



PROJECTIONS OF FULL TIME ENROLMENT

Primary and Second Level, 2014 - 2032

July 2014

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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 2013. A separate document on third level projections is also available. This document covers all years from 2014 to 2032 for students in first and second level institutions aided by the Department of Education and Skills only.

Three new migration assumptions and two new fertility assumptions have been chosen, 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, although at a somewhat reduced level than projected previously given the changed fertility and migration assumptions.

Primary enrolments, which have already risen substantially in recent years, are projected to rise by over 26,500 pupils by 2016, and will continue to rise to a peak of around 573,000 in 2018 before beginning to reduce. This peak figure is reflective of primary enrolment levels last seen in Ireland in the early 1980's, where enrolments rose to a peak of 566,000 pupils in 1985 before beginning to reduce.

Post-primary enrolments are projected to rise by just under 13,500 by 2016 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.

Projected enrolments for 2014-2016

The following table shows the final enrolments at first and second level for 2013, 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 2014 refers to enrolment in September 2014 of the school-year 2014/15.

Table (i) Overview of Enrolment Trends 2013-16

Year beginning	First Level	Second Level
2013 (final)	536,317	333,213
2014	544,762	338,046
2015	554,641	342,308
2016	562,908	346,529

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 2016, 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 2013 to 2016. The second level trend follows directly from the trend seen at primary level in recent years of consistent year-on-year increases in enrolments.

Fertility and Migration Scenarios

The assumptions underlying the enrolment projections were completely revised in 2012, to take account of the assumptions in the CSO national population projections for the period 2016-2046. For the 2013 iteration of the enrolment projections these assumptions were adopted fully. However, examination of recent evidence from the annual returns of schools show a divergence between the migration assumptions used in the previous projections and the current situation in schools. Emigration at primary level has increased significantly in the last three years, and there are now more primary school pupils leaving the country than coming in. In addition, new Vital Statistics data for 2013 shows a much sharper decline in births and the fertility rate than allowed for in the national projections. Therefore it was necessary to reformulate the projection assumptions to take this new information into account.

Migration

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

M1: Net migration will return to positive by 2017 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 negative for the whole period of the projections, although over time will settle to a slightly reduced rate from current levels.

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 1.96 in 2013, and is now below replacement rate. The following new assumptions were made on TPFR

F1: TPFR will gradually decline in the coming years, reaching a level of 1.8 by 2021 and remain constant thereafter.

F2: TPFR will decline to 1.65 over the next 10 years 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 2014 to 2032. The Department is currently considering M2F1 as the most likely scenario over this period.

1 Primary Level Projections

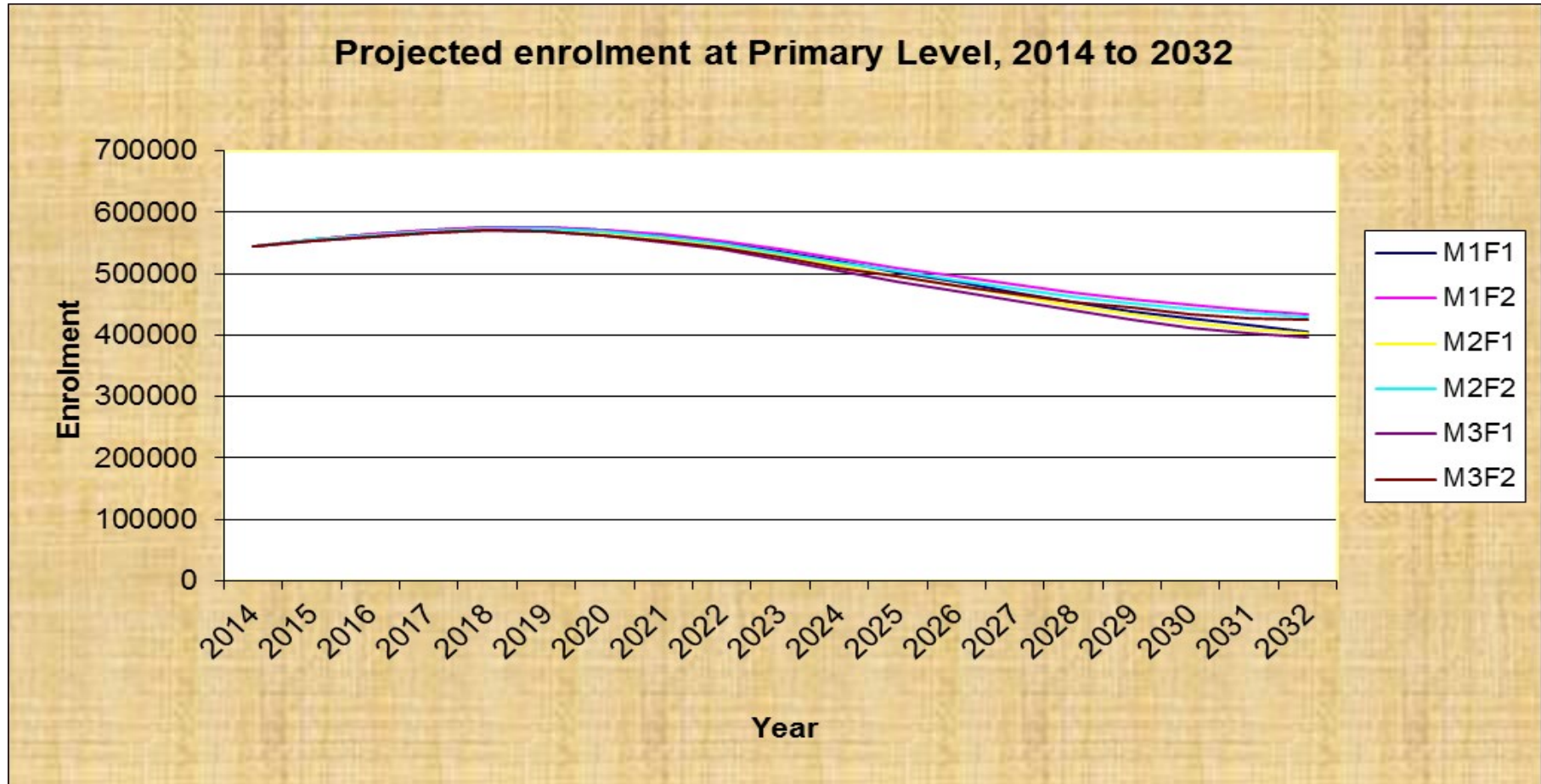
Figure 1 and Table 1 show the levels of enrolment at first level under the various scenarios **M1F1** to **M3F2**, from 2014 to 2032.

Table 1 Projections of Enrolment at Primary Level 2014-2032

	M1F1	M1F2	M2F1	M2F2	M3F1	M3F2
2014	545280	545280	544762	544762	544211	544211
2015	555515	555515	554641	554641	553522	553522
2016	564043	564043	562910	562910	560859	560859
2017	570988	570988	569456	569456	566472	566472
2018	576293	576293	573777	573777	570333	570333
2019	576578	576463	573259	573137	568975	568864
2020	572005	571442	568070	567493	562683	562120
2021	564198	562868	559840	558487	553170	551833
2022	554292	551887	549151	546714	541517	539094
2023	540268	536492	534565	530752	526282	522476
2024	525004	519571	518961	513490	510275	504798
2025	510301	502935	504106	496705	495228	487803
2026	496247	486675	489984	480387	481150	471504
2027	482256	470120	476001	463855	467371	455144
2028	469470	454246	463288	448078	454938	439607
2029	458198	439566	452150	433559	444075	425317
2030	448741	426824	442811	420967	434997	412935
2031	441315	416394	435485	410670	427909	402822
2032	434049	406364	429706	402103	424079	396261

Note: Peak enrolment figures are highlighted in green above.

Figure 1: Projections of Enrolment at Primary Level



KEY POINTS TO NOTE

Primary Level:

- **Focussing on the immediate three year period ahead (2014-2016 inclusive)**, enrolment is projected to increase by over 26,500 pupils under scenario M2F1. This reflects a continuing assumed net outward migration of the primary school population. 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 2016 even if further increased emigration of families 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 573,777 by 2018, and a continuous decline thereafter, to a level of 429,706 by 2032.
- 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 2016 as the cumulative effect of using different migration or fertility assumptions is estimated. Under a low-growth scenario (**M3F2** – negative net migration for the entire period of the projections combined with a gradual fall in fertility), enrolment could fall to around 396,000 by 2032. Under a high-growth scenario (**M1F1** – a quicker return to higher positive net migration combined with fertility remaining constant at around the current rates), enrolment would be at a level of around 434,049 by 2032.

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 2007. The increased rates are reflected as part of the assumptions on flows in and out of the second level system.

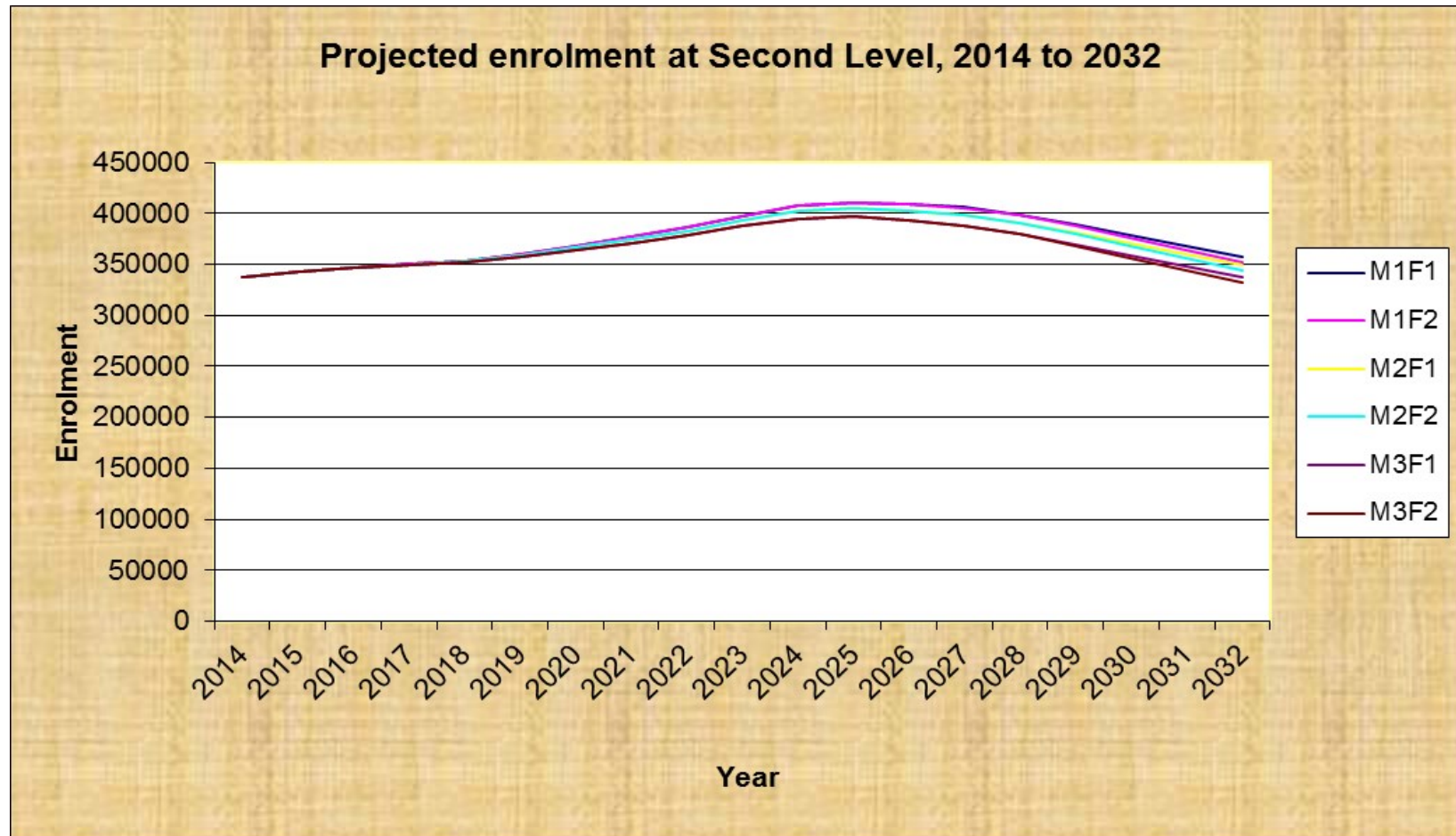
Table 2 presents projected enrolment to the year 2032 at Second Level.

Table 2 *Projections of Enrolment at Second Level 2014-2032*

	M1F1	M1F2	M2F1	M2F2	M3F1	M3F2
2014	338046	338046	338046	338046	338046	338046
2015	342457	342457	342385	342385	342308	342308
2016	346978	346978	346773	346773	346529	346529
2017	350326	350326	349934	349934	349369	349369
2018	353399	353399	352737	352737	351675	351675
2019	359470	359470	358363	358363	356669	356669
2020	367710	367710	366010	366010	363507	363507
2021	376771	376771	374365	374365	370862	370862
2022	385940	385940	382786	382786	378134	378134
2023	397524	397524	393509	393509	387627	387627
2024	407030	407030	402096	402096	394976	394976
2025	410742	410742	404911	404911	396588	396588
2026	409553	409553	402963	402963	393495	393495
2027	405708	405595	398463	398342	388034	387893
2028	398782	398236	390981	390431	379836	379248
2029	388960	387668	380747	379456	369163	367809
2030	378350	376006	369922	367590	358125	355699
2031	368011	364324	359507	355850	347711	343919
2032	357700	352434	349197	343988	337595	332201

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** – (2014-2016 inclusive) enrolment is projected to increase by over 13,000 by September 2016.
- Following directly onwards from the increases in primary level enrolments in recent years, significant increases in second level enrolments are likely in the years after 2014. 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 404,915 over the period considered, occurring in 2025.
- The margin between the highest (**M1F1**) and lowest population-growth scenarios (**M3F2**) is around 14,000 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 under 350,000 by 2032.
- Under the lowest-growth scenario (**M3F2** – negative 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 2032. 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 358,000 by 2032.

Review of 2013 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 2014 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 2013 at primary and second level compared to the projected enrolment for 2013 under the most likely scenario, and gives the percentage error rate for each level.

Table 3 Comparisons with 2013 Projections.

	Most likely scenario	Actual enrolment	Difference	Error Rate
Primary Level	539,127	536,317	-2,810	0.52%
Second Level	335,161	333,213	-1,948	0.59%

As can be seen from the table, at both levels there was a slight over projection compared to the actual enrolments.

There was a difference in primary level of 2,810 between the projected and actual figure. These differences can be mainly attributed to the migration assumptions made in the 2013 projections. While the preferred scenario migration assumption for 2013 had allowed for a slight level of net inward migration, reflecting the assumptions made in the latest CSO population projections, data from the latest two years of the annual census of primary schools show an increasing level of net outward migration from the primary school system.

At second level, there was an over projection of 1,948. The main drivers of the differences related to assumptions around flows. While it is more difficult to track emigration at the post primary level, particularly past the age that compulsory schooling ends, it appears likely that emigration has increased more than anticipated at post primary level also. In addition, the numbers opting to repeat the Leaving

Certificate had fallen more than anticipated, with a reduction of 30% in the numbers in the last two years alone, from just under 3000 enrollees in 2011 to just over 2000 in 2013.

Over the longer term, the downwards trend in fertility assumptions and, to a lesser extent, the more negative migration assumptions have a significant impact on the projected numbers compared to the 2013 projections. As per the previous set of projections, enrolments are still expected to peak around the end of this decade for primary level and in the mid 2020's for second level before beginning to reduce, however the peak levels are expected to be lower than previously, as follows.

- The Department's most likely scenario (**M2F1**) in this iteration of the projections shows that primary enrolments are projected to peak at 573,777 in 2018, compared to a peak of 596,440 in 2020 in the last set of projections.

- The second level figures in the current projections show a peak of 404,915 occurring in 2025, compared to a peak of 416,262 in 2026 in the previous projections.

Although the more negative migration assumptions play a part in the reduction at the primary level, the revision to fertility assumptions is in general a much larger factor in the decrease in the projected peak enrolments. At second level the reduction in the peak levels is more generally due to the cumulative effect of the more negative migration assumption at primary level over the next 10 years.

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

Appendix A

Supplementary Tables and Methodological Information

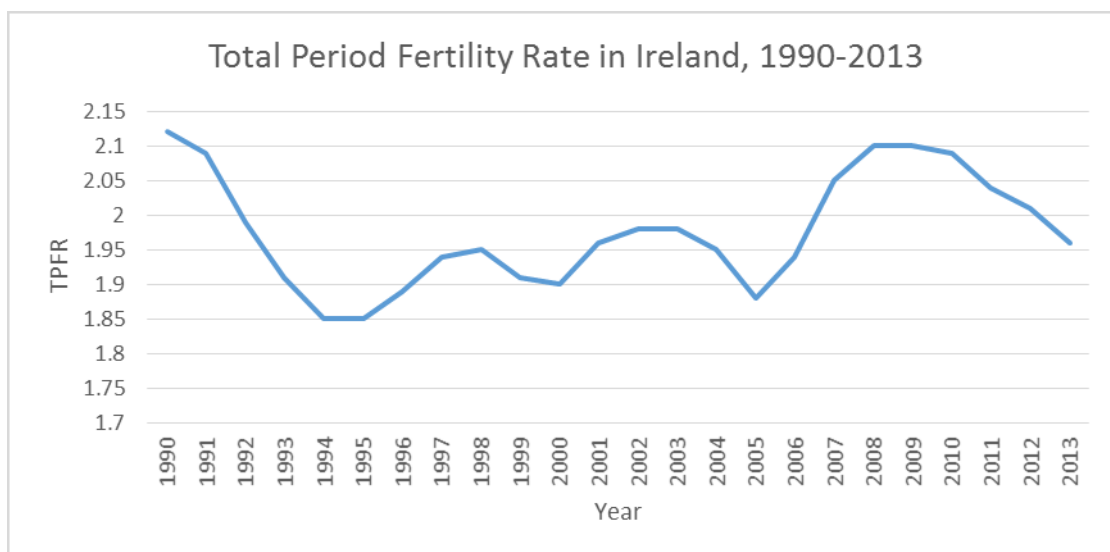
A.1 Fertility assumptions

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 2014 show that the number of births in 2013 had fallen to 68,930, giving a fertility rate of 1.96. This was a sharper fall than expected under the latest national population projections.

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 1990-2013



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 most likely of the two fertility scenarios.

Table A.1 shows the projected births under each fertility assumption for the period 2014 to 2027.

Table A.1: Projected Births under each Fertility Assumption, 2014-2027

	F1	F2
2014	67862	67862
2015	65876	65536
2016	63933	63267
2017	62006	61027
2018	60151	58871
2019	58328	56760
2020	56604	54758
2021	55028	52912
2022	53593	51211
2023	52928	49694
2024	52480	48398
2025	52276	47920
2026	52341	47979
2027	52668	48279

Source: DES projections model

A.2 Migration Assumptions

The 2014 projections took a different approach to assumed migration, given the divergence between the national population projections assumptions and the emerging trend of net outward migration at primary level.

In order to arrive at migration assumptions for primary and pre-primary school aged children, immigration and emigration multipliers based on the trends seen in the

primary school annual returns data were 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 for this iteration of the projections, a “cohort survival” method has been 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, 2014-2030

	M1	M2	M3
2014	-1042	-1623	-2238
2015	-715	-1197	-1919
2016	0	-441	-1670
2017	659	0	-1409
2018	1411	0	-1090
2019	1976	563	-1087
2020	2518	1116	-1075
2021	3031	1650	-1057
2022	3512	1620	-1035
2023	3414	1577	-1006
2024	3306	1532	-975
2025	3200	1488	-946
2026	3097	1447	-919
2027	2991	1406	-893
2028	2890	1368	-869
2029	2796	1335	-849
2029	2715	1308	-831
2030	2648	1286	-818

A.3 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.4 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.5 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.