



# **PROJECTIONS OF FULL TIME ENROLMENT**

## **Primary and Second Level, 2012 - 2030**

**July 2012**

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## Introduction

This document provides the latest set of projections of full-time enrolment in schools aided by the Department of Education and Skills. This release partially updates the previous set of projections released in June 2011. The 2012 projections release will differ from previous years in that it has been split into two separate releases. This document focuses only on first and second level projections. A separate document on third level projections will be released later in 2012.

In addition to the change in format of the release, the methodology for producing the projections has been reviewed and updated, and the underlying population data and other relevant data has been completely updated to take account of data now available from Census 2011. The affect of the Census 2011 data and the changes in methodology compared to our 2011 projection figures are looked at in more detail on page 14. Fertility assumptions have been revised slightly to take better account of the trend in births in recent years. Additionally, a different approach has been taken to assumptions on migration in this iteration of the projections. Evidence shows that the migration pattern for those under the age of 18 is significantly different than for the population as a whole, with a small net outward migration at primary level, and with the post primary cohort still showing net inward migration. Therefore, in the 2012 projections, a number of assumptions have been made on migration of the school-going population only, rather than attempting to anticipate migration patterns in the population as a whole.

This document covers all years from 2012 to 2030 for students in first and second level institutions aided by the Department of Education and Skills only.

Clearly, as we project further into the future, greater uncertainty arises about possible or likely outcomes in terms of enrolment. Most children born four to five years ago are entering primary school this coming school year while most children born within the last three years will enter primary level in the years 2012 to 2015. There is no evidence, to date, that these children have or will emigrate with their families in large numbers. Consequently, projections of enrolment for the coming three years may be viewed as being less subject to uncertainty and variation than is the case for projections over a longer time period (when factors such as fertility and migration impact more significantly on outcomes). Therefore, for this series of projections, for the first time a “best estimate” is provided for 2012 to 2015, based on conservative migration assumptions and the data for births in the last three years.

From 2015/2016 onwards, a range of projected figures are provided based on various migration and fertility assumptions. The three migration and three fertility assumptions chosen give rise to nine possible scenarios, each of which gives a different possible view of what enrolments in first and second level institutions might look like by 2030. For the years 2015 onwards, in light of all currently available information, the Department is working on the basis of the M1F1 scenario being the most likely outcome.

## Projected enrolments for 2011-2014

The following table shows the provisional enrolments for 2011/2012 and the expected enrolments for the following three academic years.

**Table (i) Overview of Likely Trends in Enrolment 2011-14**

<i>Year beginning</i>	<b>First Level</b>	<b>Second Level</b>
<b>2011 (prov)</b>	516,460	322,528
<b>2012</b>	524,901	327,105
<b>2013</b>	536,316	335,957
<b>2014</b>	548,939	339,682

Table (i) contains a projection of enrolment from 2012 to 2014, based on births data for the relevant years, and an estimate, using historical trends, of the likely migration patterns for both the primary and post primary school aged cohort. In a departure from the projections model of previous years, we present only one projected figure for each of 2012, 2013 and 2014, as we can be relatively sure of the likely figures given that the births of the entry cohorts to primary level for these years have already taken place. The situation is less certain from 2015 onwards, therefore we then present a number of scenarios for consideration.

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.

At second level there is also a year-on-year increase forecasted from 2012 to 2014. The second level trend follows directly from the trend seen at primary level in recent years of consistent year-on-year increases in enrolments.

An adjustment has been made for migration at primary and post primary level, with a slight increase in net outward migration expected at primary level, and a reduction in the levels of net inward migration at post-primary level-see Appendix A for further information.

## Fertility and Migration Scenarios

A number of fertility and migration scenarios were considered for the projections from 2015 onwards.

For migration the following sets of assumptions were used:

**M0:** Net outward migration at post primary level will increase gradually to a combined level of -4500 by 2020 and remain at that level from that point.

**M1:** Net migration at primary and post primary level will stabilize at 0 from 2015 onwards.

**M2:** There will be a return to significant net inward migration by 2016, with net inward migration at around 5000 by 2020.

A conservative assumption was made on net inward migration also, for the cohort aged 0-4, giving the effect of increasing the enrolment numbers at primary level by approximately 2000 pupils per annum, under all scenarios considered.

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 following assumptions were made on TPFR

**F0:** TPFR will decline to EU average levels (1.65) by 2016 and remain at that level into the future

**F1:** TPFR will very gradually decline over time, reaching a level of 1.89 by 2030

**F2:** TPFR will remain steady at 2010 levels (2.09) for the period of the projections

These two sets of assumptions combine to give a total of nine scenarios under which enrolments are projected from 2015 to 2030. The Department is currently considering M1F1 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 **M0F0** to **M2F2**, to 2030. Each year refers to the beginning of a school-year when enrolment is recorded in September of that year. Hence, the year 2012 refers to enrolment in September 2012 of the school-year 2012/13.

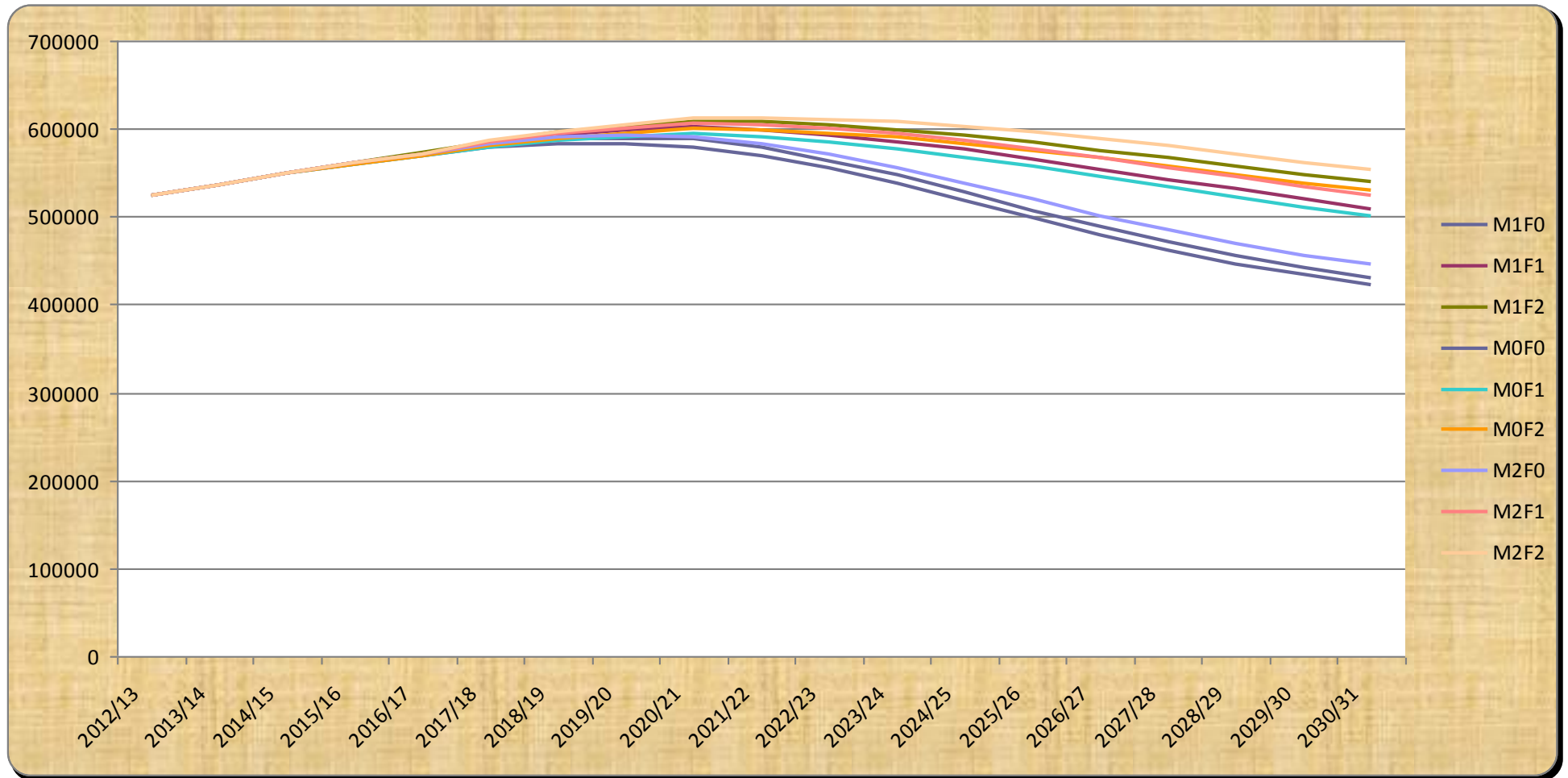
For further detail on the fertility and migration scenarios used, refer to Appendix A.

**Table1: Projections of Enrolment at Primary Level**

	M0F0	M1F0	M2F0	M0F1	M1F1	M2F1	M0F2	M1F2	M2F2
2010	<b>505,998</b> (actual figure)								
2011	<b>516,460</b> (provisional)								
2012	<b>524,901</b>								
2013	<b>536,316</b>								
2014	<b>548,939</b>								
2015	559647	560987	560540	559656	560996	560549	559665	561005	560558
2016	568396	571332	570948	568714	571650	571266	569019	571955	571571
2017	577950	582685	582809	579591	584326	584450	580773	585507	585631
2018	582667	588862	589881	587062	593257	594275	589472	595667	596685
2019	581915	589258	591488	590469	597812	600041	594455	601798	604028
2020	579547	587721	591418	593628	601802	605500	599527	607701	611399
2021	569421	578107	583463	590350	599036	604393	598484	607170	612527
2022	554753	563633	570776	583795	592674	599818	594472	603351	610495
2023	537910	546854	555785	576260	585204	594135	589763	598707	607639
2024	518562	527506	538226	567051	575995	586715	583372	592317	603037
2025	498269	507213	519275	556345	565289	577351	575171	584116	596177
2026	479476	488421	501441	545191	554136	567156	566426	575370	588391
2027	462170	471114	484774	533629	542573	556233	557176	566120	579780
2028	446627	455571	469616	522009	530954	544998	547785	556729	570773
2029	433123	442068	456304	510692	519636	533873	538630	547574	561811
2030	421919	430863	445164	500031	508975	523276	530089	539033	553334

Note: (1) Peak enrolment figures are highlighted in the green cells above.

**Figure 1: Projections of Enrolment at Primary Level**





## KEY POINTS TO NOTE

### Primary Level:

- **Focussing on the immediate three year period ahead** (2012-2014 inclusive), enrolment is projected to increase by some 32,500 pupils. This figure takes into account a conservative estimate of net outward migration in the primary school aged cohort, based on available data from the Department's Annual Census of Primary Schools. It is highly unlikely that enrolment at primary level will fall before the year 2015 even if increased emigration of families occurs before then.
- There is greater uncertainty about trends beyond 2014 as the cumulative effect of using different migration or fertility assumptions is estimated. Under a low-growth scenario (**M0 F0** – high net outward migration in the immediate future combined with a significant fall in fertility), enrolment could fall to around 422,000 by 2030. Under a high-growth scenario (**M2 F2** – low net outward migration in the immediate future combined with a constant 2010 rate of fertility), enrolment could rise to over 553,000 by 2030.
- All above scenarios considered, continuing enrolment growth up to 2018 is implied and, for some scenarios, growth continues up to 2020 and 2021. However, from 2021 at the latest, all scenarios show falling enrolment numbers for the remainder of the period shown. This reflects a likely reduction in the numbers of births from 2015 onwards, as there is a natural reduction in the projected numbers of females aged 15-49 from that point onwards, reflecting the reduction in births in the 1990s in comparison to the 1980s.
- The margin between the highest (**M2 F2**) and lowest (**M0 F0**) population-growth scenarios is as much as 131,415 pupils in the year 2030 compared to a margin of only 3,000 in the year 2016.
- Currently **M1F1** is considered the most likely scenario. This would suggest an increase in enrolments at primary level to 601,802 by 2020, and a gradual decline thereafter.

## **2A Second Level Projections**

Second Level comprises all Junior and Leaving Certificate course students in DES-aided schools and colleges.

Evidence shows that there is still a level of overall inward migration into the post-primary school system. In 2011 this level of net inward migration had little effect on overall enrolments. In years to come, however, second level enrolments will increase substantially as a result of both increased birth levels in the 2000's and high levels of immigration during the same decade.

There has been a noticeable increase in retention in recent years reflecting reduced job opportunities for early school leavers.

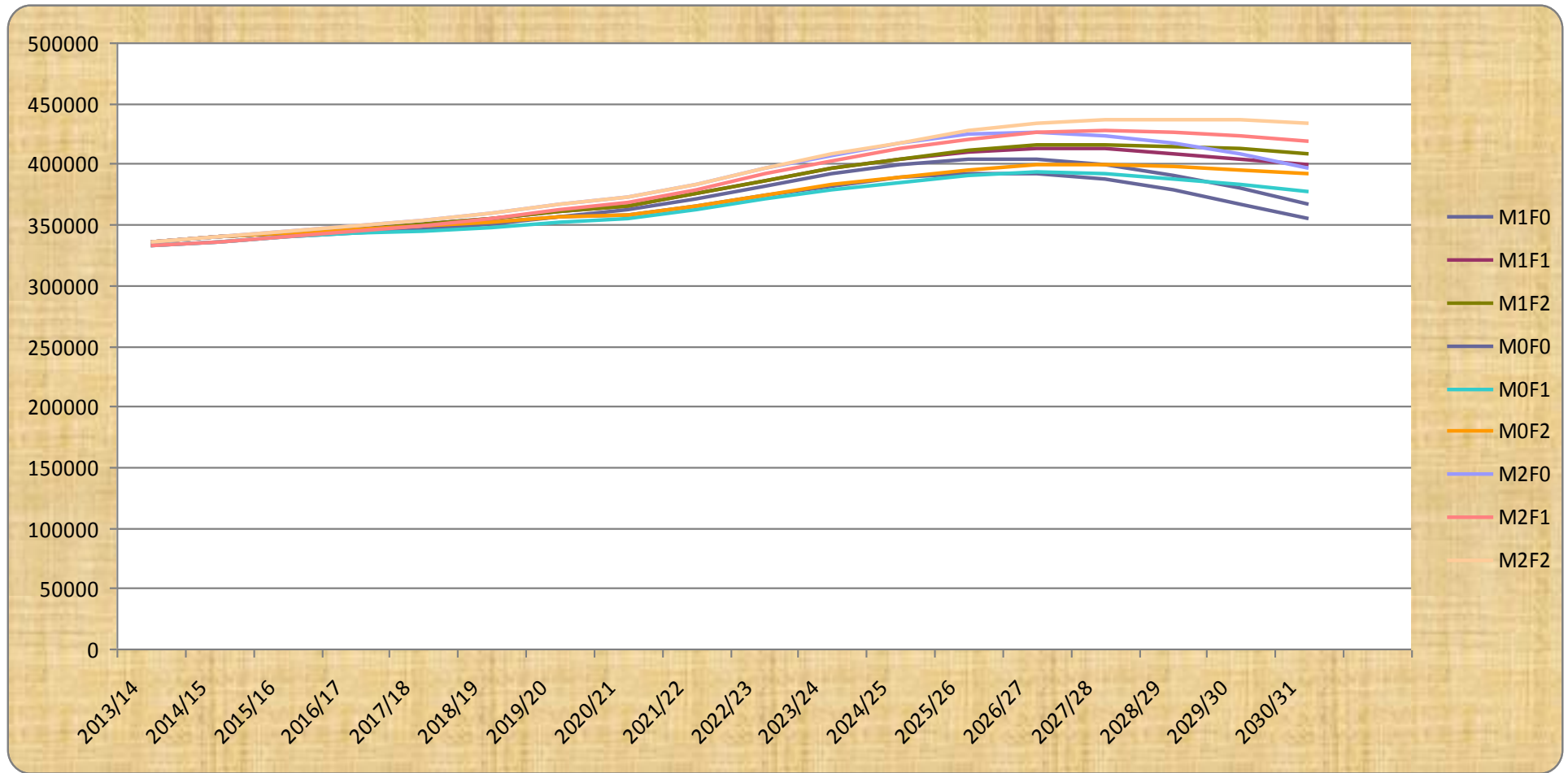
Table 2 presents projected enrolment to the year 2030 at Second Level.

**Table 2 Projections of Enrolment at Second Level**

	M0F0	M1F0	M0F1	M0F2	M2F0	M1F1	M1F2	M2F1	M2F2
2010	<b>317,427</b> (actual figure)								
2011	<b>322,528</b> (provisional)								
2012	327,105								
2013	335,957								
2014	339,682								
2015	343032	342847	343032	343032	343930	342847	342847	343930	343930
2016	346171	346393	346171	346171	348596	346393	346393	348597	348597
2017	348103	349415	348103	348104	352687	349416	349417	352688	352688
2018	350904	353860	350907	350910	358344	353864	353866	358348	358350
2019	355355	360450	355367	355373	366191	360461	360468	366202	366209
2020	358042	365510	358068	358081	372575	365536	365550	372601	372615
2021	365094	374810	365144	365168	383404	374861	374885	383454	383478
2022	373716	385481	373802	373839	395655	385568	385605	395742	395779
2023	381880	395341	382023	382086	407218	395484	395548	407361	407425
2024	388162	402931	388667	389039	416681	403436	403808	417186	417557
2025	392136	407859	393997	395242	423616	409721	410965	425477	426722
2026	392136	408512	396742	399195	426361	413118	415571	430966	433419
2027	386568	403302	395254	399233	423267	411988	415967	431953	435932
2028	377792	394662	391817	397619	416629	408688	414489	430654	436455
2029	366929	383838	387372	395175	407564	404280	412084	428006	435810
2030	354115	371025	381577	391298	396207	398488	408208	423670	433390

Note: (1) peak enrolment figures are highlighted in the green cells, above;

**Figure 2: Projections of Enrolment at Second Level**



## KEY POINTS TO NOTE

### Second Level:

- **Focussing on the immediate three year period ahead – 2012-2014** (inclusive), enrolment is projected to increase in each year. This means that it is highly unlikely that enrolment at second level will fall before the year 2015 even if a significant increase (over and above the projected figure) in emigration in families takes place before then.
- The projected increase in enrolment is in the order of 17,000 between September 2011 and September 2014.
- As with the primary level projections, there is greater uncertainty about trends beyond 2014 as the cumulative effect of using different migration or fertility assumptions is estimated. However, significant increases in second level enrolments are likely in the years after 2014. Under the lowest-growth scenario (**M0 F0** – high net outward migration combined with a significant fall in fertility), enrolment would be in the region of 354,000 in 2030. Under the highest-growth scenario (**M2 F2** – low net outward migration in the immediate future combined with a constant 2010 rate of fertility), enrolment could rise to over 433,000 by 2031.
- All scenarios considered, above, will result in continuing enrolment growth up to 2025 or 2026.
- The margin between the highest (**M2 F2**) and lowest population-growth scenarios (**M0 F0**) is as much as 80,000 pupils in the year 2031 compared to a margin of only 1,100 in the year 2015.
- Currently **M1F1** is considered the most likely scenario. This would suggest a year-on-year increase in second level enrolments to a peak of 413,118 over the period considered (occurring in 2026), with a decrease in enrolments from that point.

## Comparison with previous projections

As a result of changes in methodology and assumptions, as well as a complete update of the base data underlying the projections (as a result of detailed information becoming available from Census 2011), there are some differences between the current projections and those that were published in 2011.

Table 3 outlines the projected values for the period 2012-2020 under the median scenario M4F4, in the document published in 2011, and the median (M1F1) current projected values, for first and second level. Projected values for 2011/2012 in the release published in 2011, and the provisional actual enrolments for 2011/2012 are also included.

**Table 3 Comparisons with 2011 Projections.**

	<b>Primary 2011</b>	<b>Primary 2012</b>		<b>Second Level 2011</b>	<b>Second Level 2012</b>	
	<b>M4F4</b>	<b>Best estimate</b>	<b>Difference</b>	<b>M4F4</b>	<b>Best estimate</b>	<b>Difference</b>
2011	514,600	516,460 (Provisional)	<b>1,860</b>	322,500	322,528 (Provisional)	<b>28</b>
2012	523,100	524,901	<b>1,801</b>	326,900	327,105	<b>205</b>
2013	532,900	536,316	<b>3,416</b>	330,700	335,957	<b>5,257</b>
2014	540,500	548,939	<b>8,439</b>	334,600	339,682	<b>5,082</b>
	<b>M4F4</b>	<b>M1F1</b>		<b>M4F4</b>	<b>M1F1</b>	
2015	546,790	560996	<b>14,206</b>	337,229	342847	<b>5,618</b>
2016	550,028	571650	<b>21,622</b>	340,178	346393	<b>6,215</b>
2017	552,755	584326	<b>31,571</b>	342,348	349416	<b>7,068</b>
2018	554,665	593257	<b>38,592</b>	343,867	353864	<b>9,997</b>
2019	550,803	597812	<b>47,009</b>	347,941	360461	<b>12,520</b>
2020	539,807	601802	<b>61,995</b>	355,049	365536	<b>10,487</b>

As can be seen from Table 3, the current set of projections show the expectation of a larger increase in enrolments in Primary level over the period 2012 to 2020 than previously considered. For Primary Level under the M1F1 scenario the projected peak will move from 2018 to 2020, with projected total pupils rising from 554,665 to 601,802. For Second Level under M1F1 scenario, the new projected peak enrolment will move from 2024 to 2026, with projected total pupils rising from 383,084 to 413,118 (See Table 2). There are a number of factors that have contributed to this:

- 1) Census 2011 definitive results showed that the actual population in Ireland in April 2011 was almost 100,000 higher than had been estimated in the Population Estimates release of September 2011. The model has been therefore updated with the revised figures.
- 2) Migration has been considered in a different way for the current projections. Evidence shows that there are differences in migration trends in each level of education. Net inward migration at post-primary level and at pre-primary level was still evident in the most recent figures available (2010\2011), and the Annual Census of Primary Schools 2011 shows that net migration at primary

level turned slightly negative in 2010\2011. Migration assumptions have been updated to reflect this evidence, with a different assumption made for each group (pre-primary, primary, post-primary), rather than an assumption on the population aged 0-17 as a whole.

- 3) Births continued in 2011 at very high levels. As a result, the median F1 fertility assumption is revised to assume a slower reduction in the Total Period Fertility Rate. This has the effect of increasing projected enrolment from 2015 onwards.

## Appendix A

### Supplementary Tables and Methodological Information

#### A.1 Fertility assumptions

<b>Table A.1.1: Total Period Fertility Rate Scenarios used in this Document</b>			
	<b>F0</b>	<b>F1</b>	<b>F2</b>
	Fast decline to EU norms	Gradual decline & above EU average	Continuing at 2010 fertility rates.
<b>2011</b>	2.09	2.09	2.09
<b>2012</b>	2.05	2.07	2.09
<b>2013</b>	2.00	2.06	2.09
<b>2014</b>	1.95	2.05	2.09
<b>2015</b>	1.90	2.04	2.09
<b>2016</b>	1.85	2.03	2.09
<b>2017</b>	1.80	2.02	2.09
<b>2018</b>	1.75	2.01	2.09
<b>2019</b>	1.70	2.00	2.09
<b>2020</b>	1.65	1.99	2.09
<b>2021</b>	1.65	1.98	2.09
<b>2022</b>	1.65	1.97	2.09
<b>2023</b>	1.65	1.96	2.09
<b>2024</b>	1.65	1.95	2.09
<b>2025</b>	1.65	1.94	2.09

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.

It should be noted that an increase in TPFR was not considered for the purposes of this document, as Ireland already has quite a high TPFR in comparison with most EU and OECD countries. In addition, recent revisions to births data for Ireland now show that the number of births registered in Ireland in the intercensal period 2006-2011 peaked at 75,724 in 2008 and have remained at a slightly lower level through 2009 and 2010. Preliminary data suggests that the numbers of births for 2011 will be similar to 2009 and 2010. Over the same period 2006-2011 there was an increase in the population of over 50,000 females aged 15-49. Therefore, in the short term at least, F1 or F2 remain the most likely scenarios.



## Projections of Females aged 15-44

As in the 2011 projections, the 2012 projections do rely to some extent on projecting the underlying population-particularly those females in the 15-44 age group- in order to arrive at an accurate projection of births for the period 2012-2030. The 2012 model is limited in that it does not take account of projected migration in the 15-44 female cohort.

To estimate the effect that this could have on projected births figures, the most recent CSO estimates of migration by age group for April 2010 to April 2011 were compared with CSO births data by age of mother. The following table shows the estimated female migration by age group and the corresponding proportions of births to the same age group in 2010.

**Table A.1.2: Females aged 15-44, and Proportion of Total Births by Age Group, 2010, 2011**

Females	Age Band	
	15-24	25-44
Est. net migration 2010-2011	-12,800	-5,300
% total births 2010	13.5%	86.3%
Total females April 2011	289,352	733,085

*Source: CSO Vital Statistics, Population estimates, and Census of Population 2011*

Table A.1.2 shows that just 13.5% of births in 2010 were to women aged 15-24, but this age group appears also to be emigrating in far greater numbers than older women of fertile age. Therefore the overall effect of migration on births is projected to be relatively small. If a similar level of migration and births was to continue for 2012, it is estimated that the impact of migration of females in the main childbearing age band for 2012 would be a reduction in births of the order of 900, or approximately 1.2% of total births. In scenarios where net outward migration is expected to reduce, the effect is smaller still.

## Projections of Births under Different Fertility Assumptions.

Under all scenarios projected, the numbers of births are likely to decrease in the coming years, following on from the trend of rising births in the 1970s and early 1980s (which has meant rising numbers of women in their late twenties and thirties in recent years), a decline in births from 1981 to 1994 means that in future years the numbers of women in this main age group for childbearing will decline, and, in the absence of any large net inward migration of females or a significant increase in fertility rates, births will therefore begin to decline.

The following Table shows the projected numbers of births under each scenario, from 2012 to 2030

**Table A.1.3: Projected Births under each Fertility Assumption, 2012-2025**

	<b>F0</b> Steeper decline in TPFR	<b>F1</b> Smaller, more gradual decline in TPFR	<b>F2</b> TPFR at constant 2010 levels
<b>Year</b>			
2012	75018	75750	76482
2013	72388	74559	75645
2014	70064	73657	75095
2015	67597	72578	74357
2016	64986	71309	73416
2017	62281	69893	72316
2018	59511	68352	71073
2019	56736	66749	69752
2020	54000	65127	68399
2021	52974	63569	67101
2022	52029	62119	65903
2023	51219	60841	64877
2024	50543	59733	64022
2025	50043	58838	63387

## A.2 Migration Assumptions

Year	<b>M0</b>		<b>M1</b>		<b>M2</b>	
	Net outward migration significantly increasing		Net migration stabilising around 0		Return from 2016 to net inward migration	
	Primary	Post-primary	Primary	Post Primary	Primary	Post-primary
2012	-1000	1800	-1000	1800	-1000	1800
2013	-1500	1300	-1500	1300	-1500	1300
2014	-1000	800	-1000	800	-1000	800
2015	-1500	300	0	0	-500	1200
2016	-2000	-200	0	0	0	1600
2017	-2500	-700	0	0	500	2000
2018	-2500	-1200	0	0	1000	2400
2019	-2500	-1700	0	0	1500	2800
2020	-2500	-2000	0	0	2000	3200
2021	-2500	-2000	0	0	2500	3600
2022	-2500	-2000	0	0	3000	3600
2023	-2500	-2000	0	0	3500	3600
2024 on	-2500	-2000	0	0	4000	3600

The figures for Table A.2.1 were arrived at by examining recent trends in net inward and outward migration for the school-aged cohort, using data from the Department's Annual Census of Primary schools, and information from the October Returns from second level schools, as well as examining the trends in migration by age group in the latest CSO population estimates, published September 2011.

It should also be noted that, for the purposes of this exercise, assumptions on migration are based on the **school going cohort** only, which roughly comprises of 4-11 year olds for primary level and 12-18 year olds for post-primary level. It is accepted that in actual fact the migration figure for the 18 year old cohort as a whole may be different from that which is assumed here, as many 18 year olds who have finished school may then choose to emigrate for further study etc.

In addition to migration of the school-aged population, migration of the younger age cohort, (from 0 to 4) must also be considered. It is difficult to get a clear picture of migration patterns for this cohort. However, a rudimentary analysis involving comparisons between historical data on junior infant entrants, and the actual numbers of births 4 to 5 years previously, suggest that more junior infants consistently enter the school system than would be expected, given the births data alone. While there is scope in the figures for some small calculation and reporting errors, the evidence still strongly suggests that positive inward migration continues in the pre-school cohort. Therefore a conservative estimate of 2000 pupils per annum is included in the primary school enrolment projections to take account of pre-school migration patterns.

### **A.3 Mortality Rates**

Assumptions on mortality rates for these projections follow very closely the methodology employed by the CSO in their population projections of 2008. The annual rate of improvement in mortality was interpolated from its current levels of 3.5% for females and 5% for males, down to a level of 1.5% improvement for 2031, as per the assumption of the CSO Expert Group for the 2008 projections.

### **A.4 Retention at Second Level**

The unadjusted rate of retention for the 2004 entry cohort of students (those who entered the Junior Cycle in 2004 and sat their Leaving Certificate in 2009 or 2010) was 87.7%. This figure does not take account of those who transferred to the private sector, and therefore is the most relevant figure when projecting the numbers of pupils in schools aided by the Department of Education. It is expected that the unadjusted figure for the 2005 cohort will be slightly higher. This improved rate is taken into account throughout the model when projecting likely numbers of second level students.

## **A.5 Other Factors**

A number of other factors, which have a smaller impact on overall figures, 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 6<sup>th</sup> class in primary school.