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Access to microdata

Place of Work Census Anonymised Records. Irish Census of Population

Note by Central Statistics Office, Ireland

Summary

As part of the processing programme of Census 2006 in Ireland, the place of work details of all employed persons who undertook a journey to work were geo-coded. A detailed file containing the demographic and socio-economic characteristics of these workers along with information on the origin and destination (both of which were geo-coded to X/Y coordinates) of their journeys to work has been made available for analysis. The Place of Work Census Anonymised Records (POWCAR) has become an invaluable tool for many analysts. POWCAR will be updated as part of the Census 2011 processing programme.

I. Introduction

1. This document has been prepared by Pádraig Dalton and Gerry Walker of the Central Statistics Office of Ireland.
2. The demand for statistics, including official statistics, continues to grow unabated and in Ireland we have noticed a considerable increase in the number of users seeking access to microdata. One of the challenges being faced by many National Statistical Institutes is how to meet the varying demands of a disparate range users groups. What works for one user doesn't necessarily work for another with the result that we produce multiple dissemination products (e.g. reports, releases, indicator reports, mash-ups, static and dynamic graphics, microdata files) through multiple dissemination channels (e.g. hard copy format, pdf, online statistical databases, electronic releases).
3. This challenge is reflected in our dissemination strategy for Census 2011 in Ireland. The strategy was developed following a public consultation with our users. The outputs will include hard copy reports, shorter style releases, web only dynamic tables, small area population statistics (SAPS), population profiles, hyper-cubes, special tabulations and of course microdata files.
4. Interest in microdata has increased significantly and in that context a 10% anonymised household sample from Census 2011 will be lodged with the University of Minnesota's Integrated Public Use Microdata Series (IPUMS). This will supplement the samples provided for the censuses from 1971 to 2006 inclusive. A 2011 POWCAR file along the lines of the successful 2006 file but expanded to include place of school or college, will also be provided.
5. In 2002 a Place of Work Sample of anonymised records was released covering a 15 per cent random sample of persons satisfying the above criteria driven by resource constraints because the coding is very labour intensive. This was followed in 2006 by the creation of a Place of Work Census Anonymised Records (POWCAR) microdata file that contained relevant information on all persons at work who were enumerated at home on Census night on the basis of where they usually lived to support research on travel and commuting patterns. However before we look at the POWCAR file and its uses in more detail it is important to put the file in the broader context of its source, namely the Census of Population. It is also important to review the Central Statistics Office policy on access to microdata.

II. Census of Population

6. A Census of Population of Ireland was taken on the night of Sunday, 10 April 2001, in accordance with a Census of Population Order made under the Statistics Act, 1993.
7. The Statistics (Census of Population) Order was made by the Minister of State at the Department of the Taoiseach in pursuance of powers conferred on him by section 25 (1) of the Statistics Act 1993 (No. 21 of 1993) and the Statistics (Delegation of Ministerial Functions) Order 2004 (S.I. No. 664 of 2004).

A. Coverage of the Census

8. The census figures relate to the *de facto* population, i.e. the population recorded for each area represents the total of all persons present within its boundaries on the night of Sunday, 10 April 2011, together with all persons who arrived in that area on the morning of Monday, 11 April 2011, not having been enumerated elsewhere. Persons on board ships in

port are included with the population of adjacent areas. The figures, therefore, include visitors present on census night as well as those in residence, while usual residents temporarily absent from the area are excluded from the census count.

9. A limited number of questions, relating mainly to demographic characteristics, were asked in respect of usual residents who were temporarily absent from their households on census night. The responses to these questions enables a more precise picture to be built up on families and households by excluding visitors present on census night and including residents who were temporarily absent.

B. Conduct of the Census

10. A temporary field force consisting of 6 Census Liaison Officers, 44 Regional Supervisors, 438 Field Supervisors and some 4,854 part-time enumerators carried out the census enumeration. During the four weeks before Census Day the enumerators entered details in respect of 2 million private residences and communal establishments in their enumerator record books. They simultaneously delivered blank census questionnaires to 1.65 million of these dwellings that were expected to be occupied on Census Night. Approximately 295,000 residences were vacant at the time of the census, while in the remaining cases the household was either enumerated elsewhere or temporarily absent from the State. The collection of completed questionnaires took place between Monday 11 April and Friday 13 May, 2011.

C. Production of results

11. Each enumerator was required to prepare a summary of the population enumerated in his/her enumeration area. These clerical summaries were returned to the CSO in advance of the main body of the census field records and it is from these summaries that the Census 2011 Preliminary Report was prepared and published on June 30, 2011. The processing of the Census forms and the digitising of dwellings took place between May 2011 and December 2012. Dissemination of the definitive population figures, analysing the population by such factors as age, marital status, occupation, etc., commenced in March 2012.

D. Publication of results

12. The planned publication schedule for Census 2011 is set out in Appendix 1. The schedule consists of the "Principal Demographic Results" and "Principal Socio-economic Results", which provide the main census results, primarily at national level. More detailed data will be provided in an additional 9 subject matter profiles. All of the tables published in these reports will be made available on the Central Statistics Office web site (www.cso.ie) using PC-Axis interactive software. This software gives Internet users the ability to select and view data online and then download the same data to their computers.

III. Access to microdata

13. Under the provisions of the Statistics Act, 1993, the CSO may provide access to microdata files under strict conditions to ensure that the integrity and confidentiality of data collected under the Act is maintained. The CSO provides access to two types of microdata files:

- Anonymised Microdata Files (AMFs)

- Research Microdata Files (RMFs)

14. The primary objective of the CSO in providing access to microdata is to support the research community and to ensure that maximum usage is made of the data collected by the CSO. This approach supports the move towards evidence-based policy-making, has the potential to reduce the cost of research and also helps to avoid duplicate data collections.

15. The information available to the CSO (whether directly or indirectly) is used by the Office for statistical purposes only. The manner in which the information is protected is outlined in the Statistics Act, 1993. Because the issue of confidentiality is of paramount importance to the work of the Office, a CSO Code of Practice on Statistical Confidentiality has been published and is strictly enforced.

A. Anonymised Microdata Files (AMFs)

16. Anonymised microdata files contain microdata that are provided for statistical/research purposes only in such a form that the information related to an identifiable entity/person cannot be directly (so, no direct identifiers) or indirectly (in many cases having undergone additional anonymisation procedures such as "top-coding" e.g. specific age re-coded to an age class) identified.

17. Currently, under the provisions of Section 34 of the Statistics Act, 1993, the CSO provides bona fide researchers with anonymised micro datasets relating to household surveys under formal contract arrangements through the Irish Social Science Data Archive.

18. The Irish Social Science Data Archive (ISSDA) hold, process and harmonise machine-readable data from surveys, census material, geographical databases, election results and so on, and make them readily available to users in the academic, public and commercial sectors.

19. The CSO datasets currently available through the archive consist of anonymised microdata from the Quarterly National Household Survey (and its predecessor the annual Labour Force Survey), The EU Survey on Income and Living Conditions, the Household Budget Survey and sample data from the Census of Population.

20. These datasets are available for **non-commercial research purposes** only and users are required to sign a contract in advance covering the conditions under which they may use the data. The ISSDA has its own website.

B. Research Microdata Files (RMFs)

21. RMFs are unit record files that do not contain direct identifiers but where the risk of disclosure through indirect identification is considered to be significant. RMFs are not statistical products, as our products relate to aggregated statistical analysis, but are research files that are made available to persons authorised to access such files under the Statistics Act, 1993 subject to strict criteria.

22. Access to RMFs is strictly controlled and can only be granted within the framework of the Statistics Act, 1993 and must be approved by the Director General of the CSO. Any persons accessing such files must be appointed as Officers of Statistics, sign a Declaration of Secrecy and agree to abide by the Standard Agreement which outlines the specific conditions under which the microdata will be made available.

23. Under the Statistics Act, 1993 the Director General of the CSO may appoint an individual to be an Officer of Statistics for a specified period to perform a particular

statistical analysis on microdata collected under the Act. In these circumstances, the researcher is subject to the full rigour and penalties of the Statistics Act, 1993.

24. This is the framework within which access is provided to the POWCAR microdata file.

C. Officers of Statistics

25. The Statistics Act, 1993 makes provision for the appointment of Officers of Statistics. Every member of the staff of the CSO and any other person directly engaged by the Office in the collection or extraction of information under the Act is an Officer of Statistics.

26. Under Section 20(c) of the Act, the Director General of the CSO is empowered to appoint persons from outside the office as Officers of Statistics, *to perform for a specified period particular statistical analysis which may necessitate access to data collected under the Act.*

27. Under Section 21 of the Act, *every person shall before assuming duties as an Officer of Statistics sign a declaration in the following form:*

"I Forename Surname, solemnly declare that I will fully and honestly fulfill my duties as an officer of statistics in conformity with the requirements of the Statistics Act, 1993, and of all orders thereunder, and that I will not, except in the performance of my duties under that Act and such orders, disclose or make known during my service as an officer of statistics or at any time thereafter, any matter which comes to my knowledge relating to any person, family, household or undertaking by reason of my service as an officer of statistics."

28. This is an undertaking by the person appointed as an Officer of Statistics to observe all the requirements of the Statistics Act, 1993. The undertaking draws particular attention to the confidentiality of statistical returns. Further details of the legal obligations set out in the Statistics Act (in particular Sections 32, 33, 38, 39, 42(1), 42(2) and 44). Section 32 of the Act limits the use of data collected by the CSO to *statistical compilation and analysis purposes:*

All information furnished by a person, undertaking or public authority under the Act shall be used only for statistical compilation and analysis purposes.

29. No other use of data collected by the CSO is permitted (e.g. usage for administrative purposes).

30. Appointments made under Section 20(c) of the Statistics Act are signed personally by the Director General of the CSO (or by a senior staff member of the Office authorised by the Director General to do so under section 15(1) of the Statistics Act, 1993), and state who is being appointed, for what purpose, and for how long. An appointment as an Officer of Statistics is personal and non-transferable.

IV. Place of Work Census Anonymised Records (POWCAR)

31. As part of the Census 206 processing programme the place of work details of all employed persons who undertook a journey to work were geo-coded (this will be repeated for 2011). A detailed file containing the demographic and socio-economic characteristics of these workers along with information on the origin and destination of their journeys to work has been made available for analysis.

32. The POWCAR is only available under strict conditions (see above) to bona fide researchers who are approved by CSO. The application process is as follows:

- Prospective users have to apply in writing detailing their proposed research;
- Once an application is approved by CSO, the Research Authority is provided with a contract covering the use of the data. The contract must be signed by the CEO of the Research Authority and Director General of CSO;
- All persons who are permitted to access the data must be signed up as Officers of Statistics for the duration of the research;
- CSO provide the Research Authority with POWCAR data for the duration of the research;
- If the duration of a proposed research project is for longer than one year, a contract may be signed for a maximum of one year after which it will be necessary for the Research Authority to re-apply.

33. All material published from the POWCAR must be approved in advance by CSO.

34. There are severe penalties under the Statistics Act, 1993 for divulging confidential data. See <http://www.cso.ie/census/documents/statsact93.pdf>.

Any person who uses information furnished under this Act or the repealed enactments in contravention of Section 32 of this Act or wilfully discloses information relating to any identifiable person or undertaking in contravention of Section 33 of this Act shall be guilty of an offence.

35. A person guilty of an offence under any provision of this Act shall be liable:

- On summary conviction to a fine not exceeding €1,250, or
- On conviction on indictment, to a fine not exceeding €25,000.

A. POWCAR Scope

36. The 2006 POWCAR microdata file only covers persons who at the time of the census:

- Were enumerated in a private household (persons enumerated in Communal Establishments are not included);
- Were 15 years old or over;
- Were enumerated at home;
- Indicated that their Present Principal Status was working for payment or profit.

37. In 2002 a Place of Work Sample of anonymised records was released covering a 15 per cent random sample of persons satisfying the above criteria. A 15 per cent sample was produced because of resource constraints because of the labour involved in coding (600 records per person day). In 2006 because of the demand from users it was decided to code all records falling within the scope above were coded to place of work. It is anticipated that the 2011 POWCAR microdata file will be based very much on the lines of the 2006 file but the scope will be expanded to include information on place of work for persons enumerated in Communal Establishments and those enumerated away from their usual residence on Census night. Expanding the coverage will allow the analysis of working populations. A separate file on travel to school/college will be produced as an RMF but the extract structure of this RMF has not yet been decided.

B. Place of Work coding

38. In 2006 the location of the place of work was coded for each person in the sample on the basis of the following questions (the same questions were included in Census 2011):

<p>31 What is (was) the full name of the Organisation you work(ed) for in your main job? <i>If you have (had) your own business, write in the NAME of the business.</i></p> <table border="1"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>																																																																																																			
<p>32 What is (was) the full address at which you actually work(ed)?</p> <table border="1"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table> <p>1 <input type="checkbox"/> Work mainly at or from home 2 <input type="checkbox"/> No fixed place of work</p>																																																																																																			

39. Where the person ticked box 1 or 2 on Question 32 the place of work was automatically defaulted to W/M (W=Works mainly at or from home; M=No fixed place of work). Otherwise the employer name and address was matched against addresses on the An Post GeoDirectory (an administrative source of information on buildings with X/Y co-ordinates attached to each building). Where the coder could not find an exact match they coded to a near match if they could find a GeoDirectory address on the same street or in the same town as the address stated on the form. The Irish National Grids matched from the geo directory were linked back to the place of work Electoral District (ED) and Town by superimposing the digital boundaries of the ED, Towns and 2006 Enumeration Areas in the case of the 5 Cities Dublin, Cork, Limerick, Galway and Waterford and their suburbs. The work place is also available on the file coded to a 250M X 250M grid square. The lowest level for journey origin is Electoral Division and Enumeration Area in the five Irish Cities.

40. In 2006 places of work with an address in Northern Ireland were coded to the county in Northern Ireland. Where the person indicated a work place address abroad these records were coded to a specific code to indicate that the person was working abroad i.e. outside Ireland or Northern Ireland. The following table gives a summary of the coding:

	<i>Persons</i>	<i>%</i>
Total persons in private households enumerated where they are usually resident and at work	1,834,472	100
Q31/Q32 address was matched exactly to a GeoDirectory address point	1,097,896	60
Q31/Q32 address was matched to a GeoDirectory address point in the same street or town(includes addresses coded to Northern Ireland and Overseas)	282,953	15
POW Address blank in Q31/Q32(includes uncodable)	136,853	7
POW address was uncodable	1,020	0
Works from home indicated in Q32	107,202	6
No fixed place of work indicated at Q32	208,548	11

C. Anonymisation and recoding

41. The coded records relating to persons within households were anonymised by stripping off all identifiable information such as household number, person number within household and by recoding variables where the number of categories could lead to the identification of an individual when combined with other information on the record.

D. POWCAR Structure and content

42. The 2006 POWCAR microdata file contains 32 variables which supports detailed analysis of the travel patterns of people at work. Appendix 2 gives details of the variables in the micro data file and how they are classified.

E. POWCAR users

43. The release of the POWCAR file from Census 2006 represented a significant development in the wealth of data available to support research in relation to travel and commuting patterns in Ireland. Travel patterns and the related transport issues have become a major policy focus in recent times and the POWCAR file has become an invaluable tool in supporting research in this domain.

44. During our consultation of users in preparation for a business case for Census 2016 POWCAR was referenced by a considerable number of users as playing a key role in providing objective evidence to support activities such as policy development in transport at both state and local authority level, regional policy development and policy evaluation. Thus the POWCAR microdata file has become an invaluable data source in a number of Government Department's (i.e. Ministries) and their Agencies and also amongst our local authorities. The emergence of the file has also spawned considerable interest amongst the research community.

45. At present there are 76 individuals appointed as "Officers of Statistics" for the purposes of analysing the POWCAR microdata file from twenty different organisations. Of these most are nationally focused bodies. There are two County Councils and four private consultancy firms. Only two organisations have one individual user registered the remainder have at least two researchers appointed as Officer of Statistics for the purposes of accessing the POWCAR file. The following table outlines the organisations, within which the individuals appointed as "Officers of Statistics" who have access to the POWCAR microdata file, work:

AECOM
Centre for Health Geoinformatics
Coras Iompair Eireann
Cork City Council
Dublin Institute of Technology
Economic & Social Research Institute (ERSI)
Limerick-Clare Energy Agency
Mott MacDonald Ireland Ltd
MVA Consultancy
National Centre for GeoComputation
National Institute for Regional and Spatial Analysis (NIRSA)
National Transport Authority
National University of Ireland Galway
Railway Procurement Agency
RPS Consulting Engineers
South West Regional Authority
Teagasc
Trinity College Dublin
University of Limerick
Wicklow County Council

V. Concluding remarks

46. The development of the POWCAR file was a significant step forward for the CSO in terms of highlighting the ongoing relevance and importance of Census data to the user community (which includes Government). Staying relevant is one of the most significant challenges faced by NSI's when it comes to our statistical products and we must strive to meet the needs of users to the greatest extent possible which adhering to the core values and principles of statistical confidentiality and integrity of the data.

47. One of the high-level corporate goals of the Central Statistics Office is to raise public awareness and use of official statistics. We have a number of strategies in place to address this particular objective but the provision of microdata is a key element of the strategy particularly for the research community.

English only

Appendix I. Census 2011 Publication Schedule

Title	Publication type	Date	Weeks since previous release
Principal Demographic Results	Volume	29 March 2012	
Population Classified by Area	Volume	26 April 2012	4
Profile 1 – Geography	Profile	26 April 2012	Same day
Profile 2 – Ages	Profile	24 May 2012	4
Principal Socio-Economic Results	Volume	28 June 2012	5
Profile 3 – Workers and Employment	Profile	26 July 2012	4
Profile 4 – Housing	Profile	30 August 2012	5
Profile 5 – Households, Families and Marital Status	Profile	20 September 2012	3
Profile 6 – Migration and Diversity	Profile	11 October 2012	3
Profile 7 – Disability, Carers and Health	Profile	1 November 2012	3
Profile 8 – Education	Profile	22 November 2012	3
Profile 9 – Commuting	Profile	13 December 2012	3
Small Area Population Statistics	Web Tables	TBC	

English only

Appendix II. Contents of 2006 POWCAR microdata file

Variable	Type	Length	Label/Notes	Values ¹
Residence _Planning_ Region	Char	1	Regional Authority of enumeration/residence Note: That the sample only covers persons enumerated at their usual residence.	'1' = 'Border' '2' = 'Dublin' '3' = 'Mid-East' '4' = 'Midland' '5' = 'Mid-West' '6' = 'South-East' '7' = 'South-West' '8' = 'West'
Residence _County	Char	2	Administrative County of enumeration and residence	01=Carlow 02=Dublin City 03=South Dublin 04=Fingal 05=Dún Laoghaire-Rathdown 06=Kildare 07=Kilkenny 08=Laoighis 09=Longford 10=Louth 11=Meath 12=Offaly 13=Westmeath 14=Wexford 15=Wicklow 16=Clare 17=Cork City 18=Cork County 19=Kerry 20=Limerick City 21=Limerick County 22=Tipperary North 23=Tipperary South 24=Waterford City 25=Waterford County 26=Galway City 27=Galway County 28=Leitrim 29=Mayo 30=Roscommon 31=Sligo 32=Cavan 33=Donegal 34=Monaghan
Residence _ED	Char	5	Electoral Division where resident and enumerated CSO code	See "POW_2006_Codes.xls". This has details of the ED codes and names and the equivalent OSi ED codes. A generalised version of ED boundaries is available for download on www.cso.ie in shape file format.
Residence _ED_OSi	Char	6	Electoral Division where resident and enumerated OSI code	See "POW_2006_Codes.xls". This has details of the ED codes and names and the equivalent OSi ED codes. A generalised version of ED boundaries is available for download on www.cso.ie in shape file format.

¹ See POW_2006_Codes.xls which has a sheet giving code and associated label for each variable where appropriate.

Variable	Type	Length	Label/Notes	Values ¹
Residence_Town	Char	4	Town where resident and enumerated	See "POW_2006_Codes.xls" Town boundaries are available for purchase from OSi. This code will be NN00 (where NN is the County Code) if the person was not resident and enumerated in a town with a population of 1000 or more. Town boundaries are available for download on www.cso.ie in shape file format
Residence_2006_Enumeration_Area	Char	5	Census 2006 Enumeration Area where resident and enumerated.	The Census enumeration area is only available for persons enumerated in one of the 5 county borough areas Dublin, Cork, Galway, Limerick or Waterford and their suburbs which may be in bordering counties. For persons enumerated outside these enumeration areas the code is *. 2006 Census Enumeration Area boundaries for the 5 county boroughs and suburban areas are available download from www.cso.ie in shape file format.
Resident_Persons	Char	2	Number of usual residents in the household	Where there are 8 or more usual residents in the households = '8+'.
Resident_Workers	Char	2	Number of usually resident workers in the household	This is a count of the number usually resident workers in the household (i.e. persons falling within the scope of this file) where the person resides. Where there are 4 or more usually resident workers in the household = '4+'
Household_Composition	Char	1	Household composition	'1' = 'Single Person' '2' = 'Lone Parent with at least one resident child aged 19 or under' '3' = 'Lone Parent with resident children but none aged 19 or under' '4' = 'Couple with at least one resident child aged 19 or under' '5' = 'Couple with resident children but none aged 19 or under' '6' = 'Couple with no resident children' '7' = 'Other Households'
Accommodation_Type	Char	1	Type of Accommodation	This indicates the type of accommodation in which the person resides. '1' = 'Detached house' '2' = 'Semi-detached house' '3' = 'Terraced house' '4' = 'Flat/apartment in a purpose-built block' '5' = 'Flat/apartment in a converted house or commercial building' '6' = 'Bed-sit' '7' = 'Caravan or mobile/temporary structure' '*' = 'Not stated'

Variable	Type	Length	Label/Notes	Values ¹
Year_Built	Char	1	Year that the household accommodation was built	'1' = 'Before 1919' '2' = '1919 – 1940' '3' = '1941 – 1960' '4' = '1961 – 1970' '5' = '1971 – 1980' '6' = '1981 – 1990' '7' = '1991 – 1995' '8' = '1996 – 2000' '9' = '2001 or later' '**' = Not stated
Nature_of_Occupancy	Char	1	Nature of occupancy of household accommodation <i>'Purchaser/Owner Occupied'</i> combines the following categories: 1-Owner occupied with loan' 2-Owner occupied without loan' 3-Being purchased from a Local Authority' <i>'Rented incl. free rent'</i> combines the following categories: 4-Rented from a Local Authority 5-Rented from a Voluntary Body 6-Rented privately unfurnished 7-Rented privately furnished 8-Occupied free of rent	This indicates the nature of occupancy of the household's accommodation in which the person resides. '1' = Purchaser/Owner Occupied' '2' = 'Rented incl. free rent' '**' = 'Not stated'

Variable	Type	Length	Label/Notes	Values ¹
Sewerage	Char	1	Type of sewerage facility. <i>'Septic/other system individual to household'</i> combines the following categories: 2-Individual septic tank 3-Individual treatment system other than a septic tank <i>'Other/No Sewerage facilities'</i> combines the following categories: 1-Public sewerage scheme 4-Other sewerage facility 5-No sewerage facility	This indicates the type of sewerage facility of the accommodation in which the person resides. '1' = 'Septic/other system individual to household' '2' = 'Other/No Sewerage facilities' ** = 'Not stated';
Cars_or_vans	Char	1	Number of cars or vans available for use in the household	'1' = 'One' '2' = 'Two' '3' = 'Three' '4' = 'Four or more' '5' = 'None' ** = Not stated
Sex	Char	1	Sex	'1' = 'Males' '2' = 'Females'
Five_Year_Age_Group	Char	5	Five-year age group	'15-19' = '15-19' '20-24' = '20-24' '25-29' = '25-29' '30-34' = '30-34' '35-39' = '35-39' '40-44' = '40-44' '45-49' = '45-49' '50-54' = '50-54' '55-59' = '55-59' '60-64' = '60-64' '65-69' = '65-69' '70-74' = '70-74' '75+' = '75+'

Variable	Type	Length	Label/Notes	Values ¹
Marital_Status	Char	1	Current marital status <i>'Ever Married'</i> combines the following categories: 2-Married(first Marriage) 3-Re-married(following Widowhood) 4-Re-married(following Divorce/Annulment) 5-Separated(including Deserted) 6-Divorced 7-Widowed	'1' = 'Single(Never married)' '2' = 'Ever Married'
Usual_Residence_One_Year_Ago	Char	1	Flag indicating where the person usually resided one year ago	'0' = 'Different address' '1' = 'Same address' '*' = 'Not stated'
Highest_Level_of_Education	Char	1	Highest level of education completed to date <i>'Completed secondary or lower'</i> combines categories: 1-No formal education 2-Primary education 3-Lower secondary 4-Upper secondary 5-Upper Technical or vocational qualification 6-Both Upper Secondary and Technical or Vocational qualification <i>'Completed third level or higher'</i> combines categories Third level: 7-Non Degree 8-Primary Degree (Third Level Bachelor Degree) 9-Professional qualification (of Degree status at least) 10-Both a Degree and a Professional qualification 11-Postgraduate Certificate or Diploma 12-Postgraduate Degree (Masters) 13-Doctorate (Ph.D)	'*'='Not stated' '1'='Completed secondary or lower' '2'='Completed third level or higher'

Variable	Type	Length	Label/Notes	Values ¹
Seg	Char	1	Socio-economic group	'A' = 'Employers and managers' 'B' = 'Higher professional' 'C' = 'Lower professional' 'D' = 'Non-manual' 'E' = 'Manual skilled' 'F' = 'Semi-skilled' 'G' = 'Unskilled' 'H' = 'Own account workers' 'I' = 'Farmers' 'J' = 'Agricultural workers' 'Z' = 'All others gainfully occupied and unknown' Socio-Economic Group (SEG) The socio-economic group of persons aged 15 years or over who are at work is determined by their occupation and employment status.
Industrial_Group	Char	1	Industrial group Industry is coded to over 200 detailed industry codes on the basis of the name and address of the business/employer and/or the free text description of the nature of business carried on. The details industry codes have been grouped into the eight broad groups for the purposes of this sample.	'1' = 'Agriculture, forestry and fishing' '2' = 'Manufacturing industries, mining, quarrying and turf production, electricity, gas and water supply' '3' = 'Construction' '4' = 'Commerce' '5' = 'Transport, storage and communications' '6' = 'Public administration and defence' '7' = 'Education, health and social work' '8' = 'Other' '*' = 'Not stated'
Means_of_Travel	Char	2	Means of travel to work, school or college	'01' = 'On foot' '02' = 'Bicycle' '03' = 'Bus, minibus or coach' '04' = 'Train, DART or LUAS' '05' = 'Motor cycle or scooter' '06' = 'Driving a car' '07' = 'Passenger in a car' '08' = 'Lorry or van' '09' = 'Other means' '10' = 'Work mainly at or from home' '11' = 'Not applicable' ' *' = 'Not stated'

Variable	Type	Length	Label/Notes	Values ¹
Time_of_Departure	Char	1	Leaves home for work, school or college	'1' = 'Before 06:30' '2' = '06:31-07:00' '3' = '07:01-07:30' '4' = '07:31-08:00' '5' = '08:01-08:30' '6' = '08:31-09:00' '7' = '09:01-09:30' '8' = 'After 09:30' '9' = 'Not applicable' ** = Not stated
Journey_KM	Num	3	Journey to work – KM	Numeric value = actual KM '0' = 'Less than 1 KM' ** = Not stated
Journey_Minutes	Num	3	Journey to work – minutes	Numeric value = actual minutes ** = 'Not stated'
POW_County	Char	2	Place of work Address - Administrative County Code	01=Carlow 02=Dublin City 03=South Dublin 04=Fingal 05=Dún Laoghaire-Rathdown 06=Kildare 07=Kilkenny 08=Laoighis 09=Longford 10=Louth 11=Meath 12=Offaly 13=Westmeath 14=Wexford 15=Wicklow 16=Clare 17=Cork City 18=Cork County 19=Kerry 20=Limerick City 21=Limerick County 22=Tipperary North 23=Tipperary South 24=Waterford City 25=Waterford County 26=Galway City 27=Galway County 28=Leitrim 29=Mayo 30=Roscommon 31=Sligo 32=Cavan 33=Donegal 34=Monaghan
POW_ED	Char	5	Place of work address - Electoral Division Code	See "POW_2006_Codes.xls". 'B' = Place of work address blank or uncodeable 'M' = No fixed place of work(Q32) 'W' = Works mainly at or from home(Q32)
POW_ED_OSI	Char	6	Place of work address - Electoral Division Code OSI Codes	See "POW_2006_Codes.xls". 'B' = Place of work address blank or uncodeable 'M' = No fixed place of work(Q32) 'W' = Works mainly at or from home(Q32)

Variable	Type	Length	Label/Notes	Values ¹
POW_Town	Char	4	Place of work address – CSO Town code	See "POW_2006_Codes.xls". 4 Digit Numeric=Town code of address of place of work 'B' = Place of work address blank or uncodeable 'M' = Mobile worker(Q32) 'W' = Works mainly at or from home(Q32) Town boundaries are available for download on www.cso.ie in shape file format
POW_2006_Enumeration_Area	Char	5	Place or work address - Census 2006 Enumeration Area Code	The Census enumeration area is only available records where the place of work address is in one of the 5 county borough areas Dublin, Cork, Galway, Limerick or Waterford and their suburbs which may be in bordering counties. Where a place of work is outside these enumeration areas the code is *. 2006 Census Enumeration Area boundaries for the 5 county boroughs and suburban areas are available download from www.cso.ie in shape file format.
Fuzz_East_250	Num	6	250M Grid Square Easting – Irish National Grid	The position of place of work destination coded has been rounded to the centre of the 250M X 250M grid square in which the place of work is located. Irish National Grid Easting of centroid of place of work destination grid square.
Fuzz_North_250	Num	6	250M Grid Square Northing – Irish National Grid	The position of place of work destination coded has been rounded to the centre of the 250M X 250M grid square in which the place of work is located. Irish National Grid Northing of centroid of place of work destination grid square.