National Survey of Housing Quality 2001/2002: Technical Report

Background

The Economic and Social Research Institute was commissioned by the Department of the Environment to carry out the Irish National Survey of Housing Quality (NSHQ) in 2001-2002. The purpose of the survey is to record very detailed information on the condition of the national housing stock. This information will provide a database for the Department that will permit an assessment of the condition of the Irish housing stock and to identify housing-related problems among groups of families and households throughout the country. Planners and policy-makers can use this type of information to help them to develop housing policies that will directly address problems and areas of need that have been identified. The key output of the survey is a database with a large enough sample to permit analyses at the level of the local authority. The present report provides an overview of the results of the survey at national level.

Relevance of the Data

The data collected in the NSHQ is relevant to planners and policy makers in a wide range of areas. The first, and most obvious, area is that of house planning. The information collected on housing quality and affordability is an essential resource for the Department of the Environment and Local Government (DELG) and for local authorities. It provides information on the regional distribution of dwellings with particular problems in terms of quality and affordability, and also on the characteristics of the households who experience these problems so that policies can be targeted appropriately. In this respect, the data will be important in implementing elements of the National Development Plan (NDP) concerned with promoting social inclusion. Under the NDP, significant resources are being made available for affordable housing and significant resources are to be made available to local authorities for redevelopment and refurbishment of their existing housing stock (National Development Plan, pp.189-190).

The second broad area where information collected in the NSHQ can be used is in the domain of regional planning. As will be discussed further below, the large sample

size permits the results to be disaggregated to the level of the local authority. The results can also identify whether dwellings are located in urban or rural areas within the local authority region. Information on the distribution of dwellings across these areas, and their problems and characteristics, is needed for the implementation of the National Spatial Strategy (NSS). The NSS has as one of its central concerns the development of sustainable urban and rural settlement "to reduce distance from employment, services and leisure facilities and to make better use of existing and future investments in public services, including public transport" (National Spatial Strategy, Section 1.3).

The third broad area where the data from the NSHQ will be important is that of energy policy. Detailed information was collected on heating methods, supply of natural gas and use of other fuels. This material will be useful as a benchmark for progress in implementing the National Climate Change Strategy (DELG, 2000). An important element of the strategy is to increase the use of less carbon-intensive fuels such as natural gas and renewable energy sources. Greenhouse gas emissions from the residential sector are primarily from energy used in the home for space and water heating.

Comparability to Earlier Surveys

Similar surveys were undertaken in 1981 and 1991, but were conducted by the local authorities themselves. This is the first time that the methodology, administration and protocols for the survey have been completely centralised, ensuring a harmonised set of data across local authority areas. In a large number of areas, the surveys provide information of a comparable nature, such as on the dwelling structure, number of rooms, dwelling age, number of persons of different ages in the dwelling, housing costs and so on.

However, because of differences in the way the 1991 and the present survey were conducted, there are a number of points where the comparability of the results is not as strong. This is most notable when it comes to judgements as to the extent and nature of problems in the dwelling. In the 1991 and 1981 surveys, this assessment was made by survey staff. In the present 2001-2002 survey, the residents themselves were asked to assess the extent and nature of problems with the dwelling.

A second important difference between the present survey and earlier surveys is that fitness of the dwelling is not explicitly measured here. The 1981 and 1991 Surveys explicitly assessed the fitness of the dwelling for human habitation. The present survey focuses instead on a number of indicators of housing quality.

A further issue arises with respect to the measurement of overcrowding. This has an objective definition in the Housing Acts that takes account of the amount of airspace in the sleeping areas (Housing Act, 1966, Section 63). This information would not have been readily available to residents so it was not included in the present survey. Instead, we use a measure based on the number of bedrooms given the ages and relationships of household members.

A major strength of the present design, in addition to the assurance that harmonised protocols were used throughout the country, is the detailed information it collected on residents' satisfaction with aspects of their dwelling, such as costs, heating system water supply; on problems in the area where the dwelling is located; and on problems with the affordability of the dwelling itself, with heating the dwelling or with home appliances and furnishings.

Methodology

The Sample

One of the requirements of the survey was to provide a database to the Department with a large enough sample to yield separate breakdowns at local authority level. The NSHQ completed sample size was over 40,000 households throughout the country. This is an extremely large sample by the standards of other sample surveys which have been previously carried out in Ireland. The sample of addresses was selected using the ESRI's RANSAM programme, which uses a multi-stage randomised design based on the electoral register.

The Survey

The survey is similar in its content to the Survey of English Housing (DTLR, 2001), since it is based on a questionnaire interview of a household respondent. This differs from a technical survey of the dwelling fabric of the kind incorporated, at least to some degree, into earlier House Condition Surveys in Ireland and in the English

House Condition Survey (ODPM, 1998). In each household, the person responsible for the accommodation (the owner, purchaser or tenant) was to be interviewed.

A pilot test of the questionnaire was conducted in August 2001, and the main survey went into the field in September. The fieldwork for the main survey extended from September 2001 to summer 2002. The questionnaire had an average completion time of 30 minutes.

Data Quality

Response Rates

The overall response rate was 75 per cent (see Table 1.1). The highest rate was in County Longford where response levels of 87 per cent were reached. Rates in Dublin ranged from 66 per cent in the City area to 69 per cent in Dun Laoghaire/Rathdown.

By the standards of statistical probability surveys currently undertaken in Ireland these response levels are extremely high. An aggregate response rate of 60-62 per cent would be considered acceptable in most statistical surveys currently being undertaken. The higher than usual response level in the NSHQ can be attributed to intensive interviewer training and sustained call-backs on the part of the interviewers.

Item Non-Response

In general, the quality of the data in terms of item non-response (missing information for particular questions) was very good. There were a small number of exceptions, however, with missing information for more than 5 per cent of households. These included background information such as income (12.3 per cent missing), education of all household members (20 per cent of households had missing information on education for at least one member), age of all household members (6 per cent). Certain variables related to characteristics of the dwelling also had relatively high levels of item non-response, such as floor area (75 per cent) and presence of wall insulation (18 per cent).

For key background variables that were to be used in all of the tables, any missing information was imputed based on other data on the household. This was done to ensure that all figures in a table were based on the same set of cases. Imputation was also conducted for the variables used to construct the weights. A more detailed discussion of the imputation procedure is included in Appendix 1.

Table 1.1: Response Rates in National Survey of Housing Quality, 2001-2002

Local Authority	*Completed*	*Refused*	*Could not locate*	*Never available*	*Other Reason*	*Number Analysed (N cases)*
	(Row Percentages)					
Carlow	82	6	2	5	2	999
Cavan	83	6	4	5	2	1,257
Clare	70	10	3	13	3	988
Cork City	75	9	3	9	1	1,443
Cork County	75	8	4	9	3	1,393
Donegal	84	5	2	6	1	1,083
Dublin City Council	66	13	2	15	2	2,804
Dublin Fingal	68	14	3	13	1	1,389
Dublin South	68	13	1	15	1	1,411
Dun Laoghaire /Rathdown	69	15	3	9	2	1,465
Galway city	69	11	4	13	1	1,355
Galway Co.	79	6	5	8	1	1,067
Kerry	80	5	3	8	3	1,030
Kildare	73	10	4	10	2	990
Kilkenny	75	8	4	9	2	1,024
Laois	80	7	2	7	4	971
Leitrim	84	4	3	7	2	1,171
Limerick City	66	12	2	15	2	1,171
Limerick County.	73	7	5	10	5	987
Longford	87	4	3	4	1	1,160
Louth	75	8	3	11	2	1,006
Mayo	81	4	2	6	5	1,098
Meath	78	5	5	9	2	1,090
Monaghan	78	6	3	10	1	1,011
Offaly	81	6	2	8	1	1,204
Roscommon	83	4	2	8	2	1,186
Sligo	85	6	2	5	2	1,176
Tipperary North	79	9	3	7	2	1,081
Tipperary South	76	5	5	10	1	994
Waterford City	70	6	2	19	1	1,162
Waterford Co.	75	7	4	9	3	1,048
Westmeath	77	10	3	7	2	1,174
Wexford	74	10	4	10	2	1,112
Wicklow	67	10	10	10	3	986
Total	75	10	3	10	2	40,486

Note: a small number (less than one per cent) of completed questionnaires were not analysed because of data quality problems. These are excluded from the total above.

Income

Income in the House Conditions Survey is measured by a single item, which asks for the approximate level of net household income, and records the answer into one of 16 categories. The wording is as follows:

> Finally, a few questions about how you are able to manage financially. Could I ask about the approximate level of net household income? This means the total income, after tax and PRSI, of ALL MEMBERS of the household. It includes ALL TYPES of income: income from employment, social welfare payments, child benefit, rents, interest, pensions etc. We would just like to know into which broad group the total income of your household falls. I'd like to assure you once again that all information you give me is entirely confidential.

Respondents were first of all presented with a card showing four broad income categories. Then, they were presented with a second card that broke down each of these four broad categories into four more detailed categories. The result was a 16-category variable for total household income. This item had a reasonably good response rate, with 87.7 per cent of respondents providing information on the initial 4-category breakdown, and 85.3 per cent providing information on the more detailed 16-category breakdown. Income category was imputed for the 12.3 per cent of households for whom the information was missing using information on household size, number of persons at work, social class, local authority area and sample cluster.

The NSHQ single-item measure of income will tend to understate total household income, particularly in larger households. That was the case in the *Living in Ireland Survey* (LIS), a survey specifically designed to measure household income and associated components of living standards. The understatement arises for a number of reasons: incomplete information on the part of the householder regarding earnings and income of other people in the household and a tendency to forget some components (such as Child Benefit and irregular payments) when responding to a single question.

Data from the 2000 Living in Ireland Survey was used to develop a correction for the NSHQ single-item income measure. Details of how this was done are provided in Appendix 1.

The corrected measure of income is used throughout this report, as a major classifying variable in the tables and in examining the relationship between housing costs and income.

Equivalised Income

Equivalised income is a way to take account of the number of persons who depend on a household's income. Equivalised household income – that is, income per adult-equivalent – takes account of economies of scale and the lower cost of meeting the needs of children relative to adults. The scale adopted for 'equivalisation' was the widely-used modified-OECD scale. This scale allows a 'weight' of 1 for the first adult in the household, 0.5 for each subsequent person age 15 or over, and 0.3 for each child age 14 or under. This means, for instance, that a household with two adults and two children would have an equivalisation factor of 2.1.

Equivalised income is calculated by dividing the actual household income by the equivalisation factor. In effect, a household with two adults and two children would need an income of €21,000 to be 'equivalently well off' to a person living alone with an income of €10,000.

Sample Weights

Sample weights are constructed to ensure that the sample is representative of the population along a number of key dimensions, such as region, household size, labour force participation, age of dwelling and so on. These weights adjust the sample for any lack of overall representativeness arising from sample design, the sampling frame available and patterns of non-response. The sample design would have over-represented rural areas. This arose because of the requirement, noted above, for a sample of sufficient size to provide local-authority level tables. This meant that smaller local authority areas were over-represented in the sample, compared to their populations. The sampling frame, based on the Electoral register, tends to overrepresent households with a larger number of persons over age 18. Differences in response rates are typically found between urban and rural areas, with higher response rates in the latter.

The sample weights were constructed by adjusting the sample proportions to population figures based on the most up-to-date information available. More

complete details are given in Appendix 1. All of the tables in Chapters 2 to 9 are based on weighted data.

Coverage

Given the nature of this survey, being based on interviews with householders, it was only possible to carry it out at addresses where someone was currently resident. We have no information on vacant dwellings or on holiday homes that are used for only part of the year.

Some estimates are available of the extent of the undercount based on information on second homes collected from households in the sample. There are an estimated 29,400 houses, 2,000 apartments and 3,400 mobile homes or caravans owned by private householders that are unlikely to be captured by the survey because they are either vacant or occupied for less than 6 months of the year. These account for a relatively small proportion (2.3-2.4 per cent) of the total housing stock.

Figures on coverage are only a rough guide, since a private company rather than a household may own vacant dwellings. It is likely, however, that most of the stock of vacant dwellings and unoccupied dwellings are owned by private households rather than by companies, as the latter would be motivated by economic considerations to ensure that the dwelling is rented out for most or all of the year.

Appendix 1 gives further details on additional dwellings owned by private householders.

Appendix 1: Detailed Methodology

Imputation of Missing Information

As noted in Chapter 1, missing information on key background variables that were to be used in all of the tables was imputed based on other data on the household. This was done to ensure that all figures in a table were based on the same set of cases. Imputation was also conducted for the variables used to construct the weights.

The variables where the level of missing information exceeded 5 per cent are shown in Figure A.1. The figure also shows the percentage of values imputed and the basis on which imputation was conducted.

Figure A.1: Level of Missing Information on Key Variables and Imputation Procedure

Variable	*% imputed*	*Variables used to impute the value*
Sex of household member	1.4	Household size, local authority area, cluster, sex of spouse (where applicable).
Age of household member (all members)	5.8	Age of spouse/parent/child (where applicable), economic status (retired), Household size, local authority area, cluster.
Highest level of education achieved by each household member	19.8	Occupation, Age, Sex, Household size, housing tenure, local authority area, cluster.
Economic status of household member	3.7	Age, Sex, Household size, local authority, cluster.
Occupational group of oldest person in the household, if at work	3.3	Housing tenure, age, education, local authority area, cluster.
Household Income	12.3	Social class of householder, number persons at work, number adults, local authority area, cluster.
Housing tenure	2.2	Household size, local authority area, cluster.
Household type	1.3	Household size, age of reference person, age of other persons, local authority area, cluster.
Size of place	2.3	Local authority area, cluster.
Age of dwelling	1.7	Local authority area, cluster.
Floor Area	75.0	No imputation.
Presence of Wall insulation	18.0	No imputation.

The imputation involved matching the household with missing information to a similar household in terms of a set of related characteristics (typically, county, cluster, tenure, household size and other variables that are predictive of the variable to be imputed). The imputed value was takes from the household with the closest match in terms of these characteristics. This approach is preferable to imputing an average value since it preserves the variation of the variable being imputed.

Information on household members (age, sex, education, economic status, and occupation of oldest person) was needed for all households in order to correctly weight the sample. The small number of cases where no information was available on household membership were excluded from analyses.

For variables other than key background variables and those needed for weights, imputation was generally not conducted (unless it could be done with a high degree of confidence on the basis of a closely-related item on the questionnaire). Where the level of missing information exceeded 5 per cent, this is noted in the table in question.

Income Correction Factor

As noted in Chapter 1, measuring household income using a single item will tend to understate income compared to the figure obtained if all household members are asked about their income from different sources. This is known from the Living in Ireland Survey (LIS). The LIS makes use of both a single-item measure on the household questionnaire and a detailed set of questions on each income source posed to all adults in the household. The single-item measure understates total household income by 19 per cent (of the full measure) on average (or 24 per cent of the single-item measure). Table A.1 shows that the degree to which the single-item measure understates total income is greater for households with a large number of income sources (typically associated with a larger number of adults) and households where the main source of income is from self-employment or agriculture. The difference between the two measures is smallest for one-adult or two-adult households relying on pension or social welfare income.

The understatement is particularly marked where there is income from work, and where there are a large number of adults in the household.

A regression-based model was constructed to correct for this understatement using variables which are measured on both the 2001-2002 Survey of Housing Quality (SHQ) and the 2000 Living in Ireland Survey (LIS). The model was developed using the Living in Ireland Survey and then the coefficients for the model were used to 'correct' the income measure on the SHQ. The single-item measure of income in the LIS recorded income as a continuous amount, or into 10 categories if an exact amount could not be provided. Since the SHQ used a categorical variable, the LIS incomes

were recoded into a categorical format before running the model. This would enable us to simulate the relationship between the continuous distribution of income based on aggregating information collected in detail from all adults in the household and a categorical measure recorded by the householder.

Table A.1: Mean Weekly Household Income (in £) using Full Measure and Single-Item Measure by Number of Adults and Number of persons at Work, Living in Ireland Survey, 2000.

	Single Item Measure	*Full Measure*	*Difference*	*Difference as % of single-item measure*	*Difference as %of Full measure*
Number over 18					
1	184	195	11	6%	5%
2	422	495	73	17%	15%
3	483	633	149	31%	24%
4 or more	621	932	311	50%	33%
Number at work					
0	170	169	-2	-1%	-1%
1	345	407	62	18%	15%
2 or more	569	748	179	31%	24%
Total	389	482	93	24%	19%

The coefficients from the model are shown in Table A.2. The r-squared for the model is .644, indicating that about 64 per cent of the variance in income is explained by the variables included in the model[1].

Table A.2: Model Based on LIS to Correct for Understatement of Income when a Single-Item Measure is used.

Variables	*Coefficient*	*Std. Error*
Constant	-9.18	89.62
Number of adults over 18	55.42	5.03
Number of children under 18	2.73	3.45
Number of adults at work	96.44	5.73
Income: £50-£99	50.41	90.43
Income: £100-£149	67.34	90.55
Income £150-£199	81.62	90.06
Income £200-£149	110.00	90.48
Income £250-£299	173.06	90.28
Income £300-£399	215.77	89.98
Income £400-£499	275.46	90.16
Income £500-£699	374.17	90.45
Income £600-£999	521.26	90.30
Income over £1000	888.55	92.44

Note: The omitted category for income is 'under £50'.

[1] The r-square for the model with the income categories alone is .54 .

The model used the income category (coded as a dichotomous variable with a value of 1 for each category), the number of adults in the household, the number of children in the household and the number of persons at work[2]. Table A.2 shows that incomes clearly bear a strong relationship to the income category. The category coefficients in Table A.1 are below the lower bound of the category itself because they are shown net of the effect of number of adults and number of persons at work. Each household will have at least one adult and, at higher levels of income, are likely to have at least one person at work. The number of adults and the number of adults at work also have strong coefficients. The effect of additional children is much weaker, and does not reach statistical significance. Nevertheless, it was included in the model because in a household survey such as the SHQ, which does not have income as a central focus, it is likely that many householders did not include Child Benefit in their estimate of total income.

Table A.3: Income Category midpoints and coefficients applied to the Survey of House Quality

	Lower bound £	Upper bound £	Point Estimate £	Lower Bound Euro	Upper Bound Euro	Point Estimate Euro	Coeff-icients
Four category Measure	0	190	132	0	241	167	0.54
(2.4 % of households)	191	360	267	243	457	339	0.63
	361	570	454	458	724	576	0.61
	571	1000	787	725	1270	999	0.65
Sixteen Category Measure	0	85	75	0	108	54	0.00
(85.3 % of households)	86	110	98	109	140	124	0.63
	111	150	131	141	190	166	0.54
	151	190	171	192	241	216	0.47
	191	220	206	243	279	261	0.49
	221	270	246	281	343	312	0.63
	271	320	296	344	406	375	0.63
	321	360	341	408	457	432	0.62
	361	400	381	458	508	483	0.62
	401	450	426	509	571	540	0.61
	451	500	476	573	635	604	0.61
	501	570	536	636	724	680	0.68
	571	650	611	725	825	775	0.68
	651	750	701	827	952	889	0.65
	751	950	851	954	1206	1080	0.65
	951	Open	1100	1208	Open	1333	0.81

[2] A number of more complex models were tested, including variables such as tenure, region, education and age of householder, and dichotomous variables for number of adults and number at work, but no improvement in the predictive power of the model was achieved.

In the SHQ, there were 16 income categories, rather than 10, and the amounts were presented to the respondents either in Irish pounds or in Euro, depending on respondent preference, since the survey spanned the period of the Euro changeover. The midpoints of the SHQ income categories were matched to the nearest category from the LIS so that the appropriate correction could be applied to the income category. The coefficients used were obtained by dividing the midpoint of each income category (shown in Table A.1) by the corresponding coefficient in the model. The coefficients applied to each category are shown in Table A.3.

Table A.4: Mean 'Corrected Income' for each original income category in the SHQ.

	Lower Bound Euro	Upper Bound Euro	Mean 'Corrected' Income (Euro)	Implied 'under-statement'
Four category Measure	0	241	292	43
(2.4 % of households)	243	457	562	40
	458	724	759	24
	725	1270	1142	13
Sixteen Category Measure	0	108	198	73
(85.3 % of households)	109	140	219	43
	141	190	260	36
	192	241	333	35
	243	279	386	32
	281	343	491	37
	344	406	572	34
	408	457	633	32
	458	508	678	29
	509	571	723	25
	573	635	781	23
	636	724	899	24
	725	825	981	21
	827	952	1050	15
	954	1206	1193	9
	1208	open	1607	17

Table A.4 shows the mean 'corrected' income for each household income category. Overall, incomes are adjusted upwards by about 24 per cent (see Table A.5). In general, incomes in the lower categories tend to be adjusted upwards to a greater extent than incomes in the higher categories. The final column of Table A.4 shows the percentage by which the predicted income would have been understated if the midpoint of the categories based on the single item had been used instead of the 'corrected income' The biggest change is to the lowest category (0 to 108 Euro). For

the lowest income category, taking the mid-point of the category as a point estimate would not have been a good choice in any case: the general shape of the income distribution, rising steeply towards the lower end, would indicate the choice of a point estimate towards the upper bound of this category rather in the middle of it.

The corrected household income was used to construct the adult-equivalent household income, as described in Chapter 1. This measure is used in tables throughout the report. The corrected income is also used for the tables in Chapter 3 that examine the proportion of household income spent on rent or mortgage.

Table A.5: Average income before and after correction by number of adults and number at work in the Survey of Housing Quality.

	A Household Income (uncorrected) Euro pw	*B Household income (corrected), Euro pw*	*C Difference (B-A)*	*D Difference % (C/A)*
Number adults (18+)				
1	316	316	0	0
2	559	643	84	15
3	601	815	214	36
4 or more	726	1195	470	65
Number at work				
0	261	260	-2	-1
1	499	558	59	12
2 or more	719	983	263	37
Total	519	641	122	24

Table A.5 shows that the difference between the single-item measure and the 'corrected income' is minimal where there is only one adult in the household or where there is nobody at work in the household. The difference is much larger where there are several adults in the household (the average increase is 65 per cent where there are four or more adults in the household) and where there are adults at work. The increase is 12 per cent where there is one person at work and 37 per cent, on average, where there are two or more people at work.

Sample Weights

As outlined in Chapter 1, sample weights are constructed to ensure that the sample is representative of the population along a number of key dimensions, such as region, household size, labour force participation, age of dwelling and so on. These weights adjust the sample for any lack of overall representativeness arising from sample

design, the sampling frame available and patterns of non-response. The sample design would have over-represented rural areas. This arose because of the requirement, noted in Chapter 1, for a sample of sufficient size to provide local-authority level tables. This meant that smaller local authority areas were over-represented in the sample, compared to their populations. In addition, the sampling frame is based on the Electoral register and tends to over-represent households with a larger number of persons over age 18. Differences in response rates are typically found between urban and rural areas, with higher response rates in the latter.

The sample weights were constructed by adjusting the sample proportions to population figures based on the most up-to-date information available. The population figures drew on data from reliable external sources, such as the preliminary figures from the 2002 Census, from the Quarterly National Household Surveys, and from the 1996 Census with adjustments for population change.

There were a number of steps involved in constructing the weights. The first involved constructing a weight to control for the fact that the sampling frame (based on the Electoral Registers) will tend to over-represent households with a larger number of adults. The weight was:

Wt1 = 1/A

where A is the number of adults age 18 or over in the household.

The second weight grossed the number of sample cases in each local authority area up to the total number of private households in that local authority area, using preliminary figures provided by the Central Statistics Office based on the 2002 Census.

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Wt2 = (Wt1  * PL ) / SL
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where PL refers to the total number of households in the local authority area, and SL refers to the number of sample households in that local authority area.

The next stage involved what is normally referred to as calibration (see, for example, Deville and Särndal, 1992): the second weight (Wt2) was adjusted so as to match the sample distribution of a given set of characteristics to the population distribution of these characteristics derived from external sources. The Gross programme was used to

gross this second weight to Local Authority and Region-level totals for a set of control variables[3].

Figure A.2: Population checks for sample weighting

Population checks at county level

- Household Size (number persons age 18 or over); from 1996 census adjusted to 2002 figures using QNHS 2001 at region level and preliminary figures from 2002 census of number of males, females and households by local authority area.
- Number of persons in household at work (3 categories: none, one, two or more; from 1996 census adjusted to 2002 figures using QNHS at region level for Second Quarter 2001 and preliminary figures from 2002 census)
- Number of local authority rented dwellings (from Department of the Environment Housing Statistics, September 2001).
- Age of dwelling (from the 1991 Census of Population, updated using figures from the Department of the Environment Housing Statistics, 2002, on new dwellings built since then. [4])

Population checks at level of Planning Region

- Household size (6 categories, persons of all ages; from QNHS 2001)
- Household Type (5 categories; from QNHS 2001)
- Tenure (owner occupied, renter, other tenure; from QNHS 2001)
- Age by sex (10 age groups; from QNHS 2001)
- Occupation of oldest person, if at work (ISCO88, 5 categories; from QNHS 2001)
- Education by sex (3 categories of education; from QNHS 2001)
- Economic status by sex (At work, unemployed, home duties, retired, student, other; from QNHS 2001)

The region-level totals were obtained from the Central Statistics who provided special tabulations from the QNHS (second Quarter, 2001). The Local Authority level totals were obtained from the 1996 Census (household size, number of persons at work) and the Department of the Environment Housing Statistics (number of local authority rented dwellings, new dwellings built after 1991). The county-level figures from the

[3] This programme, developed by Johanna Gomulka, uses a minimum distance algorithm to adjust an initial weight (in this case Wt2) so that the distribution of cases in the sample matches a set of control totals.

[4] It was assumed that 0.6 per cent per annum of the 1991 housing stock was lost through demolition by 2002– a total of 64,471 dwellings. It was further assumed that older dwellings would be lost at a greater rate: 70 per cent from the pre-1919 stock; 20 per cent from the 1919-1940 stock and 10 per cent from the 1941-1960 stock. Of dwellings built since 1991, it was assumed that 1 per cent of the total built from 1991-1996 were for holiday use, rising to 1.5 per cent of the total built after 1996.

1996 census were updated to 2002 figures, using region-level information from the QNHS and preliminary county-level population and household totals from the 2002 Census.

At the time of constructing the weights, only the total males, total females and an estimate of the total number of households was available from the 2002 Census. These figures were used to adjust the total number of males, females and households for each local authority to the figures for 2002.

Figure A.2 shows the population checks that were included and the level (county or region level). For some variables, recent information was only available at the level of Planning Region (from the Quarterly National Household Survey).

Additional Dwellings and Implications for Sample Coverage

Given the nature of this survey, being based on interviews with householders, it was only possible to carry it out at addresses where someone was currently resident. We have no information on vacant dwellings or on holiday homes that are used for only part of the year. In an effort to get an indication of the extent to which private households own more than one dwelling, we asked householders for some information on other accommodation in Ireland that they owned. Table A.6 shows the type of accommodation owned by the number owned.

Table A.6: Whether Householder owns other accommodation by number of other accommodations (table per cent)

	Number other accommodations (Table percentage)				*Total*
Owns additional accommodation?	*None*	*One*	*Two*	*3 or more*	*(col %)*
No	94.9	0.0	0.0	0.0	94.9
Mobile home(s)/caravan(s) only	0.0	0.3	0.0	0.0	0.3
Apartment(s)	0.0	0.3	0.1	0.1	0.5
House(s)	0.0	3.4	0.5	0.3	4.1
House(s) and flat(s)	0.0	0.0	0.0	0.1	0.2
Total (row per cent)	94.9	4.1	0.6	0.4	100.0

Overall, 5 per cent of householders own one or more additional houses, flats or mobile homes somewhere in the country. In most cases (4.1 per cent of the total), the dwelling is a house, and only a small proportion (1 per cent), owns more than one additional dwelling.

A key question in terms of the coverage of the survey is the extent to which these additional dwellings are likely to be vacant. Table A.7 shows the occupancy status of the dwellings by dwelling type and by number of dwellings owned.

Overall, 16 per cent of the households with additional dwellings have vacant dwellings, that are used neither by household members nor by others on a regular basis. Over one quarter have what might be termed 'holiday homes' – houses, mobile homes or apartments that are occupied for less than 6 months a year, on average. The biggest group, 56 per cent, have dwellings that are occupied for at least six months a year.

Among these additional dwellings owned by private householders, there are differences both by the type of the dwelling and by the number of dwellings owned. Mobile homes and caravans are most likely to be occupied on a seasonal basis (90 per cent), with just 8 per cent occupied year-round. Apartments are most likely to be occupied year-round (84 percent), as are the dwellings owned by households with both additional apartments and houses (83 per cent). The vacancy rate is highest for houses (18.4 per cent).

Table A.7: Occupancy of Additional Dwellings by Type and Number of Dwellings

	Vacant	occupied <6mo per year	Occupied 6+ mo per year	Total
Type				
Mobile home/ caravan only	2.0	89.8	8.2	100.0
Apartment	6.9	9.6	83.6	100.0
House	18.4	25.6	55.9	100.0
House(s) and flat(s)	0.0	17.2	82.8	100.0
Number				
House(s) and flat(s)	18.1	31.9	50.0	100.0
One	7.4	15.3	77.2	100.0
Two	7.5	2.0	90.6	100.0
Total	16.0	27.6	56.4	100.0

In terms of the number of additional dwellings owned, households that own more than one additional dwelling are less likely to have that dwelling vacant (7-8 per cent, compared to 18 per cent of households that own a single dwelling), and more likely to have the dwellings rented year-round (77-91 per cent, compared to 50 per cent).

Table A.8 shows the estimated number of houses, apartments and mobile homes owned in addition to the main residence by Irish householders, by the occupancy

status of these dwellings. The table also shows the number of sample households on which the estimates are based.

The greatest number of additional dwellings are houses (74,800, compared to 11,800 apartments and 4,000 mobile homes/caravans).

Of the estimated 74,800 houses owned as an additional residence, 45,400 are occupied for at least half the year, either by a household member or someone else on a rent-free basis (10,900), by a tenant paying rent (26,400), or by household members for part of the year and renters for part of the year (8,200). Of the remaining 29,400, 13,100 are vacant, 15,000 are holiday homes, occupied by household members for less than 6 months in the year, and 1,300 are rented out for less than 6 months in the year.

Apartments are more likely than houses to be occupied for at least 6 months of the year (9,800 of the estimated total of 11,800), with nearly 70 per cent occupied by rent-paying tenants for at least six months of the year.

Caravans and mobile homes are most likely to be occupied on a seasonal basis: 3,300 of the estimated total of 4,000 are occupied by household members for less than 6 months of the year.

Table A.8: Number of Additional Dwellings by Occupancy and Type

	Houses	Apartments / flats	Mobile Homes/ caravans	House-holds,	Un-weighted Cases
	Number (000)	Number (000)	Number (000)	Number (000)	Number
Occupancy					
No additional dwelling	0.0	0.0	0.0	1,240.0	37,578
Vacant	13.1	1.1	0.1	11.7	432
Holiday home	15.0	0.6	3.3	16.9	517
Occupied rent-free year-round	10.9	0.5	0.3	10.3	382
Rented out <6 mo per year	1.3	0.2	0.0	1.5	52
Rented out, 6+ mo per year	26.4	8.1	0.2	21.5	734
Occupied >6 mo, HH and other	8.2	1.2	0.0	4.8	176
Total	74.8	11.8	4.0	1,306.6	39,871

Includes households with an additional dwelling only

In terms of the coverage of the sample, there are an estimated 29,400 houses, 2,000 apartments and 3,400 mobile homes or caravans owned by private householders that

are unlikely to be captured by the survey because they are either vacant or occupied for less than 6 months of the year.

A final caveat: these figures on coverage are only a rough guide, since a private company rather than a household may own vacant dwellings. It is likely, however, that most of the stock of vacant dwellings and dwellings that are unoccupied for much of the year are owned by private households rather than by companies, as the latter would be motivated by economic considerations to rent them or sell them as soon as possible.

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