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Sustainable Development Indicators Ireland 2013

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Introduction

The report ***Our Sustainable Future, A Framework for Sustainable Development for Ireland*** (published by the Department of the Environment, Community and Local Government) requested the CSO to develop a sustainable development indicator set in consultation with other government departments and agencies. The present indicator set, compiled as a response to the Department's request, complements two existing CSO indicator reports namely *Measuring Ireland's Progress* and *Environmental Indicators Ireland*. With a view to minimising the overlap between these three indicator sets this report has been limited to 55 indicators.

As a concept, sustainable development has the objective of achieving continuous improvement in the quality of life and well-being for present and future generations, by linking economic development, protection of the environment, and social justice.

The indicators are presented under four domains: Global Indicators; Economy; Social; and Environment. The Global Indicators domain contains seven indicators and gives a worldwide overview (the other three domains only contain data for Ireland and the EU). Essentially the Global Indicators domain presents a snapshot of Ireland's standing in the world. As expected, the global indicators show that Europe is in an advantaged position in economic and health terms relative to most other regions.

The Economy domain contains thirteen indicators and these are designed to show trends in Ireland since 2000 and to benchmark Ireland against other countries in the European Union. The impacts of the 'Celtic tiger' and the subsequent recession are clearly visible in the data. The Social and Environment domains also show the trends since 2000 and benchmark us in Europe.

Given that this is a first report of its type, users are encouraged to provide feedback to CSO on the structure and contents of the report as well as on topics that are not adequately represented. For the next edition it is planned to have a broader set of environment-related social and economic data such as on well-being, quality of life, raw material consumption, and the green economy. The availability of data on areas such as biodiversity and the ecosystem will have to be improved so that more indicators on those areas can be included in future publications.

Appendix 1 provides definitions and notes in relation to the indicators. Appendix 2 gives the data sources underlying each of the indicators covered in the report.

The CSO wishes to thank: Birdwatch Ireland; Comhar Sustainable Development Council; Department of Education and Skills; Department of the Environment, Community and Local Government; Department of Finance; Department of Health; Department of Social Protection; Department of Transport, Tourism and Sport; DKM Economic Consultants; Environmental Protection Agency; Irish Aid; Revenue Commissioners and Sustainable Energy Authority of Ireland for providing us with data and technical advice on the most appropriate indicators for Ireland.

Main findings

- The World population was estimated at 7.2 billion persons in 2012 and this is forecast to increase by 14% to 8.2 billion persons in 2025. In Ireland people have around 25 years additional life expectancy compared with Africans. European countries donate a higher proportion of their Gross National Income to official development assistance than other economically-developed regions.

- General government debt in Ireland fell from 80% of GDP in 1995 to 25% in 2006 before increasing to 106% of GDP in 2011.

- Ireland received a net €1.5 billion from the EU in 2000 but in 2009 contributed €156 million on a net basis. In 2011 we were again net recipients receiving €310 million. In 2011, Germany's net contribution was almost €11 billion while Poland's net receipts were €10.9 billion.

- Income tax as a proportion of total exchequer tax revenue decreased from 34% in 2000 to 27% in 2006 but then increased to 41% in 2011. In contrast corporation tax increased from 10% in 1995 to 16% in 2002 but fell to 10% in 2011.

- In 2010, persons (cases) earning under €20,000 accounted for 10% of total taxable income and paid 0.3% of total income tax. Those earning over €100,000 accounted for 23% of total taxable income and paid 46% of total income tax.

- Public sector wages increased from 33% of general government current expenditure in 2000 to 37% in 2005 before decreasing to 31% in 2011.

- During the 2000-2008 period public sector wages accounted for six to ten percentage points more of general government current expenditure than the proportion accounted for by social welfare payments. In 2009 both represented 33% of the total. In 2011 social welfare payments, at 34%, exceeded the cost of public sector wages.

- In the EU, Ireland had the highest level of completions of residential units per 1,000 persons with a rate of 17.8 in 2007. Spain was the next highest at 15.4. In 2011 the rates had fallen to 2.3 in Ireland and 3.6 in Spain. In contrast, the rate in Germany has been much steadier at around two completions per 1,000 persons during the 2007-2011 period.

- The proportion of children aged 5-12 being driven to school by car increased from 26% in 1986 to 61% in 2011. The proportion of children aged 13-18 going to school as car passengers rose from 11% to 40% over the same period. In 2011, two out of three persons drove to their place of work.

- Ireland's imported energy dependency increased from 69% in 1990 to 88% in 2011. Our import dependency on oil decreased from 66% of total fuel imports in 2005 to 57% in 2011. Our import dependency on gas increased from 20% to 31% over the same period.

- The recovery rate of packaging waste trebled from 25% in 2001 to 74% in 2010. The amount of municipal waste sent to landfill decreased from 2 million tonnes in 2001 to 1.5 million tonnes in 2010.

- Ireland had the second lowest level of forest cover in the EU in 2010 with 10.7% of total land area.

1. Global Indicators

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1.2 Infant mortality and life expectancy 2010

1.3 Population in developing regions living below $1 per day 1990-2008

1.4 Employment rate 2011

1.5 Official development assistance 2011

1.6 Net enrolment ratio in primary education 1991-2010

1.7 Greenhouse gas emissions under Kyoto Protocol 1995-2010

Photographs: Farmers in a green rice paddy field spreading fertiliser by hand in Tanzania; *villagers from Muleka Chiefdom draw water from Irish Aid funded borehole, Isoko District Zambia ; fruit and vegetable seller in a local market in Vilankulos, Mozambique; Kasese primary school Uganda, all courtesy of Irish Aid.*

1.1 World population 2012 and 2025

	% of total population			*million*		
Region	**Under 15**	**15-64**	**65 and over**	**Population 2012**	**Projected population 2025**	**% change in population 2025/2012**
World	26%	65%	9%	7,167	8,164	14%
Europe	15%	65%	20%	773	783	1%
Africa	40%	56%	4%	1,075	1,425	33%
Northern America	19%	64%	17%	364	405	11%
Central America	30%	63%	7%	162	189	16%
Caribbean	25%	64%	10%	43	47	8%
South America	26%	66%	9%	407	458	12%
Asia	25%	67%	8%	4,303	4,811	12%
China	18%	72%	10%	1,374	1,426	4%
Oceania	23%	63%	14%	39	46	19%
Ireland	22%	66%	12%	4.6	5.6	23%

Sources: United Nations and CSO

- The world's population was estimated to be 7.2 billion persons in 2012, and is forecast to rise to over 8.1 billion by 2025. This increase is forecast to occur mainly in Africa, where the population is expected to increase by 350 million (33%), and Asia, where the population is forecast to grow by 500 million (12%).
- The population of Europe is forecast to grow marginally between 2012 and 2025 (1%).
- The highest proportion of under 15s is in Africa, where this age group comprised 40% of the population in 2012. Europe had the highest proportion of persons aged 65 and over (20%), and the lowest proportion of persons aged under 15 (15%).

1.2 Infant mortality and life expectancy 2010

	deaths before age one per 1,000 live births	*life expectancy at birth (years)*	
Region	**Infant mortality rate**	**Males**	**Females**
World	46	66	70
Europe	7	71	79
Africa	79	54	56
Northern America	7	76	81
Central America	19	73	78
Caribbean	35	69	74
South America	21	70	77
Asia	41	67	71
China	22	71	74
Oceania	22	74	79
Ireland	4	77	82

Source: United Nations and CSO
Note: Ireland data refers to 2006

- The highest infant mortality rate in the world in 2010 was in Africa, where 79 infants out of every 1,000 died before reaching their first birthday. The rate was 41 infants per 1,000 in Asia, while in more developed regions, the figure falls to around 7 deaths per 1,000.
- Africa had the lowest life expectancy at birth, both for boys (54 years), and girls (56 years). In contrast, life expectancy in North America was 81 years for girls and 76 years for boys, and in Europe was 79 years for girls and 71 years for boys.

1.3 Population in developing regions living below $1 per day 1990-2008

% of region total

Region	1990	1999	2005	2008
Developing Regions	47%	37%	27%	24%
Northern Africa	5%	5%	3%	2%
Sub-Saharan Africa	57%	58%	52%	48%
Latin America and Caribbean	12%	12%	9%	7%
Eastern Asia	60%	36%	16%	13%
Southern Asia	52%	43%	38%	34%
South-Eastern Asia	45%	36%	19%	17%
Western Asia	5%	5%	5%	3%
Oceania	42%	34%	43%	38%
Caucasus and Central Asia	10%	20%	7%	4%

Source: United Nations

- The UN Millennium Development Goals target a halving, between 1990 and 2015, in the proportion of persons whose income is less than $1 per day.

- Sub-Saharan Africa only reduced the proportion of the population living on less than $1 per day from 57% in 1990 to 48% in 2008. Oceania improved over the same time from 42% to 38%.

1.4 Employment rate 2011

% of persons employed aged 15 and over

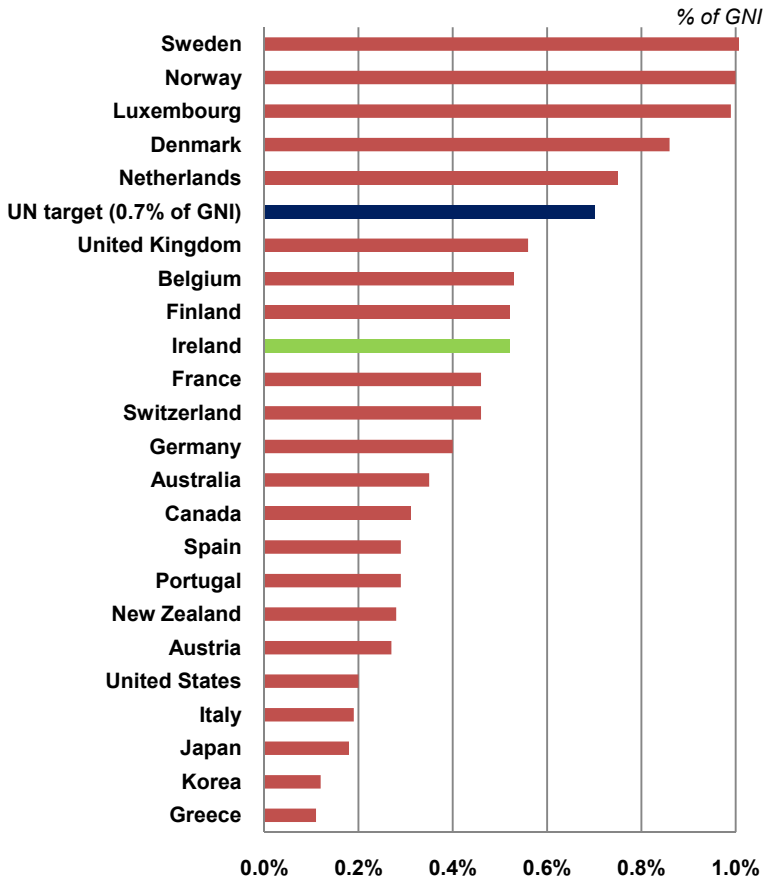
Region	Men	Women	Youth
World	73%	48%	43%
Developed Regions	62%	49%	38%
Developing Regions	75%	48%	43%
Northern Africa	67%	18%	24%
Sub-Saharan Africa	70%	57%	46%
Latin America and Caribbean	75%	49%	46%
Eastern Asia	76%	65%	55%
Southern Asia	78%	29%	37%
South-Eastern Asia	78%	56%	45%
Western Asia	68%	20%	25%
Oceania	73%	64%	52%
Caucasus and Central Asia	67%	50%	36%
Ireland	69%	60%	:

Sources: United Nations and CSO

- One of the UN Millennium Development Goals is to achieve full and productive work for all, including women and young people. Northern Africa (18%) had the lowest female participation rate in 2011 followed by Western Asia (20%).

- Employment rates for youths were substantially lower than elsewhere, in Northern Africa (24%) and Western Asia (25%).

1.5 Official development assistance 2011



Source: Irish Aid

- In 2011, Ireland ranked ninth in the list of Development Assistance Committee donors in terms of their contribution as a percentage of Gross National Income. Sweden and Norway, at 1%, were the largest contributors, relative to their GNI.

1.6 Net enrolment ratio in primary education 1991-2010

primary school enrolment rate

Region	1991	1999	2010
World	82%	84%	91%
Developed Regions	95%	97%	97%
Developing Regions	80%	82%	90%
Northern Africa	80%	88%	96%
Sub-Saharan Africa	54%	58%	76%
Latin America and Caribbean	86%	94%	95%
Eastern Asia	97%	96%	97%
Southern Asia	75%	77%	93%
South-Eastern Asia	93%	92%	95%
Western Asia	83%	84%	92%
Oceania	70%	:	:
Caucasus and Central Asia	:	94%	94%
Ireland	100%	100%	100%

Sources: United Nations and Department of Education and Skills

- One of the UN Millennium Development Goals is that by 2015, all children will be able to complete a full course of primary schooling.
- While the figure for sub-Saharan Africa has increased from 54% in 1991, there were still only 76% of children in this region completing primary school in 2010, well below the 96% achieved in Northern Africa.

1.7 Greenhouse gas emissions under Kyoto Protocol 1995-2010

Base year 1990=100

Country	1995	2000	2005	2010
Australia	105	118	126	130
Iceland	94	110	109	130
Spain	111	135	154	126
New Zealand	106	116	128	120
Portugal	117	137	144	118
Canada	108	122	126	117
Greece	105	121	129	113
Ireland	**107**	**123**	**126**	**111**
United States	106	115	117	110
Austria	102	103	119	108
Norway	100	107	108	108
Finland	101	98	98	106
Switzerland	97	98	103	102
Japan	106	106	107	99
Netherlands	105	101	100	99
Italy	102	106	111	97
Luxembourg	79	75	101	94
France	99	101	102	94
Belgium	105	102	100	92
Sweden	102	95	93	91
Denmark	110	99	93	89
EU	93	91	92	85
United Kingdom	92	88	86	77
Germany	90	83	80	75

Source: United Nations

- Of the Annex II countries signed up to the Kyoto Protocol, Australia and Iceland had the highest emissions in 2010 relative to the convention's base year of 1990, with both 30% above 1990 levels. Ireland's emissions have fallen since 2005, but still remain 11% above 1990 levels.

- The United Kingdom and Germany had the lowest emissions in 2010, with indices relative to 1990 of 77 and 75 respectively.

2.Economy

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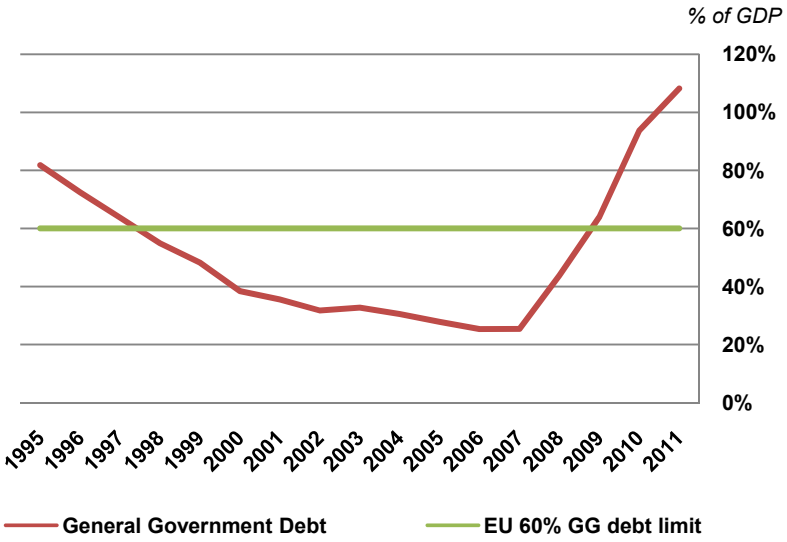
Photographs: M8 Motorway near Cashel Co. Tipperary, courtesy of the Photographic Unit, National Monuments Service and Convention Centre and Samuel Beckett Bridge, Dublin, courtesy of David Lester

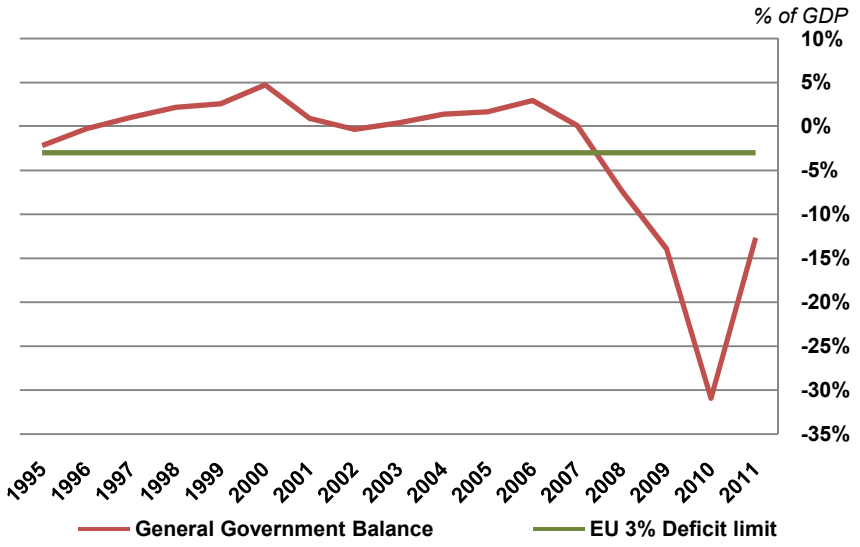
2.1 Ireland: General government debt and balance 1995-2011

Year	€m General government debt	Debt as % of GDP	€m General government balance	Balance as % of GDP
1995	43,061	80%	-1,175	-2%
2000	39,094	37%	4,987	5%
2001	40,525	34%	1,051	1%
2002	41,540	32%	-460	0%
2003	43,556	31%	559	0%
2004	44,056	29%	2,066	1%
2005	44,379	27%	2,711	2%
2006	43,699	25%	5,193	3%
2007	47,155	25%	143	0%
2008	79,608	45%	-13,160	-7%
2009	104,631	65%	-22,484	-14%
2010	144,227	92%	-48,298	-31%
2011	169,231	106%	-21,256	-13%

Source: CSO

- General government debt fell from 80% of GDP in 1995 to 25% of GDP in 2006 and 2007. It has since risen substantially to 106% of GDP in 2011.
- The general government balance was in surplus for most of the last decade with 2006 showing a surplus of over €5 billion. Since 2008, there have been substantial deficits, and the deficit was over 31% of GDP in 2010. This was largely due to €30 billion in bank recapitalisation.





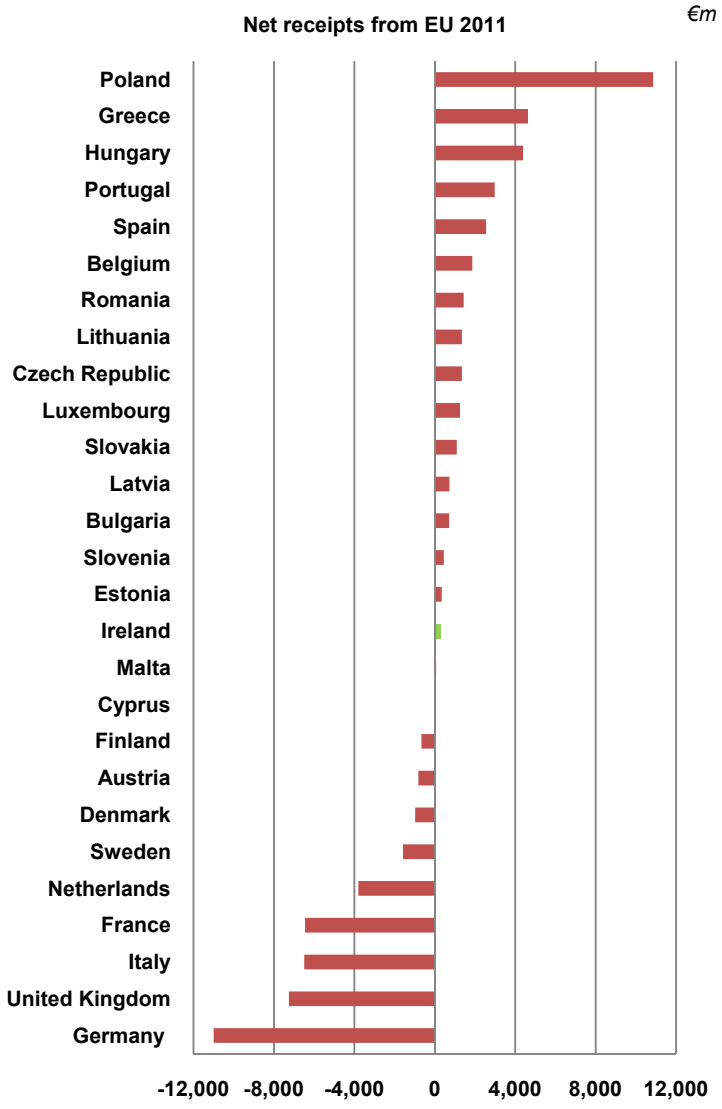
2.2 EU: Net receipts from EU 2000-2011

€m

Country	2000	2003	2006	2009	2011
Poland	248	684	2,859	6,119	10,860
Greece	4,195	3,316	5,000	3,009	4,634
Hungary	156	190	1,060	2,660	4,394
Portugal	1,955	3,477	2,256	2,087	2,981
Spain	4,358	8,446	3,083	444	2,553
Belgium	851	991	1,469	968	1,870
Romania	158	303	693	1,609	1,434
Lithuania	48	307	566	1,468	1,351
Czech Republic	100	228	295	1,574	1,347
Luxembourg	700	891	947	1,167	1,255
Slovakia	62	104	295	481	1,091
Latvia	51	79	247	495	729
Bulgaria	90	176	361	589	712
Slovenia	34	59	127	189	446
Estonia	45	75	170	558	346
Ireland	1,543	1,563	980	-156	301
Malta	3	10	107	7	69
Cyprus	4	17	86	-27	-1
Finland	167	10	-280	-606	-662
Austria	-695	-359	-379	-499	-813
Denmark	-42	-286	-691	-1,163	-975
Sweden	-1,432	-1,050	-1,124	-403	-1,577
Netherlands	-3,256	-2,928	-3,941	-1,488	-3,805
France	-2,133	-1,795	-3,140	-6,461	-6,455
Italy	-188	-1,133	-2,584	-6,046	-6,492
United Kingdom	-6,010	-3,797	-4,086	-3,864	-7,255
Germany	-11,518	-8,608	-8,259	-8,797	-10,994

Source: European Commission

- Since 2000, eleven EU member states have at some point been net contributors to the EU budget. Germany was the largest net contributor, at almost €11 billion in 2011, while Poland was the largest recipient of funds at almost €11 billion in 2011.



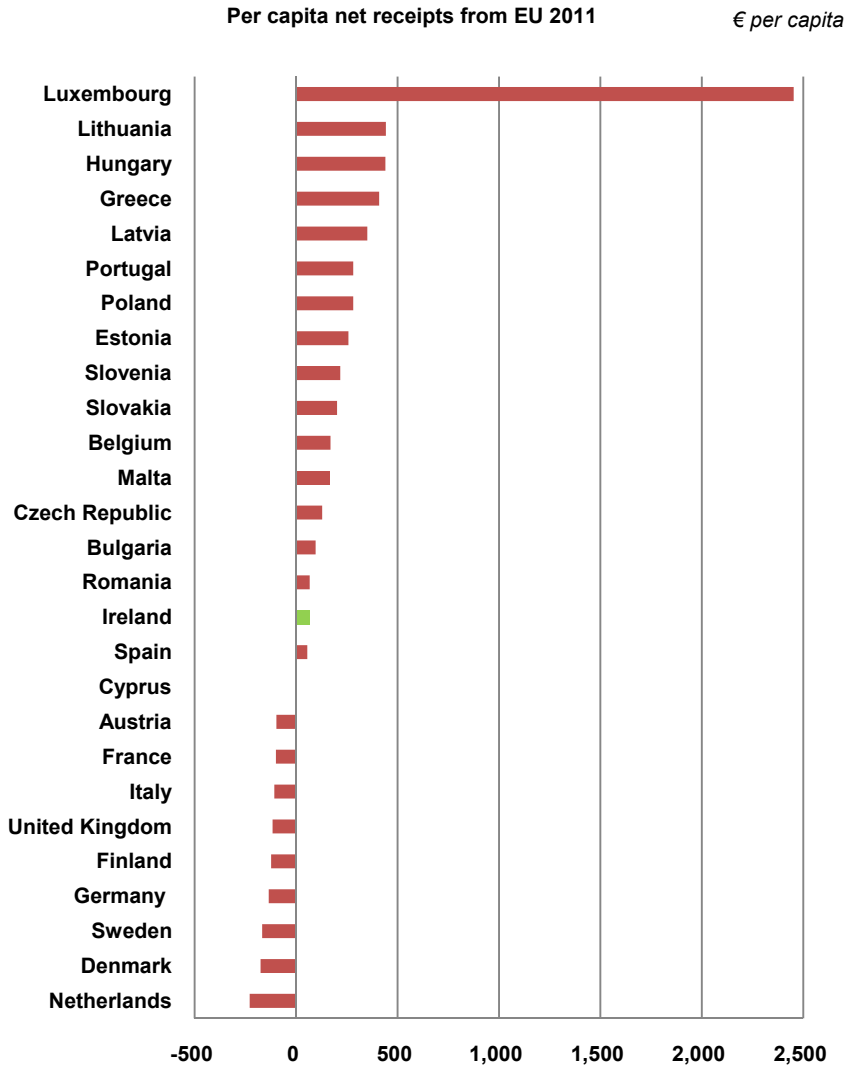
2.3 EU: Per capita net receipts from EU 2000-2011

€ per capita

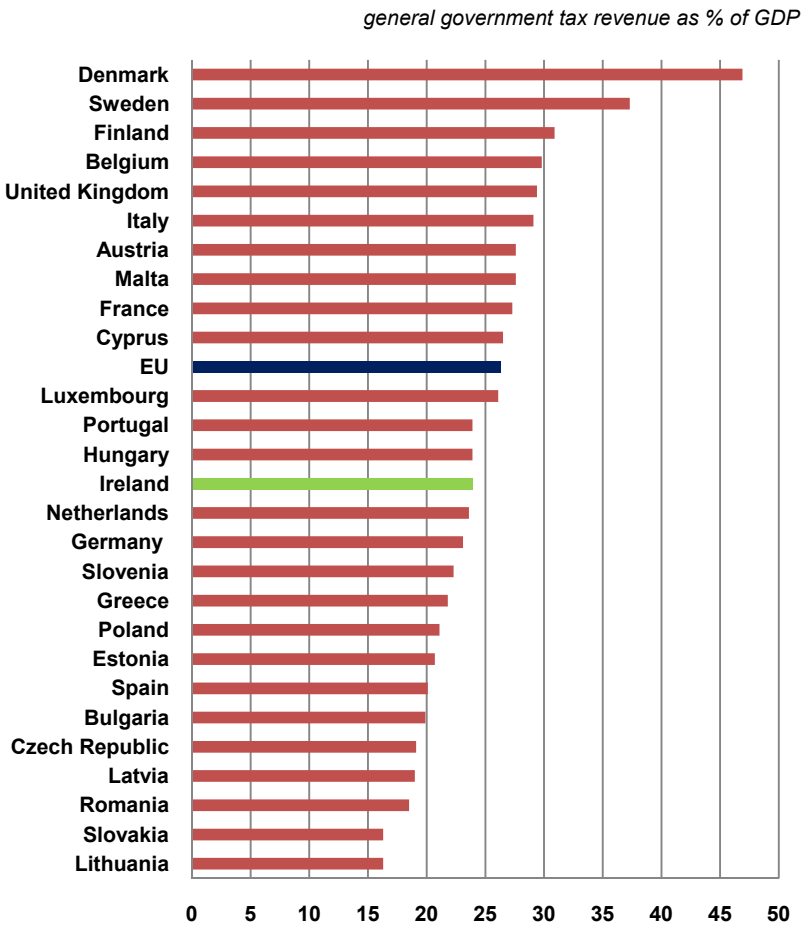
Country	2000	2003	2006	2009	2011
Luxembourg	1,614	1,988	2,020	2,364	2,453
Lithuania	14	89	166	438	443
Hungary	15	19	105	265	440
Greece	385	301	449	267	410
Latvia	21	34	108	219	351
Portugal	192	334	213	196	282
Poland	6	18	75	160	282
Estonia	33	55	126	416	258
Slovenia	17	29	63	93	217
Slovakia	11	19	55	89	202
Belgium	83	96	140	90	170
Malta	7	26	264	18	165
Czech Republic	10	22	29	150	128
Bulgaria	11	22	47	77	97
Romania	7	14	32	75	67
Ireland	408	394	233	-35	66
Spain	109	203	70	10	55
Cyprus	6	24	113	-34	-1
Austria	-87	-44	-46	-60	-97
France	-35	-29	-50	-100	-99
Italy	-3	-20	-44	-101	-107
United Kingdom	-102	-64	-68	-63	-116
Finland	32	2	-53	-114	-123
Germany	-140	-104	-100	-107	-134
Sweden	-162	-117	-124	-44	-167
Denmark	-8	-53	-127	-211	-175
Netherlands	-205	-181	-241	-90	-228

Source: European Commission

- On a per capita basis, Luxembourg was the highest net recipient of funds from the EU in 2011 at €2,453 per capita. Ireland's net receipts per capita have fallen from €408 in 2000 to a small net contribution in 2009, and then rose to a net receipt of €66 per capita in 2011. The Netherlands was the largest net contributor to the EU, on a per capita basis, with €228 in 2011.



2.4 EU: General government tax revenue 2011



Source: Eurostat

- Denmark (47%) had the highest general government tax revenue as a percentage of GDP in 2011. Ireland's general government tax revenue (24%) was just below the EU average of 26%.

2.5 Ireland: Exchequer tax revenue 1995-2011

	% of total tax revenue						*€m*
Year	**Income tax**	**Valued added tax**	**Customs and excise duties**	**Corporation Tax**	**Stamp duties**	**Capital taxes**	**Total**
1995	36%	25%	22%	10%	3%	1%	14,392
2000	34%	28%	17%	14%	4%	4%	27,072
2001	33%	28%	15%	15%	4%	4%	27,925
2002	31%	30%	16%	16%	4%	3%	29,294
2003	29%	30%	15%	16%	5%	5%	32,103
2004	30%	30%	14%	15%	6%	5%	35,581
2005	29%	31%	14%	14%	7%	6%	39,254
2006	27%	30%	13%	15%	8%	8%	45,539
2007	29%	31%	13%	14%	7%	7%	47,249
2008	32%	33%	14%	12%	4%	4%	40,777
2009	36%	32%	15%	12%	3%	2%	33,043
2010	36%	32%	15%	12%	3%	2%	31,753
2011	41%	29%	14%	10%	4%	2%	34,027

Source: Department of Finance

- Total exchequer tax revenue increased from €27.1 billion in 2000 to €47.2 billion in 2007, before declining by €15.5 billion between 2007 and 2010. Total exchequer tax revenue increased by €2.4 billion in 2011.

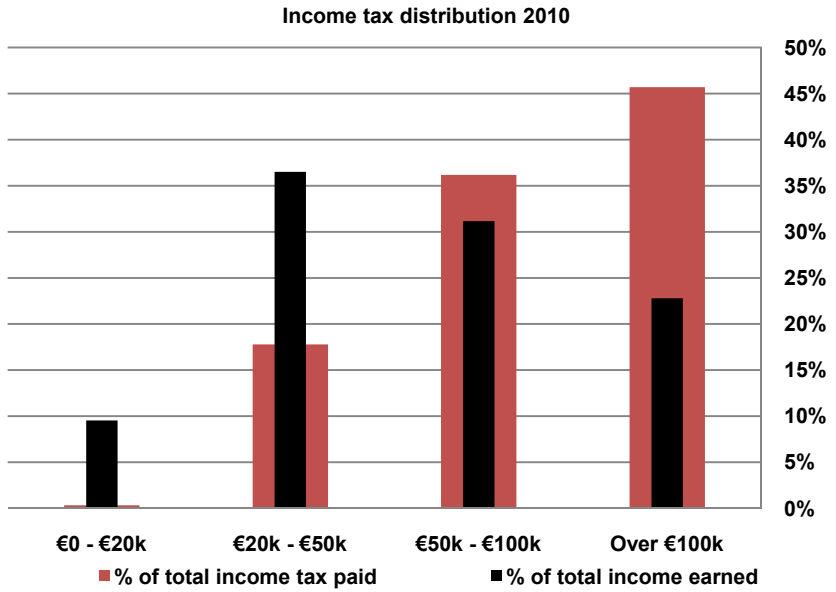
- Income tax as a proportion of total exchequer tax revenue fell from 34% in 2000 to 27% in 2006, before increasing to 41% in 2011. The increase between 2010 and 2011 is due to the introduction of the universal social charge.

- Corporation tax as a proportion of total tax revenue grew from 10% in 1995 to 16% in 2002 and 2003, but has fallen since, and accounted for 10% in 2011. Capital taxes (Capital gains tax and Capital acquisitions tax) followed a similar trend, where they grew from 1% in 1995 to 8% in 2006, and then fell back to 2% in the years 2009 to 2011.

2.6 Ireland: Income tax distribution 2002-2010

	% of total income earned				*% of total income tax paid*			
Year	**0-€20,000**	**€20,000-€50,000**	**€50,000-€100,000**	**Over €100,000**	**0-€20,000**	**€20,000-€50,000**	**€50,000-€100,000**	**Over €100,000**
2002	16%	42%	25%	17%	3%	33%	34%	30%
2003	15%	41%	26%	18%	3%	31%	34%	32%
2004	13%	39%	28%	20%	2%	28%	35%	35%
2005	12%	37%	29%	22%	1%	25%	35%	39%
2006	11%	36%	29%	24%	0.6%	22%	35%	43%
2007	10%	35%	30%	25%	0.3%	19%	35%	46%
2008	9%	34%	31%	26%	0.3%	17%	35%	47%
2009	9%	35%	31%	24%	0.3%	17%	36%	46%
2010	10%	37%	31%	23%	0.3%	18%	36%	46%

Source: Revenue Commissioners



- The proportion of total taxable income earned by those with incomes of less than €20,000 per annum fell from 16% in 2002 to 10% in 2010. The proportion of total income tax paid by this group fell in the same period from 3% to 0.3%.

- While the proportion of total income earned by those in the €20,000 to €50,000 bracket has fallen from 42% to 37% between 2002 and 2010, the proportion of income tax paid has dropped from 33% of the total to 18%.

- The proportion of total income earned by cases in the €50,000 to €100,000 per annum bracket has grown from 25% to 31% between 2002 and 2010, and the income tax paid by this group has increased also, from 34% to 36% of total income tax.

- Income for those cases earning above €100,000 per annum has increased from 17% of total taxable income in 2002 to 23% in 2010. In the same time period, the proportion of tax paid by this group has grown from 30% to 46% of the total.

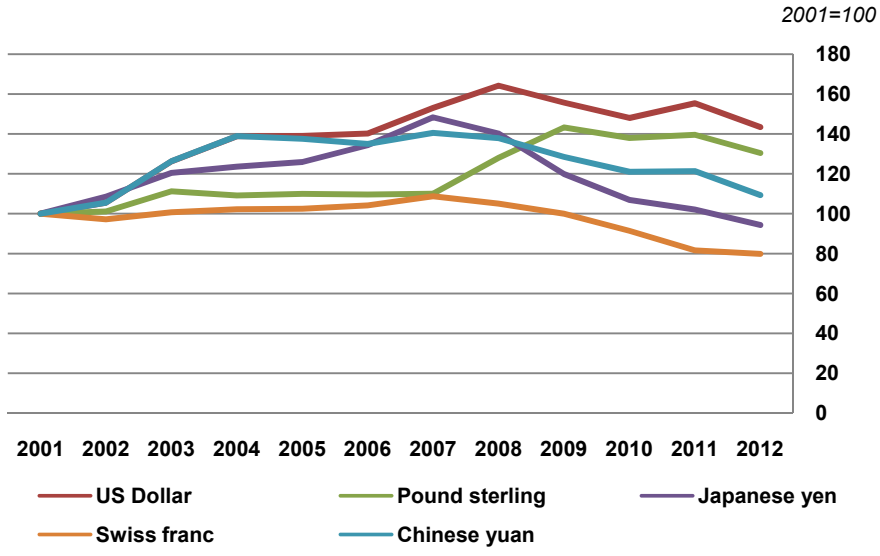
2.7 Ireland: General government expenditure on pay and social welfare 1995-2011

	% of general government current expenditure		*% of GDP*	
Year	**Wages, salaries and pensions**	**Social welfare**	**Wages, salaries and pensions**	**Social welfare**
1995	31%	29%	11%	10%
2000	33%	25%	8%	6%
2001	34%	25%	9%	7%
2002	34%	27%	9%	7%
2003	35%	28%	9%	7%
2004	35%	27%	10%	8%
2005	37%	27%	10%	7%
2006	36%	27%	10%	8%
2007	36%	28%	11%	8%
2008	35%	29%	12%	10%
2009	33%	33%	13%	13%
2010	31%	34%	12%	13%
2011	31%	34%	12%	13%

Sources: CSO and Department of Social Protection

- Government expenditure on wages, salaries and pensions increased from 31% of total current expenditure in 1995 to 37% in 2005. It has since fallen to 31% in 2010 and 2011.
- Government expenditure on social welfare fell from 29% of total current expenditure in 1995 to 25% in 2000 and 2001. It was between 27% and 29% in the years 2002 to 2008, and has increased since, to stand at 34% of total current expenditure in 2011.

2.8 Euro exchange rates 2001-2012



Source: Eurostat

- The euro appreciated significantly against the US dollar between 2001 and 2011. Referenced to 2001=100, the Euro was at an index of 155 relative to the dollar in 2011, but weakened in 2012 to an index of 143.
- The relationship between the Swiss franc and the euro was relatively steady up to 2009 but the euro declined from an index of 100 in 2009 to 82 in 2011. The euro weakened against the pound sterling, the yen and the Chinese yuan by between 7% and 10% between 2011 and 2012.

2.9 Ireland: Gross domestic expenditure on R&D 1995-2010

	Ireland		*EU*
Year	**€m**	**% of GNP**	**% of GDP**
1995	672	1.4%	1.8%
2000	1,175	1.3%	1.9%
2001	1,288	1.3%	1.9%
2002	1,432	1.3%	1.9%
2003	1,635	1.4%	1.9%
2004	1,837	1.4%	1.8%
2005	2,027	1.5%	1.8%
2006	2,211	1.4%	1.9%
2007	2,431	1.5%	1.9%
2008	2,610	1.7%	1.9%
2009	2,794	2.1%	2.0%
2010	2,792	2.1%	2.0%
Europe 2020 target		2.5%	3.0%

Source: CSO, Eurostat

- Expenditure on research and development in Ireland increased by over 130% between 2000 and 2010 and represented 2.1% of GNP in 2010. The Europe 2020 target for Ireland is for R&D expenditure of 2.5% of GNP by 2020.

2.10 Ireland: Gross fixed capital formation by sector 2002-2011

% of GDP

Year	**Households including NPISH**	**General government**	**Financial corporations**	**Non-financial corporations**	**Total economy**
2002	9.0%	4.2%	0.4%	7.9%	21.6%
2003	10.6%	3.6%	0.4%	7.7%	22.4%
2004	12.3%	3.5%	0.4%	8.2%	24.4%
2005	13.9%	3.5%	0.6%	8.7%	26.7%
2006	14.4%	3.8%	0.8%	8.2%	27.1%
2007	12.2%	4.7%	0.8%	8.0%	25.6%
2008	9.5%	5.3%	0.6%	6.6%	22.0%
2009	5.2%	3.8%	0.5%	6.4%	15.9%
2010	3.4%	3.6%	0.3%	4.6%	11.9%
2011	3.0%	2.6%	0.3%	4.2%	10.1%

Source: CSO

- Gross fixed capital formation of households grew from 9% of GDP in 2002 to 14.4% in 2006. It fell substantially since then to 3.0% of GDP in 2011.

- Gross fixed capital formation for the total economy has followed a similar pattern, from a high of 27% of GDP in 2006 to 10.1% of GDP in 2011.

2.11 EU: Harmonised index of consumer prices for energy products 2011

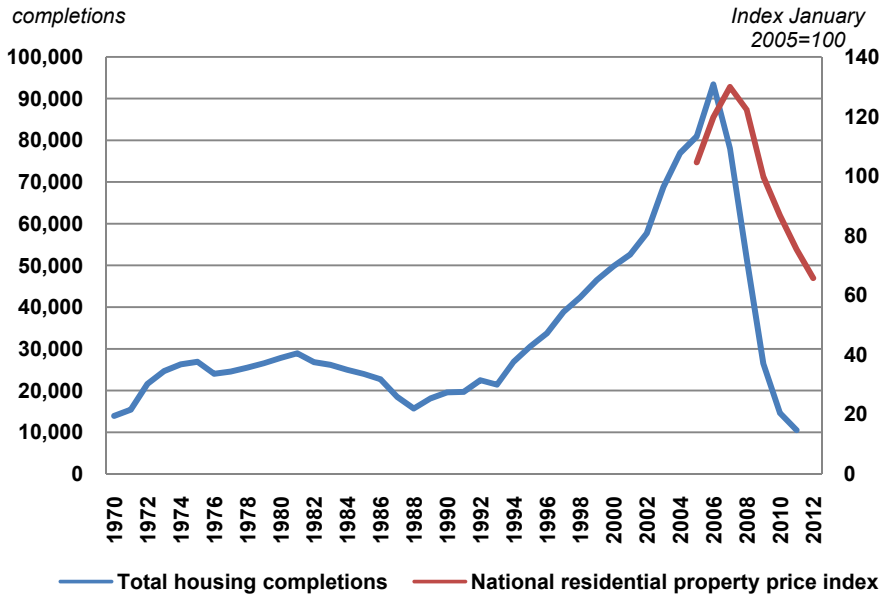
2005=100

Country	Electricity	Gas	Liquid fuels	Solid fuels	Heat energy	Energy
Netherlands	97	128	:	:	:	121
Italy	121	126	131	105	:	128
Sweden	136	156	145	109	114	129
Denmark	127	115	152	125	120	130
Slovakia	121	130	:	140	141	131
France	115	148	150	117	163	131
Austria	121	131	148	119	122	131
Luxembourg	116	155	157	107	144	133
Germany	140	124	152	122	132	133
Portugal	129	134	157	108	:	136
Ireland	124	138	153	135	134	139
Bulgaria	123	155	158	153	152	140
EU	136	148	154	148	140	141
Belgium	140	154	165	118	:	143
Czech Republic	147	163	127	164	143	143
Finland	163	:	184	:	160	143
Slovenia	146	168	161	142	166	145
Spain	149	143	146	:	:	146
Poland	148	166	140	163	131	146
Cyprus	166	167	137	101	:	151
Romania	134	174	150	137	202	159
Malta	203	248	:	:	:	165
United Kingdom	166	200	196	169	:	168
Estonia	133	221	166	193	217	169
Greece	133	160	179	125	:	170
Hungary	148	228	:	165	150	170
Lithuania	151	209	139	232	214	181
Latvia	203	210	:	176	226	197

Source: Eurostat

- In 2011, Ireland, at 39% had the eleventh lowest increase in consumer prices of energy goods in the EU between 2005 and 2011.

2.12 Ireland: House completions 1970-2011 and residential property price index 2005-2012



Sources: Department of the Environment, Community and Local Government and CSO

- Completions of residential units increased substantially from 21,400 in 1994 to a high of over 93,000 units in 2006. Since then, annual completions have fallen to 10,500 in 2011.

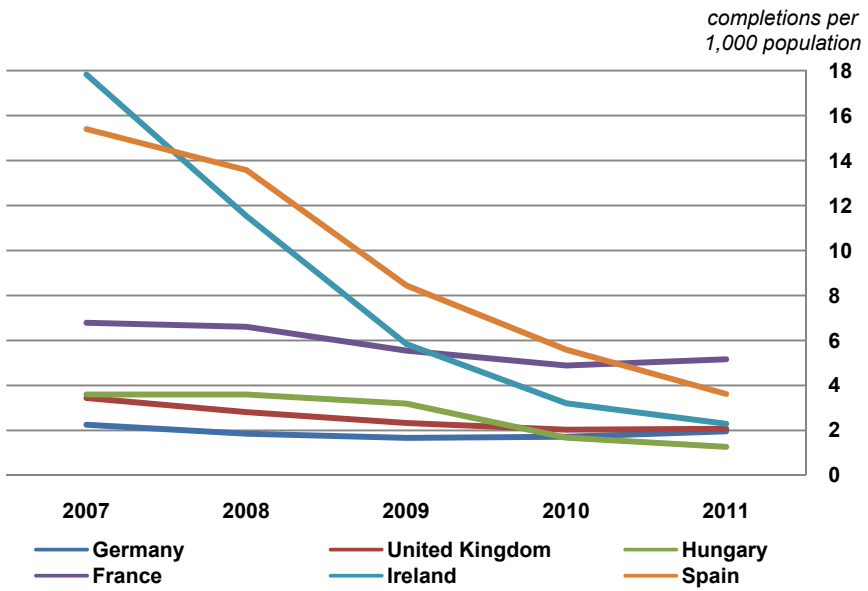
- Property prices as measured by the residential property price index increased by 24% between 2005 and 2007, and have since declined by 49% between 2007 and 2012.

2.13 EU: House completions 2007-2011

per 1,000 population

Country	2007	2008	2009	2010	2011
Germany	2.3	1.9	1.7	1.7	2.0
United Kingdom	3.4	2.8	2.3	2.0	2.1
Hungary	3.6	3.6	3.2	1.7	1.3
Slovakia	3.1	3.2	3.5	3.1	2.7
Czech Republic	4.0	3.7	3.7	3.5	2.7
Sweden	5.5	3.9	2.6	2.2	3.0
Poland	3.5	4.3	4.2	3.6	3.4
Netherlands	4.9	4.8	5.0	3.4	3.5
Denmark	5.9	4.9	3.4	2.0	2.1
Italy	5.1	4.7	4.1	3.3	2.6
Portugal	6.3	5.5	4.8	4.1	3.5
Belgium	5.3	5.0	4.5	4.0	4.2
Austria	5.5	4.4	4.4	4.5	4.6
Finland	6.7	5.8	4.2	4.8	5.9
France	6.8	6.6	5.5	4.9	5.2
Ireland	17.8	11.5	5.8	3.2	2.3
Spain	15.4	13.6	8.4	5.6	3.6

Sources: DKM, Euroconstruct, Eurostat, CSO, Department of the Environment, Community and Local Government



- Ireland at 17.8 had the highest levels of completions of residential units per 1,000 persons in 2007 followed by Spain at 15.4. Since then, the rate in Ireland has fallen to 2.3 in 2011 and to 3.6 in Spain. In contrast, the rate in Germany was much steadier at around two completions per 1,000 persons.

3.Social

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Photographs: Shannonbridge, Co. Offaly, and Dublin City, courtesy of the Photographic Unit, National Monuments Service

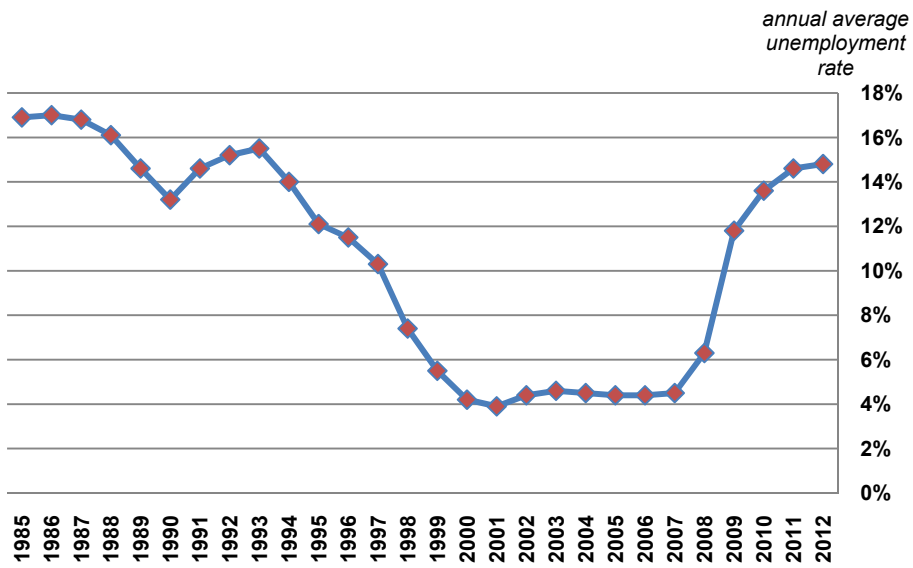
3.1 Ireland: Employment rate by age class 2000-2012

Year	20 to 34 years	35 to 59 years	60 to 64 years	Total 20 to 64 years	65 and over
2000	78%	69%	36%	70%	8%
2001	78%	71%	37%	71%	8%
2002	76%	71%	39%	71%	8%
2003	75%	71%	39%	71%	8%
2004	76%	72%	39%	71%	8%
2005	77%	73%	43%	73%	8%
2006	78%	73%	44%	74%	9%
2007	78%	74%	45%	73%	9%
2008	76%	74%	46%	72%	10%
2009	68%	70%	42%	66%	9%
2010	66%	68%	41%	64%	9%
2011	64%	68%	41%	63%	9%
2012	64%	67%	40%	64%	9%

Source: CSO

- The percentage of persons aged 20 to 34 years in employment was in the range 75% to 78% between 2000 and 2008. However, it has since fallen to 64% in 2012.
- The percentage of 60-64 year olds in employment increased from 36% in 2000 to a high of 46% in 2008, but has fallen to 40% in 2012.

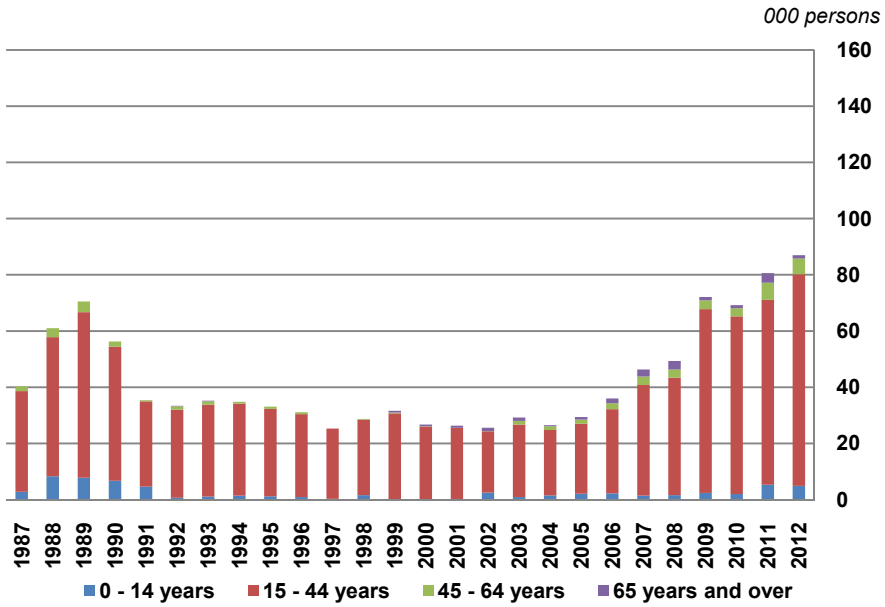
3.2 Ireland: Unemployment rate 1985-2012



Source: CSO

- Unemployment fell from a high of 17% in 1986 to 13% in 1990, before increasing again to 15.5% in 1993. From then it fell every year until 2001, and remained at around 4% until 2007. In 2008, the unemployment rate began to rise again, and stood at almost 15% in 2012.

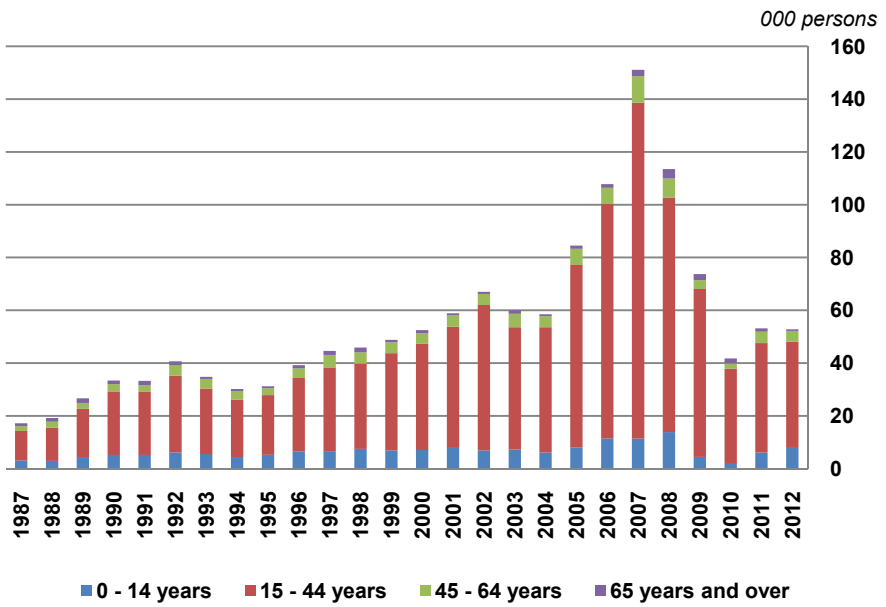
3.3 Ireland: Emigration 1987-2012



Source: CSO

- Emigration in 1989 was 70,000 persons. The level of emigration fell to a low of 25,300 persons in 1997, and has since risen to 87,000 persons in 2012.
- In 2012, almost 75,300 emigrants were aged 15 to 44 years. This age group comprised around 87% of all emigrants in 2012.

3.4 Ireland: Immigration 1987-2012



Source: CSO

- Immigration increased from 17,200 persons in 1987 to over 151,000 in 2007, but fell significantly over the next three years to just below 42,000 in 2010. It has since increased slightly again, and was estimated at 52,700 in 2012.
- Immigrants aged 15 to 44 years accounted for over 76% of total immigrants in 2012.

3.5 EU: People at risk of poverty 2007-2011

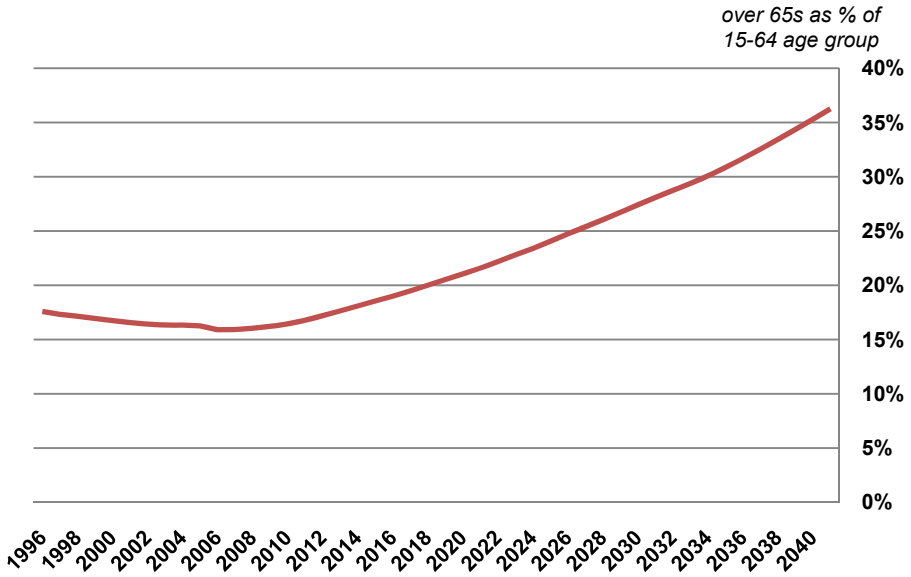
% of total population

Country	2007	2008	2009	2010	2011
Czech Republic	10%	9%	9%	9%	10%
Netherlands	10%	11%	11%	10%	11%
Austria	12%	12%	12%	12%	13%
Slovakia	11%	11%	11%	12%	13%
Denmark	12%	12%	13%	13%	13%
Slovenia	12%	12%	11%	13%	14%
Luxembourg	14%	13%	15%	15%	14%
Finland	13%	14%	14%	13%	14%
Hungary	12%	12%	12%	12%	14%
Sweden	11%	12%	13%	13%	14%
France	13%	13%	13%	13%	14%
Cyprus	16%	16%	15%	15%	15%
Belgium	15%	15%	15%	15%	15%
Malta	15%	15%	15%	15%	15%
Germany	15%	15%	16%	16%	16%
Ireland	**17%**	**14%**	**14%**	**15%**	**16%**
EU	17%	16%	16%	16%	17%
Estonia	19%	20%	20%	16%	18%
Poland	17%	17%	17%	18%	18%
Portugal	18%	19%	18%	18%	18%
Latvia	21%	26%	26%	21%	19%
Lithuania	19%	20%	21%	20%	20%
Greece	20%	20%	20%	20%	21%
Spain	20%	20%	20%	21%	22%
Romania	25%	23%	22%	21%	22%
Bulgaria	22%	21%	22%	21%	22%
United Kingdom	19%	19%	17%	17%	:
Italy	20%	19%	18%	18%	:

Sources: CSO and Eurostat

- In 2011, the Czech Republic had the lowest at risk of poverty rate after social transfers at 10%. Ireland, at 16% was lower than the EU rate of 17%.

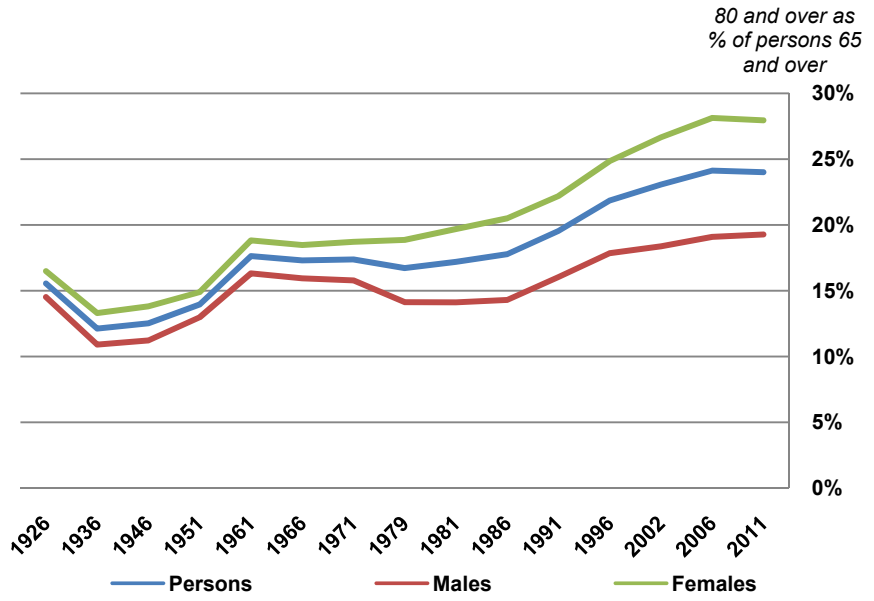
3.6 Ireland: Old age dependency ratio 1996-2041



Source: CSO

- The old age dependency ratio, which is the ratio of the population above retirement age (over 65 years) to the population of working age (15 to 64) was estimated to be 17% in 2011. Population projections show that this ratio is expected to double over the coming years, to 36% by 2041.

3.7 Ireland: Persons aged 80 and over 1926-2011



Source: CSO

- Persons aged 80 and over as a proportion of persons aged 65 and over remained stable at around 17% between 1961 and 1981. It has since risen steadily to 24% in 2011. Females over aged 80 as a proportion of those over 65 stood at 28% in 2011, while the proportion of males was 19%.

3.8 Ireland: Life expectancy 1901-2006

years

Year	Males at birth	Females at birth	Males at age 65	Females at age 65
1901	49	50	11	11
1911	54	54	13	13
1926	57	58	13	13
1936	58	60	13	13
1941	59	61	12	13
1951	65	67	12	13
1961	68	72	13	14
1971	69	74	12	15
1981	70	76	13	16
1991	72	78	13	17
2002	75	80	15	19
2006	77	82	17	20

Source: CSO

- In 1901, life expectancy for males was 49 years, and 50 years for females. This has increased over the intervening 105 years, and in 2006, life expectancy for males was 77 years, and for females it was 82 years.

- Similarly, life expectancy at age 65 has increased. In 1901, both 65 year old males and females could expect to live for a further eleven years. By 2006, this had increased to 17 years for males and 20 for females.

3.9 Ireland: Recorded criminal offences 2004-2011

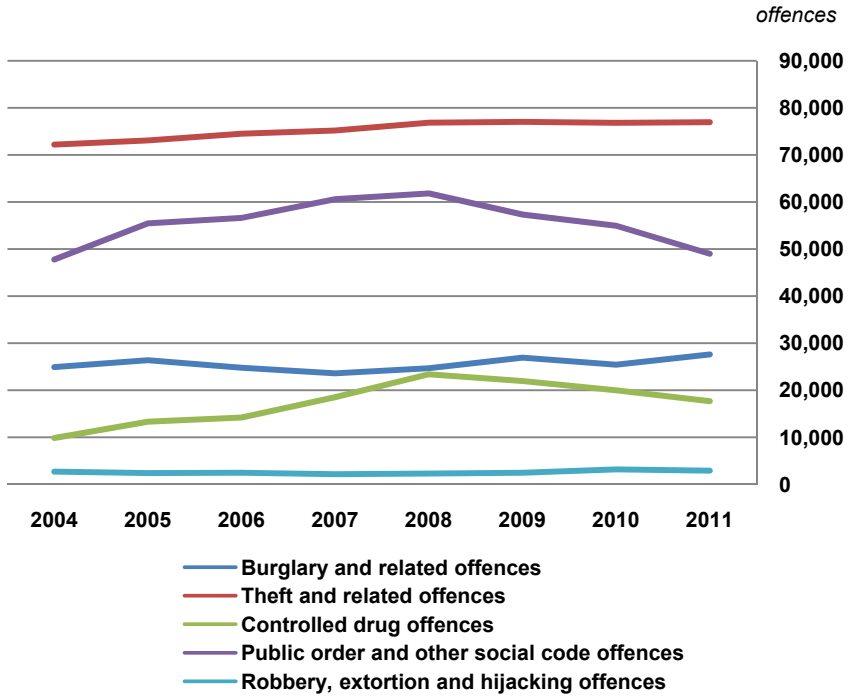
000 offences

Year	Robbery, extortion and hijacking offences	Burglary and related offences	Theft and related offences	Controlled drug offences	Public order and other social code offences
2004	2.7	24.9	72.2	9.9	47.8
2005	2.4	26.4	73.1	13.3	55.5
2006	2.5	24.8	74.5	14.2	56.6
2007	2.2	23.6	75.2	18.6	60.6
2008	2.3	24.7	76.9	23.4	61.8
2009	2.5	26.9	77.0	22.0	57.4
2010	3.2	25.4	76.8	20.0	54.9
2011	2.9	27.6	77.0	17.7	49.0

Source: CSO

- Recorded drug-related offences grew from just under 10,000 in 2004 to 23,400 in 2008. The number of offences has since fallen to 17,700 in 2011.

- Public order offences also peaked in 2008, and have since fallen back to just above 2004 levels. Burglary offences reached a high of over 27,600 in 2011, while theft offences have been at around 77,000 per year since 2008.



3.10 Ireland: Pupil-teacher ratio 1995-2012

Ratio of enrolled pupils to full-time equivalent teaching posts

Year	Primary school	average % change year-on-year	Secondary school	average % change year-on-year
1995	23.5	:	18.0	:
2000	20.3	-2.9%	16.8	-1.4%
2001	19.2	-5.4%	14.0	-16.7%
2002	18.4	-4.2%	13.5	-3.6%
2003	18.0	-2.2%	13.2	-2.2%
2004	17.1	-5.0%	13.6	3.0%
2005	17.1	0.0%	13.4	-1.5%
2006	16.6	-2.9%	13.1	-2.2%
2007	16.0	-3.6%	13.1	0.0%
2008	16.0	0.0%	12.9	-1.5%
2009	15.9	-0.6%	13.0	0.8%
2010	16.0	0.6%	13.6	4.6%
2011	15.7	-1.9%	13.6	0.0%
2012	16.2	3.2%	13.9	2.2%

Source: Department of Education and Skills

- Pupil-teacher ratios in primary schools aided by the Department of Education and Skills have fallen from 23.5 in 1995 to 15.7 in 2011. The ratio increased in 2012 to 16.2.
- The pupil-teacher ratio in second level schools aided by the Department of Education and Skills was 18 in 1995, and fell to a low of 12.9 in 2008. It has increased since to 13.9 in 2012.

3.11 EU: Average class sizes 2010

number

Country	Primary	Lower secondary
Lithuania	15.3	20.4
Luxembourg	15.6	19.4
Latvia	15.9	16.8
Greece	17.1	22.1
Cyprus	17.5	21.1
Slovakia	17.8	20.5
Estonia	17.9	18.5
Austria	18.4	22.0
Romania	18.4	20.3
Slovenia	18.4	19.6
Poland	18.6	22.9
Malta	18.7	20.2
Italy	18.8	21.3
Denmark	19.3	20.0
Finland	19.4	20.3
Czech Republic	19.9	21.4
Portugal	20.1	22.1
Hungary	20.8	21.4
Bulgaria	21.0	22.2
Spain	21.2	24.3
Germany	21.5	24.7
Netherlands	22.4	:
France	22.7	24.5
Ireland	**24.1**	**20.3**
United Kingdom	24.4	19.4

Source: Eurostat
Note: 2006 data used for primary for Netherlands
2007 data used for lower secondary for Ireland
No data available for Belgium or Sweden

- Ireland had the second highest average class size in primary schools in the EU in 2010, with 24.1 students per class. There was an average of 20.3 students per class in lower secondary school, which was joint seventh lowest among EU countries.

3.12 Ireland: Second level and third level completion rates 1995-2012

Year	% of 20-24 year olds completing upper secondary school	% of population aged 25-34 with third level education
1995	74%	:
2000	82%	30%
2001	83%	33%
2002	84%	36%
2003	84%	38%
2004	85%	40%
2005	85%	41%
2006	86%	42%
2007	85%	43%
2008	86%	45%
2009	88%	47%
2010	88%	48%
2011	89%	48%
2012	89%	50%

Source: CSO

- The proportion of 20 to 24 year olds who completed secondary school has increased from 74% in 1995 to 89% in 2012.
- In 2012, 50% of 25 to 34 year olds had a third level education. This rate increased from 30% in 2000.

3.13 Ireland: Usual means of travel to school 1986-2011

% of children aged 5-12

Year	On foot	Bicycle	Bus, minibus or coach	Motor car passenger	Other
1986	49%	5%	20%	26%	1%
1991	42%	5%	22%	30%	1%
1996	35%	3%	23%	38%	2%
2002	27%	1%	18%	52%	2%
2006	25%	1%	15%	56%	2%
2011	24%	1%	12%	61%	1%

% of children aged 13-18

Year	On foot	Bicycle	Bus, minibus or coach	Motor car passenger	Other
1986	33%	16%	36%	11%	4%
1991	30%	14%	37%	15%	4%
1996	28%	8%	40%	20%	4%
2002	26%	4%	38%	28%	4%
2006	25%	2%	36%	32%	5%
2011	23%	2%	30%	40%	4%

Source: CSO

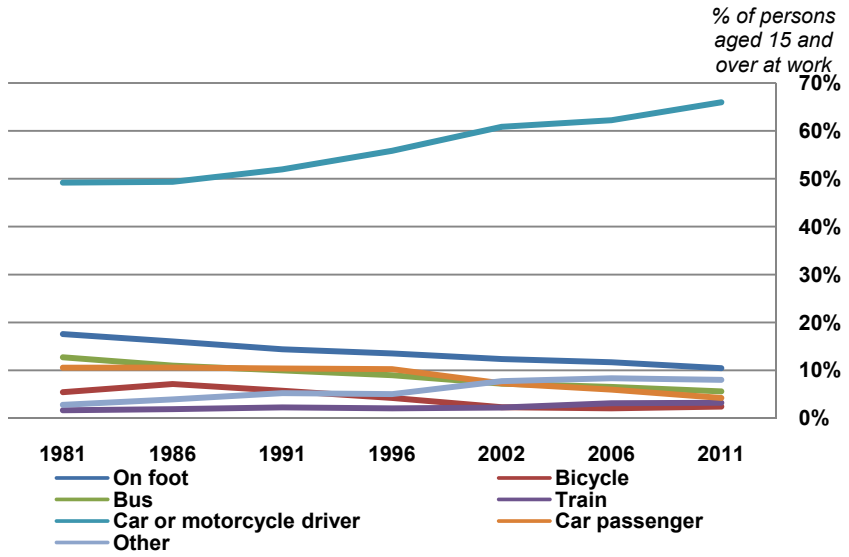
- The proportion of 5 to 12 year olds (i.e., those of primary school-going age) who travelled to school on foot has fallen from 49% in 1986 to 24% in 2011. The proportion travelling as passengers in cars has, in contrast, risen from 26% to 61% over the same period.
- The proportion of children in the 13 to 18 age bracket (i.e., those of secondary school-going age) who walk to school fell between 1986 and 2011, from 33% to 23%. The percentage cycling to school has dropped from 16% in 1986 to just 2% in 2011, while those travelling as passengers in cars has grown from 11% in 1986 to 40% in 2011.

3.14 Ireland: Usual means of travel to work 1981-2011

% of persons aged 15 and over at work

Year	On foot	Bicycle	Bus	Train	Car or motorcycle driver	Car passenger	Other
1981	18%	5%	13%	2%	49%	11%	3%
1986	16%	7%	11%	2%	49%	11%	4%
1991	14%	6%	10%	2%	52%	10%	5%
1996	14%	4%	9%	2%	56%	10%	5%
2002	12%	2%	7%	2%	61%	7%	8%
2006	12%	2%	7%	3%	62%	6%	8%
2011	10%	2%	6%	3%	66%	4%	8%

Source: CSO



- The proportion of persons travelling to work by bus has fallen from 13% of the total in 1981 to 6% in 2011. In contrast, the proportion of persons who drive to work either by car or motorcycle have increased from 49% to 66% over the same period.

3.15 EU: Obesity levels 2008

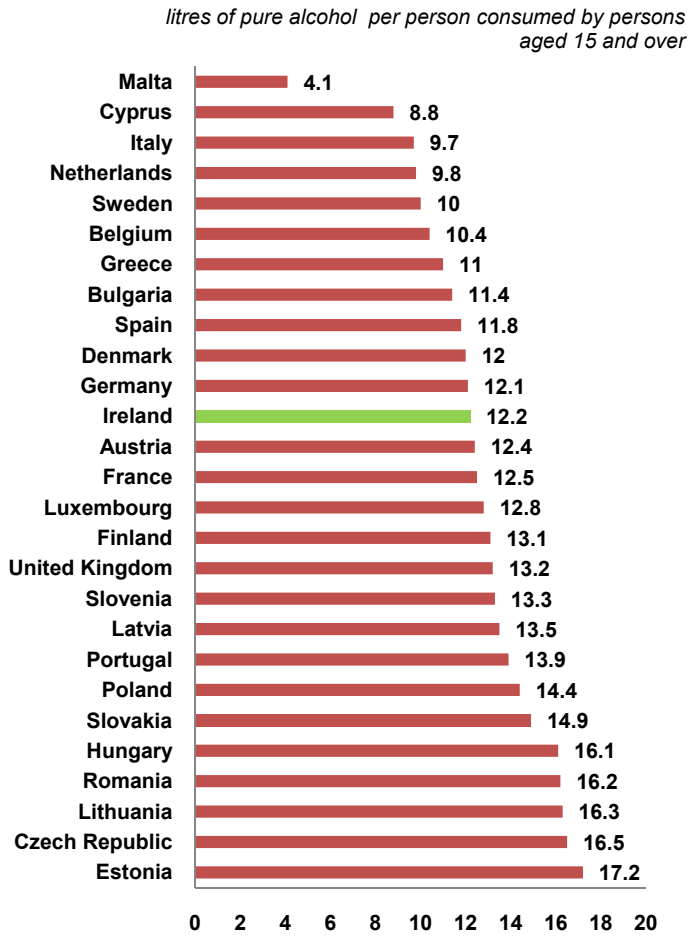
% of adults aged 20 and over who are obese

Country	Males	Females
Netherlands	16%	16%
Romania	16%	19%
France	17%	15%
Denmark	17%	15%
Sweden	18%	15%
Greece	19%	16%
Austria	19%	17%
Italy	19%	15%
Estonia	20%	18%
Portugal	20%	22%
Finland	21%	19%
Belgium	21%	17%
Latvia	22%	22%
Bulgaria	22%	20%
Poland	23%	23%
Germany	23%	19%
Lithuania	24%	25%
United Kingdom	24%	25%
Luxembourg	25%	22%
Cyprus	25%	22%
Slovakia	25%	24%
Spain	25%	23%
Ireland	**26%**	**23%**
Malta	26%	27%
Hungary	26%	23%
Slovenia	28%	26%
Czech Republic	31%	27%

Source: United Nations

- 26% of Irish males over age 20 were classified as obese in 2008. This was the joint second highest proportion in the EU. The proportion of females over 20 who were obese in 2008 was 23%, which was joint sixth highest of EU member states.

3.16 EU: Alcohol consumption 2008



Sources: Department of Health and United Nations

- Ireland had the twelfth lowest per capita consumption of alcohol of the EU Member States in 2008, with 12.2 litres of pure alcohol consumed by persons aged 15 and over.

3.17 EU: Tobacco consumption 2009

% of persons aged 15 and over who smoke tobacco

Country	Male	Female
United Kingdom	25%	23%
Finland	28%	22%
Belgium	30%	22%
Denmark	30%	28%
Malta	30%	21%
Slovakia	30%	22%
Ireland	31%	27%
Netherlands	31%	26%
Portugal	32%	16%
Germany	33%	25%
Italy	33%	19%
France	36%	27%
Poland	36%	25%
Spain	36%	27%
Slovenia	39%	19%
Czech Republic	43%	31%
Hungary	43%	33%
Estonia	46%	23%
Romania	46%	24%
Austria	47%	45%
Bulgaria	48%	27%
Latvia	50%	22%
Lithuania	50%	22%
Greece	63%	41%

Source: United Nations
Note: Data not available for Cyprus, Luxembourg and Sweden
Data for Ireland refers to 2007

- Tobacco consumption in Ireland in 2009 was the seventh lowest in the EU for males aged 15 and over, at 31%. While the proportion of Irish females who smoke is lower than that for males, at 27%, this ranked ninth highest of EU member states for which data are available.

4.Environment

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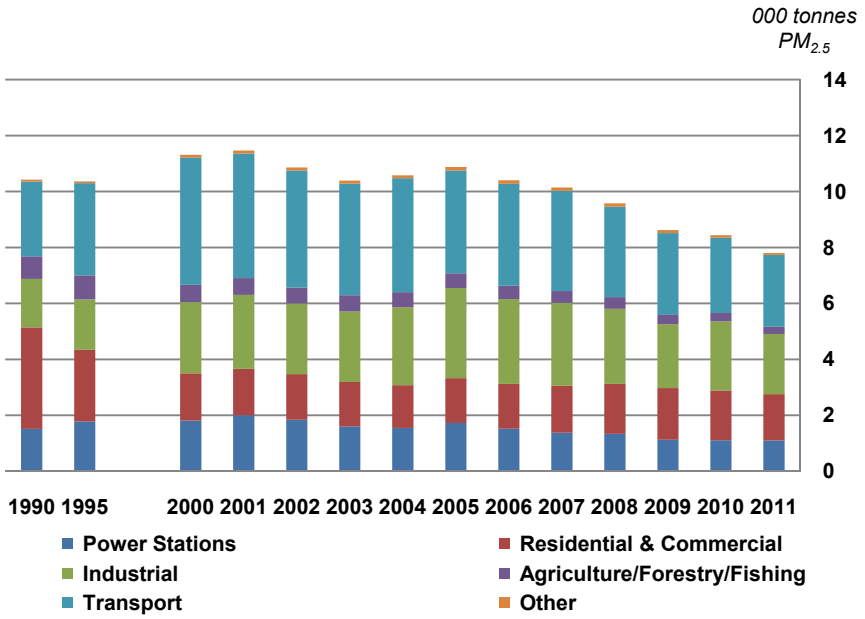
Photographs: Kerbside bins, courtesy of the Environmental Protection Agency, and Killarney National Park courtesy of the Photographic Unit, National Monument Service

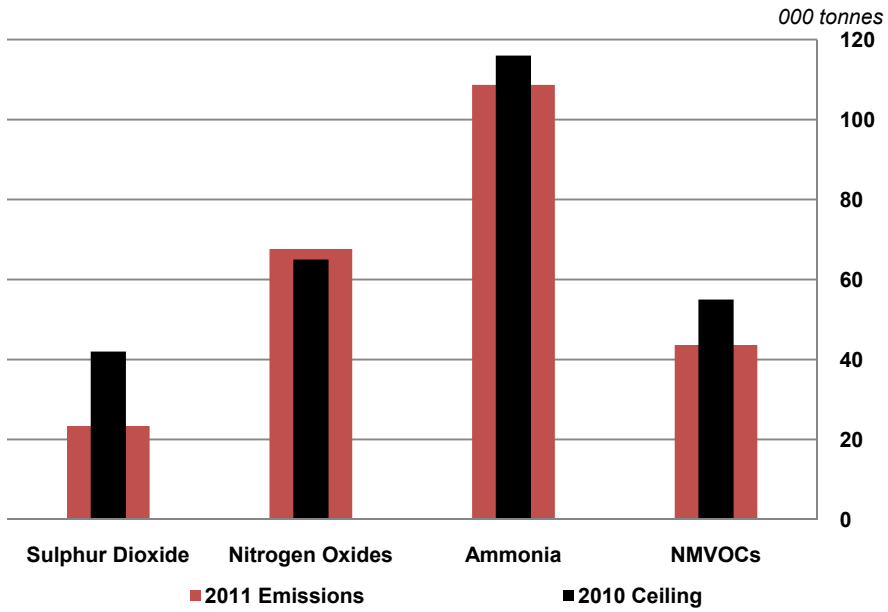
4.1 Ireland: Particulate matter ($PM_{2.5}$) emissions 1990-2011



Source: Environmental Protection Agency

- Emissions of $PM_{2.5}$ varied between 10,000 and 11,500 tonnes between 1990 and 2007. Emissions have subsequently decreased by 23% to a level of 7,800 tonnes in 2011.
- Transport accounted for 33% of emissions of $PM_{2.5}$ in 2011, with Industry accounting for 28%.

4.2 Ireland: Emissions of pollutants under NEC Directive 2011



Source: Environmental Protection Agency

- Ireland's emissions of sulphur dioxides, ammonia, and non-methane volatile organic compounds were below the National Emissions Ceiling (NEC) levels in 2011.
- Nitrogen oxide emissions were 4% above the NEC level of 65,000 tonnes in 2011, although emissions have fallen from 121,000 tonnes in 2005 to 67,600 in 2011.

4.3 EU: Greenhouse gas emissions 2010

Indexed to Kyoto base year (1990)

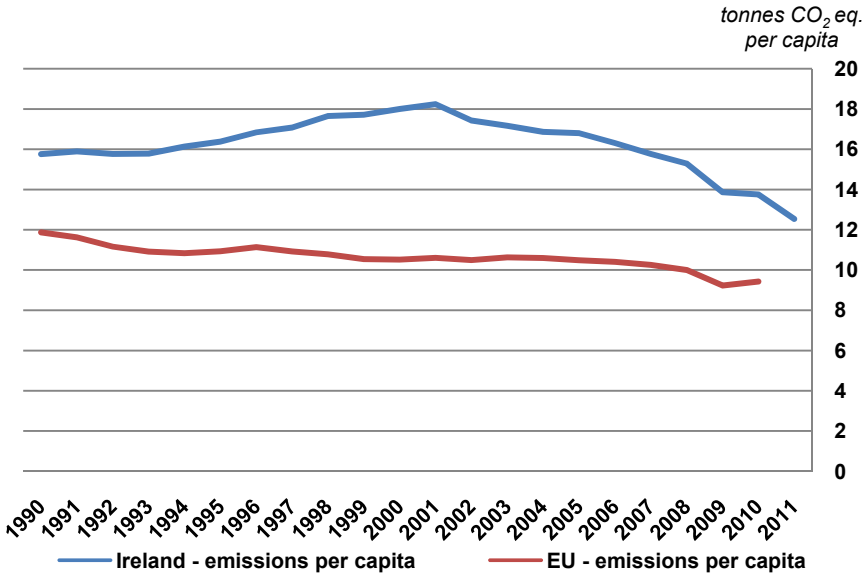
Country	2010 emissions index	Kyoto target index	% Above/below target	Emission limit in 2020 compared with 2005 emission levels
Lithuania	42	92	-54%	15%
Romania	44	92	-52%	19%
Bulgaria	46	92	-50%	20%
Latvia	47	92	-49%	17%
Estonia	48	92	-48%	11%
Hungary	59	94	-37%	10%
Slovakia	64	92	-30%	13%
Poland	71	94	-24%	14%
Czech Republic	72	92	-22%	9%
United Kingdom	76	88	-13%	-16%
Sweden	92	104	-12%	-17%
Greece	111	125	-11%	-4%
Portugal	117	127	-8%	1%
France	93	100	-7%	-14%
Germany	76	79	-4%	-14%
Ireland	110	113	-3%	-20%
Belgium	91	93	-2%	-15%
Italy	97	94	4%	-13%
Slovenia	96	92	4%	4%
Finland	105	100	5%	-16%
Netherlands	99	94	5%	-16%
Spain	123	115	7%	-10%
Denmark	88	79	11%	-20%
Austria	107	87	23%	-16%
Luxembourg	92	72	28%	-20%

Source: Eurostat

Note: Data not available for Cyprus or Malta

- Ireland's 2010 emissions ranked 16th among EU countries relative to their Kyoto limit. In 2010, eight EU Member states were above their respective Kyoto emissions limits.
- Under the Kyoto Protocol, Ireland is obliged by 2020 to have reduced its greenhouse gas emissions to 20% below the 2005 levels.

4.4 Ireland and EU: Greenhouse gas emissions per capita 1990-2011



Sources: Environmental Protection Agency and European Environment Agency

- Ireland's emissions of greenhouse gases per capita have been falling since 2001, and in 2011 stood at 12.5 tonnes of CO_2 equivalent per capita.

4.5 Ireland: Greenhouse gas emissions by sector 1990-2011

							% of total	*000 tonnes CO_2 eq.*
Year	**Agriculture**	**Energy**	**Transport**	**Industry & commercial**	**Residential**	**Waste**	**Total**	**Average annual % change**
1990	37%	21%	9%	17%	13%	3%	55,249	
1995	36%	23%	11%	17%	11%	3%	58,987	1.3%
2000	31%	24%	16%	18%	9%	2%	68,204	2.9%
2001	29%	25%	16%	18%	10%	2%	70,164	2.9%
2002	30%	24%	17%	17%	10%	2%	68,256	-2.7%
2003	30%	24%	17%	16%	10%	3%	68,328	0.1%
2004	30%	23%	18%	17%	10%	2%	68,205	-0.2%
2005	29%	23%	19%	17%	10%	2%	69,451	1.8%
2006	28%	22%	20%	17%	10%	2%	69,026	-0.6%
2007	28%	21%	21%	18%	10%	2%	68,410	-0.9%
2008	28%	22%	20%	17%	11%	2%	67,611	-1.2%
2009	30%	21%	20%	15%	12%	2%	61,827	-8.6%
2010	31%	22%	19%	15%	13%	2%	61,472	-0.6%
2011	32%	21%	20%	14%	11%	2%	57,521	-6.4%

Source: Environmental Protection Agency

- Agriculture accounted for 32% of Ireland's greenhouse gas emissions in 2011.
- The transport share of greenhouse gas emissions in Ireland increased from 9% in 1990 to 21% in 2007 before falling to 20% in 2011.
- Total greenhouse gas emissions for Ireland in 2010 were 61.5 million tonnes of CO_2 equivalent. They fell to 57.5 million tonnes in 2011.

4.6 Ireland: Meat supply balance 2000-2011

	000 tonnes			*000 tonnes CH_4*
Year	**Beef and veal slaughterings**	**Beef and veal exports**	**Self-sufficiency in beef and veal products**	**Emissions of CH_4 from cattle**
2000	576	521	935%	227
2001	579	363	829%	224
2002	540	479	737%	225
2003	567	504	713%	221
2004	562	504	670%	219
2005	545	490	646%	232
2006	571	519	678%	224
2007	580	528	679%	219
2008	536	489	636%	218
2009	513	467	617%	220
2010	558	519	672%	211
2011	546	509	608%	201

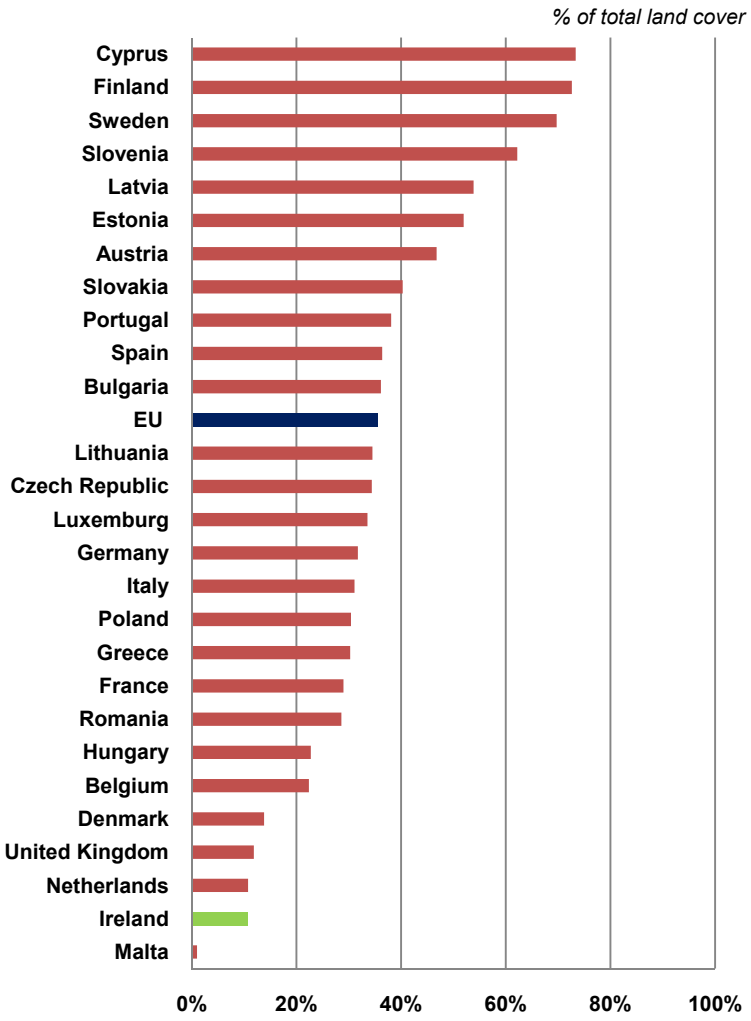
Sources: CSO and Environmental Protection Agency

- In the period 2000 to 2011, slaughterings of beef and veal have varied with a high of 580,000 tonnes in 2007 and a low of 513,000 tonnes in 2009. Our self-sufficiency in beef products has fallen from 935% in 2000 to 608% in 2011.

- Emissions of methane from cattle were between 218 and 232 thousand tonnes between the years 2000 and 2009, but have fallen since. There were 201 thousand tonnes of methane emitted from cattle in 2011.

- Forestry accounted for 10.7% of Ireland's total land area in 2010. In contrast, 35.5% of the total land area of the EU was under forest cover. Ireland had the second smallest proportion of land area under forestry in the EU with 10.7%.

4.7 EU: Forest cover 2010



Source: Forest Europe

4.8 Ireland: River water quality 1987-2009

% of total treated

Year	Unpolluted	Slightly polluted	Moderately polluted	Seriously polluted
1987-1990	77.3%	12.0%	9.7%	0.9%
1991-1994	71.2%	16.8%	11.4%	0.6%
1995-1997	66.9%	18.2%	14.0%	0.9%
1998-2000	69.7%	17.1%	12.4%	0.8%
2001-2003	69.3%	17.9%	12.3%	0.6%
2004-2006	71.4%	18.1%	10.0%	0.5%
2007-2009	68.9%	20.7%	10.0%	0.4%

Source: Environmental Protection Agency

- The proportion of unpolluted river water has fallen from 77% in the period 1987-1990 to 69% in the period 2007-2009. However, the percentage of slightly polluted water has increased from 12% in 1987-1990 to 21% in 2007-2009.

- The level of seriously polluted river water has remained at less than 1% over the period 1987 to 2009.

4.9 Ireland: Nitrates in groundwater 1995-2009

NO_3 mg/l (% of total)

Year	< 5	5 - 10	10 - 25	25 - 37.5	37.5 - 50	> 50
1995-1997	14%	18%	48%	14%	5%	0%
1998-2000	19%	16%	48%	10%	5%	2%
2001-2003	15%	17%	47%	12%	7%	2%
2004-2006	17%	12%	49%	11%	9%	2%
2007-2009	22%	20%	41%	12%	4%	1%

Source: Environmental Protection Agency

- The levels of nitrates in groundwater decreased in the 2007-2009 period. The proportion of samples between 37.5 and 50 mg/litre fell from 9% in 2004-2006 to 4% and the proportion over 50 mg/litre fell from 2% to 1%.

4.10 Ireland: Total primary energy requirement 1990-2011

	% of total primary energy requirement					*ktoe*
Year	**Petroleum**	**Natural gas**	**Coal**	**Renewable**	**Peat**	**Fuel products**
1990	47%	15%	22%	2%	14%	9,497
1995	52%	18%	17%	1%	11%	10,568
2000	57%	22%	13%	2%	6%	13,780
2001	58%	22%	13%	2%	6%	14,579
2002	57%	23%	12%	2%	6%	14,757
2003	55%	25%	12%	2%	6%	14,631
2004	57%	24%	12%	2%	4%	15,152
2005	58%	22%	12%	2%	5%	15,824
2006	56%	25%	10%	3%	5%	15,944
2007	55%	26%	10%	3%	5%	16,268
2008	55%	27%	9%	4%	5%	16,358
2009	52%	29%	8%	5%	6%	14,780
2010	50%	32%	8%	5%	5%	14,824
2011	49%	30%	9%	6%	5%	13,869

Source: Sustainable Energy Authority of Ireland

- Petroleum products are the main fuel in Ireland's total primary energy requirement (TPER), accounting for 49% in 2011. This has fallen from a high of 58% in 2005.
- The proportion of coal in TPER has fallen from 22% in 1990 to 9% in 2011. Similarly, the share of peat has fallen considerably since the 1990s. These have been replaced mainly by natural gas, which accounted for 30% of TPER in 2011.

4.11 Ireland: Progress towards renewable targets 1990-2011

			% generated by renewable energy	
Year	**Electricity**	**Transport**	**Heat**	**Renewable contribution in gross final energy consumption**
1990	5%	0%	3%	2%
1995	5%	0%	2%	2%
2000	5%	0%	2%	2%
2001	5%	0%	3%	2%
2002	5%	0%	3%	2%
2003	5%	0%	3%	2%
2004	6%	0%	3%	2%
2005	7%	0%	3%	3%
2006	9%	0%	4%	3%
2007	10%	0%	4%	3%
2008	11%	1%	4%	4%
2009	14%	2%	4%	5%
2010	15%	2%	4%	6%
2011	18%	3%	5%	6%
2020 target	40%	10%	12%	16%

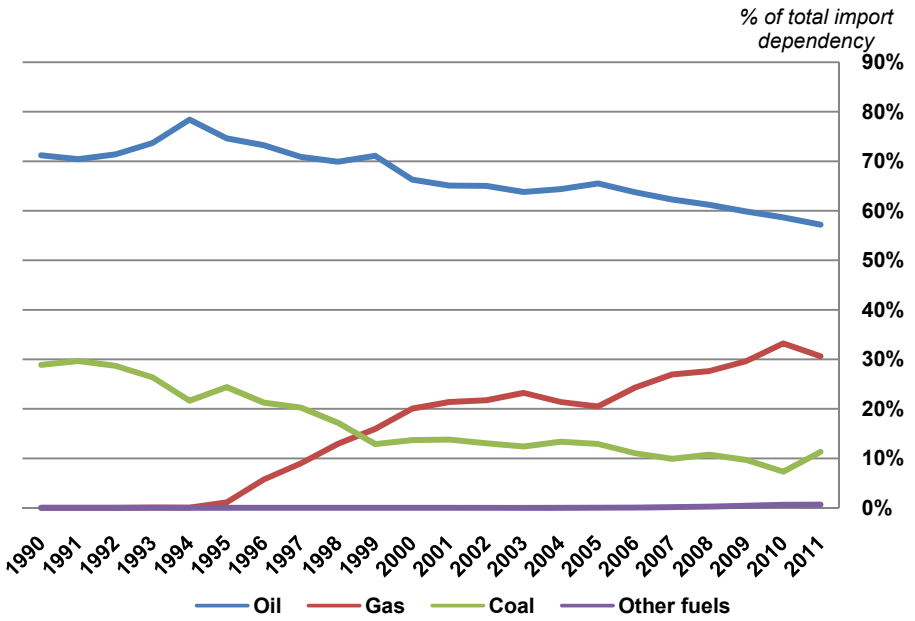
Source: Sustainable Energy Authority of Ireland

- The share of electricity generated by renewable energy was stable at 5% in the years 1990 to 2003, and has since grown to 18% in 2011. The EU Directive (2001/77/EC) target for 2010 of 13.2% was achieved. The 2020 target is that 40% of electricity will be generated from renewable sources.
- Renewable transport energy accounted for 3% of road and rail transport in 2011. Renewable heat accounted for 5% of all thermal energy in 2011. The 2020 target is that 12% of heating energy will be generated by renewable energy.

4.12 Ireland: Imported energy dependency 1990-2011

	% of total import dependency				*ktoe*	
Year	**Oil**	**Gas**	**Coal**	**Other fuels**	**Imported fuel**	**Import dependency**
1990	71%	0%	29%	0%	6,899	69%
1995	75%	1%	24%	0%	7,731	69%
2000	66%	20%	14%	0%	12,378	85%
2001	65%	21%	14%	0%	13,715	90%
2002	65%	22%	13%	0%	13,839	89%
2003	64%	23%	12%	0%	13,525	90%
2004	64%	21%	13%	0%	13,871	89%
2005	66%	20%	13%	0%	14,736	90%
2006	64%	24%	11%	0%	14,858	90%
2007	62%	27%	10%	0%	14,561	88%
2008	61%	28%	11%	0%	14,983	90%
2009	60%	30%	10%	0%	13,471	89%
2010	59%	33%	7%	1%	13,229	87%
2011	57%	31%	11%	1%	12,545	88%

Source: Sustainable Energy Authority of Ireland

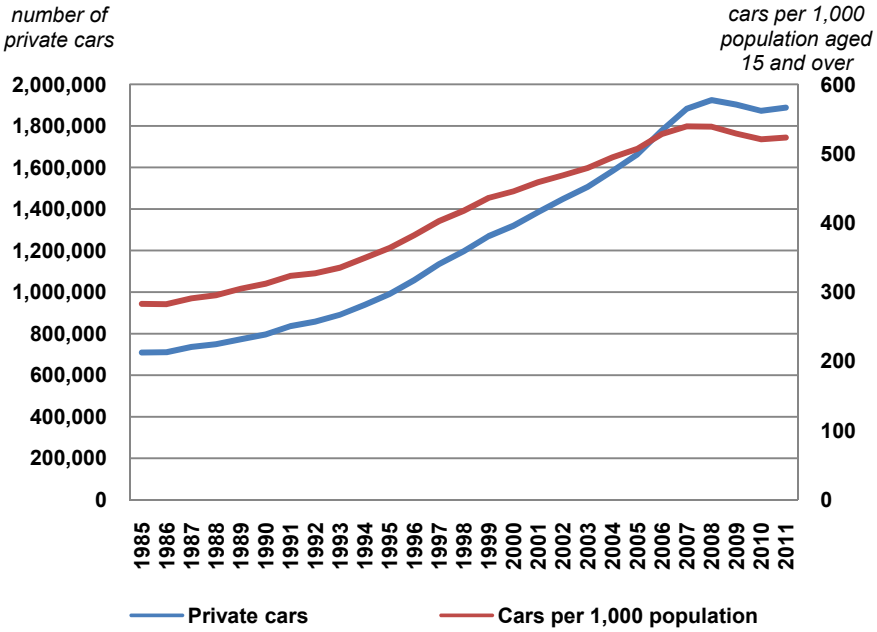


- Ireland's imported energy dependency has increased from 69% in 1990 to between 87% and 90% in the years from 2001 to 2011.
- The import dependency on oil has fallen from 66% of total fuel imports in 2005 to 57% in 2011, while import dependency on gas has increased and was 31% in 2011.

4.13 Ireland: Private cars per 1,000 population 1985-2011

Year	Private cars	Cars per 1,000 population aged 15 and over	average % change year-on-year
1985	710,000	283	:
1990	796,000	312	2.0%
1995	990,000	364	3.1%
2000	1,319,000	445	4.1%
2001	1,385,000	459	2.9%
2002	1,448,000	469	2.2%
2003	1,507,000	479	2.3%
2004	1,583,000	494	3.2%
2005	1,662,000	507	2.5%
2006	1,779,000	528	4.2%
2007	1,883,000	539	2.1%
2008	1,924,000	539	-0.1%
2009	1,902,000	529	-1.8%
2010	1,873,000	521	-1.6%
2011	1,888,000	523	0.5%

Sources: Department of Transport, Tourism and Sport and CSO



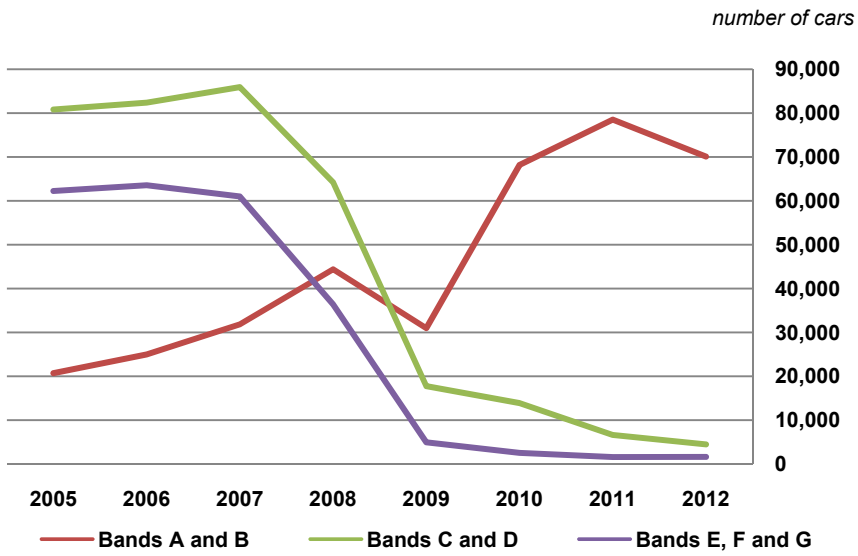
- The number of private cars in Ireland was 283 per 1,000 of the population aged 15 years and over in 1985, and this number grew every year until 2007, when there were 539 cars per 1,000. The rate has fallen since, and stood at 523 cars per 1,000 population in 2011.

4.14 Ireland: New private cars licensed by emission class 2005-2012

% of total

Year	Bands A and B	Bands C and D	Bands E, F and G	Unclassified	Total
2005	12%	49%	37%	2%	166,270
2006	14%	48%	37%	1%	173,273
2007	18%	48%	34%	1%	180,754
2008	30%	44%	25%	1%	146,470
2009	57%	33%	9%	2%	54,432
2010	80%	16%	3%	0%	84,907
2011	90%	8%	2%	0%	86,932
2012	92%	6%	2%	0%	76,256

Source: CSO



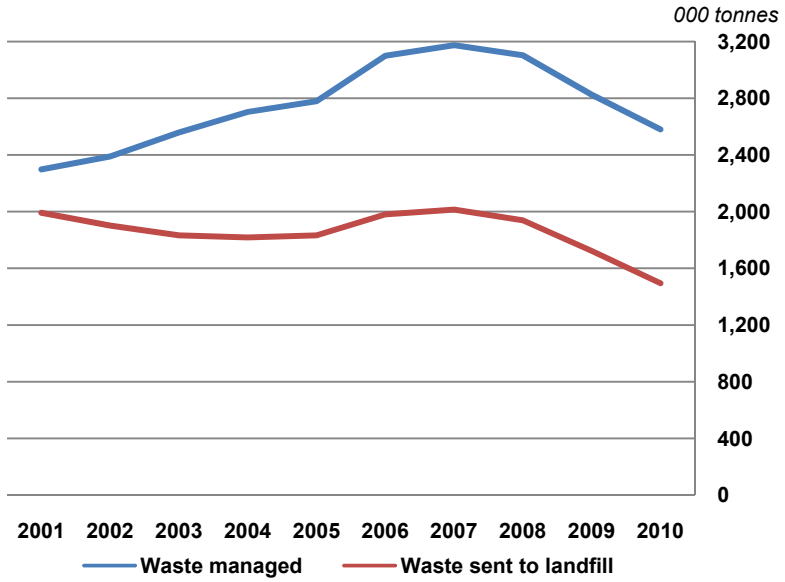
- On July 1st 2008, the basis for motor taxation charges changed from engine size to the emission rating of the vehicle.
- The proportion of new vehicles registered in emission bands A and B increased from 12% in 2005 to 92% in 2012.

4.15 Ireland: Municipal waste sent to landfill 2001-2010

000 tonnes

Year	Municipal waste managed	Municipal waste sent to landfill	Municipal waste disposal rate
2001	2,298	1,992	87%
2002	2,390	1,902	80%
2003	2,559	1,833	72%
2004	2,704	1,819	67%
2005	2,779	1,833	66%
2006	3,100	1,981	64%
2007	3,175	2,015	64%
2008	3,104	1,939	63%
2009	2,825	1,724	61%
2010	2,580	1,496	58%

Source: Environmental Protection Agency



- The amount of municipal waste sent to landfill was between 1.8 and 2 million tonnes between 2001 and 2008. It fell sharply in 2009 to 1.7 million tonnes and decreased more sharply in 2010 to 1.5 million tonnes.

4.16 Ireland: Recovery of packaging waste 2001-2010

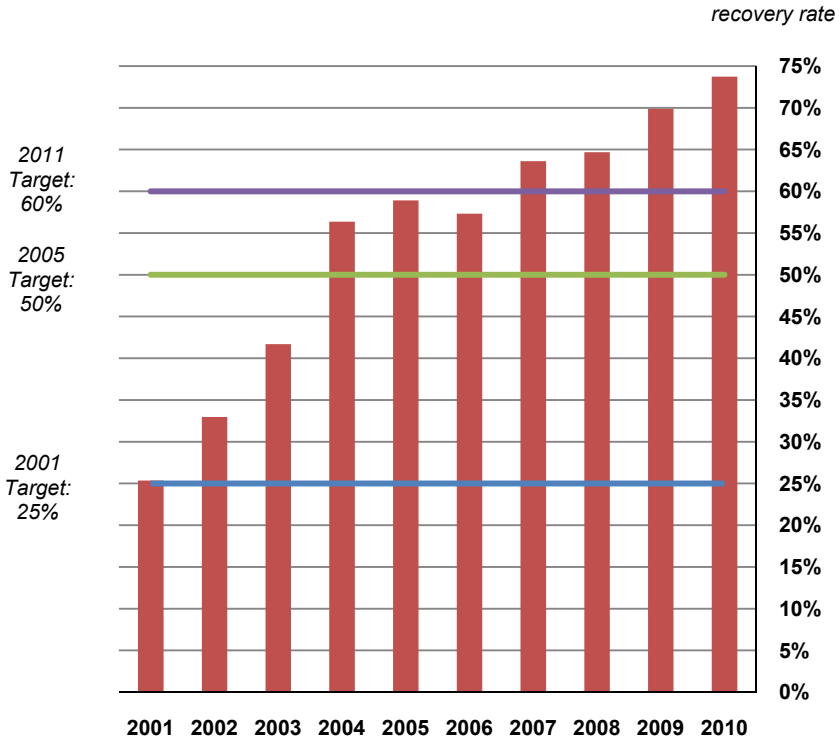
000 tonnes

Year	Managed	Recovered	Recovery rate
2001	873	221	25%
2002	899	296	33%
2003	1,006	420	42%
2004	851	480	56%
2005	925	545	59%
2006	1,028	590	57%
2007	1,056	672	64%
2008	1,027	664	65%
2009	972	680	70%
2010	864	637	74%

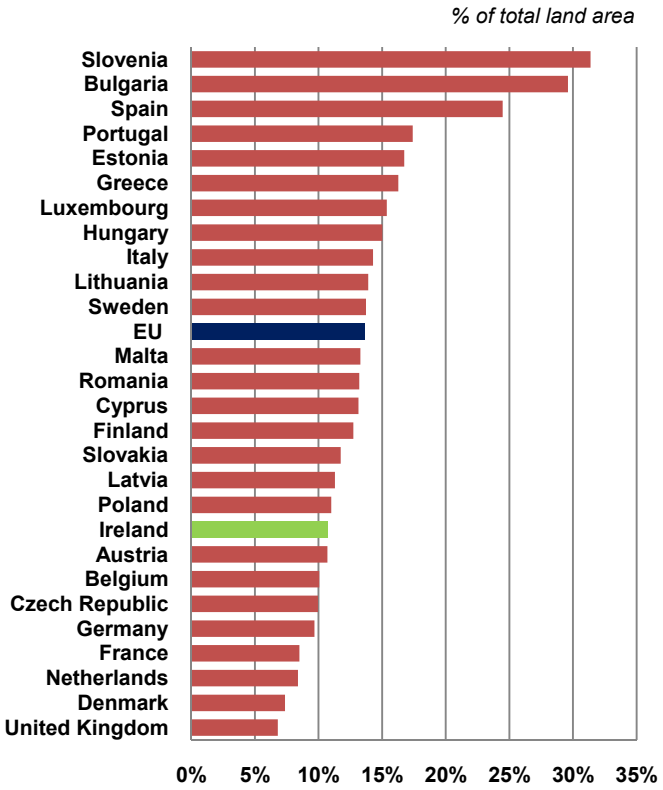
Source: Environmental Protection Agency

- Over the past decade, Ireland has substantially increased its rate of recovery of packaging waste such as cardboard, paper, glass, plastic, steel, aluminium and wood. The Packaging Directive (94/62/EC) target of 50% set for 2005 was reached in 2004 and the 2011 target of 60% has been exceeded since 2007.

- By 2010, the recovery rate for packaging waste had reached 74%.



4.17 EU: Protected areas under EU Habitats Directive 2010

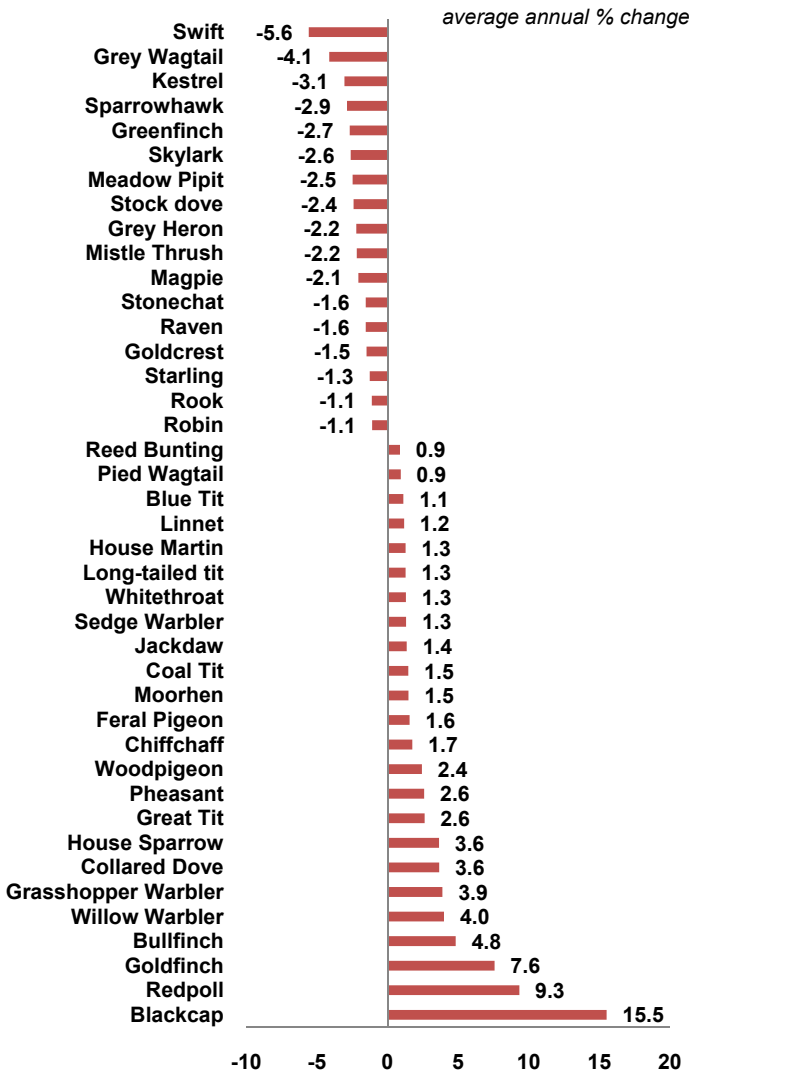


Source: European Commission

- In 2010, Ireland had 10.7% of its land area designated as a Special Protected Area under the EU Habitats Directive. This was the ninth smallest proportion of land area in the EU. The total designated area in the EU was 13.7%.

- Out of 53 bird species surveyed over the 1998-2010 period, 13 were found to be in decline, 17 were increasing, and 23 were stable. The biggest increases were in blackcaps and redpolls, while swifts and grey wagtails showed the biggest declines.

4.18 Ireland: Countryside birds 1998-2010



Source: Birdwatch Ireland

Appendices

Appendix 1 Definitions and notes

Domain 2 – Economy

General government debt and balance (2.1)

General government consolidated gross debt at nominal value is the standardised measure of indebtedness of EU governments. The general government sector comprises the sub-sectors of central government, local government, and social security funds. The debt of commercial State companies/public corporations is excluded. It takes account of all liabilities included in the traditional national definition of National Debt, without any offsetting of liquid assets, together with the liabilities of non-commercial State agencies and local authorities.

General government balance (GGB) is the standard European measure of the fiscal balance, which is used to monitor compliance with the Stability and Growth Pact. It is defined in the EU regulation governing reporting of deficit and debt levels for the Excessive Deficit Procedure as net lending / net borrowing adjusted for the impact on debt interest of transactions in interest rate swaps.

Note that, as only those inflows and outflows which affect financial net worth count as revenue and expenditure in this calculation, the EDP net lending / net borrowing is also equivalent to the change in the financial net worth of General Government due to transactions in financial assets and liabilities.

Net receipts from EU (2.2 and 2.3)

Net national receipts from the EU are calculated by subtracting an individual member state's total revenue from the EU from its total contribution.

Own resources provide the EU's main revenue. There are three kinds of own resources:

- **own resource from value added tax (VAT)**

  A standard percentage is levied on the harmonised VAT base of each EU country. The VAT resource accounts for around €14 billion. The VAT base to be taxed is capped at 50% of GNI for each country. This rule is intended to prevent less prosperous countries having to pay a disproportionate amount (in such countries consumption – and so VAT – tend to account for a higher percentage of national income).

- **own resource based on gross national income (GNI)**

  A standard percentage is levied on the GNI of each EU country. It is used to balance revenue and expenditure, i.e. to fund the part of the budget not covered by other sources of income. Although designed simply as a balancing system, this has become the largest source of revenue **–** €92.7 billion in 2010.

- **other revenues**

  The budget also has other sources of revenue, e.g.: taxes on EU staff salaries, contributions from non-EU countries to certain programmes and fines on companies for breaching competition laws, etc.

General government tax revenue and Exchequer tax revenue (2.4 and 2.5)

Exchequer taxes account for the majority of the revenue in the Exchequer balance, which is the traditional domestic budgetary aggregate which measures the central government's net surplus borrowing position.

General government refers to all arms of government, and, in Ireland's case includes central government, local authorities, the HSE, VECs, non-commercial semi-state bodies, the social insurance fund, and the national pension reserve fund.

Income tax distribution (2.6)

The data presented is from 2002 only, as prior to that year the tax year was April to April, and therefore, previous years are not directly comparable.

A married couple where both members have elected or have been deemed to have elected for joint assessment is counted as one tax unit and the incomes of both members are aggregated in the statistics. For this reason, the text accompanying Table 2.6 refers to 'cases' rather than persons.

General government expenditure on pay and social welfare (2.7)

Most public sector workers benefit from unfunded pension schemes. In line with international accounting conventions, the wages of these workers are increased by an estimate of the amount that the employer would have to contribute if these pensions were actually being funded. This is calculated as the actuarial value of the pension entitlements accrued by employees in respect of their year's work less any pension contributions actually paid by these employees.

A large public sector in Ireland is relatively recent and the value of pension contributions thus calculated exceeds the value of pensions actually paid, by the Government, to retired employees. To balance the accounts, this excess is routed back to Government and treated as pension contributions paid by employees towards their future pension entitlements.

Gross domestic expenditure on R&D (2.9)

Research and experimental development (R&D) comprises creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society and the use of this stock of knowledge to devise new applications.

Gross domestic expenditure on R&D is composed of: Business enterprise expenditure in R&D; Higher Education expenditure in R&D; Government expenditure in R&D; and Private Non-profit expenditure in R&D. Investment in research and development made outside of Ireland by foreign companies with subsidiaries based in Ireland is not included in the figures for Ireland.

Gross fixed capital formation by sector (2.10)

Fixed assets are produced tangible or intangible assets that are used in the production process for more than one year. **Gross fixed capital formation** consists of producers' acquisitions less disposals of fixed assets.

Households and NPISH consist of persons in their capacity as holders of financial assets or as borrowers. The business assets and liabilities of unincorporated self-employed persons are also mainly reflected in this sector. Large autonomous unincorporated enterprises (quasi-corporations) are in principle included in the non-financial corporations sector.

Non-Profit Institutions Serving Households (NPISH) consist of non-profit institutions such as charities and non-commercial agencies not owned by the government, such as some schools and hospitals.

General Government consists of central and local government and the social security fund. Central government includes the National Pension Reserve Fund, and non-commercial agencies owned and funded by government but does not include commercial state-owned companies (which are proper to Non-Financial Corporations or Financial Corporations as appropriate).

Financial Corporations are corporate bodies producing financial services on a commercial basis. As with Non-Financial Corporations they can take various legal forms, with a range of ownership arrangements.

Non-Financial Corporations are corporate bodies producing goods and non-financial services on a commercial basis. They include public limited companies, private companies and other corporate forms of business, whether owned by residents (including the government) or non-residents or both. In particular, therefore, Irish subsidiaries of foreign companies and the Irish branches of foreign companies operating in Ireland on a branch basis are included; while the foreign subsidiaries of Irish companies and the foreign branches of Irish companies operating abroad are excluded (they form part of the rest of the world sector).

Harmonised index of consumer prices (2.11)

Harmonised indices of consumer prices (HICPs) give comparable measures of inflation for the countries and country groups where they are produced. They are economic indicators that measure the change over time of the prices of consumer goods and services acquired by households. In other words they are a set of consumer price indices (CPIs) calculated according to a harmonised approach and a single set of definitions. In particular, HICPs provide the official measure of consumer price inflation in the euro area for the purposes of monetary policy and the assessment of inflation convergence as required under the Maastricht criteria.

House completions and residential property price index (2.12 and 2.13)

The **House completions** data series is based on the number of new dwellings, including apartments, connected by ESB Networks to the electricity supply. These represent the number of homes completed and available and do not reflect any work-in progress. ESB Networks have indicated that there was a higher backlog in work-in-progress in 2005 than usual (estimated as being in the region of 5,200 units). This backlog was cleared through the connection of an additional 2,000 houses in Quarter 1 2006 and 3,000 houses in Quarter 2 2006.

The **Residential Property Price Index** (RPPI) is designed to measure the change in the average level of prices paid for residential properties sold in Ireland. The index is mix-adjusted to allow for the fact that different types of property are sold in different periods. The RPPI is compiled using data on mortgage drawdowns provided on a monthly basis by 8 of the main Mortgage Lending Institutions under Section 13 of the Housing Act (2002). This data provides details on the characteristics of properties bought (such as building type and size) as well as the price paid. It is transactions based; meaning that prices are recorded only where a sale occurs. Not all residential property transactions are funded by a mortgage (i.e. they are cash based) and these transactions are excluded from the scope of the index.

Domain 3 – Social

Employment rate (3.1)

The employment rate is calculated by dividing the number of employed persons in the 20-64 age category, as estimated by the Quarterly National Household Survey, by the total number of persons in that age category, as estimated by Census of Population estimates.

Unemployment rate (3.2)

The unemployment rate is the number of persons unemployed as a percentage of the labour force.

People at risk of poverty (3.5)

Households which are considered to be at risk of poverty have a household income below a given percentage (usually 60%) of the national median income. The rate is calculated by ranking households by income from smallest to largest and the median or middle value is extracted. A household with an income of less than 60% of the median is considered to be at risk of poverty at a 60% level.

Old age dependency ratio (3.6)

The dependency ratio is calculated by dividing the estimated population aged 65 years and over by the estimated population aged 15 to 64. The figures presented are based on projections calculated from the 2006 Census of Population.

The projections are based on one of six scenarios of future fertility and migration rates published by the CSO. The data is based upon the M2F1 scenario, which bases population estimates on moderate migration levels, and a total fertility rate of 1.9.

Details of the various population scenarios projected by the CSO are available at http://www.cso.ie/en/media/csoie/releasespublications/documents/population/2008/poplabfor_2011-2041.pdf

Life expectancy (3.8)

Life expectancy figures are calculated based on a three year period centered on the given year.

Pupil-teacher ratio (3.10)

The Pupil-teacher ratio at primary level is calculated by dividing total enrolment in all National schools as of 30th September in a given year by the number of teaching posts in June of the following year.

The Pupil-Teacher ratio at second level is calculated by dividing total full time enrolment in all second level schools as of 30th September in a given academic year by the number of full time equivalent teachers in the same year.

Second level and third level completion rates (3.12)

A break in continuity has occurred in the Educational Attainment series and, therefore, data from Q2 2009 is not directly comparable with previous quarters. The classification of educational levels has been revised in order to facilitate the linking of education categories to the National Framework of Qualifications (NFQ), while also retaining links with the international education classification, ISCED 97. This affects the classification in a number of ways. One key difference is the distinction between ordinary and honours level degrees.
For information on the framework see: http://www.nfq.ie/nfq/en/

Usual means of travel to school and work (3.13 and 3.14)

The figures presented in these tables include only those for whom there is an answer to the specific question, and therefore, categories “none” or “not stated” are omitted.

Obesity levels (3.15)

This is measured as the percentage of population aged 20 years and over with a body mass index ≥30.00 kg/m^2.

Alcohol consumption (3.16)

The figures for Ireland are measured in terms of pure alcohol consumed, based on sales of beer, cider, wine and spirit as per the Revenue Commissioners statistical report, and therefore do not take into account black market sales or cross border shopping.

The international figures for 2008 have been produced by projecting the 2005 estimates. They measure the recorded amount of alcohol consumed per adult (>15 years of age) over a calendar year in a country, in litres of pure alcohol – the indicator only takes into account consumption from recorded alcohol production, import, export, and sales data, often via taxation.

Tobacco consumption (3.17)

This is defined as the population aged 15 and over who at the time of the survey are smoking any form of tobacco, including cigarettes, cigars, pipes, bidis, etc. and excluding smokeless tobacco. These figures represent age-standardised prevalence rates for smoking tobacco and should only be used to draw comparisons of prevalence between countries, and between men and women within a country. They should not be used to calculate the number of smokers in a country, region or globally.

Domain 4 – Environment

Particulate matter ($PM_{2.5}$) emissions (4.1)

There are many sources of **particulate matter** (dust) including vehicle exhaust emissions, soil and road surfaces, construction works, and industrial emissions. Particulate matter can be formed from reactions between different pollutant gases. Small particles can penetrate the lungs and cause damage. These are known as PM_{10} (diameter less than 10µm) and $PM_{2.5}$ (diameter less than 2.5µm). There are high levels of PM_{10} in many cities and towns. In smokeless fuel zones, levels of particulate matter decreased after the ban on bituminous coal in Dublin in 1990 and extended to other parts of Ireland subsequently.

$PM_{2.5}$ has similar effects on health as PM_{10}. However, $PM_{2.5}$ is a better indicator of anthropogenic (man-made) emissions than PM_{10}. Fine particulate matter $PM_{2.5}$ is responsible for significant negative impacts on human health. Further, there is as yet no identifiable threshold below which $PM_{2.5}$ would not pose a risk.

Emissions of pollutants under National Emissions Ceiling Directive (4.2)

Directive 2001/81/EC of the European Parliament and the Council on National Emission Ceilings for certain pollutants (NEC Directive) sets upper limits for each Member State for the total emissions in 2010 of the four pollutants responsible for acidification, eutrophication and ground-level ozone pollution (sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia), but leaves it largely to the Member States to decide which measures – on top of Community legislation for specific source categories - to take in order to comply. Ireland's limits are as follows:

- Sulphur dioxide (SO_2) 42 kilotonnes
- Nitrogen Oxides (NO_x) 65 kilotonnes
- NMVOCs 55 kilotonnes
- Ammonia (NH_3) 116 kilotonnes

The main source of **sulphur dioxide** in Ireland is burning coal and oil to heat homes and industries and to produce electricity. It is an irritant gas which attacks the throat and lungs. Prolonged exposure can lead to increases in respiratory illnesses like chronic bronchitis. It contributes to the formation of acid rain which damages vegetation and buildings.

Levels have decreased over recent years due to increased use of low-sulphur "smokeless" coal, increased use of natural gas instead of solid fuels and reduced industrial emissions through Integrated Pollution Prevention Control (IPPC) licensing.

Emissions from traffic are the main source of **nitrogen oxides** in Ireland along with electricity generating stations and industry. Nitrogen dioxide can affect the throat and lungs. The main effects are emphysema and cellular damage. It is also aesthetically unpleasant as it has a brown colour and gives rise to a brown haze. Oxides of nitrogen contribute to the formation of acid rain and ozone. Levels in Ireland are moderate but are increasing due to growth in traffic numbers.

Ammonia (NH_3) emissions are associated with acid deposition and the formation of secondary particulate matter. The agriculture sector accounts for virtually all ammonia emissions in Ireland. Grasslands ultimately receive the bulk of the 40 million tonnes of animal manures produced annually in Ireland along with over 300,000 tonnes of nitrogen in fertilisers. A proportion of the nitrogen in these inputs is volatilised into the air as ammonia.

Non-methane volatile organic compounds (NMVOCs) are emitted as gases from the use of a wide array of products including paints, paint strippers, glues, adhesives and cleaning agents. Several constituents of gasoline are important NMVOCs, which are emitted by combustion and evaporation. NMVOCs also arise as a product of incomplete combustion of other fuels, especially solid fuels and as such there are significant emissions from residential fuel combustion. The principal environmental problem associated with NMVOC is their contribution to the formation of ground level ozone. Fugitive emissions are intentional or unintentional releases of gases from anthropogenic activities. Intentional or unintentional release of greenhouse gases may also occur during the extraction, processing and delivery of fossil fuels to the point of final use.

Greenhouse gas emissions (4.3 to 4.5)

Climate change refers to significant change in the measures of climate, such as temperature, rainfall, or wind over a long period of time. Climate change is a natural phenomenon. However, the current phase of climate change is being accelerated by human activities that result in the emission of **greenhouse gases**. Greenhouse gases are those gases which contribute to the greenhouse effect. There are six greenhouse gases:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous Oxide (N_2O)
- Hydrofluorocarbons (HFC)
- Perfluorocarbons (PFC)
- Sulphur Hexafluoride (SF_6)

Each of these gases is controlled by the global environmental agreement known as the Kyoto Protocol. Hydrofluorocarbons (HFC), Perfluorocarbons (PFC) and Sulphur Hexafluoride (SF_6) are collectively known as fluorinated greenhouse gases and are further controlled by specific EU legislation.

Carbon dioxide is the most important of the greenhouse gases as it is currently responsible for just over 60% of the 'enhanced greenhouse effect'.

Further detailed information on air emissions, greenhouse gases, and Ireland's targets under the Kyoto Protocol, is available at http://www.epa.ie/downloads/pubs/air/airemissions

The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialised countries and the European community for reducing greenhouse gas (GHG) emissions. These amount to an average of five per cent against 1990 levels over the five-year period 2008-2012.

The major distinction between the Protocol and the Convention is that while the Convention encouraged industrialised countries to stabilize GHG emissions, the Protocol commits them to do so.

Recognising that developed countries are principally responsible for the current high levels of GHG emissions in the atmosphere as a result of more than 150 years of industrial activity, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities." The Convention divides countries into three main groups according to differing commitments:

Meat supply balance (4.6)

The objective of a supply balance is to reconcile the total supplies of a product with the various uses of the product taking into account changes in stock levels. Supply balance sheets are compiled on the basis of harmonised concepts agreed between the European Union countries.

Methane (CH_4) data includes only cattle in the categories 0-1 year, 1-2 years and greater than 2 years. Dairy cows, suckler cows and bulls are excluded from the measurement to give the best estimation of methane emissions from cattle bred for beef and veal production.

Forest cover (4.7)

This is defined as land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.

1. Forest is determined both by the presence of trees and the absence of other predominant land uses. The trees should be able to reach a minimum height of 5 metres in situ.
2. Includes areas with young trees that have not yet reached but which are expected to reach a canopy cover of 10 percent and tree height of 5 metres. It also includes areas that are temporarily unstocked due to clear-cutting as part of a forest management practice or natural disasters and which are expected to be regenerated within 5 years. Local conditions may, in exceptional cases, justify that a longer time frame is used.
3. Includes forest roads, firebreaks and other small open areas; forest in national parks, nature reserves and other protected areas such as those of specific environmental, scientific, historical, cultural or spiritual interest.
4. Includes windbreaks, shelterbelts and corridors of trees with an area of more than 0.5 hectares and width of more than 20 metres.
5. Includes abandoned shifting cultivation land with a regeneration of trees that have, or are expected to reach, a canopy cover of 10 percent and tree height of 5 metres.
6. Includes areas with mangroves in tidal zones, regardless of whether this area is classified as land area or not.
7. Includes rubber-wood, cork oak, energy wood and Christmas tree plantations.
8. Includes areas with bamboo and palms provided that land use, height and canopy cover criteria are met.
9. Excludes tree stands in agricultural production systems, such as fruit tree plantations (incl. olive orchards) and agro-forestry systems when crops are grown under tree cover.

River water quality (4.8)

River water is the principal source of drinking water in Ireland. The Environmental Protection Agency (EPA) conducts an assessment of river water quality every three years on behalf of Local Authorities. Samples are taken from over 3,000 locations around Ireland. These biological surveys began in 1971. River water quality is classified into four quality classes based on a scheme of biotic indices, which codify the characteristic changes induced in flora and fauna of rivers and streams in the presence of pollution. Unpolluted waters include pristine waters and also waters of a less high but acceptable standard. Slightly polluted and moderately polluted waters are mainly characterised by eutrophication and may not be able to support fish survival. Seriously polluted waters are characterised by the presence of high concentrations of biodegradable organic waste. These waters are of very little beneficial use.

Nitrates in groundwater (4.9)

Nitrates can cause serious problems when they end up in groundwater or surface water by causing increased growth of algae and eutrophication of water systems. The drop in oxygen that comes with the presence of nitrates can lead to fish kills. The problem stems from the practice of spreading animal wastes – which contain nitrates in high concentrations – on land to improve crops and pastures.

These pollutants can also affect humans. For example, when nitrates in drinking water are metabolised in the stomach this can lead to the formation of nitrous amines, which are thought to be carcinogenic.

Total primary energy requirement (4.10)

Total Primary Energy Requirement (TPER) is a measure of all energy consumed, including that consumed and/or lost in transformation and transmission/distribution processes (e.g. electricity generation transmission and distribution; oil refining). TPER = Indigenous Production + Imports - Exports - Marine Bunkers - Stock Change.

Imported energy dependency (4.12)

Energy dependency shows the extent to which an economy relies upon imports in order to meet its energy needs. The indicator is calculated as net imports divided by the sum of gross inland energy consumption plus bunkers.

New private vehicles licensed by emission class (4.14)

New vehicles registered after 1st July 2008 are subject to motor vehicle duty based on CO_2 emissions rather than on engine size, as was previously the case. The table below sets out the seven separate band classes.

Band	CO_2 emissions – grams per km
A	O – 120 g
B	More than 120 g/km up to and including 140 g/km
C	More than 140 g/km up to and including 155 g/km
D	More than 155 g/km up to and including 170 g/km
E	More than 170 g/km up to and including 190 g/km
F	More than 190 g/km up to and including 225 g/km
G	More than 225 g/km

Municipal waste sent to landfill (4.15)

Municipal waste means household waste as well as commercial and other waste that, because of its nature or composition, is similar to household waste. It excludes municipal sludge and effluents. Municipal waste consists of three main elements - household, commercial (including non-process industrial waste) and street cleansing waste (street sweepings, street bins, municipal parks and cemeteries maintenance, waste, litter campaign material).

Recovery of packaging waste (4.16)

Packaging is used to contain, protect and present goods. Packaging is made from such materials as cardboard, paper, glass, plastic, steel, aluminium, wood and composite materials such as those used in milk and juice cartons.

Recovery means any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.

Protected areas under EU Habitats directive (4.17)

The **Habitats Directive** 92/43/EEC was adopted in 1992. The main aim of this Directive is to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements. While the Directive makes a contribution to the general objective of sustainable development; it ensures the conservation of a wide range of rare, threatened or endemic species, including around 450 animals and 500 plants. Some 200 rare and characteristic habitat types are also targeted for conservation in their own right.

Progress has been made in the designation of **Special Areas of Conservation** and of **Special Protection Areas** under the EU Birds Directive in Ireland but the EU Commission views Ireland's list as incomplete.

Countryside birds (4.18)

The countryside bird survey is based on a random approach stratified by region and the survey design and field methodology closely follows that of the UK Breeding Bird Survey (BBS) which is undertaken in Britain and Northern Ireland. The Republic of Ireland was divided into eight regions,

based on the administrative divisions of the National Parks and Wildlife Service at that time. These regions varied in size and each contained between three and four counties.

Bird counts were undertaken during two visits. The first was in the early part of the breeding season (April to mid-May) and the second at least four weeks later (from mid-May to the end of June). This reflects the abundance of residents and early migrants which tend to be more easily detected during the first visit and later migrants which are more abundant during the second visit.

A total of 144 species were recorded in the period 1998 to 2008; 71 species were recorded in the south region and 91 in the west region. A total of 53 species were sufficiently widely distributed for trend analyses at national level. This group included 12 species which are of conservation concern in Ireland, including 1 red-listed species, Yellowhammer and a further 11 which were amber-listed.

Of the 53 species, 41 are shown in Graph 4.18 for presentation purposes. The twelve species not shown, along with their respective rates of change between 1998 and 2010 are:

Species	2010/1998
Hooded Crow	0.8%
Blackbird	0.7%
Dunnock	0.6%
Chaffinch	0.6%
Wren	0.4%
Swallow	0.4%
Sand Martin	0.4%
Song Thrush	0.1%
Cuckoo	-0.1%
Wheatear	-0.2%
Mallard	-0.4%
Yellowhammer	-0.7%

Red and Amber lists have been created using seven quantitative criteria in an attempt to identify conservation priorities on the island. Species that are Red-listed are globally threatened, are declining rapidly in number or range, or have declined historically and not shown recent recovery. Amber-listed species have an unfavourable status in Europe, a very small population size, a population which has declined moderately in recent years, has a localized distribution, or occurs in internationally important numbers.

Appendix 2 Data sources

Domain	Indicator		Data source
1. Global indicators			
	1.1	World population 2012 and 2025	United Nations, Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision; CSO
	1.2	Infant mortality and life expectancy 2010	United Nations, Department of Economic and Social Affairs, Population Division (2011). World Population Prospects: The 2010 Revision; CSO
	1.3	Population in developing regions living below $1 per day 1990-2008	United Nations Millennium Development Goals Report 2012
	1.4	Employment rate 2011	United Nations Millennium Development Goals Report 2012; CSO Quarterly National Household Survey
	1.5	Official Development Assistance 2011	Irish Aid annual report 2011
	1.6	Net enrolment ratio in primary education 1991-2010	United Nations Millennium Development Goals Report 2012; Department of Education and Skills
	1.7	Greenhouse gas emissions under Kyoto Protocol 1995-2010	United Nation Framework Convention on Climate Change
2. Economy			
	2.1	Ireland: General government debt and balance 1995-2011	CSO National Accounts
	2.2	EU: Net receipts from EU 2000-2011	European Commission
	2.3	EU: Per capita net receipts from EU 2000-2011	European Commission
	2.4	EU: General government tax revenue 2011	Eurostat
	2.5	Ireland: Exchequer tax revenue 1995-2011	Department of Finance
	2.6	Ireland: Income tax distribution 2002-2010	Revenue Commissioners Statistical Reports 2002-2010
	2.7	Ireland: General government expenditure on pay and social welfare 1995-2011	CSO National Accounts and Department of Social Protection
	2.8	Euro exchange rates 2001-2012	Eurostat
	2.9	Ireland: Gross domestic expenditure on R&D 1995-2010	Eurostat and CSO

Domain	Indicator		Data source
	2.10	Ireland: Gross fixed capital formation by sector 2002-2011	CSO Institutional Sector Accounts
	2.11	EU: Harmonised index of consumer prices for energy products 2011	Eurostat
	2.12	Ireland: House completions 1970-2011 and residential property price index 2005-2012	Department of the Environment, Community and Local Government and CSO
	2.13	EU: House completions 2007-2011	DKM, Euroconstruct, Eurostat, CSO, Department of the Environment, Community and Local Government
3. Social			
	3.1	Ireland: Employment rate by age class 2000-2012	CSO Quarterly National Household Survey
	3.2	Ireland: Unemployment rate 1985-2012	CSO Live register
	3.3	Ireland: Emigration 1987-2012	CSO Census of Population
	3.4	Ireland: Immigration 1987-2012	CSO Census of Population
	3.5	EU: People at risk of poverty 2007-2011	CSO Survey of income and Living Conditions; Eurostat
	3.6	Ireland: Old age dependency ratio 1996-2041	CSO Census of Population
	3.7	Ireland: Persons aged 80 and over 1926-2011	CSO Census of Population
	3.8	Ireland: Life expectancy 1901-2006	CSO Census of Population
	3.9	Ireland: Recorded criminal offences 2004-2011	CSO Crime statistics
	3.10	Ireland: Pupil-teacher ratio 1995-2012	Department of Education and Skills
	3.11	EU: Average class sizes 2010	Eurostat
	3.12	Ireland: Second level and third level completion rates 1995-2012	CSO Quarterly National Household Survey
	3.13	Ireland: Usual means of travel to school 1986-2011	CSO Census of Population
	3.14	Ireland: Usual means of travel to work 1981-2011	CSO Census of Population
	3.15	EU: Obesity levels 2008	United Nations: World Health Statistics 2012
	3.16	EU: Alcohol consumption 2008	Department of Health; United Nations: World Health Statistics 2012
	3.17	EU: Tobacco consumption 2009	United Nations: World Health Statistics 2012

Domain	Indicator		Data source
4. Environment			
	4.1	Ireland: Particulate matter ($PM_{2.5}$) emissions 1990 -2011	Environmental Protection Agency
	4.2	Ireland: Emissions of pollutants under NEC Directive 2011	Environmental Protection Agency
	4.3	EU: Greenhouse gas emissions 2010	Eurostat
	4.4	Ireland and EU: Greenhouse gas emissions per capita 1990-2011	Environmental Protection Agency; CSO: Census of Population; European Environment Agency
	4.5	Ireland: Greenhouse gas emissions by sector 1990-2011	Environmental Protection Agency
	4.6	Ireland: Meat supply balance 2000-2011	CSO Agriculture Statistics and Environmental Protection Agency
	4.7	EU: Forest cover 2010	Forest Europe
	4.8	Ireland: River water quality 1987-2009	Environmental Protection Agency
	4.9	Ireland: Nitrates in groundwater 1995-2009	Environmental Protection Agency
	4.10	Ireland: Total primary energy requirement 1990-2011	Sustainable Energy Authority of Ireland: Energy Balance Statistics
	4.11	Ireland: Progress towards renewable targets 1990-2011	Sustainable Energy Authority of Ireland
	4.12	Ireland: Imported energy dependency 1990-2011	Sustainable Energy Authority of Ireland
	4.13	Ireland: Private cars per 1,000 population 1985-2011	Department of Transport, Tourism and Sport and CSO
	4.14	Ireland: New private cars licensed by emission class 2005-2012	CSO Transport Statistics
	4.15	Ireland: Municipal waste sent to landfill 2001-2010	Environmental Protection Agency
	4.16	Ireland: Recovery of packaging waste 2001-2010	Environmental Protection Agency
	4.17	EU: Protected areas under EU Habitats Directive 2010	European Commission
	4.18	Ireland: Countryside birds 1998-2010	Birdwatch Ireland