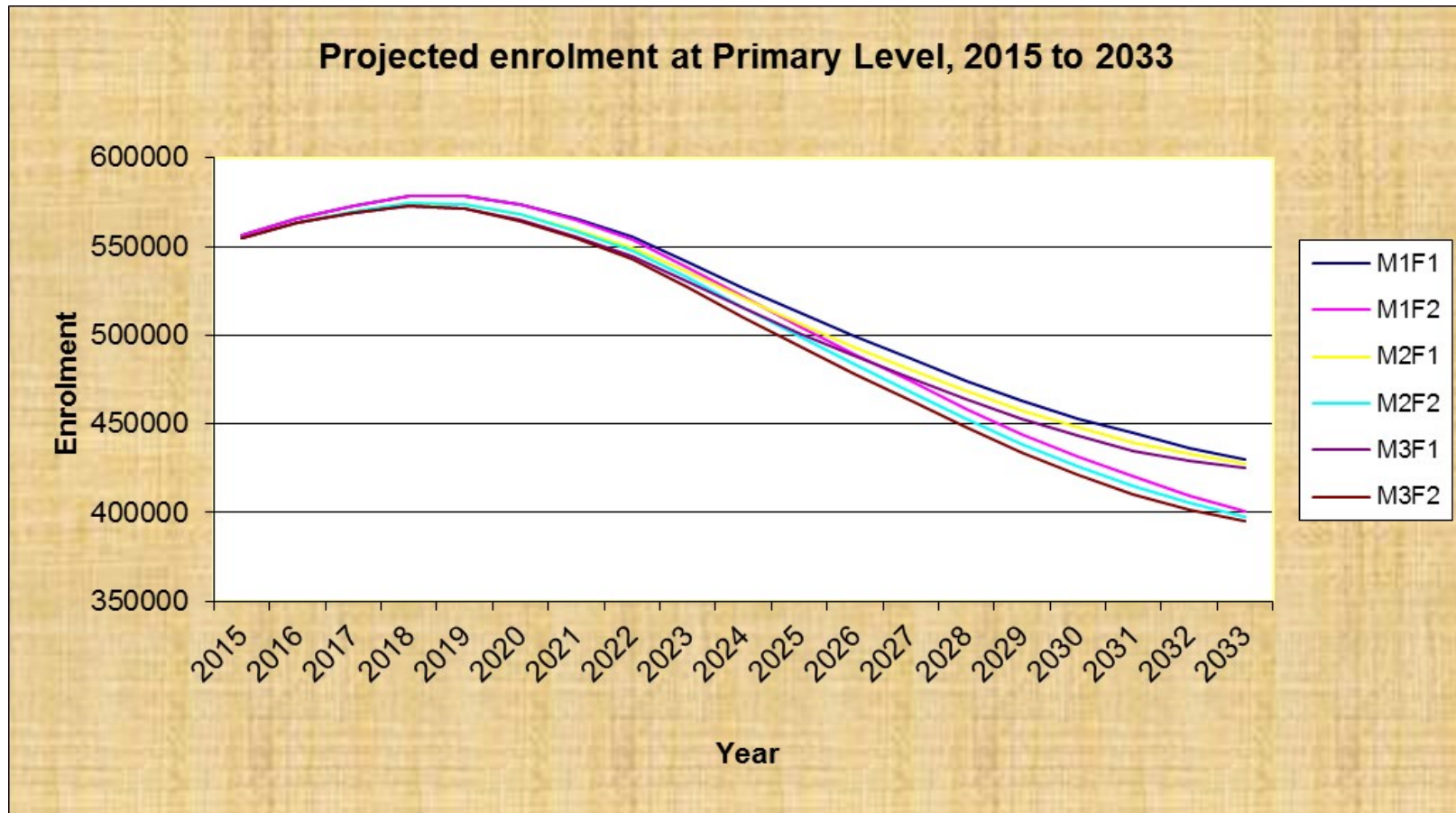
Figure 1 and Table 1 show the levels of enrolment at first level under the various scenarios **M1F1** to **M3F2**, from 2015 to 2033.

Table 1 Projections of Enrolment at Primary Level 2015-2033

	M1F1	M1F2	M2F1	M2F2	M3F1	M3F2
2015	556133	556133	555134	555134	555134	555134
2016	565459	565459	563093	563093	563093	563093
2017	572844	572844	569562	569562	569076	569076
2018	578453	578489	574469	574464	573054	573054
2019	578498	578557	574011	574002	571333	571333
2020	573764	573659	568495	568288	564793	564597
2021	565549	564890	559785	558990	555305	554519
2022	555553	553915	549577	547770	544563	542759
2023	541568	538543	535514	532289	530204	526969
2024	526582	521780	520502	515468	515124	510064
2025	512403	505445	506372	499152	501081	493812
2026	499128	489646	493216	483442	488088	478238
2027	486329	473959	480602	467910	475636	462838
2028	474180	458750	468633	452847	463821	447899
2029	462992	444515	457611	438747	452943	433910
2030	453014	431522	447782	425880	443247	421143
2031	444647	420307	439545	414780	435129	410129
2032	436430	409366	432642	405248	429357	401781
2033	429986	400541	427306	397617	424977	395153

Note: Peak enrolment figures are highlighted in green above.

Figure 1: Projections of Enrolment at Primary Level, 2015 to 2033



KEY POINTS TO NOTE

Primary Level:

- **Focussing on the immediate three year period ahead (2015-2017 inclusive)**, enrolment is projected to increase by just under 25,000 pupils from 2014 levels under scenario M2F1. This reflects a continuing assumed low level of net outward migration of the primary school population over that period. However as the main driver of the increase is the underlying births figures for 2008 onwards, it is highly unlikely that enrolment at primary level will fall before the year 2017 unless significantly increased emigration of families with primary school children occurs before then.
- Currently **M2F1** is considered the most likely scenario. This would suggest an increase in enrolments at primary level to a peak of 574,469 by 2018, and a continuous decline thereafter, to a level of 427,306 by 2033.
- In general there is less variability in the projections of enrolment in the immediate future, given that these children are already born and so the numbers are not subject to differing assumptions on fertility, the variation in the near term is due to differences in migration assumptions only.
- Primary enrolments attempt to take into account migration of pre-school children. Estimation of net migration for pre-school aged children (roughly aged 0-4) can be difficult given the lack of available data. This can cause some volatility year on year as estimates are revised when updated data becomes available.
- In all scenarios considered, continuing enrolment growth up to 2018 is implied, with continued growth until 2019 under 2 scenarios. From 2020, all scenarios show falling enrolment numbers for the remainder of the period shown. This reflects a reduction in births year on year since 2009 and recent reductions in the fertility rate in Ireland. Continuing declines in the numbers of births from 2014 onwards are likely, as there is a natural reduction in the projected numbers of females aged 15-49 from that point onwards, reflecting lower levels of births in Ireland in the 1990s compared to the 1980s.
- There is greater uncertainty about trends beyond 2017 as the cumulative effect of using different migration or fertility assumptions is estimated. Under a low-growth scenario (**M3F2** – neutral net migration for the entire period of the projections combined with a steeper fall in fertility), enrolment could fall to around 395,153 by 2033. Under a high-growth scenario (**M1F1** – a quicker return to higher positive net migration combined with a gradual decrease in fertility from the current rates), enrolment would be at a level of around 429,986 by 2033.

2 Second Level Projections

Second Level comprises all Junior and Leaving Certificate course students in DES-aided schools and colleges. The figures below refer to school based enrolments up to Leaving Certificate and do not include PLC students.

There has been a noticeable increase in retention at second level in recent years, with the most recent report showing a rate of over 90% for the group of students which entered second level education in 2008. The increased rates are reflected as part of the assumptions on flows in and out of the second level system.

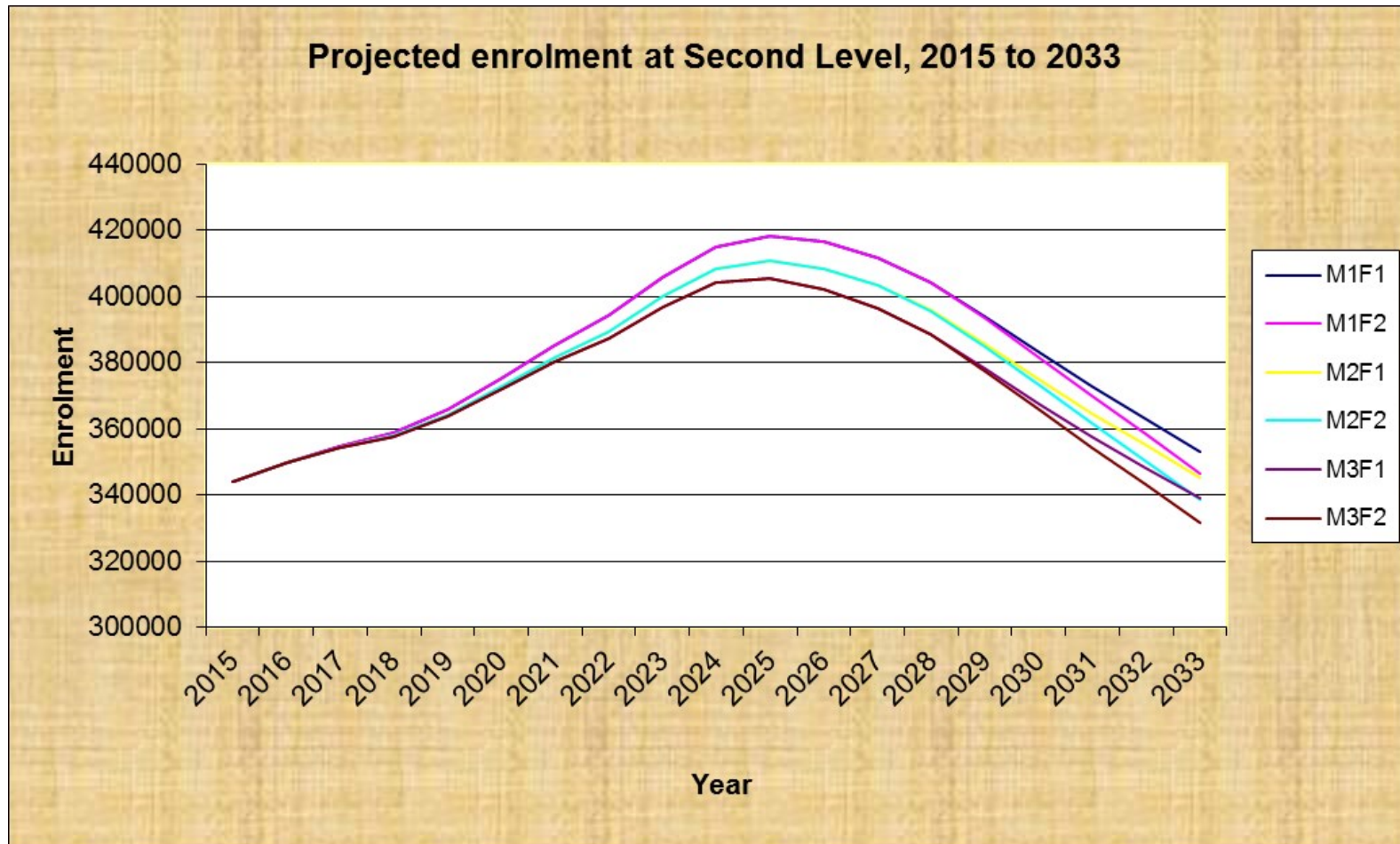
Table 2 presents projected enrolment to the year 2033 at Second Level.

Table 2 **Projections of Enrolment at Second Level 2015-2033**

	M1F1	M1F2	M2F1	M2F2	M3F1	M3F2
2015	343972	343972	343972	343972	343972	343972
2016	349905	349905	349764	349764	349764	349764
2017	354783	354783	354290	354290	354290	354290
2018	358852	358852	357825	357825	357758	357758
2019	365957	365957	364222	364222	363947	363947
2020	375330	375330	372715	372715	372026	372026
2021	385256	385256	381574	381574	380269	380269
2022	394289	394289	389471	389471	387354	387354
2023	405672	405672	399829	399829	396735	396732
2024	414933	414933	408242	408242	404076	404076
2025	418146	418146	410756	410756	405565	405565
2026	416235	416235	408318	408318	402268	402268
2027	411419	411439	403182	403191	396510	396486
2028	404030	404111	395694	395527	388634	388415
2029	393820	393397	385493	384776	378273	377477
2030	383016	381674	374758	373077	367575	365783
2031	372711	370050	364590	361545	357565	354371
2032	362844	358477	354922	350127	348100	343117
2033	352883	346476	345360	338498	338881	331802

Note: Peak enrolment figures are highlighted in green above;

Figure 2: Projections of Enrolment at Second Level



KEY POINTS TO NOTE

Second Level:

- **Focussing on the immediate three year period ahead** – (2015-2017 inclusive) enrolment is projected to increase by over 15,000 by September 2017, compared to September 2014 levels.
- Following directly onwards from the increases in primary level enrolments in recent years, second level enrolments have begun to increase in recent years and further significant increases are likely in the years after 2015. All scenarios considered result in continuing enrolment growth at second level up to the mid 2020's as the increased numbers enrolled in primary level in the recent past and near future begin to transfer to second level education.
- Currently **M2F1** is considered the most likely scenario. This would suggest a year-on-year increase in second level enrolments to a peak of 410,756 over the period considered, occurring in 2025.
- The margin between the highest (**M1F1**) and lowest population-growth scenarios (**M3F2**) is around 12,700 pupils in the peak year (2025). This reflects the cumulative effect of different migration assumptions at the primary level feeding through to the second level numbers. Up to the year 2025, children who will enter the post primary system have already been born, so only the migration assumptions have an effect on the projected enrolments. After the year 2025, the margin between scenarios begins to widen further as assumptions on births also begin to have an effect on the projected figures.
- After 2025, enrolments are projected to begin to decline. Under the preferred M2F1 scenario, enrolments begin to decrease from 2025, to a level of just over 345,000 by 2033.
- Under the lowest-growth scenario (**M3F2** – neutral net migration for the entire period of the projections combined with a steeper fall in fertility), enrolment would be in the region of 332,000 in 2033. Under the highest-growth scenario considered (**M1F1** – a quick return to higher positive net migration combined with a more gradual fall in fertility), enrolment could be at approximately 353,000 by 2033.

Review of 2014 projections

This section presents a short review of last years projections, and outlines the updates to the projected figures that have been made for the 2015 iteration.

The percentage error rate of a prediction can be defined as follows:

$$\frac{|Predicted\ Value - Actual\ Value|}{Actual\ Value} * 100$$

Table 3 shows the actual enrolment for 2014 at primary and second level compared to the projected enrolment for 2014 under the most likely scenario, and gives the percentage error rate for each level.

Table 3 Comparisons with 2014 Projections.

	Most likely scenario	Actual enrolment	Difference	Error Rate
Primary Level	544,762	544,696	66	0.012%
Second Level	338,046	339,210	-1,164	0.34%

There was very little difference at primary level between the projected and actual figure. However information from the Department's new Primary Online Database which went into operation during the 2014/2015 academic year shows that the age breakdown of new Junior Infants differs slightly to the proportions that had been used in past projections, and it was likely also that net inward migration of 0-4 year olds was slightly lower than projected. The model has therefore been updated accordingly.

At second level, there was an under projection of 1,164. The main driver of the difference was a further significant increase in the numbers choosing to do Transition Year, which have been growing in recent years. In 2014/2015 almost 65% of Junior Cycle Year 3 pupils went on to do Transition Year. This higher proportion has been carried through the model, increasing the numbers expected to remain in the system over time.

Over the longer term, the downwards trend in fertility assumptions, the revised age breakdowns for Junior Infant entrants, the increased numbers opting to take Transition Year and, to a lesser extent, the more negative migration assumptions have a slight impact on the projected numbers compared to the 2014 projections. Overall, as per the previous set of projections, enrolments are still expected to peak in 2018 or 2019 for primary level and in 2025 for second level before beginning to reduce, however the peak levels are expected to be slightly higher than previously for primary level (about 800 pupils for M2F1) and moderately higher for second level (about 6000 pupils for M2F1).

Further details on the data underlying the assumptions are available in Appendix A below.

Appendix A

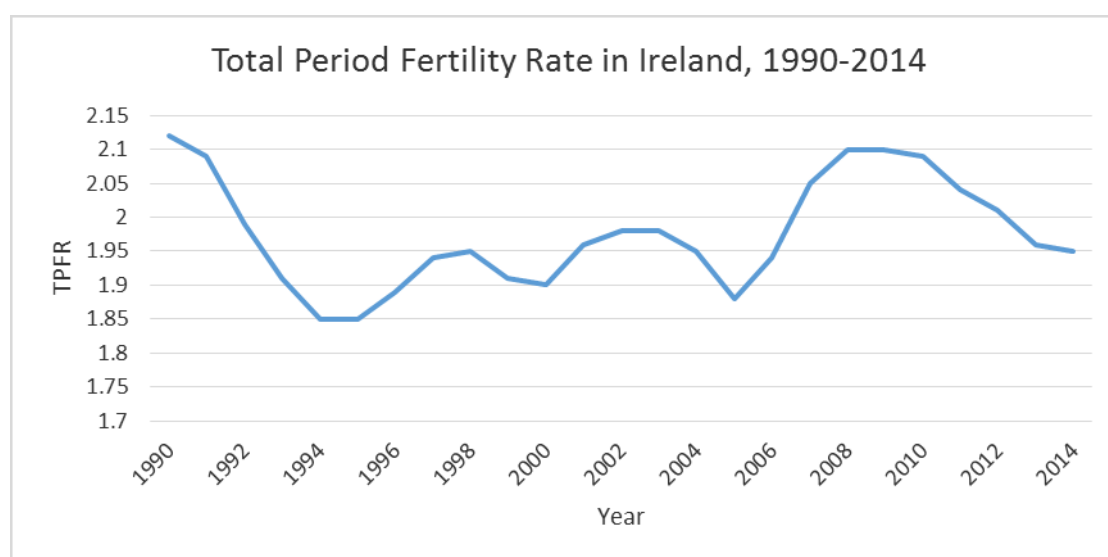
Supplementary Tables and Methodological Information

A.1 Fertility assumptions

The *Total Period Fertility Rate (TPFR)* is a synthetic indicator of fertility at one point in time (a year) across all cohorts of women giving birth in that year. It shows the average expected number of children a woman would have by the age of 49 based on the current year's information on births and age of mothers.

The number of births registered in Ireland in the intercensal period 2006-2011 peaked at 75,554 in 2009, when the TPFR was at a level of 2.09. Since then, recent figures released in May 2015 show that the number of births in 2014 had fallen to 67,462, giving a fertility rate of 1.95. The total period fertility rate has shown considerable volatility between the bands 1.85 and 2.15 in the past two decades, as shown in Figure A.1

Figure A.1 – Total Period Fertility Rate 1990-2014



Assumption F1 allows for the TPFR to gradually reduce to a level of 1.8, while assumption F2 allows for a sharper reduction to 1.65 over the period of the projections. Assumption F1 is chosen as the most likely, while fertility may recover slightly as the economy improves, Ireland still has a relatively high fertility rate compared to other European countries and so a possible slow decline to a level of 1.8, which is still significantly higher than the European average, seems the more likely of the two fertility assumptions.

Table A.1 shows the projected births under each fertility assumption for the period 2015 to 2027.

Table A.1: Projected Births under each Fertility Assumption, 2015-2027

	F1	F2
2015	65878	65878
2016	64149	63697
2017	62428	61542
2018	60770	59468
2019	59136	57435
2020	57595	55508
2021	56197	53736
2022	54935	52108
2023	53855	50663
2024	53003	49443
2025	52404	48464
2026	52074	47734
2026	52399	48032
2027	52976	48561

Source: DES projections model

A.2 Migration Assumptions

In order to arrive at migration assumptions for primary school aged children, immigration and emigration multipliers based on the most recent trends seen in the primary school annual returns data are applied to projected age cohorts, in order to give a projection of emigration and immigration to and from the primary school system.

At second level, it is more difficult to disaggregate the flows out of the system by destination, given the larger numbers of leavers and the wider range of possibilities for leaving destination. While migration is the main driver of the flows in and out of the primary level system as a whole, this is not the case at second level, where flows out of the system also include dropouts, transfers to the private sector and second chance education. Therefore a “cohort survival” method is applied to the second level data which takes into account all flows to and from the system including migration. This method applies flow percentages to each programme year at second level based on the most recent trends in migration and retention and the percentages are then carried throughout the model.

Table A.2: Projected Migration at primary level under each Migration Assumption, 2015-2030

	M1	M2	M3
2015	1121	0	0
2016	1698	0	0
2017	1981	544	0
2018	2526	1117	0
2019	3040	1651	0
2020	3522	1622	0
2021	3424	1580	0
2022	3318	1536	0
2023	3214	1495	0
2024	3113	1456	0
2025	3013	1419	0
2026	2916	1383	0
2027	2825	1351	0
2028	2742	1322	0
2029	2671	1297	0
2029	2602	1275	0
2030	2546	1257	0

A.4 Deaths

Assumptions on deaths are taken directly from the CSO projections for each single year of age. The effect of deaths on the overall projections is miniscule given the small numbers involved.

A.5 Flows at Second Level

An inward and outward flow rate is applied to each programme year cohort at second level, reflecting trends in migration, retention, transfers to and from the private sector and repeats.

A.6 Primary Level other factors

A number of other factors, which have a smaller impact on overall figures at primary level, are included in the model, including transfers to and from the private sector and special education, as well as repeat rates in Junior Infants and 6th class in primary school.