

# Annex B: Notes to Charts and Tables

	Technical note
<b>Charts</b>	
<b>Chapter 2</b>	
Figure 2.1: All-Island population trends and forecasts (absolute numbers)	Population forecasts are from Oxford Economics and not official projections from CSO and NISRA.
Figure 2.2: All-Island population trends and forecasts (index 1996=100)	Population forecasts are from Oxford Economics and not official projections from CSO and NISRA.
Figure 2.3: All-Island population trends and forecasts (North-South share of All-Island total)	Population forecasts are from Oxford Economics and not official projections from CSO and NISRA.
Figure 2.4: International comparison of recent population trends	Haver Analytics, who specialise in database and software products for economic analysis, is Oxford Economics' official supplier of outturn economic data. Primary sources for Haver Analytics include national statistical organisations and multi-lateral institutions such as the UN.
Figure 2.5: All-Island net migration trends (absolute numbers)	At all-island level, North-South migration flows are effectively netted off by summing data of both jurisdictions. For example, an outflow from Ireland to NI (-ve) is recorded as a positive inflow in NI and both should in theory be equal as they are jointly based on the same CSO/NISRA source.
Figure 2.6: All-Island net migration trends (North-South per cent of total population)	See note for Figure 2.5.
Figure 2.7: All-Island birth rate trends	Birth rate is total births per 1,000 total population.
Figure 2.8: All-Island death rate trends	Death rate is total deaths per 1,000 total population.
Figure 2.9: All-Island rate of natural increase trends	Rate of natural increase is total births minus deaths per 1,000 total population.
Figure 2.10: All-Island working-age population trends	For North-South comparability, working-age definition for both jurisdictions is based on Eurostat definition – male and female 15-64. Northern Ireland working-age definition is typically male 16-64 and female 16-59.
Figure 2.11: All-Island working-age population trends (North-South share of total population)	See note for Figure 2.10.
Figure 2.12: All-Island nominal GDP at market prices (Euro bn)	ECB average year exchange rates applied to convert to common currency.

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Figure 2.13: All-Island economic growth rates	Economic growth rates are annual growth in constant market price GDP (Ireland) and constant basic price GVA (Northern Ireland) in home currency. All-Island growth is a weighted average of Ireland and NI growth. NI constant price series calculated by Oxford Economics using UK industry deflators. Forecasts are from Oxford Economics.
Figure 2.14: All-Island nominal GDP at market prices (North-South share of All-Island total)	See note for Figure 2.12.
Figure 2.15: International comparison of economic size	See note for Figure 2.12.
Figure 2.16: International comparison of recent economic growth rates (1996-2006)	Growth rates are annual growth in constant market price GDP except for NI (constant basic price GVA) and in home currency.
Figure 2.17: All-Island recent trends in GDP per head	See note for Figure 2.12.
Figure 2.18: International comparison of nominal GDP per head	ECB and Haver Analytic average year exchange rates applied to convert nominal market price GDP to common currency.
Figure 2.19: International comparison of recent real GDP per head growth	Growth rates are annual growth in constant market price GDP per head except for NI (constant basic price GVA per head) and in home currency.
Figure 2.20: International comparison of early stage entrepreneurial activity	<p>Total early stage entrepreneurial activity refers to the total rate of early stage entrepreneurial activity among the adult population and includes both nascent and new firm entrepreneurs. In some instances, this rate is less than the combined percentages for nascent and new firm entrepreneurs. This is because, in circumstances where respondents qualify as both a nascent and a new firm entrepreneur, they are counted only once.</p> <p>Nascent entrepreneurs are those actively planning a new venture. These entrepreneurs have done something during the previous twelve months to help start a new business, that he or she will at least part own. Activities such as organising the start-up team, looking for equipment, saving money for the start-up, or writing a business plan would all be considered as active commitments to starting a business. Wages or salaries will not have been paid for more than three months in respect of the new business. Many of these individuals are still in full-time employment.</p> <p>New firm entrepreneurs are entrepreneurs who at least part own and manage a new business that is between 4 and 42 months old and have not paid salaries for longer than this period. These new ventures are in the first 42 months after the new venture has been set up.</p> <p>All-Island total early stage entrepreneurial activity rate calculated as the weighted average of Ireland and NI rates using adult population shares.</p>

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Figure 2.21: All-Island VAT registered business stock	See Annex A which explains why North-South VAT registration data are not directly comparable due to differences in VAT thresholds.
Figure 2.22: All-Island VAT registrations and de-registrations	See note for Figure 2.21.
Figure 2.23: All-Island innovation (2002-2004)	Innovation activities indicate that the firm reported the introduction of a new product or process and/or had innovation activities that were incomplete or abandoned over the period in question. The proportion of firms with innovative activities gives a measure of firms' propensity to engage in innovation activity, be it through the introduction of a new product to the market or the implementation of a new means of production or supply of goods and services. Product innovators are firms that reported the introduction of new or significantly improved goods or services over the period in question. Process innovators are firms that used new or significantly improved technology for production or the supply of goods or services. This indicator gives a measure of the extent to which firms bring in new ways of producing or supplying their goods or services.
<b>Chapter 3</b>	
Figure 3.1: All-Island total employment trends (absolute numbers)	Employment refers to people in employment as opposed to jobs. Based on ILO definition of employment – persons in employment comprise all persons above a specified age who during a specified brief period, either one week or one day, were in the following categories – paid employment and self-employment. Annual data refers to Q2 for Ireland and spring for NI.
Figure 3.2: All-Island total employment trends (index 1996=100)	See note for Figure 3.1.
Figure 3.3: All-Island total employment trends (North-South share of All-Island total)	See note for Figure 3.1.
Figure 3.4: International comparison of recent employment growth	See note for Figure 3.1.
Figure 3.5: All-Island working-age employment rate trends	Working-age employment rate equal to working-age persons in employment divided by working-age population. Based on Eurostat working-age definition (15-64 male and female) for both jurisdictions. Annual data refers to Q2 for Ireland and spring for NI.
Figure 3.6: All-Island ILO unemployment rate trends	Working-age ILO unemployed divided by working-age economically active. ILO definition of unemployment – all persons above a specified age who during the reference period were: without work, that is, were not in paid employment or self employment during the reference period; currently available for work, that is, were available for paid employment or self-employment during the reference period; and seeking work, that is, had taken specific steps in a specified recent period to seek paid employment or self-employment. Based on Eurostat working-age definition (15-64 male and female) for both jurisdictions. Annual data refers to Q2 for Ireland and spring for NI.

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Figure 3.7: All-Island recent unemployment trends (live register and claimant count)	The live register is not designed to measure unemployment in the South. Unemployment in Ireland is measured by the QNHS.
Figure 3.8: All-Island economic inactivity rate trends	Working-age economically inactive divided by working-age population. NI inactivity rate based on official definition of working-age population (male 16-64; female 16-59). Including inactive females aged 60-64 for NI would, in the authors' view, over-estimate economic inactivity in NI. Annual data refers to Q2 for Ireland and spring for NI.
Figure 3.9: All-Island working-age skill trends	See Annex A for the approach to align QNHS and LFS qualification/attainment levels to ISCED and for the definition and description of ISCED categories. Annual data refers to Q2 for Ireland and spring for NI.
Figure 3.10: All-Island working-age skill trends – low qualifications (absolute numbers)	See note for Figure 3.9.
Figure 3.11: All-Island working-age skill trends – low qualifications (share of working-age population)	See note for Figure 3.9.
Figure 3.12: All-Island working-age skill trends – medium qualifications (absolute numbers)	See note for Figure 3.9.
Figure 3.13: All-Island working-age skill trends – medium qualifications (share of working-age population)	See note for Figure 3.9.
Figure 3.14: All-Island working-age skill trends – high qualifications (absolute numbers)	See note for Figure 3.9.
Figure 3.15: All-Island working-age skill trends – high qualifications (share of working-age population)	See note for Figure 3.9.
Figure 3.16: All-Island average wages by sector (2006, Ireland=100)	ECB 2006 average year exchange rates applied to convert to common currency.
Figure 3.17: PISA mean score – reading (2006)	–
Figure 3.18: PISA mean score – maths (2006)	–
Figure 3.19: PISA mean score – science (2006)	–

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Figure 4.1: All-Island employment structure (2007)	See note for Figure 3.1.
Figure 4.2: Ireland minus Northern Ireland employment structure (2007)	Bars above the x-axis indicate that the sector is relatively larger in share terms in Ireland compared to Northern Ireland. For example Ireland's construction share of total employment in 2007 is 13% compared to 10% in Northern Ireland – the difference is +3%, meaning the bar is above the x-axis (more dependent/relatively larger).
Figure 4.3: All-Island other production industries recent employment trends	See note for Figure 3.1. Other production industries include manufacturing, utilities and mining & quarrying.
Figure 4.4: All-Island construction recent employment trends	See note for Figure 3.1.
Figure 4.5: All-Island wholesale & retail recent employment trends	See note for Figure 3.1.
Figure 4.6: All-Island financial & business services recent employment trends	See note for Figure 3.1
Figure 4.7: All-Island Public Admin/ education, Health and social Services recent employment trends	See note for Figure 3.1. Public sector includes public administration & defence, education and health & social work. This definition will include elements of private education and health which are difficult to remove from the data.
Figure 4.8: All-Island occupation structure (2007)	Occupation classification based on ISCO 88.
Figure 4.9: Ireland minus Northern Ireland occupation structure (2007)	Occupation classification based on ISCO 88. Bars above the x-axis indicate that the occupation is relatively larger in Ireland in share terms compared to Northern Ireland.
Figure 4.10: All-Island recent occupational trends (1)	See note for Figure 4.8.
Figure 4.11: All-Island recent occupational trends (2)	See note for Figure 4.8.
Figure 4.12: All-Island employed person skill trends	See note for Figure 3.9.
Figure 4.13: All-Island employed persons skill trends – low qualifications (absolute numbers)	See note for Figure 3.9.
Figure 4.14: All-Island employed persons skill trends – low qualifications (share of total employment)	See note for Figure 3.9.
Figure 4.15: All-Island employed persons skill trends – medium qualifications (absolute numbers)	See note for Figure 3.9.

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Figure 4.16: All-Island employed persons skill trends – medium qualifications (share of total employment)	See note for Figure 3.9.
Figure 4.17: All-Island employed persons skill trends – high qualifications (absolute numbers)	See note for Figure 3.9.
Figure 4.18: All-Island employed persons skill trends – high qualifications (share of total employment)	See note for Figure 3.9.
Figure 4.19: Ireland vacancies by occupation – FÁS (2006)	Based on SOC 1990 occupation classification. Vacancies recorded are those notified to FÁS.
Figure 4.20: Ireland vacancies by occupation – Irishjobs.ie (2006)	Based on SOC 1990 occupation classification. Vacancies recorded are those advertised in Irishjobs.ie.
Figure 4.21: Northern Ireland vacancies by occupation – DEL (2006)	Based on SOC 2000 occupation classification. Vacancies are those vacancies notified to Jobcentre/Jobs & Benefits offices of DEL. The statistics do not represent the total unsatisfied demand for staff by employers within Northern Ireland but are only those vacancies notified by employers to the Department. All statistics are derived from the DEL Client Management System (CMS). Vacancies are counted on the date the vacancy was notified to the Jobcentre/Jobs & Benefits office. The reported statistics represent the original number of vacancies notified by each employer. Employers may subsequently amend the original amount by adding or cancelling vacancies. The reported statistics do not take into account such amendments.
Figure 4.22: All-Island recent hard-to-fill vacancy trends	Northern Ireland data refers to 2002 and 2005. Ireland refers to 2003, 2005 and 2006.
Figure 4.23: Ireland hard-to-fill vacancies by occupation (2005)	Based on SOC 1990 occupation classification.
Figure 4.24: Northern Ireland hard-to-fill vacancies by occupation (2005)	Based on SOC 2000 occupation classification.

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Figure 4.25: All-Island indicative employment forecasts by sector (next ten years)	It was not recommended by the authors to aggregate North-South employment forecasts by industry, occupation and skill level, or to aggregate replacement demand estimates. There are 2 key differences between the historical and forecast employment data which prevent North-South matching as was done for the historical data. (1) NI employment and occupation forecasts are not directly based on the LFS but instead on other employment sources (occupation shares are based on the Census and trended in line with LFS) – Ireland forecasts by ESRI are though still based on the QNHS. (2) To align SOC 1990 and SOC 2000 forecasts to ISCO 88 requires highly detailed occupation data (for example down to 3-digit for Ireland). The occupation forecasts are not available at this level of detail for both jurisdictions. The arrows however give a broad indication of all-island forecast trends (NACE and SIC industry classifications match up to 4-digit).
Figure 4.26: Ireland recent employment trends and forecasts by sector	Based on NACE industrial classification. Employment refers to people in employment as opposed to jobs. Historical data from QNHS. Forecasts from ESRI 'Current Trends in Occupational Employment and Forecasts for 2010 and 2020' (September 2006). 2015 figures average of 2010 and 2020 figures from ESRI report.
Figure 4.27: Northern Ireland recent employment trends and forecasts by sector	Based on SIC 2003 industrial classification. Employment refers to people in employment for historical trends and for most sectors in the forecasts. Historical data from LFS as presented earlier in the report. Forecasts from Regional Forecasts 'Occupational Forecasts and Replacement Demand Analysis for Northern Ireland 2005-2015' (February 2006) – based on historical employment series from QES so not directly comparable to historical LFS series.
Figure 4.28: All-Island indicative employment forecasts by occupation (next five years)	See note for Figure 4.25. Based on ISCO 88 occupation classification.
Figure 4.29: Ireland recent employment trends and forecasts by occupation	Based on SOC 1990 occupation classification. Historical data from QNHS. Forecasts from ESRI 'Current Trends in Occupational Employment and Forecasts for 2010 and 2020' (September 2006). Only 5-year performance and forecasts presented as ESRI report does not present 1995 figures.
Figure 4.30: Northern Ireland recent employment trends and forecasts by occupation	Based on SOC 2000 occupation classification. Employment refers to people in employment. Historical data from LFS. Forecasts from Regional Forecasts 'Occupational Forecasts and Replacement Demand Analysis for Northern Ireland 2005-2015' (February 2006) – based on Regional Forecasts' constructed occupation figures which are not directly comparable to historical LFS series.
Figure 4.31: All-Island indicative employment forecasts by skill level (next five years)	See note for Figure 4.25.

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Figure 4.32: Ireland recent employment trends and forecasts by skill level	Historical data from QNHS. Forecasts from ESRI 'Current Trends in Occupational Employment and Forecasts for 2010 and 2020' (September 2006). 2015 figures average of 2010 and 2020 figures from ESRI report.
Figure 4.33: Northern Ireland recent employment trends and forecasts by skill level	Historical data from LFS. Forecasts from Regional Forecasts 'Occupational Forecasts and Replacement Demand Analysis for Northern Ireland 2005-2015' (February 2006) – based on RF constructed occupation figures (used to forecast skill levels) which are not directly comparable to historical LFS series.
Figure 4.34: Ireland recent employment trends and forecasts by stock of skills	See note for Figure 4.32.
Figure 4.35: Northern Ireland recent employment trends and forecasts by stock of skills	See note for Figure 4.33.
Figure 4.36: Ireland expansion demand and replacement demand forecasts by occupation (annual average demand 2005-2015)	Based on SOC 1990 occupation classification. Forecasts from ESRI 'Current Trends in Occupational Employment and Forecasts for 2010 and 2020' (September 2006). 2015 figures average of 2010 and 2020 figures from ESRI report.
Figure 4.37: Northern Ireland expansion demand and replacement demand forecasts by occupation (annual average demand 2005-2015)	Based on SOC 2000 occupation classification. Forecasts 'Occupational Forecasts and Replacement Demand Analysis for Northern Ireland 2005-2015' (February 2006) – based on Regional Forecasts' constructed occupation figures (used to forecast skill levels) which are not directly comparable to historical LFS series.
Figure 4.38: Ireland expansion demand and replacement demand forecasts by skill level (annual average demand 2005-2015)	Forecasts from ESRI 'Current Trends in Occupational Employment and Forecasts for 2010 and 2020' (September 2006). 2015 figures average of 2010 and 2020 figures from ESRI report. Replacement demand skill estimates estimated by Oxford Economics using ESRI occupation by skill forecast shares.
Figure 4.39: Northern Ireland expansion demand and replacement demand forecasts by skill level (annual average demand 2005-2015)	Forecasts from 'Occupational Forecasts and Replacement Demand Analysis for Northern Ireland 2005-2015' (February 2006) – based on Regional Forecasts' constructed occupation figures (used to forecast skill levels) which are not directly comparable to historical LFS series.
<b>Tables</b>	
<b>Chapter 2</b>	
Table 2.1: International comparison of recent population trends and forecasts	Population forecasts are from Oxford Economics and not official projections from CSO and NISRA.
Table 2.2: International comparison of recent net migration trends (annual average 2001-2005 inclusive)	Ireland data from CSO. NI data from NISRA. Other European country data from Eurostat. Non-European country data from World Bank (only published as summed across five-year periods). Eurostat net migration estimated as population change minus natural increase and therefore includes other components of population change such as movement of armed forces etc. although other components of population change are likely to be small.

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Table 2.3: International comparison of recent net migration trends (2006)	See note for Table 2.2.
Table 2.4: International comparison of recent birth rate trends	Birth rate is total births per 1,000 total population.
Table 2.5: International comparison of recent death rate trends	Death rate is total deaths per 1,000 total population.
Table 2.6: International comparison of recent rate of natural increase trends	Rate of natural increase is total births minus deaths per 1,000 total population.
Table 2.7: International comparison of age structure (2005)	2006 data from the UN is not available for more recent comparison.
Table 2.8: International comparison of recent economic growth rates and forecasts	Economic growth rates are annual growth in constant market price GDP per head except for NI (constant basic price GVA per head) and in home currency. Forecasts from Oxford Economics. ESRI 10-year forecast calculated as an average of 2005-2010 and 2010-2015 forecasts presented in the May 2008 MTR.
Table 2.9: International comparison of recent real GDP per head growth and forecasts	Growth rates are annual growth in constant market price GDP per head except for NI (constant basic price GVA per head) and in home currency. Forecasts from Oxford Economics. ESRI 10-year forecast calculated as an average of 2005-2010 and 2010-2015 forecasts presented in the May 2008 MTR.
Table 2.10: International comparison of FDI inflows	–
Table 2.11: International comparison of innovation (1998-2000 unless stated)	Northern Ireland and Ireland figures relate to 2002-2004. Other country data relates to 1998-2000. To the best of our understanding more recent data are not available as the CIS is only undertaken every 4 years and results are published with a lag. Innovation activities indicate that the firm reported the introduction of a new product or process and/or had innovation activities that were incomplete or abandoned over the period in question. The proportion of firms with innovative activities gives a measure of firms' propensity to engage in innovation activity, be it through the introduction of a new product to the market or the implementation of a new means of production or supply of goods and services. Product innovators are firms that reported the introduction of new or significantly improved goods or services over the period in question. Process innovators are firms that used new or significantly improved technology for production or the supply of goods or services. This indicator gives a measure of the extent to which firms bring in new ways of producing or supplying their goods or services.

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Table 3.1: International comparison of working-age employment rate trends	Working-age employment rate equal to working-age persons in employment divided by working-age population. Other country data from Eurostat. Based on Eurostat working-age definition 15-64 male and female (including for Northern Ireland). US employment rate is for 2006.
Table 3.2: International comparison of ILO unemployment rate trends	Working-age I LO unemployed divided by working-age economically active. Based on Eurostat working-age definition 15-64 male and female (including for Northern Ireland).
Table 3.3: International comparison of adult 25-64 qualification levels (2005)	Ireland figures are based on authors' estimates and are not taken directly from the OECD Education at a Glance report though the figures match closely.
Table 3.4: International comparison of change in adult 25-64 higher qualification levels	See note for Table 3.3.
Table 3.5: Graduate salaries (2005)	NI salaries converted to Euro using ECB average year exchange rate for 2005 and are based on graduates from NI higher education institutions working in NI. Ireland graduate salary data calculated as weighted average from salary band mid-points and frequency shares and rounded to the nearest thousand. HEA Graduate Survey undertaken 9 months after graduation; HESA First Destination Leaver Survey undertaken 6 months after graduation. This is not considered by the authors to pose a serious data matching problem as a high proportion of pay rises are unlikely between months 6 and 9 of the first year of graduate employment.
Table 3.6: Highest education attainment of school leavers (2005)	North-South education attainment levels are not wholly comparable at the level of detail provided.
Table 3.7: Destination of school leavers (2005)	Although North-South destinations are broadly comparable, the difference in timing of the respective surveys mean that destination results are not directly comparable.
<b>Chapter 4</b>	
Table 4.1: All-Island recent change in employment by sector	Employment refers to people in employment as opposed to jobs. Annual data refers to Q2 for Ireland and spring for NI.
Table 4.2: International comparison of recent change in employment by sector	Based on NACE industrial classification for international comparators.
Table 4.3: All-Island employment by 2-digit ISCO 88 occupation (2007)	Occupation classification based on ISCO 88. Cells shaded in blue in final column indicate Ireland occupation share more than 1 per cent higher than NI occupation share. Cells shaded in lilac in final column indicate Ireland occupation share more than 1 per cent less than NI occupation share.

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Table 4.4: All-Island recent change in employment by 2-digit ISCO 88 occupation	Occupation classification based on ISCO 88. Cells shaded in blue in final three columns indicate an annual average growth rate of more than 3 per cent. Cells shaded in lilac in final three columns indicate an annual average growth rate of less than 3 per cent.
Table 4.5: All-Island employed person skill trends – comparison with EU25 (annual average growth 1999-2006)	See note for Figure 3.9.
Table 4.6: Sectors for consideration	–
<b>Annex A</b>	
Table A.1: Key North-South data sources and classification of comparability	–
Table A.2: Key North-South data similarities and differences	–
Table A.3: All-Island 3-digit ISCO 88 occupations (2001-2007, 000's)	Occupations may not add to employment totals due to missing or unknown occupations.
Table A.4: Ireland 3-digit ISCO 88 occupations (2001-2007, 000's)	See note for Table A.3.
Table A.5: Northern Ireland 3-digit ISCO 88 occupations (2001-2007, 000's)	See note for Table A.3.