# Population, Labourforce and Housing Demand Projections

The National Spatial Strategy
Final Report
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in association with
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# 1 Introduction and terms of reference

The consultants were retained by the Spatial Planning Unit of the Department of the Environment and Local Government to undertake the following work:

1. To establish the **current distribution of population** of the Country at the National, Regional and Intra-regional level as a baseline against which projections can be measured.
2. To produce **population forecasts** for (1) Ireland, (2) Dublin and the main cities and (3) the planning regions of Ireland based on **continuation of current trends** for the years 2010, 2015, 2020, 2030. [1]
3. To produce **population forecasts** for (1) Ireland, (2) Dublin and the main cities and (3) the planning regions of Ireland based **on certain economic growth and net migration trends** for years 2010, 2015, 2020, 2030.
4. To produce **labourforce projections** (both labourforce totals and participation rates) for (1) Ireland, (2) Dublin and the main cities and (3) the planning regions of Ireland based on certain economic growth and net migration trends for years 2010, 2015, 2020, 2030.
5. To produce **household formation/housing demand forecasts** based on the economic growth and net migration trends and regional spread from the above for years 2010, 2015, 2020, 2030.

This report is in two parts:

1. An overview of the model used and presentation of results and commentary on the same, under the headings set out above
2. A detailed description of the model that has been developed, including: commentary on certain parameter values adopted for the 'continuation of present trends' and 'client advised' scenarios; a description of the calibration processes used to verify the model methodology; and sensitivity tests.

There are a number of technical annexes as well as an appendix which contains detailed results tabulations.

1. Projections have been made for the '0' and '5' years, since the last year for which hard data are available for commencing projections, is 2000. The model may also be run at five year intervals from 1996, and this was done so for the purpose of calibrating results with 1999 projections undertaken by the CSO.

# 2 Model Overview and Key Results

## 2.1 Model overview

The model[2] which has been developed is the cohort-survival or 'demographic component' method[3], which uses assumptions regarding trends in births, deaths and net migration to project a future population by age and sex.

The starting point is year 2000 estimates of regional population, disaggregated by age and sex. This population includes the population residing in non-private households and is the de facto rather than the normally resident population. Annexes A and B set out the reasons for the decisions to use population defined in this way, which is standard practice in Irish demographic studies.

Projection is by five year cohort, for five year intervals from 2000 to 2030.

For each five year cycle:

- Survivorship rates[4] are applied to each age-sex cohort in order to estimate the remaining population in 2005, after deaths.
- Surviving net migrants[5] are added to each cohort
- Age specific fertility rates[6] are applied to the average number of women alive in each five year cohort between the ages of 15 and 49 in order to obtain the number of births, and these are survived to allow for infant deaths over the period. This includes births to women migrants (see below).

Migration has been dealt with in the following way.

Four separate migration streams have been identified for each region.

- Gross international in-migration to the region from outside the State[7]
- Gross international out-migration from the region, to outside the State

2. The consultants began the contract with the intention of using the British designed 'Chelmer' population projection model - a system developed by the University of East Anglia and widely used in the United Kingdom amongst regional and local authority planners. More detailed examination of the capabilities of this model and the specific requirements of the Irish situation led the consultants to use some of the basic elements of Chelmer but to adapt and develop the model to provide a more comprehensive and flexible modelling tool for the present exercise. In particular, it was felt that a distinction had to be made, in the Irish context, between international and internal migration. This was not possible using the Chelmer model. Further, it had to be possible to very the age structure of migrants, over time, which was also not possible in the Chelmer model. Finally, and most importantly, the model had to be an integrated one, where all regional outcomes were inter-dependent. This would not have been possible with the Chelmer model.
3. The name 'cohort survival' arises from the division of the population into groups having similar age, sex and (sometimes) marital status characteristics - 'cohorts', which are then traced over time – hence 'survival'. The term demographic component refers to the other major characteristic of the approach – projection using the three components of births, deaths and migration.
4. In non-technical terms, a survivorship rate indicates the proportion of the average number of persons alive at age x who will survive to age x+1.
5. In-migrants less out-migrants.
6. Births per 1,000 women in specified age categories.
7. Throughout this report, the terms international in-migrant and international out-migrant are used, rather than immigrants and emigrants. This is to avoid confusion between international and internal migrant flows. International migration includes migration between the Republic of Ireland and Northern Ireland.

- Gross internal in-migration to the region, from elsewhere in the State, differentiating each sending region separately
- Gross internal out-migration from the region, to elsewhere in the State, differentiating each receiving region separately

These flows are disaggregrated by age and sex. The model had to be an integrated one, where all regional outcomes were inter-dependent. This has been achieved by allocating shares of international migration to each region and creating a single matrix of all inter-regional migration flows.

The data from which these flows are derived are one-year flows. Consequently, it was necessary to pre-process these flows in order to obtain the correct age structure of five-year flows, using the assumption that the flows are evenly spread over a five-year period.[8]

It was further assumed that the age structure of the migrants within each five-year cohort, was evenly spread between each of the five years, with the exception of the 15-19 age cohort, where the great majority of flows were assigned to ages 18 and 19, in accordance with single year of age data made available by the Central Statistics Office.

Survivorship rates were applied to these migrants, so that the deaths arising from a given gross migration total, are already accounted for, when the age cohort totals are amended by adding migrants at the end of the period.

No adjustment has been made for the fact that there is no data on one-year migrant flows of children under one year of age.

- In order to project the workforce, age specific participation rates[9] for males and females, were applied to the projections of population.
- Age specific headship rates[10] are projected (combining males and females) and applied to the relevant age cohorts in order to estimate the number of households.

Region-specific rates were derived in each case. More details of the methodology of distinguishing regional participation and headship rates is contained in Section 4 of the report.

8. Pre-processing was necessary to allocate proportions of the five-year age cohorts in the one-year migration streams to the correct cohorts at the end of five years, and to allow for deaths in the post-migration period.
9. The (labour force) participation rate for a given cohort is the proportion of that cohort who are in the labour force.
10. The headship rate for a given cohort is the proportion of that cohort who are heads of household.

## 2.2 Key Results

Full results for a total of twelve models are contained in the Results Appendix. Some of the models have been run for the purpose of sensitivity testing. Four scenarios are presented here:

| Scenario name | Key assumptions | Model No. |
|---|---|---|
| Current Trends Scenario 1: | CSO M1F1 assumptions[11] | 1 |
| Current Trends Scenario 2: | CSO M1F2 assumptions | 4 |
| Economic Growth Scenario 1: | Existing shares of employment growth | 7 |
| Economic Growth Scenario 2: | Revised shares of employment growth | 8 |

The first pair of scenarios are based around CSO projections undertaken in 1999, with regional allocations as described in the previous section.

The second pair are driven by the expansion of jobs projected in the ESRI Medium Term Review[12], sector by sector, for what are defined in this report as the 'basic' sectors. Other 'market service' sectors have been linked to population levels, and the model iteratively derives an equilibrium level of jobs and population in specified years. Economic Growth Scenario 1 assumes that the growth of basic jobs in each sector in each region reflects the 1996 base level of employment in that sector in that region and its projected national growth rate. Scenario 2 removes a proportion of the increase in jobs in key sectors projected for Dublin, and redistributes them to the other regions.[13]

The highlights of the results of these models are as follows:

### Main results at State level

- Using Current Trends Scenario 1 (international migration shares observed in the period 1991-98 and the internal migrant flows relating to 1995-96), the population of the State will be 4.51 million in 2020. Using Current Trends Scenario 2, population is projected at 4.39 million. The Economic Growth Scenarios provide much higher results – 4.95 million by 2020. (Tables 3.1 to 3.4)
- Households are projected to rise by 615,000 over a twenty-year period, according to the current trends scenarios – and by 788,000 according to the economic growth scenarios. (Tables 3.8 to 3.11)

11. These scenarios are adaptations of models used by the Central Statistics Office in national population projections made in 1999. M1 and M2 relate to migration (M1 calls for net migration of 20,000 p.a. in the period 1996 to 2001, 15,000 p.a. to 2006, 10,000 p.a. to 2011 and 5,000 p.a. thereafter; M2 calls for 15,000, 5,000, zero and -5,000 in the same periods). F1 and F2 relate to fertility, with F1 calling for TFR to increase from its 1998 level to 2.0 by 2001 and remain constant thereafter, and F2 calling for a decrease after 2001 to reach 1.75 by 2011and remaining constant thereafter.
12. Duffy, Fitz Gerald, Kearney and Smyth, Medium Term Review 1999-2005, ESRI, October 1999
13. See section 4.6 for details of this process

- The labour force will rise by 348,000 under the current trends Scenario 1 and by some 587,000 under the economic growth scenarios. (Tables 3.12 to 3.15)

**Component contributions and sensitivity at State level**

- Under current trends scenarios, up to three-quarters of population growth is attributable to natural increase over thirty years: under the economic growth scenarios, migration accounts for 45 per cent of the growth. (Tables 3.16 and 3.17)
- Nearly half (47%) of the change in the number of households is due to increases in headship rates, under the current trends scenarios. (Table 3.18)
- About one quarter (27%) of the change in the number in the labour force is due to increases in participation rates, under the current trends scenarios. (Table 3.19)
- The impact on population of reduced mortality is 163,000 over a thirty-year period
- Under Current Trends Scenario 1, the impact on population of changing fertility is small, because the F1 assumption retains the rate close to its present level. The 20-year population out-turn reduces by 120,000, when the F2 assumption is applied.
- Under the economic growth scenarios, if the rate of growth of basic sectors of industry is halved (for those that are expanding), the total population out-turn is reduced by 0.14 million in 2020.

**At regional level**

- Under the current trends scenarios, the share of population in Dublin and the Mid-east region rises from 40 per cent in 2000 to 44 per cent in 2020. It has been noted that there may have been a shift in the pattern of migration away from Dublin and the Mid-east in recent years, though more data are required to establish the extent of this trend and to assess how enduring this shift is likely to be. If established, such a move would have a major impact on relative growth rates. (Table 3.5)
- Setting internal migration flows to zero, results in a steady share for Dublin and the Mid-east Region.
- Under the current trends scenarios, every region gains population to 2020 except the Border region, with the strongest gains outside Dublin and the Mid-east in the West and the Mid-west. (Tables 3.1 to 3.4)
- Under the Economic Growth Scenario 1, growth is much stronger in Dublin and the Mid-east, and much weaker elsewhere, with the exception of the South-west. This is a reflection of the dynamically reinforcing nature of the economic-demographic interaction within the model, which favours the

largest centres. It is unlikely that the rate of growth of Dublin proposed by this model could be sustained, and supply side constraints would almost certainly begin to bite at some point during the projection period. For example, the model calls for 500,000 additional households in the Greater Dublin Region over twenty years, implying an annual housebuilding rate approaching 30,000. This is a very unlikely scenario. The recent report by Peter Bacon and Associates[14] suggests demand of 20,000 per annum over the next five years.

- The Economic Growth Scenario 2 modifies this trend by re-assigning a proportion of the jobs growth in the basic sectors out of Dublin to other regions. The level of re-assignment chosen is illustrative. Details of the assumptions in this regard are set out in Table 4.32. Dependent on the vigour of the action undertaken, the Greater Dublin Area either stabilises at 40 per cent of the State population, or climbs slowly to reach a plateau at about 44 per cent. The precise target level of re-assignment adopted will be an outcome of the strategy being prepared in the next stage of the NSS, and the regional distribution will also form part of this strategy. For this reason, no regional breakdowns are provided in the results for EGS2 provided in Section 3 of this report, and it should again be underlined that the levels chosen are illustrative.

**At main city level**

- Because of the lack of data on gross migration flows, these results must be regarded as indicative only.
- Under the current trend scenarios, the population in all main cities taken together is forecast to rise from 60 per cent in 2000 to 64.6% in 2020.
- The share of households and labour force will behave similarly. (Tables 3.1 to 3.5)
- Under the Economic Growth Scenario 1, the population of the main cities will rise to 68% largely as a result of the performance of Dublin.
- The growth performance of the main cities accounts for virtually all of the growth in the State under both the Current Trend and Economic Growth models.

14. Peter Bacon and Associates, The Housing Market in

## 2.3 Conclusions, key issues and caveats

The Current Trends Scenario 1, which has been used as the benchmark in this work, suggests that the position of Dublin is continuing to strengthen, vis-à-vis the remainder of the State. However, sensitivity tests with differing patterns of both internal and international migration, show that the model is relatively sensitive to shifts in this area.

The Current Trends Scenario 1, which has been used as the benchmark in this work, suggests that the position of Dublin is continuing to strengthen, vis-à-vis the remainder of the State. However, sensitivity tests with differing patterns of both internal and international migration, show that the model is relatively sensitive to shifts in this area.

The Dublin & the Mid-East regions currently account for approximately 40% of the population of the State as a whole. Under Economic Growth Scenario 1 this share of the population can be expected to rise to 45%.

The scale and nature of the task of achieving Balanced Regional Development and the fact that Dublin & the Mid-East have a population and employment momentum of their own is illustrated in Economic Growth Scenario 2(1). This model indicates that, just to maintain Dublin & Mid-East's share of the population at 40%, some three-quarters of the job growth in modern basic sector employment that would occur in Dublin & Mid-East would have to locate in the other regions over the next 10 years. Such a scenario would clearly be difficult to achieve and could have implications for the continued economic competitiveness of both Dublin and the Country. It is doubtful if the regions are currently in a position, to accommodate such rates of growth in the absence of the infrastructure provisions of the NDP and whether the employment agencies could attract investment to the regions at the scale required.

Economic Growth Scenario 2(2) uses a more graduated approach to the redeployment of jobs in the modern basic sector to the Regions, (24% in the first 10 years) thereby protecting Dublin's competitiveness. Even in this scenario, the share of the national population that would be located in the Dublin & Mid-East Regions will still rise to approximately 44% in the long term.

There are some caveats to the above scenarios:

The extent of the growth in the labour force called forth by the economic growth scenarios leads to doubts over the projected employment growth rates used by the ESRI, in the longer term.

In particular, the rates of expansion suggested by the economic growth scenarios, for Dublin, appear to be extreme and probably unattainable, partly because it is difficult to build in consideration of supply side constraints into this scenario eg impact of housing market or labour market diseconomies.

In any event, the main cities are clearly the key to regional balance, accounting for two-thirds of people, jobs and houses, and for virtually all growth. Economic Growth Scenario 2 indicates the effectiveness in attaining regional balance, by re-deploying modern basic employment opportunities to the regions outside Dublin and the Mid-east, primarily, to the benefit of the main cities.

The assumption that there are no-cross regional migration flows probably results in an understatement of the performance of the Border region, which is likely to benefit from the expansion of employment in Dublin, through, in the Eastern part of the Border region by increased commuter flows. The impact of commuter flows is, however, taken into account in the calculations which underlie EGS2.

The key period in planning terms is the next ten years, when the bulk of growth will take place in housing, jobs and population. Although, as has already been stressed, the EGS2 scenarios are illustrative, it is realistic to suppose that the lower distribution EGS2-2 Scenario provides a more attainable goal and in that sense should be given more weight for policy testing and review purposes.

# 3 Detailed results

## 3.1 Population change results

**Table 3.1: Current Trends: Scenario 1 - total population**

| Region | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Border | 407,295 | 414,100 | 415,233 | 413,139 | 408,820 | 401,934 | 391,918 | 378,684 |
| Dublin | 1,058,264 | 1,109,800 | 1,201,452 | 1,290,034 | 1,362,841 | 1,424,351 | 1,479,535 | 1,534,774 |
| ME | 347,407 | 387,300 | 437,065 | 484,383 | 526,086 | 566,093 | 603,862 | 639,820 |
| Midlands | 205,542 | 210,200 | 214,017 | 216,768 | 218,231 | 218,747 | 217,498 | 214,610 |
| MW | 317,069 | 329,500 | 344,610 | 358,910 | 370,843 | 380,552 | 387,748 | 393,127 |
| SE | 391,517 | 402,700 | 418,449 | 432,220 | 443,521 | 453,657 | 461,234 | 466,298 |
| SW | 546,640 | 558,700 | 573,481 | 586,535 | 597,097 | 604,757 | 608,608 | 609,367 |
| West | 352,353 | 375,100 | 396,197 | 419,454 | 440,548 | 458,505 | 472,827 | 485,557 |
| **TOTAL** | **3,626,087** | **3,787,400** | **4,000,505** | **4,201,443** | **4,367,986** | **4,508,596** | **4,623,231** | **4,722,236** |
| *Change* | | *161,313* | *213,105* | *200,938* | *166,543* | *140,610* | *114,635* | *99,005* |
| Dublin & ME | 1,405,671 | 1,497,100 | 1,638,518 | 1,774,417 | 1,888,927 | 1,990,443 | 2,083,397 | 2,174,593 |
| Cork | 324,730 | 333,490 | 344,787 | 354,972 | 363,743 | 370,818 | 375,604 | 378,500 |
| Limerick | 214,793 | 229,163 | 236,260 | 247,689 | 257,604 | 266,072 | 272,860 | 278,425 |
| Galway | 124,501 | 134,780 | 147,865 | 161,175 | 174,144 | 186,303 | 197,342 | 208,015 |
| Waterford | 111,166 | 115,691 | 122,939 | 129,486 | 136,334 | 141,498 | 145,982 | 149,740 |
| Total M.Cities | 2,180,861 | 2,310,224 | 2,490,369 | 2,667,739 | 2,820,752 | 2,955,134 | 3,075,185 | 3,189,273 |
| Remainder | 1,445,226 | 1,477,176 | 1,510,136 | 1,533,704 | 1,547,234 | 1,553,462 | 1,548,046 | 1,532,963 |
| % in M.Cities | 60% | 61% | 62% | 63% | 65% | 66% | 67% | 68% |

**Table 3.2: Current Trends: Scenario 2 - total population**

| Population | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Border | 407,295 | 414,100 | 413,834 | 409,235 | 401,970 | 392,400 | 379,881 | 364,087 |
| Dublin | 1,058,264 | 1,109,800 | 1,196,598 | 1,275,324 | 1,336,165 | 1,386,686 | 1,430,776 | 1,473,127 |
| ME | 347,407 | 387,300 | 435,391 | 479,293 | 516,489 | 551,950 | 585,008 | 615,693 |
| Midlands | 205,542 | 210,200 | 213,281 | 214,588 | 214,176 | 212,896 | 209,960 | 205,347 |
| MW | 317,069 | 329,500 | 343,391 | 355,218 | 363,988 | 370,718 | 375,036 | 377,325 |
| SE | 391,517 | 402,700 | 416,992 | 427,923 | 435,524 | 441,987 | 445,947 | 447,194 |
| SW | 546,640 | 558,700 | 571,474 | 580,598 | 586,183 | 589,080 | 588,299 | 584,106 |
| West | 352,353 | 375,100 | 394,708 | 414,684 | 431,464 | 445,452 | 456,046 | 464,722 |
| **TOTAL** | **3,626,087** | **3,787,400** | **3,985,669** | **4,156,862** | **4,285,960** | **4,391,170** | **4,470,950** | **4,531,602** |
| *Change* | | *161,313* | *198,269* | *171,193* | *129,098* | *105,210* | *79,780* | *60,652* |
| Dublin & ME | 1,405,671 | 1,497,100 | 1,631,989 | 1,754,616 | 1,852,655 | 1,938,637 | 2,015,783 | 2,088,820 |
| Cork | 324,730 | 333,490 | 343,580 | 351,379 | 357,094 | 361,206 | 363,070 | 362,810 |
| Limerick | 214,793 | 229,163 | 235,424 | 245,141 | 252,842 | 259,196 | 263,914 | 267,234 |
| Galway | 124,501 | 134,780 | 147,310 | 159,342 | 170,553 | 180,999 | 190,338 | 199,089 |
| Waterford | 111,166 | 115,691 | 122,506 | 128,190 | 133,925 | 138,010 | 141,427 | 144,025 |
| Total M.Cities | 2,180,861 | 2,310,224 | 2,480,809 | 2,638,668 | 2,767,069 | 2,878,048 | 2,974,532 | 3,061,978 |
| Remainder | 1,445,226 | 1,477,176 | 1,504,860 | 1,518,194 | 1,518,891 | 1,513,122 | 1,496,418 | 1,469,624 |
| % in M.Cities | 60% | 61% | 62% | 63% | 65% | 66% | 67% | 68% |

### Table 3.3: Economic Growth Scenario 1 - total population

| Population | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Border | 407,295 | 414,100 | 424,663 | 435,405 | 438,102 | 444,140 | 446,755 | 450,309 |
| Dublin | 1,058,264 | 1,109,800 | 1,276,014 | 1,429,845 | 1,563,421 | 1,680,373 | 1,804,801 | 1,963,175 |
| ME | 347,407 | 387,300 | 470,912 | 557,141 | 595,877 | 622,102 | 635,960 | 656,236 |
| Midlands | 205,542 | 210,200 | 219,240 | 231,595 | 245,001 | 264,100 | 278,220 | 288,715 |
| MW | 317,069 | 329,500 | 349,500 | 365,202 | 372,848 | 379,705 | 381,781 | 380,873 |
| SE | 391,517 | 402,700 | 421,693 | 440,154 | 451,547 | 468,190 | 482,068 | 494,005 |
| SW | 546,640 | 558,700 | 603,655 | 641,539 | 673,187 | 710,152 | 746,356 | 780,137 |
| West | 352,353 | 375,100 | 389,037 | 408,242 | 427,767 | 447,531 | 458,139 | 456,451 |
| **TOTAL** | **3,626,087** | **3,787,400** | **4,154,713** | **4,509,123** | **4,767,750** | **5,016,294** | **5,234,080** | **5,469,901** |
| Dublin & ME | 1,405,671 | 1,497,100 | 1,746,926 | 1,986,986 | 2,159,298 | 2,302,476 | 2,440,762 | 2,619,411 |
| Cork | 324,730 | 333,490 | 362,928 | 388,260 | 410,096 | 435,443 | 460,616 | 484,572 |
| Limerick | 214,793 | 229,163 | 239,612 | 252,031 | 258,997 | 265,480 | 268,660 | 269,747 |
| Galway | 126,947 | 140,109 | 149,609 | 161,501 | 173,948 | 186,925 | 196,412 | 200,728 |
| Waterford | 111,166 | 115,691 | 124,413 | 133,138 | 139,898 | 148,350 | 156,089 | 163,337 |
| Total M.Cities | 2,183,307 | 2,315,553 | 2,623,488 | 2,921,916 | 3,142,237 | 3,338,674 | 3,522,539 | 3,737,795 |
| Remainder | 1,442,780 | 1,471,847 | 1,531,225 | 1,587,207 | 1,625,513 | 1,677,620 | 1,711,541 | 1,732,106 |
| % in M.Cities | 60% | 61% | 63% | 65% | 66% | 67% | 67% | 68% |

### Table 3.4: Economic Growth Scenario2 - total population OPTION 1 (for definition of Options, see section 4.6)

| Population | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Border | 407,295 | 414,100 | 436,751 | 457,344 | 467,034 | 478,661 | 485,235 | 491,617 |
| Dublin | 1,058,264 | 1,109,800 | 1,173,964 | 1,244,629 | 1,316,121 | 1,380,794 | 1,465,496 | 1,593,519 |
| ME | 347,407 | 387,300 | 470,912 | 557,141 | 595,877 | 622,102 | 635,960 | 656,236 |
| Midlands | 205,542 | 210,200 | 231,729 | 254,978 | 276,826 | 302,937 | 321,862 | 334,973 |
| MW | 317,069 | 329,500 | 373,782 | 408,898 | 430,454 | 448,839 | 459,777 | 465,880 |
| SE | 391,517 | 402,700 | 434,053 | 463,031 | 482,250 | 505,271 | 523,560 | 538,171 |
| SW | 546,640 | 558,700 | 629,951 | 689,876 | 738,802 | 790,903 | 839,017 | 881,684 |
| West | 352,353 | 375,100 | 400,878 | 428,982 | 454,904 | 479,827 | 494,198 | 495,335 |
| **TOTAL** | **3,626,087** | **3,787,400** | **4,152,020** | **4,504,879** | **4,762,267** | **5,009,335** | **5,225,105** | **5,457,415** |
| Dublin & ME | 1,405,671 | 1,497,100 | 1,644,876 | 1,801,770 | 1,911,998 | 2,002,896 | 2,101,456 | 2,249,755 |
| Cork | 324,730 | 333,490 | 378,738 | 417,514 | 450,067 | 484,958 | 517,802 | 547,646 |
| Limerick | 214,793 | 229,163 | 256,260 | 282,187 | 299,012 | 313,817 | 323,546 | 329,952 |
| Galway | 126,947 | 140,109 | 154,163 | 169,706 | 184,983 | 200,414 | 211,871 | 217,827 |
| Waterford | 111,166 | 115,691 | 131,516 | 146,902 | 159,605 | 173,624 | 186,378 | 198,136 |
| Total M.Cities | 2,183,307 | 2,315,553 | 2,565,553 | 2,818,079 | 3,005,665 | 3,175,709 | 3,341,053 | 3,543,316 |
| Remainder | 1,442,780 | 1,471,847 | 1,586,467 | 1,686,800 | 1,756,602 | 1,833,626 | 1,884,052 | 1,914,099 |
| % in M.Cities | 60% | 61% | 62% | 63% | 63% | 63% | 64% | 65% |

## OPTION 2 (for definition of Options, see section 4.6)

| Population | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Border | 407,295 | 414,100 | 428,534 | 442,606 | 448,172 | 457,166 | 462,032 | 467,619 |
| Dublin | 1,058,264 | 1,109,800 | 1,243,329 | 1,369,026 | 1,477,305 | 1,567,360 | 1,670,184 | 1,808,241 |
| ME | 347,407 | 387,300 | 470,912 | 557,141 | 595,877 | 622,102 | 635,960 | 656,236 |
| Midlands | 205,542 | 210,200 | 223,240 | 239,264 | 256,031 | 278,613 | 295,368 | 307,962 |
| MW | 317,069 | 329,500 | 357,277 | 379,550 | 392,917 | 405,801 | 412,675 | 416,319 |
| SE | 391,517 | 402,700 | 425,651 | 447,660 | 462,209 | 482,111 | 498,463 | 512,475 |
| SW | 546,640 | 558,700 | 612,077 | 657,406 | 695,981 | 740,425 | 782,816 | 822,308 |
| West | 352,353 | 375,100 | 392,829 | 415,055 | 437,233 | 459,753 | 472,467 | 472,756 |
| **TOTAL** | **3,626,087** | **3,787,400** | **4,153,849** | **4,507,707** | **4,765,725** | **5,013,332** | **5,229,965** | **5,463,916** |
| Dublin & ME | 1,405,671 | 1,497,100 | 1,714,241 | 1,926,168 | 2,073,182 | 2,189,463 | 2,306,145 | 2,464,477 |
| Cork | 324,730 | 333,490 | 367,992 | 397,863 | 423,982 | 454,006 | 483,117 | 510,766 |
| Limerick | 214,793 | 229,163 | 244,944 | 261,933 | 272,937 | 283,726 | 290,401 | 294,851 |
| Galway | 126,947 | 140,109 | 151,068 | 164,196 | 177,797 | 192,029 | 202,555 | 207,898 |
| Waterford | 111,166 | 115,690 | 128,106 | 142,473 | 153,445 | 163,859 | 169,583 | 173,507 |
| Total M.Cities | 2,183,307 | 2,315,552 | 2,606,351 | 2,892,633 | 3,101,343 | 3,283,083 | 3,451,801 | 3,651,499 |
| Remainder | 1,442,780 | 1,471,848 | 1,547,498 | 1,615,074 | 1,664,382 | 1,730,249 | 1,778,164 | 1,812,417 |
| % in M.Cities | 60% | 61% | 63% | 64% | 65% | 65% | 66% | 67% |

### Figure 1:State Population Change 2000-2030

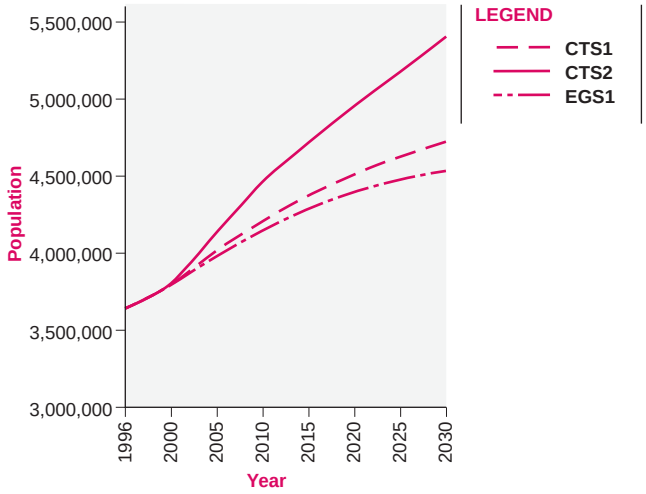


**Figure 2: % Population Change by Region 2000-2020**

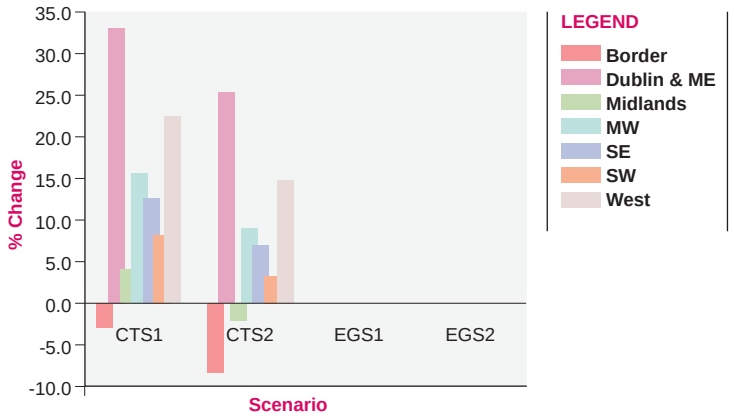



Figure 1 illustrates the powerful impact of linking employment and population growth in demand terms. No consideration is taken, in this model, of supply-side constraints.

Figure 2 illustrates the strong performance of the Dublin and ME regions under the first two scenarios. This performance is even stronger under EGS1, as illustrated in Table 3.5.

Table 3.5 also shows the significant impact in terms of regional share of intervention under both the EGS2-1 and EGS2-2 scenarios, with the former stabilising population at the existing level.

## 3.2 Population distribution

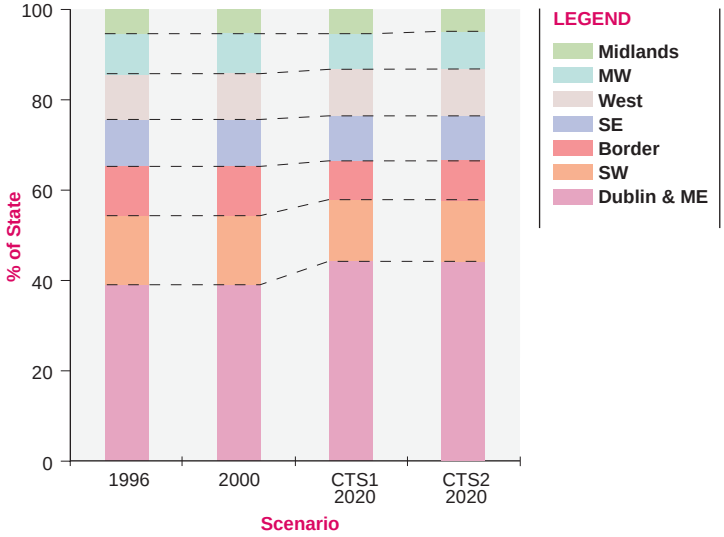
**Table 3.5: Percentage distribution of State population**

| Region | 1996 | 2000 | 2020 | | | | |
|---|---|---|---|---|---|---|---|
| | | | CTS1 | CTS2 | EGS1 | EGS2-1 | EGS2-2 |
| | | | CTS1 | CTS2 | EGS1 | EGS2-1 | EGS2-2 |
| Border | 11.2 | 10.9 | 8.9 | 8.9 | 8.85 | 9.83 | 9.43 |
| Dublin | 29.2 | 29.3 | 31.6 | 31.6 | 33.50 | 28.57 | 32.06 |
| ME | 9.6 | 10.2 | 12.6 | 12.6 | 12.40 | 11.92 | 11.90 |
| Midlands | 5.7 | 5.5 | 4.9 | 4.8 | 5.26 | 5.85 | 5.42 |
| MW | 8.7 | 8.7 | 8.4 | 8.4 | 7.57 | 8.94 | 8.13 |
| SE | 10.8 | 10.6 | 10.1 | 10.1 | 9.33 | 9.94 | 9.52 |
| SW | 15.1 | 14.8 | 13.4 | 13.4 | 14.16 | 15.54 | 14.62 |
| West | 9.7 | 9.9 | 10.2 | 10.1 | 8.92 | 9.21 | 8.84 |
| **TOTAL** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |
| Dublin & ME | 38.8 | 39.5 | 44.1 | 44.1 | 45.9 | 40.0 | 43.7 |
| All M.Cities | 59.1 | 60.0 | 64.6 | 64.6 | 68.4 | 65.0 | 67.1 |

### Key to scenarios:

| | |
|---|---|
| CTS1 | Current trends, Scenario 1 |
| CTS2 | Current trends, Scenario 2 |
| EGS1 | Economic Growth Scenario 1 |
| EGS2-1 | Economic Growth Scenario 2, Option 1 |
| EGS2-2 | Economic Growth Scenario 2, Option 2 |

**Figure 3: Regional Population Shares**




## 3.3 Dependency rates

**Table 3.6: Young dependency**

| Region | 1996 | 2000 | 2020 | |
|---|---|---|---|---|
| | | | CTS1 | CTS2 |
| Border | 40% | 35% | 29% | 26% |
| Dublin | 32% | 29% | 32% | 28% |
| ME | 40% | 35% | 32% | 29% |
| Midlands | 40% | 36% | 34% | 30% |
| MW | 37% | 33% | 31% | 28% |
| SE | 38% | 34% | 32% | 29% |
| SW | 36% | 33% | 32% | 28% |
| West | 39% | 32% | 36% | 33% |
| **TOTAL** | **37%** | **32%** | **32%** | **29%** |
| Dublin & ME | 34% | 31% | 32% | 28% |

**Table 3.7: Old dependency**

| Region | 1996 | 2000 | 2020 | |
|---|---|---|---|---|
| | | | CTS1 | CTS2 |
| Border | 21% | 20% | 28% | 28% |
| Dublin | 15% | 14% | 20% | 20% |
| ME | 14% | 12% | 19% | 19% |
| Midlands | 19% | 19% | 26% | 26% |
| MW | 18% | 17% | 23% | 23% |
| SE | 19% | 18% | 25% | 25% |
| SW | 19% | 18% | 25% | 26% |
| West | 22% | 20% | 23% | 23% |
| **TOTAL** | **18%** | **17%** | **22%** | **23%** |
| Dublin & ME | 14% | 14% | 19% | 19% |

Tables 3.6 and 3.7 confirm a fall in young dependency and a rise in old dependency in all regions under both present trends scenarios. This trend is also present under the EGS scenarios.

## 3.4 Households

**Table 3.8: Current Trends: Scenario 1 - total households**

| Region | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Border | 127,308 | 139,600 | 151,725 | 164,056 | 171,684 | 175,235 | 176,768 | 176,674 |
| Dublin | 336,337 | 387,600 | 461,341 | 526,505 | 572,247 | 611,082 | 650,572 | 692,850 |
| ME | 99,612 | 121,800 | 150,819 | 181,544 | 206,376 | 228,184 | 249,509 | 270,617 |
| Midlands | 62,437 | 69,200 | 76,136 | 83,882 | 88,461 | 90,748 | 92,080 | 92,964 |
| MW | 97,981 | 109,700 | 125,299 | 141,566 | 152,262 | 159,655 | 166,185 | 172,540 |
| SE | 120,295 | 135,000 | 150,641 | 167,884 | 179,753 | 187,783 | 194,276 | 200,290 |
| SW | 169,499 | 188,000 | 209,758 | 231,275 | 244,994 | 253,639 | 260,222 | 265,957 |
| West | 109,966 | 124,300 | 142,668 | 162,060 | 174,977 | 183,555 | 192,151 | 202,541 |
| **TOTAL** | **1,123,434** | **1,275,200** | **1,468,387** | **1,658,771** | **1,790,753** | **1,889,881** | **1,981,762** | **2,074,432** |
| Dublin & ME | 435,949 | 509,400 | 612,159 | 708,049 | 778,623 | 839,266 | 900,080 | 963,467 |
| Cork | 97,896 | 111,151 | 125,514 | 138,863 | 147,732 | 154,198 | 160,035 | 165,067 |
| Limerick | 64,736 | 75,629 | 85,763 | 96,940 | 104,721 | 110,731 | 116,602 | 122,255 |
| Galway | 36,646 | 43,769 | 52,500 | 61,155 | 67,972 | 74,092 | 80,390 | 86,937 |
| Waterford | 33,946 | 38,347 | 44,258 | 50,295 | 55,254 | 58,571 | 61,489 | 64,318 |
| Total M.Cities | 669,173 | 778,296 | 920,194 | 1,055,302 | 1,154,302 | 1,236,858 | 1,318,596 | 1,402,044 |
| Remainder | 454,261 | 496,904 | 548,193 | 603,469 | 636,451 | 653,023 | 663,166 | 672,388 |
| % in M.Cities | 60% | 61% | 63% | 64% | 64% | 65% | 67% | 68% |

### Table 3.9: Current Trends: Scenario 2 - total households

| Region | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Border | 127,308 | 139,600 | 151,725 | 164,056 | 171,684 | 175,208 | 176,501 | 175,511 |
| Dublin | 336,337 | 387,600 | 461,341 | 526,505 | 572,247 | 610,906 | 649,053 | 687,207 |
| ME | 99,612 | 121,800 | 150,819 | 181,544 | 206,376 | 228,161 | 249,236 | 269,271 |
| Midlands | 62,437 | 69,200 | 76,136 | 83,882 | 88,461 | 90,735 | 91,932 | 92,317 |
| MW | 97,981 | 109,700 | 125,299 | 141,566 | 152,262 | 159,636 | 165,969 | 171,472 |
| SE | 120,295 | 135,000 | 150,64 | 167,884 | 179,753 | 187,751 | 193,966 | 198,958 |
| SW | 169,499 | 188,000 | 209,758 | 231,275 | 244,994 | 253,584 | 259,759 | 264,108 |
| West | 109,966 | 124,300 | 142,668 | 162,060 | 174,977 | 183,510 | 191,759 | 201,005 |
| **TOTAL** | **1,123,434** | **1,275,200** | **1,468,387** | **1,658,771** | **1,790,753** | **1,889,490** | **1,978,175** | **2,059,848** |
| Dublin & ME | 435,949 | 509,400 | 612,159 | 708,049 | 778,623 | 839,067 | 898,289 | 956,478 |
| Cork | 97,896 | 111,151 | 125,542 | 138,922 | 147,779 | 154,164 | 159,711 | 163,870 |
| Limerick | 64,736 | 75,629 | 85,792 | 96,990 | 104,751 | 110,708 | 116,414 | 121,454 |
| Galway | 36,646 | 43,769 | 52,521 | 61,177 | 67,940 | 73,981 | 80,108 | 86,181 |
| Waterford | 33,946 | 38,347 | 44,256 | 50,292 | 55,275 | 58,625 | 61,514 | 64,077 |
| Total M.Cities | 669,173 | 778,296 | 920,270 | 1,055,430 | 1,154,368 | 1,236,545 | 1,316,036 | 1,392,060 |
| Remainder | 454,261 | 496,904 | 548,117 | 603,341 | 636,385 | 652,945 | 662,139 | 667,788 |
| % in M.Cities | 60% | 61% | 63% | 64% | 64% | 65% | 67% | 68% |

### Table 3.10: Economic Growth Scenario 1 - total households

| Region | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Border | 127,308 | 139,600 | 154,959 | 172,424 | 182,978 | 191,391 | 198,034 | 205,041 |
| Dublin | 336,337 | 387,600 | 488,539 | 581,791 | 652,226 | 712,931 | 781,505 | 869,446 |
| ME | 99,612 | 121,800 | 161,873 | 207,609 | 231,961 | 247,981 | 260,978 | 278,090 |
| Midlands | 62,437 | 69,200 | 77,878 | 89,252 | 98,410 | 107,655 | 114,809 | 120,872 |
| MW | 97,981 | 109,700 | 127,012 | 144,014 | 152,987 | 159,104 | 163,726 | 167,775 |
| SE | 120,295 | 135,000 | 151,743 | 170,816 | 182,757 | 193,180 | 202,231 | 211,043 |
| SW | 169,499 | 188,000 | 219,936 | 251,591 | 273,501 | 293,154 | 312,643 | 332,373 |
| West | 109,966 | 124,300 | 140,230 | 157,884 | 170,210 | 179,594 | 186,674 | 190,956 |
| **TOTAL** | **1,123,238** | **1,275,200** | **1,523,847** | **1,777,982** | **1,945,835** | **2,084,971** | **2,220,145** | **2,374,979** |
| Dublin & ME | 435,949 | 509,400 | 650,413 | 789,400 | 884,187 | 960,912 | 1,042,484 | 1,147,537 |
| Cork | 97,896 | 111,151 | 131,624 | 151,128 | 165,047 | 178,351 | 192,274 | 206,157 |
| Limerick | 64,736 | 75,629 | 86,936 | 98,624 | 105,220 | 110,344 | 114,872 | 118,885 |
| Galway | 37,452 | 45,462 | 53,057 | 61,022 | 67,626 | 74,161 | 79,984 | 84,039 |
| Waterford | 33,946 | 38,347 | 44,769 | 51,669 | 56,622 | 61,211 | 65,480 | 69,779 |
| Total M.Cities | 669,979 | 779,989 | 966,799 | 1,151,843 | 1,278,702 | 1,384,979 | 1,495,094 | 1,626,397 |
| Remainder | 453,259 | 495,211 | 557,048 | 626,139 | 667,133 | 699,992 | 725,051 | 748,582 |
| % in M.Cities | 60% | 61% | 63% | 65% | 66% | 66% | 67% | 68% |

## Table 3.11: Economic Growth Scenario2 - total households
## OPTION 1 (Note: for definition of Options, see section 4.6)

| Region | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Border | 127,308 | 139,600 | 159,105 | 180,700 | 194,054 | 204,513 | 212,812 | 221,486 |
| Dublin | 336,337 | 387,600 | 451,313 | 508,546 | 553,924 | 594,428 | 645,595 | 716,805 |
| ME | 99,612 | 121,800 | 161,873 | 207,609 | 231,961 | 247,981 | 260,978 | 278,090 |
| Midlands | 62,437 | 69,200 | 82,044 | 97,734 | 110,052 | 121,743 | 130,789 | 138,438 |
| MW | 97,981 | 109,700 | 135,521 | 160,897 | 175,543 | 185,992 | 194,381 | 202,269 |
| SE | 120,295 | 135,000 | 155,942 | 179,285 | 194,211 | 206,890 | 217,715 | 228,102 |
| SW | 169,499 | 188,000 | 228,807 | 269,443 | 298,084 | 323,316 | 347,663 | 371,952 |
| West | 109,966 | 124,300 | 144,262 | 165,599 | 180,408 | 191,622 | 200,256 | 206,183 |
| **TOTAL** | **1,123,238** | **1,275,200** | **1,522,707** | **1,775,583** | **1,942,383** | **2,080,627** | **2,214,766** | **2,367,767** |
| Dublin & ME | 435,949 | 509,400 | 613,186 | 716,155 | 785,885 | 842,409 | 906,574 | 994,895 |
| Cork | 97,896 | 111,151 | 136,949 | 161,906 | 179,978 | 196,783 | 213,804 | 230,628 |
| Limerick | 64,736 | 75,629 | 92,760 | 110,246 | 120,839 | 129,076 | 136,356 | 143,198 |
| Galway | 37,452 | 45,462 | 54,605 | 64,066 | 71,765 | 79,180 | 85,794 | 90,692 |
| Waterford | 33,946 | 38,347 | 47,250 | 56,880 | 64,276 | 71,093 | 77,503 | 83,979 |
| Total M.Cities | 669,979 | 779,989 | 944,750 | 1,109,253 | 1,222,743 | 1,318,541 | 1,420,031 | 1,543,392 |
| Remainder | 453,259 | 495,211 | 577,957 | 666,330 | 719,640 | 762,086 | 794,735 | 824,375 |
| % in M.Cities | 60% | 61% | 62% | 62% | 63% | 63% | 64% | 65% |

## OPTION 2 (Note: for definition of Options, see section 4.6)

| Region | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Border | 127,308 | 139,600 | 156,287 | 175,139 | 186,837 | 196,370 | 203,933 | 211,906 |
| Dublin | 336,337 | 387,600 | 476,616 | 557,741 | 617,909 | 667,946 | 727,382 | 805,805 |
| ME | 99,612 | 121,800 | 161,873 | 207,609 | 231,961 | 247,981 | 260,978 | 278,090 |
| Midlands | 62,437 | 69,200 | 79,212 | 92,033 | 102,454 | 112,956 | 121,131 | 128,168 |
| MW | 97,981 | 109,700 | 129,737 | 149,556 | 160,854 | 169,308 | 175,930 | 182,109 |
| SE | 120,295 | 135,000 | 153,088 | 173,594 | 186,743 | 198,363 | 208,388 | 218,158 |
| SW | 169,499 | 188,000 | 222,778 | 257,450 | 282,052 | 304,513 | 326,473 | 348,740 |
| West | 109,966 | 124,300 | 141,522 | 160,418 | 173,774 | 184,177 | 192,102 | 197,312 |
| **TOTAL** | **1,123,238** | **1,275,200** | **1,523,481** | **1,777,190** | **1,944,611** | **2,083,258** | **2,217,891** | **2,371,863** |
| Dublin & ME | 435,949 | 509,400 | 638,490 | 765,350 | 849,870 | 915,927 | 988,360 | 1,083,895 |
| Cork | 97,896 | 111,151 | 133,330 | 154,665 | 170,241 | 185,294 | 200,778 | 216,280 |
| Limerick | 64,736 | 75,629 | 88,801 | 102,439 | 110,668 | 117,454 | 123,427 | 128,992 |
| Galway | 37,452 | 45,462 | 53,552 | 62,021 | 69,073 | 76,073 | 82,306 | 86,819 |
| Waterford | 33,946 | 38,347 | 45,925 | 54,631 | 60,642 | 65,576 | 69,012 | 72,143 |
| Total M.Cities | 669,979 | 779,989 | 960,098 | 1,139,106 | 1,260,494 | 1,360,324 | 1,463,883 | 1,588,129 |
| Remainder | 453,259 | 495,211 | 563,383 | 638,084 | 684,117 | 722,934 | 754,008 | 783,734 |
| % in M.Cities | 60% | 61% | 63% | 64% | 65% | 65% | 66% | 67% |

**Figure 4: State Household Change 2000-2030**

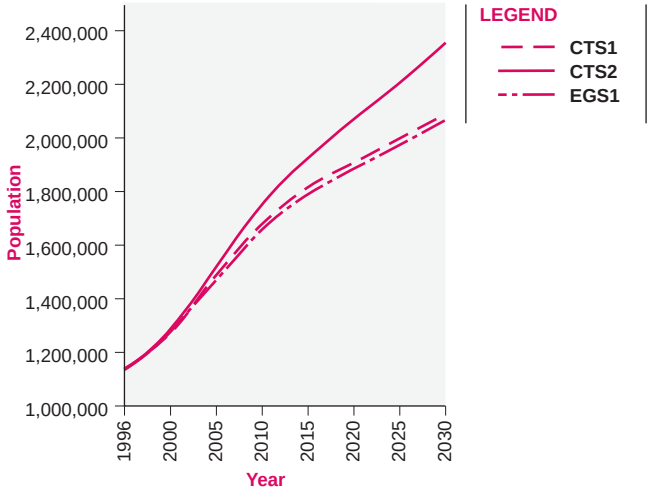



**Figure 5: % Household Change by Region 2000-2020**

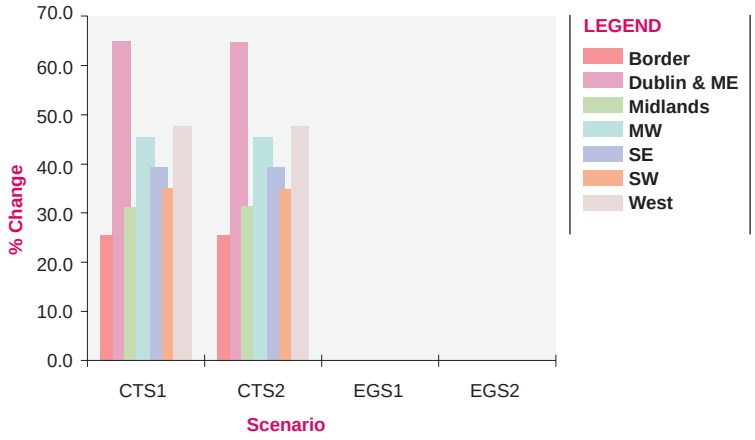



Figure 4 illustrates the steep rise in the number of households projected to 2030, and in particular, the front-loading of this growth in the period to 2010.

Figure 5 shows that there is greater uniformity in the rate of growth of households than of population, with all regions showing strong positive growth. Dublin and the Mid-east are again dominant.

## 3.5 Labour force

**Table 3.12: Current Trends: Scenario 1 - total labour force by place of residence**

| Region | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Border | 154,556 | 173,051 | 177,963 | 177,855 | 175,644 | 172,215 | 167,673 | 161,459 |
| Dublin | 478,822 | 552,465 | 606,979 | 643,629 | 670,921 | 702,754 | 740,381 | 769,474 |
| ME | 148,479 | 184,376 | 212,647 | 234,869 | 252,360 | 270,050 | 287,703 | 304,024 |
| Midlands | 81,270 | 90,178 | 95,124 | 96,798 | 96,062 | 94,516 | 93,081 | 91,849 |
| MW | 131,589 | 150,963 | 163,667 | 171,377 | 175,741 | 179,580 | 184,580 | 189,703 |
| SE | 156,701 | 175,336 | 186,801 | 193,300 | 196,142 | 197,984 | 200,379 | 202,750 |
| SW | 221,518 | 247,006 | 259,486 | 264,745 | 265,035 | 264,006 | 263,640 | 263,212 |
| West | 143,909 | 171,500 | 189,916 | 201,320 | 206,735 | 211,854 | 220,202 | 231,901 |
| **TOTAL** | **1,516,844** | **1,744,875** | **1,892,583** | **1,983,893** | **2,038,641** | **2,092,960** | **2,157,638** | **2,214,373** |
| Dublin & ME | 627,301 | 736,841 | 819,626 | 878,498 | 923,281 | 972,805 | 1,028,083 | 1,073,498 |
| Cork | 135,001 | 150,569 | 157,168 | 159,671 | 160,693 | 162,375 | 164,240 | 164,843 |
| Limerick | 91,076 | 107,772 | 112,619 | 117,497 | 121,323 | 125,975 | 131,275 | 135,366 |
| Galway | 53,513 | 64,718 | 72,443 | 78,123 | 83,269 | 89,157 | 95,763 | 101,898 |
| Waterford | 46,201 | 52,202 | 54,882 | 57,909 | 60,292 | 61,752 | 63,421 | 65,108 |
| Total M.Cities | 953,092 | 1,112,102 | 1,216,738 | 1,291,698 | 1,348,858 | 1,412,064 | 1,482,782 | 1,540,713 |
| Remainder | 563,752 | 632,773 | 675,845 | 692,195 | 689,783 | 680,896 | 674,856 | 673,660 |
| % in M.Cities | 63% | 64% | 64% | 65% | 66% | 67% | 69% | 70% |

**Table 3.13: Current Trends: Scenario 2 - total labour force by place of residence**

| Region | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Region | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
| Border | 154,556 | 173,051 | 177,963 | 177,855 | 175,644 | 171,900 | 166,090 | 157,838 |
| Dublin | 478,822 | 552,465 | 606,979 | 643,629 | 670,921 | 701,541 | 734,580 | 755,463 |
| ME | 148,479 | 184,376 | 212,647 | 234,869 | 252,360 | 269,685 | 285,716 | 299,063 |
| Midlands | 81,270 | 90,178 | 95,124 | 96,798 | 96,062 | 94,362 | 92,221 | 89,746 |
| MW | 131,589 | 150,963 | 163,667 | 171,377 | 175,741 | 179,341 | 183,244 | 186,289 |
| SE | 156,701 | 175,336 | 186,801 | 193,300 | 196,142 | 197,659 | 198,638 | 198,555 |
| SW | 221,518 | 247,006 | 259,486 | 264,745 | 265,035 | 263,630 | 261,510 | 257,833 |
| West | 143,909 | 171,500 | 189,916 | 201,320 | 206,735 | 211,559 | 218,633 | 227,693 |
| **TOTAL** | **1,516,844** | **1,744,875** | **1,892,583** | **1,983,893** | **2,038,641** | **2,089,677** | **2,140,631** | **2,172,480** |
| Dublin & ME | 627,301 | 736,841 | 819,626 | 878,498 | 923,281 | 971,226 | 1,020,296 | 1,054,527 |
| Cork | 135,001 | 150,569 | 157,216 | 159,760 | 160,751 | 162,120 | 162,834 | 161,423 |
| Limerick | 91,076 | 107,772 | 112,669 | 117,572 | 121,357 | 125,774 | 130,248 | 132,887 |
| Galway | 53,513 | 64,718 | 72,480 | 78,156 | 83,212 | 88,893 | 94,954 | 100,036 |
| Waterford | 46,201 | 52,202 | 54,879 | 57,906 | 60,314 | 61,719 | 62,996 | 63,947 |
| Total M.Cities | 953,092 | 1,112,102 | 1,216,870 | 1,291,892 | 1,348,915 | 1,409,732 | 1,471,328 | 1,512,820 |
| Remainder | 563,752 | 632,773 | 675,713 | 692,001 | 689,726 | 679,945 | 669,303 | 659,660 |
| % in M.Cities | 63% | 64% | 64% | 65% | 66% | 67% | 69% | 70% |

### Table 3.14: Economic Growth Scenario 1 - total labour force by place of residence

| Region | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Border | 154,556 | 173,051 | 183,384 | 190,039 | 190,468 | 193,353 | 195,235 | 198,141 |
| Dublin | 478,822 | 552,465 | 652,727 | 725,724 | 782,985 | 842,286 | 919,698 | 1,011,646 |
| ME | 148,479 | 184,376 | 233,152 | 276,682 | 287,478 | 294,537 | 299,765 | 311,504 |
| Midlands | 81,270 | 90,178 | 98,155 | 105,014 | 110,154 | 117,987 | 123,688 | 128,866 |
| MW | 131,589 | 150,963 | 166,667 | 174,945 | 176,282 | 178,485 | 180,815 | 182,627 |
| SE | 156,701 | 175,336 | 188,689 | 197,686 | 200,009 | 205,403 | 211,133 | 217,096 |
| SW | 221,518 | 247,006 | 277,224 | 295,153 | 304,296 | 317,401 | 333,882 | 351,123 |
| West | 143,909 | 171,500 | 185,579 | 194,890 | 200,025 | 206,660 | 212,513 | 214,999 |
| **TOTAL** | **1,516,191** | **1,744,777** | **1,981,649** | **2,153,457** | **2,241,672** | **2,342,447** | **2,459,955** | **2,597,094** |
| Dublin & ME | 627,301 | 736,841 | 885,879 | 1,002,405 | 1,070,463 | 1,136,823 | 1,219,463 | 1,323,149 |
| Cork | 135,001 | 150,569 | 167,801 | 178,011 | 184,522 | 195,001 | 207,447 | 219,280 |
| Limerick | 91,076 | 107,772 | 114,670 | 119,950 | 121,693 | 125,210 | 128,634 | 130,375 |
| Galway | 54,470 | 67,286 | 72,576 | 77,275 | 82,300 | 88,990 | 94,812 | 97,037 |
| Waterford | 46,201 | 52,202 | 55,669 | 59,796 | 61,967 | 65,084 | 68,363 | 71,780 |
| Total M.Cities | 954,049 | 1,114,670 | 1,296,595 | 1,437,437 | 1,520,945 | 1,611,108 | 1,718,719 | 1,841,621 |
| Remainder | 562,142 | 630,107 | 685,054 | 716,020 | 720,727 | 731,339 | 741,236 | 755,473 |
| % in M.Cities | 63% | 64% | 65% | 67% | 68% | 69% | 70% | 71% |

### Table 3.15: Economic Growth Scenario 2 - total labour force by place of residence OPTION 1 (Note: for definition of Options, see section 4.6)

| Region | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Border | 154,556 | 173,051 | 190,334 | 201,833 | 204,958 | 210,022 | 213,857 | 218,578 |
| Dublin | 478,822 | 552,465 | 590,113 | 617,166 | 646,148 | 681,015 | 735,955 | 807,319 |
| ME | 148,479 | 184,376 | 233,152 | 276,682 | 287,478 | 294,537 | 299,765 | 311,504 |
| Midlands | 81,270 | 90,178 | 105,401 | 117,587 | 125,972 | 136,511 | 144,517 | 151,516 |
| MW | 131,589 | 150,963 | 181,563 | 200,360 | 207,715 | 214,953 | 221,963 | 228,221 |
| SE | 156,701 | 175,336 | 195,886 | 210,075 | 215,423 | 223,288 | 231,147 | 238,903 |
| SW | 221,518 | 247,006 | 292,681 | 321,891 | 338,068 | 357,336 | 379,526 | 401,941 |
| West | 143,909 | 171,500 | 192,751 | 206,868 | 214,677 | 223,483 | 231,320 | 235,720 |
| **TOTAL** | **1,516,191** | **1,744,777** | **1,979,853** | **2,150,167** | **2,237,281** | **2,336,985** | **2,452,910** | **2,587,197** |
| Dublin & ME | 627,301 | 736,841 | 823,264 | 893,848 | 933,627 | 975,552 | 1,035,720 | 1,118,823 |
| Cork | 135,001 | 150,569 | 177,068 | 194,139 | 205,019 | 219,399 | 235,521 | 250,750 |
| Limerick | 91,076 | 107,772 | 124,854 | 137,431 | 143,445 | 150,610 | 157,488 | 162,571 |
| Galway | 54,470 | 67,286 | 75,326 | 82,004 | 88,260 | 96,032 | 102,889 | 106,150 |
| Waterford | 46,201 | 52,202 | 59,353 | 66,649 | 71,296 | 76,727 | 82,284 | 87,956 |
| Total M.Cities | 954,049 | 1,114,670 | 1,259,865 | 1,374,071 | 1,441,647 | 1,518,320 | 1,613,902 | 1,726,250 |
| Remainder | 562,142 | 630,107 | 719,988 | 776,096 | 795,634 | 818,665 | 839,008 | 860,947 |
| % in M.Cities | 63% | 64% | 64% | 64% | 64% | 65% | 66% | 67% |

## OPTION 2 (Note: for definition of Options, see section 4.6)

| Region | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Border | 154,556 | 173,051 | 185,610 | 193,917 | 195,563 | 199,773 | 202,743 | 206,777 |
| Dublin | 478,822 | 552,465 | 632,673 | 690,027 | 734,957 | 780,499 | 846,021 | 925,656 |
| ME | 148,479 | 184,376 | 233,152 | 276,682 | 287,478 | 294,537 | 299,765 | 311,504 |
| Midlands | 81,270 | 90,178 | 100,475 | 109,146 | 115,697 | 125,062 | 132,015 | 138,382 |
| MW | 131,589 | 150,963 | 171,437 | 183,303 | 187,331 | 192,502 | 197,348 | 201,802 |
| SE | 156,701 | 175,336 | 190,994 | 201,759 | 205,419 | 212,262 | 219,173 | 226,299 |
| SW | 221,518 | 247,006 | 282,174 | 303,945 | 316,143 | 332,671 | 352,132 | 372,443 |
| West | 143,909 | 171,500 | 187,876 | 198,830 | 205,183 | 213,150 | 220,101 | 223,760 |
| **TOTAL** | **1,516,191** | **1,744,777** | **1,981,073** | **2,152,367** | **2,240,096** | **2,340,252** | **2,456,985** | **2,592,837** |
| Dublin & ME | 627,301 | 736,841 | 865,824 | 966,709 | 1,022,435 | 1,075,036 | 1,145,786 | 1,237,160 |
| Cork | 135,001 | 150,569 | 170,769 | 183,315 | 191,713 | 204,331 | 218,673 | 232,482 |
| Limerick | 91,076 | 107,772 | 117,932 | 125,699 | 129,339 | 134,975 | 140,228 | 143,914 |
| Galway | 54,470 | 67,286 | 73,457 | 78,831 | 84,398 | 91,705 | 98,069 | 100,890 |
| Waterford | 45,571 | 52,201 | 59,310 | 65,858 | 69,644 | 73,796 | 76,258 | 78,586 |
| Total M.Cities | 953,419 | 1,114,669 | 1,287,292 | 1,420,412 | 1,497,529 | 1,579,843 | 1,679,014 | 1,793,032 |
| Remainder | 562,772 | 630,108 | 693,781 | 731,955 | 742,567 | 760,409 | 777,971 | 799,805 |
| % in M.Cities | 63% | 64% | 65% | 66% | 67% | 68% | 68% | 69% |

### Figure 6: State Workforce Change 2000-2030

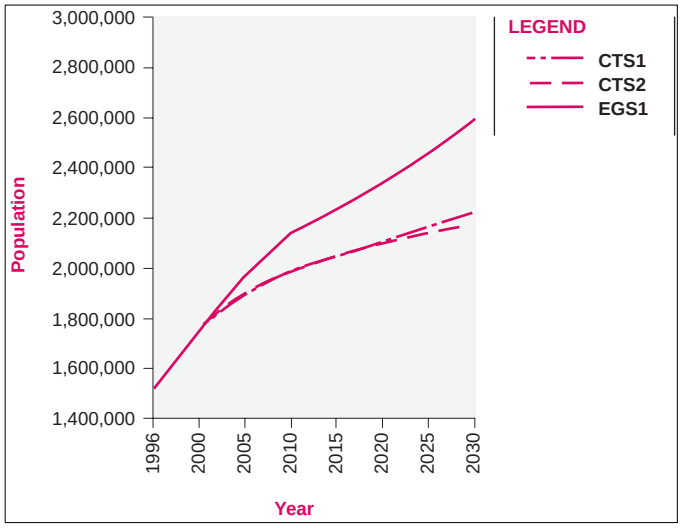


**Figure 7: % Workforce Change by Region 2000-2020**

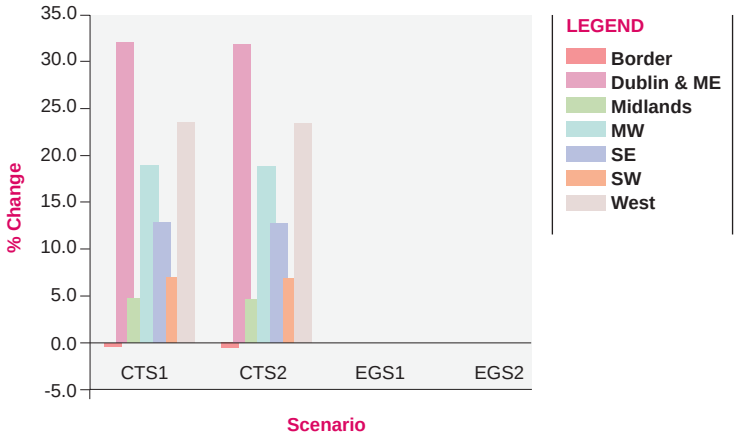



Figure 6 shows a pattern not dissimilar to that of households, with the sharpest growth occurring in the period to 2010, when the rise in participation rates will be most marked and the numbers reaching working age will also be greatest.

## 3.6 Employment Redistribution - results by place of work

Because of the impact of trans-regional commuting, the results for employment redistribution by place of work are rather different to those for workforce distribution. This is explained more fully in Section 4.6.6 below.

**Table 3.16: Distribution of Employment by Place of Work under EGS Scenarios**

| | Propulsive Jobs | | Basic Jobs | | All Jobs | |
|---|---|---|---|---|---|---|
| | 2000 | 2020 | 2000 | 2020 | 2000 | 2020 |
| **NO. OF JOBS** | | | | | | |
| **EGS1 Opt 1** | | | | | | |
| TOTAL | 327,823 | 455,898 | 637,895 | 676,776 | 1,670,088 | 2,180,011 |
| Dub + ME | 205,389 | 303,500 | 290,991 | 367,049 | 711,702 | 1,099,982 |
| Remainder | 122,434 | 152,398 | 346,904 | 309,727 | 958,386 | 1,080,029 |
| **EGS2 Opt 1** | | | | | | |
| TOTAL | 327,823 | 455,898 | 637,895 | 676,776 | 1,670,088 | 2,180,011 |
| Dub + ME | 205,389 | 248,826 | 290,991 | 312,376 | 711,702 | 946,775 |
| Remainder | 122,434 | 207,072 | 346,904 | 364,400 | 958,386 | 1,233,236 |
| **EGS2 Opt 2** | | | | | | |
| TOTAL | 327,823 | 455,898 | 637,895 | 676,776 | 1,670,088 | 2,180,011 |
| Dub + ME | 205,389 | 262,039 | 290,991 | 345,589 | 711,702 | 1,041,285 |
| Remainder | 122,434 | 193,859 | 346,904 | 331,187 | 958,386 | 1,138,726 |
| **SHARES** | | | | | | |
| EGS1 | | | | | | |
| Dub + ME | 62.7% | 66.6% | 45.6% | 54.2% | 42.6% | 50.5% |
| Remainder | 37.3% | 33.4% | 54.4% | 45.8% | 57.4% | 49.5% |
| **EGS2 Opt 1** | | | | | | |
| Dub + ME | 62.7% | 54.6% | 45.6% | 46.2% | 42.6% | 43.4% |
| Remainder | 37.3% | 45.4% | 54.4% | 53.8% | 57.4% | 56.6% |
| **EGS2 Opt 2** | | | | | | |
| Dub + ME | 62.7% | 57.5% | 45.6% | 51.1% | 42.6% | 47.8% |
| Remainder | 37.3% | 42.5% | 54.4% | 48.9% | 57.4% | 52.2% |

The impact of redistributing new propulsive sector employment from Dublin and Mid-east to other regions under EGS2-1 and EGS2-2 is as follows:

Under EGS2-1, some 56 % of propulsive employment created in the period 200-2020 that would otherwise be in the Dublin and Mid-east regions, will now be elsewhere.

Under EGS2-2, some 42 % of propulsive employment created in the period 2000-2020 that would otherwise be in the Dublin and Mid-east regions, will now be elsewhere.

These relatively large impacts arise from the compounding impact of diversion of job creation during the early years of the twenty year period, and underline the significance of early intervention.

## 3.7 Contributions to change of specified demographic components

**Table 3.17: Current Trends, Scenario 1: components of demographic change**

| Region | 2000 Pop | Tot Change | Natural Increase | Total Migration* | 2030 Pop |
|---|---|---|---|---|---|
| Border | 414.1 | -35.4 | 19.6 | -55.0 | 378.7 |
| Dublin | 1109.8 | 425.0 | 278.6 | 146.4 | 1534.8 |
| ME | 387.3 | 252.5 | 118.4 | 134.2 | 639.8 |
| Midlands | 210.2 | 4.4 | 27.4 | -23.0 | 214.6 |
| MW | 329.5 | 63.6 | 55.1 | 8.5 | 393.1 |
| SE | 402.7 | 63.6 | 60.8 | 2.8 | 466.3 |
| SW | 558.7 | 50.7 | 76.4 | -25.8 | 609.4 |
| West | 375.1 | 110.5 | 81.1 | 29.3 | 485.6 |
| **TOTAL** | **3787.4** | **934.8** | **717.4** | **217.4** | **4722.2** |

* Migration figures relate to the numbers left alive at the end of each quinquennial period

Under the current trends scenario, natural increase is the dominant element of population change, and accounts for more than three-quarters of all change at a State level, and more than 90 per cent of change outside Dublin and the Mid-east regions.

Within Dublin and the Mid-east, however, migration accounts for some 40 per cent of the change.

Under the Economic Growth scenarios, migration is the dominant factor in Dublin and the Mid-east, and accounts for nearly one half of all change at State level, but outside Dublin and the Mid-east, is still much less important than natural increase.

Table 3.18 shows that of the change in households to 2020, about half is due to changes in headship rates, with the share being highest in those counties with the weakest overall demographic performance and lowest in those with the strongest performance. It is notable, however, that even in Dublin and the Mid-east, headship rate changes still account for 40 per cent of the overall increase in the number of households.

Table 3.19 summarises the relative contributions of demographic change and labour force participation rate changes to the growth in the labour force. Here, it is demographic factors which are dominant, accounting for nearly three quarters of the growth in the labour force. Once again, the weaker the demographic performance, the stronger the contribution of participation rates.

## Table 3.18: Households – 20 year changes

| Region | Households in 2000 | Total Change to 2020 | Change due to natural increase and migration | Change due to increase in headship rates | Percentage of change attributable to increases in Headship rates |
|---|---|---|---|---|---|
| Border | 139,600 | 35,635 | 10,635 | 25,001 | 70% |
| Dublin | 387,600 | 223,482 | 128,014 | 95,468 | 43% |
| ME | 121,800 | 106,384 | 71,810 | 34,574 | 32% |
| Midlands | 69,200 | 21,548 | 8,245 | 13,303 | 62% |
| MW | 109,700 | 49,955 | 24,876 | 25,079 | 50% |
| SE | 135,000 | 52,783 | 24,251 | 28,531 | 54% |
| SW | 188,000 | 65,639 | 28,400 | 37,239 | 57% |
| West | 124,300 | 59,255 | 30,906 | 28,349 | 48% |
| **TOTAL** | **1,275,200** | **614,681** | **328,440** | **286,241** | **47%** |
| Dublin & ME | 509,400 | 329,866 | 199,824 | 130,041 | 39% |
| Cork | 111,151 | 43,047 | 20,440 | 22,607 | 53% |
| Limerick | 75,629 | 35,102 | 17,730 | 17,372 | 49% |
| Galway | 43,769 | 30,323 | 18,545 | 11,778 | 39% |
| Waterford | 38,347 | 27,229 | 18,066 | 9,163 | 34% |
| Total M.Cities | 778,296 | 465,567 | 274,605 | 190,961 | 41% |
| Remainder | 496,904 | 149,114 | 53,835 | 95,280 | 64% |

## Table 3.19: Workforce – 20 year changes

| Region | Labour Force in 2000 | Total Change to 2020 | Change due to natural increase and migration | Change due to increase in participation rates | Percentage of change attributable to increases in Participation rates |
|---|---|---|---|---|---|
| Border | 173,051 | -836 | -5,426 | 4,590 | |
| Dublin | 552,465 | 150,289 | 108,470 | 41,819 | 28% |
| ME | 184,376 | 85,674 | 74,447 | 11,228 | 13% |
| Midlands | 90,178 | 4,339 | 1,279 | 3,060 | 71% |
| MW | 150,963 | 28,617 | 22,328 | 6,289 | 22% |
| SE | 175,336 | 22,647 | 16,080 | 6,568 | 29% |
| SW | 247,006 | 17,000 | 6,124 | 10,876 | 64% |
| West | 171,500 | 40,354 | 30,798 | 9,556 | 24% |
| **TOTAL** | **1,744,777** | **348,084** | **244,736** | **103,348** | **30%** |
| Dublin & ME | 736,841 | 235,963 | 182,916 | 53,047 | 22% |
| Cork | 150,569 | 11,806 | 4,932 | 6,874 | 58% |
| Limerick | 107,772 | 18,203 | 13,502 | 4,700 | 26% |
| Galway | 64,718 | 24,439 | 20,290 | 4,149 | 17% |
| Waterford | 52,201 | 21595 | 18,025 | 3570 | 17% |
| Total M.Cities | 1,112,101 | 312,006 | 239,665 | 72,340 | 23% |
| Remainder | 632,676 | 36,078 | 5,071 | 31,008 | 86% |

| Region | Change between 2000 and 2020 | | |
|---|---|---|---|
| | Current Trends Scenario 1 | No change in fertility at State level | No converging fertility |
| Border | - 12,166 | - 15,313 | - 9,363 |
| Dublin | 314,551 | 301,984 | 298,730 |
| ME | 178,793 | 174,210 | 182,615 |
| Midlands | 8,547 | 6,654 | 11,805 |
| MW | 51,052 | 47,844 | 53,073 |
| SE | 50,957 | 47,173 | 53,981 |
| SW | 46,057 | 40,919 | 46,361 |
| West | 83,405 | 79,155 | 85,279 |
| **TOTAL** | **721,196** | **682,626** | **722,480** |
| Dublin & ME | 493,343 | 476,194 | 481,344 |
| Cork | 37,329 | 34,178 | 37,515 |
| Limerick | 36,909 | 34,666 | 38,322 |
| Galway | 51,523 | 49,796 | 52,284 |
| Waterford | 48,169 | 46,251 | 49,701 |
| Total M.Cities | 667,273 | 641,086 | 659,166 |
| Remainder | 53,923 | 41,540 | 63,314 |

Table 3.20 shows the sensitivity of the model developed, to changes in fertility rates.

Because Current Trends Scenario 1 has a TFR projection that is close to the present TFR, it has only a very small impact on the outcome.

The final column of the table shows the extent to which converging regional fertility rates to the national rate by 2003 impacts on regional outcomes. This shows that the impact is very small and that the model outcome is not sensitive to variations in regional fertility rates.

# 4 Model structure, assumptions and supporting data

## 4.1 Mortality

The mortality assumptions used in our projections follow those of the *CSO Population and Labour Force Projections 2001-2031*[15] , with no regional differential. Details of these are contained in the Statistical Appendix.

The reader is referred to the CSO *Population and Labour Force Projections* for discussion of mortality trends in Ireland and internationally. The CSO comment:

*"According to mortality forecasts being made elsewhere by national and international agencies, there is a general expectation that the improvements evident in recent years will continue for the foreseeable future.*

*"The Expert Group considered that it would be reasonable to assume that the average rate of improvement in life expectancy achieved in the fifteen-year period 1981 to 1996 would be maintained over the life-time of the projections with the exception that improvements to the mortality rates of children under 10 years (especially infants) would need to be moderated to reflect a reduced scope for further gains.*

*"This assumption would result in a female life expectancy at birth of 84.0 years in 2031 and a projected life expectancy at births for males of 77.8. These projected rates would be approximately 2 years higher than the current highest rates observed in the EU. However, given that life expectancy in all EU countries is expected to continue to improve and that the catching up process should also continue, the projected rates for Ireland are considered to be reasonable" (p.15)*

In our model, five-year survivorship rates are applied to each five-year age and sex cohort in the projection process. Deaths to migrants are 'pre-packaged' in the process of establishing the number of migrants (see Section 2, page 4, above).

15. Central Statistics Office, Population and Labour Force Statistics 2001-2031, Dublin, Stationery Office, July 1999 Pn 7491

## 4.2 Fertility

### 4.2.1 Fertility rates at State level

The model operates on age specific fertility rates applied to all women irrespective of marital status.

Age specific rates are applied to the average number of women in the relevant cohort over a five-year period. Thus, births to migrant women are automatically included in this calculation. By implication, therefore, it is assumed that the fertility of migrant women (both in-migrant and out-migrant) does not differ from the fertility of the non-migrant population.

The overall guide to future patterns of fertility is the Total Fertility Rate (TFR), which is defined as the theoretical average number of children who would be born alive to a woman during her lifetime if she were to pass through her childbearing years (15-49) conforming to the age specific fertility rates of a given year. The rate refers to a theoretical female cohort.

The reader is again referred to the 1999 CSO *Population and Labour Force Projections* for a review of fertility behaviour in Ireland. The matter is also discussed in the ESRI Medium Term Review [16]. Figure 8 illustrates movement in total fertility between 1960 and 1999.

The CSO F1 fertility assumption is for a TFR of 2.0 to be maintained through to 2031. This is the assumption adopted in the current trends Scenario 1. The ESRI suggest that the TFR will fall to the EU average and stabilise at 1.8 over the next decade. Current Trends Scenario 2 is based on the CSO F2 assumption, which calls for a decrease after 2001 to reach 1.75 by 2011and remaining constant thereafter.

We have also made some projections based on a higher TFR, which may be postulated on the basis that there has been a once for all depression in the TFR in recent years as a result of the deferral of first births to mothers. This means that some births which would previously have occurred to younger women began at some point to be absent, being replaced only at a later date by births to the same women when older. Once established, the new pattern of age-specific fertility produces a stable TFR, but not before a temporary dip.

16. Duffy, Fitz Gerald, Kearney and Smyth Medium Term Review 1999-205 ESRI, October 1999

Tables 4.1 and 4.2 set out the alternative sets of TFRs and age specific fertility rates.

**Table 4.1: Projections of age specific fertility rates using CSO F1 assumptions**

| Age | 1998 | 2003 | 2008 | 2013 | 2018 | 2023 | 2028 | 2033 |
|---|---|---|---|---|---|---|---|---|
| 15-19 | 0.0930 | 0.0900 | 0.0900 | 0.0900 | 0.0900 | 0.0900 | 0.0900 | 0.0900 |
| 20-24 | 0.2530 | 0.2620 | 0.2620 | 0.2620 | 0.2620 | 0.2620 | 0.2620 | 0.2620 |
| 25-29 | 0.4990 | 0.5160 | 0.5160 | 0.5160 | 0.5160 | 0.5160 | 0.5160 | 0.5160 |
| 30-34 | 0.6695 | 0.6945 | 0.6945 | 0.6945 | 0.6945 | 0.6945 | 0.6945 | 0.6945 |
| 35-39 | 0.3490 | 0.3625 | 0.3625 | 0.3625 | 0.3625 | 0.3625 | 0.3625 | 0.3625 |
| 40-44 | 0.0670 | 0.0690 | 0.0690 | 0.0690 | 0.0690 | 0.0690 | 0.0690 | 0.0690 |
| 45+ | 0.0030 | 0.0030 | 0.0030 | 0.0030 | 0.0030 | 0.0030 | 0.0030 | 0.0030 |
| TFR | 1.9335 | 1.9970 | 1.9970 | 1.9970 | 1.9970 | 1.9970 | 1.9970 | 1.9970 |

**Figure 8: Total Fertility**

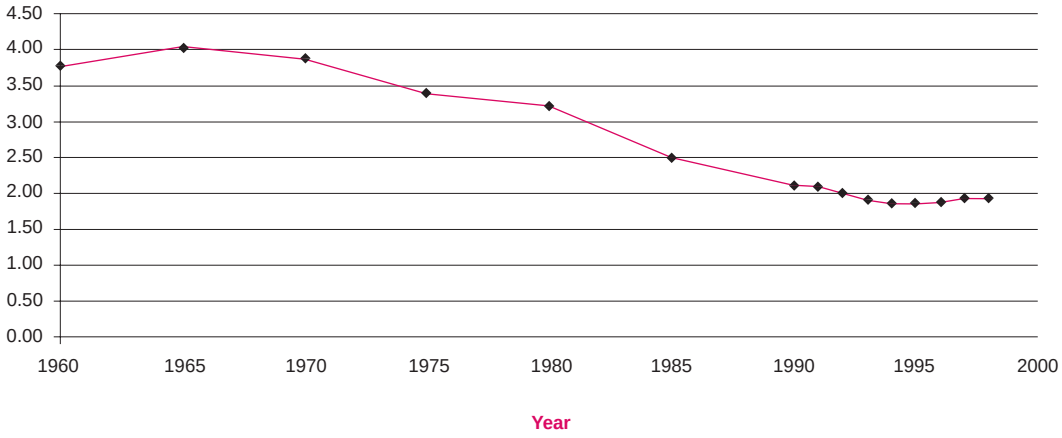


**Figure 9: Births per 1000 women per Year**

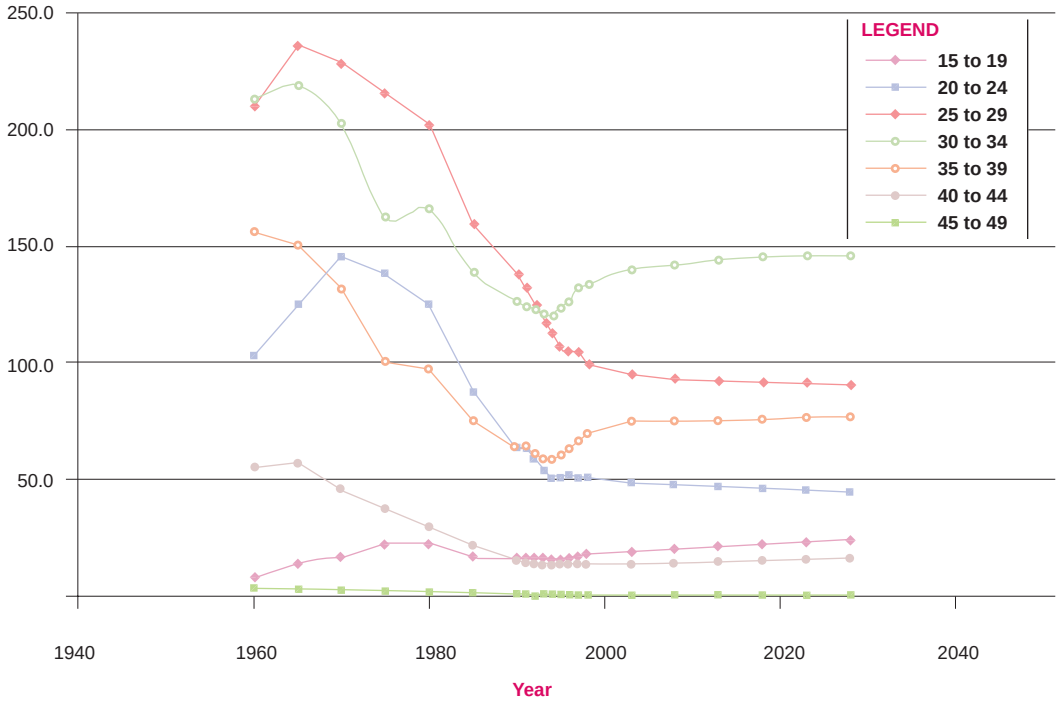



**Table 4.2: Projections of age specific fertility rates using consultants' own estimates**

| Age | 1998 | 2003 | 2008 | 2013 | 2018 | 2023 | 2028 | 2033 |
|---|---|---|---|---|---|---|---|---|
| 15-19 | 0.0930 | 0.0980 | 0.1030 | 0.1080 | 0.1130 | 0.1180 | 0.1230 | 0.1230 |
| 20-24 | 0.2530 | 0.2450 | 0.2400 | 0.2350 | 0.2300 | 0.2275 | 0.2250 | 0.2250 |
| 25-29 | 0.4990 | 0.4750 | 0.4650 | 0.4600 | 0.4575 | 0.4550 | 0.4525 | 0.4525 |
| 30-34 | 0.6695 | 0.7000 | 0.7100 | 0.7200 | 0.7250 | 0.7300 | 0.7300 | 0.7300 |
| 35-39 | 0.3490 | 0.3750 | 0.3750 | 0.3750 | 0.3800 | 0.3850 | 0.3850 | 0.3850 |
| 40-44 | 0.0670 | 0.0695 | 0.0720 | 0.0745 | 0.0770 | 0.0795 | 0.0820 | 0.0820 |
| 45+ | 0.0030 | 0.0030 | 0.0030 | 0.0030 | 0.0030 | 0.0030 | 0.0030 | 0.0030 |
| TFR | 1.9335 | 1.9655 | 1.9680 | 1.9755 | 1.9855 | 1.9980 | 2.0005 | 2.0005 |

Figure 9 shows the movement of age specific fertility rates, including past trends and projected rates according to the consultants' own estimates. The anticipated recovery of rates in the 30-40 age group should be particularly noted. For the sake of consistency with the CSO 1999 projections, these rates have not been used in present modelling process.

### 4.2.2 Regional differentials in fertility

Differences in fertility rates at regional level have been incorporated in the projection process.

#### 4.2.2.1 Observed differences in regional fertility

Tables 4.3 and 4.4 show the regional variations in fertility around 1991 and 1996

**Table 4.3: Regional fertility rates around 1991 (average births in the period 1990-1992)**

| 1991 | State | West | South West | South-East | Mid West | Midland | Mid East | Dublin | Border |
|---|---|---|---|---|---|---|---|---|---|
| 15-19 | 0.0839 | 0.0565 | 0.0612 | 0.0977 | 0.0778 | 0.0862 | 0.0875 | 0.1011 | 0.0784 |
| 20-24 | 0.3137 | 0.2942 | 0.2939 | 0.4182 | 0.3424 | 0.4145 | 0.3666 | 0.2592 | 0.3593 |
| 25-29 | 0.6561 | 0.6807 | 0.6702 | 0.7113 | 0.7275 | 0.7398 | 0.7499 | 0.5613 | 0.7104 |
| 30-34 | 0.6207 | 0.7085 | 0.6473 | 0.6002 | 0.6467 | 0.6091 | 0.6460 | 0.5725 | 0.6364 |
| 35-39 | 0.3142 | 0.3879 | 0.3150 | 0.3080 | 0.3436 | 0.3304 | 0.3131 | 0.2725 | 0.3440 |
| 40-44 | 0.0750 | 0.0994 | 0.0727 | 0.0773 | 0.0862 | 0.0828 | 0.0678 | 0.0590 | 0.0935 |
| 45+ | 0.0048 | 0.0086 | 0.0044 | 0.0056 | 0.0055 | 0.0058 | 0.0053 | 0.0024 | 0.0067 |
| TFR | 2.0685 | 2.2357 | 2.0647 | 2.2184 | 2.2298 | 2.2687 | 2.2362 | 1.8281 | 2.2287 |

**Table 4.4: Regional fertility rates around 1996 (see text for notes on these figures)**

| 1996 | State | West | South West | South-East | Mid West | Midland | Mid East | Dublin | Border |
|---|---|---|---|---|---|---|---|---|---|
| 15-19 | 0.0746 | 0.0451 | 0.0616 | 0.0870 | 0.0663 | 0.0696 | 0.0710 | 0.0922 | 0.0738 |
| 20-24 | 0.2487 | 0.2034 | 0.2230 | 0.3112 | 0.2647 | 0.3593 | 0.2509 | 0.2242 | 0.2951 |
| 25-29 | 0.5203 | 0.5526 | 0.5432 | 0.5828 | 0.5557 | 0.6471 | 0.6114 | 0.4239 | 0.5844 |
| 30-34 | 0.6150 | 0.6468 | 0.6390 | 0.6136 | 0.6280 | 0.6461 | 0.6587 | 0.5717 | 0.6279 |
| 35-39 | 0.2944 | 0.3431 | 0.3029 | 0.2793 | 0.3202 | 0.2924 | 0.2925 | 0.2726 | 0.2994 |
| 40-44 | 0.0646 | 0.0903 | 0.0575 | 0.0647 | 0.0764 | 0.0729 | 0.0604 | 0.0526 | 0.0750 |
| 45+ | 0.0037 | 0.0067 | 0.0030 | 0.0038 | 0.0061 | 0.0059 | 0.0031 | 0.0018 | 0.0049 |
| TOTAL | 1.8213 | 1.8881 | 1.8301 | 1.9425 | 1.9174 | 2.0932 | 1.9481 | 1.6391 | 1.9605 |

In general, highest rates are found in regions with the lowest level of urbanisation. Table 4.5 shows the extent of variation around the State average, in each year.

It should be noted that the rates shown in Table 4.4 are not the true TFRs for this year. The latest published data at regional level (births by normal county of residence of mother) relate to 1995. The rates in Table 4.4 are, therefore, births in 1995 by number of women in 1996.

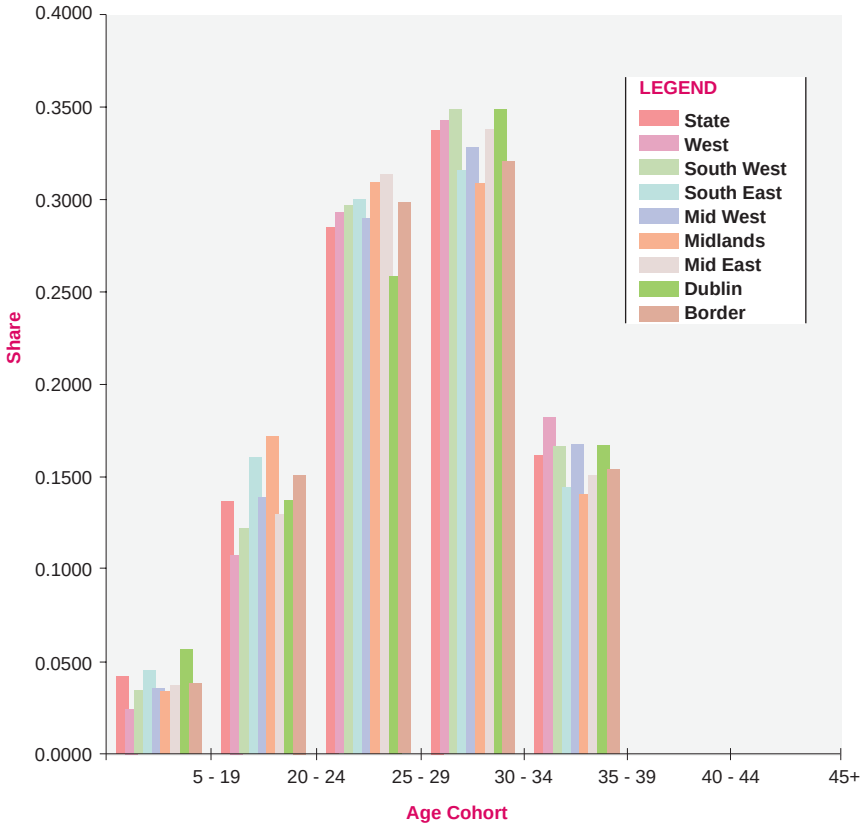
**Table 4.5: Regional differentials in TFR, around 1991 and 1996**

| Year | State | West | South West | South-East | Mid West | Midland | Dublin and Mid East | Border |
|---|---|---|---|---|---|---|---|---|
| 1991 | 1.00 | 1.08 | 0.92 | 1.07 | 1.01 | 1.02 | 0.92 | 1.22 |
| 1996 | 1.00 | 1.04 | 1.00 | 1.07 | 1.05 | 1.15 | 0.94 | 1.08 |

### 4.2.2.2 Treatment of regional differentials in the projection process

It may be observed that although there are regional differentials in the Total Fertility Rate, there are smaller differences in the allocation of a given TFR rate to age groups. This is illustrated below in Figure 10.

**Figure 10: Differentials in the allocation of births by age**



For this reason, projection of births by region was approached in the following way:

1. The TFR of the State was projected.
2. Differentials between the regions in the TFRs in 1996 (as set out in Table 4.5 above) were diminished through the projection period, and eliminated by 2033. This is a response to the increasing uncertainty with the passage of time.
3. The share of births between cohorts was held steady for each region.

## 4.3 Migration

Migration is the most volatile and significant element of population change at both national and regional level. It is also the element of population change which is the most amenable to change as a result of policy interventions in spatial planning.

For this reason, considerable attention has been paid to the construction of the model in this area.

### 4.3.1 Allocation of international out-migrant and in-migrant flows to regions[17]

#### International out-migrant flows

Data was provided by the CSO on the absolute level of international migrants from each planning region in the years 1996-99. See Table 4.6.

**Table 4.6: QNHS[18] international out-migrant flows from each region 1996-1999**

| Region | 1996 | | 1997 | | 1998 | | 1999 | | 1996-99 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Border | 3793 | 13% | 3484 | 13% | 1839 | 10% | 2592 | 9% | 11708 | 11% |
| Dublin | 7572 | 25% | 8238 | 30% | 5908 | 31% | 10188 | 36% | 31906 | 30% |
| Mid-east | 3157 | 11% | 2832 | 10% | 2090 | 11% | 2555 | 9% | 10634 | 10% |
| Mid-west | 2532 | 9% | 2630 | 10% | 1338 | 7% | 2402 | 8% | 8902 | 8% |
| Midlands | 1481 | 5% | 1598 | 6% | 887 | 5% | 1319 | 5% | 5285 | 5% |
| South-east | 3169 | 11% | 2505 | 9% | 1779 | 9% | 2399 | 8% | 9852 | 9% |
| South-west | 5112 | 17% | 3909 | 14% | 3372 | 18% | 4084 | 14% | 16477 | 16% |
| West | 2895 | 10% | 2295 | 8% | 1783 | 9% | 3122 | 11% | 10095 | 10% |
| State | 29711 | 100% | 27491 | 100% | 18996 | 100% | 28661 | 100% | 104859 | 100% |

17. Throughout this report, the terms international in-migrant and international out-migrant are used, rather than immigrants and emigrants. This is to avoid confusion between international and internal migrant flows.
18. Quarterly National Household Survey. Although results were first published in 1997, unpublished data has been provided by the CSO from 1992.

The regional shares of international out-migration during this period remain reasonably steady.

Similarly, international in-migrant flows were also obtained, and are set out in Table 4.7

**Table 4.7: QNHS international in-migrant flows to each region 1996-1999**

| Region | 1996 | | 1997 | | 1998 | | 1999 | | 1996-99 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Border | 2781 | 8% | 1962 | 4% | 2156 | 6% | 4008 | 8% | 10907 | 7% |
| Dublin | 17643 | 48% | 12359 | 27% | 9000 | 25% | 10207 | 21% | 49209 | 29% |
| Mid-east | 2772 | 8% | 13760 | 30% | 7004 | 19% | 9720 | 20% | 33256 | 20% |
| Mid-west | 2628 | 7% | 3997 | 9% | 3820 | 10% | 5116 | 11% | 15561 | 9% |
| Midlands | 1077 | 3% | 2751 | 6% | 2565 | 7% | 3071 | 6% | 9464 | 6% |
| South-east | 2201 | 6% | 3076 | 7% | 4611 | 13% | 6275 | 13% | 16163 | 10% |
| South-west | 2848 | 8% | 2913 | 6% | 3279 | 9% | 4513 | 9% | 13553 | 8% |
| West | 4957 | 13% | 4489 | 10% | 4225 | 12% | 5653 | 12% | 19324 | 12% |
| State | 36907 | 100% | 45307 | 100% | 36660 | 100% | 48563 | 100% | 167437 | 100% |

Unlike international out-migration, there appears to be a trend in international in-migration which reduces the volume going to Dublin and the Mid-east together, and increases the shares elsewhere, and to the South-east and Midlands in particular.

The international in-migrant data may be compared with data that is obtainable from earlier Census of Population years. Such comparison is not possible with international out-migrant data, since no question is asked on persons resident at the census address one year previously, who are no longer resident.

**Table 4.8: Census of Population international in-migration for each region (1981-96) -absolute flow**

| Region | 1981 | 1986 | 1991 | 1996 |
|---|---|---|---|---|
| Border | 3166 | 2007 | 3741 | 3688 |
| Dublin | 8640 | 6472 | 13574 | 15662 |
| Mid-East | 2244 | 1330 | 3099 | 3553 |
| Midland | 1171 | 570 | 1619 | 1602 |
| Mid-West | 2237 | 1257 | 3155 | 3249 |
| South-East | 1987 | 1502 | 3313 | 3185 |
| South-West | 3345 | 2382 | 5128 | 5198 |
| West | 2633 | 1650 | 3717 | 4431 |
| State | 25423 | 17170 | 37346 | 40568 |

**Table 4.9: Census of Population international in-migration for regional authorities (1981-96) - % of total international in-migration for the year, compared to 1996 QNHS data**

| Region | 1981 | 1986 | 1991 | 1996 | QNHS 1996 | QNHS 1996-9 average |
|---|---|---|---|---|---|---|
| Border | 12.5 | 11.7 | 10.0 | 9.1 | 8% | 7% |
| Dublin | 34.0 | 37.7 | 36.3 | 38.6 | 48% | 29% |
| Mid-East | 8.8 | 7.7 | 8.3 | 8.8 | 8% | 20% |
| Midland | 4.6 | 3.3 | 4.3 | 3.9 | 3% | 6% |
| Mid-West | 8.8 | 7.3 | 8.4 | 8.0 | 7% | 9% |
| South-East | 7.8 | 8.7 | 8.9 | 7.9 | 6% | 10% |
| South-West | 13.2 | 13.9 | 13.7 | 12.8 | 8% | 8% |
| West | 10.4 | 9.6 | 10.0 | 10.9 | 13% | 12% |

The tables above show that the share of international in-migration enjoyed by the regions has been relatively stable over the period 1981 to 1996, according to Census of Population data. There is, however, a considerable discrepancy between the QNHS data and census data for 1996, which highlights the restrictions on the use of this data arising from the sample size.

### Shares used for current trends and economic growth scenarios projection purposes

The shares of international migration enjoyed by each region is clearly critical for the projection process.

On international out-migrant shares, there is no choice of data, since only QNHS estimates are available. An average of the 1992 to 1999 flows has been used.

There is a choice between COP[19] and QNHS data for international in-migrants. The considerable swings in the QNHS data and limitations of the statistical reliability of results from the two-stage sampling process used in the QNHS, must be balanced against the fact that only a single year of recent data is available from the COP. This has led the consultants to the conclusion that it would be more consistent to use the QNHS 1992-99 data.

19. Census of Population

Table 4.10 shows the data used.

**Table 4.10: Regional shares of international migration, based on QNHS 1992-1999 data, used for current trends projections**

| | Male in-migration | Male out-migration | Female in-migration | Female out-migration |
|---|---|---|---|---|
| Border | 7.6% | 9.5% | 6.8% | 17.7% |
| Dublin | 32.4% | 30.4% | 33.8% | 32.6% |
| Mid-east | 15.6% | 10.0% | 15.2% | 7.7% |
| Mid-west | 9.1% | 8.8% | 7.6% | 8.7% |
| Midlands | 4.9% | 4.8% | 5.3% | 4.6% |
| South-east | 9.0% | 9.5% | 9.5% | 8.1% |
| South-west | 9.9% | 15.8% | 10.4% | 12.1% |
| West | 11.5% | 11.1% | 11.5% | 8.4% |

## 4.3.2 Age structure of international migrants

An examination of the age structure of international in-migrants available from the QNHS for the last three years shows that the bulk of migrants are in the 20-39 age group (where age is measured at the end of the quinquennial period over which the flow is measured). Effectively, these are the groups which dominate international in-migration at national level. The age pattern of international out-migrants is even more concentrated, most especially in females, with nearly three-quarters in the 20-29 age group. Again, the sampling problems of the QNHS should be stressed, though error in the age structure of migrants is less critical than the regional allocation.

Table 4.11 sets out the recorded one year migration flows of international migrants in the 1991 to 1996 period - which were the flows used in the CSO 1999 projections.

**Table 4.11: Age structure of international migrants in the period 1991-1996 ***

| Age Group | International in-migration | | International out-migration | |
|---|---|---|---|---|
| | males | females | males | females |
| 0 to 4 | 3.0% | 2.6% | 0.2% | 0.1% |
| 5 to 9 | 6.4% | 6.0% | 0.5% | 0.3% |
| 10 to 14 | 4.4% | 4.6% | 0.6% | 0.3% |
| 15 to 19 | 2.8% | 3.0% | 2.4% | 2.6% |
| 20 to 24 | 11.7% | 16.7% | 32.5% | 38.5% |
| 25 to 29 | 20.4% | 24.3% | 30.5% | 34.6% |
| 30 to 34 | 16.8% | 15.7% | 13.6% | 11.4% |
| 35 to 39 | 11.3% | 8.7% | 8.3% | 5.2% |
| 40 to 44 | 6.4% | 4.9% | 5.2% | 3.1% |
| 45 to 49 | 4.2% | 3.2% | 2.5% | 1.5% |
| 50 to 54 | 3.4% | 2.4% | 0.9% | 0.6% |

**Table 4.11: Age structure of international migrants in the period 1991-1996 *(continued)**

| Age Group | International in-migration | | International out-migration | |
|---|---|---|---|---|
| | males | females | males | females |
| 55 to 59 | 2.3% | 2.0% | 0.7% | 0.5% |
| 60 to 64 | 2.0% | 1.9% | 0.6% | 0.4% |
| 65 to 69 | 1.8% | 1.6% | 0.4% | 0.3% |
| 70 to 74 | 1.2% | 1.1% | 0.1% | 0.1% |
| 75 to 79 | 0.4% | 0.5% | 0.1% | 0.0% |
| 80 to 84 | 0.2% | 0.2% | 0.0% | 0.0% |
| 85 & Over | 0.1% | 0.0% | 0.0% | 0.0% |
| TOTAL | 98.9% | 99.4% | 99.1% | 99.4% |

*Shares of migrants relate to number of migrants left alive after each quinquennial period, expressed as percentage of all migrants, and thus do not add to 100%

Table 4.12 shows the more recent period 1996-99. The alteration of the age structure has a significant impact on the out-turn of the projection process. In general, the age of international outmigrants is rising, and that of international inmigrants is falling.

For projection purposes, the 1991-96 national age structures have been used, as set out in Table 4.11 above, for all regions. Regional age structures for the consolidated period 1992 to 1999 are presented in the Statistical Appendix. [20]

**Table 4.12: Age structure of international migrants in the period 1996-99 ***

| Age Group | International in-migration | | International out-migration | |
|---|---|---|---|---|
| | males | females | males | females |
| 0 to 4 | 2.3% | 2.2% | 0.3% | 0.2% |
| 5 to 9 | 5.3% | 4.8% | 0.7% | 0.6% |
| 10 to 14 | 4.2% | 3.5% | 0.7% | 0.7% |
| 15 to 19 | 3.5% | 3.5% | 2.3% | 2.6% |
| 20 to 24 | 21.7% | 26.8% | 30.0% | 35.6% |
| 25 to 29 | 22.7% | 23.6% | 29.4% | 32.9% |
| 30 to 34 | 15.3% | 14.2% | 15.0% | 12.1% |
| 35 to 39 | 9.5% | 8.1% | 9.4% | 6.6% |
| 40 to 44 | 5.3% | 4.6% | 5.4% | 3.9% |
| 45 to 49 | 2.7% | 2.3% | 2.4% | 1.7% |
| 50 to 54 | 2.0% | 1.5% | 1.0% | 0.7% |
| 55 to 59 | 1.4% | 1.0% | 0.9% | 0.6% |
| 60 to 64 | 0.9% | 0.9% | 0.7% | 0.5% |

20. It should be noted that the data in the Statistical Appendix are one year flows, before 'pre-packaging' to create consolidated five year flows. They are not directly comparable, therefore, with the data in Table 4.11. The effect of pre-packaging is to shift a significant number of migrants from the 15-19 age cohort into the 20-24 cohort and also a smaller number from the 20-24 cohort into the 25-29 cohort.

**Table 4.12: Age structure of international migrants in the period 1996-99 *(continued)**

| Age Group | International in-migration | | International out-migration | |
|---|---|---|---|---|
| | males | females | males | females |
| 65 to 69 | 0.8% | 0.9% | 0.5% | 0.3% |
| 70 to 74 | 0.7% | 0.4% | 0.2% | 0.1% |
| 75 to 79 | 0.2% | 0.3% | 0.1% | 0.1% |
| 80 to 84 | 0.1% | 0.3% | 0.1% | 0.1% |
| 85 & Over | 0.3% | 0.3% | 0.0% | 0.1% |
| TOTAL | 98.9% | 99.4% | 99.1% | 99.4% |

*Shares of migrants relate to number of migrants left alive after each quinquennial period, expressed as percentage of all migrants, and thus do not add to 100%

## 4.3.3 Internal migrants

### 4.3.3.1 Shares of internal movement

Data is available from the 1996 Census on movements between counties within the State for the year 1995-96. This data may be aggregated and presented at regional level, as set out in Tables 4.13 and 4.14 below.

**Table 4.13: Summary of all internal migrants within the State 1995-96 - males**

| | To... | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| From .. | Border | Dublin | Mid-east | Mid-west | Midlands | South-east | South-west | West | TOTAL |
| Border | 0 | 869 | 291 | 176 | 124 | 120 | 111 | 386 | 2077 |
| Dublin | 547 | 0 | 2913 | 479 | 374 | 687 | 529 | 597 | 6126 |
| Mid-east | 321 | 1675 | 0 | 190 | 262 | 381 | 157 | 186 | 3172 |
| Mid-west | 80 | 778 | 142 | 0 | 133 | 410 | 578 | 353 | 2474 |
| Midlands | 127 | 570 | 215 | 255 | 0 | 204 | 106 | 329 | 1806 |
| South-east | 70 | 985 | 254 | 385 | 170 | 0 | 486 | 133 | 2483 |
| South-west | 88 | 903 | 183 | 754 | 96 | 352 | 0 | 200 | 2576 |
| West | 349 | 826 | 165 | 396 | 205 | 146 | 224 | 0 | 2311 |
| TOTAL | 1582 | 6606 | 4163 | 2635 | 1364 | 2300 | 2191 | 2184 | 23025 |

**Table 4.14: Summary of all internal migrants within the State 1995-96 - females**

| | To... | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| From .. | Border | Dublin | Mid-east | Mid-west | Midlands | South-east | South-west | West | TOTAL |
| Border | 0 | 1112 | 328 | 142 | 164 | 106 | 117 | 501 | 2470 |
| Dublin | 718 | 0 | 2996 | 468 | 401 | 788 | 628 | 723 | 6722 |
| Mid-east | 313 | 1948 | 0 | 159 | 250 | 376 | 164 | 208 | 3418 |
| Mid-west | 108 | 892 | 146 | 0 | 147 | 466 | 665 | 354 | 2778 |
| Midlands | 192 | 713 | 249 | 204 | 0 | 165 | 105 | 380 | 2008 |
| South-east | 101 | 1356 | 302 | 354 | 154 | 0 | 479 | 159 | 2905 |
| South-west | 101 | 1156 | 174 | 652 | 94 | 370 | 0 | 253 | 2800 |

**Table 4.14: Summary of all internal migrants within the State 1995-96 - females *(continued)***

| | To... | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **From ..** | **Border** | **Dublin** | **Mid-east** | **Mid-west** | **Midlands** | **South-east** | **South-west** | **West** | **TOTAL** |
| West | 448 | 1120 | 191 | 383 | 214 | 124 | 226 | 0 | 2706 |
| TOTAL | 1981 | 8297 | 4386 | 2362 | 1424 | 2395 | 2384 | 2578 | 25807 |

This COP data may be compared with more recent QNHS data for 1999 set out in Tables 4.15 and 4.16.

**Table 4.15: Summary of all internal migrants within the State 1998-99 - males**

| | To... | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **From ..** | **Border** | **Dublin** | **Mid-east** | **Mid-west** | **Midlands** | **South-east** | **South-west** | **West** | **TOTAL** |
| Border | 0 | 801 | 362 | 246 | 257 | 66 | 108 | 319 | 2159 |
| Dublin | 1414 | 0 | 3578 | 1008 | 585 | 1686 | 587 | 961 | 9819 |
| Mid-east | 114 | 921 | 0 | 218 | 283 | 738 | 331 | 383 | 2988 |
| Mid-west | 0 | 913 | 124 | 0 | 163 | 312 | 228 | 294 | 2034 |
| Midlands | 203 | 517 | 35 | 133 | 0 | 101 | 37 | 554 | 1580 |
| South-east | 231 | 823 | 378 | 151 | 31 | 0 | 772 | 134 | 2520 |
| South-west | 0 | 740 | 438 | 495 | 34 | 190 | 0 | 178 | 2075 |
| West | 313 | 495 | 193 | 311 | 161 | 186 | 109 | 0 | 1768 |
| TOTAL | 2275 | 5210 | 5108 | 2562 | 1514 | 3279 | 2172 | 2823 | 24943 |

**Table 4.16: Summary of all internal migrants within the State 1998-99 - females**

| | To... | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **From ..** | **Border** | **Dublin** | **Mid-east** | **Mid-west** | **Midlands** | **South-east** | **South-west** | **West** | **TOTAL** |
| Border | 0 | 643 | 206 | 119 | 182 | 172 | 35 | 435 | 1792 |
| Dublin | 890 | 0 | 3468 | 760 | 637 | 1408 | 770 | 1223 | 9156 |
| Mid-east | 227 | 989 | 0 | 437 | 421 | 613 | 162 | 281 | 3130 |
| Mid-west | 72 | 479 | 143 | 0 | 61 | 185 | 746 | 370 | 2056 |
| Midlands | 89 | 351 | 71 | 74 | 0 | 229 | 204 | 230 | 1248 |
| South-east | 102 | 1348 | 609 | 159 | 30 | 0 | 374 | 187 | 2809 |
| South-west | 69 | 672 | 326 | 695 | 93 | 319 | 0 | 189 | 2363 |
| West | 322 | 493 | 69 | 348 | 334 | 76 | 70 | 0 | 1712 |
| TOTAL | 1771 | 4975 | 4892 | 2592 | 1758 | 3002 | 2361 | 2915 | 24266 |

There have been some marked movements in the pattern of flows between 1996 and 1999. These are illustrated in Table 4.17 and Figure 11 below.

**Figure 11: Net Internal Migrants 1995 and 1998**

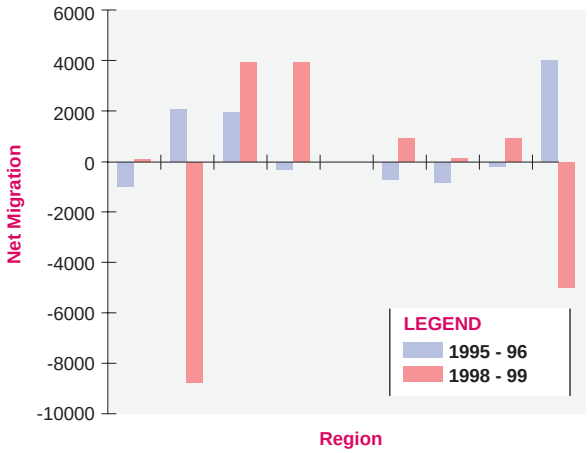



**Table 4.17: Total net internal migration in each region of the State in 1995-96 and 1998-99**

| Region | 1995-96 | 1998-99 |
|---|---|---|
| Border | -984 | 95 |
| Dublin | 2055 | -8790 |
| Mid-east | 1959 | 3882 |
| Mid-west | -255 | 1064 |
| Midlands | -1026 | 444 |
| South-east | -693 | 952 |
| South-west | -801 | 95 |
| West | -255 | 2258 |
| TOTAL | 0 | 0 |
| Dub & ME | 4014 | -4908 |

Table 4.17 shows clearly a pattern away from Dublin, firstly towards the Mid-east region, but both regions together are now losing migrants in net terms, to elsewhere in the State.

These data, combined with data on the shift in the share of net international migrants enjoyed by each region, appears to confirm a move away from Dublin, though again the sampling limitations of the QNHS must be stressed.

Because of the limitations of the QNHS data and the lack of a clearly established trend, COP based 1995-96 data are preferred for projection purposes. However, cognisance should be taken of a possible shift when considering possible alternative regional outcomes - the QNHS evidence of a recent shift away from Dublin and the Mid-East, though slender at present, may well be confirmed by future data. Already, there is some further evidence from house-completions and electoral data that the two regions may now be growing more slowly than the rest of the country. The position should therefore be kept under close review.

#### 4.3.3.2 Age and sex structure of internal migrants

Information on the age and sex structure of all internal migrants was made available by the CSO, using QNHS data.

Because all movements internal to the State must balance exactly in each cohort, only in-migrant age structures were used in the calculation process, the relevant in-migrant age structure for males or females for a particular region being used to calculate the age structure of movement to it from every other region. The implicit assumption in this approach is that in-migrant age structures for any region are similar for all regions sending to that region.

#### 4.3.3.3 Migration assumptions used in the projection process, international and internal - summary

International in-migration and out-migration has been varied at national level, with the current trends scenarios 1 and 2 following the 1999 CSO M1 assumption[21]. The regional shares are kept constant for the current trends projections. The shares used are based on QNHS data for the period 1992-99. The age structure of external migrants has not been varied, either between regions or over time, though this is possible.

For the economic growth scenarios, international out-migration is retained at CSO M1 levels nationally, and regional shares are as set out above. International in-migrants in each region are varied to match projected employment growth, as described in the section on employment.

For both current trends and economic growth scenarios, internal migration flows were calculated by applying the shares of gross in and out flows experienced by each region in the year 1995-96 (COP), to the total internal migration assumed in each projection period, separately for males and females. The total flows have been assumed to be constant for the purposes of the current trends projection. The age structure of migrants has also been assumed to remain unchanged for these projections, though this could be changed.

21. International in-migration set at 40,000 per annum in the period 2000-2005; 35,000 in 2005-2010; and 25,000 thereafter. Out-migration is set at 25,000 p.a. in the period 2000-2005; 25,000 in 2005-2010; and 20,000 thereafter.

## 4.4 Participation rates

### 4.4.1 Projection of participation at State level

As is demonstrated in the ESRI Medium Term Review, participation rates are now poorly related to marital status. For this reason, the CSO methodology of projecting participation rates was not followed. Instead, the ESRI target rates for males and females by five-year age cohorts for 2011 were assumed to apply in 2010, and a steady movement towards these rates was assumed, from a base in 2000, using participation rates available at State level from the QNHS for this date.

ESRI participation rates are based on implicit assumptions regarding educational participation rates.

Beyond 2011, we have continued the trend, though capping where appropriate, using international experience.

**Table 4.18: Male participation rates used in all projections**

| Age Group | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| 15 to 19 | 0.250 | 0.340 | 0.290 | 0.240 | 0.240 | 0.240 | 0.240 | 0.240 |
| 20 to 24 | 0.770 | 0.790 | 0.765 | 0.740 | 0.740 | 0.740 | 0.740 | 0.740 |
| 25 to 29 | 0.920 | 0.940 | 0.935 | 0.930 | 0.930 | 0.930 | 0.930 | 0.930 |
| 30 to 34 | 0.950 | 0.940 | 0.940 | 0.940 | 0.940 | 0.940 | 0.940 | 0.940 |
| 35 to 39 | 0.940 | 0.930 | 0.935 | 0.940 | 0.940 | 0.940 | 0.940 | 0.940 |
| 40 to 44 | 0.930 | 0.930 | 0.930 | 0.930 | 0.930 | 0.930 | 0.930 | 0.930 |
| 45 to 49 | 0.900 | 0.880 | 0.885 | 0.890 | 0.890 | 0.890 | 0.890 | 0.890 |
| 50 to 54 | 0.840 | 0.880 | 0.865 | 0.850 | 0.850 | 0.850 | 0.850 | 0.850 |
| 55 to 59 | 0.730 | 0.740 | 0.720 | 0.700 | 0.700 | 0.700 | 0.700 | 0.700 |
| 60 to 64 | 0.520 | 0.540 | 0.495 | 0.450 | 0.450 | 0.450 | 0.450 | 0.450 |
| 65 & Over | 0.150 | 0.150 | 0.135 | 0.120 | 0.120 | 0.120 | 0.120 | 0.120 |

**Table 4.19: Female participation rates used in all projections**

| Age Group | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| 15 to 19 | 0.170 | 0.260 | 0.230 | 0.200 | 0.200 | 0.200 | 0.200 | 0.200 |
| 20 to 24 | 0.700 | 0.680 | 0.675 | 0.670 | 0.670 | 0.670 | 0.670 | 0.670 |
| 25 to 29 | 0.780 | 0.770 | 0.805 | 0.840 | 0.830 | 0.820 | 0.809 | 0.799 |
| 30 to 34 | 0.660 | 0.770 | 0.775 | 0.780 | 0.785 | 0.790 | 0.794 | 0.799 |
| 35 to 39 | 0.590 | 0.630 | 0.685 | 0.740 | 0.752 | 0.763 | 0.775 | 0.786 |
| 40 to 44 | 0.530 | 0.630 | 0.670 | 0.710 | 0.729 | 0.748 | 0.767 | 0.786 |
| 45 to 49 | 0.450 | 0.520 | 0.590 | 0.660 | 0.702 | 0.744 | 0.785 | 0.827 |
| 50 to 54 | 0.390 | 0.520 | 0.550 | 0.580 | 0.642 | 0.704 | 0.765 | 0.827 |
| 55 to 59 | 0.300 | 0.350 | 0.360 | 0.370 | 0.414 | 0.458 | 0.501 | 0.545 |
| 60 to 64 | 0.170 | 0.200 | 0.205 | 0.210 | 0.250 | 0.290 | 0.329 | 0.369 |
| 65 & over | 0.030 | 0.030 | 0.060 | 0.090 | 0.077 | 0.064 | 0.051 | 0.038 |

Participation rates used in the CSO 2001-2031 projections have been compared by the consultants with British rates from the British Labour Force Projections 1998-2011. British rates are the highest in Europe and therefore provide some guide as to the likely upper limit of any range.

The main differences between British and Irish rates are:

a) Much higher rates in Britain for males and females aged 15 to 24. The CSO projections call for Irish participation rates in these age groups to fall, whilst the British projections call for a rise.

b) Irish female rates for the 25 to 29 age group are now high compared to British rates, but, on the other hand, rates for all women aged 30 and over are much lower than is forecast for Britain, and this remains the case up to 2011.

In order to illustrate the extent of the difference, the British rates have been applied to the CSO F1M1 projection.

The 2011 British rates generate a labour force about 10% higher than the projected CSO 2011 rate. About half the difference is due to higher British rates in the 15 to 24 age group. Most of the remainder is due to higher British rates for females aged 30+.

The low Irish rates for persons of both sexes aged 15 to 24 are connected with high educational participation and the fact that a large proportion of Irish students live with their parents. These factors are not expected to reduce; in fact, following ESRI we project a small decrease to 2010, and stability thereafter. On the other hand it is likely that there will be substantial increases in rates for older females:

"*Of particular interest is participation rates for females aged 25 to 29. Irish participation rates are already above the EU average for this age group. However, because of the rising educational attainment of that cohort over the next decade, their overall participation rate is expected to become the highest in the EU. This reflects the fact that, controlling for education, Irish rates of participation for 25 to 29 year olds are already among the highest in the OECD area. The fact that participation rates are so high for this cohort is related to the fact that women with Leaving Certificate or higher levels of education start their families much later than women with more limited education.*" (ESRI Medium Term Review, pp. 53-57)

The ESRI go on to comment:

"*Irish participation rates for women under 35 are already high by European standards. It is amongst older women that the rates really differ. In the next decade, trends here will be influenced by increased educational attainment, through the ageing of cohorts who have attained higher levels than previously. The combination of the change in educational levels, and the assumption that Irish behaviour will move closer to that of our EU neighbours, should see a major rise in participation rates for women in the 35-55 year age group.*

*"This analysis suggests that, in contrast to the 1990s, the substantial increase in female labour supply that is likely to occur over the next decade from changing participation, will occur amongst older women whose families are reared, and possibly among younger women with more limited education.*

*"Movements in male rates will be less marked, with some reduction in young cohorts as a result of increased educational participation, and in older age cohorts, following a Europe-wide trend for earlier retirement. This will be offset to some extent by higher educational attainment, which increases participation rates".*

### 4.4.2 Regional variations in participation rates

Tables 4.20 and 4.21 set out the variance in participation rates between regions in 1996.

**Table 4.20: Regional variation in participation rates 1996 - males**

| Region | 15 to 19 | 20 to 24 | 25 to 34 | 35 to 44 | 45 to 54 | 55 to 64 | 65+ |
|---|---|---|---|---|---|---|---|
| Border | 110% | 104% | 96% | 95% | 94% | 93% | 103% |
| Dublin | 105% | 96% | 99% | 100% | 101% | 100% | 59% |
| SE | 106% | 109% | 100% | 99% | 98% | 94% | 103% |
| Midland | 100% | 111% | 101% | 100% | 99% | 99% | 124% |
| MW | 91% | 100% | 102% | 102% | 101% | 100% | 118% |
| West | 93% | 90% | 103% | 103% | 103% | 110% | 149% |
| ME | 100% | 107% | 103% | 103% | 104% | 106% | 102% |
| SW | 87% | 99% | 100% | 100% | 100% | 99% | 95% |
| State | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

**Table 4.21: Regional variation in participation rates 1996 - females**

| Region | 15 to 19 | 20 to 24 | 25 to 34 | 35 to 44 | 45 to 54 | 55 to 64 | 65+ |
|---|---|---|---|---|---|---|---|
| Border | 92% | 103% | 92% | 91% | 89% | 84% | 74% |
| Dublin | 124% | 100% | 106% | 110% | 117% | 121% | 90% |
| SE | 96% | 107% | 92% | 92% | 89% | 87% | 109% |
| Midland | 90% | 104% | 93% | 92% | 88% | 85% | 102% |
| MW | 86% | 100% | 102% | 101% | 100% | 97% | 108% |
| West | 87% | 85% | 105% | 106% | 103% | 102% | 111% |
| ME | 97% | 104% | 97% | 96% | 98% | 96% | 106% |
| SW | 83% | 99% | 99% | 94% | 90% | 87% | 96% |
| State | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

Examination of the male rates above, indicates that in the 25-54 age group there is little difference. Differences are more pronounced under 25, which may relate to the incidence of students in the population. The high rate of female participation in the labour force in the

15-19 age group in Dublin is especially notable, as are female participation rates in Dublin in all ages, to a lesser extent.

For projection purposes, the rate differentials are maintained throughout the projection period.

### 4.4.3 Calibration of rates to the estimated workforce in the year 2000

Estimates of the regional workforce are available from the QNHS and the variation in the regional participation rates was adjusted proportionately in each age group in order to agree the 2000 workforce.

## 4.5 Headship rates

### 4.5.1 Approach to household formation

Some of the latest analysis of headship rates at national level has been carried out by the ESRI. Whereas traditionally, one of the strongest factors in determining headship has been marriage, this is no longer the case.

There are also strong reasons for choosing not to distinguish males and females in the projection process. The COP allows the household to specify the head of household in returning the Census form. This has tended to produce instability in the headship rates of married males and females and therefore in males and females taken as a whole, as Table 4.22 illustrates.

**Table 4.22: Male and female headship rates from the COP returns, 1991 and 1996**

| AGE | Male | | Female | |
|---|---|---|---|---|
| | 1991 | 1996 | 1991 | 1996 |
| 15 to 19 | 1% | 1% | 2% | 2% |
| 20 to 24 | 12% | 11% | 12% | 15% |
| 25 to 29 | 45% | 37% | 15% | 21% |
| 30 to 34 | 69% | 63% | 17% | 23% |
| 35 to 39 | 78% | 74% | 17% | 23% |
| 40 to 44 | 82% | 79% | 16% | 23% |
| 45 to 49 | 86% | 82% | 17% | 22% |
| 50 to 54 | 87% | 85% | 19% | 23% |
| 55 to 59 | 88% | 87% | 24% | 25% |
| 60 to 64 | 88% | 87% | 32% | 31% |
| 65 and over | 82% | 82% | 45% | 48% |

Overall, it is preferable to distinguish only age as a determinant - age being correlated in social and economic terms, with a desire for independence and the means to achieve it.

### 4.5.2 Trends in headship at national level

The ESRI comment that there are a number of factors that will determine the growth in the number of independent households over the next decade and a half:

- Demographic pressures (rise in the population of young adults, through natural increase and migration).
- Increase in these young adults with good labour market expectations, facilitating household formation at an earlier age than heretofore.
- Cultural changes, in terms of family patterns and behaviour.
- The affordability of housing (in the present situation, this will act to depress household formation).

Although most commentators agree that headship rates will rise in Ireland, the argument has been put forward that they will remain lower than, for example, the UK, in the foreseeable future, for a number of reasons:

- Rates of marriage breakdown may be lower in Ireland
- Students tend to stay at home to study at third level, in Ireland
- The cost of housing in Ireland could be higher than in the UK in the long run

However, amongst young adults, Irish headship rates are moving towards the European norm, with an average EU household size of 2.63. The effect of this has been a very rapid rise in headship rates in recent years and a major addition to the demand for housing.

The ESRI also comment that the accelerated increase in the rate of household formation has also been affected by expectations about the future price of housing.

The assumptions used on future headship to the year 2030 are set out in Table 4.23, and are derived from the ESRI rates, but amended as a result of the calibration processes described in the Section 4.5.4. Rates of increase are continued after 2010, capped where appropriate.

**Table 4.23: Headship rates at State level 1996-2031(%)**

| AGE | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| 15 to 19 | 1.7 | 1.9 | 2.1 | 2.3 | 2.5 | 2.7 | 2.9 | 3.1 |
| 20 to 24 | 12.9 | 14.0 | 15.1 | 16.1 | 17.2 | 18.2 | 19.3 | 20.3 |
| 25 to 29 | 29.3 | 36.4 | 43.5 | 50.6 | 52.2 | 52.2 | 52.2 | 52.2 |
| 30 to 34 | 42.4 | 46.9 | 51.3 | 55.8 | 59.9 | 59.9 | 59.9 | 59.9 |
| 35 to 39 | 48.2 | 50.8 | 53.3 | 55.8 | 58.3 | 60.8 | 61.0 | 61.0 |
| 40 to 44 | 51.0 | 52.6 | 54.2 | 55.8 | 57.4 | 59.0 | 60.6 | 61.2 |
| 45 to 49 | 52.5 | 55.4 | 58.3 | 61.2 | 61.2 | 61.2 | 61.2 | 61.2 |
| 50 to 54 | 54.5 | 56.7 | 58.9 | 61.2 | 61.7 | 61.7 | 61.7 | 61.7 |
| 55 to 59 | 56.2 | 57.9 | 59.5 | 61.2 | 62.4 | 62.4 | 62.4 | 62.4 |

**Table 4.23: Headship rates at State level 1996-2031(%) *(continued)***

| AGE | 1996 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|---|
| 60 to 64 | 59.1 | 59.7 | 60.4 | 61.0 | 61.6 | 62.3 | 62.9 | 63.4 |
| 65 to 69 | 62.6 | 63.4 | 64.2 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 |
| 70 to 74 | 62.6 | 63.4 | 64.2 | 65.0 | 65.8 | 66.3 | 66.3 | 66.3 |
| 75 to 79 | 62.6 | 63.4 | 64.2 | 65.0 | 65.8 | 66.6 | 67.4 | 68.2 |
| 80 to 84 | 62.6 | 63.4 | 64.2 | 65.0 | 65.8 | 66.6 | 67.4 | 68.2 |
| 85 & Over | 62.6 | 63.4 | 64.2 | 65.0 | 65.8 | 66.6 | 67.4 | 68.2 |

## 4.5.3 Regional variations in headship rates

The regional variance in headship rates is set out in Tables 4.24, 4.25 and 4.26 below.

**Table 4.24: 1991 percentage headship rates by region**

| Region | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65+ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Border | 1.1 | 9.4 | 27.1 | 40.5 | 46.4 | 47.7 | 51.6 | 53.2 | 56.4 | 60.0 | 62.8 |
| Dublin | 2.5 | 15.5 | 33.1 | 46.3 | 50.1 | 51.6 | 52.5 | 53.8 | 55.9 | 59.0 | 62.1 |
| South-east | 1.2 | 9.9 | 28.4 | 41.2 | 46.8 | 48.7 | 50.7 | 53.3 | 55.8 | 59.3 | 60.5 |
| South-west | 1.5 | 10.1 | 28.4 | 41.7 | 46.9 | 49.2 | 51.7 | 53.4 | 55.4 | 58.3 | 60.0 |
| Mid-west | 1.4 | 10.7 | 28.3 | 41.5 | 46.7 | 49.1 | 51.2 | 53.7 | 56.4 | 59.3 | 60.1 |
| Mid-east | 0.9 | 9.0 | 31.1 | 43.7 | 47.9 | 50.3 | 53.2 | 54.3 | 56.3 | 59.4 | 61.4 |
| West | 1.8 | 10.6 | 25.6 | 38.7 | 44.7 | 47.9 | 50.5 | 53.0 | 55.5 | 58.2 | 59.7 |
| Midlands | 0.9 | 9.1 | 26.9 | 40.5 | 45.9 | 47.9 | 51.1 | 53.0 | 56.6 | 59.3 | 62.1 |
| State | 1.6 | 11.9 | 29.8 | 42.8 | 47.6 | 49.6 | 51.8 | 53.5 | 56.0 | 59.1 | 61.1 |

**Table 4.25: 1996 percentage headship rates by region**

| Region | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65+ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Border | 1.2 | 9.6 | 26.0 | 40.1 | 46.1 | 50.1 | 51.1 | 54.7 | 56.2 | 60.5 | 64.6 |
| Dublin | 2.5 | 16.7 | 33.5 | 45.7 | 51.2 | 53.1 | 54.1 | 54.9 | 56.0 | 58.8 | 63.3 |
| South-east | 1.3 | 11.0 | 27.6 | 40.8 | 46.4 | 50.5 | 51.6 | 53.6 | 56.5 | 58.5 | 62.0 |
| South-west | 1.7 | 11.5 | 27.3 | 41.3 | 47.7 | 50.6 | 52.2 | 54.4 | 56.0 | 58.7 | 61.7 |
| Mid-west | 1.0 | 9.5 | 29.0 | 43.2 | 48.7 | 50.8 | 52.8 | 54.9 | 56.7 | 59.7 | 61.9 |
| Mid-east | 1.0 | 9.5 | 29.0 | 43.2 | 48.7 | 50.8 | 52.8 | 54.9 | 56.7 | 59.7 | 61.9 |
| West | 1.8 | 11.5 | 24.8 | 38.1 | 45.0 | 48.4 | 51.2 | 54.0 | 55.7 | 58.3 | 61.1 |
| Midlands | 1.1 | 10.6 | 26.4 | 40.2 | 46.4 | 49.9 | 51.3 | 54.0 | 56.6 | 60.1 | 63.2 |
| State | 1.7 | 12.9 | 29.3 | 42.4 | 48.2 | 51.0 | 52.5 | 54.5 | 56.2 | 59.1 | 62.6 |

**Table 4.26: Regional headship rates as a percentage of the national rate (1996)**

| Region | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65+ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Border | 68.2 | 74.0 | 88.8 | 94.5 | 95.5 | 98.3 | 97.5 | 100.3 | 100.1 | 102.3 | 103.3 |
| Dublin | 142.8 | 129.3 | 114.2 | 107.7 | 106.2 | 104.1 | 103.1 | 100.8 | 99.6 | 99.5 | 101.1 |
| South-east | 76.8 | 84.6 | 94.1 | 96.3 | 96.2 | 99.0 | 98.4 | 98.3 | 100.6 | 99.1 | 99.1 |
| South-west | 101.6 | 89.0 | 93.0 | 97.3 | 98.9 | 99.3 | 99.6 | 99.9 | 99.6 | 99.3 | 98.6 |
| Mid-west | 56.6 | 73.6 | 98.8 | 101.9 | 101.1 | 99.5 | 100.6 | 100.7 | 100.8 | 101.0 | 99.0 |
| Mid-east | 56.6 | 73.6 | 98.8 | 101.9 | 101.1 | 99.5 | 100.6 | 100.7 | 100.8 | 101.0 | 99.0 |
| West | 103.3 | 89.2 | 84.7 | 89.7 | 93.3 | 95.0 | 97.5 | 99.1 | 99.1 | 98.7 | 97.6 |
| Midlands | 65.2 | 81.6 | 90.0 | 94.8 | 96.2 | 97.9 | 97.7 | 99.1 | 100.7 | 101.6 | 101.0 |
| State | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Standard Deviation | 28.1 | 17.2 | 8.4 | 5.2 | 3.9 | 2.4 | 1.8 | 0.9 | 0.6 | 1.3 | 1.7 |

Examination of Table 4.26 shows that regional differentials decrease with age. It is in the 15 to 49 age groups that there are differentials which are significant, with very significant variance in the 15 to 24 age groups. The issue is whether there is likely to be convergence over time. In these projections, no convergence is assumed.

### 4.5.4 Calibration to the number of households in the year 2000 using QNHS data

Estimates of the number of households in each region for April 2000 are available from the QNHS data.

These estimates were used to calibrate headship rates to be used in the projection process in the following way:

#### Adjustment of rates at State level

Headship rates at national level had been calculated prior to calibration, by applying the ESRI 2011 rates to the year 2010 and assuming a steady growth in the rates in each age group between 1996 and 2010.

The 2011 rates were then adjusted such that the total households in 2000 agreed with the QNHS estimates on their growth path through that year. A standard adjustment was made to all age groups, with the exception of the 15-24 age groups, which were more heavily weighted in their growth.

#### Adjustment of regional rates

Regional rates were adjusted to agree with QNHS data for 2000 households by varying the relationship between regional and national rates in each age group for each region separately.

The extent of the adjustment required in each case is set out in Table 4.27 below. For example, the rate in each age group in Dublin, was reduced by 5.4%, in

order to make the 2000 households obtained by application of headship rates, agree with the QNHS estimate of Dublin households in 2000.

**Table 4.27: Variation in the regional headship rates as a percentage of national rates, required to agree 2000 regional household**

| Region | Adjustment (%) |
|---|---|
| Border | 7.8% |
| Dublin | -5.4% |
| South-east | 4.0% |
| South-west | 1.2% |
| Mid-west | 2.2% |
| Mid-east | -6.6% |
| West | 11.3% |
| Midlands | 4.6% |

## 4.5.5 An independent check on the year 2000 housing stock

### 4.5.5.1 Size of the housing stock

The Census of Population does not collect detailed information on dwellings that were unoccupied at the time of the Census. Estimates of the size of the stock can only be made by applying broad correction factors to the number of households recorded by the Census. In most areas, the number of dwellings will be several percentage points higher than the number of households because of vacancies and second homes.

### 4.5.5.2 Vacancies

Given the current housing shortages, vacancies are probably close to frictional levels, generally regarded as around 3% of total stock. The percentage may have been higher at the time of the 1996 Census, when the housing market was not so tight.

### 4.5.5.3 Second homes and holiday homes

The ESB has kindly carried out analyses of consumer records in maritime counties of the State, to give an indication of the number of second homes and holiday homes. The outputs were:

1. Domestic customers with forwarding addresses and higher consumption on last two bills (summer season) than in previous four bills (winter season). This gave a total of 14,881 accounts.
2. As above, but where the county on the forwarding address was different from the county on the service address. This gave a total of 8,741 accounts.

The conclusion is that the number of second homes is rather less than 15,000, perhaps 1% of the total number of resident households in the year 2000. This assumes that the great bulk of holiday homes are in the maritime counties.

Taking the two factors together, it appears that under conditions in the year 2000, the housing stock is likely to be about 4.0% larger than the number of resident households.

#### 4.5.5.4 Housing completions

The DELG Quarterly Bulletin of Housing Statistics gives a total number of 162,000 dwellings completed in the State from the end of the first quarter of 1996 and the end of the second quarter of 2000. This is roughly the period between the date of the 1996 census and the date of the latest CSO population.

Our initial use of these data is as a means of updating the number of households in the State. The number of additional dwellings is likely to be different from the increase in households for similar reasons to those given above.

**Table 4.28: Housing completions 1996 to 2000**

| Region | 1996 | 1997 | 1998 | 1999 | Q1 2000 | Total 1996-1999 | household s 1996 | completions/ Households | completions Q2 1996 to Q2 2000 |
|---|---|---|---|---|---|---|---|---|---|
| Border | 3,960 | 4,364 | 5,170 | 6,252 | 1,350 | 19,746 | 124709 | 16% | 20,106 |
| Dublin | 9,446 | 9,325 | 8,957 | 10,035 | 2,348 | 37,763 | 343205 | 11% | 37,750 |
| Mid-East | 4,222 | 4,560 | 5,266 | 5,193 | 1,177 | 19,241 | 101861 | 19% | 19,363 |
| Midland | 1,769 | 2,002 | 2,491 | 2,697 | 685 | 8,959 | 61629 | 15% | 9,202 |
| Mid-West | 2,825 | 4,033 | 4,147 | 4,465 | 990 | 15,470 | 97218 | 16% | 15,754 |
| South- East | 3,190 | 4,321 | 4,404 | 5,885 | 1,199 | 17,800 | 118924 | 15% | 18,202 |
| South-West | 4,344 | 5,596 | 6,807 | 6,394 | 1,608 | 23,141 | 168903 | 14% | 23,663 |
| West | 3,569 | 4,241 | 4,707 | 5,191 | 1,250 | 17,708 | 106789 | 17% | 18,066 |
| State | 33,325 | 38,442 | 41,949 | 46,112 | 10,607 | 159,828 | 1,123,238 | 14.2% | 162,104 |
| Dublin + ME | 13,668 | 13,885 | 14,223 | 15,228 | 3,525 | 57,004 | 445,066 | 12.8% | 57,112 |
| Rest of State | 19,657 | 24,557 | 27,726 | 30,884 | 7,082 | 102,824 | 678,172 | 15.2% | 104,992 |

### 4.5.6 Vacancies

The vacancy rate has probably declined since 1996. We assume it is less than 3.0% in 2000 against 4.0% in 1996.

### 4.5.7 Second homes

The percentage of dwellings that are used as holiday homes or second homes has probably increased since 1996 because of increased incomes and the various financial incentives that encouraged this form of housing in the late 1990s.

### 4.5.8 Demolitions and conversions

A further proportion of the housing completions will have been absorbed as replacements for demolished or abandoned dwellings. There is no data on this replacement rate but it is likely that many obsolete rural dwellings, and some urban dwellings, have been abandoned in the last four years. We consider the likely replacement rate to have been around 0.5% of the 1996 stock per annum, considerably larger than gains from conversions of existing dwellings, that are estimated by DELG as around 400 per annum.

Given the above assumptions, our estimates of the number of dwellings and households are as follows:

**Table 4.29: Households and dwellings, 1996 and 2000**

| Number of households, 1996 | 1,123,238 |
|---|---|
| Vacant dwellings 1996 (4%) | 44,930 |
| Second homes, holiday homes | 16,500 |
| Housing stock 1996 | 1,184,668 |
| Completions 1996 to 2000 | 162,104 |
| LESS demolitions and abandonments (0.5% per annum) | - 23,543 |
| PLUS conversions (400 per annum) | 1,600 |
| Housing stock 2000 | 1,324,829 |
| Households 2000 (with 4.0% correction) | 1,273,874 |

The estimate of the number of households in 2000 (1,274,000) is very close to the CSO estimate of 1,275,000

### 4.5.9 Implications of 2000 housing stock estimates for headship rates

In 1996, headship rates in the Republic were far lower than in many other European countries, such as the UK. Have headship rates risen since then, and if so, by how much? This is a crucial question for spatial planning since the number of households - not the total population - is the prime determinant of the amount of land required for housing, the major land-user.

Headship rates are not independent of housing supply. They can only rise if sufficient housing is provided, at affordable prices. So, given the apparent increase in housing scarcity over the past four years, there are grounds for maintaining that headship rates could not have risen. On the other hand, it could well be that housing scarcity has partly emerged as a result of increased headship rates.

If we apply the headship rates from the 1996 Census of Ireland to the national age structure estimated by CSO for 2000, we obtain an estimate of 1,207,000 households. On the other hand, if we apply 1996 headship rates for (for example) South-East England then the estimate is 1,436,000 households - which is 19% higher. As we have shown, the total number of households in 2000 was about 1,274,000. The implication is that headship rates have risen somewhat since 1996 but are still well below UK and other European rates.

### 4.5.10 Definition of Main City Areas

The Consultants agreed with the client on the production of major city projections to include:

- Dublin
- Cork
- Limerick
- Galway
- Waterford

The following city area definitions have been adopted for these projections:

- Dublin — Dublin and Mid-east regions in their entirety
- Cork — The area defined for the Cork Vision Study
- Limerick — The area defined for the Limerick Land-Use and Transportation Study
- Galway — The area defined for the Galway Land-Use and Transportation Study
- Waterford — Waterford County Borough and a journey-to-work area defined for the Waterford Planning and Land-use Study

The areas selected are designed to reflect the areas of influence of these cities in terms of journeys to work and other interactions including retail catchments. The catchments are illustrated in Map. 1.

### 4.5.11 Projection procedure for the Main Cities

Much of the projection procedure for the main cities mirrors that adopted for the regions.

No projection is necessary for Dublin as it covers the entire area of two previously defined regions.

Fertility rates, headship rates and participation rates are assumed to be as for the region in which the city lies.

Migration flows are derived as proportions of flows applied to the region in which the city is located. These proportions may be varied through time. This then provides estimates of the residual area of the region by deduction.

In all scenarios, the gross internal out-migration flows to the cities are assumed to reflect the size of the city population in the region, in 1996.

Also in each scenario, international in-migration is set such that in every quinquennial period of the projection, the growth in the share of the regional population accounted for by the main city, reflects the growth experienced in the period 1991-96. Thus if a city increased its share of regional population by one percentage point in 1991-1996, it is assumed to increase it by a further percentage point in every subsequent five year period. This procedure also provides starting estimates of the city populations in the year 2001, as follows:

**Table 4.30: Estimated main city populations in 2001**

| City | 2001 Estimate |
|---|---|
| Dublin | 1,497,100 |
| Cork | 333,490 |
| Limerick | 229,163 |
| Galway | 140,109 |
| Waterford | 115,691 |
| Total Cities | 2,315,553 |

These populations, with their corresponding age structures, were then applied to a year 2000 base.

A limited check on the validity of these year 2000 population estimates was carried out, using data from the electoral register. Changes in the structure of Electoral Districts in 1999 meant that estimation of growth from 1996 could not be calculated exactly. Nor do the city areas as defined, correspond with whole EDs. The results are set out in Table 4.31.

**Table 4.31: 20+ Population of main cities outside Dublin in the year 2000**

| City | 1996 20+ population | Electoral Growth rate | 2000 20+ population using electors growth rate | 20+ population estimated using regional shares approach | Difference |
|---|---|---|---|---|---|
| Waterford | 49,329 | 5.3% | 51,948 | 53,976 | 2,028 |
| Cork | 217,719 | 7.9% | 234,843 | 232,397 | -2,446 |
| Limerick | 142,215 | 4.9% | 149,143 | 159,228 | 10,085 |
| Galway | 82,768 | 9.3% | 90,468 | 93,809 | 3,341 |

It should be stressed that the projections of the main cities should be regarded as broadly illustrative, since detailed Census and QNHS data are not available for the purpose of estimating gross migration flows. Studies have recently been completed or are under way, in all four cities, and further interaction with the relevant planning authorities and consultants is envisaged, to refine this work.

The projection process has, in this report, been approached on the basis that the cities are likely to experience an increasing share of regional population. Once the total population has been determined in this way, the model arrives at workforce and households as for the regions.

## 4.6 Methodology for the economic growth scenarios projections

### 4.6.1 Employment projections 1995-2030

In order to provide a basis for projecting population on an economic growth scenario basis, estimates are required of employment at each period to 2030.

The starting data were the 1996 Census breakdowns by industry of the working population resident in each region. It was assumed that these were equivalent to the regional employment structures – i.e. that the effects of commuting were negligible at the regional level. To preserve this assumption it was necessary to combine the Dublin and Mid-East Regions into a single Greater Dublin Region.

For the State as a whole, the projections were based on industry-specific growth rates derived from the ESRI Mid-Term Review 1995-2005. At the regional level, this method was combined with a simple model that related non-basic employment to the regional population.

### 4.6.2 Basic and non-basic employment

The distinction here is between non-basic industries that are dependent on the local (that is, regional) population and basic industries that produce for wider markets, national and international.

We ignored those small elements of manufacturing that have local markets (e.g. bakeries and local newspapers) and concentrated on an analysis of service industries in terms of jobs per 1,000 population. The results show a fair degree of stability between regions excepting high levels for certain service industries in Greater Dublin. These levels, found in most service industries except utilities, building and retail distribution, reflect the national service functions of Greater Dublin. In addition, the South West region has high employment rates in wholesale distribution, insurance, banking and finance, reflecting the wide influence of Cork. We corrected for these functions by diverting a proportion of this service employment into the basic sector, until the rates per 1000 population in greater Dublin and the South-West matched those of the other regions.

### 4.6.3 National employment in 2000

Calibrating the procedure for updating employment to the year 2000 was problematic, because the ESRI Mid-Term Review does not give a complete employment structure for either 2000 or any of the preceding years. It simply gives percentage growth rates, together with some data on the level of employment in some of the industries at differing points in time. Application of the ESRI growth rates to the 1996 Census national structure gave 1.579 million jobs, whereas some 1.648 million would be expected from the latest CSO estimates[22]. The difference is partly because the ESRI employs different base data but mainly, we believe, because employment growth has been greater than was suspected in 1999.

The difference was bridged by increasing the growth rates for the main growth industries.

### 4.6.4 Regional employment in 2000

Basic employment in each region was projected in line with the growth rates implied by the (corrected) national figures.

For regional market employment, we first expressed the (corrected) national figures as rates per 1,000 population, using the CSO national population estimate of 3,787,400 for 2000. We then expanded the 1996 regional rates per 1,000 population in line with the national change from 1995 to 2000. The results were applied to the CSO 2000 estimates for regional populations to give regional market employment.

Total projected employment for each region bears a reasonable relationship to our current trends projections of the regional labour force. The implied unemployment rate is around 5%.

### 4.6.5 Projection to 2030

At the national level, the 2000 structure was projected forward using ESRI growth rates for 2000 to 2005. This gave 1.858 million jobs, which on the basis of likely activity rates and unemployment rates is equivalent to a total national population of about 4.143 million. This has been left unchanged for the purposes of the current illustrative exercise.

22. That is, a year 2000 labour force of 1.745 million and an unemployment rate of 4.3%

Basic employment in each region was projected using ESRI growth rates. Regional-market employment was then related to population using the following formula:

$$(b + mP)/ E = P$$

where:

b is the number of basic jobs in a region

m is the number of all regional market jobs per unit population

P is the total population of the region

E is the proportion of the region's population who are in work

This reduces to:

$P = b / (E - m)$, known as the Jordan formula.

With activity rates (E) available from the current trends population projection, b having been projected and the growth in m also assumed, it is possible to iterate between jobs and migration until a solution to regional population and workforce levels is found.

This procedure is repeated for each region and each time period.

### 4.6.6 Methodology for the derivation of EGS2 projections

Table 1 shows the extent of the redistribution of the basic sector jobs from Dublin and the Mid-east in percentage terms, assumed for the two options used under the EGS2 Scenario.

In each case, the movement is front loaded, since the first five to ten years are the most critical in determining the success of any spatial policy. The levels chosen are illustrative only.

**Table 4.32: Percentage movement of basic sector jobs from Dublin + Mid-east**

| Option Number | Percentage movement of basic sector jobs from Dublin + Mid-east | | | |
|---|---|---|---|---|
| | 2000-2005 | 2005-2010 | 2010-2015 | 2015-2020 |
| Option 1 | 75 | 50 | 25 | 8 |
| Option2 | 24 | 16 | 16 | 16 |

Built into the model, uniquely under this scenario, are the impacts of commuting on the overall distribution of population. In the other scenarios, it is assumed that there are no cross-regional journey to work flows.

Whilst this is a reasonable assumption for most regions, the faster growth and greater pressure which arises from this scenario, indicates that some provision should be made for persons resident in the Border, Midland and South-eastern regions, who are living in these regions but commuting to Dublin daily.

This will include the residents of Drogheda, Dundalk, Mullingar, Tullamore, Portlaoise, Carlow and Gorey, all of which are on rail lines and/or national primary routes.

These commuting flows will have the following impacts on regional population distribution:

- There will be the direct impact on the distribution of persons in households where one or more workers travels to Dublin or the Mid-east region
- There will be the impact of the growth in population on the number of market related jobs

The total increase in the number of commuters as assumed to be 1,000 per annum or 20,000 over the twenty year period. They are assumed to be all in the basic sectors. These jobs are regarded as having been transferred to the Border region (40%), the Midland Region (40%) and the South East Region (20%), in order to simulate the spin-off impact through household expenditure etc. The 20,000 basic jobs must then be added back into the Dublin and Mid-east region over the period for the purpose of calculating the shift in such jobs that will actually be required.

## 4.7 Model testing/calibration with CSO model

At the time of writing the earlier drafts of this paper, the Central Statistics Office was working on regional projections, consistent with the national projections produced in 1999.

For this reason, it was decided to test the model being developed for this work against the CSO model, to ensure consistency. Accordingly, the current trends model was run using two sets of CSO assumptions - M1F1 and M2F1. [23]

Where not available in published form, required data was provided by the CSO to replicate their original run.

The model which has been developed for the present study operates on five-year age cohorts, which may result in certain small differences in the results. A single year projection model was run to examine the extent of the differences.

Overall, using the five-year model, results at national level are very close to the original CSO projections.

The table below confirms the closeness of the result in each case. Differences are due to minor technical differences in the models.

23. The reader is referred to the CSO 1999 Population and Labour Force Projections for a full description of the assumptions used.

**Table 4.33: Comparison of national projections with CSO 1999 projections using the same assumptions**

| (a) M1F1 Assumptions | | | | |
|---|---|---|---|---|
| Projection source | Number over the period 1996-2031 | | | |
| | Births | Deaths | Migration | Change |
| CSO | 2,035,481 | 1,218,957 | 325,000 | 1,141,524 |
| Consultants | 2,029,363 | 1,221,372 | 325,000 | 1,132,991 |
| Difference | -6,118 | 2,415 | 0 | -8,533 |
| % Difference | -0.30% | 0.20% | 0.00% | -0.75% |
| **(b) M1F1 Assumptions** | | | | |
| Projection source | Number over the period 1996-2031 | | | |
| | Births | Deaths | Migration | Change |
| CSO | 1,890,445 | 1,203,308 | - | 687,100 |
| Consultants | 1,881,228 | 1,203,107 | - | 678,121 |
| Difference | -9,217 | -201 | - | -8,979 |
| % Difference | -0.49% | -0.02% | 0.00% | -1.31% |

The CSO has now published its own regional projections, and in Table 4.32, the results of these projections are set out and compared with the work contained in this paper. The CSO projections take no account of any initiatives arising from the NSS and are therefore comparable to the present trends scenario used in this report.

**Table 4.34: Comparison of NSS and CSO regional population projections under the M1F1 assumption (thousands**

| Region | 2001 (est.) * | 2001 (CSO) | 2020 (NSS) | 2020 (CSO) |
|---|---|---|---|---|
| Border | 416 | 417 | 402 | 450 |
| Dublin | 1,123 | 1,164 | 1,424 | 1,538 |
| Mid-East | 399 | 380 | 566 | 496 |
| Midland | 212 | 208 | 219 | 207 |
| Mid-West | 334 | 331 | 381 | 379 |
| South- East | 408 | 403 | 454 | 424 |
| South-West | 563 | 563 | 605 | 611 |
| West | 384 | 369 | 459 | 433 |
| State | 3,839 | 3,837 | 4,509 | 4,538 |
| Dublin + ME | 1,522 | 1,544 | 1,990 | 2,034 |
| Rest of State | 2,317 | 2,293 | 2,519 | 2,504 |
| Southern and Eastern region | 2,827 | 2,841 | 3,430 | 3,448 |
| Border, Midland and Western Region | 1,012 | 994 | 1,080 | 1,090 |

* CSO Population and Migration Estimates, April 2001

Table 4.32 compares the results of the M1F1 projections. Examination of the table indicates that:

- NSS and CSO projections are broadly in line for the Dublin and Mid-east combined region, versus the rest of the State.
- There is a broad correspondence between the out-turn for the Southern and Eastern Region and the Border, Midland and Western Region.
- At a regional level , the projections are broadly in line for the Midland, Mid-west and South-west regions.
- There are significant differences for the other regions, with the NSS recording higher figures for the South-east and West regions, and a lower figure for the Border region

The CSO projections contain the important caveat that 'regional population projections are particularly sensitive to assumptions concerning migration.'. The differences noted above are due to assumptions regarding the inter-regional patterns of migration flows and how these are projected.

# Appendix A Note on normally resident population versus de facto population

It is not possible to use normally resident population for projection purposes in Ireland, because there is no record in the Census of Population (until the 2001 Census, when a question will be included) of normal residents absent on the night (although there is a question on those present who are normally resident elsewhere).

The data that are available would enable a half-way position to be adopted, insofar as it would permit the assignment to region of normal residence of those who are normally resident elsewhere in Ireland. Some of this information is available from Volume 4 of the Census, but without full age structures. Special tabulations would be required on workers and heads of households as well as more detailed age breakdowns. This additional complexity is not warranted, as only 0.8% of the enumerated population were not at their normal residence, where such a residence was within the State. This was on a county basis. The result at regional level would be even smaller. The variation is not great between counties, though the more rural counties had an excess of resident over enumerated population and the county boroughs an excess of enumerated over resident. Thus using the de facto rather than the usually resident population figures will result in a small bias towards urban population.

A further argument in favour of using *de facto* population is that the CSO national projections also use *de facto* population. These are being used to validate the current projections.

# Appendix B Note on the use of total population rather than population in private households only

The population that has been used in these projections includes non-private households.

Table B.1 below sets out the proportion of persons in each region who were enumerated in the 1996 Census

**Table B.1: Persons in non-private households, 1996**

| Region | Persons in: | | Percentage in non-private households |
|---|---|---|---|
| | Non-private households | All households | |
| Border | 8427 | 407295 | 2.1% |
| Dublin | 32242 | 1058264 | 3.0% |
| Mid-east | 6464 | 347407 | 1.9% |
| Midland | 4791 | 205542 | 2.3% |
| Mid-west | 8521 | 317069 | 2.7% |
| South-east | 10095 | 391517 | 2.6% |
| South-west | 16348 | 546640 | 3.0% |
| West | 10648 | 352353 | 3.0% |

The percentage in non-private households varies from 1.9 per cent in the Mid-east region to 3.0% in Dublin, the West and the South-west.

Data have been made available by the CSO on the age and sex structure of the non-private household population, and projection is possible on this basis. Special tabulations would be required to obtain such data for the Main City Areas. Nor is there data on the 2000 non-private population, which would have to be estimated.

Projection of private households only, has the advantage of providing more accurate headship data, since heads of household data relate to heads of private households only.

The table overleaf sets out the age structure of the non-private household population of males and females.

More than half of females in such households are past retirement age. Another significant proportion are under 15. These cohorts are unlikely to distort the outcome of the projection process, since the females are not of childbearing age, and neither sex is of working age.

Although, therefore, the absolute numbers in particular cohorts may be significant in some regions (for example, males aged 15-19 in the Midland region constitute five per cent of the total cohort), in general the number of examples is very limited.

**Table B.2: Age structure of non-private households**

| Age | Males | | Females | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| 0-4 | 1986 | 4.3% | 1486 | 2.9% |
| 5-9 | 1673 | 3.6% | 1222 | 2.4% |
| 10-14 | 3509 | 7.5% | 2414 | 4.7% |
| 15-19 | 4598 | 9.9% | 3480 | 6.8% |
| 20-24 | 3093 | 6.6% | 2546 | 5.0% |
| 25-29 | 2924 | 6.3% | 1979 | 3.9% |
| 30-34 | 2676 | 5.7% | 1865 | 3.7% |
| 35-39 | 2408 | 5.2% | 1684 | 3.3% |
| 40-44 | 2254 | 4.8% | 1692 | 3.3% |
| 45-49 | 2321 | 5.0% | 1962 | 3.8% |
| 50-54 | 2206 | 4.7% | 2141 | 4.2% |
| 55-59 | 2204 | 4.7% | 2373 | 4.7% |
| 60-64 | 2352 | 5.1% | 2561 | 5.0% |
| 65-69 | 2589 | 5.6% | 2921 | 5.7% |
| 70-74 | 2761 | 5.9% | 3756 | 7.4% |
| 75-79 | 2621 | 5.6% | 4619 | 9.1% |
| 80-84 | 2424 | 5.2% | 5385 | 10.6% |
| 85+ | 1943 | 4.2% | 6907 | 13.5% |
| Total | 46542 | | 50993 | |

# Appendix C Note on refugees and asylum seekers

There have been a total of 24,428 asylum seekers in Ireland since 1992. The age structure of these asylum seekers is set out below and compared to the age structure of all immigrants, adjusted to reflect the ratio of males and females in the asylum seeking population (two-thirds of asylum seekers were males in 2000 to date).

In general, the age structure of asylum seekers is older than other immigrants.

**Table C.1: Age structure of asylum seekers**

| Age | Refugees | All (adjusted) | |
|---|---|---|---|
| | | 1992-96 | 1997-00 |
| <18 | 18% | 18% | 14% |
| 18 to 25 | 16% | 31% | 45% |
| 26 to 35 | 46% | 29% | 26% |
| 36 to 45 | 16% | 10% | 8% |
| 46 to 55 | 3% | 5% | 3% |
| 56 to 65 | 1% | 4% | 2% |
| Over 65 | 0% | 2% | 2% |

Since the CSO Population and Migration estimates include asylum seekers in its estimates of international inmigrants, the issues are:

- Will the number of immigrants accounted for by asylum seekers rise significantly in the projection period?
- Will this have implications for the regional distribution of immigrants?

**Table C.2: Proportion of immigrants accounted for by asylum seekers**

| Year (1) | All Immigrants | Asylum Seekers | Percent of total |
|---|---|---|---|
| 1995 | 31,200 | 361 | 1% |
| 1996 | 39,200 | 424 | 1% |
| 1997 | 44,000 | 1,179 | 3% |
| 1998 | 44,000 | 3,883 | 9% |
| 1999 | 47,500 | 4,626 | 10% |
| 2000 | 42,300 | 7,724 | 18% |

(1) ending 5th April. Figures for asylum seekers relate to the previous calendar year

Based on figures of applications received to date in the year 2000, it now appears that asylum seekers may constitute more than one-fifth of all immigrants.

There are currently 3,000 to 4,000 migrants accommodated in institutions. Assuming an average household size of three, this means that there are more than 1,000 households. The extent to which administrative decisions impact on the distribution of this population between regions may also be a factor which will need to be taken into consideration.

# Statistical Appendix

## 1 Projected expectation of life at specified ages (CSO)

### Males

| | 0 | 5 | 10 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2000-2002 | 73.8 | 69.3 | 64.4 | 45.3 | 35.8 | 26.5 | 17.9 | 10.9 | 6.1 | 3.2 |
| 2005-2007 | 74.6 | 70.1 | 65.1 | 46 | 36.5 | 27.1 | 18.3 | 11.2 | 6.3 | 3.3 |
| 2010-2012 | 75.3 | 70.7 | 65.8 | 46.6 | 37.2 | 27.7 | 18.8 | 11.6 | 6.5 | 3.4 |
| 2015-2017 | 75.9 | 71.4 | 66.4 | 47.3 | 37.8 | 28.3 | 19.3 | 11.9 | 6.7 | 3.5 |
| 2020-2022 | 76.6 | 72 | 67 | 47.9 | 38.4 | 28.9 | 19.7 | 12.2 | 6.9 | 3.6 |
| 2025-2027 | 77.2 | 72.6 | 67.6 | 48.5 | 39 | 29.4 | 20.2 | 12.5 | 7.1 | 3.7 |
| 2030-2032 | 77.8 | 73.2 | 68.2 | 49.1 | 39.6 | 30 | 20.6 | 12.9 | 7.3 | 3.8 |

### Females

| | 0 | 5 | 10 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2000-2002 | 79.5 | 75 | 70 | 50.3 | 40.6 | 31.1 | 22.1 | 14.2 | 7.9 | 3.9 |
| 2005-2007 | 80.3 | 75.8 | 70.8 | 51.1 | 41.4 | 31.8 | 22.8 | 14.7 | 8.2 | 4 |
| 2010-2012 | 81.1 | 76.5 | 71.6 | 51.9 | 42.1 | 32.5 | 23.4 | 15.2 | 8.5 | 4.1 |
| 2015-2017 | 81.9 | 77.3 | 72.3 | 52.6 | 42.8 | 33.2 | 24 | 15.7 | 8.8 | 4.2 |
| 2020-2022 | 82.6 | 78 | 73 | 53.3 | 43.5 | 33.9 | 24.5 | 16.2 | 9.1 | 4.3 |
| 2025-2027 | 83.3 | 78.7 | 73.7 | 54 | 44.2 | 34.5 | 25.1 | 16.6 | 9.4 | 4.4 |
| 2030-2032 | 84 | 79.3 | 74.3 | 54.6 | 44.8 | 35.1 | 25.7 | 17.1 | 9.6 | 4.5 |

# 2 International migrant age structures for the period 1992-99

## (a) Out-migrants

| Males | Border | Dublin | Mid-east | Midland | Mid-west | South-east | South-west | West |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 1% | 1% | 0% | 0% | 1% | 0% | 0% | 1% |
| 5-9 | 1% | 1% | 1% | 0% | 1% | 0% | 0% | 1% |
| 10-14 | 1% | 1% | 1% | 0% | 1% | 0% | 1% | 1% |
| 15-19 | 22% | 14% | 20% | 19% | 19% | 21% | 19% | 21% |
| 20-24 | 42% | 36% | 41% | 37% | 40% | 43% | 40% | 42% |
| 25-29 | 14% | 21% | 16% | 19% | 16% | 14% | 16% | 14% |
| 30-34 | 8% | 12% | 9% | 12% | 9% | 8% | 10% | 8% |
| 35-39 | 5% | 8% | 6% | 8% | 6% | 5% | 6% | 5% |
| 40-44 | 3% | 4% | 3% | 4% | 3% | 3% | 3% | 3% |
| 45-49 | 1% | 1% | 1% | 1% | 1% | 2% | 1% | 1% |
| 50-54 | 1% | 1% | 1% | 0% | 1% | 1% | 1% | 1% |
| 55-59 | 1% | 1% | 0% | 0% | 1% | 1% | 1% | 1% |
| 60-64 | 1% | 1% | 0% | 0% | 1% | 1% | 1% | 1% |
| 65-69 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 70-74 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 75-79 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 80-84 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 85-89 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 90-94 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 95+ | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |

| Females | Border | Dublin | Mid-east | Midland | Mid-west | South-east | South-west | West |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 1% | 0% | 0% | 1% | 1% | 0% | 0% | 1% |
| 5-9 | 1% | 0% | 0% | 1% | 1% | 0% | 1% | 1% |
| 10-14 | 1% | 0% | 0% | 1% | 2% | 0% | 1% | 1% |
| 15-19 | 23% | 18% | 26% | 27% | 26% | 25% | 24% | 27% |
| 20-24 | 47% | 47% | 51% | 50% | 51% | 50% | 50% | 51% |
| 25-29 | 18% | 18% | 12% | 13% | 13% | 16% | 15% | 12% |
| 30-34 | 8% | 8% | 5% | 6% | 6% | 7% | 6% | 5% |
| 35-39 | 5% | 5% | 3% | 3% | 4% | 4% | 4% | 3% |
| 40-44 | 3% | 3% | 2% | 2% | 2% | 2% | 2% | 2% |
| 45-49 | 1% | 0% | 1% | 0% | 0% | 1% | 0% | 1% |
| 50-54 | 1% | 0% | 1% | 0% | 0% | 1% | 0% | 1% |
| 55-59 | 1% | 0% | 1% | 0% | 0% | 1% | 0% | 1% |
| 60-64 | 1% | 0% | 1% | 0% | 0% | 1% | 0% | 1% |
| 65-69 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 70-74 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 75-79 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 80-84 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 85-89 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 90-94 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 95+ | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |

### (b) In-migrants

| Males | Border | Dublin | Mid-east | Midland | Mid-west | South-east | South-west | West |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 9% | 5% | 8% | 4% | 6% | 7% | 7% | 8% |
| 5-9 | 5% | 3% | 7% | 6% | 4% | 6% | 6% | 4% |
| 10-14 | 3% | 3% | 6% | 7% | 4% | 5% | 3% | 3% |
| 15-19 | 9% | 10% | 5% | 11% | 14% | 7% | 7% | 10% |
| 20-24 | 18% | 26% | 15% | 18% | 29% | 22% | 23% | 36% |
| 25-29 | 18% | 22% | 21% | 15% | 13% | 14% | 19% | 12% |
| 30-34 | 13% | 13% | 18% | 11% | 10% | 10% | 12% | 7% |
| 35-39 | 7% | 6% | 8% | 8% | 8% | 6% | 7% | 7% |
| 40-44 | 4% | 4% | 3% | 6% | 3% | 5% | 4% | 2% |
| 45-49 | 4% | 4% | 3% | 4% | 2% | 4% | 3% | 2% |
| 50-54 | 3% | 1% | 2% | 2% | 3% | 3% | 3% | 2% |
| 55-59 | 2% | 1% | 1% | 2% | 2% | 2% | 1% | 1% |
| 60-64 | 2% | 1% | 1% | 1% | 1% | 3% | 1% | 2% |
| 65-69 | 3% | 1% | 1% | 2% | 1% | 3% | 2% | 3% |
| 70-74 | 0% | 0% | 0% | 0% | 0% | 1% | 2% | 1% |
| 75-79 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 80-84 | 1% | 0% | 0% | 0% | 0% | 1% | 0% | 0% |
| 85-89 | 0% | 0% | 0% | 0% | 1% | 1% | 0% | 0% |
| 90-94 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 95+ | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |

| Females | Border | Dublin | Mid-east | Midland | Mid-west | South-east | South-west | West |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 8% | 6% | 7% | 6% | 6% | 5% | 5% | 6% |
| 5-9 | 5% | 4% | 5% | 6% | 5% | 5% | 5% | 4% |
| 10-14 | 4% | 3% | 3% | 4% | 3% | 4% | 3% | 2% |
| 15-19 | 10% | 15% | 7% | 14% | 13% | 9% | 12% | 22% |
| 20-24 | 24% | 34% | 13% | 20% | 37% | 18% | 30% | 37% |
| 25-29 | 21% | 21% | 22% | 10% | 15% | 16% | 17% | 11% |
| 30-34 | 11% | 10% | 15% | 8% | 7% | 7% | 9% | 7% |
| 35-39 | 5% | 5% | 7% | 4% | 8% | 6% | 7% | 5% |
| 40-44 | 3% | 3% | 3% | 5% | 2% | 5% | 3% | 2% |
| 45-49 | 3% | 2% | 2% | 3% | 1% | 3% | 2% | 2% |
| 50-54 | 1% | 1% | 1% | 3% | 2% | 2% | 2% | 2% |
| 55-59 | 3% | 1% | 2% | 1% | 0% | 3% | 1% | 2% |
| 60-64 | 2% | 1% | 1% | 3% | 1% | 2% | 1% | 3% |
| 65-69 | 3% | 1% | 1% | 2% | 1% | 1% | 1% | 1% |
| 70-74 | 2% | 0% | 0% | 0% | 0% | 1% | 0% | 0% |
| 75-79 | 0% | 0% | 1% | 1% | 0% | 1% | 1% | 0% |
| 80-84 | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% |
| 85-89 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 90-94 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 95+ | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |

# Results Appendix

Key to models used

**Model 1**

CSO M1F1 assumptions, 1991-96 migration age structures, 1995-96 internal migration movements, 1992-99 regional allocation of external migration. Regional fertility differentials diminishing and eliminated by 2033.

**This is the Current Trends Scenario 1.**

**Model 2**

As for Model 1, but CSO M2 assumption used.

**Model 3**

As for Model 1, but with internal migration set to zero.

**Model 4**

As for Model 1, but fertility set to the CSO F2 assumption.

**This is the Current Trends Scenario 2.**

**Model 5**

As for Model 1, fertility held constant throughout the projection period (regional differentials diminishing and eliminated by 2033).

**Model 6**

As for Model 1, but without converging regional fertility.

**Model 7**

As for Model 1, but with international in-migration flows driven by job creation. Agricultural employment declining at two per cent per annum.

**This is the Economic Growth Scenario 1.**

**Model 8**

As for Model 7, but with eight per cent of the projected basic employment in Dublin redirected elsewhere.

**This is the Economic Growth Scenario 2.**

**Model 9**

As for Model 7 but job creation rates in basic employment sectors other than agriculture, halved, where employment change is positive.

**Model 10**

As for Model 1 but no increase in headship rates.

**Model 11**

As for Model 1 but no increase in labour force participation rates.

**Model 12**

As for Model 1, but no internal or international migration (natural increase).