

Review of the Construction Industry 2005 and Outlook 2006 to 2008

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Key statistics for the construction industry

	2002	2003	2004	2005	2006E
GNP (constant 2004 prices, €m.)	113,466	119,699	124,354	131,071	138,935
% volume change in GNP	+2.8	+5.5	+3.9	+5.4	+6.0
Gross domestic fixed capital formation (Constant 2004 prices, €m.)	31,925	33,747	36,243	40,869	44,139
Volume Change in GDFCF (%)	+3.5	+5.7	+7.4	+12.8	+8.0
Total construction output					
Value output (current prices €m.)	21,293	23,811	27,465	31,480	35,895
Change in value of construction output (%)	+7	+12	+15	+15	+14
Value output (constant 2004 prices €m.)	24,371	25,751	27,465	29,771	32,130
Change in volume of construction output (%)	+2	+6	+7	+8	+8
Construction output as % of GNP *	20.0	20.3	22.1	23.1	23.9
New construction output **					
Public sector new construction output ***					
- Value of output (constant 2004 prices, €m.)	6,730	6,554	6,311	6,210	6,883
- Change in volume of construction output (%)	+20	-3	-4	-2	+11
- As % of total construction output *	30	26	23	21	21
Private sector new construction output					
- Value of output (constant 2004 prices, €m.)	12,599	14,257	15,791	17,946	19,075
- Change in volume of construction output (%)	0	+13	+11	+14	+6
- As % of total construction output *	48	54	57	61	60
	2002	2003	2004	2005	2006E
Direct employment in construction (Q4)	191	201	227	253	270
Change in capital goods price index for building and construction (materials and wages)	+7	+2.5	+7	+5	+5.5
Change in building and construction price index for all materials (%)	+3	+1	+9	+5	+7.5
Change in tender prices (est) (%)					
- New housing	+10	+14	+12	+7	+7
- New general contracting	-1	-2	+4	+4	+4
- New civil engineering	+6	+3	+4	+4	+4
Change in total construction price inflation	+5	+6	+8	+6	+6

Notes:

* Percentages derived using output measured in current prices.

** The balance, not shown, in the table, is repair and maintenance output, which is estimated to account for 19% of total output in 2005.

*** The estimate for new public sector construction includes small amounts of private sector investment under education, energy and telecommunications.

Summary

The exceptional performance of the construction sector over the past decade has resulted in construction now accounting for a sizeable proportion of economic activity. The direct contribution of the construction sector to the Irish economy, using the gross estimates presented in the *Review and Outlook*, is almost €32bn or 23% of GNP. Over one half (56%) of the sector's output, almost €18bn, is directly the result of new housing construction. The balance, some €14bn, is generated by construction projects in the private and public non-residential sectors as well as from repair, maintenance and improvement projects associated with the existing stock of buildings and infrastructure.

Whatever measure is used, the economy has become very reliant on construction. Using the value-added concept of output (outputs less inputs) the construction sector accounts for 10.5% of GNP compared with agriculture, for example, which accounted for 3% of GNP in 2005. The value added by the building and construction sector represented 27% of the total value added by all industry (including construction) in 2005 compared with 18% in 2000. If the full range of economic impacts generated by new housing construction alone are included - not just the direct impacts in terms of output and employment, but the incremental indirect and induced impacts, in terms of the additional economic activity that results from related businesses and services - the construction sector would be responsible for a much higher proportion of economic activity.

2005 Review

The value of output in the construction industry in 2005 is estimated at €31.5bn compared with €27.5bn in 2004. This represents an increase of 14.6% in the value of output in 2005 or 8.4% in volume terms, after allowing for construction inflation. The higher than forecast outturn compared with the estimate in last year's *Review and Outlook* is due to two factors: a significantly better than expected performance from the new residential and private non-residential construction sectors. Public sector construction, however, declined for the third year in a row, in volume terms.

Construction employment has grown due to the exceptional growth in new housebuilding activity, while the recovery in private non-residential construction and the ever increasing public capital programme have also fuelled employment growth. Over the most recent year to the March-May quarter of 2006, construction employment increased by over 8% to 264,300 (sa) and accounted for 23% of the total jobs growth in the economy over the previous twelve months. Over 12% of persons employed in the sector are non-nationals.

Employment in the sector has been growing at a stronger pace than output volumes, however, leading to concerns that productivity in the sector is falling. Two possible drivers of this trend are the increasing relative importance of house-building - a labour-intensive activity - and the growing complexity of construction activity, which widens the demand for various skills in the sector.

The overall volume growth in output was 8.4% in 2005 comprising a 9.3% increase in the volume of new construction output (81% of output) and a 4.7% increase in the volume of construction output associated with repair, maintenance and improvement (19% of output) projects. The split between new and RM&I work is very much an estimate and we urge caution in relying on the breakdown.

The key sectors driving growth in construction output last year were the housebuilding and private non-residential sectors, while public sector non-residential construction did not perform as well as expected. The figures suggest that the total volume of publicly funded investment in 2005 in building and construction, including civil engineering projects, was down a little over 1%, following equally modest volume declines in the previous two years.

- The total number of dwellings built reached 86,000 last year, up 12% on the corresponding level in 2004 and the third year in a row in which the growth in housing supply (completed units) was 12% or higher.
- In money terms, the total volume of residential construction - both new and repair, maintenance and improvement (RM&I) - was up 11.4%, after allowing for inflation.
- The private non-residential construction sector (new and RM&I) performed strongly with overall output in the sector up by 15% in 2005. The volume of commercial (offices and retail) building activity (new and RM&I) expanded at a rapid pace (+24%).
- The overall construction spend on productive infrastructure (new and RM&I) was just over 4% lower in 2005 compared with 2004. The lower spend overall is partly due to a decline in public transport and energy investment.
- The volume of construction output associated with social infrastructure projects was up almost 1% on the corresponding level in 2004. Investment in public buildings fell by 6% in the year while investment in education was up by 6%.

Outlook 2006

The value of output in the construction industry is forecast to increase to 35.9bn in 2006. This represents an increase in value terms of 14%, or an increase in the volume of construction output of close to 8%, after allowance is made for construction inflation. The forecast is dependent on all sub-sectors making a contribution to growth this year, led by private and public non-residential construction.

The estimate for construction output this year represents 24% of GNP and 20% of GDP, leaving the construction sector accounting for almost one-quarter of overall economic activity, when measured in gross output terms.

The immediate prospects for housebuilding, based on current indicators available (e.g. registrations and planning permissions), suggest that the number of dwelling units built this year could be higher than in 2005. With some boost likely towards the year-end from the transitional arrangements for certain property tax relief schemes, our assessment is that the total number of dwellings built will be of the order of 90,000 this year. If the estimate for 2006 proves correct, the total number of units built over the period 1995-2006 will be 674,000 or 40% of the estimated housing stock level at the end of 2006. However, we continue to subscribe to the view that this rate of housebuilding is not sustainable over the medium-term.

The prospects for private non-residential construction are more positive than they have been since the late 1990s. Economic conditions are boosting employment growth and thus the demand for office and industrial space from existing businesses and the services sector in particular. Strong consumer expenditure growth and growth in real incomes continue to boost the demand for retail space, with significant amounts of development under construction or planned over the next twelve months. Overall the volume of private non-residential construction output from new build projects is expected to rise by almost 19% this year, building on the equally healthy outturn for volumes in 2005 (+19%).

The volume of construction related investment associated with new social infrastructure projects is expected to rise strongly (+9%) this year. There is a substantial increase in the level of investment in new works, alterations and additions under the public building programme while investment in local authority services is boosted by spending under the Waste Infrastructure Capital Grants Scheme.

Public sector construction is expected to perform well with investment in new and major civil engineering projects forecast to rise by under 10%. The 2006 figures include the first public transport projects under the Government's ten-year transport investment programme, Transport 21, published in November 2005. The overall performance is led by airports, where the volume of construction related investment is up by over one-half (+54%), ports and harbours (+18%), public transport (14%) and energy (12%). The continuing commitment to upgrading the road network is evident from the further growth in the volume of construction related road investment (+9%). Investment in road and energy projects account for almost three-quarters of the total value of construction investment in this civil engineering sector.

Based on the higher rates of employment growth reported by the QNHS as compared with the monthly construction employment index, it appears that the industry is becoming more fragmented over time, with a greater number of smaller firms and sole traders. Surveys on the construction sector suggest that a small number of large construction firms account for a significant proportion of total output. Based on an analysis of employment status in the QNHS, there are just over 60,000 separate construction enterprises in Ireland of which approximately 32,000 are sole traders. The combined turnover of the top 150 firms represented 29% of total construction output in 2005.

The construction labour force in Q2, 2006 is estimated at 387,000 persons, including an estimate for indirect employment and assuming an unemployment rate in line with the national average. This estimate corresponds to over 18% of the national labour force of 2.12 million.

A worrying trend has to be the reacceleration in building and construction materials prices inflation in 2006, after a slowdown during 2005. Average inflation in building and construction materials was running at 7.2% in the first seven months of 2006. The corresponding capital goods price index, including materials and labour, was up by 5.5% over the same period. However, overall construction cost inflation, according to the Society of Chartered Surveyors (SCS) Construction Cost index, moderated to an annual rate of 2.5% in July this year. Further increases in labour costs due under the national pay agreement, Towards 2016, backdated to April this year, could reverse this moderating trend.

Notwithstanding the SCS trends, there is the risk that the upward trend in construction costs, in respect of materials and labour, eventually passes through into construction tender prices. However there is no evidence to suggest that this is happening yet, with construction tender prices generally forecast at around 3% to 4% for this year. The composite average tender price inflation rate for the industry, calculated in the *Review and Outlook*, was 5.7% in 2005 and is forecast to remain at that level in 2006. The average rate falls to 4% per annum in 2005 and 2006 when residential construction is excluded.

Medium-term prospects 2006-2008

Irish economic prospects are good, with growth in 2006 and 2007 expected to match or exceed 2005. Consumption and investment, including construction, remain the drivers of growth. The SSIA money and the election in 2007 will tend to underpin activity in the short run, while strong growth in employment and consumption will boost the demand for non-residential buildings. However, the same risks that apply to the global economy also apply in Ireland: rising interest rates and energy prices, the risk of a correction in house prices and of an appreciation of the Euro versus the US dollar. There is also the risk of a further loss of competitiveness if the upward trend in consumer price inflation during 2006 to date is not reversed in the short run. A number of commentators have indicated that they see a significant possibility of an economic slowdown in 2008.

Once again the medium-term prospects for the sector will be strongly influenced by the prospects for residential construction. Our overall assessment continues to reflect our view that the current rate of housebuilding is unsustainable over the medium term and that Ireland will eventually build fewer houses than it currently does. While our base case comes down in favour of a soft landing, as higher mortgage rates dampen residential transactions, the slowdown does not materialise until 2008.

Housing supply is forecast to remain at a high level in 2007 (90,000 completed units), reflecting the favourable macroeconomic environment. Thereafter housing supply is projected to decline to 75,000 units in 2008, as economic growth slows, the SSIA impact dissipates and the transitional arrangements for tax reliefs are phased out by July 2008.

However, in an alternative higher growth scenario where the build up of pressures in the economy due, for example, to higher mortgage rates than in the base case, other cost pressures across the economy or some adverse economic shock, all of which would knock confidence amongst housebuyers and cause purchases to be postponed, the probability of a major price correction would increase over the medium-term, with serious ramifications for the wider macroeconomy. The result would be a lower level of new housing supply, as the housebuilding industry responds to the lower demand, which would imply less purchases of direct supplies by the building industry, less home related purchases by consumers, leading to lower consumer expenditure, less employment in housebuilding and in property related businesses and financial services as well as lower tax revenues. The overall implications would be a level of GNP growth below what it would otherwise be, unless other sectors make up the difference.

The base case projection for construction output is for a volume increase of 3.8% in 2007 followed by a volume decline of 5.2% in 2008, due to the contraction in residential construction.

Two alternative scenarios to illustrate the impact of a less positive (Scenario 2) and a more positive (Scenario 3) outlook for residential construction are presented in the Review and Outlook. A lower level of housebuilding in 2007 (85,000) and 2008 (70,000) under Scenario 2, generates a weaker construction outlook compared with the base case scenario. The industry is forecast to increase modestly in 2007 (+1.4%), but the volume of output in 2008 is forecast to decline (-5.4%). In Scenario 3, which corresponds to a higher economic growth scenario, house completions remain at around 90,000 per annum over the period to 2008. The impact of the latter would be to generate much stronger growth in construction output compared with the base case, equivalent to 16% over the three years to 2008 or 5% on average per annum. All three scenarios assume an unchanged outlook for non-residential construction.

The prospects for non-residential construction are bright as public sector construction benefits from the infrastructure commitments expected in the next National Development Plan 2007-2013 and the transport investment priorities set out in Transport 21. It will be important to ensure that the building sector does not become capacity constrained or that inflationary pressures are not exacerbated in a race to fill the infrastructure gap. To avoid such a scenario, all major projects should be selected based on sound economic analysis and evaluation in order to ensure that those with the highest economic and social return are provided up front. There is scope to reduce the impact of any contraction in residential construction over the medium-term on the construction sector provided the government's commitments to the delivery of essential infrastructure are honoured in a timely and cost-effective manner.

Section 1: Review of 2005 and outlook for 2006¹

Ireland's recent economic performance continues to be impressive, with real GNP up by 5.5% in 2005, keeping Ireland firmly at the top of the original EU 15 growth league. The domestic economy expanded at a very rapid pace in 2005, with an acceleration in the growth rates of both government and personal consumer expenditures compared with 2004. Fixed investment recorded exceptional growth, led for the third year in a row by double-digit growth in the volume of residential investment. Although the volume of export growth slowed, overall GNP growth was back on track with its 2003 performance, following a modest deceleration in 2004.

The performance in Q1 (real GNP up 7% year-on-year) suggests that the economy is on track to perform strongly in the short term with real GNP growth forecast to be in the region of 5.5% to 6% this year. While all the components of the domestic economy performed strongly in 2005, economic activity continues to depend a lot on building and construction. In terms of the National Accounts, the sector's share of GNP has risen from an average of 18% in 2000 to 24% in 2005. The provisional figures for Q1 2006 indicate that the building and construction share declined to 23% of GNP from 26% in Q4 2005 (not seasonally adjusted).

The value of output in the construction industry expanded by 8.4% in volume terms, based on estimates in this Review and Outlook, after allowance is made for construction price inflation. The 2005 outturn is well ahead of the forecast for 2005 last year due to a significantly better than expected performance from both new residential construction and private non-residential construction, while public sector non-residential construction activity declined for the third year in a row.

Output in the building and construction sector is forecast to expand strongly again this year (+8%), with the first signs emerging of a strong recovery in the volume of publicly funded construction investment.

Despite signs of a pick-up in the price of building materials, particularly in oil-based products, there is no evidence yet that this inflation is passing through to construction cost inflation. The average rate of building and construction tender price inflation is estimated at 5.7% in 2005 and 2006 or around 4% in both years if residential construction is excluded.

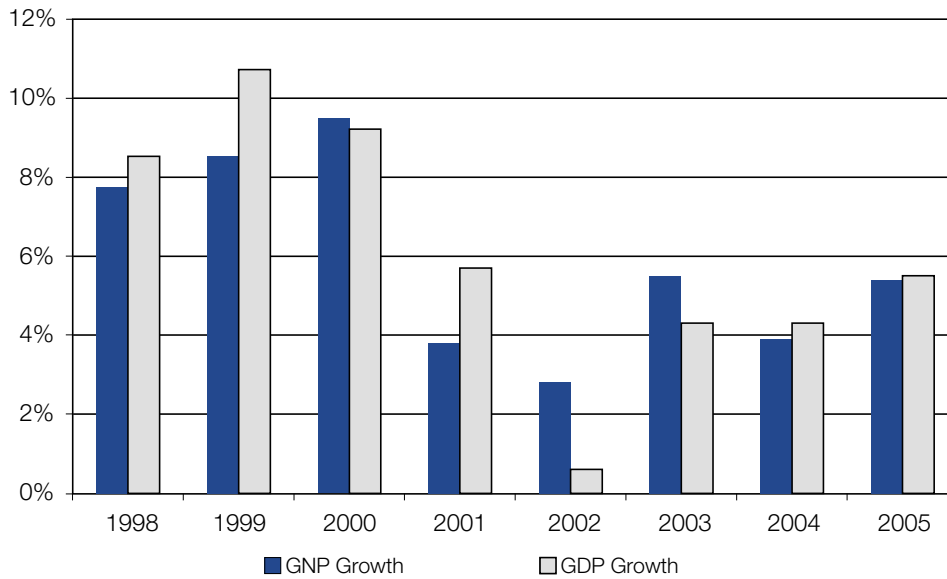
1.1: Economic review

According to the latest set of National Accounts, the Irish economy expanded by 5.4% in 2005 in real GNP terms and by 5.5% in real GDP terms. Ireland's recent economic performance continues to be impressive, and ensured that it retained its position firmly at the top of the EU growth league, at least in the context of the original EU 15 Member States.

According to the estimates for GNP the domestic economy expanded at a very rapid pace in 2005. All of the domestic expenditure components recorded higher growth rates compared with 2004 - consumer demand growth accelerated to 6.6% (3.8% in 2004); government expenditure was up by 4.6% (1.8%); while the volume of fixed investment recorded double digit growth of 12.8% (7.4%), led by residential investment. However, the volume of export growth slowed to 3.9% (7.3% in 2004) but was somewhat offset by a moderation in the growth in imports to 6.5% (8.6% in 2004). Thus overall GNP growth was back on track with its 2003 performance, following a modest deceleration in 2004.

¹ The estimates for construction output prepared in this report are based on the best and most up-to-date information available. However, there are substantial data gaps for measuring output in the construction sector and estimates have had to be made in these cases. The CSO is working to improve the accuracy of these estimates, which will help to establish a firmer basis for measuring output in the sector in the future.

Figure 1.1: GDP and GNP real growth 1998-2005 (%)

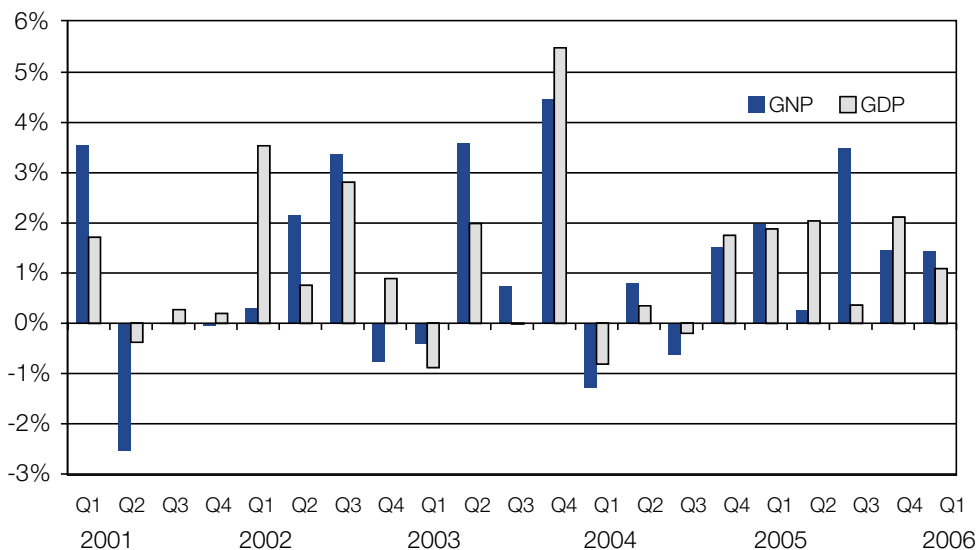


Source: CSO

Provisional figures for Q1, 2006 suggest that real GNP grew by 7% in Q1, 2006 compared with Q1, 2005, the third quarter in a row recording a year-on-year growth rate of at least 7%. Real GDP growth was lower over the same period (5.8%). Looking at the quarterly movements, real GNP expanded by 1.4% in Q1, 2006 compared with Q4, 2005 (sa). This is equivalent to an annualised rate of 5.6%. The quarterly rate of growth in real GDP was lower at 1.1% in Q1, 2006, equivalent to an annualised GDP growth rate of 4.4%. The performance in Q1 suggests that the economy is on track to perform strongly in the short term with real GNP growth forecast to be in the region of 5.5% to 6% this year.

While all the components of the domestic economy performed strongly in 2005, economic activity continues to depend a lot on building and construction. In terms of the National Accounts, the sector's share of GNP has risen from an average of 18% in 2000 to 24% in 2005. The provisional figures for Q1 2006 indicate that the building and construction share declined to 23% of GNP from 26% in Q4 2005 (not seasonally adjusted).

Figure 1.2: Quarterly change in real GNP and GDP (s/a), 2001-2006 Q1 (%)



Source: CSO

1.2: Construction review

The construction sector continues to be a significant sector in the context of overall economic activity. Measured in terms of expenditure, construction accounted for 23% of GNP in 2005 compared with 20% in 2000. In GDP terms, construction expenditure represented 19.5% of GDP in 2005 compared with an average of almost 12% of GDP for construction across Western Europe.

1.2.1: The measurement of construction output

Last year's *Review and Outlook* provided an explanation of the different approaches to the measurement of construction output². The three different measures presented were as follows:

- The 'expenditure' measure of construction output used for the purposes of the Review and Outlook which measures the value of work put in place from the construction of buildings and structures and from civil engineering projects plus the value of major and minor repair and maintenance expenditure on existing building and structures³. It is predominantly an expenditure based approach.
- The 'investment' measure used by the CSO for the purposes of estimating the fixed investment element of the National Accounts, which measures all new investment in building and construction projects plus investment in *major* repair and maintenance work only.
- The 'income' or value added measure⁴, also derived by the CSO, which amounts to taking the value of outputs less the value of intermediate consumption, and consists of the wages and profits earned by building workers and construction companies. It is more of an accurate measure of the contribution of the construction sector to economic growth.

While the first and second measures are close in definition, showing construction accounting for 23% and 24% of GNP respectively, the third measure is a more accurate measure of the true contribution of the construction sector to the economic activity. Using the 'income' based approach construction represented 10.5% of GNP in 2005. This compares with agriculture, for example, which in terms of value added, accounted for 3% of GNP in 2005. The value added by the building and construction sector represented 27% of the total value added by all industry (including construction) in 2005 compared with 18% in 2000.

According to the investment measure in the 2005 National Accounts, the volume of investment in building and construction was up 10.4% in 2005 compared with the corresponding level in 2004. Within the total, residential performed strongly (+12.6%), the third year in a row to record growth in excess of 12%. Other building and construction investment recorded modest growth (+2%) after two years of decline.

Table 1.1: Different approaches to measuring building and construction output (current prices, € million)

	Review and outlook measure	Share of GNP (%)	Investment measure¹	Share of GNP (%)	Income/ 'value-added' measure	Share of GNP (%)
2000	17,586	20%	15,880	18%	6,987	8%
2001	19,926	20%	18,172	19%	8,153	8%
2002	21,293	20%	20,100	19%	9,199	9%
2003	23,795	20%	23,249	20%	10,451	9%
2004	27,445	22%	27,014	22%	11,659	9%
2005	31,480	23%	32,169	24%	14,241	10.5%

Source: CSO, DKM

(1) This measure includes the costs associated with the transfer of land and buildings (€3.07bn. in 2005) which are normally included in the CSO measure for National Accounts purposes.

² See Section 1.2.1 of the 2005 Annual Construction Review and Outlook.

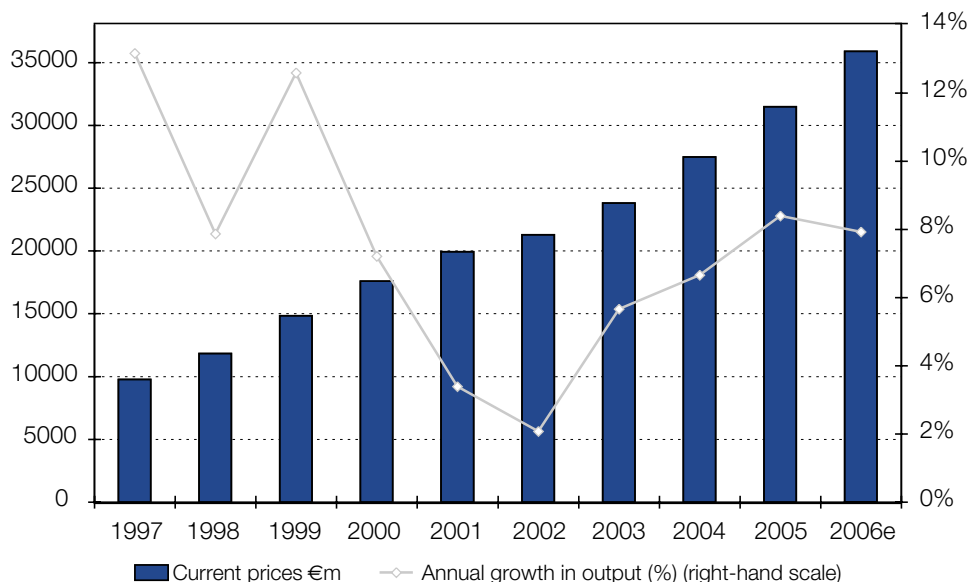
³ For detailed information on the methodology employed to measure construction output see the separate methodology paper 'ROI Methodology' on the DOEHLG website under publications: www.environ.ie.

⁴ This is defined as gross value added at factor cost (Table 3 in the CSO National Accounts) which is an income measure in which the values of the goods and services used as intermediate inputs (intermediate consumption) are eliminated from the value of output. Intermediate consumption is defined as the sum of purchases of materials and fuel, cost of industrial services and cost of non-industrial services less increases in stocks of materials and fuels (CSO Census of Industrial Production 2003).

1.2.2: Output Value

Based on this Review and Outlook, the value of output in the construction industry in 2005 is estimated at €31.5bn compared with €27.5bn in 2004. This represents an increase of 14.6% in the value of output in 2005 or an increase of 8.4% in volume terms, after allowance is made for construction price inflation.

Figure 1.3: Construction output, 1997 - 2006E



The outturn for 2005 compares with a much lower forecast (+3%) for 2005 last year. The much improved performance can be attributed to two factors: a significantly better than expected performance from both new residential construction⁵ and private non-residential construction. Private non-residential building activity recovered strongly in 2005 while the volume of public sector non-residential construction activity declined for the third year in a row.

The performance of the construction sector has been spectacular over the past decade, as Figure 1.3 illustrates. The value of output in the industry has expanded by a factor of 3.2 between 1997 and 2005; compared with a factor of 2.3 for the expansion in the value of GNP over the same period. Over the first half of the decade 2000-2005, output in the industry increased by 29% (average 5.2% per annum) in volume terms compared with 73% over the previous five year period 1995-2000 (average 11.6% per annum).

Table 1.2: Value of construction output - current prices and volume % changes

	2000 current prices €m.	1995-2000 Ave. volume growth (%)	2005 current prices €m.	2000-2005 Ave. volume growth (%)	2006E current prices €m.	Annual volume growth 2006E (%)
Residential	9,496	11.2%	21,367	7.7%	24,099	5.9%
Non-residential	3,820	14.4%	3,464	-4.3%	4,226	17.3%
Productive infrastructure	3,063	12.0%	4,804	4.3%	5,448	8.9%
Social infrastructure	1,207	7.1%	1,844	5.0%	2,122	10.8%
Total output	17,586	11.6%	31,480	5.2%	35,895	7.9%

⁵ The projection for total dwelling completions in 2005 was approximately 76,954 completions last year, an unchanged level from 2004, compared with the outturn of 86,189 completions, which itself was up 12% on 2004.

1.2.3: Composition of output

Looking at the performance of the different sub-sectors in 2005 it is clear that the key drivers of growth were the housebuilding and private non-residential sectors, while public sector non-residential construction did not perform as well as expected. Specifically the figures suggest that the total volume of publicly funded investment in 2005 in building and construction, including civil engineering projects, was down a little over 1% following equally modest volume declines in the previous two years.

- The total volume of residential construction - both new and repair, maintenance and improvement (RM&I) - was up 11.4%, after allowing for inflation. Private housing output performed strongly for the third year in a row (+11.7%) while investment in public housing was up (+7.3%) compared with 2004.
- The private non-residential construction sector (new and RM&I) performed strongly in 2005 with overall output in the sector up by 15% in 2005. The volume of commercial (offices and retail) building activity (new and RM&I) expanded at a rapid pace (+24%).
- The overall construction spend on productive infrastructure (new and RM&I) was just over 4% lower in 2005 compared with 2004. The lower spend overall is partly due to a decline in public transport and energy investment.
- The volume of construction output associated with social infrastructure projects was up almost 1% on the corresponding level in 2004. Investment in public buildings fell by 6% in the year while investment in education was up by 6%.

1.2.4: Repair, maintenance and improvement

In regard to repair, maintenance and improvement (RM&I), we continue to collect data on new and repair and maintenance investment levels separately and this breakdown is presented in Appendix 2. However, there are still reservations as to the accuracy of the figures for non-residential repair and maintenance. We suspect that the figures for new investment may also include some repair and maintenance expenditure. Therefore, while we will continue to publish separate figures for both new and repair and maintenance work, we continue to urge caution in relying on the figures for repair and maintenance output. The Tables 1.5-1.8 combine estimates for investment in new projects as well as expenditure on the repair and maintenance of existing buildings and structures.

The volume of output from RM&I projects increased in 2005 (+5%) led by residential RM&I investment (+6%).

1.2.5: Employment

The pattern of construction employment growth has been such that it has substantially exceeded the rate of overall employment growth in the economy since Q2 2003. At its peak in Q2 2005 construction employment growth reached almost 18% year-on-year (seasonally adjusted). The most recent figures (Q2 2006⁶) show construction employment at 264,300 (sa), representing almost one in eight persons employed in the economy.

The construction employment figures, recording just over a 14% (seasonally adjusted) average increase in 2005, are supported by the exceptional growth in building and construction output, estimated at over 10% on average last year or almost 15% year-on-year in the first quarter this year, according to the latest National Accounts. The construction sector accounted for 23% of the total jobs growth in the economy in the twelve months to Q2 2006.

6 March-May quarter.

Employment has grown due to the exceptional growth in new housebuilding activity, while the recovery in private non-residential construction and the ever increasing public capital programme, which provides funding for the country's infrastructure needs, have also fuelled employment growth.

We examine construction employment trends in detail in Section 3.

1.3: Outlook for 2006

The value of output in the construction industry is forecast to increase to 35.9bn in 2006. The 2006 estimate represents an increase in value terms of 14%, implying an increase in the volume of construction output of close to 8%, after allowance is made for construction inflation (5.7%).

The estimate for construction output this year represents 24% of GNP and 20% of GDP, leaving the construction sector accounting for almost one-quarter of overall economic activity⁷.

The prevailing economic environment continues to facilitate a positive climate for residential and non-residential construction investment. The exceptional performance of the residential sector reflects the strong population dynamics underway in the Irish economy, boosted by strong net inward migration. Private non-residential construction activity is benefiting from the buoyancy of consumer expenditure and retail sales, strong employment growth, historically low interest rates and generally positive indices in respect of investor and consumer sentiment.

The prospects for public sector construction activity are determined by the Public Capital Programme (PCP)⁸. The 2006 PCP provides for a 32% increase (before inflation and including a carry-over) in the allocation for capital projects⁹ to €10.89bn in 2006, compared with €6bn in 2000. Based on the official estimate for construction output presented in this report, total public sector investment in construction is projected to rise by 15% in value terms or by over 10% after adjusting for construction inflation.

Further evidence of the strong level of activity in the construction sector is available from the Ulster Bank Construction Purchasing Managers Index (PMI)¹⁰ which tracks the overall performance of the broad sub-sectors of the construction sector on a monthly basis (seasonally adjusted). The most recent data published is for August and reported construction activity at a high level for almost one-year, with activity, new orders and employment all continuing to expand strongly. The index overall has remained above the threshold level signalling a contraction in each month of the past three years. Trends to date in the index reveal a welcome sharp rise in civil engineering activity, indicating that the public sector commitments are being delivered, while housing activity eased slightly in August on the previous month. The one worrying trend reported was the substantial increase in construction input prices for the thirty-fourth month in a row.

1.3.1: Prospects for individual sectors in 2006

Taking the aggregate picture for both new and repair, maintenance and improvement (RM&I) projects, the prospects for the individual sectors of construction in 2006 are as follows:

- Residential construction (new and RM&I) output is projected to increase in volume terms by almost 6%, with the number of dwellings built this year forecast to reach 90,000¹¹.

⁷ Using the expenditure measure of construction output in this Review and Outlook. Using the value added concept the proportion would be lower at around 11% this year (DKM estimate).

⁸ Public Capital Programme 2006, Department of Finance, February 2006.

⁹ The PCP covers construction related expenditure as well as expenditure on capital equipment.

¹⁰ Ulster Bank Construction PMI, a monthly survey providing an advance indication of what is happening in the construction sector by tracking output, new orders, employment and prices. An index reading above 50 signals an increase in activity; a reading below 50 signals a decrease. The overall PMI figure for the construction sector was 57.8 in August.

¹¹ The ESB connections figure (published by the Department of the Environment, Heritage and Local Government) for 2006 is forecast to be around 95,000, which includes some 5,200 dwellings that were actually built in 2005 but were not connected until this year. For output purposes these 5,200 units are included in the 2005 estimate of residential construction output. Hence the 2006 forecast of 90,000 (= 95,200 minus 5,200).

- The recovery in private non-residential construction activity is projected to continue this year, led by a strong commercial and industrial building sector, with the overall volume of construction output associated with private non-residential building projects forecast to be up by over 17% this year.
- Overall investment in productive infrastructure projects is expected to grow in volume terms (+9%) led by airports/seaports (+38%), energy (+12%) public transport (+11%) and roads (+10.5%).
- The volume of construction related investment in social infrastructure projects is projected to grow strongly this year (+11%) led by public buildings (+17%).

Section 2 provides a detailed sectoral review and outlook, which looks at current activity levels and the prospects for each category of work within each sector in 2006.

1.4: Construction inflation

Section 1.4 in last year's Review and Outlook included a detailed section on the different construction price indices available. Three different categories of construction price indices were discussed:

- The "construction cost" index, often referred to as an "input price" index.
- The "construction price" index often referred to as an "output price" index.
- The "selling price" index.

This year we present updated trends in the published building and construction cost inflation indices. The 'selling price' index is not considered here as such an index measure changes in the prices paid by the final owner of the output to the client. It would include the price of land and the client's profit margin. Such an index would arise in the context of the sale of a residential dwelling or a commercial building, for example. The closest example of a selling price index would be the permanent-tsb house price index, which records the final sale price of residential dwellings to housebuyers.

1.4.1: Construction cost indices

Construction cost indices typically shows the price developments of the main factors of production for construction (raw materials, labour, plant and machinery), excluding land costs. The following indices fall under the heading of construction cost or 'input price' indices:

- The wholesale price index for building and construction materials (CSO)
- The capital goods price index for building and construction materials (CSO)
- Average earnings in construction (CSO)
- The housebuilding cost index (Department of the Environment, Heritage and Local Government, DoEHLG)
- The construction cost index (Society of Chartered Surveyors)

Ideally a construction cost index should measure the change in construction costs for a fixed amount of construction work, assuming no change in technology and a constant input mix. However, the evolution of construction costs will also reflect changes in costs due to changes in technology which will give rise to changes in productivity.

1.4.1 (a): Building Materials

Following a period of relatively subdued inflation over the late 1990s, building materials inflation accelerated at the beginning of the current decade. While inflation had moderated by 2003, it took off again in 2004, due to an escalation in selected building materials prices, most notably structural steel, driven by expanding demand from China. Other material price inflation also accelerated over the same period, resulting in an average inflation of 8.6% in building materials in 2004. The growth in structural steel prices had fallen back sharply by the end of 2005, in response to slowing demand growth in China and increasing supply capacity. The wholesale price of building materials increased by just over 5% on average in 2005.

The other traditional measure used to gauge the cost of building and construction is the CSO Capital Goods Price Index for building and construction materials and wages. This index is derived by combining a special hourly wage rate index for employees in the building and construction sector with the price index for building and construction materials. Thus this index includes labour cost increases which are awarded following each review of rates of pay for the construction industry. The index was up 4.7% on average in 2005 following an average increase of 6.8% in 2004.

Figure 1.4: Wholesale price inflation for building and construction materials and wages (%)



Two other construction costs indices¹² comprise the housebuilding cost index¹³ and the building cost index¹⁴. Trends in all four indices are set out in Figure 1.5. The corresponding inflation rates are set out in Table 1.3, together with the general CPI inflation rate.

¹² For a detailed explanation of these indices, see Appendix 1.

¹³ From the Department of the Environment, Heritage and Local Government (DOEHLG).

¹⁴ From the Society of Chartered Surveyors (SCS).

Figure 1.5: Building and construction cost indices, 2000-2006e (index 2000 = 100)

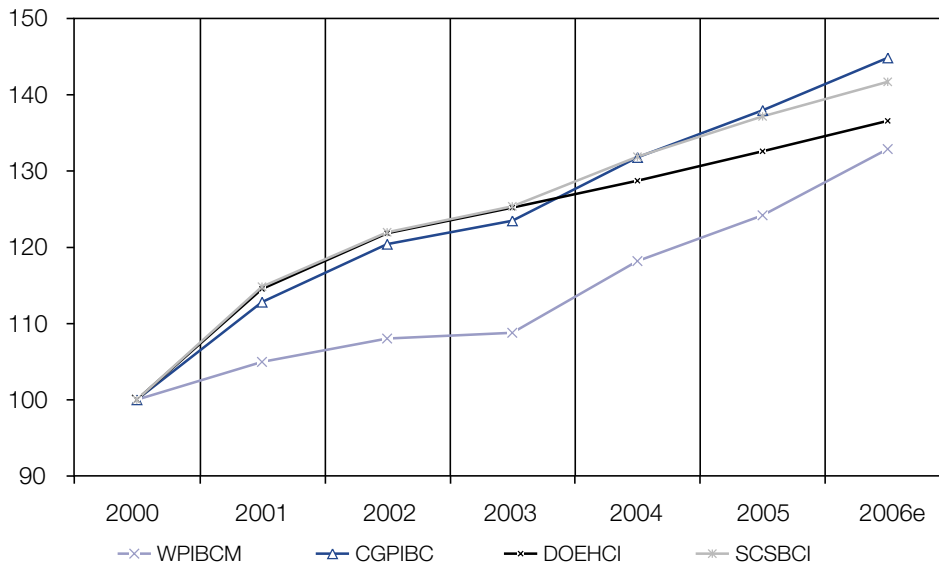


Table 1.3 shows the marked acceleration in inflation in 2004, mostly attributed to pressure on selected building materials. Although construction cost inflation eased somewhat in 2005, figures for the first seven months of 2006 indicate that building cost inflation (for building materials) accelerated again and is expected to remain at a high level in 2006.

Table 1.3: Building cost inflation, 2000-2006e (annual change, %)

	Wholesale price inflation for B&C materials	Capital goods price inflation (for B&C materials & wages)	DOE housebuilding cost inflation	SCS building cost inflation	CPI consumer price inflation
2000	5.2%	7.4%	7.6%	8.2%	5.6%
2001	5.0%	12.8%	14.5%	14.8%	4.9%
2002	2.9%	6.7%	6.4%	6.2%	4.6%
2003	0.7%	2.5%	2.7%	2.8%	3.5%
2004	8.6%	6.8%	2.8%	5.2%	2.2%
2005	5.1%	4.7%	3.0%	4.0%	2.5%
2006e	7.5%	5.5%	3.0%	3.3%	4.0%

According to Table 1.4 all building and construction material prices were up by 7.2% on average in the first seven months of 2006 compared with the same period in 2005. Significant increases were recorded by products that are derivatives of oil, reflecting the rise in oil prices over recent months. Electrical fittings, concrete blocks and stone, sand and gravel also rose strongly in the first seven months of the year.

Table 1.4: Average change in wholesale price inflation for building and construction materials, January-July 2006 vs January-July 2005 (%)

Bituminous emulsions	19.1%
Electrical fittings	16.7%
Bituminous macadam and asphalt	15.1%
Concrete bricks and blocks	13.3%
Stone, sand and gravel	12.3%
Other concrete products	6.6%
Ready mixed mortar and concrete	5.8%
Cement	2.7%
Rough timber	0.3%
Structural steel and reinforcing metal	-4.5%
All other materials	8.7%
All building and construction materials	7.2%
Capital goods price inflation, building and construction	5.5%

Building materials inflation is projected to rise by 7.5% on average this year while the capital good index is projected to rise by 5.5%.

Despite the acceleration in building materials inflation, the latest figures from the SCS construction cost index indicate a moderation in the annual rate of construction cost inflation to 2.5% in July 2006 from a peak of 3.9% in October 2005. The average inflation rate in the first seven months is 3.1%, compared with the same period in 2005. With further increases in labour costs in the pipeline, the forecast for the full year is 3.3%.

1.4.1 (b) Labour Costs

The Central Statistics Office collects data on average hourly and weekly earnings in the construction sector. Data are collected for a specific week in the middle of the last month of each quarter. All private businesses in the industry with ten or more persons engaged are covered in the Survey. The latest available data, published in June this year, relate to March 2006.

The most recent statistics for Earnings and Hours Worked in Construction (March, 2006) from the CSO show that average weekly earnings for all grades of construction workers at €745 in March 2006, up only 1% on the March 2005 figure (not sa). This reflected:

- an annual increase of almost 3% in the hourly rate paid from €16.67 to €17.15; and
- a decline of almost 2% in the average hours worked to 43.4 hours per week.

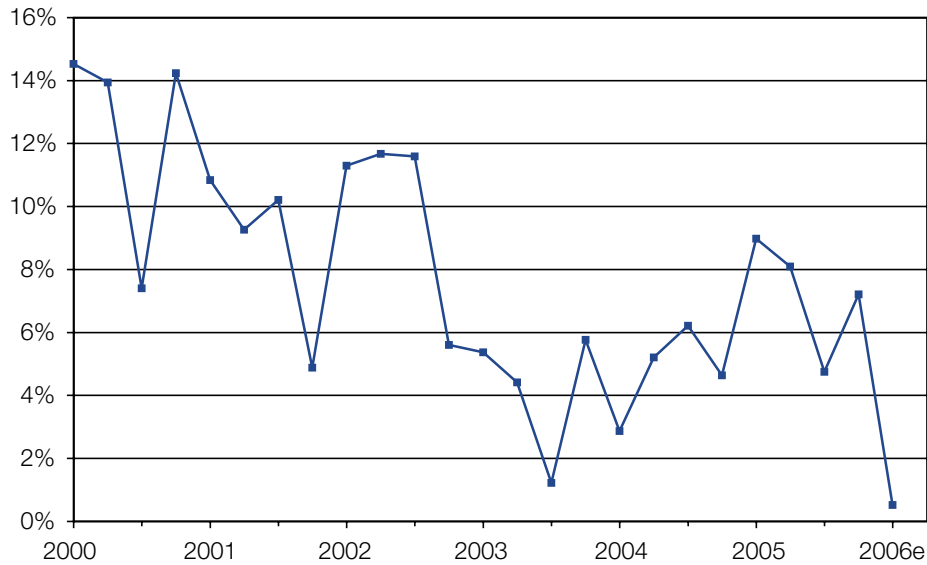
Looking separately at the component categories:

- The corresponding average weekly earnings for skilled workers increased from €854 to €872 over the same period, or by 2.1%. This reflected an annual increase of 1.6% in the hourly rate paid from €19.54 to €19.85; and an average hours worked of 44 hours per week; and
- Average earnings for unskilled and semi-skilled workers increased by almost 1.4% in March 2006 to €715 per week compared with March 2005. On a hourly basis, average earnings for the same segment of the industry were up 5.4% to almost €16 per hour while the number of hours worked declined by almost 4% to 45 hours per week.

Recent trends in average weekly earnings for all construction workers¹⁵ (Figure 1.6) show a welcome moderation in the growth in average construction earnings. Having peaked at around 20% year-on-year at the end of 1997, reflecting the buoyant conditions and capacity constraints in the industry at that time, average weekly earnings growth has eased somewhat since the middle of 2002. The most recent figures show average weekly earnings growth at only 1% in Q1 2006 compared with almost 9% one year previously.

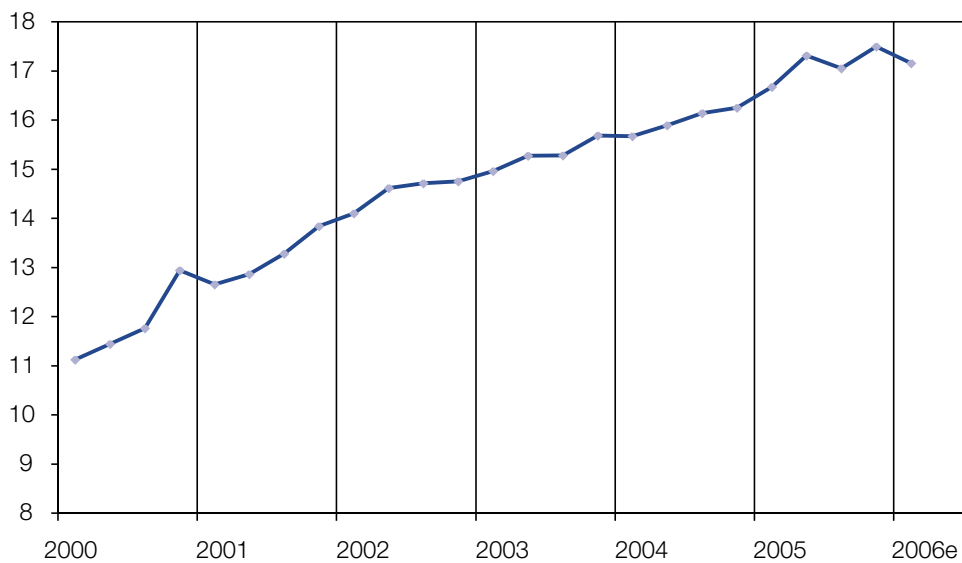
¹⁵ The main categories of employees covered in the CSO enquiry are skilled, unskilled and semi-skilled workers, clerical, foremen and apprentices.

Figure 1.6: Average weekly earnings for all construction workers (quarterly data, seasonally adjusted) % change year-on-year



The new national wage agreement, *Towards 2016*, which resulted in a total increase in rates of 10% over 27 months, will deliver further increases for construction workers, backdated to 1st April 2006. The agreement expires on 1st July 2008.

Figure 1.7: Average earnings per hour in the construction sector (€)



1.4.2: Construction price indices

The second type is the construction price index which measures movements in the prices charged to clients for construction work. Such an index is synonymous with an output price or a tender price index and will include both changes in productivity and in the contractor's margin.

For the purposes of estimating volume changes in construction output we need an output price index or a measure of tender price inflation as opposed to construction cost inflation. We derive an overall estimate of the value of work put in place, which is based on the prices charged to clients of construction work. Thus to properly measure changes in the volume of output we need to deflate the value series by a tender or output price index. Accordingly, we need data on tender or output prices for the various types of building and infrastructure put in place (Section 1.4.3).

There are three published tender price indices available for non-residential building activity:

- The Bruce Shaw Tender Price Index
- The DLPKS Tender Price Index
- The Society of Chartered Surveyors (SCS) Tender Price Index (from 1998 only)

These are explained in Appendix 1.

All three tender price indices available are derived based on projects in the general contracting sector of the industry. Thus they cannot be used for the purposes of estimating the real volume of output for housebuilding and civil engineering projects.

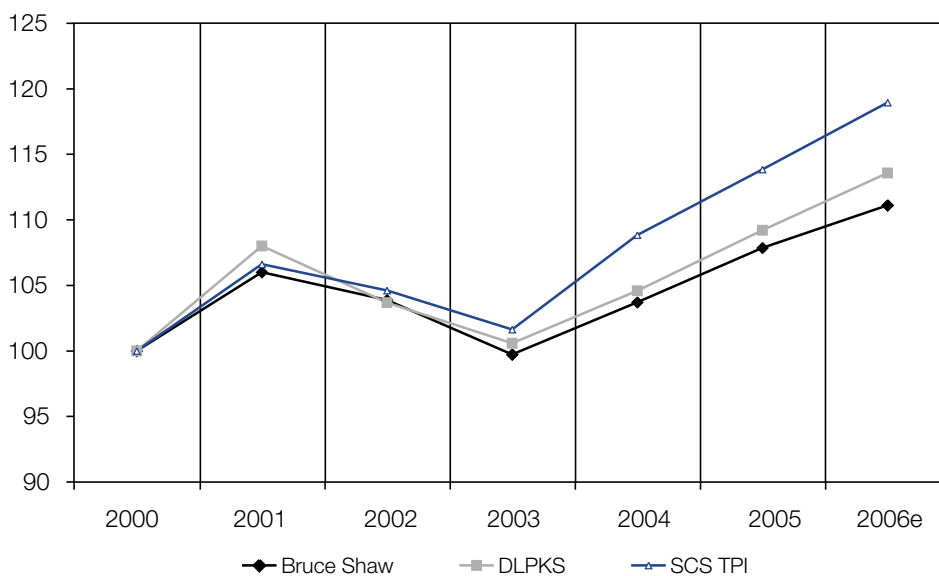
1.4 2 (a) Trends in construction tender price inflation

We review below trends in the three published tender price indices over the period 2000-2006e.

Annual movements in the published tender price indices are shown in Figure 1.8 including the SCS index from 2000. The corresponding tender price inflation rates are shown in Figure 1.9. It is important to stress, however, that these published indices predominantly relate to projects in the general contracting sector as opposed to civil engineering work, where separate approaches are adopted for the purposes of this *Review and Outlook*¹⁶.

Both the Bruce Shaw and DLPKS indices moved closely in line over the beginning of the decade. This trend reflects the increasing workload in the industry at that time. Over the two years 2002 and 2003, both indices moved downwards an indication of the declining number of new projects in the general contracting area and the intensely competitive climate. This was a major reversal of the trend in previous years.

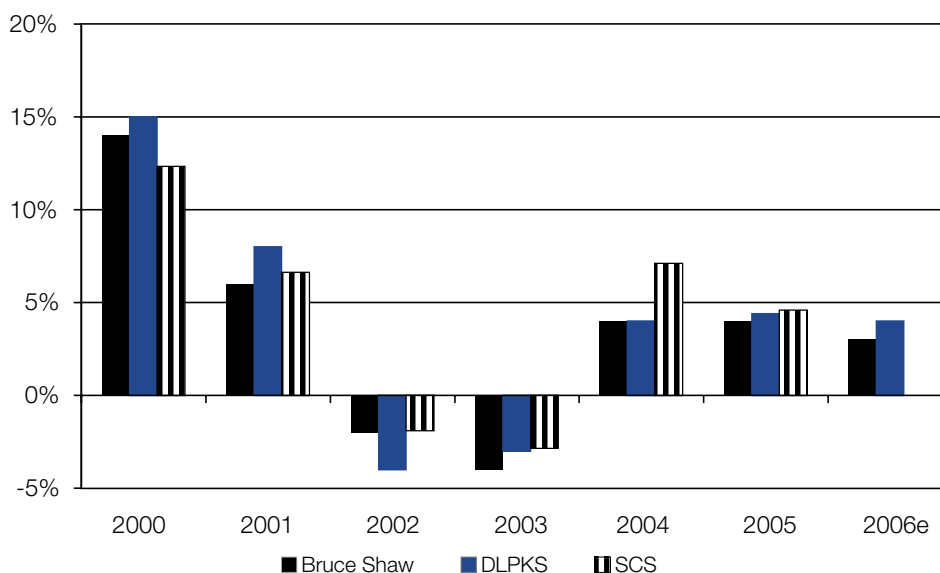
Figure 1.8: Tender price indices, 2000-2006e (2000 =100)



¹⁶ See Appendix 1.

After declining in 2002 and 2003, tender price inflation moved back into positive territory in 2004 in response to a pick up in the levels of non-residential building work and also the pick up in building materials inflation. Both indices from Bruce Shaw and DLPKS suggest that tender price inflation was 4% per annum in 2004 and 2005. DLPKS expect it to remain at 4% on average in 2006 while Bruce Shaw's forecast is lower at 3%. The SCS tender price index (published on a half-yearly basis) suggests that construction tender prices increased by 2.3% in the first half of 2005 and by 1.5% in the second-half, resulting in an average increase in tender price inflation of 4.4% in 2005. The SCS has not published a forecast for 2006.

Figure 1.9: Tender price inflation, 2000-2006e (%)



1.4.3: Construction inflation assumptions

For the purposes of measuring volume changes in construction output in this report we need an output price index or a measure of tender price inflation as opposed to construction cost inflation for the various types of building and infrastructure put in place.

While every effort is made to reflect a realistic view on the level of inflation in the construction industry by paying attention to the published tender and cost price indices summarised above, and consulting with the various Government departments and the industry, there are no regular tender price indices published by sub-sector of activity for the industry, other than those presented above for the general contracting sector.

Following consultation with the relevant government departments and State agencies, we derive separate deflators for each category of work where possible to ascertain volume changes in the amount of new work, and to demonstrate the varying levels of competition and activity in each sector. We also distinguish between private and public sector projects. Thus, the individual categories of new work are each assigned a different tender price deflator, based on the previous analysis of construction cost and tender price indices and based on discussions with key players in each sector¹⁷.

The end result is a composite index for the industry as a whole which suggests that the overall average rate of construction price inflation was 5.7% in 2005 and is forecast to remain at that level in 2006. The figures in both years are heavily influenced by new private housebuilding where tender price inflation was almost 6.8% in 2005, reflecting continued house price inflation (+10.4% including site costs estimated at 25% of the average house price, or 8% excluding site costs and an increase in the average size of dwellings (+1%) (Appendix 1). The 2006 figure is derived assuming house price inflation excluding site costs of 7% this year.

¹⁷ The detailed methodology used and assumptions made to derive tender price deflators for each category of construction work are set out in Appendix 1.

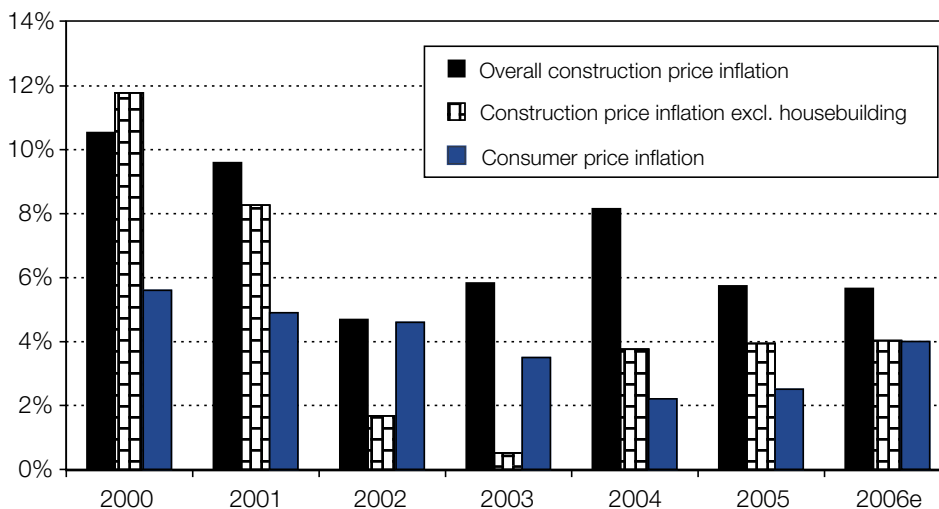
The composite index for the industry, excluding all housebuilding, shows that the average rate of construction tender price inflation was around 4% per annum in 2005 and 2006. This figure is more in line with the published tender price indices for general contracting work.

We are confident that the deflators used provide a reasonable reflection of market conditions over the recent period of construction activity. The projections for 2006 reflect a continued competitive market in construction contracts. There is the risk that the general upward trend in construction costs evident in some indices eventually feeds through into tender prices. This risk will increase as more work becomes available. Thus in the context of the next programme of public sector infrastructure investment (National Development Plan 2007-2013) an even flow of work would appear to be the most prudent basis on which to proceed, as opposed to a significant ramping up of investment which could generate higher construction inflation.

1.4.4: Construction inflation and consumer price inflation

A comparison of changes in the derived construction output price deflator, including and excluding housebuilding, with changes in the general consumer price index is set out in Figure 1.10 for the period 2000-2006e.

Figure 1.10: Consumer price inflation and construction inflation 2000-2006e (%)



Source: DOEHLG, CSO, DKM

The chart illustrates the impact of the residential construction sector on overall construction inflation since 2000. With the exception of 2000, when construction inflation reached an average of almost 11%, due to capacity constraints in the industry, the overall rate of construction inflation over the period since 2001 is higher in each year when residential construction is included compared with the measure excluding residential construction inflation. Excluding residential construction, the annual average rate of construction inflation was around 4% since 2004, following two years of very modest inflation, reflecting the downturn in private non-residential construction activity in 2002 and 2003.

When construction price inflation is compared with consumer price inflation, the gap has narrowed in recent years and is virtually eliminated in 2006, due to the acceleration in consumer price inflation¹⁸.

¹⁸ Consumer price inflation accelerated to 4.5% year-on-year in August from 3% in January, bringing the average annual inflation rate in the first eight months of 2006 to 3.8%.

1.5: Overall construction output

Trends in the value and volume of construction output by sector (new and repair and maintenance activity combined) over the period 2002 to 2006e are set out in the following summary Tables 1.5 to 1.8.

Table 1.5: Value of construction output in current prices 2002 to 2006E (€m).

	2002	2003	2004	2005	2006E
Residential construction					
Private housing	10,814	13,506	16,877	20,104	22,635
Public housing	1,114	1,129	1,111	1,264	1,465
Sub-total	11,928	14,636	17,987	21,367	24,099
Non residential construction					
Industry	814	751	802	905	1,055
Commercial	1,508	1,318	1,321	1,700	2,215
Agricultural	218	203	250	262	305
Tourism	361	408	451	523	575
Worship	61	50	64	73	76
Sub-total	2,962	2,731	2,888	3,464	4,226
Productive infrastructure					
Roads	1,618	1,697	1,709	1,863	2,157
Water services	754	750	739	772	781
Airports and seaports	217	143	159	159	227
Energy	1,263	1,237	1,496	1,388	1,613
Transport	447	668	450	365	422
Communications	280	266	279	257	247
Sub-total	4,581	4,762	4,831	4,804	5,448
Social infrastructure					
Education	722	562	676	746	753
Health	454	459	460	464	525
Public buildings	365	451	373	366	445
Other social*	281	211	249	269	399
Sub-total	1,822	1,684	1,758	1,844	2,122
Total all construction	21,293	23,811	27,465	31,480	35,895

The value of construction output includes repair and maintenance expenditure.

*Includes building output associated with capital investment in local authority services, sports and the Gaeltacht

Table 1.6: Change in construction output value in current prices, 2002 to 2006E (%)

	2002	2003	2004	2005	2006E
Residential construction					
Private housing	7.6	24.9	25.0	19.1	12.6
Public housing	<u>23.8</u>	<u>1.4</u>	<u>-1.7</u>	<u>13.8</u>	<u>15.9</u>
Sub-total	8.9	22.7	22.9	18.8	12.8
Non residential construction					
Industry	-24.6	-7.7	6.8	12.8	16.6
Commercial	-20.5	-12.6	0.2	28.7	30.3
Agricultural	-2.1	-6.8	23.3	4.7	16.3
Tourism	-23.3	12.9	10.5	16.0	9.9
Worship	<u>54.9</u>	<u>-17.8</u>	<u>26.5</u>	<u>14.9</u>	<u>4.0</u>
Sub-total	-20.2	-7.8	5.8	19.9	22.0
Productive infrastructure					
Roads	16.7	4.9	0.7	9.0	15.8
Water services	4.8	-0.5	-1.5	4.5	1.2
Airports and seaports	33.2	-34.1	11.0	-0.3	43.5
Energy	50.3	-2.1	20.9	-7.2	16.2
Transport	15.0	49.4	-32.7	-18.7	15.4
Communications	<u>14.3</u>	<u>-5.1</u>	<u>5.1</u>	<u>-8.2</u>	<u>-3.6</u>
Sub-total	22.3	3.9	1.5	-0.6	13.4
Social infrastructure					
Education	18.5	-22.1	20.3	10.3	0.9
Health	27.5	1.1	0.1	0.8	13.1
Public buildings	-13.8	23.5	-17.2	-2.0	21.7
Other social*	<u>118.9</u>	<u>-24.9</u>	<u>17.8</u>	<u>8.0</u>	<u>48.5</u>
Sub-total	20.1	-7.6	4.4	4.9	15.0
Total all construction	6.9	11.8	15.3	14.6	14.0

The value of construction output includes repair and maintenance expenditure.

*Includes building output associated with capital investment in local authority services, sports and the Gaeltacht.

Table 1.7: Construction output in constant (2004) prices, 2002 to 2006E (€m).

	2002	2003	2004	2005	2006E
Residential construction					
Private housing	13,422	15,045	16,877	18,849	19,904
Public housing	<u>1,183</u>	<u>1,186</u>	<u>1,111</u>	<u>1,192</u>	<u>1,316</u>
Sub-total	14,605	16,231	17,987	20,041	21,220
Non residential construction					
Industry	824.7	780.9	802.1	870.1	975.6
Commercial	1,530	1,371	1,321	1,635	2,048
Agricultural	221	211	250	252	282
Tourism	366	424	451	503	532
Worship	<u>64</u>	<u>52</u>	<u>64</u>	<u>70</u>	<u>70</u>
Sub-total	3,005	2,840	2,888	3,331	3,908
Productive infrastructure					
Roads	1,731	1,765	1,709	1,784	1,971
Water services	780	758	739	756	747
Airports and seaports	232	149	159	152	210
Energy	1,346	1,286	1,496	1,335	1,491
Transport	476	695	450	351	390
Communications	<u>299</u>	<u>276</u>	<u>279</u>	<u>247</u>	<u>229</u>
Sub-total	4,864	4,930	4,831	4,626	5,038
Social infrastructure					
Education	762	594	676	717	696
Health	463	468	460	446	488
Public buildings	380	469	373	352	412
Other social*	<u>292</u>	<u>220</u>	<u>249</u>	<u>258</u>	<u>369</u>
Sub-total	1,897	1,751	1,758	1,774	1,965
Total all construction	24,371	25,751	27,465	29,771	32,130

The value of construction output includes repair and maintenance expenditure.

*Includes building output associated with capital investment in local authority services, sports and the Gaeltacht.

Table 1.8: Change in volume of construction output, 2002 to 2006E (%).

	2002	2003	2004	2005	2006E
Residential construction					
Private housing	0.3	12.1	12.2	11.7	5.6
Public housing	<u>21.2</u>	<u>0.3</u>	<u>-6.3</u>	<u>7.3</u>	<u>10.4</u>
Sub-total	1.7	11.1	10.8	11.4	5.9
Non residential construction					
Industry	-23.2	-5.3	2.7	8.5	12.1
Commercial	-19.1	-10.4	-3.7	23.8	25.3
Agricultural	-0.6	-4.3	18.6	0.6	11.9
Tourism	-22.0	15.8	6.3	11.6	5.7
Worship	<u>55.3</u>	<u>-17.7</u>	<u>21.7</u>	<u>10.4</u>	<u>0.0</u>
Sub-total	-18.7	-5.5	1.7	15.3	17.3
Productive infrastructure					
Roads	11.2	2.0	-3.2	4.4	10.5
Water services	-1.2	-2.8	-2.5	2.3	-1.1
Airports and seaports	24.5	-35.7	6.8	-4.1	37.9
Energy	40.5	-4.4	16.3	-10.7	11.7
Transport	7.5	45.9	-35.3	-21.9	11.0
Communications	<u>6.9</u>	<u>-7.4</u>	<u>1.1</u>	<u>-11.7</u>	<u>-7.3</u>
Sub-total	15.4	1.4	-2.0	-4.3	8.9
Social infrastructure					
Education	17.0	-22.0	13.8	6.1	-3.0
Health	25.7	1.1	-1.7	-3.0	9.5
Public buildings	-15.1	23.5	-20.3	-5.8	17.0
Other social*	<u>115.4</u>	<u>-24.9</u>	<u>13.3</u>	<u>3.9</u>	<u>42.8</u>
Sub-total	18.4	-7.7	0.4	0.9	10.8
Total all construction	2.1	5.7	6.7	8.4	7.9

The value of construction output includes repair and maintenance expenditure.

*Includes building output associated with capital investment in local authority services, sports and the Gaeltacht.

Section 2: Sectoral review and outlook

Once again the level of housebuilding has exceeded all expectations with supply reaching a new record of around 86,000 completed dwellings last year or 20 dwellings for every 1,000 persons in the population. This compares with an average of only 5.5 in Western Europe, with only Spain (at 15) coming anywhere close to the record Irish level. As a result housing has become a key sector of the economy and the economy has become very dependent on housing.

The gross value of housing output (new and RM&I) was just over €21bn in 2005, which is equivalent to almost 16% of GNP, compared with 8% in 1996. Residential construction accounted for 68% of total construction output last year compared with 53% in 1996. At these proportions, the economy is now vulnerable to any slowdown in residential construction. While it is acknowledged that Ireland will eventually build fewer houses than it currently does, the number of dwellings built in the short term is forecast to be higher again in 2006 at around 90,000. The overall growth in residential construction output (including RM&I) is forecast to moderate this year to 6%.

Total output in the construction industry is forecast to increase by almost 8% this year, significantly above the forecast for 2005 in last year's Review and Outlook. This will be the fourth year in a row for the industry to record an increase in output in excess of 6%. The most positive aspect of the forecast this year is that all components of the non-residential sector are expected to perform strongly. The strong performance is led by the private non-residential construction sector where commercial building activity levels are responding to the robust growth in employment and consumer expenditure. The transitional arrangements for tax relief are also boosting activity in the hotel sector. The volume of construction output from civil engineering projects is expected to be up by almost 10% while the volume of construction output from social infrastructure projects is projected to rise by over 9%. The forecast is therefore, heavily dependant on the non-residential construction sector where public sector construction is expected to rebound strongly after three years of decline and activity in the private non-residential construction sector is sustained at a high level for the second year in a row.

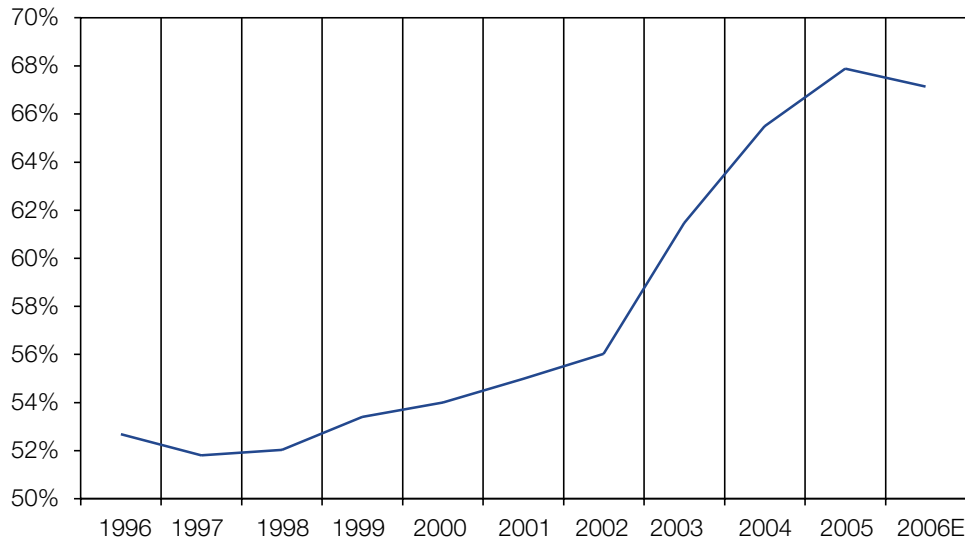
2.1: Residential construction

The pace of growth in housebuilding over the past decade has been remarkable and continues to astonish most analysts monitoring activity in the sector. Just ten years ago, Ireland was building around 34,000 dwellings or around 9 units per 1,000 of the population. Today the Irish housebuilding sector is producing around 86,000 units which is equivalent to 20 units per 1,000 of the population. This compares with an average of only 5.5 in Western Europe, with only Spain (15 units per 1,000) coming anywhere close to the record Irish level.

As a result housing has become a key sector of the economy and the economy has become very dependent on housing. The gross value of housing output (new and repair and maintenance) was just over €21bn in 2005, which is equivalent to almost 16% of GNP, compared with 8% in 1996. A strong housing market has a positive impact on the economy, not only through its direct contribution to GDP via new residential construction and home related purchases, but also through enabling home owners to extract equity from their homes to finance current consumption. Housing also influences activity and employment across a range of sectors in the Irish economy, not just construction, but also financial, property management and related services, and other business and consumer services' sectors of the economy. In terms of the economy the housing sector has also generated substantial revenues for the Exchequer arising not just from direct property transactions but also from other indirect expenditures which have resulted from the buoyant housing market. Thus if the full range of economic impacts generated by new housing construction alone are included - not just the direct impacts in terms of output and employment, but the incremental indirect and induced impacts, in terms of the additional economic activity that results from related businesses and services - the residential construction sector would be responsible for a much higher proportion of economic activity.

Residential construction accounted for 68% of total construction output last year compared with 53% in 1996. Since 2002 its share of total construction output has increased considerably. In the absence of any breakdown of the employment numbers between the individual sub-sectors of construction, we suspect that the strong employment growth in the sector can be attributed to the strong growth in residential construction activity. If so, the economy is now very vulnerable to any slowdown in residential construction.

Figure 2.1: Residential construction share of total construction output (%) 1996-2006E



Source: DOEHLG, DKM

In the new-build market, housing supply reached a record level of around 86,000 units in 2005¹⁹, up 12% on the corresponding level in 2004. This was the third year in a row in which the growth in housing supply (completions) was 12% or higher. Based on completions data, a total of almost 555,000 units have been added to the housing stock over the period 1996-2005. This implies that, based on an estimated stock level of 1.6m at the end of 2005, almost 35% of the housing stock was built over the last decade.

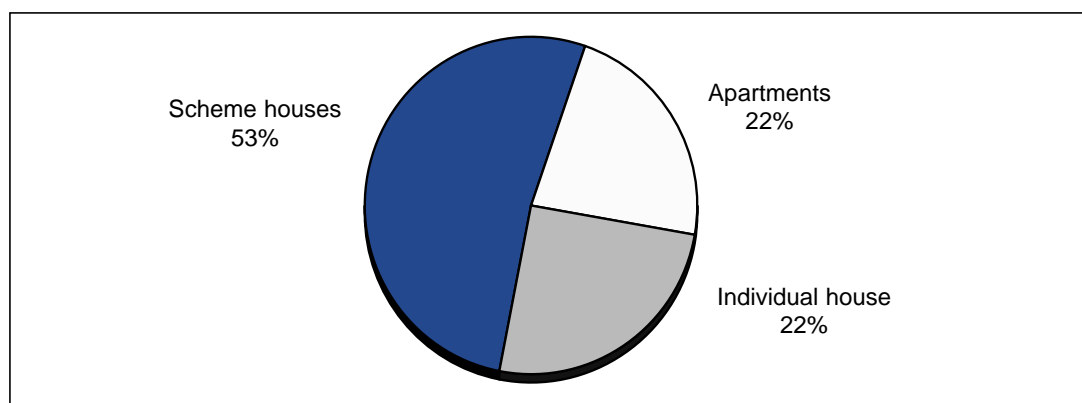
Despite Ireland's exceptional rate of housebuilding, its stock level is still well behind Western Europe: at just under 400 dwellings per 1,000 of the population in the Republic, based on the most recent Census of Population results for 2006, compared with an average across Western Europe of 475 dwellings per 1,000 of the population.

A new classification by type of house was presented by the DOEHLG in 2005. The classification is defined according to the electricity connection²⁰ and shows the split between individual houses (separate detached houses), scheme houses (connection to two or more houses) and apartments (centrally located electricity connection).

¹⁹ The measure of housing supply here refers to the actual number of units built and completed in 2005. The estimated housing supply figure is 86,157 units. This figure differs from the figure published (80,957) by the Department of the Environment, Heritage and Local Government which is based on ESB connections. The extra 5,200 represent the estimated backlog in ESB connections in 2005, comprising units which were completed but had not been connected for electricity, due to a backlog in connections in the ESB. The split of the extra 5,200 units between private and public sector units is not available.

²⁰ The completions figures published by the Department of the Environment, Heritage and Local Government are based on the number of new dwellings connected by the ESB to the electricity supply.

Figure 2.2: Total house completions by type, 2005 (%)



Source: DOEHLG

Over half of the units built in 2005 were classified as scheme houses, which presumably refer to estate houses. Detached houses represented one-quarter of the total and over one in every five units built was an apartment. Although data for the earlier years are classified differently, the proportion of apartments has not changed much in the last ten years. However the number of apartments built nationwide over the last decade years has increased almost threefold, from 6,670 in 1996 to 18,000 last year. In Dublin, where a total of 18,000 new units alone were provided in 2005, over half (9,500) were apartments. Across the country, the trend toward apartment building is concentrated in the urban locations and in the commuter belt around Dublin. Of the 18,000 apartment built in 2005, the Greater Dublin Area provided 11,305 (63%) of them and Cork provided 1,629 (9%).

2.1.1: Private residential

The private housebuilding market continues to grow and reached over 80,000 units in 2005²², compared with almost 47,000 in 2000. The value of new private housebuilding output reached €16.5bn in 2005²³. This represented an increase of almost 13% in volume terms on the 2004 level, the third year in a row when the growth rate was close to 13% or higher.

Table 2.1: Total Dwellings Built 2000-2005

	2,000	2,001	2,002	2,003	2,004	2,005	2005 adj.*(est)
Private Sector	46,657	47,727	51,932	62,686	71,808	75,398	80,241
Public Sector:	3,155	4,875	5,763	6,133	5,146	5,559	5,916
<i>of which</i>							
Local Authority	2,204	3,564	4,083	4,177	3,403	3,817	4,087
Regeneration Schemes	0	58	320	339	136	392	392
Voluntary Sector	951	1,253	1,360	1,617	1,607	1,350	1,437
Total Completions	49,812	52,602	57,695	68,819	76,954	80,957	86,157

Source: DOEHLG (ESB connections) for 2000-2005. 2005 adjusted figure is from CSO. Split of 2005 adjusted figure between private and public is a DKM estimate.

Note: * denotes the 2005 housing output figure after adjusting for the one-off backlog of electricity connections in the ESB estimated at 5,200 in 2005.

21 Dublin, Kildare, Meath and Wicklow comprise the Greater Dublin Area (GDA).

22 The split of the extra 5,000 units in 2005 between private and public units is not available. DKM estimate the break down by splitting the extra units according to the public/private breakdown of the reported 80,957 completions by the DOEHLG/ESB for 2005.

23 The total volume is derived by multiplying the number of private completions by the average net sales price (excluding site costs) and adjusting for house price inflation. See separate methodology paper on the DOEHLG website: www.environ.ie.

Despite the record levels of housing supply over the past decade, culminating in over 555,000 units being supplied since 1996, the corresponding record level of housing demand is explained by a number of favourable demographic trends:

- The current estimated population in the State as of April 2006 was 4.23 million, according to the most recent Census of Population (2006). Compared with the 2002 Census figure this represents an average annual growth rate of 2% over the four years or an additional 80,000 persons each year on average.
- The population since the beginning of the decade has been boosted by strong net migration, with almost 41% of immigrants in the year to April 2006 coming from the 10 new accession states which joined the EU on 1 May 2004. Since 2000, net migration accounted for almost 60% on average of the total population change over the period April 2000 to April 2006, the balance accounted for by the natural increase (births - deaths) in the population. In the year to April 2006 net migration accounted for 70,000 of the estimated increase in population of 104,100.
- The age profile of immigrants is such that of the 383,000 immigrants into the country over the last six years, just over one-half of them were aged between 25 and 44, which comprise the key household forming age groups. These numbers have further added to housing demand creating either a demand for owner occupied or rented units.

These favourable demographic trends reflect the very positive economic environment over the past decade, in terms of employment and income prospects, for the population of working age.

Other characteristics of the housing market in 2005 indicate that housing demand continued at a high level:

- Average new house prices increased by 11% nationally and by almost 9% in Dublin in 2005²⁴. The corresponding rates of increase reported by the tsb-permanent were lower at 7.2% nationally on average and 8.4% in Dublin²⁵.
- The total value of loans paid out in 2005 reached a record level of €21.5bn compared with less than €8bn in 2000. The corresponding number of loans paid out was up by 9% in 2005 to 107,680. One-half of the total consisted of loans for new houses (53,758), indicating that in the region of 33% of all new homes were financed without a mortgage²⁶. Assuming the same proportion of second-hand properties is financed without a mortgage, the total number of residential property transactions is estimated at around 166,700 in 2005²⁷ or 39 transactions per 1,000 of the population. The corresponding figure in the UK is 30 residential property transactions.

The estimates for residential construction output include estimate for the value of private housing repair, maintenance and improvement (RM&I) output in 2005 from the DOE/ESRI monthly survey of private repair, maintenance and improvement (RM&I) expenditure²⁸. This survey estimated private RM&I expenditure at €3.58bn in 2005²⁹. It is important to point out that the DOE/ESRI survey is not intended to capture the entire turnover of the Irish merchanting business, some of which will be picked up under consumer expenditure in the National Accounts. The Irish merchanting business would also cover sales to the new housebuilding sector, which is separately quantified under new private housing output. Hence we have to be careful to avoid any double counting. Accordingly, we continue to use the survey figures in the absence of better information.

24 Annual Housing Bulletin 2005, DOEHLG.

25 The house prices published by the DOEHLG are based on loan approvals; house prices published by permanent-tsb are based on loans paid.

26 A total of 53,758 loans were paid out for new houses and approximately 80,000 private houses were built. This implies that 26,242 properties (33%) were financed without a mortgage.

27 A total of 86,157 new houses plus 80,481 second-hand houses (53,922 loans paid out / (1-0.33)) implies total transactions of 166,638.

28 See separate methodology paper on the DOEHLG website: www.environ.ie.

29 The DOE/ESRI survey specifically asks households about expenditure on household renovation and repairs covering major home improvements such as door or window replacement, extensions, major plumbing or electrical work, as well as expenditure by households on minor home repairs, such as decorating and minor electrical, plumbing and heating repairs or minor repairs to the structure of dwellings.

The volume of private housing RM&I output has increased strongly since 2000 reflecting an increasing tendency amongst the existing owner-occupied household population to extend their existing dwellings rather than to move house. Much of this increased investment is on major home improvement works, including extensions and conversions (71% according to the DOE/ESRI survey), compared with 29% on minor works.

2.1.2: Public housing

The total provisional outturn for investment in new public housing (including regeneration) in 2005 was to €1.55bn in the 2006 PCP, of which it is estimated that €1.04m³⁰ was invested in new build. The volume of construction related investment in new build was up 8% in 2005.

The total investment in the PCP is intended to cover all social and affordable housing measures aimed at catering for the needs of those who cannot afford to meet their own housing needs. The housing needs of 13,162 households were met in 2005³¹.

Table 2.2: Number of households Accommodated by the Provision of Social and Affordable Housing in 2005

Local authority houses	5,127
Voluntary and co-operative houses	1,350
Other social housing measures	3,805
Affordable housing	2,880
Total Provision	13,162

Source: Annual Housing Bulletin 2005, DOEHLG.

This figure includes new build, acquisitions and regeneration schemes under the local authority housing programme, completions by the voluntary and co-operative housing sector and units provided by other social housing measures including vacancies, extensions and improvement works in lieu of rehousing. The affordable housing units provided include those acquired under the 1999 Affordable Housing and the Part V (of the Planning and Development Act, 2000) schemes as well as units provided under the Affordable Housing Initiative (AHI) and shared ownership schemes. Under Part V arrangements and the AHI, local authorities and the voluntary and co-operative housing sector acquired 206 social housing units and 1,086 affordable housing units from developers last year.

2.1.3: Prospects for 2006

We have acknowledged the positive demographic and economic driving forces in the housing market such as rising population, strong inward migration, rising incomes and employment and historically low interest rates. Following over a decade of consistent growth each year, the characteristics of the housing market continue to defy all expectations, whichever indicator one chooses to consider.

- The number of completed dwellings has risen almost threefold since 1995 and continues on an upward trend. The total number of completions (measured as ESB connections) increased by 24% in the first seven months of 2006 compared with the same period last year. Adjusting for the backlog of connections and assuming the backlog is addressed in the first half of 2006, the growth rate in completions is much lower, at just under 4%³².
- House prices continue to climb and have risen faster than in any other OECD country over the past decade. The year-on-year rate of house price growth started to rise again in

³⁰ The level of construction related investment estimated by the Department of the Environment, Heritage and Local Government for the Review and Outlook (Appendix 2).

³¹ 2005 Annual Housing Bulletin, Department of the Environment, Heritage and Local Government. Page 21.

³² This figure is a DKM estimate and assumes that the backlog of 5,200 units is connected in the first half of 2006. The base year for connections in 2005 includes the additional 5,200, which is distributed evenly across the quarters in 2005.

³³ Permanent-tsb data

October 2005, when it was around 7-8% and by July this year was at 15.4% nationally and 16.8% in Dublin³³. Using the same source, the average house price is already up 9% in the first seven months of this year across the State (to €303,274) and up 11% in Dublin (to €408,959) over the same period.

- The annual growth in mortgage credit is over twice the euro-area growth rate for mortgages: by end 2005 the annual growth in mortgage credit was 28.5% compared with 11.5% in the euro area³⁴. The latest data on residential mortgage lending from the Central Bank reported the level of outstanding mortgage credit at €110.8 billion in June this year which was 29% up on the corresponding level in June 2005.

Following three 0.25 percentage point increases in ECB interest rates in December 2005 and March and June this year, bringing the ECB official interest rate to 3%, average mortgage rates are currently around 4.2%. With the possibility of further increases of the same magnitude in October and December, Irish mortgage rates are likely to reach 4.9% by the year-end. With strong statements emanating from the ECB and evidence that the Eurozone economy is strengthening, further increases can be expected in 2007 and possibly 2008, unless inflation and credit growth are brought under control.

It is hoped that the higher mortgage rates which transpire will help to slow the rate of mortgage lending growth and house prices without damaging confidence and the wider economy. There will inevitably be, however, a further disimprovement in housing affordability, particularly for those first-time buyers who have financially stretched themselves over the past twelve to eighteen months.

In terms of the immediate prospects for the level of housebuilding in 2006 there are three leading indicators on the housing market: planning permissions granted; registrations (a proxy for housing starts); and commencement notices, which give an indication of supply in the pipeline.

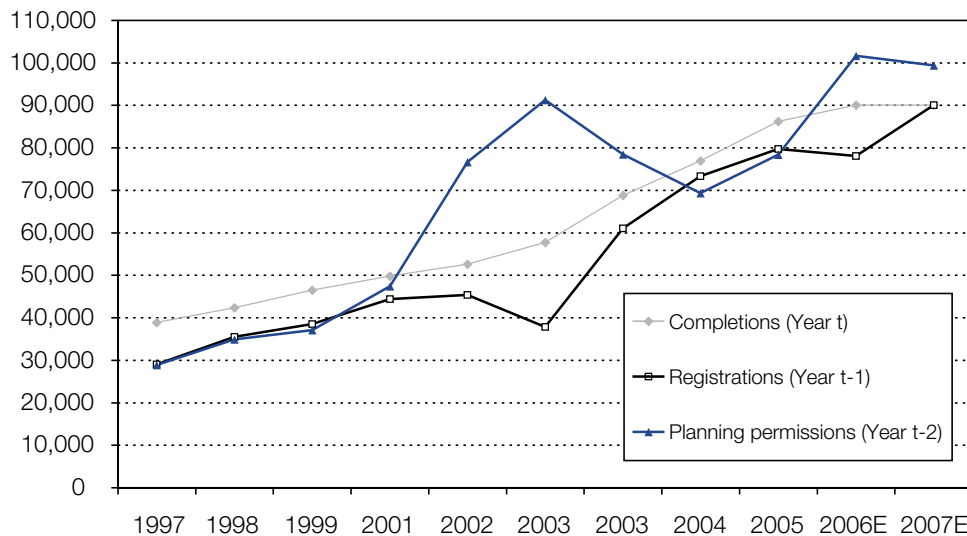
- Recent data published on planning permissions for Q1, 2006 show the total down 11% (sa) compared with Q1, 2005. The disaggregated figures reveal a sharper decline in the number of houses (-12.4%) compared with apartments (-6.4%) over the same period. The four-quarter running total at the end of Q1, 2006 declined for the third quarter in a row to 96,500 from a peak of 104,600 in Q2 2005.
- The figures for registrations are derived by taking the published figure for registrations (which exclude one-off houses) and adding an estimate for the number of one-off houses. Figures for 2006 show the unadjusted registrations figure up 15.5% in the first eight months of the year on the same period in 2005. Based on the adjusted figures (taking account of one-offs), the cumulative twelve-month total reached 88,031 units over the period July 2005 to August 2006. Accordingly, totals completions by the middle of 2007 should be close to this figure, assuming a nine to ten month construction lag.
- Residential commencement notices issued by local authorities have been collected by the DOEHLG since January 2004. Results for the year 2005 indicated that there were 77,700 dwellings commenced of which 19,165 (25%) were single houses - almost the same numbers were reported for 2004. The number of commencements was up 2.5% in the first six months of 2006 compared with the same period in 2005. Within the total the number of single one-off houses was down almost 6% over the same period. The commencement figures appear low when compared with the outturn for completions in 2005 and the recent figures for registrations. Converting the six monthly figure to an annualised total would generate a figure of only 82,000 commencements, which is low by comparison with the expected outturn for completions in 2006.
- Data released on completions for the first seven months of 2006 show total connections at 51,752, up almost 24% on the same period in 2005. After adjusting for the connections backlog, we estimate the growth in completions at just below 4% in the first seven months compared with the same period in 2005.

³⁴ The Net Worth of Irish Households, John Kelly, Central Bank Quarterly Bulletin, Quarter 3, 2006

The level of housebuilding activity may receive some boost in the second half of the year from the phasing out of certain property tax reliefs in the last Budget. The urban renewal, town renewal and rural renewal schemes and the reliefs for student accommodation and holiday cottages are to be terminated in December 2006 subject to certain transitional arrangements. Thus for projects where 15% of the relevant expenditure has been incurred by the 31 December 2006, the relief will apply to only 75% of the expenditure incurred in 2007 and to 50% incurred up to end July 2008, reducing to zero thereafter. The impact of these arrangements may be to boost the level of registrations in the second half of the year, resulting in a higher level of completions in 2007 than might otherwise be the case.

Figure 2.3 charts the number of planning permissions for two years previously (Y_{t-2}) against the number of registrations in the previous year (Y_{t-1}) and the number of completions in the current year (Y_t). All three indicators are very close apart from the period 2001-2003 in the chart, which corresponds to planning permissions granted over the period 1999-2001. The latter period is distorted by the provision of the Planning and Development Act, 2000 and the two-year withering rule, which was subsequently abandoned. The almost 30% hike in planning permission granted in 2004 compared with 2003 may reflect the reapplication for permission for units which had already been granted in 1999 but were never built. This declining trend in planning permissions, which commenced in 2005, is one indication at least that Ireland will eventually build fewer houses than it currently does.

Figure 2.3: Housing indicators, 1997-2007E



Source: CSO, DOEHLG, Figures for 2006 and 2007 are DKM estimates.

In the short term, however, the trends to date in planning permissions and registrations would lend support to the view that the number of units constructed could be higher again in 2006 than in 2005. Our assessment is that total completions this year will be of the order of 90,000, excluding the 5,200 units which represent the carryover in connections from 2005³⁵. This represents an annual growth rate in the number of completed units of 4.5%.

The number of local authority completions in 2006 will include new dwellings expected under the main local authority housing construction and various regeneration programmes. They will also include social and affordable housing units acquired under the various Affordable Housing schemes - the 1999 Affordable Housing Initiative, Part V and the Sustaining Progress Partnership Agreement - although many of these will be captured under the private housebuilding market. For this reason we do not speculate as to the breakdown between the private and the public sectors.

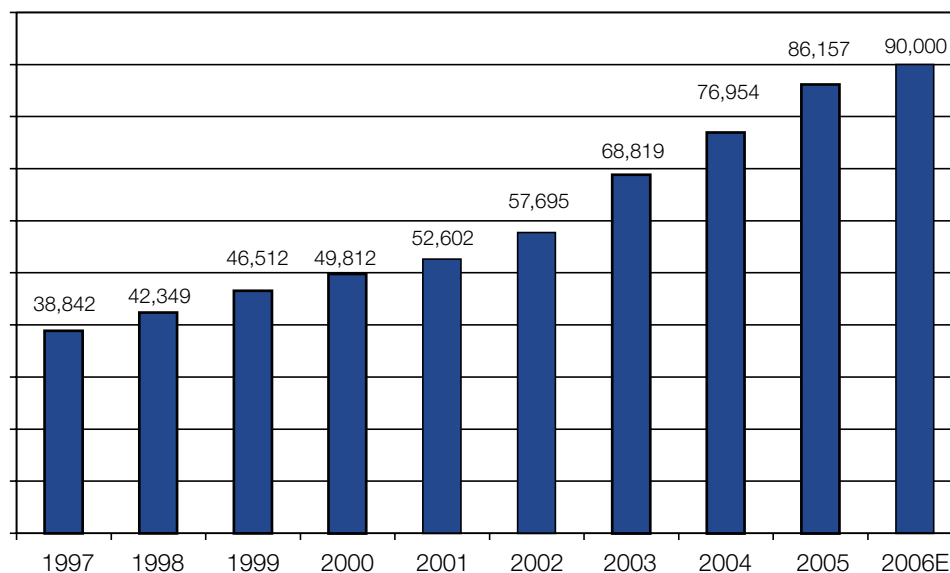
³⁵ Thus the forecast for 2005 of 90,000 compares with the adjusted completions figure for 2005 of 86,157. The forecast figure for connections in 2006 (the measure used by the DOEHLG to measure completions), including the backlog of connections is thus 95,200 compared with 80,957 in 2005.

Prospects for completions in the voluntary and co-operative housing sector in 2006 and beyond are good as figures for work currently in progress, coupled with projects in the pipeline at local level, would indicate that the 2005 level of output can at least be maintained in the coming years.

Thus the value of new housing output in 2006 is estimated at €19.7bn or €24.1bn when RM&I investment is included.

Our assessment of the prospects beyond 2006 (see Section 4) continues to reflect our view that the current level of housebuilding is unsustainable and will fall back over the medium term.

Figure 2.4: Total dwellings completed, 1997-2006E



Source: DOEHLG, DKM

2.2: Private non-residential construction

The private non-residential construction sector covers private sector building investment (new and RM&I) in the following sub-sectors: industrial, commercial, agriculture and tourism, including hotels. There is other private sector construction activity such as investment in private sport and leisure facilities, and golf club houses. We separately identify public sector investment in sporting facilities under social infrastructure but there is no comprehensive data on the level of private sector investment in sporting facilities.

We continue to acknowledge the difficulties with measuring the volume of private non-residential construction. The CSO has been working on a new survey of building and construction which is expected to provide quarterly data on production and orders. The survey is required to meet the requirements of EU Council Regulation No 1165/98 concerning short-term statistics. The statutory survey was initiated in 2004 and collects detailed information on the value of work done and on the value of new orders received in the reference quarter. The target population of the new survey is all firms involved in building and construction activity in the State and the sample survey covers about 2,000 firms each quarter. The survey is still in the development phase but CSO plans to publish results for production in the industry before the end of this year. It is hoped that this survey will, in future, comprise a firmer basis for establishing the true volume of work in the private non-residential sector.

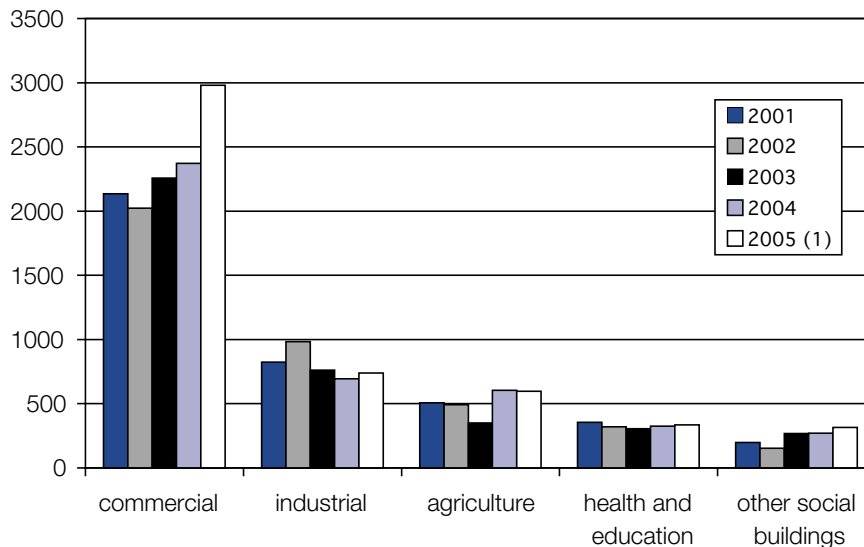
Meanwhile, the estimates provided for construction related investment are the best estimates available, and are based on planning permissions and existing property market and related reports produced by, and discussion with, key players in the property market.

The first signs of a very modest recovery in private non-residential construction activity emerged during 2004. Activity levels increased strongly during 2005 in response to the positive performance of the economy and the particularly strong growth in employment (+4.6%) and consumer

expenditure (+6.6%). Both factors are key drivers of the volume of non-residential buildings put in place, particularly in regard to retail and office buildings and buildings required to accommodate the growth in consumer and business services. The favourable interest rate environment has also supported investment in residential and non-residential buildings.

The following chart provides data on the total floor area planned for new construction in regard to industrial, commercial and agricultural buildings over the period 2002 to 2005. Data is also published for government, health and educational buildings and buildings for social use. While the data only relate to planning permissions which have a five year life, the figures provide an indication of the possible supply of completed non-residential buildings in the pipeline.

Figure 2.5: Total floor area planned for new construction of non-residential buildings (thousand square metres)

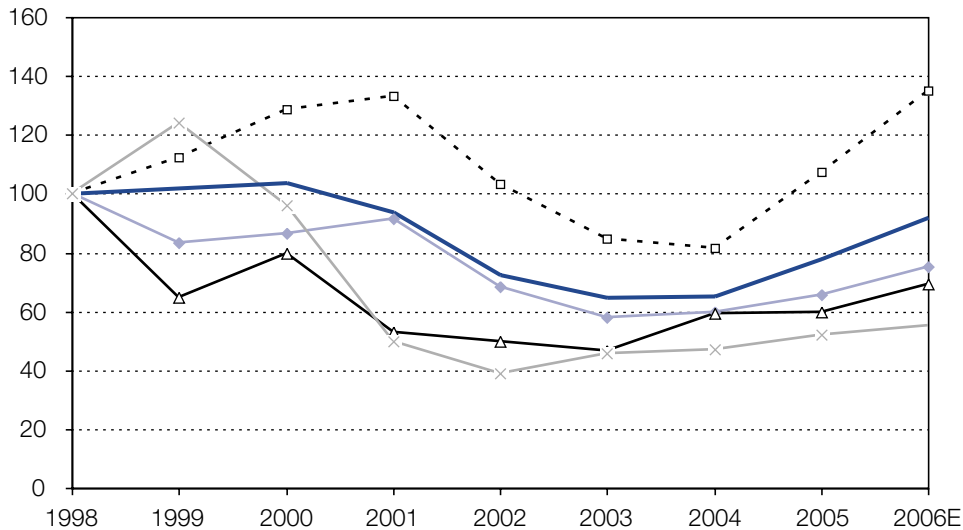


(1) Based on four quarters to Q1 2006.
Source: CSO

The figures suggest that the total floor area planned for commercial buildings recorded a significant increase in 2005 (+26%) compared with 2004. In contrast the total for industrial buildings is down from the peak level in 2002 although the quarterly data recorded an exceptionally strong increase in the most recent two quarters (to Q1 2006), equivalent to almost 60% compared with the corresponding quarters in the previous period (to Q1 2005). Commercial building dominates the private non-residential building sector, accounting for between 50% and 60% of the total floor area granted permission for non-residential buildings over the past five years. This illustrates the dependence of the private non-residential construction sector on the growth in employment in the commercial and services sectors.

The industrial building share of the total has declined from 25% in 2002 to 15% in 2004 and 2005 while the other sectors between them make up the balance of around one-quarter of the total floor area.

Figure 2.6: New private non-residential construction, 1998-2006E
(constant 2004 prices, 1998 = 100)



Source: DOEHLG, DKM

2.2.1: Industry

The estimate for industrial building output in 2005 suggests that the volume of new industrial building market recovered modestly (+6%), after an unchanged position in 2004 while investment in construction by the semi-state agencies³⁶ was up strongly (+41%) for the second year in a row. The total persons employed in the industrial sector³⁷ declined by almost 2% to 237,200 on average in 2005, the fourth year in a row to record a decline. Preliminary figures for March suggest that the decline has ceased with the total number of persons employed up a modest 1% in Q1, 2006 year-on-year.

According to reports from estate agents³⁸ the industrial property market has a positive start this year, with demand strengthening as a result of rising capital values, an increasing level of take-up and improved transport links, including a number of road improvement projects and the anticipated Dublin Port Tunnel. Prime industrial land prices around Dublin have started to rise again, despite the fact that additional lands have already been zoned industrial in local authority plans covering the Greater Dublin Area. The improved transport links should generate more zoned lands for industrial development, particularly in the north Dublin area. Demand is reported to be strong in the Greater Dublin Area from logistics and distribution companies while a number of production/manufacturing companies are reported to be considering the option to redevelop their sites. There are some estate agents who believe that the high level of confidence and enquiries in the sector this year may generate a return to speculative development this year.

Vacancy rates in the Dublin industrial market are reported to be around 12% and are expected to fall to 10% by the end of 2006. Approximately one-fifth of the vacant space in Dublin is traditional manufacturing space located in IDA estates. These companies, some of which have relocated in lower cost locations, are being replaced by companies in higher value sectors such as research and development and pharmaceuticals.

The low interest rate environment continues to encourage the purchase of units while existing owner-occupiers are reported to be seeking modern facilities in prime locations with good transport links. Elsewhere prime locations in the provincial industrial markets are expected to be in demand.

³⁶ Also included under non-residential investment.

³⁷ According to the CSO statistical release on Industrial Employment covering local industrial units in the State with 3 or more persons engaged. These estimates exclude own account workers and very small establishments which are included in the Quarterly National Household Survey from the CSO.

³⁸ Commercial Property Outlook reports for 2006 from CB Richard Ellis Gunne and Hamilton Osborne King.

We have examined again this year investment levels by firms with three or more persons engaged, covered in the Census of Industrial Production (CIP) published by the CSO. The Census provides information on the capital expenditure on buildings and other construction work by firms and their sales of capital assets (disposals). The most recent Census relates to 2003 and shows that manufacturing industries acquired €630m. of buildings and other construction work in 2003 and had total disposals (including plant and equipment) of €334m. Assuming one half of the latter figure relates to the disposal of buildings, this would imply an estimated €463m. of additions to capital assets of buildings and other construction work by the manufacturing sector in 2003 compared with a level which was almost three times higher in 2002. The *Review and Outlook* estimate for new industrial building output in 2003 is €529m.

Table 2.3: Capital assets additions of buildings and other construction by manufacturing industry, 2000-2005, €m.

	2000	2001	2002	2003	2004	2005
Additions to capital assets:						
Buildings and other construction work	833.9	1145.9	1394.4	630.3	652.9	677
Sales of all capital assets	223.7	195.2	220.2	334.3	300.7	289
<i>of which</i>						
buildings (1)	111.8	97.6	110.1	167.2	150.4	144.5
Net additions to capital assets of buildings and other construction work (1)	722.1	1048.3	1284.3	463.2	502.6	532.5
<i>Review and Outlook</i> estimate for new industrial building output	768.4	871.4	640.8	528.6	549.8	606.0

Source: 2000-2003 from Census of Industrial Production
2004, 2005 Capital Assets in Industry Inquiry
(1) DKM estimate

Figures for 2004 and 2005 are from the CSO release on Capital Assets in Industry. The survey results for firms with 20 or more persons engaged are grossed up using the latest CIP results. While the figures, after grossing up, are still lower than the estimates in the *Review and Outlook*, the annual figures, apart from 2003, are within 10-15% of the estimated building output levels in the *Review and Outlook*.

On the basis of developments in the industrial building market presented above, the prospects for industrial building output are positive this year, with the volume of new building output forecast to rise (+5.5%) for the second year in a row.

2.2.2: Commercial - offices

There is no comprehensive coverage on the extent of office building across the State, making it difficult to derive the aggregate position in terms of the amount and value of office building put in place in a given year.

Much of the research that is available tends to concentrate on the Dublin office market, covering Dublin City and its suburbs. In a very detailed analysis of the Dublin office market in 2005 published earlier this year³⁹ the following conclusions were drawn:

- Construction activity in the Dublin office market recovered strongly in 2005 after three weak years. Completion levels were reported to be up by 55% on the 2004 levels, with the majority of new developments located within the Dublin suburban office market.
- Virtually all of the office stock under construction (96%) at the end of 2005 was in the city centre, mostly in the Dublin 2 and 4 areas. Less than half of this space (46%) was pre-let at the end of 2005.

³⁹ Dublin Office Market Report, Jones Lang LaSalle, January 2006.

- The supply pipeline in Dublin, in terms of floor area of planning permissions granted at the end of 2005, was equivalent to 10 years of office building at current completion rates or four and a half years in terms of the stock currently under construction. Based on the estimated stock of office building in Dublin, the supply pipeline was equivalent to 42% of the estimated stock.
- The city centre office market was the focus of the majority of office leasing transactions (take-up) in 2005. Business services (mostly IT companies and solicitors) and finance and insurance accounted for almost two-thirds of the total take-up of space last year.
- The vacancy rate in the Dublin office market was 15% at the end of 2005 and is expected to decline in 2006. This overall average reflects a range which spreads from 9% in the city centre to 22% in the suburban office market.

Other research from other agents⁴⁰ presents a similar story and notes that:

- Economic conditions are boosting employment growth and the demand for more office space from existing businesses and the services sector in particular.
- Prime rents are continuing to edge upwards, resulting in the commencement of speculative development by some developers.
- With a lack of available sites in prime locations, developers are now focusing their attention on purchasing second generation office buildings with development potential.
- Vacancy rates fell further in the first half of 2006 and were down to 11% at the end of June on average and as low as 6% in the Dublin 2 and 4 districts.
- Evidence of the strong performance of the offices sector is apparent from the fact that the offices sector had the strongest quarterly rental growth in Q2 2006 with a rise of 0.8% and an annual increase of 2.4% in the year to June⁴¹.

The Dublin Docklands

During 2005 the Dublin Docklands Development Authority (DDDA) continued its task of implementing the 1997 Docklands Master Plan. As the second phase of the Docklands project progresses, the urban landscape and skyline are becoming an integral part of the identity of the area.

1,852 residential units were completed throughout Docklands in 2005, including 139 social units. At the end of the year 5,831 units were certified or permitted, 20% of which were assigned for social and affordable residences. Construction commenced on 3,188 of these units.

Other key developments over the last year include:

The approval of the amended planning schemes for both the Grand Canal Dock and North Lotts areas in Dublin's Docklands. This clears the way for the increase in height of the U2 and Point Village Towers to 100 metres, the expansion of the capacity of the Point Theatre and the development of the Point Village as a major district retail centre.

- Progress at the Grand Canal Dock area as a number of sites reached completion - Gallery Quay, HQ and Longboat Quay - and the first wave of commercial and residential tenants took up occupation.
- The unveiling of a stunning design, by American landscape artist Martha Schwartz for the 10,000 square metre public space at Grand Canal Square. The 2,000 seater Grand Canal Theatre and the 5-star hotel will both face on to the Square as well as shops, cafes and restaurants at ground floor level.

⁴⁰ CB Richard Ellis, Market Review on Dublin Office Market, Q2, 2006.

⁴¹ Irish Property Index, Jones Lang LaSalle, Q2 2006.

- Significant progress at Spencer Dock in the North Lotts, where the Government has conferred preferred bidder status as the site for Ireland's €400 million National Conference Centre, due to be completed by 2011.
- The announcement by the Department of Arts, Sports and Tourism that George's Dock is to be the new home of the Abbey Theatre.
- Completion of landscaping works on the north campshires at Scotch Berth providing a continuous walkway between North Wall Quay and the Point.

There was also considerable progress made in the area of transport and infrastructure with the completion of the tender process for the landmark 'Samuel Beckett Bridge' at Macken Street and the announcement of plans to extend the Luas to the Point.

Semi-State agencies

Investment by semi-State agencies, also included under non-residential construction, is projected to increase strongly in 2005 (+56%) following an equally strong year in 2004 (+46%). Much of this strong growth is down to a substantial increased allocation for the development of horse racing facilities across the country.

In the light of the above trends and developments the estimates for construction output suggest that the national office market will perform strongly again this year, with a volume growth rate in office building of 30% projected for 2006 following an equally impressive performance in 2005 (+40%).

2.2.3: Commercial - retail

The retail sector continues to be the 'jewel in the crown' of the Irish commercial property sector, with construction activity continuing at a relatively high level, driven by the influx of European retailers, especially from the UK, intense competition in the sector and pressure on existing retailers to revamp and expand their premises. 2005 was a record year with a total of seven significant shopping centres opened around the country during the year⁴².

The sector continues to thrive on the back of rising incomes and strong employment and population growth. The volume of retail sales was up by 4.8% in 2005 compared with 2004, while the volume of consumer expenditure was up by 6.6% last year, the strongest growth since 2000 (+8.4%). More recent figures show retail sales up by a further 6.6% in the first five months this year compared with the same period in 2005. Consumer spending is benefiting somewhat from the release of funds from the Government's SSIA scheme this year and next year, estimated by some to be in the region of €16 billion, although only an estimated €4 billion is expected to pass through directly to consumer spending⁴³. This should ensure that retail construction activity continues at a high level over the medium-term.

A number of retail developments are under construction or planned (see Table 2.4). In addition to the new facilities being developed, refurbishment programmes are planned or underway in many older shopping centres anxious to compete with the more modern shopping centres. A notable trend which has emerged in recent months is the disposal of petrol filling station sites which are seen as offering major redevelopment potential.

Based on the above and on discussions with estate agents, it is estimated that the volume of retail construction output will rise by over 20% in 2006 following a 25% increase in 2005.

⁴² Property Outlook, Hamilton Osborne King, Spring 2006.

⁴³ Central Bank of Ireland Quarterly Bulletin 3, 2006. Page 26.

Table 2.4: Retail schemes currently under construction

Shopping Centres	Location	Size (m2)	Completion date
Athlone Town Centre	Westmeath	25,000	2007
Bridgewater Centre, Arklow	Wicklow	23,225	2007
Letterkenny Town Centre, Pearse Road	Donegal	21,222	2006
Glasshaus, Tallaght	Dublin 24	20,000	
McDonagh Station Site	Kilkenny	18,600	2007
Ballymac Outlet Centre, Dundalk	Louth	15,487	2007
The Pavillions SC, Phase 2, Swords	Dublin 13	14,864	2007
Citywest Shopping Centre	Co. Dublin	14,000	2006
Gorey Shopping Centre	Wexford	12,000	2007
Edenderry Shopping Centre	Offaly	8,361	2006
Johnston's Court	Sligo	6,968	2007
The Galleria, Tralee	Kerry	4,700	2006
Park Place, Hatch Street - former Dunlop Centre	Dublin 2	2,200	2006
ILAC Shopping Centre Extension, Henry Street	Dublin 1	2,149	2007
Retail Parks			
Gullivers Retail Park, Santry Demesne, Santry	Co. Dublin	24,590	2006
Delta Retail Park, Tipperary Road	Limerick	19,325	2006
Carlow Retail Park - Phase 2	Carlow	18,578	2006
Letterkenny Retail Park Phase 3, Letterkenny	Donegal	14,168	2007
Galway West Retail Park	Galway	13,935	2006
Ashbourne Retail Park, Cookstown, Ashbourne	Meath	10,115	2006
Fota Retail and Business Park	Cork	10,000	2007
Carrick on Shannon Retail Park	Leitrim	10,000	2006
Market Green Retail Park, Cork Road, Middleton	Cork	7,850	2006
T J O'Mahony & Sons Ltd., Upper Ballymount Road	Dublin 24	6,537	
Mahon Point Retail Park - Phase 2	Cork	6,000	2006
Former Ivorys Hotel, Tramore Road	Waterford	3,440	2006
Blessington Retail Park, Phase 2	Wicklow	2,545	2006
Westpoint Retail Park, Old Tuam Road, Athlone	Westmeath	1,400	2006

Source: CB Richard Ellis

2.2.4: Tourism

Tourism output covers expenditure on the construction and development of hotels, holiday accommodation, resorts and other amenities and tourism infrastructure. This is a sector which has benefited over recent years from the availability of tax reliefs, particularly in regard to hotels, holiday camps and holiday cottages. Indeed some agents suggest that there are definite signs of oversupply in the hotel sector in certain locations as a result. In addition sales activity in the hotel sector is reported to be strong with a number of prominent hotels reported to be changing hands of late. This alone has boosted the hotel refurbishment market. With tax relief being phased out by July 2008, it is likely that the rate of new build will start to decline next year.

Public investment in tourism infrastructure includes projects funded by the Department of Arts, Sport and Tourism, such as the ongoing works at the Cliffs of Moher; the provision of visitor centres by the Parks and Wildlife section of the DOEHLG; investment by Shannon Development; Waterways Ireland and the OPW (in national monuments). When other public and private investments in tourism related projects are included, the overall volume of construction output associated with tourism investment is forecast to increase in 2006 by 6%, after inflation. Much of this growth reflects a continued high level of hotel building.

2.2.5: Agriculture

The numbers employed in the agricultural sector continue to plummet - total persons employed stood at 106,200 (seasonally adjusted) in Q1, 2006, down from the peak level of 122,100 in Q4, 2003. However, the CSO estimate that aggregate agricultural income (operating surplus) increased by 24% in 2005 to €2.8 billion, due to a large once-off increase in direct payments under the Single Payment Scheme as well as arrears on a number of 2004 premia schemes. The corresponding increase in the gross value added of agriculture was almost 17% in nominal terms.

According to the Teagasc the actual investment in farm buildings in 2005 was €161 million or €179 million when arterial drainage is included, resulting in an increase of only 1% in the volume of agriculture building output in 2005. The Teagasc National Farm Survey of farmers' investment intentions for 2006 forecasts that planned investment in farm buildings will increase substantially to around €261 million this year. This represents a significant increase on the outturn for 2005. As the actual investment carried out tends to be lower than the planned level, we have revised downwards the forecast level of building output for 2006. After adding investment by the OPW in arterial drainage, which is included under agriculture, the projection for 2006 is for an increase in investment in farm buildings to around €215 million or by almost 16% after adjusting for tender price inflation.

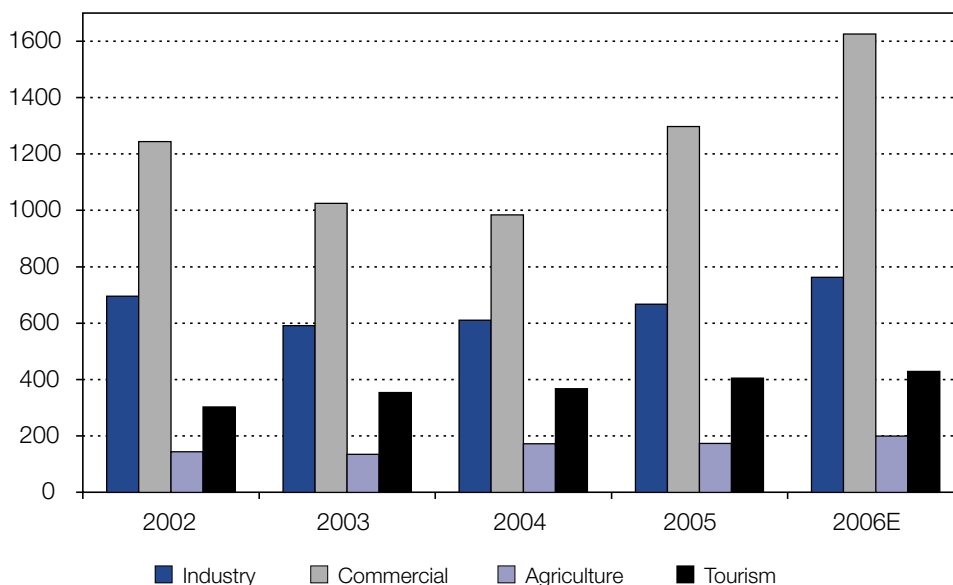
This strong increase in investment in agricultural buildings in 2006 compared with 2005 is the result of a number of factors, some of which include the additional incomes earned from the sale of lands under CPO for road building and also from the sale of lands for residential development. With premium prices received for these lands and for sites sold, farmers are well placed to invest in buildings. The Rural Environment Protection Scheme (REPS), and the introduction of REPS III, also impacted positively on investment in buildings as will the introduction of the farm waste management scheme this year.

The data on planning permissions for farm buildings (Figure 2.5) also supports this recovery in investment, with planning permissions up strongly in 2004 (+73%) compared with 2003, unchanged in 2005 and up around 100% in 2006 Q1 on 2005 Q1.

2.2.6: Private non-residential summary

Combining the prospects for each individual sector, the overall volume of new private non-residential output is forecast to rise by around 19% in 2006, following a similar increase in 2005. All sub-sectors are expected to contribute to this sustained performance. We continue to stress that the methodology for estimating the value of building output in private non-residential construction is weak and a firmer basis is needed to more accurately reflect construction activity in this sector.

Figure 2.7: New private non-residential construction output, 2002-2006E (constant 2004 prices, €m)



Source: DOEHLG, DKM

44 Including forestry and fishing.

2.3: Productive infrastructure

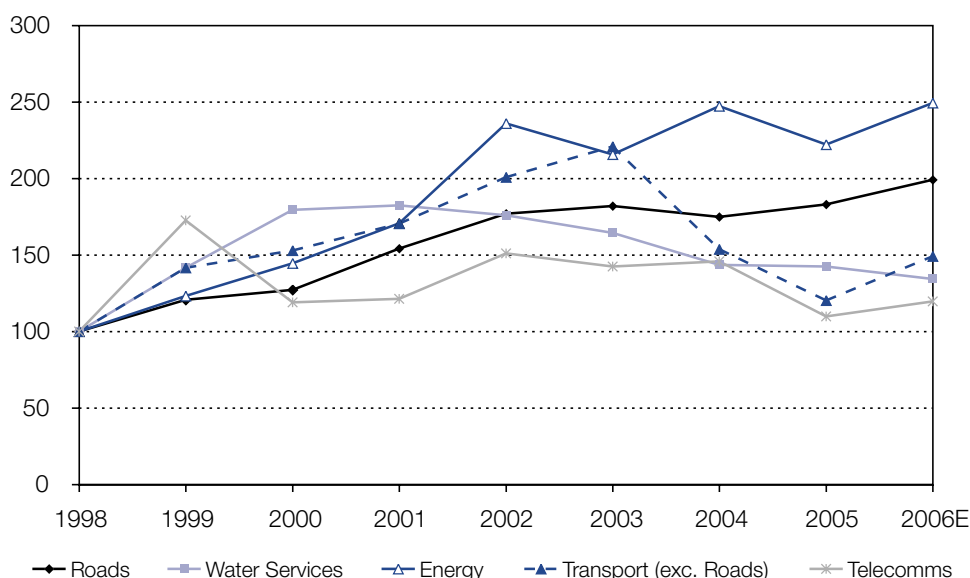
Investment in productive infrastructure captures the total output from all civil engineering projects. In respect of public investment it includes spending on roads, water services, airports, seaports and harbours, as well as investment by the respective Semi-State organisations responsible for transport, energy and telecommunications. The total also includes private sector investment which arises under this heading, such as capital investment by private sector companies involved in the energy and telecommunication sectors.

Overall investment in construction related productive infrastructure projects amounted to €4.8bn in 2005 of which €3.9bn was on new projects and major improvement works. The total investment in productive infrastructure projects, which is predominantly funded by the provisions in the Public Capital Programme, represented 15% of total construction output in 2005.

It is estimated that the overall volume of investment in new infrastructure projects declined by 6% in 2005 compared with 2004, the third year to record a decline in investment. This decline partly reflects the lower level of investment in public transport each year since the completion of the Luas in 2003. This trend is consistent with the provisional outturn for productive infrastructure investment in the PCP for 2005 which was 2.6% lower in nominal terms than the corresponding figure in 2004, before adjusting for inflation⁴⁵.

The forecast for 2006 is for growth of almost 10% in the volume of new investment in productive infrastructure projects with all categories of work making a contribution to this overall growth. Allowing for inflation of around 4% on average for civil engineering projects, this is equivalent to an increase in the value of new investment of 14%. The corresponding forecast annual increase in productive infrastructure investment in the PCP for 2006 is 12%, which does not include the effects of any carryover from 2005. The most recent Exchequer figures show the total public capital spend in the first seven months of 2006 up 8.5% compared with a target of 13.4%. However, much of the capital expenditure tends to be spent in the fourth quarter, and following the almost 30% increase in the month of July alone (on July 2005), the capital expenditure gap may be closed by the year-end.

Figure 2.8: New productive infrastructure, 1998-2006E
(constant 2004 prices, 1998 = 100)



Source DOEHLG, DKM

⁴⁵ Public Capital Programme, Department of Finance 2006

2.3.1: Roads

A total of €1.58bn (excluding land costs) was invested in new road projects in 2005, almost twice the corresponding level in 2000. This represented an annual increase of 4.7% after adjusting for road construction inflation estimated at 4.5% in 2005. This is a record level of investment and reflects the Government's continued commitment to investment in the national primary, secondary and non-national road network.

Among the key developments in 2005 were the following:

- The opening of three major motorways, the South Eastern motorway being the final link on the M50 around Dublin; the M1 Dundalk Western Bypass and the M4 Killock to Kinnegad.
- The opening up of ten major road schemes, representing a total Exchequer investment of over €1bn., a number of which were completed ahead of schedule.

A total of €1.8bn will be invested in road construction this year covering the national primary and secondary road network and PPP projects. Work will start on 15 new projects and 13 other key projects will be completed. The funding includes an allocation for local authorities for improvements on national roads across the State.

Key aspects of the 2006 national road investment programme include⁴⁶:

- Ongoing works on 217 km of road network currently under construction.
- Completion of 13 projects with a combined length of over 82km.
- Commencement of work on 15 new projects with a combined length of 336km.
- Investment of more than €60m. in a national secondary pavement restoration programme.
- Increased use of the "2+1" road type within the overall programme.
- An allocation of €20m. for road safety measures including the fitting of safety barriers on all motorways and dual carriageways.

Work will continue on major schemes such as the:

- N6 Kinnegad/Athlone Phase 1 (28km),
- N11 Arklow Gorey Bypass (23km),
- N2 Monaghan Bypass Phase 1 (3km),
- N2 Ashbourne Bypass/M50 Junction (17km),
- N7 Naas Road widening (15km)
- N8 Fermoy Bypass (18km), and
- N18 Ennis Bypass (21km).

Schemes expected to be completed during 2006 include the Dublin Port Tunnel, Naas Road Upgrade, the Ashbourne, Mullingar, Monaghan and Cavan Bypasses, the Ballyshannon/Bundoran Bypass and the Mitchelstown Relief road. This activity will be supplemented by the commencement of construction on up to 15 major schemes involving 336km of new roadway, including those listed in the following Table.

⁴⁶ For more detailed information see www.nra.ie

Table 2.5: National road schemes due to start in 2006

Scheme	Road type	Length (km)
N3 Clonee to North of Kells scheme	Motorway	60
N4 Dromod Rooskey	2+1 Carriageway	11
N5 Charlestown Bypass	Single Carriageway	18
N6 Kinnegad/Athlone, Phase 2	Dual Carriageway	29
N7 Limerick Southern Ring Road Phase 2 (PPP)	Dual Carriageway	10
N7 Nenagh to Limerick	Dual Carriageway	38
N8 Cullahill to Cashel	Dual Carriageway	40
N8 Cashel to Mitchelstown	Dual Carriageway	37
N9 Kilcullen/Waterford (North Section Phase 1)	Dual Carriageway	19
N9 Kilcullen/Waterford (South Section Phase 1)	Dual Carriageway	24
N11 Enniskerry Junction improvements	Footbridge	-
N11 Kilpeddar Delgany Jn. improvements	Junction	-
N25 Waterford City Bypass	Dual Carriageway	23
M50 Upgrade Scheme Phase 2 (PPP)	Motorway	24
N80 Mountmellick Relief road	Single Carriageway	1

In regard to PPP projects the National Roads Authority (NRA) has

- Awarded the contract to Directroute⁴⁷ consortium as the preferred tendered for the Limerick Tunnel PPP scheme.
- Approved a shortlist of 5 tenderers for the M50 PPP contract.
- Approved a shortlist of 7 tenderers for the M50 free-flow contract.
- Approved a shortlist of 5 tenderers for the M7/M8 Portlaoise motorway scheme and intends to award the contract in early 2007.
- Identified the ICON consortium⁴⁸ as the most economically advantageous tender for the N6 Galway to Ballinasloe dual carriageway project and expects to award the contract in early 2007.

The 2006 provision for road construction and improvements to the road network, according to the 2006 PCP, is €1.9bn of which €1.45bn is for major investment in the national road network and around 436m is for improvements to non-national roads. The anticipated contribution from PPP schemes to national road construction in 2006 is €160m. After deducting land acquisition costs, the total volume of construction output arising from investment in the road network is projected to rise by almost 9% in 2006, after adjusting for tender price inflation of 5%.

2.3.2: Water services

The investment provision for water and sewerage services is by far the largest proportion of the allocation for Environmental Services in the PCP (95% in 2005). It aims to provide an adequate supply of water of suitable quality for commercial, domestic, industrial and other users, and to provide systems for the safe and adequate disposal of sewage and other water borne wastes. The balance consists of investment in the development of waste management infrastructure, which is included under Local Authority Services for the purposes of estimating construction output.

⁴⁷ Comprising Lagan, Roadbridge, John Sisk and Strabag.

⁴⁸ Comprising FCC Construction S.A., ITINERE INFRAESTRUCTURAS, and P J Hegarty.

Significant investment has been made in providing additional water and wastewater treatment capacity and new water supply infrastructure since 1995, reflecting the commitments in the NDP 2000-2006 and successive Water Investment Programmes over the same period, announced by the Minister for the Environment, Heritage and Local Government. Total investment in new construction projects peaked at €560m in 2002. Since 2002 total investment in new projects had declined by 19% in volume terms by the end of 2005. However, since 2000 over 320 new water and sewerage schemes have been completed at a cost of €2.5bn according to the Minister for the Environment, Heritage and Local Government .

Nonetheless, the current Water Services Investment Programme, covering the three-year period 2005-2007, amounts to €5.1 billion in new water and sewerage infrastructure. The programme contains 899 water and sewerage schemes across the country and includes:

- 59 schemes at construction at the time the programme was announced (16 December 2005),
- 193 schemes to commence construction during 2006,
- 191 schemes to commence construction in 2007.

The immediate outlook for 2006 is for investment of €451m, which represents a decline of 6% in the volume of construction output associated with water and sewerage schemes compared with 2005. There is potential for investment of the order of €500m, depending on the level of non-Exchequer funding available.

2.3.3: Airports and seaports

There is a substantial increase in the volume of construction related investment in airports forecast for 2006 (+54%). The total investment in airports reflects major new developments and improvement works by the Dublin Airport Authority (formerly Aer Rianta) at the three State Airports of Dublin, Cork and Shannon and a very modest provision for capital development works at a number of regional airports. The main reason for the significant increase in 2006 is ongoing works at the Terminal Development at Cork Airport and the commencement of a number of projects at Dublin airport (including Pier D and Pier D access).

The total construction related investment in seaports and commercial harbours was €31m. in 2005 and is expected to increase to €38m. in 2006 or by almost 18% in volume terms. Expenditure this year will concentrate on port development, the alleviation of capacity shortfalls and infrastructural improvements.

2.3.4: Energy

The total PCP provision for the energy sector was forecast at €1.57bn. for 2005 in the 2005 PCP. According to the 2006 PCP the outturn for capital investment in energy projects in 2005 was lower than planned, at €1.25bn. This is a substantial downward revision and reflects a combined 20% reduction in actual investment by the ESB and BGE in 2005 compared with their planned levels. As a result the outturn for the construction related investment in energy projects in 2005 was lower than forecast last year; investment in new energy projects declined by 10% last year in volume terms compared with the forecast of +2% for 2005 last year.

Within construction the energy component covers the normal capital investment by the ESB and BGE on the enhancement and extension of their respective transmission and distribution networks, both of which are expected to record volume growth in 2006. New energy investments undertaken by the private sector are also included. Such projects include work underway by Viridian and Sustainable Energy Ireland, the two new power stations by Tynagh Energy Limited and Aughinish Alumina which will be completed this year, and a number of windfarm projects.

49 Press release from DOEHLG "Roche Announces €5bn. Water and Sewerage Plan, 16 December 2005.

The 2006 PCP provides €1.36bn for energy projects in 2006 (13% of the total PCP), up by 8.8% in value terms on the 2005 provisional outturn. The estimates in this report suggest that the volume of construction related investment in (public and private sector) energy infrastructure is forecast to increase by over 12% in volume terms in 2006.

2.3.5: Public transport

The provision for construction related investment under public transport includes capital allocations for the CIE Group, the Railway Procurement Agency (RPA), which has responsibility for the procurement of new light rail and metro projects, and the Dublin Transportation Office, responsible for co-ordinating and implementing the agreed integrated transport strategy for the Greater Dublin Area.

Not surprisingly the construction related element arising under the RPA has declined significantly since the peak expenditure year (2003), reflecting the substantial completion of the construction works associated with the two Luas lines. The total volume of construction output from public transport projects bottomed out in 2005, when it declined by 28% but is projected to pick up again in 2006 (+14%). The value of the overall investment in new construction related public transport projects is forecast at €315m in 2006.

The CIE share (approximately €200m) represents construction related investment in the suburban and mainline rail network and the bus network in Dublin and the regions, as well as investment in the DART upgrade, track renewal, upgrading of signalling, bridge renewal, level crossing improvements and improved safety management across the entire network. Projects under the Rural Transport Pilot Project scheme aimed at improving accessibility in public transport are also included.

The public transport investment estimate this year includes a number of projects which started this year, following publication of the Government's ten-year transport investment programme, Transport 21, last November. Such projects include the Luas extension to Cherrywood from Sandyford, the new Docklands station, the Connolly to Docklands Luas extension, Cork commuter services development and the Portlaoise train depot.

The third and final component of the public transport provision reflects various projects funded by the Dublin Transport Office such as Quality Bus Corridors (QBCs), improved facilities for pedestrians, cyclists and disabled persons and other traffic management projects.

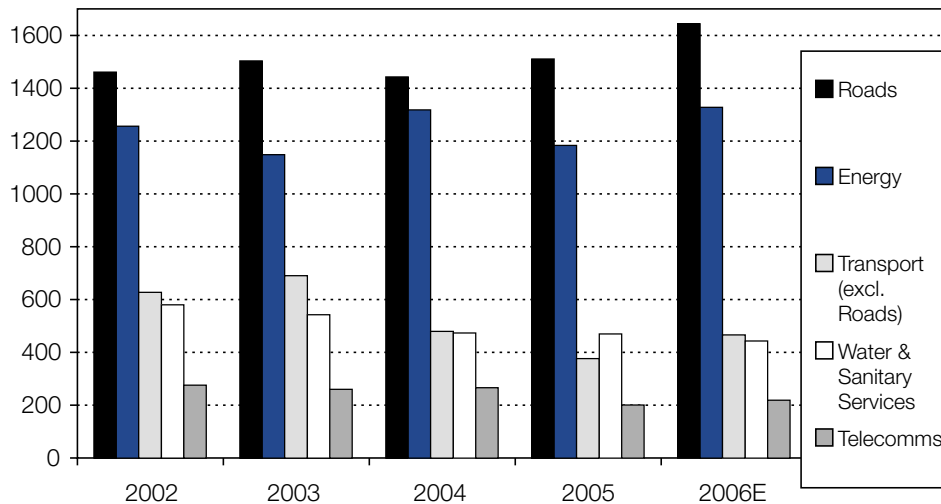
2.3.6: Telecommunications

Activity in the telecommunications sector reflects the entry of new players into the market following liberalisation and thus includes a significant private sector investment component. The estimated volume of investment in new construction projects has been weak since 2003 and apart from a modest recovery in 2004, weakened again in 2005 (-25%). This downturn is consistent with the provisional outturn for public capital investment in the communications sector in 2005 which amounted to only €45m. compared with a planned investment level at the beginning of 2005 of €82m. However, there is a substantial PCP provision for the rollout of telecommunications infrastructure (€98m.) in 2006 which includes an Exchequer provision of €32m. for broadband technology in the regions. As a result the forecast growth in the volume of construction related investment in telecommunications in 2006 is a healthy 9%.

2.3.7: Productive infrastructure summary

Overall the volume of construction related investment from projects under the heading of new productive infrastructure is projected to record a healthy increase of almost 10% in 2006 following a decline of 6% in 2005. The largest categories with productive infrastructure are as follows: transport (roads and public transport) represents 53%; and energy accounts for 36%.

Figure 2.9: New Productive Infrastructure Output 2002-2006E (constant 2004 prices, €m)

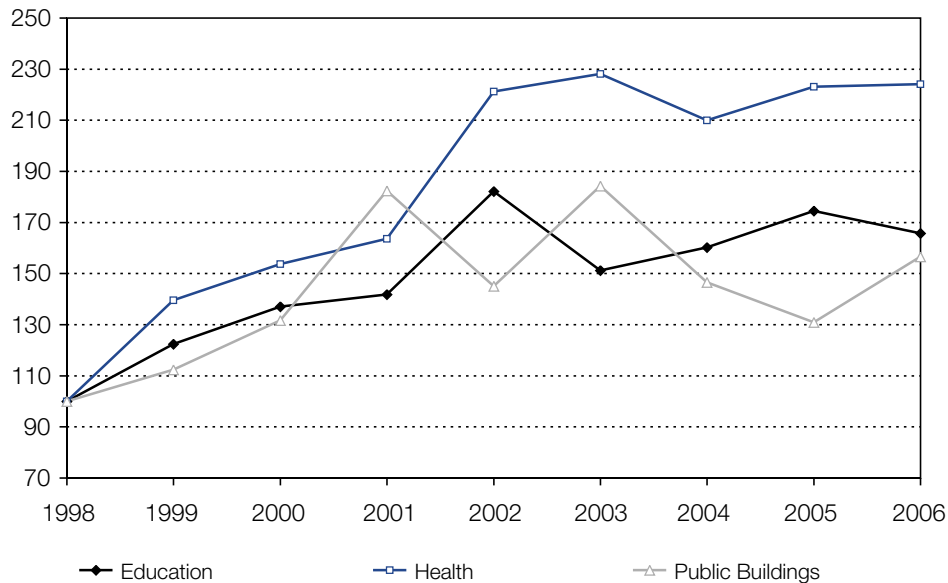


Source: DOEHLG, DKM

2.4: Social infrastructure

Activity in this sector is also determined by the Public Capital Programme, and includes capital investment in education, hospitals, public buildings, local authority (LA) services and public sporting facilities. Following a modest increase (+3.2%) in the volume of construction related investment from new social infrastructure projects in 2005, investment is forecast to be up by much more in 2006 (+9.4%).

Figure 2.10: New social infrastructure 1998 - 2006E (constant 2004 prices, 1998=100)



Source: DOEHLG, DKM

2.4.1: Education

The PCP projected provision for capital investment in education in 2006 is 664m compared with the outturn of 558m in 2005 - an increase of 19% in value terms. The funds are used to improve accommodation and facilities in primary schools and for the construction of new schools, extensions and associated equipment in secondary schools. The allocation at third level is to fund capital works in the institutes of technology and university sectors. The types of buildings funded at third level comprise sports buildings, engineering/informatics buildings, student accommodation, and research buildings.

For the purposes of this Review and Outlook only the construction related investment is measured. Thus site costs and investment in equipment, furniture and IT are excluded. There is also non-grant aided private sector investment in third level facilities across the third level sector, although this is expected to diminish this year, accounting for approximately 25% of total new investment in educational buildings. As a result the overall volume of new construction related investment in educational buildings is projected to fall by 5% this year following an increase of almost 9% in 2005.

2.4.2: Health

Investment in hospital buildings is almost unchanged in volume terms in 2006 compared with 2005 following an increase of 6% in 2004. However, the total PCP provision for 2005, which includes the development of facilities and related services and equipment, is projected to rise by 24% to €639m. This may be a timing factor and reflect the completion of the construction phases on some hospital projects and the commencement of the fit-out phases as well as expenditure on other non-construction related programmes.

2.4.3: Public buildings

The provision for public buildings includes expenditure by the OPW on the provision and refurbishment of accommodation for government departments and offices and for services under their aegis. The allocation also includes construction related investment by the Department of Justice, Equality and Law Reform on the refurbishment of existing prisons and courthouses as well as the commencement of work on new projects, including crèches. A range of building and engineering works carried out by the Department of Defence for the Defence Forces is also included.

The 2006 public building programme specifically includes funding for the following:

- Construction of new garda station buildings and major renovation and improvements to individual garda stations.
- Fitting out and improvement works to state owned properties, including works on Social and Family Affairs offices in Galway, Bray, Cobh and Ballina and refurbishment schemes for the Departments of Foreign Affairs, Health, Justice and the Revenue Commissioners.
- Ongoing works at Dublin Zoo, All Hallows College library and the Irish Maritime Museum.
- €20m. for activities under the Flood Relief Programme.
- Ongoing construction and renovation works at a number of courthouses around the country.
- Ongoing prison refurbishment works.

Excluding the Department of the Environment, Heritage and Local Government, the largest allocation for government construction in the PCP is for the Office of Public Works (OPW). The public capital provision for new and renovation works by the OPW is €310m in 2006 compared with only €164m in 2005. Within this provision, there is a substantial increase for new works, alterations and additions (+49%) which includes expenditure covering the garda building and maintenance programme, the office rationalisation programme and decentralisation. As a result the total construction related investment in new public buildings, including major renovation of existing buildings, is projected to rise by almost 20%.

2.4.4: Other social infrastructure

The remaining categories under social infrastructure comprise local authority services, investment in the Gaeltacht and investment in public sports facilities funded by the Department of Arts, Sports and Tourism.

Investment in local authority (LA) services covers work carried out by local authorities or by private contractors on behalf of local authorities and includes construction work associated with local authority offices, public libraries, the fire services and special amenity projects. Grants for waste management, waste disposal infrastructure and urban renewal works are also included. The Waste Infrastructure Capital Grants Scheme provides assistance at a rate of 75% of capital costs for the provision of waste recycling infrastructure, such as bring banks, civic amenity sites, transfer stations, material recovery facilities and biological treatment plants. Overall investment in LA services is expected to rise considerably in 2006 (+37%), mostly due to a significant increase in the amount being invested in waste recycling and disposal facilities under the NDP Regional Operational Programme, and in miscellaneous local services, such as the construction of local authority offices.

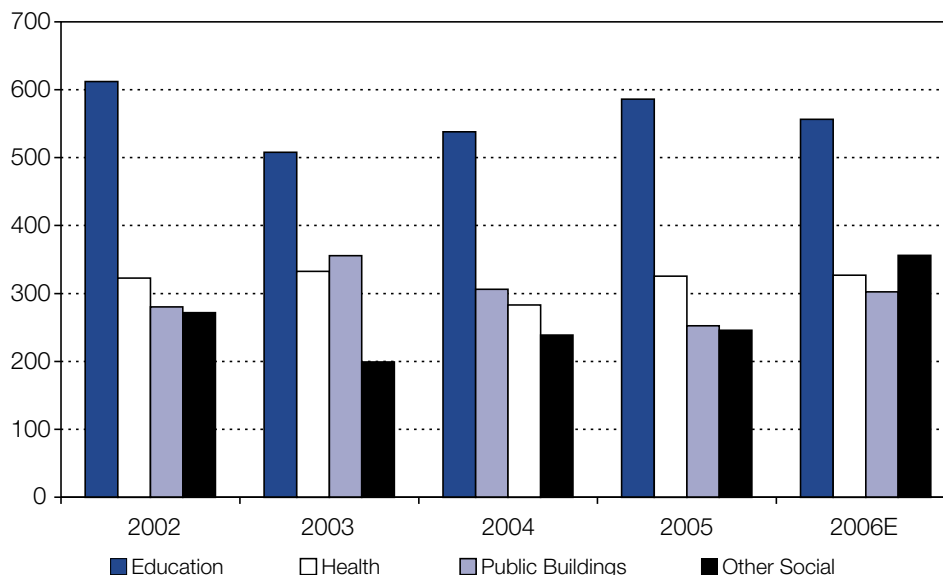
The construction related investment under sport includes the first allocation from the Exchequer (€20m) for the redevelopment of the Lansdowne Road Stadium. This sports allocation also provides capital funding for other sporting bodies, local clubs and centres as well as national, regional and municipal facilities, as well as grants to local authorities for the provision and renovation of swimming pools. The types of local projects being funded include multi-purpose sports halls, community recreation halls and tennis courts. Although the vast bulk of sporting facilities are provided by the private sector, including private sporting and leisure clubs and voluntary sporting organisations, there is no estimate available for private investment in sporting facilities.

Under the category for the Gaeltacht, the construction related element of approximately €57m covers the improvement of strategic Gaeltacht roads, access roads, village renewal and marine works as well as the provision and refurbishment of community and recreational facilities in Gaeltacht areas.

2.4.5: Social infrastructure summary

Overall the volume of output from new social infrastructure building projects is projected to rise strongly in 2006 (+9%) following a modest increase in 2005 (+3%).

Figure 2.11: New social infrastructure output, 2002-2006E (constant 2004 prices, €m)



2.5: Repair, maintenance and improvement

The outturn in 2005 was one in which the RM&I sector of the construction industry performed very strongly compared with previous years. Total investment in RM&I projects was up by almost 5% in 2005 and is forecast to increase by almost 10% in 2006, after adjusting for construction inflation.

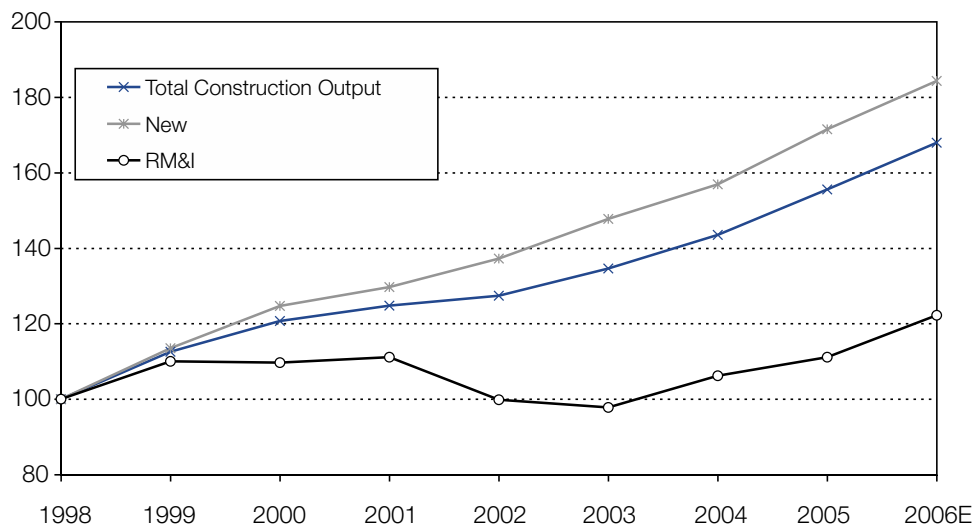
Despite the improvements that we are continually making each year to the methodology for ascertaining RM&I investment levels in the non-residential sector, we believe that there is insufficient data available to accurately gauge investment levels in this sector. We have reservations as to the accuracy of the figures derived for RM&I as we suspect that the figures for new investment may include some RM&I expenditure. However, while we will keep publishing separate figures for both new and repair and maintenance work (Appendix 2), we urge caution in relying on the separate figures for RM&I. Tables 1.5 to 1.8 (Section 1) present construction output figures including expenditure on RM&I.

With the overall volume of RM&I work expected to increase by almost 10% in 2006, the volume of RM&I housing output is up by 9.5%, while the volume of RMI output in the non-residential sector is expected to be up by almost 11% on 2005 levels.

2.6: Overall construction prospects for 2006

These estimates imply that total output in the construction industry will increase by almost 8% this year, following an equally impressive performance in 2005 (+8.4%). This will be the fourth year in a row for the industry to record an increase in output in excess of 6%. This year, the strongest performing sector in terms of new construction activity is the private non-residential construction sector (+19%). The growth in investment in new residential construction is expected to slow to 5% in volume terms, the lowest rate of growth in thirteen years apart from 2001 (+4%). The volume of construction output from new civil engineering projects is expected to be up by almost 10% while the volume of construction output from new social infrastructure projects is projected to rise by over 9%. The forecast is therefore, heavily dependant on the non-residential construction sector where public sector construction is expected to rebound strongly after three years of decline and activity in the private non-residential construction sector is sustained at a high level for the second year in a row.

Figure 2.12: Total construction output, 1998-2006E
(constant 2004 prices, 1998=100)



Source: DOEHLG, DKM

Table 2.6: Annual change in construction output, 2002-2006E (%)

	Value	Inflation	Volume
2002	6.9	4.7	2.1
2003	11.8	5.8	5.7
2004	15.3	8.1	6.7
2005	14.6	5.7	8.4
2006E	14.0	5.7	7.9

Source: DoEHLG, DKM

Section 3: Employment in building and construction

Strong growth in direct employment in construction continues, reaching 264,300 in April 2006, or 13% of total employment in the economy (seasonally adjusted). Including an estimate for indirect employment, this goes up to 18.2%. Numbers employed in the industry have risen 177%, or an average of 9.1% per annum, since 1994.

The growth in construction employment reflects the ongoing strength of housebuilding and the continued recovery in non-residential construction. Employment in the sector is growing at a stronger pace than output volumes, however, leading to concerns that productivity in the sector is falling. Two possible drivers of this trend are the increasing relative importance of house-building - a labour-intensive activity - and the growing complexity of construction activity, which widens the demand for various skills in the sector.

With construction and particularly house-building responsible for an ever-increasing proportion of total employment and output in Ireland, the overall economy remains vulnerable to a slowdown in the sector. The recent and prospective increases in interest rates heighten this vulnerability.

3.1: Employment Levels

There are two official sources of sub-annual data on direct employment numbers in construction - the *Quarterly National Household Survey* (QNHS) and the monthly *Construction Employment Index*. The QNHS is a household-based survey of the entire labour force, while the Construction Employment Index is derived from an establishment survey of construction firms with more than 5 employees. The Index is thus less comprehensive than the QNHS; being a monthly survey, however, it is a more up-to-date indicator.

Another relevant official source is the quarterly *Earnings and Hours Worked in Construction*. Employment in construction is a function of both numbers employed and hours worked. One might have increased numbers engaged in the sector, but if for example there is a move to more part-time jobs or a reduction in overtime levels, then employment in terms of total labour input could actually be shrinking.

In what follows the data from these three sources are analysed, followed by a consideration of indirect and total employment in construction, and a brief discussion of productivity in the sector.

3.1.1: Quarterly National Household Survey

The QNHS was first published in September 1997, replacing the annual *Labour Force Survey* (LFS), and provides detailed measurements of employment, unemployment and labour force in the State, by sector. Full-time, part-time and temporary employment are identified, and the data are also provided on a seasonally adjusted basis, which strips out purely seasonal patterns.

The QNHS splits each year into the four periods December-February, March-May, June-August and September-November (generally referred to as Q1, Q2, Q3 and Q4 respectively). The latest available QNHS is for Q2 2006, and indicates that direct construction employment at that point in time was 264,300, or 13% of the total workforce (seasonally adjusted).

Construction employment over the last decade or so has experienced sustained growth, as summarised in Table 3.1. Data for 1994 to 1997 are from the LFS, taken in April of each year, and thereafter from the QNHS for March-May each year. The data are not seasonally adjusted, to make the two series comparable⁵⁰.

⁵⁰ Methodological differences between the LFS and the QNHS make the two series difficult to compare. However, the CSO has prepared labour force and employment estimates for April of each year back to 1994 consistent with the methodology in the QNHS.

Table 3.1: Direct employment in building and construction (not seasonally adjusted)

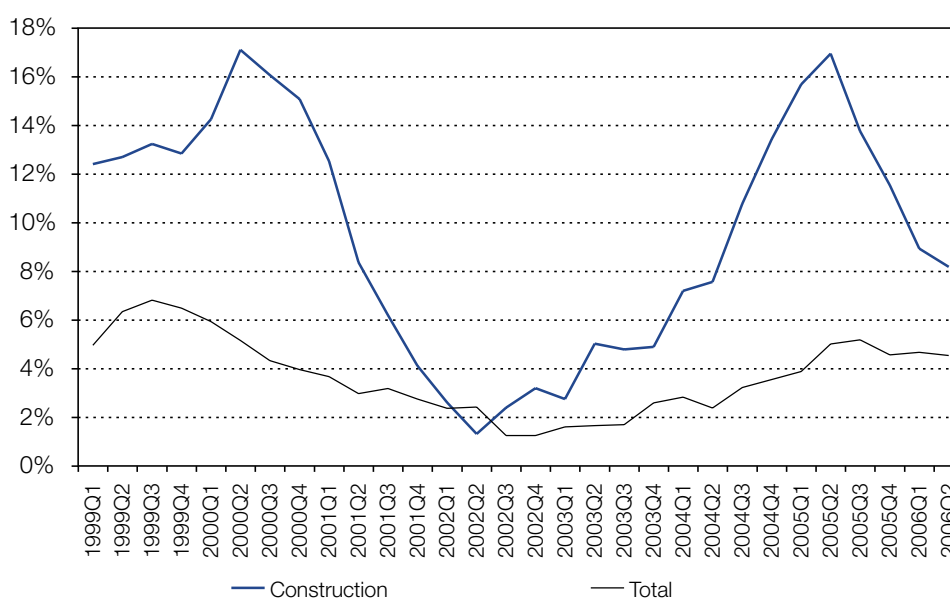
		Employment (000's)	% change year-on-year	% of total employment
LFS 1994	April	91.5		7.5%
1995	April	96.6	5.6%	7.5%
1996	April	100.8	4.3%	7.6%
1997	April	110.4	9.5%	8.0%
QNHS 1998	Mar-May	126.1	14.2%	8.4%
1999	Mar-May	142.1	12.7%	8.9%
2000	Mar-May	166.2	17.0%	9.9%
2001	Mar-May	180.0	8.3%	10.5%
2002	Mar-May	182.2	1.2%	10.3%
2003	Mar-May	191.4	5.0%	10.7%
2004	Mar-May	206.0	7.6%	11.2%
2005	Mar-May	242.4	17.7%	12.6%
2006	Mar-May	262.7	8.4%	13.0%

Source: CSO, QNHS and LFS.

Between April 1994 and Mar-May 2006, construction employment grew from 92,000 to 263,000, cumulative growth of 186%, or an average of 9.1% per annum. This compares with 4.3% per annum for the economy as a whole, making construction the fastest-growing sector in the economy over the last decade or so. The construction sector has accounted for 21% of the net increase in jobs over the period, more than any other sector. The strength of growth in construction employment is very apparent during the height of the “Celtic Tiger” boom (1998 to 2000), at well over 10% per annum. In the year to Mar-May 2000, construction generated almost 30% of the net employment growth in the economy.

Figure 3.1 illustrates the rate of growth in construction employment versus the rate in the economy as a whole in recent years. Growth in construction employment has clearly been stronger than in the economy as a whole for most of the period, although it has also been a good deal more volatile, with significant peaks and troughs. The strongest single year of growth in the sector was the year to Q2 2005, during which construction employment grew by almost 18%, and accounted for over 39% of the net increase in jobs in the entire economy.

Figure 3.1: Construction employment growth versus total employment growth (% yoy sa)

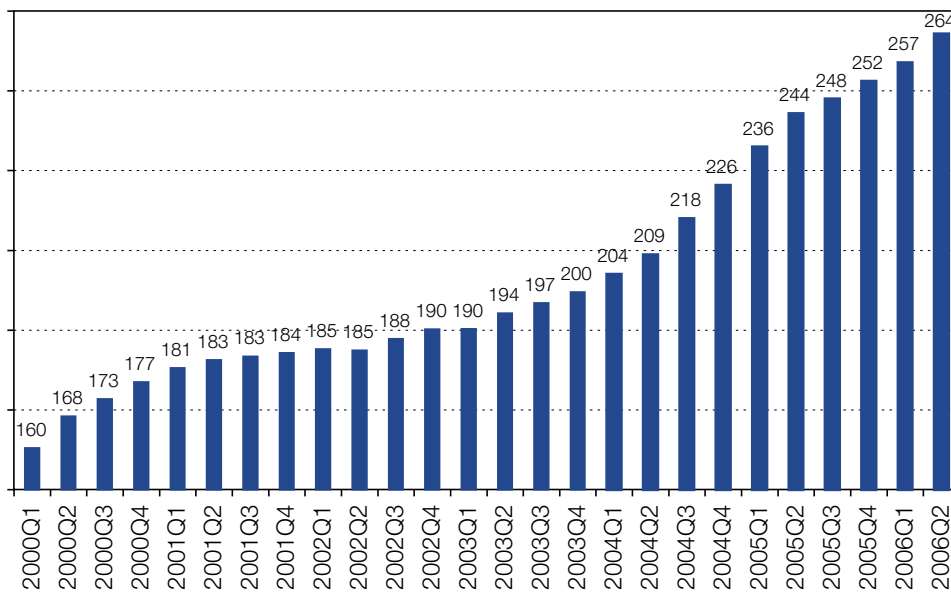


Source: CSO QNHS.

It is noteworthy that since Q2 2005 the gap between the two series has narrowed considerably, as a result of a rapid deceleration in construction employment growth. A continuation of this trend would see the two series converge in the next quarter or two, which would be a welcome indicator that the economy is becoming relatively less dependent on the construction sector. That said, construction employment growth in the year to Mar-May 2006 was still 8.2%, almost twice the overall economy average, and construction accounted for 23% of the total net increase in jobs in the year.

Figure 3.2 shows the development of construction employment during the current decade in more detail. The data are seasonally adjusted, so we can compare quarter-on-quarter. Construction employment has grown by 60% since 2000 Q1. Employment grew steadily up to early 2001, then experienced only modest growth over the next two years. From early 2003 growth spurted again, before decelerating somewhat over the most recent 12-month period.

Figure 3.2: Direct employment in construction 2000-2005 (seasonally adjusted)



Source: CSO, QNHS

The period from mid-2001 to early 2003 coincided with the general economic slowdown, which affected all elements of construction except housing. Employment levels were maintained by switching resources from other areas of construction into housebuilding. The return of employment growth reflects the improvements in the overall economy from 2003. The housing sector continues to grow unabated, while non-residential construction is recovering. Although infrastructural (roads, water plants, etc.) delivery declined slightly over the period 2003-2005, this is not a labour-intensive segment, so there was relatively little impact on employment.

Thus the growth in construction employment has been phenomenal over such a short period, resulting in construction accounting for 13% of the total number of persons in employment across the State, compared with less than 8% on average across the EU 25. Spain and Cyprus had similar shares to Ireland while most of the other EU 25 countries had construction employment shares of between 6% and 9%.

There are a number of reasons why construction employment growth has been so strong compared with other sectors. The growth in construction output has been accompanied not just by higher standards and new methods of construction but also by a more rigorous regulatory environment and an increasing emphasis of new areas of activity, which have generated a demand for more construction workers and new occupations. We would include here, for example, the national spatial strategy, sustainability, rural housing, environmental impact assessment and urban planning.

We have examined the breakdown of employment in the sector to establish which occupations have exhibited the strongest growth. According to data obtained from the CSO the fastest growing occupation group, in percentage terms, is scaffolders, riggers and steeplejacks, which experienced a fourfold increase in the number of persons employed between 1998 and 2006. The number of architects increased threefold over the same period. All twenty occupations in the Table recorded over a 50% increase in the number of persons in those occupations over the eight years to Q1 2006. Many of the professional occupations are included in this group, most notably architects, engineers, building and quantity surveyors. One figure which stands out in the table is the number of electricians, which at 29,700 accounts for almost 12% of the total persons employed in construction.

Table 3.2: Fastest growing occupations within the building and construction sector over period 1998-2006 (in percentage terms)

	Total employment growth Q1, 1998 to Q1, 2006	Employment level Q1, 2006	% of total employment in construction Q1, 2006
Scaffolders, riggers, steeplejacks	333.3%	2,600	1.0%
Architects	200.0%	6,900	2.7%
Electrical engineers	192.9%	4,100	1.6%
Plasterers	184.0%	14,200	5.6%
Roofers, slaters, tilers, sheeters, cladders	172.0%	6,800	2.7%
Mechanical engineers	152.4%	5,300	2.1%
Building, mining and other surveyors	150.0%	2,000	0.8%
Builders, building contractors	137.3%	19,700	7.8%
Mates in Building Trade	133.3%	1,400	0.6%
Floorers, floor coverers, carpet fitters, tilers	112.5%	3,400	1.3%
Civil/mining engineers	112.0%	10,600	4.2%
Bricklayers, masons	102.6%	15,600	6.1%
Quantity surveyors	100.0%	3,000	1.2%
Glaziers	85.7%	1,300	0.5%
Electricians, electrical maintenance fitters	80.0%	29,700	11.7%
Architectural, town planning technicians	77.8%	1,600	0.6%
Plumbers, heating & related trades	76.7%	15,200	6.0%
Other construction trades	61.3%	5,000	2.0%
Painters & decorators	59.7%	11,500	4.5%
Construction and related workers	53.7%	6,300	2.5%

Note: Figures for Town Planners were not provided in the occupational listing.

Source: Central Statistics Office.

3.1.2: Non-nationals in the construction sector

Since 2003, the QNHS has presented figures for the number of non-Irish nationals employed in construction.

The most recent figures suggest that over 12% of persons employed in construction are non-nationals compared with 10% across the economy as a whole. The vast bulk of the non-nationals working in the construction sector and residing in the Republic are from the EU 25 countries (almost 9% of the total).

Table 3.3: Non-nationals employed in the construction sector, Mar-May 2006

	Total employment	% share	Construction employment	% share
Irish	1,818.9	90%	230.2	87.7%
Non-Irish nationals <i>of which</i>	198.1	10%	32.5	12.3%
United Kingdom	40.1	2%	5.4	2.1%
EU 15 excl Irl. and UK	27.5	1%	1.4	0.5%
New Accession countries (EU 10)	79.8	4%	21.4	8.1%
Other	50.7	3%	4.3	1.6%
Total persons	2,017.0	100%	262.7	100%

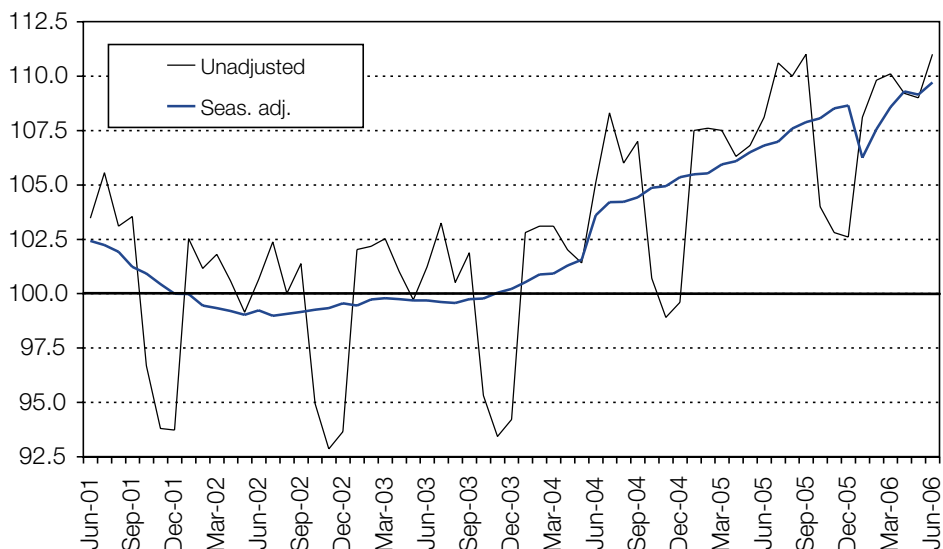
Source: CSO

It is worth noting that as a household based survey the QNHS will not capture construction workers in the Republic from the North if they reside in Northern Ireland.

3.1.3: Construction employment index

This Index is derived from a monthly sample inquiry of approximately 1,000 private sector construction firms with 5 or more persons engaged. The sample includes all firms with 100 or more persons engaged, approximately 75% of firms with 20-99 persons engaged, and about 25% of those with 5-19 persons engaged. It covers permanent staff, proprietors, family members and labour-only subcontractors. It excludes the State sector, the self-employed (apart from the labour-only sub-contractors working for firms in the survey) and firms with less than 5 employees, and as such is not comprehensive. The index tends to be used more as a short-term indicator of employment trends. Figure 3.3 shows the index since the start of this decade, as well as a seasonally adjusted version estimated by DKM.

Figure 3.3: Construction employment index, 2000 = 100



Source: CSO Construction Employment Index, seasonally adjusted by DKM

As one would expect, the series is highly seasonal. The seasonally adjusted series indicates that, for the firms in question, employment peaked in the first half of 2001, then fell for roughly a year, bottoming out in mid-2002, and experienced little improvement over the following year before staging a strong recovery thereafter. The month of January 2006 saw a significant weakening (seasonally adjusted), but the lost ground has been recovered in the months since.

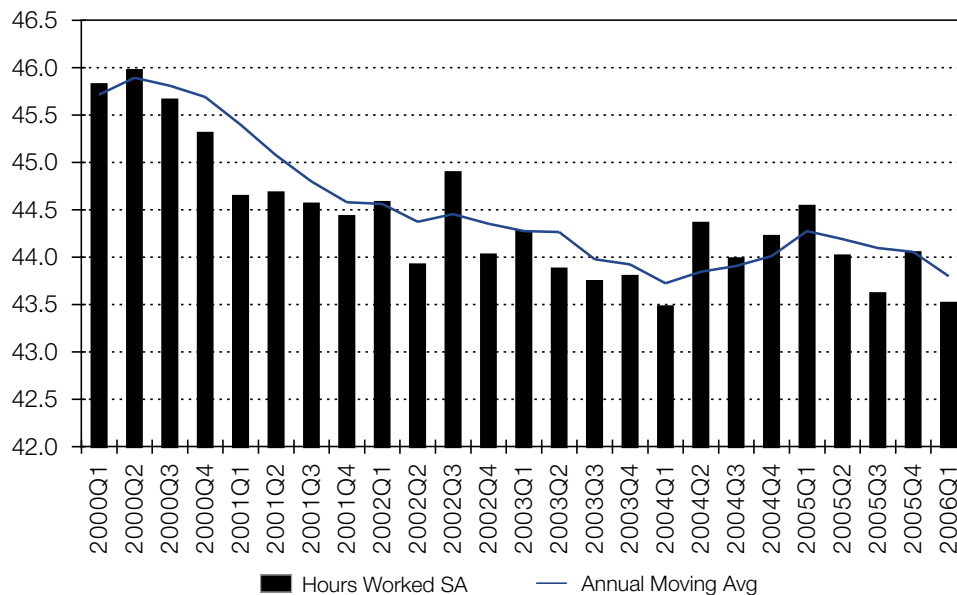
It is noteworthy that this employment index shows less growth than the series from the QNHS (Figure 3.2). Annualised growth in the first half of 2005 was around 5%, but fell to 3% in the second half and to just over 2% in the first half of 2006. This implies that most employment growth is happening in firms with fewer than five persons, or that the industry's employment structure is becoming more fragmented over time, with a greater number of these smaller firms.

3.1.4: Hours worked in construction

The latest release of the CSO's quarterly *Earnings and Hours Worked in Construction* is for March 2006. The data are based on a survey of firms with ten or more persons engaged, and as such this release is less comprehensive than either the QNHS or the monthly Construction Employment Index. It indicates that the average hours worked by persons engaged in these firms was 43.4 hours per week (43.5 seasonally adjusted). Unfortunately we have no means of knowing hours worked in smaller construction firms.

Figure 3.4 presents the trend in these data during the current decade, seasonally adjusted, so they are comparable quarter-on-quarter.

Figure 3.4: Hours worked in construction (sa), 2000 to date



Source: CSO Earnings and Hours Worked in Construction, seasonally adjusted by DKM

Average hours worked has been on a downward trend for the first four years of this decade, falling from 46 hours per week in 2000 Q2 to 43.5 hours per week in 2004 Q1. It recovered somewhat thereafter, but since early 2005 has been falling again.

3.1.5: Indirect and total employment numbers

The QNHS figures for construction relate to direct employment only. They thus exclude employment in the manufacture and distribution of building materials, plant hire, and a proportion of construction-related employment in the professional services sector (e.g. engineers, architects, planners, etc.)⁵¹.

⁵¹ Research by DKM in 2003 (A Qualitative and Quantitative Assessment of the Skills Needs of Construction Professionals, 2003-2015, for FÁS) on construction-related professional services concluded that at that time around 16,700 persons were employed as construction professionals and a further 7,000 persons were employed as associate professionals and technicians, making a total of 23,700. Of this total, 9,100 or 38% were included in the Construction heading in the QNHS, with the balance of 14,600 or 62% included in other sectors.

While no official statistics exist for indirect construction employment, it has traditionally been estimated at 40% of direct employment⁵². On this basis, total employment in Construction in Q1 2006 would have been:

Table 3.4: Construction employment numbers 2006 Q2

	'000
Direct employment per QNHS (seasonally adjusted)	264.3
Indirect employment estimate at 40% of direct	105.7
Total Estimated Employment	370.0

Source: CSO QNHS, DKM

On this basis, direct and indirect construction employment represents 18.2% of total employment in the economy.

3.2: Structure of the construction sector

While there are no official data on the total number of firms in the construction sector, it is generally agreed that the number has been increasing rapidly, mainly as a result of a proliferation of small firms and sole traders. Over the past twenty years, the employment structure of the industry has changed fundamentally, with most major firms changing from being large direct employers to operating as contract managers, and the bulk of work being carried out by sub-contractors. This fits with the picture presented in the QNHS and Construction Employment Index, whereby most employment growth appears to be occurring in firms with fewer than five persons and sole traders.

The CSO's *Census of Building and Construction* gives some information on the structure of the sector, but it only covers firms with 20 or more employees, and the latest available Census is for 2004. The results are summarised in Table 3.5.

**Table 3.5: 2004 Census of Building and Construction
(private sector firms with 20 or more persons engaged)**

	Census results	%age of total construction sector (note 1)	% change on 2003
Number of firms	736	1%	7.9%
Persons engaged	65,024	32%	15.0%
Persons engaged per firm	88.3		6.5%
Total turnover (€ million)	12,354	45%	19.8%

Breakdown of turnover as principal contractor:

	€ million	% split	% change on 2003
New dwellings	4,238	41.8%	34.0%
New other	5,705	56.2%	11.4%
Total new	9,943	98.0%	20.0%
Total RM&I (note 2)	205	2.0%	32.5%
Grand total (note 3)	10,148	100.0%	20.2%

Notes:

1. Industry total number of firms and turnover are estimates; total numbers engaged are from QNHS Q2 2004.
2. Repairs, Maintenance & Improvements.
3. Excludes work done as a subcontractor.

Source: CSO, 2004 Census of Building & Construction; Forfás 2006 Small Business Report.

⁵² This is broadly in line with the methodology used by the EU Commission (The Competitiveness of the Construction Industry [Com (97) 539 Final], 4th November 1997, Page 2).

Only 736 firms employed 20 or more persons in 2004, and they accounted for 32% of direct construction employment, indicating that the bulk of construction firms are very small. Of the 736 firms covered by the Census, only 193 had 50 or more persons engaged, and only 31 had 250 or more engaged. The aggregate turnover for firms covered in the Census was €12.4 billion, representing 45% of total construction output in 2004, and up 20% on the 2003 figure (before adjusting for inflation). Turnover growth was particularly strong for New Dwellings, up by a third. Total volume output of the entire construction sector in 2003 rose 6.6%.

The Census reported total employment of 65,000 persons in the firms covered, 32% of total Construction direct employment per the QNHS. This was an increase of 15% on 2003. Total Construction employment grew in the same period by 7.6%, so these larger firms recorded twice the employment growth rate of the industry as a whole. Comparing the proportion of the total workforce in the larger firms with their 45% share of total sectoral output suggests that these firms have higher labour productivity than smaller firms, but may reflect that they are engaged in more capital intensive activities, for example civil engineering rather than house-building.

It is interesting that the Census data imply that firms with 20+ persons engaged are growing faster than the industry average. We've seen already that the very smallest firms are also growing rapidly. The implication is that the "medium" size firms, with 5-20 persons engaged, are the slowest growing section of the industry. However, the strongest growing firms in the 5-20 persons bracket will inevitably migrate into the 20+ bracket over time, so care is needed in drawing conclusions from these data.

Table 3.6: 2004 Census of Building and Construction structure of employment

Manual workers	Nos.	% age of total	% age change on 2003
Skilled operatives	16,006	24.6%	8.5%
Apprentices	4,557	7.0%	14.4%
Unskilled & semi-skilled	12,852	19.8%	24.1%
Sub-total	33,415	51.4%	14.9%
Managerial & technical	5,391	8.3%	11.4%
Clerical	4,234	6.5%	18.0%
Foremen & supervisors	5,043	7.8%	20.8%
Sub-total	14,668	22.6%	16.4%
Total employees	48,083	73.9%	15.3%
Proprietors & family members	643	1.0%	1.7%
Labour-only sub-contractors	16,298	25.1%	14.5%
Total persons engaged	65,024	100.0%	15.0%

Source: CSO, 2004 Census of Building & Construction.

The breakdown of employment in these firms is summarised in Table 3.6. Of the total persons employed in 2004, 51% were manual workers, and 23% were employed in managerial, technical, and clerical positions, or as foremen. Roughly 1% were proprietors or members of family, while 25% were labour-only sub-contractors. Particularly strong growth (over 20%) was recorded for semi-skilled and unskilled workers, and for foremen and supervisors.

This is the only official source analysing the construction sector by size, at the moment. In early 2006 a major study published by Forfás attempted to measure in more detail the structure of small business (firms with 50 or fewer persons engaged) in Ireland, including construction⁵³. The study estimated that in Mar-May 2005:

⁵³ A background study to this report was DKM Economic Consultants, *The Economic Impact of Small Business in Ireland*. Forfás, March 2006.
http://www.smallbusinessforum.ie/webopt/sbf_dkm_background_report_webopt.pdf

- There were roughly 63,000 construction firms with fewer than 50 persons engaged. As the data from the *Census of Building and Construction* implies, the vast bulk of these had fewer than 20 persons engaged.
- Roughly 31,000 construction enterprises were sole traders, with a similar number employing between 2 and 19 persons.
- Of the 242,000 persons engaged in construction at the time, 31,000 were sole traders, roughly 160,000 were employed in firms with between 2 and 19 persons, 22,000 were employed in firms with 20-49 persons, and 29,000 in firms with 50+ persons engaged (note that in contrast to the *Census of Building and Construction*, labour-only sub-contractors were treated as separate enterprises by the Forfás study).

An important source for the Forfás study was the analysis of employment status in the QNHS, which analyses persons by whether they are employees, self-employed with employees, or self-employed without employees (i.e. sole traders). The figures under these categories in Q1 2006 are:

Table 3.7: Structure of employment in the construction sector, Q1 2006 (nsa)

	Male	Female	Total
Self-employed (with paid employees)	28.0	0.5	28.5
Self-employed (with no paid employees)	32.0	0.5	32.5
Sub-total Self-employed	60.0	1.0	61.0
Employees (incl. schemes)	180.2	11.0	191.2
Assisting relatives	0.9	0.7	1.6
Grand total	241.1	12.7	253.8

Source: CSO QNHS Q1 2006, unpublished data.

These data imply that there are just over 60,000 separate construction enterprises in Ireland currently, of which roughly 32,000 are sole traders. The overwhelming gender imbalance in the sector is also clear.

In comparing these numbers with the estimates per the Forfás study discussed above, it is worth noting that the latter concluded that the QNHS figures represented a slight under-estimate of the number of construction enterprises. The total number of self-employed per the QNHS coinciding with the Forfás study (Q1 2005) was 58,000. This can be compared with the figure of 61,000 per the above table, indicating growth of roughly 5% in the number of construction enterprises in the last year.

Surveys of the construction sector also provide information on the sector's structure, notably "Ireland's Top 150 Builders", in *Construction*, February 2006. It indicates that:

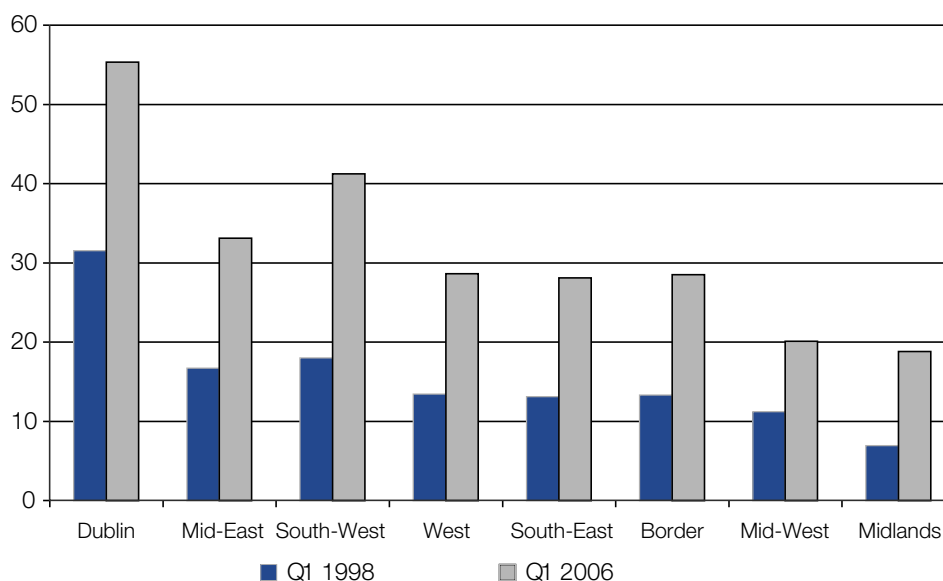
- The top 20 Irish contractors (by turnover) had combined sales of €5.1 billion in 2005, 16% of total construction output. Between them they employed roughly 11,600 workers, or 4.7% of total direct construction employment.
- The top 50 construction firms had a combined turnover of €7.1 billion in 2005, 23% of total construction output. They employed 17,000, 6.9% of total direct employment in the sector.
- The top 150 firms had a combined turnover of €9.1 billion in 2005, 29% of total construction output. They employed 26,800, or 10.9% of total direct employment in the sector.

These data highlight that a small number of large construction firms account for a significant proportion of total output. The Census of Building & Construction 2003 and the QNHS confirm this, indicating that roughly 1% of firms account for 45% of output (Table 3.5).

3.3: Regional breakdown of employment

Figure 3.5 provides a breakdown of building and construction employment in Q1 of 1998 and 2006 respectively per the QNHS, for the eight planning regions.

Figure 3.5: Regional employment in building and construction '000s 2006 Vs 1998 (not seasonally adjusted)



Source: CSO.

The main points are:

- Dublin accounted for the largest share of employment in Q1 2006, with 55,300 or 21.8% of the total, followed by the South-West, with 41,200 or 16.2% of the total.
- Over the six-year period, direct construction employment has grown by 130,000. Dublin recorded the highest employment gain in absolute terms, at 23,800, followed closely by the South-West at 23,200. At the other extreme, the Mid-West has recorded growth of only 8,900 over the period.
- In percentage terms, construction employment growth has doubled over the eight years. All regions have recorded significant increases in numbers employed. The Midlands, while having the smallest number of construction employees in absolute terms, recorded the largest percentage increase over the period, of 173%. This was followed by the South-West at 129%. Dublin recorded the lowest percentage increase, at 76%.

3.4: Unemployment in the construction sector

Unfortunately there is no reliable source of data for unemployment in the Construction sector. The QNHS is the official source of unemployment statistics in the State, but it does not analyse the data by sector.

The Live Register, which records those claiming Unemployment Benefit and Assistance, has information on numbers of persons who had previously worked in the construction industry. However, it is generally agreed that the Live Register is not a reliable indicator of unemployment, by sector or in aggregate.

The national unemployment rate in Q2, 2006 was 4.4% (sa), compared to 4.3% one year earlier. Assuming the construction sector unemployment rate is the same as for the economy as a whole, then unemployment in the construction sector would be roughly 17,000⁵⁴.

⁵⁴ Based on the following calculation: $370,000 \times 0.044 / (1 - 0.044) = 17,000$

3.5: Construction labour force

Without an official sectoral unemployment measure, it is not possible to measure definitively the total size of the construction sector labour force. However, we can make an estimate, based on the preceding calculations, as summarised in Table 3.8. On this basis the construction labour force in Q2 2006 amounted to roughly 387,000, or 18.2% of the total labour force in the economy (2.1 million sa).

Table 3.8: Estimated construction sector labour force, Q2, 2006 sa

	'000s
Direct employment	264.3
Indirect employment (40% of direct)	105.7
Total construction employment	370.0
Unemployment (4.4%)	17.0
Total construction labour force	387.0
As % of total labour force	18.2%

Source: CSO QNHS; DKM Estimates.

3.6 Construction sector productivity

Productivity growth is a key factor in Ireland's sustained economic expansion. The shift away from manufacturing towards services in recent years has raised concerns that productivity growth in the future may not be as rapid as heretofore⁵⁵. With construction accounting for around 24% of GNP, based on estimates presented in this report (see Key Statistics table), and a key driver of employment growth, productivity trends in construction are important for the overall economy.

3.6.1 Productivity and its measurement

The general definition of productivity is the amount of output per unit of input. Output can relate to either gross output or to value added (see discussion in Section 1.2), and its composition can change over time: for example, residential construction accounted for 42% of total construction output in Ireland in 1990 but 68% in 2005. On the input side, there are a number of different inputs, or factors, most importantly labour and capital (i.e. plant and machinery). Productivity measures can thus relate to a single input, such as labour, a group of inputs or total inputs (i.e. total factor productivity).

There is a further complication in that the changes in productivity need to be ascertained in real terms, making it necessary to deflate whichever construction output series is used by an appropriate construction price index. Thus measuring construction productivity is not a straightforward task.

Difficulties with measuring construction productivity are not confined to Ireland. A preliminary investigation of long-term construction productivity trends in the US stated that "there is a lack of agreement and understanding concerning this critical issue"⁵⁶. The US Bureau of Labour Statistics (BLS), which maintains productivity indices for all significant sectors of the economy except construction, cites "a lack of suitable data" as the main reason for not covering construction⁵⁷. Other sources indicate that productivity measures have been avoided by the US BLS due to the lack of a professional and academic consensus on appropriate measurement techniques⁵⁸.

55 For example: *Falling Productivity Growth Needs to be Addressed*, Davy Weekly Market Comment, August 1st 2005.

56 "US Construction Labour Productivity Trends 1970-1998", Centre for Construction Studies, Report No. 7, University of Texas, Austin, USA, March 1999.

57 In the US there are two primary types of productivity statistics used in economic analysis: (i) labour productivity measures or output per hour of labour, and (ii) multifactor productivity measures or output per unit of combined inputs.

58 "Measuring Productivity and Evaluating Innovation in the US Construction Industry", Building Futures Council, Virginia, 2005.

3.6.2 Factors affecting construction productivity

From a brief survey of the literature, a number of factors arise as particularly affecting the measurement of construction productivity, compared with other industrial sectors:

- a) Construction projects tend to be unique, and construction workers often have to go through a learning curve at the beginning stages of more complex projects. Factors such as topography, geology and weather can have a radical impact on apparently similar projects.
- b) The sector has been affected by a number of changes over time, which make it difficult to measure productivity on a consistent basis, including:
 - Design changes and improvements in building processes.
 - Stricter building and planning regulations, and environmental standards.
 - Changing client requirements, for example landscaping, information technology, networked systems.
 - Technological improvements have changed how the most basic tasks on site are performed. The increased complexity of plant and machinery can significantly impact on the skill requirements of the workforce over time.
- c) One US source highlights that: (i) good management practices can result in less time wasted on site and lead to more projects being completed on time and within budget, and (ii) a reduction in the proportion of unionised labour on site can improve productivity⁵⁹.
- d) The construction workforce tends to be highly mobile. Some of the literature suggests that as a result, contractors are reluctant to invest in training for workers who may move on to be someone else's employees. This could result in reduced average capability levels among the workforce over time.

3.6.3 Labour Productivity in the Irish construction industry

Armed with the employment data set out in this section, and measures of construction output, we can comment on one important aspect of construction productivity - labour productivity. Unfortunately we have no data on capital utilisation in the sector, so we cannot comment on capital or total factor productivity, or even be prescriptive about labour productivity.

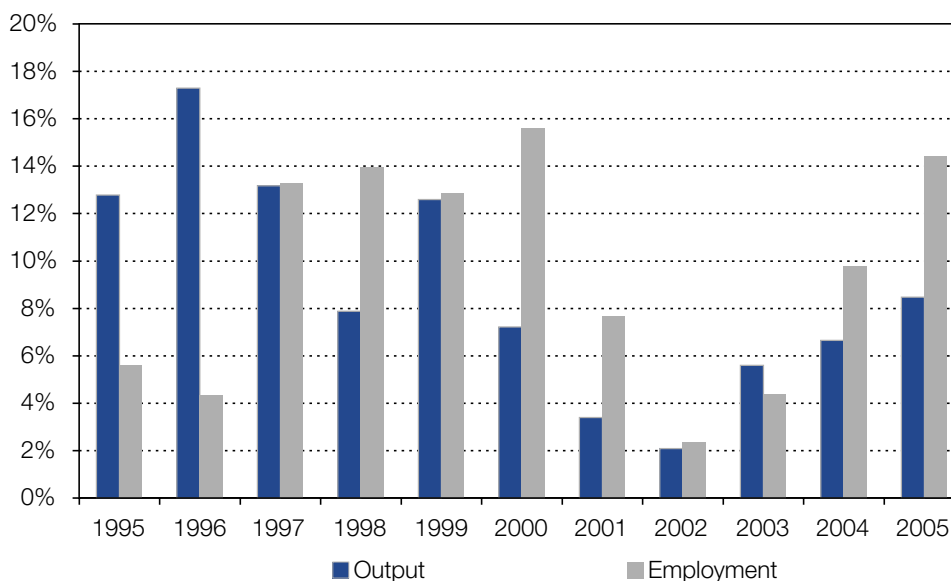
It is a feature of the statistics on the Irish construction industry that apparent labour productivity - the percentage increase in output compared with the percentage increase in employment - varies greatly from year to year. Figure 3.6 compares annual growth in construction output with annual growth in construction employment, since 1995⁶⁰.

The chart demonstrates the very strong growth in both series over the period. Output growth was stronger than employment growth in 1995 and 1996, suggesting improving labour productivity. However, in every year thereafter, with the exception of 2003, employment growth exceeded output growth, suggesting weakening labour productivity.

⁵⁹ University of Texas, 1999 (op. cit.).

⁶⁰ The question of labour productivity in the Construction industry was discussed in detail in last year's *Review & Outlook*.

Figure 3.6: Annual percentage growth in construction output and employment, 1995-2005



Source: Estimate for volume increases in construction output from *Review & Outlook*. Annual employment level for 1998-2005 based on average of the four quarters of each year per the QNHS. Employment data for 1995-1997 are the April estimates per the annual Labour Force Survey.

Table 3.9 sets out the percentage increase in output versus the increase in employment on a cumulative basis since 1995. As can be seen, the growth rate in 1995-2000 was much stronger than in 2000-2005, and the rates of growth in output and employment were similar. While both series slowed down in 2000-2005, output growth slowed to a far greater degree, suggesting a significant change in productivity during the current decade.

Table 3.9: Cumulative volume change in construction output and employment, 1995-2005

	Cumulative % age change Output	Cumulative % age change Employment
1995-2000	73%	76%
2000-2005	29%	45%
1995-2005	123%	154%

One factor likely to be driving this trend is the increasing importance of housebuilding, which is significantly more labour intensive than commercial/industrial construction or civil engineering. In addition, the increasing scale and complexity of projects in the industry are likely to be driving growth in demand for construction services, as a result of:

- the more rigorous regulatory environment with respect to building work;
- the increasing importance of, and attention paid to, design in the construction process;
- the focus on new areas of activity and/or new initiatives such as spatial strategy, rural housing, conservation, sustainability, urban planning, high density and the whole living environment;
- higher standards and new methods of construction.

Also, as stated, without information on capital utilisation in the sector, our analysis of productivity is incomplete. Further, there are issues regarding the accuracy of construction output data, which have been referred to earlier in this report.

A recent attempt to measure productivity in one sector of the construction industry is *Productivity in Residential Construction* (Forfás, 2006). It estimates a labour productivity improvement of 24-30% in the house-building sector over the period 1993 to 2003, equivalent to 2.4% per annum. This appears somewhat at variance with our estimations above, notwithstanding the difference in periods and sectors covered. However, the Forfás report is forced to make a number of assumptions due to lack of data, most notably the proportion of the construction workforce engaged in house-building (they assume 75%), and variations in these assumptions could lead to different conclusions.

Estimating productivity in any sector of the economy is a complex task, and construction is not unique in having difficulties in this regard. Further investigation is warranted, but requires more data before conclusive answers can be arrived at.

Section 4: Medium-term prospects to 2008

The international economy is performing well, with strong growth in many of the key economies and definite recovery in others (notably Germany and Japan). Risks to international growth are coming more into focus, however, with energy prices a particular issue. Interest rates are rising in the Eurozone, although their upward trend may have stalled in the US and UK. Global imbalances remain, particularly the US trade deficit, which raises the possibility of a significant devaluation of the US Dollar. Further, there is a risk of over-valuation in housing markets in a number of key economies.

Irish economic prospects are good, with growth in 2006 and 2007 expected to match or exceed 2005. Consumption and investment, including construction, remain the drivers of growth. The SSIA money, and the election in 2007 will tend to underpin activity in the short run, while strong growth in employment and consumption will boost the demand for non-residential buildings. However, the same risks that apply to the global economy also apply in Ireland: rising interest rates and energy prices, the risk of a correction in house prices and of an appreciation of the Euro versus the US Dollar. A number of commentators have indicated that they see a significant possibility of a slowdown in 2008.

Once again the medium-term prospects for the sector will be strongly influenced by the prospects for residential construction. Our overall assessment of the prospects for residential construction continues to reflect our view that the current rate of housebuilding is unsustainable over the medium term and that Ireland will eventually build fewer houses than it currently does. While our base case comes down in favour of a soft landing, as higher mortgage rates dampen residential transactions, the slowdown does not materialise until 2008. However, in an alternative scenario where confidence is seriously dented due to some adverse economic shock, the probability of a major price correction would increase over the medium-term, with serious ramifications for the macroeconomy.

The prospects for non-residential construction are bright as public sector construction benefits from the infrastructure commitments expected in the next National Development Plan 2007-2013 and the transport investment priorities set out in *Transport 21*. It will be important to ensure that the building sector does not become capacity constrained or that inflationary pressures are not exacerbated in a race to fill the infrastructure gap. To avoid such a scenario, all major projects should be selected based on sound economic analysis and evaluation in order to ensure that those with the highest return are provided up front.

4.1: Medium-term economic prospects

4.1.1: International economic prospects⁶¹

The momentum and resilience of the global economy in 2005 exceeded expectations, despite higher oil prices and natural disasters, with global GDP growth estimated at 4.8% for the year (IMF). This performance is expected to continue in 2006. Asia is forging ahead, driven by the Chinese and Indian economies, while Japan continues to recover. The Russian economy is also showing signs of strong growth. In the United States, hurricanes had an impact on activity in 2005, but the economy bounced back in early 2006. In Continental Europe, activity weakened in 2005, partly reacting to rising oil prices, but accelerated in early 2006, and the domestic German economy in particular is showing improvements.

That said, the number and intensity of downside risks have increased. It appears that energy prices will remain at high levels in the medium term, and may even increase further. Interest rates are rising in the Eurozone, although their upward trend may have stalled in the US and UK. High house prices are a feature in many developed economies, as a result of the (still) accommodative monetary policy stance of recent years. While the experience in the UK and Australia point to the possibility of a soft landing, several large countries, notably the United States, France and Spain, remain at risk from a significant downturn in the housing market.

⁶¹ This summary draws on World Economic Outlook, IMF (April 2006), and OECD Economic Outlook (May 2006).

While global trade is growing in double digits, economic imbalances continue to cause concern, and the risks are heightened by the high prices of oil and other commodities. The latter is being driven in part by extremely strong growth in key emerging economies, and is negating part of the disinflationary benefit of the migration of industry to low-cost economies. In recent years, trade (current account) imbalances have widened, with large surpluses in Germany, Japan, China, and oil exporters, and large deficits most notably in the USA.

Notwithstanding the risks posed by high oil and commodity prices, increasing interest rates and global imbalances, the IMF projects that global GDP growth will be 4.9% in 2006, and 4.7% in 2007, about the same as in 2005. GDP growth in the United States is expected to moderate to 3.4 percent in 2006 and to 3.3% in 2007, still the highest among the G-7 countries. In Japan, growth is expected to be 2.8% and 2.1% respectively, while in the Euro area growth is expected to be 2% and 1.9%, and in the UK 2.5% and 2.7%. Annual growth in China will continue to be in the region of 9% and in India 7%.

4.1.2: Irish economic prospects

2005 was another strong year for the Irish economy, with GNP expanding by 5.4%. Looking at the quarterly data, however, there was a clear dichotomy between the first half and the second half of the year: year-on-year growth in the four quarters was 3.8%, 3.0%, 7.4% and 7.3% respectively. So there was a definite acceleration in growth in the second half of the year. This has continued into 2006, with year-on-year growth in Q1 recorded at 7%.

The main drivers of economic growth in 2005, as in 2004, were investment and consumer spending. Investment rose a remarkable 12.8% in 2005, the highest growth since 1999. Residential construction and machinery & equipment between them accounted for the bulk of the increase. House-building expanded by 12.6%, while investment in machinery and equipment rose by almost 20%. Meanwhile, non-residential construction grew a modest 1.9%. Consumer spending was up 6.6%, the fastest pace of growth since 2000. Exports grew by a modest 3.9%, while imports were up 6.5%, due in part to very strong growth in imports of transport equipment, which fed into the investment growth.

This robust economic performance has been accompanied by strong labour force growth. Total employment in the economy grew by 4.7% in 2005⁶², which accounts for the bulk of GNP growth in the year (5.4%). The implication is that productivity growth in the economy has been modest. Section 3 discussed this issue in more detail with respect to the construction sector.

The QNHS indicates that employment continues to grow at this exceptionally fast rate: total employment in Q2 2006 was 4.5% higher than in Q2, 2005. Growth in construction employment, as we have seen, is much higher than the overall average, at 8.2% over the same period. The unemployment rate has been constant at 4.4% (seasonally adjusted) since October 2006. It has remained within a narrow 4.2 - 4.5% band for almost three years now, which is remarkable given the strong labour force growth being experienced.

The Exchequer position, reflecting economic performance, remains healthy. As has been the case for the last number of years, tax receipts are ahead of expectations, up 12.7% in the first eight months of 2006 compared with the same period of 2005, as opposed to a target for the whole year of 6.1%. Much of this strong revenue growth is down to construction and housing related activity. Expenditure is up almost 13% in the first eight months, in line with the target for the whole year. As a result, the Exchequer is likely to be in surplus by over €2 billion at the end of the year compared with last December's target of a €3 billion Exchequer deficit. Given the strength of public finances, and with a general election less than a year away, it is reasonable to expect some acceleration in expenditure over the remainder of the year, and into 2007.

⁶² Comparing the average of the four quarterly values in 2005 with the equivalent in 2004.

2006 is expected to see a continuation of strong growth in the economy, with consumption and investment once again the main drivers. The main official forecasts for 2006 and 2007 are given in Table 4.1. Consumption is being boosted by the release of the SSIA money, while investment will be underpinned by strong construction (Section 4.3). In particular, housing output is expected to increase to 90,000, from 86,000 in 2005. Growth in exports is expected to lag behind growth in imports again, but by somewhat less than in 2005.

Table 4.1: Macroeconomic projections for Irish economy 2005-2007 (% growth rates)

	2005 Actual	Central Bank		ESRI		OECD	
		2006f	2007f	2006f	2007f	2006f	2007f
Consumer expenditure	6.6	6.25	6.5	6.8	7.4	5.1	5.8
Government expenditure	4.6	3.75	3.5	4.0	4.0	5.3	5.3
Fixed investment	12.8	5.75	4.75	8.3	6.5	5.9	5.0
<i>of which Building & construction</i>	<i>10.4</i>	<i>5.25</i>	<i>4.25</i>				
GDP	5.5	5.0	5.25	5.6	5.2	5.0	5.0
GNP	5.4	5.0	5.25	5.6	5.1		
Consumer price inflation (note)	2.5	3.75	3.25	3.8	3.5	2.5	3.0

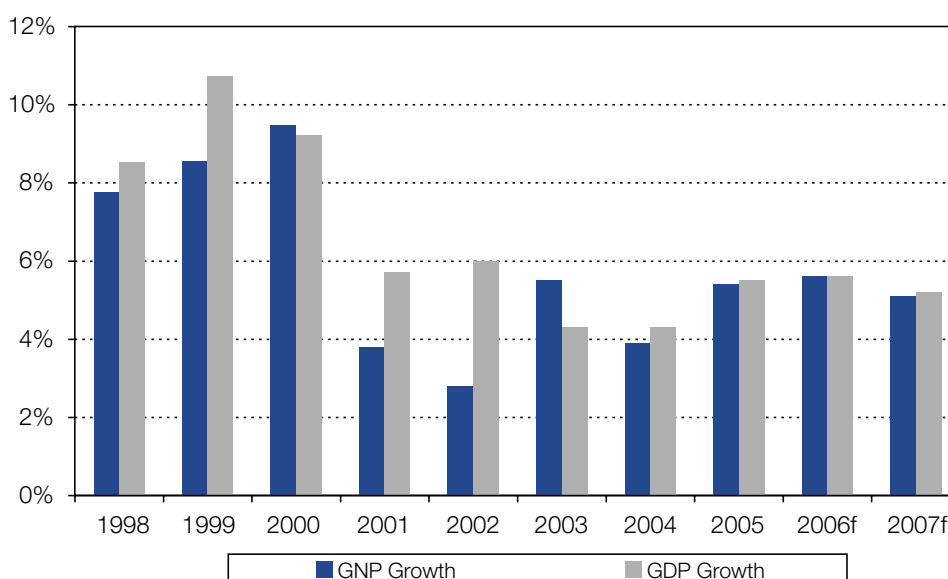
Source: CSO, Annual National Accounts 2005; Central Bank Quarterly Bulletin Number 3, July 2006; ESRI Quarterly Economic Commentary, Summer 2006; OECD Economic Outlook No. 79, May 2006.

Note: Inflation figures from the OECD are for the Harmonised Index of Consumer Prices (HICP).

However, as with the international economy, the downside risks for the Irish economy are growing. Recent and upcoming rises in interest rates and energy prices will dent spending power. The CPI jumped to 4.2% year-on-year in July, despite the summer sales, driven mainly by higher mortgage interest repayments and energy prices, and the expectations are that inflation will stay higher than the ideal in the medium term. Another risk is the possibility of a significant appreciation of the Euro Vs the US Dollar, to correct the US current account deficit.

Various indicators point to a fall in consumer confidence, with the IIB Bank/ESRI Consumer Confidence Index at 90.9 in July 2006 compared to 106.2 in January 2006; the constituent Consumer Expectations Index fell from 99.1 to 80.9 over the same period, indicating some concerns about the economy and the financial situation of households over the next twelve months.

Figure 4.1: GNP and GDP real growth 1998-2006F (%)



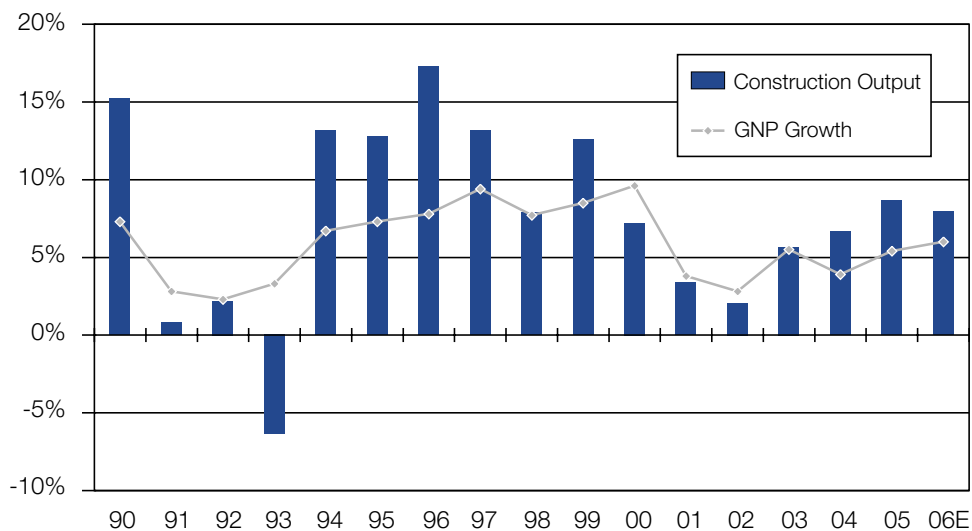
Source: CSO; 2006 and 2007 forecast from ESRI QEC.

Looking further forward, a number of commentators have indicated that they see a slowdown being a significant possibility in 2008, as the boost from the SSIs and the 2007 general election dissipates, and rising interest rates start to bite.

4.2: Medium-term prospects for construction output

The performance of the construction sector has been spectacular over the past decade. The value of output in the industry expanded by a factor of 4 between 1996 and 2005, compared with a factor of 2.6 for the value of GNP over the same period. Over the most recent period 2000-2005, output in the industry increased by 29% (average 5.2% per annum) in volume terms compared with 73% over the period 1995 to 2000 (average 11.6% per annum). The latest forecast for 2006 suggests that construction output will increase by almost 8% in volume terms. The estimated value of output in the sector this year is €35.9 billion or almost 24% of GNP. Measured in value-added terms the sector represents around 11% of GNP compared with 8% in 2000.

Figure 4.2: Construction output and real GNP, annual volume changes 1990-2006E (%)



An important issue in considering the medium-term prospects for the construction sector is the ratio of fixed investment to GNP. In calculating this ratio, the fixed investment figure above the line includes the level of (private and public) fixed capital formation in building and construction, a figure that we have acknowledged has grown significantly over the past decade.

As a result of the strong performance of the construction sector, the ratio of fixed investment (public and private) to GNP reached its previous peak level, recorded during the early 1980s, six years ago in 1999 and has continued rising ever since, reaching a new record level of 32% in 2005. The fixed investment to GNP ratio peaked at 29% in 1981, fell right back to 18% in 1987/88 and again in 1993, increasing thereafter to 29% in 1999 (Figure 4.3). Recall that the three year period 1998-2000 recorded high construction inflation (11%) and coincided with the period during which the industry experienced capacity constraints, particularly with respect to labour.

Figure 4.3: Ratio of Gross Fixed Capital Formation to GDP and GNP for Ireland, 1980-2005



Over the period 2000-2004, the ratio has stayed around 28-29%, before increasing further to reach a new record level of 32% in 2005 compared with around 20% on average for the original EU 15 States. In Ireland's case, investment (public and private) levels as a percentage of GNP averaged 29% since 2000 or 27% over the last decade.

The issue now concerns the future direction of the investment to GNP ratio. While there remains a backlog of infrastructure projects, it is important to acknowledge that significant public sector investment has taken place over the last decade. At the same time, the estimates in the *Review and Outlook* suggest that the Government has failed to spend in line with its targets in the public capital programme for three years in a row. This implies that attention needs to be focused on delivery and project management mechanisms if the Government is to reach its targets in the future.

Any benchmarking of Ireland against its counterparts in Europe would reveal an economy that ranks at or close to the top of the league in terms of economic and employment growth, investment and housebuilding levels, but well down in a ranking of infrastructure and housing stocks. The critical issue now concerns how to address that infrastructure gap without generating inflationary pressures and at the same time ensuring a sustainable growth path for the economy over the next decade.

4.3: Residential construction

Our review of the residential construction sector in Section 2.1 noted the following:

- The growing importance of the residential construction sector to the overall economy (16% of GNP), both directly and indirectly.
- The increasing dependence of the construction sector on residential construction (68% of total construction output).
- The favourable demographic situation, boosted by very positive net inward migration over the past decade.
- The unprecedented level of housebuilding at 20 units per 1,000 of the population, compared with an average of only 5.5 in Western Europe.
- The continued strong growth in house price inflation (13% on average year-on-year in the first seven month across the State), despite the exceptional increase in supply.

- The relatively low housing stock level compared with the average for Western Europe - under 400 dwellings per 1,000 of the population in the Republic compared with an average across Western Europe of 475.
- The record growth in mortgage credit (28.5% year-on-year) running at over twice the growth rate for mortgages in the euro area (11.5% year-on-year).

In regard to the latter point, the recent mortgage market survey from the Irish Bankers Federation/PwC⁶³ reported the existence of an active switching and top-up mortgage market, which is contributing to the growth in mortgage lending. This market also impacts on construction activity as the IBF suggests that the majority of top-up mortgage funds are used to pay for property extensions and renovations, thus boosting the RM&I residential construction market.

The survey results, summarised in Table 4.2, suggested that 47% of the total mortgages are taken out for purposes other than for house purchase. Existing house owners moving house represent over one-fifth of the total number of mortgages while first-time buyers account for 18% of the total. In value terms, the largest value is accounted for by movers (28%), followed by first-time buyers (22%) and investors (20%).

Table 4.2: Profile of residential mortgage market, Jan-June 2006 – total drawdowns

	No.	% share	% change yoy	€m.	% share	% change yoy	Average loan(€)
First time purchaser	18,196	18%	10.1%	4,004	22%	24.7%	220,048
Mover purchases	22,050	22%	4.3%	5,211	28%	20.1%	236,327
Residential investor	13,730	14%	19.0%	3,636	20%	38.7%	264,822
Re-mortgage	12,701	13%	7.3%	2,775	15%	27.8%	218,487
Top-up	34,016	34%	9.5%	2,942	16%	43.4%	86,489
	100,693	100%	9.3%	18,568	100%	29.0%	184,402

Source: IBF/PwC Mortgage Market Profile New Lending – Quarterly Report, Q2, 2006.

Based on Table 4.2 the estimated number of mortgages on an annual basis is around 224,000 or around 120,000 excluding top-ups and remortgages. This latter figure excludes properties purchased without a mortgage. The corresponding estimated annual value is around €44 billion or €30 billion for direct property purchases⁶⁴ compared with less than €8 billion in 2001, according to DoEHLG estimates. The average loan figures suggest, based on the house price figures published by permanent-tsb for June, that the average loan to value ratio for first-time buyers is around 82% and 70% for second-time buyers.

It comes as no surprise, therefore, that there is growing concern in some quarters, including the OECD, the IMF and more recently the Central Bank of Ireland, that house prices at their current levels may no longer be justified by economic fundamentals. While the Central Bank's most recent quarterly bulletin does not state that Irish house prices are overvalued, it reiterates concerns about rising mortgage lending levels and household personal credit to disposable income ratios (currently running at 132%⁶⁵). The main implication drawn from much of the recent analysis is the increasing risk of a correction in the housing market, although most come down in favour of a soft landing. The probability of such a risk increases the further house prices, mortgage lending and debt levels rise.

⁶³ IBF/PwC Mortgage Market Profile New Lending - Quarterly Report,

⁶⁴ Based on assuming that around 45% by number and 42% by value of mortgages paid out are paid out in the first half of the year, according to the Annual Housing Bulletin.

⁶⁵ The Net Worth of Irish Households, John Kelly, Central Bank Quarterly Bulletin, Quarter 3, 2006.

The one factor which tends to dampen housing markets is higher interest rates. ECB refinancing rates started rising in December 2005 and by August had increased to 3%, following the four individual 0.25% increases in December, March, June and August this year. The general consensus is that there are likely to be two further increases of 0.25% each later in the year, taking the ECB rate to 3.5% by the end of the year. Maintaining the margin between the ECB rate and the average rate applied by financial institutions here suggests that mortgage rates could rise to around 4.7% to 5% by the end of December compared with an average of around 4.25% currently. If the upward cycle in ECB rates continues during 2007, domestic mortgage rates could be closer to 6% by the end of 2007, which is still below the levels that existed at the beginning of the housing boom in 1994/95 when mortgage rates were 7 to 8% and well below the levels that prevailed through most of the 1980s and the early 1990s. The last time mortgage rates were at 6% was at the beginning of 2001.

The impact of a further tranche of mortgage rate increases by the end of 2007, should dampen housing transactions, although the impact could be postponed until 2008, as the economy does well next year on the back of SSIA receipts. Higher mortgage rates would result in a disimprovement in housing affordability, particularly for first-time purchasers, who having purchased over the last twelve to eighteen months, have financially stretched themselves to get into the housing market with loan to value ratios in excess of 90%. Thus household formation would be lower than it might otherwise be. The lower demand would cause a moderation in house price inflation. The extent to which house price moderate could cause investors to divest, resulting in a greater supply of properties coming onto the market at even lower prices. The extent of the slowdown will depend on the damage to confidence, which will be a function of the combined mortgage rate rise, the impact on affordability and the level of postponement of purchases.

Projecting housing demand has been difficult in recent years. Based on our analysis of long-run housing demand, we have consistently forecast a downward adjustment to housing supply in the past and have been proved wrong on each occasion. What we have been unable to do is to estimate the level of household formation which may have resulted from potential buyers bringing forward their purchases due to rising house prices and their expectations about price rises in the future. Equally there is the possibility that there also exists pent up demand which has not been accommodated, due to the escalation in house prices over recent years which has dented affordability for some first-time buyers. In fact evidence to support the contention that there exists pent-up demand amongst the first-time buyer age groups is provided by the increasing numbers registering their interest for 'affordable' housing across local authorities, particularly in the urban areas. Depending on the extent of the moderation in house prices under the above scenario, and the impact on buyer confidence, this pent-up demand from persons not in a position to purchase in the private market, could enter the market over the next few years, as house prices stabilise at more 'affordable' levels.

However in a bleak scenario where confidence is damaged to such an extent - either due to significantly higher mortgage rates than projected above or an increase in unemployment - there is a high probability of a major price correction, creating a squeeze in the building sector, which would have serious ramifications for the macroeconomy.

Our overall assessment of the prospects for residential construction continues to reflect our view that the current rate of housebuilding is unsustainable over the medium term and that Ireland will eventually build fewer houses than it currently does. The critical question is when the slowdown is likely to happen. Based on our analysis of the housing indicators available (Section 2.1), our assessment of the prospects for 2007 is that housing supply will remain at a high level in 2007 (90,000) reflecting the favourable macroeconomic environment. Thereafter housing supply is projected to decline to 75,000 in 2008, as economic growth slows, the SSIA impact dissipates and the transitional arrangements for tax reliefs are phased out by July 2008.

We present two alternative scenarios in Section 4.6 to illustrate the impact of a less positive (Scenario 2) and a more positive (Scenario 3) outlook for residential construction.

4.4: Private non-residential construction

The prevailing macroeconomic environment, the level of consumer expenditure, employment growth, interest rates and general investor and consumer sentiment are all factors which impact on the volume of activity in the offices, industrial and retail sectors. The estimates for 2006 suggest that the volume of construction output associated with new projects in the private non-residential sector will rise by almost 19%, reflecting a very buoyant commercial building sector. The real success story of the Irish economic boom has been the retail sector. Current estimates for 2006 suggest that the volume of retail construction output will be 100% higher by the end of 2006 compared with the beginning of 2000. Construction activity in other sub-sectors of the private non-residential market, notably with respect to offices and hotel building, has also been strong over the past two years.

Over the next two years our assessment of the prospects for new private non-residential construction is for a moderation in the volume of output growth to almost 15% in 2007 and almost 9% in 2008 from an estimated 19% in 2006. These growth rates, although lower than in 2005 and 2006, remain well in excess of economic growth and reflect a private non-residential cycle which tends to grow faster than economic growth in the upswing and slower when economic growth starts to moderate.

4.5: Public sector construction

The prospects for public sector construction over the medium-term will be influenced by three factors:

- The capital allocations for productive and social infrastructure in the PCP.
- In the absence of detailed PCP provisions beyond 2006, the multi-annual capital envelopes for 2006-2010⁶⁶ provide an indication of capital spending over the medium-term. Unfortunately the figures do not provide a breakdown of the spending allocations for infrastructure across each Government department.
- The publication of a successor to the current NDP, which is expected before the year-end, will reinforce the commitment to spending on infrastructure. The next NDP will cover the period 2007-2013 and is to focus on the priorities for investment in productive and social infrastructure in the transport, environmental services, housing, education, health and childcare areas.
- The Government has produced a statement regarding the transport infrastructure priorities for the 21st century, *Transport 21*⁶⁷. It provides for a ten-year transport investment of over €34bn. in current prices over the period 2006-2015. A number of the projects included in the Plan are also included in the 2006 estimates presented in this *Review and Outlook*. Of the €34bn. some €26bn. will be direct Exchequer funding and about €8bn. will be toll based road investment. At its peak the Minister for Finance stated that annual investment in transport under the framework will be over twice current levels. Transport, for the purposes of the statement, refers to road and public transport only. Based on the Minister's statement, the total value of transport investment will rise to over €3.6bn. at the peak over the next decade. Investment in the national road network is a key element of the *Transport 21* investment programme, particularly up to 2010. Just under one-half of the overall total is for investment in the national primary and secondary road network. There is likely to be other transport investment to improve air and sea access, including, for example, the second terminal at Dublin airport, which is expected to commence construction before the end of 2007. The overall estimated total Exchequer transport investment in 2006 is €1.965bn.⁶⁸

⁶⁶ See Public Capital Programme 2006, Department of Finance, February 2006.

⁶⁷ The programme was launched on 1st November 2005.

⁶⁸ The total investment in all transport (roads, public transport seaports and airports) according to the PCP (Exchequer and non-Exchequer) is €2.75bn. in 2006 compared with €2.45bn. in 2005.

Table 4.3 sets out the Exchequer capital envelopes for the period 2006-2010. There are other non-Exchequer funds which account for the balance of capital funding, equivalent to around €3.6bn in 2006. The total Exchequer envelope over the period 2006-2010 is €43.8bn including €4.6bn for PPP/NDFA capital projects. It is important to stress that these provisions are for all capital spending, including investment in new building, major renovations to existing buildings, infrastructure projects and investment in machinery and equipment. The figures provide in full for investment under the Transport Investment Framework, *Transport 21*, estimated at €13.9bn. or almost one-third of the total envelope over the period 2006-2010. For the purposes of estimating the spend on other construction related projects, all non-construction related expenditures must be excluded from the Exchequer capital provisions.

Table 4.3: Projected Exchequer capital allocations in multi-annual capital envelopes 2006-2010

Current prices, € million	2005 provisional outturn	2006e @ Feb'06				
Total PCP (1)	8,560	10,603	+23.9%			
carryover from 2005	-289	+289				
Total PCP (2)	8,271	10,892	+31.7%			
<i>of which</i>						
	2005	2006E	2007F	2008F	2009F	2010F
Total direct Exchequer	5,385	7,056	7,315	7,650	7,863	7,981
PPP/NDFA	90	195	400	603	1610	1770
Unallocated reserve	0	0	104	150	380	740
Total Exchequer envelope	5,475	7,251	7,819	8,403	9,853	10,491
Annual % change (nominal)	+6.8%	+32.4%	+7.8%	+7.5%	+17.3%	+6.5%
GNP current prices (est)	136,055	149,987	163,930	176,446	188,091	199,541
Exchequer envelope as % of GNP	5.4%	6.0%	5.6%	5.0%	4.7%	4.6%
PCP as % of GNP	6.1%	7.3%				

E= estimate; F = forecast.

(1) The PCP figures are those published in the 2006 Public Capital Programme and exclude any carryover effect.

(2) Adjusted for carryover of €289m from 2005 to 2006.

Source: Public Capital Programme 2006 (published February 2006 by Department of Finance).

The next Table show the capital provisions for the largest construction related components of the PCP. The first column shows the Exchequer provisions only; the second column provides estimates for the total expenditure (Exchequer and non-Exchequer). Based on the latter the items in the table represent 60% of the total public capital programme of 10.9bn. Roads, housing and public transport account for a total spend of 4.1bn or almost 40% of the total PCP.

Table 4.4: The largest items of construction related capital spending in 2006

Current prices, € million	2006 Exchequer provision	2006 Total Provision*
Road improvement (national roads)	1,693	1,693
Local authority and social housing	1,180	1,409
Educational buildings	629	664
Hospital building and equipment	639	639
Public transport	492	583
Water services	399	504
Non-national roads **	436	436
OPW new buildings, alterations	191	191
State airports	10	140
Sports facilities	77	136
Waste recycling and disposal facilities	20	59
Heritage projects	48	48
Government office premises	43	43
Prisons	32	32
Total	5,888	6,576
<i>% of total Exchequer envelope</i>	<i>81%</i>	
<i>% of total PCP</i>	<i>54%</i>	<i>60%</i>

* including Exchequer and non-Exchequer funding.

** includes €360m from the Local Government Fund.

Source: Public Capital Programme 2006, Department of Finance.

All figures in Table 4.3 are published in current prices only and tend to be on a no policy change basis. According to the current envelopes, there is a substantial nominal increase in the provision for 2006 (+32%) which appears ambitious as does the overall increase in the PCP for 2006. Based on past experience it is unlikely that all of this provision will be spent. We would expect the 2006 outturn by the end of the year to be a lower figure and our projection for construction output volumes in 2006 reflect this expectation. The increases in the total Exchequer spending figures for 2007 and 2008 are more credible at around 7-8% per annum and suggest further modest increases in construction related investment after inflation, estimated at around 4% per annum. There is a further sharp increase again in 2009 (+17%), which, from what we can ascertain, arises mostly in the Department of Transport, where the 2009 envelope is projected to rise by 40% in nominal terms. However questions are being raised about the sustainability of investment at these levels, corresponding to an estimated 7.3% of GNP in 2006, particularly given the increases recorded in the PCP to date.

While the above provides an indication of Exchequer capital spending over the period to 2010, it is difficult to be definitive about what the actual spend on construction related activity might be. The publication of the next NDP (end of year) for the period 2007-2013 will provide firmer estimates on the level of infrastructure spending over the medium term. It remains to be seen whether the Government will continue to ramp up investment levels in order to address the remaining infrastructure backlog or whether it will choose to address the backlog over a longer period of time than it might otherwise do. While the latter option would delay the benefits that would accrue from making the investment sooner rather than later, it would also ensure that the building sector did not become capacity constrained and that construction inflation is lower than it might otherwise be.

For the purposes of providing a medium-term construction forecast for 2007 and 2008 we have made assumptions about the level of construction related spend for each component based on past and current investment levels as well as future known plans.

Accordingly the volume of construction output associated with public civil engineering infrastructure projects is forecast to increase by 7.5% in 2007 and by almost 9% in 2008 (Table 4.5). The corresponding forecasts for the volume of output associated with new public sector social infrastructure projects or general building works is just over 8% in 2007 and 7.6% in 2008. When combined with the flat projection for the volume of public sector housing, the overall volume of construction output from public sector projects is forecast to increase by 5.2% per annum in 2007 and 2008, after inflation.

4.6: Overall prospects for construction output

The projection for construction output over the medium term is set out in Table 4.4 based on a base case macroeconomic scenario which assumes real GNP growth of 5.5% in 2007 and 4.5% in 2008. The volume of construction output is forecast to increase to €31.6bn. (constant 2004 prices) in 2008, which corresponds to a total volume growth of 6.3% over the three year to 2008 or 2% on average per year. The modest prospects reflect the assumptions for residential construction activity, which at 68% of total output in 2005, is assumed to deliver the same number of completed dwellings in 2007 as in 2006 (90,000 units). The year 2008 is forecast to be the year when the housebuilding industry finally starts to deliver fewer dwellings, with a projection of 75,000 completed units in 2008 compared with 90,000 in 2007.

Two alternative scenarios to illustrate the impact of a less positive (Scenario 2) and a more positive (Scenario 3) outlook for residential construction are set out below.

The key assumptions likely to generate housing supply in line with *Scenario 2* would be lower rates of economic and employment growth which would in turn give rise to a lower rate of population growth compared with the base case scenario, as net inward migration would be reduced below current levels. The lower demand for housing would ease the pressure on house prices, resulting in a soft landing as supply responds to the lower demand.

The lower housing output would have other effects - less home-related purchases, implying a lower level of consumers' expenditure; a lower demand for financial and other services associated with housebuilding and housing transactions; and a lower level of disposable income as fewer persons would be employed. Tax revenues in the form of income tax and stamp duty receipts, which have made a significant contribution to the Exchequer to date, would also suffer. Such a development could result in a lower public capital provision for infrastructure, although arguments for counter-cyclical spending to generate future economic growth would no doubt reappear.

The lower level of housebuilding in 2007 (85,000) and 2008 (70,000) under Scenario 2, results in a weaker construction outlook compared with the base case scenario. The volume of construction output is forecast at €30.8bn. (constant 2004 prices) in 2008, which corresponds to a total increase of 3.5% over the three year to 2008. While the industry is forecast to increase modestly in 2007 (+1.4%), the volume of output in 2008 is forecast to decline (-5.4%). It is possible that the rate of decline could be weaker as the non-residential sector would undoubtedly respond to the lower economic and employment growth. For the purposes of this exercise we have not changed the forecast for non-residential construction.

Scenario 3 corresponds to a higher economic growth scenario, which generates higher housing demand due to a stronger population growth rate and higher inward migration compared with the base case. House prices carry on rising in response to the increased demand and mortgage lending continues to grow generating higher debt levels. The Eurozone economy does better than in the *Base Case*, resulting in higher interest rates. The official ECB interest rates could conceivably rise back towards their peak levels in the previous cycle (4.75%), resulting in higher mortgage rates than in the *Base Case*. Pressures in the economy build up and as housing demand continues to increase, there is pressure on wage and price inflation. House completions remain at around 90,000 per annum over the period to 2008.

The overall impact on the construction sector's prospects would be to generate much stronger growth in construction output compared with the base case, equivalent to 16% over the three years to 2008 or 5% on average per annum.

The build up of pressures in the higher growth scenario (*Scenario 3*) would increase the probability of a house price correction. The factors which would trigger such a correction would be much higher interest rates and/or other cost pressures across the economy, which could generate job losses. Under such a scenario, new housing supply levels could fall sharply over the second half of the decade. The extent of the decline would depend on the extent to which adverse factors (e.g. rising interest rates, rising unemployment) damaged confidence amongst potential housebuyers.

Table 4.5: Medium-term projection for construction output volume growth rates, 2005-2008F (%)

SCENARIO 1	2005 (€m.)	2005 Output Share (%)	2005	2006E	2007F	2008F
Total dwellings completed (units)			86,157	90,000	90,000	75,000
New housing						
Private sector	16,525	52%	12.9%	4.6%	0.0%	-16.7%
Public sector	1040	3%	7.8%	12.2%	0.0%	-16.7%
Total new housing	17,565	56%	12.6%	5.1%	0.0%	-16.7%
RM&I housing	3,803	12%	6.3%	9.5%	5.5%	4.5%
Total housing	21,367	68%	11.4%	5.9%	1.0%	-12.6%
New non-residential construction						
Private sector	2,572	8%	18.3%	16.7%	14.8%	8.7%
Public sector	1,553	5%	4.8%	13.1%	8.1%	7.6%
Total new non-residential construction	4,125	13%	12.8%	15.3%	12.8%	15.3%
RM&I non-residential construction	2,108	7%	1.1%	0.6%	14.1%	5.5%
Total non-residential construction	5,308	17%	9.4%	15.3%	9.8%	15.0%
Sub-total building new	21,689	69%	12.7%	7.1%	2.6%	-10.9%
Sub-total building RM&I	4,986	16%	4.8%	10.6%	5.5%	4.5%
Total building	26,676	85%	11.1%	7.7%	3.1%	-7.9%
Productive infrastructure						
New productive infrastructure	3,879	12%	-6.0%	9.6%	7.9%	9.9%
RM&I productive infrastructure	925	3%	3.9%	6.1%	5.5%	4.5%
Total productive infrastructure	4,804	15%	-4.3%	8.9%	7.4%	8.9%
Total construction output	31,480	100%	8.4%	7.9%	3.8%	-5.2%
<i>of which</i>						
Public sector	8016	25%	-1.1%	10.3%	6.5%	5.2%
Private sector	23464	75%	12.1%	7.1%	2.9%	-9.0%
SCENARIO 2						
Total dwellings completed			86,157	90,000	85,000	70,000
Total construction output	31,480	100%	8.6%	7.9%	1.4%	-5.4%
SCENARIO 3						
Total dwellings completed			86,157	90,000	90,000	90,000
Total construction output	31,480	100%	8.6%	7.9%	3.8%	3.5%

Figure 4.4: Residential and non-residential construction - annual percentage change in volume (%) 2002-2008F

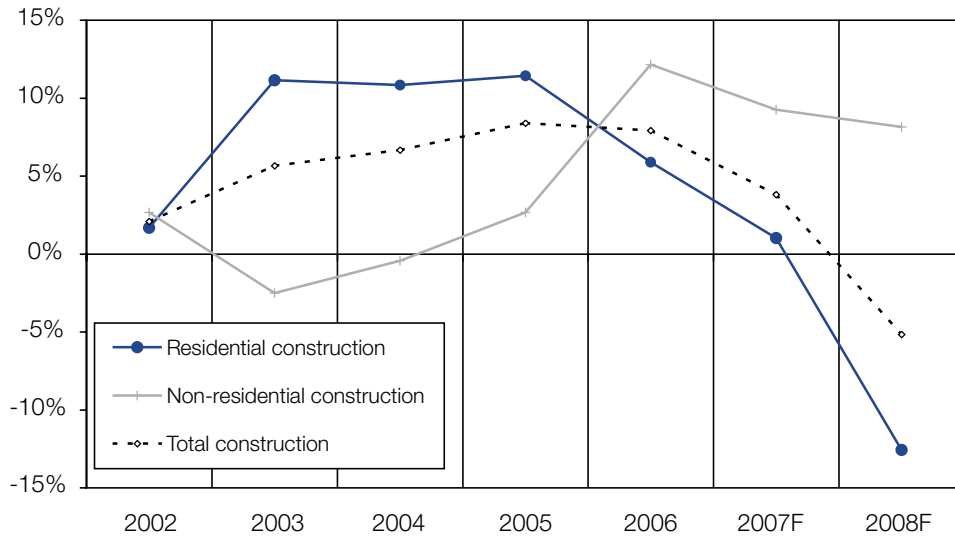
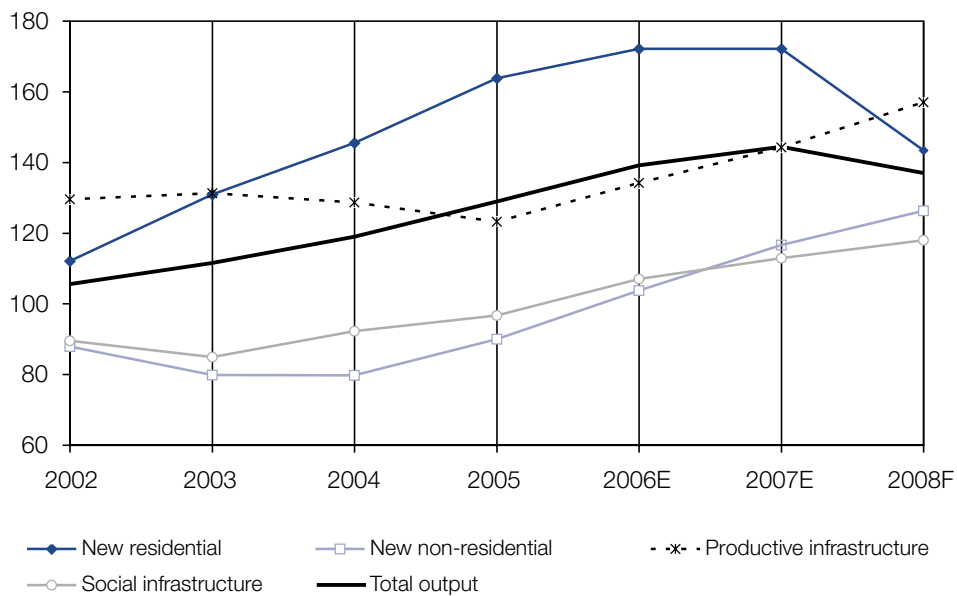


Figure 4.5: Construction output by sector, 2000-2008F (constant prices 2004 = 100)



Appendix 1: Derivation of price indices

This appendix sets out the price deflators used for calculating output in constant prices since 2002⁶⁹. Price deflators are used to deflate the current price estimates of the value of output in each sector into constant prices⁷⁰. For the purposes of calculating output in constant prices, the base year used this year is 2004, which is consistent with the base year used for National Accounts purposes.

While every effort is made to reflect a realistic view on the level of tender price inflation in the construction industry, by paying attention to published tender price indices available from Bruce Shaw, Davis Langdon PKS (DLPKS) and the Society of Chartered Surveyors (SCS), and consulting with the various Government departments and the industry, there is no regular tender price index published by sub-sector of activity for the industry. The variation in tender price inflation across the various sub-sectors in the *Review and Outlook* this year indicates the importance of calculating an individual tender price index for each segment of the industry, where activity levels can vary significantly in any given year.

A1.1: Construction cost indices

A number of construction cost and tender price indices are available, which are referred to in Section 1.

A1.1.1 CSO indices

The CSO publishes the Wholesale Price Index for Building and Construction Materials (WPIBCM) and the Capital Goods Price Index for Building and Construction Materials and Wages (CGPIBCM). In the past the CSO indices were used as deflators for non-residential work and their limitations as a measure of tender price inflation over the buoyant period of construction activity years have been previously noted.

A1.1.2 DoEHLG House Building Cost index

This index is calculated by the Department of the Environment, Heritage and Local Government (DoEHLG). It measures labour and material costs only and does not include items such as overheads, profit, interest charges, land development etc. It has tended to move closely in line with the SCS Building Cost Index over time. The index has included all phases agreed following reviews of rates of pay and grading structures for the Construction Industry as well as increases under the successive social partnership agreements. The average annual increase in the index peaked at 14.5% in 2001 but subsequently moderated to around 3% on average over the period 2003-2005. The index was up by 3% in 2005 while the most recent figures available are for up to May and show the cost of housebuilding was up by 2.7% on average in the first five months of the year on the same period in 2005.

A1.1.3 SCS Building Cost index

The SCSBCI is, again, merely a construction cost index as opposed to a tender price index. It is compiled from, and reflects actual changes in, the cost of labour, materials and other construction inputs for building projects. It does not include items such as profit, interest charges or land development. In this respect, it is similar to the first two wholesale price indices in that it only relates to construction costs. According to this index, construction costs increased by 4% between 1st January 2005 and 31st December 2005 or by an average of 4% in 2005

⁶⁹ See previous Review and Outlook documents for tender price indices used before 2002.

⁷⁰ Much progress has been made in recent years on improving the deflator methodology used to estimate the volume changes in construction output. Starting in the 1996/1997 Annual Review and Outlook, we included a detailed review of available construction and tender price indices, which was updated in Section 1 of the 2005 Annual Review and Outlook. Deflators were traditionally based on cost indices but due to an increasing divergence between tender prices and cost prices we revised our deflator methodology in the 1997/1998 Annual Review and Outlook for the period 1996 to 1998.

following an average increase of 5.2% in 2004. Data for the first seven months of 2006 shows building costs up 3.1% on average compared with the same period in 2005.

A1.2: Tender price indices

All of the available tender price indices are derived based on projects in the general contracting sector of the industry. Thus they cannot be used for the purposes of estimating the real volume of output for housebuilding and civil engineering projects.

A1.2.1 SCS Tender Price index

The SCS first published its Tender Price Index in May 1999 and reported an increase in tender prices of 3.8% on average in the second half of 1998 compared with the first half of the year. This was probably indicative of an average rise of approximately 8% for 1998 as a whole.

The index is based on new build projects, excluding housing, with tender values in the range of €0.5m. to €10m. The projects are a mixture of Government and private sector contracts. The size of sample used to derive the index relates to the number of completed forms returned from SCS members. Typically, around 50 completed forms are returned in a half-year period.

The latest index value for 2005 shows tender prices increased by only 2.3% in the first half of the year and by 1.5% in the second half, bringing the total increase over the twelve month period to 3.8%, compared with an increase of almost 8% in 2003. First half figures for 2006 are not available.

A1.2.2 Bruce Shaw Tender Price index

The Bruce Shaw Tender Price index reflects changes in prices charged for construction. It is compiled from a large database of tenders for diverse types of construction (excluding civil engineering) projects. The 2005 tender price index, for example, reflects tender price levels on circa €600 million worth of diverse Irish construction projects across all general contracting sectors of the industry.

The average tender price index was up by 4% in 2005 following a similar rate of increase in 2004. A moderation in inflation is projected for 2006 (+3%).

A1.2.3: The DLPKS Tender Price index

The DLPKS index is based on a smaller sample of tenders in the general contracting area. According to this index, average tender prices for general building work was up by 4.4% in 2005. DLPKS acknowledge that tender levels have been very erratic but expect tender levels to be up by a further 4% by the end of 2006.

A1.3: Construction price deflators by category of work

Sections A1.4 to A1.7 set out in detail the deflator methodology used for each type of work to measure overall construction price inflation. The measure of construction output in value terms is a proxy for the value of contracts. Thus, to ascertain the volume increase in construction output we use a measure of construction tender prices by sector of work.

The deflators are used to deflate the current price estimate of the value of output in each sector into constant prices, to ascertain the volume changes in output. The overall construction price deflator reflects the composition of construction output.

We continue to distinguish this year between inflation in private and public sector projects, new and repair and maintenance work and between the different categories of work, where possible.

Each deflator is discussed in turn below. We believe that the improved deflator methodology provides a true reflection of current market conditions and reflects the current very competitive market in construction contracts.

A1.4: New residential construction output

Two different price deflators are used to estimate the value of output in constant prices for the residential sector, one for new private housing output and one for new social housing output.

A1.4.1 New private housing output

The basis for calculating the price index used to determine the constant price value of new private housing output has been revised since 1990 to reflect the increasing proportion of apartments in the overall housing mix. This change in methodology, introduced in the *Review and Outlook* for 1994/95, is considered to provide a more accurate measure of private housing output than heretofore.

The methodology employed is based on adjusting the average new house price (as published in the Annual Housing Statistics Bulletin of the Department of the Environment, Heritage and Local Government) for land acquisition costs and for the change in the size of dwellings completed. The adjustment for size of dwellings assumes that that size is a reasonable proxy for all the quality factors that affect the price of a house.

The average new house price supplied to the Department of the Environment, Heritage and Local Government by the main lending agencies is based on new house purchase loans approved by them. Up to 1994, house prices were adjusted by lagging them by one quarter to reflect the gap between loan approval and house purchase. However, since 1995, the average new house price only is used to facilitate the estimation of housing output. A further adjustment is made to deduct site acquisition costs from the sales price, as undeveloped site costs are not considered part of building output. The estimated site acquisition costs are extremely tentative. It has been assumed that they represented 10% of the sales price between 1991 and 1994.

Over the period 1995 to 2000, the average site cost has been increased as a percentage of the average house price to reflect the upward pressure on land prices which has been a feature of the recent housing boom. Land acquisition costs are assumed to increase from 13% of the average house price in 1995 to 24% in 2000. While there is no official data on land prices in 2001, we understand, following discussions with industry representatives, that development land prices weakened during 2001, declining to around 23% of the average house price in that year. We have assumed that site costs remained at around 23% of the average house price between 2001 and 2004 but increased to 25% in 2005 and 2006.

The Annual Housing Survey of estate and non-estate houses provided data on the average size of dwellings. From 1990, the methodology has introduced data on the average size of apartments to reflect the increasing proportion of house completions accounted for by apartments since that time. Data on the average size of apartments is based on the average size of registrations supplied by HomeBond and on the average floor area of apartments for which planning permission was granted over this period. The average sizes used for single and estate houses are cross-checked with planning permission data and Homebond data.

The proportion of house completions by type is reported in the Annual Housing Statistics Bulletin for the period 1992 to 2005 and provides figures for the number of individual houses, scheme (estate) houses and apartments.

The average size index is calculated from information on the average size and weight for each category. It is apparent that the average size of dwellings increased over the period to 2000 (except in 1998) due mostly to changes in the split between estate and one-off houses but also to a decreasing proportion of apartments in the overall mix. In contrast, the increased proportion of apartments since 2001 caused the average size of dwellings to fall in each subsequent year. The breakdown between apartments, estate houses and single houses in 2005 causes the average size of dwelling to increase by 1%. The price deflator is calculated by adjusting the net sales price index for the change in the size of dwellings since 1995.

The deflator for new housing output is forecast to increase by 7% in 2006. With the site cost assumed to represent 25% of the total house price in 2006 and the average size of dwelling unchanged from 2005, the deflator for new housing output is forecast to increase in line with the estimated average increase in new house prices (+7% in 2006). The corresponding new housing output deflator in 2005 was almost 7%, a year during which average new house prices increased by almost 11% (or 8% excluding site costs) and the average size of dwellings went up by 1%⁷¹.

Table A1.1: Calculation for deflator for new private housing output

	Average new house price €	% Change	Land as % of house price (est)	Land cost est €	Net sales price €	Net sales price index (2004=100)	% change
2002	198,087	8.3%	23%	45,560	152,527	79.492	8.3%
2003	224,567	13.4%	23%	51,650	172,917	90.118	13.4%
2004	249,191	11.0%	23%	57,314	191,877	100.000	11.0%
2005	276,221	10.8%	25%	69,055	207,166	107.968	8.0%
2006E	295,556	7.0%	25%	73,889	221,667	115.526	7.0%

	Estimated size (m2)			Estimated weight in mix (%)		
	Estate size	Single house	Apartment	Estate house	Single house	Apartment
2002	103	142	73	50%	30%	20%
2003	103	142	74	53%	25%	22%
2004	103	142	72	58%	21%	21%
2005	103	142	72	52%	25%	23%
2006E	103	142	72	52%	25%	23%

	Average dwelling size (m ²)	Index (2004=100)	% change	Derived house price index - price/size (2004=100)	Deflator % change
2002	108.540	103.75	-2.3%	76.6	10.9%
2003	106.556	101.85	-1.8%	88.5	15.5%
2004	104.621	100.00	-1.8%	100.0	13.0%
2005	105.716	101.05	1.0%	106.8	6.8%
2006E	105.716	101.05	0.0%	114.3	7.0%

Source DoEHLG, DKM

⁷¹ The deflator of 6.8% is derived as follows:
House prices excluding site costs up 8% in 2005 ==> index figure of 108 in 2005 if 2004= 100;
Average size up by 1% ==> index figure of 101 in 2005 if 2004 = 100;
Deflator = 108/101 = 1.069 ==> deflator of 6.9% (rounding error).

A1.4.2 New social housing output

An implicit deflator for new local authority housebuilding output carried out by private contractors for the years 1980 to 1985 was derived by dividing the current price value of output, which is based on expenditure on house construction, by the constant price or volume series, which was based on completions. However, since 1986, it has not been possible to calculate a volume series based on completions because of significant changes in the output mix between greenfield developments and infill schemes. In 1985 and 1986, the deflator was based on the Department's estimate of the increase in the price of new local authority housebuilding by private contractors after allowance was made for changes in the type of developments being undertaken.

From 1987 to 1995 the average annual increase in the Capital Goods Price Index for Building and Construction (materials and wages) published by the CSO as part of the Wholesale Price Indices has been used as the deflator for new social/local authority housebuilding by private contractors. This index is adjusted to take account of changes in the building services rate of VAT. It is, therefore, similar to the deflator used for new non-residential private construction output. The assumption in the past which resulted in an increase of 1% in 1990 and 1994 to reflect margin recovery in those years has been dropped as there is considered to be no basis for building in margin recovery in particular years.

Following improvements to its database on tender levels for new local authority housing, the Department of the Environment, Heritage and Local Government has provided more accurate deflators since 1996, which are based on an analysis of tender prices for the respective programmes in each year. A comparison of tender sums on social housing contracts by the Department of the Environment, Heritage and Local Government suggests the following increases since 2002.

Based on a sample of tenders covering almost 1,000 units and allowing for the range of other factors which impact on tender levels (e.g. location, restricted site, phasing considerations) the estimate increase due to tender price inflation is 6% in 2005 and is forecast at 5% this year.

Table A1.2: Price deflator for new social housing output

	Index value (2004=1.0)	% change
2002	0.943	2.0%
2003	0.952	1.0%
2004	1.000	5.0%
2005	1.060	6.0%
2006E	1.158	5.0%

A1.5: General contracting output

In 1997, we introduced a price deflator for general contracting output to capture the increasing workload in the general contracting area and the associated increase in tender levels. The price deflator derived for general contracting output is applied to the current price estimates of output for all categories of new private non-residential output, to calculate the value of output in constant (1995) prices.

Prior to 1988, this price index was based on the National Building Price Indices published by the Department of the Environment, Heritage and Local Government. From 1988, the average annual increase in the Capital Goods Price Index for Building and Construction (materials and wages) published by the CSO as part of the Wholesale Price Indices is used to deflate the current value of output. This index figure, which excludes VAT, is adjusted to take account of the effects of changes in the building services rate of VAT. It is, therefore, similar to the deflator used for new local authority housing output.

The use of the capital goods price index, adjusted for VAT, assumes that construction price increases are similar to cost increases, and that, therefore, there is no change in builders' margins. In the past, the deflator was increased by 1% in 1990 and in 1994 to reflect the estimated increases in margins in those years. However, there is no basis for building in margin recovery in particular years and the deflator, therefore, assumes a linear relationship between construction price increases and construction cost increases.

The moderation in construction output growth over the period 2001-2003 has been accompanied by a reduction in the rate of tender price inflation, particularly in relation to private non-residential construction work. As a result tender prices for *private non-residential work* declined in 2002 and 2003. We estimate tender levels for private sector non-residential projects (excluding agricultural building projects), based on published tender price indices available from Bruce Shaw, PKS and the SCS (see Section 1) declined by 2% in 2002 and by 3% in 2003. With the early signs of a pick up in non-residential construction in 2004, tender price inflation moved back into positive territory (+4%) in that year. Although the pace of activity expanded at a rapid pace in 2005, tender price inflation remained at 4% last year and is projected to rise by a further 4% this year.

Agricultural building work is also included under general contracting. The rate of tender price inflation for agricultural building work has in the past reflected the weak levels of investment in agricultural buildings over the period to 2003. Following a decline in tender levels in 2002 (-2%) and in 2003 (-4%), we estimate tender price inflation for agricultural building work moved back in line with the inflation recorded for other private non-residential work. Accordingly, tender price inflation for agricultural building work is assumed to be 4% since 2004.

We continue this year to use a separate price deflator for *social infrastructure* projects in the public sector. Based on the available information on tender prices, building material prices and the cost of labour, we have assumed - following discussions with the respective Government departments and various industry representatives - that tender levels for all new general contracting work increased by around 4% on average in 2005. We expect tender levels to increase by the same amount in 2006. This deflator is a weighted average of all of the individual components under new general contracting work, namely private industrial, commercial, tourism and agricultural building work as well as public sector projects covering educational, hospital and public building projects.

In regard to publicly funded projects we have been advised that a reasonable estimate of the increase in tender levels for hospitals buildings in 2005 is 4% with a projection of 3% for 2006. Tenders for hospital projects do not necessarily follow the overall industry trend as the infrastructure is procured through a limited number of contractors with the appropriate resources and particular expertise. Moreover, different market forces can affect tenders for hospital buildings compared with other sectors of the industry. In regard to educational buildings we have been advised that tender levels were in line with industry norms, at around 4% in 2005 with a projection of a further 4% for 2006. For all other headings under social infrastructure it is assumed that tender levels are up by 4% per annum in 2005 and 2006.

Table A1.3: Price deflator for new general contracting output

	General contracting - overall index value 2004 = 1.0	Change %	Private non-residential construction - tender price inflation (%)	Public social infrastructure – tender price inflation (%)
2002	0.980	-1.3%	-2.0%	2.0%
2003	0.962	-1.9%	-3.0%	0.2%
2004	1.000	4.0%	4.0%	4.0%
2005	1.040	4.0%	4.0%	4.0%
2006E	1.081	3.9%	4.0%	3.8%

Source: DoEHLG, DES, DOHC, DKM

A1.6: Productive infrastructure output

The deflator used for new productive infrastructure is similar to that used for general contracting up to 1995.

The projects cover a range of infrastructure including roads, water services, airports, seaports, public transport, energy and telecommunications. In the absence of any published tender price indices for each category of work, we use separate deflators for new road investment and water services investment, based on information obtained from the National Roads Authority and the Department of the Environment, Heritage and Local Government and an overall deflator for all other productive infrastructure work.

Accordingly, this year we estimate tender price inflation as follows:

- Based on information from the National Roads Authority concerning *national road* projects and information from the Department of Transport in relation to *non-national road* projects, we estimate that the overall inflation in road construction increased by 4.5% in 2005 compared with 4% in 2004. A further increase in tender levels of 5% is projected for 2006.
- Some of the cost increases in building materials faced by contractors in 2004 and 2005 were not passed on in tenders but were absorbed by contractors. Whether this will be the case in 2006 remains to be seen, particularly given the acceleration in oil based products which tend to be key inputs in road construction projects. It may be the case that other factors are working to keep tender prices under control such as the effect of design and build contracts as contractors adopt cost effective ways of carrying out work or the fact that contracts are larger than they used to be - both likely to generate savings and economies of scale for contractors.
- In contrast, there was very little increase in tender prices for *water services* projects since 2004 according to the Water Services Section of the Department of the Environment, Heritage and Local Government. Tenders levels have been increasing at only 1% per annum since 2004, based on tenders received, with a similar increase forecast for this year.
- For other *productive infrastructure* work, notably public transport, airports, seaports, energy and telecommunications, we have assumed that tender levels were up by 4% in 2005 with a similar increase projected for 2006.

Thus overall tender levels for productive infrastructure projects increased by 3.8% in 2005, and are projected to increase by 4.2% this year.

Table A1.4: Overall deflator for new productive infrastructure output

	Index Value (2004 = 1.0)	Change (%)
2002	0.940	6.0%
2003	0.965	2.7%
2004	1.000	3.6%
2005	1.038	3.8%
2006E	1.082	4.2%

Source NRA, DoEHLG, DKM

A1.7: Repair and maintenance construction output

The price deflator used for all categories of work to derive repair and maintenance construction output at constant prices up to 1995 is derived from two published indices. The CSO Wholesale Price Index for Building and Construction Materials is combined with the index of average weekly earnings for skilled construction workers from the CSO quarterly inquiry. The derived index is based on a 50/50 split between materials and wage costs.

The deflators assumed for repair and maintenance construction output are as follows:

- general contracting: private and public non-residential repair and maintenance work - 4% inflation in 2005 and in 2006.
- productive infrastructure: 4% per annum in 2005 and 2006.
- private and public housing: tender levels increase by 6% in 2005 and 5% in 2006.

A1.8: Conclusions

Overall construction inflation averaged 6% over the period 2002 to 2005. The overall rate of construction price inflation, which slowed from 10.5% at the beginning of the decade to 4.7% in 2002, is heavily influenced by housebuilding. Residential construction inflation (excluding site costs) peaked at almost 17% in 1998 before moderating to 7% in 2002. While both measures picked up again in 2003 and 2004, inflation in 2005 had fallen back to 5.7% for the sector as a whole and 6.6% for residential construction. Overall construction inflation is expected to be broadly unchanged in 2006 compared with 2005. Excluding private housing, construction inflation for all non-residential work is estimated at around 4% per annum over the period 2004-2006.

Tables A1.5 and A1.6 show the output price deflators and the corresponding percentage changes for each sector over the period 2002 to 2006E.

Table A1.5: Construction output price deflators 2002 to 2006E (2004 = 1.000)

	2002	2003	2004	2005	2006E
Residential construction					
New private	0.766	0.885	1.000	1.068	1.143
New public	0.943	0.952	1.000	1.060	1.113
Sub-total	0.782	0.890	1.000	1.068	1.141
RM&I private	0.934	0.952	1.000	1.060	1.113
RM&I public	0.934	0.952	1.000	1.060	1.113
Sub-total	0.934	0.952	1.000	1.060	1.113
Total residential	0.817	0.902	1.000	1.066	1.136
New non residential construction					
New private non residential construction					
Industry	0.991	0.962	1.000	1.040	1.082
Semi-state industry	0.991	0.962	1.000	1.040	1.082
Commercial					
Office development	0.991	0.962	1.000	1.040	1.082
Retail, wholesale	0.991	0.962	1.000	1.040	1.082
Total commercial	0.991	0.962	1.000	1.040	1.082
Agriculture	1.002	0.962	1.000	1.040	1.082
Tourism	0.991	0.962	1.000	1.040	1.082
Worship	0.991	0.962	1.000	1.040	1.082
Sub-total	0.992	0.962	1.000	1.040	1.082
New productive infrastructure					
Roads	0.934	0.962	1.000	1.045	1.097
Water and sanitary services	0.966	0.990	1.000	1.010	1.020
Airport development	0.938	0.962	1.000	1.040	1.082
Ports and harbours	0.938	0.962	1.000	1.040	1.082
Energy	0.938	0.962	1.000	1.040	1.082
Transport	0.938	0.962	1.000	1.040	1.082
Telecommunications	0.938	0.962	1.000	1.040	1.082
Sub-total	0.940	0.965	1.000	1.038	1.082
New social infrastructure					
Education	0.943	0.943	1.000	1.040	1.082
Health	0.990	0.990	1.000	1.040	1.071
Public buildings	0.962	0.962	1.000	1.040	1.082
Local authority services	0.962	0.962	1.000	1.040	1.082
Sport	0.962	0.962	1.000	1.040	1.082
Gaeltacht	0.962	0.962	1.000	1.040	1.082
Sub-total	0.960	0.962	1.000	1.040	1.079
Total new non-residential	0.959	0.964	1.000	1.039	1.081

Table A1.5: Construction output price deflators 2002 to 2006E (2004 = 100) continued...

	2002	2003	2004	2005	2006E
Non-residential repair and maintenance					
Private non-residential					
Industry	0.962	0.962	1.000	1.040	1.082
Semi-state industry	0.962	0.962	1.000	1.040	1.082
Commercial					
Office development	0.962	0.962	1.000	1.040	1.082
Retail, wholesale	0.962	0.962	1.000	1.040	1.082
Total commercial	0.962	0.962	1.000	1.040	1.082
Agriculture	0.962	0.962	1.000	1.040	1.082
Tourism	0.962	0.962	1.000	1.040	1.082
Worship	0.962	0.962	1.000	1.040	1.082
Sub-total	0.962	0.962	1.000	1.040	1.082
Productive infrastructure					
Roads	0.943	0.962	1.000	1.040	1.082
Water and sanitary services	0.971	0.990	1.000	1.040	1.082
Airport development	0.943	0.962	1.000	1.040	1.082
Ports and harbours	0.943	0.962	1.000	1.040	1.082
Energy	0.943	0.962	1.000	1.040	1.082
Transport	0.943	0.962	1.000	1.040	1.082
Telecommunications	0.943	0.962	1.000	1.040	1.082
Sub-total	0.951	0.969	1.000	1.040	1.082
Social Infrastructure					
Education	0.962	0.962	1.000	1.040	1.082
Health	0.962	0.962	1.000	1.040	1.082
Public buildings	0.962	0.962	1.000	1.040	1.082
Local authority services	0.962	0.962	1.000	1.040	1.082
Sport	0.962	0.962	1.000	1.040	1.082
Sub-total	0.962	0.962	1.000	1.040	1.082
Total RM&I non-residential	0.957	0.965	1.000	1.040	1.082
Total construction output					
New construction output	0.856	0.917	1.000	1.058	1.121
Repair and maintenance	0.942	0.957	1.000	1.053	1.102
Total construction output	0.874	0.925	1.000	1.057	1.117

Table A1.6: Construction output price deflators (2002 to 2006E) (annual change, %)

	2002	2003	2004	2005	2006E
Residential construction					
New private	10.9%	15.5%	13.0%	6.8%	7.0%
New public	2.0%	1.0%	5.0%	6.0%	5.0%
Sub-total	10.3%	13.8%	12.4%	6.8%	6.9%
RM&I private	3.0%	2.0%	5.0%	6.0%	5.0%
RM&I public	3.0%	2.0%	5.0%	6.0%	5.0%
Sub-total	3.0%	2.0%	5.0%	6.0%	5.0%
Total residential	7.1%	10.4%	10.9%	6.6%	6.5%
New non residential construction					
New private non residential construction					
Industry	-2.0%	-3.0%	4.0%	4.0%	4.0%
Semi-state industry	-2.0%	-3.0%	4.0%	4.0%	4.0%
Commercial					
Office development	-2.0%	-3.0%	4.0%	4.0%	4.0%
Retail, wholesale	-2.0%	-3.0%	4.0%	4.0%	4.0%
Total commercial	-2.0%	-3.0%	4.0%	4.0%	4.0%
Agriculture	-2.0%	-4.0%	4.0%	4.0%	4.0%
Tourism	-2.0%	-3.0%	4.0%	4.0%	4.0%
Worship	-2.0%	-3.0%	4.0%	4.0%	4.0%
Sub-total	-2.0%	-3.1%	4.0%	4.0%	4.0%
New productive infrastructure					
Roads	5.0%	3.0%	4.0%	4.5%	5.0%
Water and sanitary services	6.0%	2.5%	1.0%	1.0%	1.0%
Airport development	7.0%	2.5%	4.0%	4.0%	4.0%
Ports and harbours	7.0%	2.5%	4.0%	4.0%	4.0%
Energy	7.0%	2.5%	4.0%	4.0%	4.0%
Transport	7.0%	2.5%	4.0%	4.0%	4.0%
Telecommunications	7.0%	2.5%	4.0%	4.0%	4.0%
Sub-total	6.0%	2.7%	3.6%	3.8%	4.1%
New social infrastructure					
Education	2.0%	0.0%	6.0%	4.0%	4.0%
Health	2.0%	0.0%	1.0%	4.0%	3.0%
Public buildings	2.0%	0.0%	4.0%	4.0%	4.0%
Local authority services	2.0%	0.0%	4.0%	4.0%	4.0%
Sport	2.0%	0.0%	4.0%	4.0%	4.0%
Gaeltacht	2.0%	0.0%	4.0%	4.0%	4.0%
Sub-total	2.0%	0.0%	4.0%	4.0%	3.8%
Total new non-residential	1.5%	0.5%	3.8%	3.9%	4.0%

Table A1.6: Construction output price deflators (2002 to 2006E) (annual change, %) - continued

	2002	2003	2004	2005	2006E
Non-residential repair and maintenance					
Private non-residential					
Industry	0.0%	0.0%	4.0%	4.0%	4.0%
Semi-state industry	0.0%	0.0%	4.0%	4.0%	4.0%
Commercial					
Office development	0.0%	0.0%	4.0%	4.0%	4.0%
Retail, wholesale	0.0%	0.0%	4.0%	4.0%	4.0%
Total commercial	0.0%	0.0%	4.0%	4.0%	4.0%
Agriculture	0.0%	0.0%	4.0%	4.0%	4.0%
Tourism	0.0%	0.0%	4.0%	4.0%	4.0%
Worship	0.0%	0.0%	4.0%	4.0%	4.0%
Sub-total	0.0%	0.0%	4.0%	4.0%	4.0%
Productive infrastructure					
Roads	5.0%	2.0%	4.0%	4.0%	4.0%
Water and sanitary services	6.0%	2.0%	1.0%	4.0%	4.0%
Airport development	7.0%	2.0%	4.0%	4.0%	4.0%
Ports and harbours	7.0%	2.0%	4.0%	4.0%	4.0%
Energy	7.0%	2.0%	4.0%	4.0%	4.0%
Transport	7.0%	2.0%	4.0%	4.0%	4.0%
Telecommunications	7.0%	2.0%	4.0%	4.0%	4.0%
Sub-total	6.0%	1.9%	3.2%	4.0%	4.0%
Social Infrastructure					
Education	0.0%	0.0%	4.0%	4.0%	4.0%
Health	0.0%	0.0%	4.0%	4.0%	4.0%
Public buildings	0.0%	0.0%	4.0%	4.0%	4.0%
Local authority services	0.0%	0.0%	4.0%	4.0%	4.0%
Sport	0.0%	0.0%	4.0%	4.0%	4.0%
Sub-total	0.0%	0.0%	4.0%	4.0%	4.0%
Total RM&I non-residential	2.3%	0.8%	3.6%	4.0%	4.0%
Total construction output					
New construction output	5.7%	7.1%	9.1%	5.8%	5.9%
Repair and maintenance	2.8%	1.6%	4.5%	5.3%	4.6%
Total construction inflation	4.7%	5.8%	8.1%	5.7%	5.7%

Appendix 2: Construction output by sector, 2002-2006E

The following tables present information on the value of construction industry output in current and constant (2004) prices.

Table A2.1: Value of construction output in current prices, 2002-2006E (€m)

	2002	2003	2004	2005	2006E
Residential construction					
New private housing	7,860.0	10,770.3	13,701.6	16,525.2	18,501.5
New public housing					
New local authority	775.7	720.3	725.3	870.9	979.0
New voluntary	<u>166.6</u>	<u>212.9</u>	<u>184.8</u>	<u>168.7</u>	<u>245.4</u>
Total new public housing	942.3	933.2	910.1	1,039.6	1,224.5
Sub-total	8,802.3	11,703.5	14,611.7	17,564.8	19,725.9
RM&I private	2,954.2	2,735.9	3,175.2	3,578.6	4,133.3
RM&I public	<u>171.3</u>	<u>196.3</u>	<u>200.6</u>	<u>224.0</u>	<u>240.2</u>
Sub-total	3,125.5	2,932.2	3,375.8	3,802.6	4,373.5
Total residential	11,927.8	14,635.6	17,987.5	21,367.4	24,099.5
New Non-residential construction					
New private non residential construction					
Industry	640.8	528.6	549.8	606.0	664.8
Semi-state industry	48.1	39.3	59.8	87.5	159.5
Commercial					
Office development	786.1	533.8	444.4	647.0	878.9
Retail, wholesale	<u>446.9</u>	<u>450.8</u>	<u>539.4</u>	<u>701.2</u>	<u>878.9</u>
Total commercial	1,233.0	984.6	983.8	1,348.2	1,757.9
Agriculture	143.4	128.4	171.1	179.2	215.4
Tourism	300.0	340.1	367.3	420.2	463.2
Worship	<u>4.4</u>	<u>22.4</u>	<u>17.8</u>	<u>18.3</u>	<u>19.1</u>
Sub-total	2,369.7	2,043.4	2,149.6	2,659.4	3,279.7
New productive infrastructure					
Roads	1,363.2	1,444.2	1,442.1	1,577.8	1,802.6
Water and sanitary services	559.6	536.0	472.5	474.0	451.0
Airport development	116.1	46.8	82.2	94.1	150.3
Ports and harbours	71.5	61.2	43.6	30.7	37.6
Energy	1,178.1	1,103.6	1,316.6	1,229.7	1,435.3
Transport including LUAS	399.6	554.4	353.4	265.5	315.3
Telecommunications	<u>257.9</u>	<u>249.3</u>	<u>265.3</u>	<u>207.8</u>	<u>235.4</u>
Sub-total	3,945.9	3,995.4	3,975.6	3,879.4	4,427.4
New social infrastructure					
Education	577.1	478.8	538.0	609.3	601.8
Health	319.3	329.2	306.0	338.1	350.0
Public buildings	269.1	341.7	282.7	262.5	326.6
Local authority services	181.6	92.7	95.4	155.6	221.1
Sport	57.1	83.8	115.8	77.8	106.9
Gaeltacht	<u>22.7</u>	<u>14.6</u>	<u>27.1</u>	<u>21.9</u>	<u>56.8</u>
Sub-total	1,426.7	1,340.9	1,365.0	1,465.2	1,663.2
Total new non-residential	7,742.4	7,379.7	7,490.2	8,004.0	9,370.4

Table A2.1: Value of construction output in current prices, 2002-2006E (€m) – continued

	2002	2003	2004	2005	2006E
Non-residential repair and maintenance					
Private non-residential					
Industry	110.7	171.5	179.6	195.0	212.9
Semi-state industry	14.1	11.5	12.8	16.4	18.1
Commercial					
Office development	175.4	180.8	152.2	169.0	228.5
Retail, wholesale	<u>99.7</u>	<u>152.7</u>	<u>184.8</u>	<u>183.1</u>	<u>228.5</u>
Total commercial	275.1	333.5	337.0	352.1	457.0
Agriculture	74.5	74.6	79.3	83.0	89.6
Tourism	61.3	68.0	83.7	103.1	111.8
Worship	<u>57.0</u>	<u>28.0</u>	<u>46.0</u>	<u>55.0</u>	<u>57.2</u>
Sub-total	592.6	687.2	738.5	804.5	946.7
Productive infrastructure					
Roads	255.3	252.8	266.9	285.6	354.9
Water and sanitary services	194.6	214.3	266.1	298.0	330.0
Airport development	24.8	26.4	26.1	29.2	33.9
Ports and harbours	5.0	8.9	7.1	4.6	5.7
Energy	85.4	133.4	179.0	158.6	177.9
Transport	47.6	113.9	96.2	99.9	106.3
Telecommunications	<u>22.3</u>	<u>16.6</u>	<u>14.2</u>	<u>48.7</u>	<u>12.0</u>
Sub-total	634.9	766.1	855.6	924.6	1,020.7
Social infrastructure					
Education	144.6	83.5	138.3	136.8	150.8
Health	135.0	130.2	154.0	125.6	174.6
Public buildings	96.1	109.0	90.7	103.5	118.9
Local authority services	15.6	5.5	2.1	3.4	4.1
Sport	<u>4.3</u>	<u>14.5</u>	<u>8.3</u>	<u>10.0</u>	<u>10.0</u>
Sub-total	395.6	342.7	393.4	379.2	458.3
Total RM&I non-residential	1,623.1	1,795.9	1,987.5	2,108.3	2,425.6
Total construction output					
New construction output	16,544.7	19,083.2	22,101.9	25,568.8	29,096.3
Repair and Maintenance	<u>4,748.6</u>	<u>4,728.1</u>	<u>5,363.3</u>	<u>5,910.9</u>	<u>6,799.1</u>
Total construction output	21,293.3	23,811.3	27,465.2	31,479.7	35,895.4

Table A2.2: Value of construction output in constant prices, 2002-2006E
(constant 2004 prices, €m)

	2002	2003	2004	2005	2006E
Residential construction					
New private housing	10,258.2	12,172.3	13,701.6	15,473.0	16,190.2
New public housing					
New local authority	822.6	756.3	725.3	821.6	879.6
New voluntary	<u>176.7</u>	<u>223.6</u>	<u>184.8</u>	<u>159.2</u>	<u>220.5</u>
Total new public housing	999.3	979.9	910.1	980.7	1,100.2
Sub-total	11,257.5	13,152.2	14,611.7	16,453.8	17,290.3
RM&I private	3,163.9	2,872.7	3,175.2	3,376.0	3,713.6
RM&I public	183.5	206.1	200.6	211.3	215.8
Sub-total	3,347.4	3,078.8	3,375.8	3,587.3	3,929.5
Total residential	14,605.0	16,231.0	17,987.5	20,041.1	21,219.8
New Non-residential construction					
New private non residential construction					
Industry	646.5	549.8	549.8	582.7	614.6
Semi-state industry	48.5	40.9	59.8	84.2	147.4
Commercial					
Office development	793.1	555.1	444.4	622.1	812.6
Retail, wholesale	450.8	468.9	539.4	674.2	812.6
Total commercial	1,243.9	1,024.0	983.8	1,296.3	1,625.2
Agriculture	143.2	133.6	171.1	172.3	199.1
Tourism	302.6	353.7	367.3	404.0	428.2
Worship	<u>4.4</u>	<u>23.3</u>	<u>17.8</u>	<u>17.6</u>	<u>17.6</u>
Sub-total	2,389.1	2,125.2	2,149.6	2,557.1	3,032.3
New productive infrastructure					
Roads	1,460.2	1,502.0	1,442.1	1,509.8	1,642.8
Water and sanitary services	579.3	541.3	472.5	469.3	442.1
Airport development	123.8	48.7	82.2	90.5	139.0
Ports and harbours	76.2	63.7	43.6	29.5	34.7
Energy	1,255.8	1,147.7	1,316.6	1,182.4	1,327.0
Transport including LUAS	426.0	576.6	353.4	255.2	291.5
Telecommunications	<u>274.9</u>	<u>259.2</u>	<u>265.3</u>	<u>199.8</u>	<u>217.6</u>
Sub-total	4,196.2	4,139.2	3,975.6	3,736.5	4,094.8
New social infrastructure					
Education	611.7	507.5	538.0	585.9	556.4
Health	322.4	332.5	306.0	325.1	326.7
Public buildings	279.8	355.4	282.7	252.4	301.9
Local authority services	188.8	96.4	95.4	149.6	204.4
Sport	59.3	87.1	115.8	74.8	98.9
Gaeltacht	<u>23.6</u>	<u>15.2</u>	<u>27.1</u>	<u>21.1</u>	<u>52.5</u>
Sub-total	1,485.7	1,394.2	1,365.0	1,408.9	1,540.9
Total new non-residential	8,071.1	7,658.6	7,490.2	7,702.4	8,667.9

**Table A2.2: Value of construction output in constant prices, 2002-2006E
(constant 2004 prices, €m) – continued**

	2002	2003	2004	2005	2006E
Non-residential repair and maintenance					
Private non-residential					
Industry	115.1	178.4	179.6	187.5	196.9
Semi-state industry	14.7	11.9	12.8	15.8	16.7
Commercial					
Office development	182.4	188.0	152.2	162.5	211.3
Retail, wholesale	<u>103.7</u>	<u>158.8</u>	<u>184.8</u>	<u>176.1</u>	<u>211.3</u>
Total commercial	286.1	346.9	337.0	338.5	422.6
Agriculture	77.4	77.6	79.3	79.8	82.8
Tourism	63.8	70.7	83.7	99.2	103.4
Worship	<u>59.3</u>	<u>29.2</u>	<u>46.0</u>	<u>52.8</u>	<u>52.8</u>
Sub-total	616.3	714.7	738.5	773.6	875.2
Productive infrastructure					
Roads	270.8	262.9	266.9	274.6	328.1
Water and sanitary services	200.4	216.4	266.1	286.5	305.1
Airport development	26.4	27.4	26.1	28.1	31.4
Ports and harbours	5.3	9.2	7.1	4.4	5.3
Energy	90.5	138.7	179.0	152.5	164.5
Transport	50.5	118.4	96.2	96.0	98.3
Telecommunications	<u>23.7</u>	<u>17.2</u>	<u>14.2</u>	<u>46.9</u>	<u>11.1</u>
Sub-total	667.6	790.3	855.6	889.0	943.6
Social infrastructure					
Education	150.4	86.8	138.3	131.5	139.4
Health	140.4	135.4	154.0	120.8	161.4
Public buildings	99.9	113.4	90.7	99.5	109.9
Local authority services	16.2	5.7	2.1	3.3	3.8
Sport	<u>4.5</u>	<u>15.1</u>	<u>8.3</u>	<u>9.6</u>	<u>9.2</u>
Sub-total	411.4	356.4	393.4	364.7	423.7
Total RM&I non-residential	1,695.3	1,861.4	1,987.5	2,027.3	2,242.6
Total construction output					
New construction output	19,328.6	20,810.8	22,101.9	24,156.2	25,958.3
Repair and Maintenance	<u>5,042.7</u>	<u>4,940.1</u>	<u>5,363.3</u>	<u>5,614.6</u>	<u>6,172.1</u>
Total construction output	24,371.3	25,750.9	27,465.2	29,770.8	32,130.4

Table A2.3: Change in the volume of construction output, 2002-2006E (%)

	2002	2003	2004	2005	2006E
Residential construction					
New private housing	6.3%	18.7%	12.6%	12.9%	4.6%
New public housing					
New local authority	23.3%	-8.1%	-4.1%	13.3%	7.1%
New voluntary	<u>12.5%</u>	<u>26.5%</u>	<u>-17.3%</u>	<u>-13.9%</u>	<u>38.5%</u>
Total new public housing	21.2%	-1.9%	-7.1%	7.8%	12.2%
Sub-total	7.5%	16.8%	11.1%	12.6%	5.1%
RM&I private	-15.4%	-9.2%	10.5%	6.3%	10.0%
RM&I public	<u>21.2%</u>	<u>12.3%</u>	<u>-2.7%</u>	<u>5.3%</u>	<u>2.2%</u>
Sub-total	-14.0%	-8.0%	9.6%	6.3%	9.5%
Total residential	1.7%	11.1%	10.8%	11.4%	5.9%
New Non-residential construction					
New private non residential construction					
Industry	-25.0%	-15.0%	0.0%	6.0%	5.5%
Semi-state industry	-29.9%	-15.7%	46.4%	40.7%	75.2%
Commercial					
Office development	-30.0%	-30.0%	-20.0%	40.0%	30.6%
Retail, wholesale	<u>-5.0%</u>	<u>4.0%</u>	<u>15.0%</u>	<u>25.0%</u>	<u>20.5%</u>
Total commercial	-22.6%	-17.7%	-3.9%	31.8%	25.4%
Agriculture	-6.0%	-6.7%	28.1%	0.7%	15.6%
Tourism	-22.0%	16.9%	3.8%	10.0%	6.0%
Worship	<u>23.6%</u>	<u>429.2%</u>	<u>-23.5%</u>	<u>-1.0%</u>	<u>0.0%</u>
Sub-total	-22.5%	-11.0%	1.2%	19.0%	18.6%
New productive infrastructure					
Roads	14.7%	2.9%	-4.0%	4.7%	8.8%
Water and sanitary services	-3.6%	-6.6%	-12.7%	-0.7%	-5.8%
Airport development	6.0%	-60.7%	68.8%	10.1%	53.6%
Ports and harbours	78.0%	-16.4%	-31.5%	-32.3%	17.6%
Energy	38.3%	-8.6%	14.7%	-10.2%	12.2%
Transport including LUAS	14.6%	35.4%	-38.7%	-27.8%	14.2%
Telecommunications	<u>24.5%</u>	<u>-5.7%</u>	<u>2.3%</u>	<u>-24.7%</u>	<u>8.9%</u>
Sub-total	18.7%	-1.4%	-4.0%	-6.0%	9.6%
New social infrastructure					
Education	28.4%	-17.0%	6.0%	8.9%	-5.0%
Health	35.2%	3.1%	-8.0%	6.3%	0.5%
Public buildings	-20.5%	27.0%	-20.5%	-10.7%	19.6%
Local authority services	84.0%	-48.9%	-1.0%	56.7%	36.7%
Sport					
Gaeltacht	<u>171.7%</u>	<u>-35.5%</u>	<u>78.0%</u>	<u>-22.1%</u>	<u>149.2%</u>
Sub-total	26.1%	-6.2%	-2.1%	3.2%	9.4%
Total new non-residential	3.6%	-5.1%	-2.2%	2.8%	12.5%

Table A2.3: Change in the volume of construction output, 2002-2006E (%) – continued

	2002	2003	2004	2005	2006E
Non-residential repair and maintenance					
Private non-residential					
Industry	-4.3%	55.0%	0.7%	4.4%	5.0%
Semi-state industry	-36.9%	-18.7%	7.5%	23.3%	5.8%
Commercial					
Office development	-8.4%	3.1%	-19.0%	6.7%	30.0%
Retail, wholesale	<u>24.3%</u>	<u>53.2%</u>	<u>16.3%</u>	<u>-4.7%</u>	<u>20.0%</u>
Total commercial	1.3%	21.3%	-2.8%	0.4%	24.8%
Agriculture	11.3%	0.2%	2.2%	0.6%	3.8%
Tourism	-21.9%	10.9%	18.4%	18.4%	4.3%
Worship	58.3%	-50.8%	57.7%	14.9%	0.0%
Sub-total	0.3%	16.0%	3.3%	4.8%	13.1%
Productive infrastructure					
Roads	-4.8%	-2.9%	1.5%	2.9%	19.5%
Water and sanitary services	6.6%	8.0%	23.0%	7.7%	6.5%
Airport development	10.8%	4.0%	-4.7%	7.6%	11.7%
Ports and harbours	99.3%	74.1%	-22.7%	-38.5%	20.0%
Energy	81.0%	53.2%	29.0%	-14.8%	7.8%
Transport	-29.3%	134.4%	-18.7%	-0.2%	2.3%
Telecommunications	<u>-59.5%</u>	<u>-27.2%</u>	<u>-17.6%</u>	<u>229.8%</u>	<u>-76.4%</u>
Sub-total	-1.7%	18.4%	8.3%	3.9%	6.1%
Social infrastructure					
Education	-14.2%	-42.3%	59.2%	-4.9%	6.0%
Health	8.3%	-3.6%	13.7%	-21.6%	33.6%
Public buildings	4.6%	13.5%	-20.0%	9.6%	10.5%
Local authority services	-33.6%	-65.0%	-62.5%	54.4%	15.3%
Sport			<u>-44.9%</u>	<u>15.6%</u>	<u>-3.8%</u>
Sub-total	-3.2%	-13.4%	10.4%	-7.3%	16.2%
Total RM&I non-residential	-1.4%	9.8%	6.8%	2.0%	10.6%
Total construction output					
New construction output	5.8%	7.7%	6.2%	9.3%	7.5%
Repair and Maintenance	-10.1%	-2.0%	8.6%	4.7%	9.9%
Total construction output	2.1%	5.7%	6.7%	8.4%	7.9%

Appendix 3: Review of construction output by region, 2005

The regional breakdown of construction output in 2005 is broadly in line with the regional population distribution according to the 2006 Census. The exception is Dublin which accounts for one-quarter of the total output and 28% of the total population.

Once again this year residential construction dominates in each region, accounting for 70% or more of the estimated regional construction output in three regions (Border, Mid-east and South-west). The next largest sector across the State, the civil engineering sector, represented over one-fifth of construction output in the West region, reflecting above average levels of investment in the energy sector. Investment in social infrastructure building projects was highest in the Dublin and South-west regions.

The Greater Dublin Area (Dublin and the Mid-east region), which accounted for 38% of the construction output of the State, captured almost three-quarters of the construction related investment in public transport and almost one-half of the construction related investment in telecommunications.

The gap in construction output per capita between the Southern and Eastern region and the Border, Midlands and West region has narrowed compared with previous years, suggesting a more balanced pattern of construction investment between the two regions.

Estimates of the composition of construction output by region were first presented in 1995. We continue this year with our presentation of regional estimates for construction output for 2005⁷².

The requirement to produce a regional breakdown of construction output stems from a Central Statistics Office (CSO) requirement in relation to the preparation of National Accounts in the future. The data compiled in the *Annual Review and Outlook* is used by the CSO in preparing National Accounts estimates of investment.

A3.1: Definition of regions

The relevant regions used to breakdown construction output for 2005 are the eight planning regions as follows:

- Border: Cavan, Donegal, Leitrim, Louth, Monaghan, Sligo;
- Dublin: Dublin City, Dun Laoghaire - Rathdown, South Dublin and Fingal;
- Mid-East: Kildare, Meath and Wicklow;
- Midland: Laois, Longford, Offaly and Westmeath;
- Mid-West: Clare, Limerick and North Tipperary;
- South-East: Carlow, Kilkenny, South Tipperary, Waterford and Wexford;
- South-West: Cork City, Cork County and Kerry;
- West: Galway, Mayo and Roscommon.

⁷² Although the methodology used to derive regional estimates is being constantly improved, these estimates are to be considered tentative and we urge caution in interpreting the figures and particularly, in year-on-year comparisons. The current methodology used to ascertain regional output estimates is set out on the DOEHLG's website: www.environ.ie

In addition we present estimates of construction output for the two new regions⁷³ negotiated by Ireland in the context of the Agenda 2000 Agreement for Structural Fund purposes:

- (a) the Border, Midlands and Western (BMW) Region, which has retained Objective 1 status for the full period to 2006, and
- (b) the Southern and Eastern (S&E) Region which qualified for a six-year period phasing-out regime for Objective 1 Structural Funds up to the end of 2005.

A3.2: Regional breakdown of construction output/population

The total value of construction output in 2005 has been estimated at €31.5bn. Table A3.1 provides estimates for the regional composition of total output including repair and maintenance expenditure in 2005. The estimated regional breakdown of the total population in 2006 is shown for comparison⁷⁴.

The regional breakdown of construction output is broadly in line with the regional population distribution for the country as a whole. Figure A3.1 illustrates the regional split showing the Dublin construction market almost four times larger than the smallest market (Midland) in 2005.

Table A3.1: Value of construction output by region, 2005

	Output (€m)	Share of output (%)	Share of population (%)
Border	3,870	12%	11%
Dublin	7,904	25%	28%
Mid-east	3,937	13%	11%
Midland	2,195	7%	6%
Mid-west	2,649	8%	9%
South-east	3,425	11%	11%
South-west	4,399	14%	15%
West	3,100	10%	10%
Total output	31,479	100%	100%
S&E	22,314	71%	74%
BMW	9,165	29%	26%

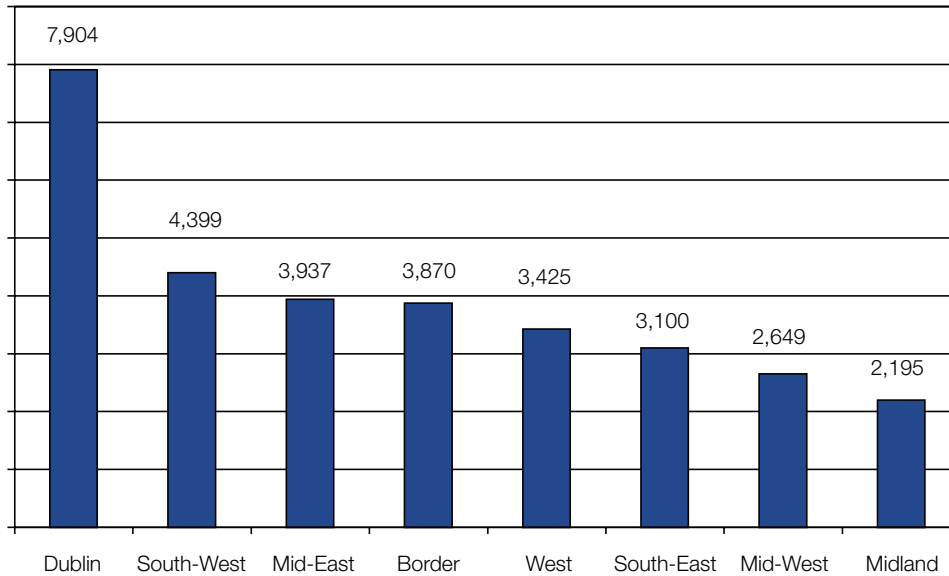
Other notable characteristics from Table A3.1 and Figure A3.1 are as follows:

- 71% of the total output was generated in the Southern and Eastern (S&E) region compared with 29% generated in the Border, Midlands and West (BMW) region.
- One-quarter of the total output was generated in the Dublin region in 2005.
- Only two regions represented less than 10% of the total: Midland (7%) and Mid-west (8%). The West, South-east, Border, Mid-east and South-west regions accounted for 10%, 11%, 12%, 13% and 14% respectively of total construction output.

⁷³ For a comparative regional analysis of the BMW and S&E regions see the National Development Plan 2000-2006.

⁷⁴ Census of Population, Preliminary Report, 2006 Central Statistics Office.

Figure A3.1: Value of construction output by region, 2005 (m)



Source: DOEHLG, DKM

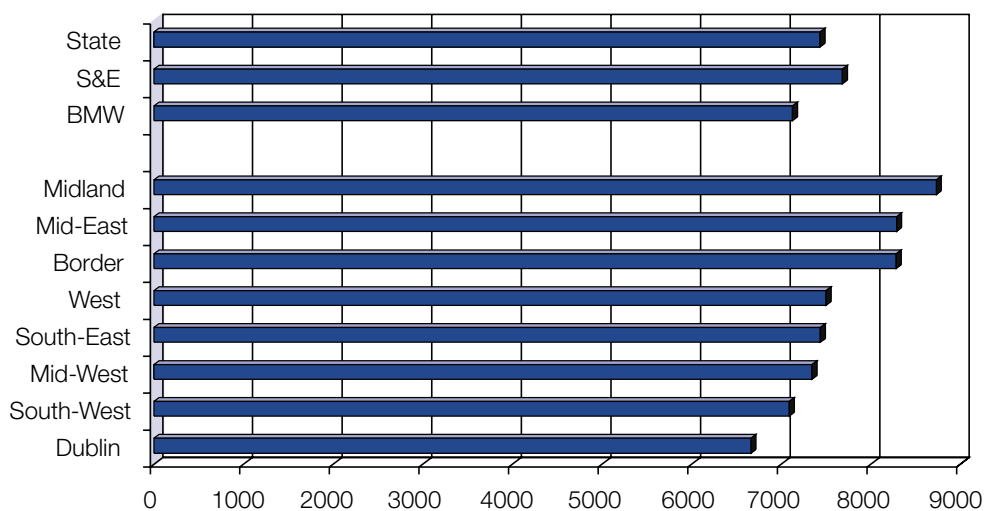
A3.2.1: Construction output per capita

Figure A3.2 illustrates the level of construction output per capita in 2005 by region and for the State as a whole.

The average construction output per capita for the State as a whole was €7,433 in 2005. Output per capita in the BMW region is 4% behind the State average and 3% ahead of it in the S&E region. Output in the S&E region is approximately 1.3 times the value of output in the BMW region but it has 1.4 times the population of the BMW region.

Construction output per capita levels were in excess of €7,000 in all regions except Dublin (€6,663) which accounts for 25% of the output but has 28% of the total population.

Figure A3.2: Construction output per capita by region, 2005 (€)



Source: DOEHLG, CSO, DKM

A3.3: Composition of regional construction output

The composition of regional output in 2005 is set out in Table A3.2 together with the percentage shares for each category of work.

Table A3.2: Regional construction output in 2005 (€m)

	Residential Construction	Private Non-Residential	Productive Infrastructure	Social Infrastructure	Regional Output
Border	2,815	375	516	164	3,870
Dublin	5,311	929	1,074	590	7,904
Mid-east	2,870	348	566	154	3,937
Midland	1,435	184	459	118	2,195
Mid-west	1,806	322	361	161	2,649
South-east	2,476	379	435	134	3,425
South-west	2,826	570	673	329	4,399
West	<u>1,828</u>	<u>358</u>	<u>721</u>	<u>194</u>	<u>3,100</u>
Total Output	21,367	3,464	4,804	1,844	31,479
S&E	15,289	2,548	3,108	1,369	22,314
BMW	6,078	916	1,695	476	9,165
Border	73%	10%	13%	4%	100%
Dublin	67%	12%	14%	7%	100%
Mid-east	73%	9%	14%	4%	100%
Midland	65%	8%	21%	5%	100%
Mid-west	68%	12%	14%	6%	100%
South-east	72%	11%	13%	4%	100%
South-west	64%	13%	15%	7%	100%
West	59%	12%	23%	6%	100%
Total Output	68%	11%	15%	6%	100%
S&E	72%	74%	65%	74%	71%
BMW	28%	26%	35%	26%	29%

Note that:

- The extent to which *residential construction* output dominates across each region, representing 68% of total construction output in 2005, ranging from 73% of the total in the Mid-east and Border regions to 59% in the West region.
- *Private non-residential* output was highest in absolute and percentage terms in the Dublin region, equivalent to €0.9bn or 12% of the total. The lowest shares were recorded in the Mid-East and Midland regions, at around 8-9%. Only 11% of construction output in 2005 comprised building projects in the private non-residential sector.
- The value of *productive infrastructure* in 2005 was €4.8bn or 15% of the total. The West had the highest share (23%) in percentage terms, reflecting developments in the power generation sector, while Dublin had the highest absolute level of investment in productive infrastructure.
- The final category of work, *social infrastructure*, accounted for only 6% of total output in 2005, ranging from 7% in the Dublin and South-West regions to only 4% in the Border, Mid-East and South-East regions.

In terms of the two larger regions, the S&E and the BMW, total construction output was split in the ratio 71% to 29%. In terms of the individual market segments, the private non-residential construction sector split 74% (S&E) to 26% (BMW) while 28% of the residential construction market was located in the BMW region compared with 72% in the S&E region.

The corresponding shares for the productive and social infrastructure segments were 65% and 74% respectively in the S&E region as against 35% and 26% respectively in the BMW region.

A3.4: Categories of construction work by region

Figures A3.3 to A3.6 illustrate how the broad categories of work split by region in 2005, using residential, private non-residential, productive infrastructure and social infrastructure as the four main categories of construction work.

A3.4.1: Residential construction

The shares of residential construction output by region match closely the shares of overall dwellings completed by region in 2005 except for the Dublin region: Border - 13% of residential output (14% of dwelling completions), Mid-east - 13% (12%), Midland - 7% (7%), Mid-west - 9% (8%), South-east - 12% (11%), South-west - 13% (15%), West - 9% (10%). The Dublin and Mid-east regions (a proxy for the Greater Dublin Area) represented 38% of the total value of residential construction output in 2005 compared with 35% of total completions. Approximately one-half of the total investment in public sector housing was in the Greater Dublin Area (GDA).

A3.4.2: Private non-residential construction

The GDA accounted for 37% of the total private non-residential construction output in 2005 followed by the South-west (16%), the Border and South-east regions, each representing 11% of the total. All other regions represented 10% or less of the total: West and Mid-east (10% each), the Mid-west (9%), with the Midland region accounting for just 5%. The GDA accounted for 44% of new commercial building output and 39% of new industrial output.

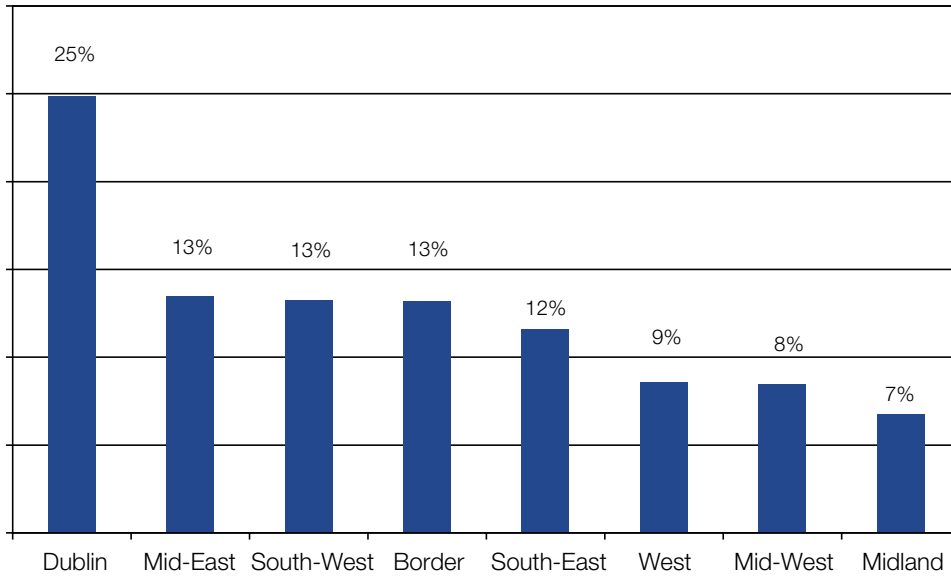
A3.4.3: Productive infrastructure

Dublin accounted for 22% of total productive infrastructure output, followed by the West (15%) and South-west (14%) regions. Approximately 34% of all productive infrastructure investment took place in the GDA including 74% of public transport investment and 50% of investment in telecommunications. Approximately one-third of the total investment in both roads and water services was undertaken in the GDA. The Border and Midlands regions each accounted for around 10 to 11% of the total with the lowest shares represented by the South-east (9%) and Mid-west (7%) regions.

A3.4.4: Social infrastructure

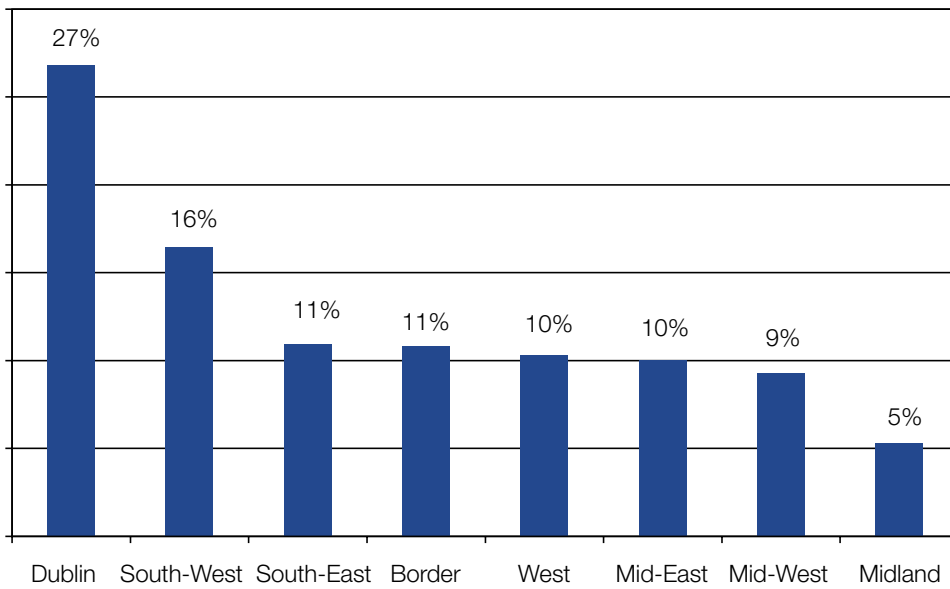
The Dublin and Mid-east regions combined accounted for 40% of the total investment in social infrastructure in 2005. The GDA accounted for 53% of the investment in public buildings, 41% of the investment in educational buildings and 31% of the total investment in hospital buildings.

Figure A3.3: Residential construction output by region, 2005 (%)



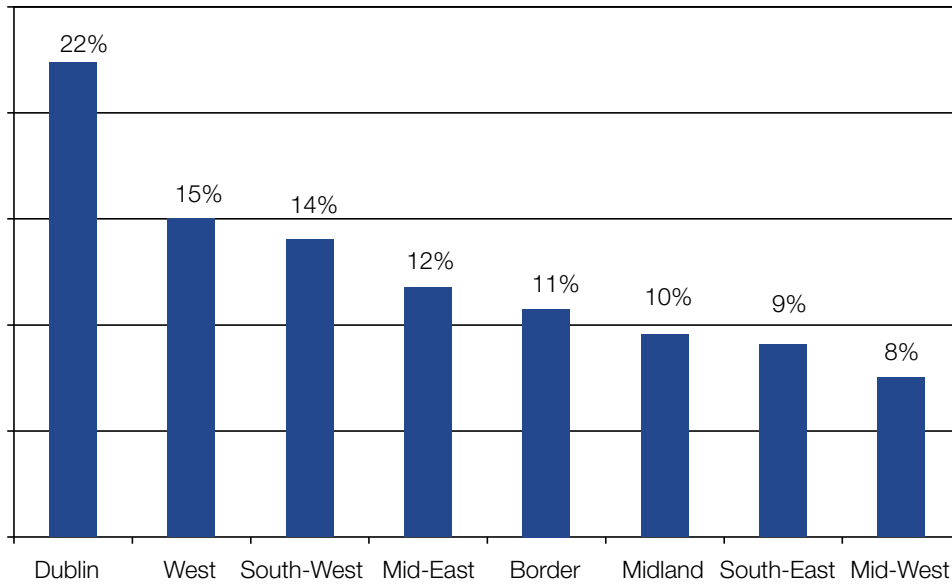
Source: DOEHLG, DKM

Figure A3.4: Private non-residential construction output by region, 2005 (%)



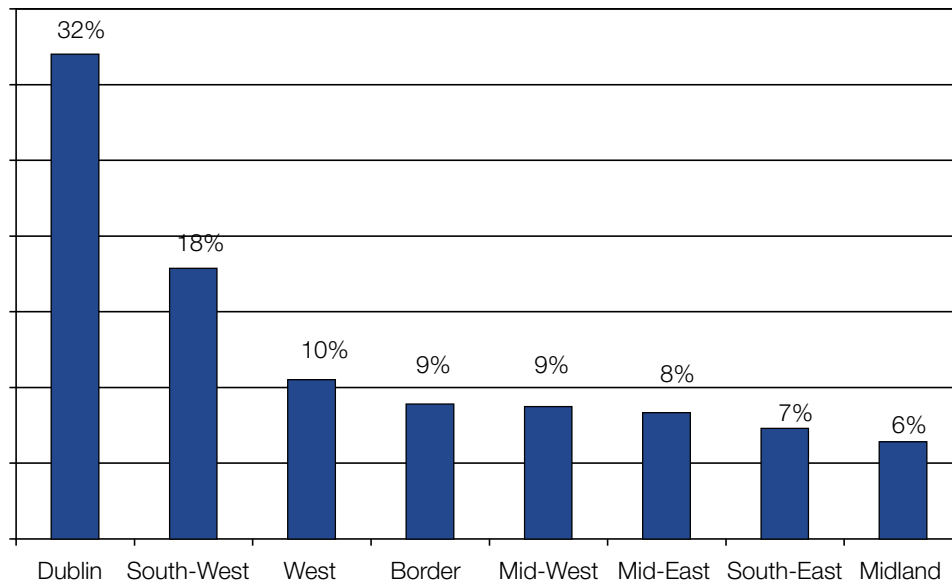
Source: DOEHLG, DKM

Figure A3.5: Productive infrastructure construction by region, 2005 (%)



Source: DOEHLG, DKM

Figure A3.6: Social infrastructure construction by region, 2005 (%)



Source: DOEHLG, DKM

Table A3.3: Construction output by region, 2005 (current prices, €m.)

	Border	Dublin	Mid-east	Midland	Mid-west	South-east	South-west	West	State total
Residential construction									
Private housing	2,667	4,801	2,767	1,363	1,741	2,349	2,662	1,754	20,104
Social housing	<u>148</u>	<u>509</u>	<u>104</u>	<u>72</u>	<u>64</u>	<u>127</u>	<u>165</u>	<u>75</u>	<u>1,264</u>
Sub-total	2,815	5,311	2,870	1,435	1,806	2,476	2,826	1,828	21,367
Non residential construction									
Private non-residential construction									
Industry	95	244	107	47	81	96	145	90	905
Commercial	164	569	172	90	142	168	243	153	1,700
Agricultural	38	1	20	25	37	49	69	24	262
Tourism	69	99	42	18	53	58	103	82	523
Worship	9	17	6	4	9	8	10	9	73
Sub-total	375	929	348	184	322	379	570	358	3,464
Productive infrastructure									
Roads	285	246	341	213	150	185	305	138	1,863
Water services	103	150	112	41	92	94	81	98	772
Airports and seaports	10	11	40	2	0	11	1	85	8
Energy	57	263	85	169	83	127	153	449	1,388
Transport	24	268	4	20	7	12	22	7	365
Communications	<u>29</u>	<u>36</u>	<u>107</u>	<u>21</u>	<u>15</u>	<u>17</u>	<u>16</u>	<u>26</u>	<u>20</u>
Sub-total	516	1,074	566	459	361	435	673	721	4,804
Social infrastructure									
Education	56	255	49	26	68	49	167	76	746
Health	63	111	34	47	35	51	90	33	464
Public buildings	16	163	31	34	43	8	19	52	366
Other social	<u>29</u>	<u>62</u>	<u>40</u>	<u>11</u>	<u>14</u>	<u>26</u>	<u>54</u>	<u>33</u>	<u>269</u>
Sub-total	164	590	154	118	161	134	329	194	1,844
Total all construction	3,870	7,904	3,937	2,195	2,649	3,425	4,399	3,100	31,479

Note: The value of construction output *includes* repair and maintenance expenditure.

Table A3.4: Construction output by region, 2005 (%)

	Border	Dublin	Mid- east	Midland	Mid- west	South- east	South- west	West	State total
Residential construction									
Private housing	68.9	60.7	70.3	62.1	65.7	68.6	60.5	56.6	63.9
Social housing	<u>3.8</u>	<u>6.4</u>	<u>2.6</u>	<u>3.3</u>	<u>2.4</u>	<u>3.7</u>	<u>3.7</u>	<u>2.4</u>	<u>4.0</u>
Sub-total	72.7	67.2	72.9	65.4	68.2	72.3	64.2	59.0	67.9
Non residential construction									
Private non-residential construction									
Industry	2.4	3.1	2.7	2.1	3.1	2.8	3.3	2.9	2.9
Commercial	4.2	7.2	4.4	4.1	5.3	4.9	5.5	4.9	5.4
Agricultural	1.0	0.0	0.5	1.1	1.4	1.4	1.6	0.8	0.8
Tourism	1.8	1.2	1.1	0.8	2.0	1.7	2.3	2.6	1.7
Worship	<u>0.2</u>	<u>0.2</u>	<u>0.2</u>	<u>0.2</u>	<u>0.3</u>	<u>0.2</u>	<u>0.2</u>	<u>0.3</u>	<u>0.2</u>
Sub-total	9.7	11.8	8.8	8.4	12.1	11.1	13.0	11.5	11.0
Productive infrastructure									
Roads	7.4	3.1	8.7	9.7	5.7	5.4	6.9	4.5	5.9
Water services	2.7	1.9	2.8	1.9	3.5	2.7	1.9	3.2	2.5
Airports and seaports	0.3	0.5	0.1	0.0	0.4	0.0	1.9	0.2	0.5
Energy	1.5	3.3	2.2	7.7	3.1	3.7	3.5	14.5	4.4
Transport	0.6	3.4	0.1	0.9	0.3	0.4	0.5	0.2	1.2
Communications	<u>0.9</u>	<u>1.4</u>	<u>0.5</u>	<u>0.7</u>	<u>0.6</u>	<u>0.5</u>	<u>0.6</u>	<u>0.7</u>	<u>0.8</u>
Sub-total	13.3	13.6	14.4	20.9	13.6	12.7	15.3	23.2	15.3
Social infrastructure									
Education	1.4	3.2	1.3	1.2	2.6	1.4	3.8	2.4	2.4
Health	1.6	1.4	0.9	2.2	1.3	1.5	2.0	1.1	1.5
Public buildings	0.4	2.1	0.8	1.5	1.6	0.2	0.4	1.7	1.2
Other social	<u>0.8</u>	<u>0.8</u>	<u>1.0</u>	<u>0.5</u>	<u>0.5</u>	<u>0.8</u>	<u>1.2</u>	<u>1.1</u>	<u>0.9</u>
Sub-total	4.2	7.5	3.9	5.4	6.1	3.9	7.5	6.2	5.9
Total all construction	100	100	100	100	100	100	100	100	100

Table A3.5: Regional construction output by category of work, 2005 (%)

	Border	Dublin	Mid- east	Midland	Mid- west	South- east	South- west	West	State total
Residential construction									
Private housing	13.3	23.9	13.8	6.8	8.7	11.7	13.2	8.7	100
Social housing	<u>11.7</u>	<u>40.3</u>	<u>8.2</u>	<u>5.7</u>	<u>5.1</u>	<u>10.1</u>	<u>13.0</u>	<u>5.9</u>	<u>100</u>
Sub-total	13.2	24.9	13.4	6.7	8.5	11.6	13.2	8.6	100
Non residential construction									
Private non-residential construction									
Industry	10.5	27.0	11.8	5.2	9.0	10.6	16.1	9.9	100
Commercial	9.6	33.4	10.1	5.3	8.3	9.9	14.3	9.0	100
Agricultural	14.3	0.2	7.5	9.6	14.2	18.8	26.2	9.1	100
Tourism	13.2	18.9	8.1	3.4	10.0	11.0	19.6	15.7	100
Worship	<u>12.4</u>	<u>23.8</u>	<u>8.3</u>	<u>5.6</u>	<u>12.4</u>	<u>11.1</u>	<u>14.1</u>	<u>12.3</u>	<u>100</u>
Sub-total	10.8	26.8	10.0	5.3	9.3	10.9	16.5	10.3	100
Productive infrastructure									
Roads	15.3	13.2	18.3	11.4	8.1	9.9	16.4	7.4	100
Water services	13.3	19.5	14.5	5.3	12.0	12.2	10.5	12.7	100
Airports and seaports	7.2	25.0	1.4	0.0	6.7	0.9	53.9	4.8	100
Energy	4.1	19.0	6.1	12.2	6.0	9.1	11.1	32.4	100
Transport	6.6	73.2	1.2	5.6	2.1	3.4	6.0	2.0	100
Communications	<u>13.9</u>	<u>41.8</u>	<u>8.0</u>	<u>5.7</u>	<u>6.5</u>	<u>6.1</u>	<u>10.1</u>	<u>7.9</u>	<u>100</u>
Sub-total	10.7	22.4	11.8	9.5	7.5	9.1	14.0	15.0	100
Social infrastructure									
Education	7.5	34.2	6.6	3.5	9.2	6.6	22.3	10.1	100
Health	13.6	23.9	7.3	10.2	7.5	11.0	19.4	7.1	100
Public buildings	4.5	44.4	8.4	9.2	11.9	2.2	5.1	14.3	100
Other social	<u>10.8</u>	<u>23.0</u>	<u>14.8</u>	<u>4.0</u>	<u>5.4</u>	<u>9.7</u>	<u>20.1</u>	<u>12.1</u>	<u>100</u>
Sub-total	8.9	32.0	8.3	6.4	8.7	7.3	17.9	10.5	100
Total all construction	12.3	25.1	12.5	7.0	8.4	10.9	14.0	9.8	100

Note: The value of construction output *includes* repair and maintenance expenditure.

Table A3.6: Construction output in the S&E region and the BMW region, 2005 (€m)

	State total	S&E region	BMW region	S&E (%) share	BMW (%) share
Residential construction					
Private housing	20,104	14,320	5,784	64.2	63.1
Social housing	<u>1,264</u>	<u>970</u>	<u>294</u>	<u>4.3</u>	<u>3.2</u>
Sub-total	21,367	15,289	6,078	68.5	66.3
Non residential construction					
Private non-residential construction					
Industry	905	673	232	3.0	2.5
Commercial	1,700	1,294	407	5.8	4.4
Agricultural	262	176	86	0.8	0.9
Tourism	523	354	169	1.6	1.8
Worship	<u>73</u>	<u>51</u>	<u>22</u>	<u>0.2</u>	<u>0.2</u>
Sub-total	3,464	2,548	916	11.4	10.0
Productive infrastructure					
Roads	1,863	1,227	636	5.5	6.9
Water services	772	530	242	2.4	2.6
Airports and seaports	159	140	19	0.6	0.2
Energy	1,388	712	676	3.2	7.4
Transport	365	314	52	1.4	0.6
Communications	<u>256</u>	<u>186</u>	<u>71</u>	<u>0.8</u>	<u>0.8</u>
Sub-total	4,804	3,108	1,695	13.9	18.5
Social infrastructure					
Education	746	589	157	2.6	1.7
Health	464	320	144	1.4	1.6
Public buildings	366	264	102	1.2	1.1
Other social*	<u>269</u>	<u>196</u>	<u>72</u>	<u>0.9</u>	<u>0.8</u>
Sub-total	1,844	1,369	476	6.1	5.2
Total all construction	31,479	22,314	9,165	100	100