

...excerpt from
PIAAC 2012 Survey results for Ireland
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Background Notes

Acknowledgments

The Central Statistics Office (CSO) wishes to sincerely thank the 5,983 respondents who took part in the PIAAC survey for their time and co-operation, and the 65 field interviewers who collected the data for their commitment and professionalism.

The CSO would like to acknowledge the technical advice on Item Response Theory provided by staff at the Educational Research Centre and CSO also recognises the interest and contribution of staff at the Department of Education and Skills over the lifetime of the project.

Finally, the CSO is grateful to the OECD and the members of the international PIAAC consortium for their advice and support throughout this project.

GOVERNANCE

PIAAC or the Survey of Adult Skills is a survey of the Organisation for Economic Co-operation and Development (OECD). The OECD is a Paris-based international organisation that aims to promote policies that will improve the economic and social well-being of people around the world.

The development and implementation of the PIAAC survey was overseen by the PIAAC Board of Participating Countries (BPC), consisting of representatives for each of the participating countries with the exception of Cyprus and Russia. Ireland was represented at the BPC by the Department of Education and Skills and the CSO acted as National Project Manager.

An international consortium of institutions was contracted by the OECD to design and implement PIAAC, led by Educational Testing Services (ETS) in the USA.

SURVEY DESIGN

The OECD Consortium was responsible for developing questionnaires, the assessment tasks and the computer platform, supporting survey operations, quality control, scaling, database preparation as well as providing support for analysis. Participating countries were responsible for national implementation of the assessment, including sampling, adaption and translation of assessment materials, data collection and database production.

Each country was required to complete a National Survey Design and Planning Report (NSDPR) for the main study prior to data collection. This provided a detailed description of the final survey design so the Consortium could assess the appropriateness of the plan. The Consortium reviewed the planning report to determine whether the survey requirements were being satisfied. To ensure comparability of the PIAAC results across participating countries, it was important that each country's survey design plan was consistent with the PIAAC objectives and standards, was methodologically sound and operationally practical.

Survey Instrument

Adaptation and translation of the direct assessment materials and the Background Questionnaire (BQ) were crucial to the comparability and psychometric stability of the PIAAC data collection. The Consortium prepared a set of guidelines for the translation and adaptation of the assessment tasks as well as the BQ.

Assessment Design

PIAAC was designed to ensure that the direct assessments generated data that was psychometrically appropriate by maintaining consistent implementation across participating countries, using sound design principles and methods. All participating countries were required to follow the international guidelines for implementing the assessment design.

The PIAAC psychometric assessment design for the field trial served several purposes, including

- to test the survey operations procedures
- to identify and correct assessment items that were performing poorly, with particular reference to the quality of translation and scoring procedures
- to examine item characteristics for establishing comparability (i.e. to evaluate the equivalence of item parameters in two aspects: the linking of items from IALS/ALL to PIAAC and linking between the paper-and-pencil and computer formats).

In the main study, the PIAAC psychometric assessment design was based on a minimum sample size of 5,000 adults per country/per reporting language. It served several purposes, including:

- to provide good measurement of all the domains included in PIAAC
- to provide a baseline for assessing trends or changes over time in future rounds of PIAAC or similar assessments.

Newly developed cognitive test items

All PIAAC cognitive test instruments were evaluated for linguistic correctness and for equivalence to the source version. Every effort was made by the Consortium to produce psychometrically equivalent instruments in each national language being tested. Adaptations to the local context and/or for the mode of delivery (paper-and-pencil vs. computer-based) were implemented, documented and agreed upon.

Cognitive test items used for linking

Cognitive test items from previous surveys were used for the purpose of analysing trends and making valid comparisons between the assessment results of PIAAC and the International Adult Literacy Survey (IALS) and the Adult Literacy and Life skills survey (ALL). PIAAC countries that participated in IALS and ALL were responsible for the preparation of their linking items.

IMPLEMENTATION OF PIAAC

The design and implementation of PIAAC was guided by technical standards and guidelines (OECD, 2011¹) developed to ensure that the survey yielded high-quality and internationally comparable data. The Technical Standards and Guidelines articulates the standards to which participating countries were expected to adhere in implementing the assessment, describes the steps that should be followed in order to meet the standards and offers recommendations for actions relating to the standards that were not mandatory but that could help to produce high-quality data.

The Consortium reviewed each country's planning report (i.e. the NSDPR) to determine whether the survey requirements were being satisfied and to ensure comparability of the PIAAC results across participating countries. For more information please see PIAAC Standards and Technical Guidelines (OECD, 2011).

¹ http://www.oecd.org/site/piaac/PIAAC-NPM%282010_12%29PIAAC_Technical_Standards_and_Guidelines.pdf

Background Questionnaire

PIAAC's Background Questionnaire (BQ) collected a comprehensive set of information designed to support the major analytical objectives of PIAAC. Its development was overseen by the PIAAC Background Questionnaire Expert Group and was designed to collect comparable information on respondents' backgrounds across countries and, where applicable, from one PIAAC cycle to the next or in relation to previous surveys.

Background Questionnaire national adaptations

The Consortium prepared a master version of all instruments in English and a set of guidelines for translation and adaptation of the survey instruments. The subject matter and placement of any country-specific BQ questions had to be documented and agreed upon with the Consortium. In particular, where national classifications were used to capture information such as educational attainments or occupation categories, it was essential that they could be mapped to the appropriate international classifications.

Participating countries could opt to include a limited number of country-specific questions in its BQ, in addition to the required international core questions as well as the corresponding response categories and coding schemes developed by the Consortium. The total combined duration of all such additional country-specific questions could not exceed five minutes on average.

THE PIAAC SURVEY IN IRELAND

The PIAAC Main Study data collection period was conducted between August 2011 and March 2012. For more information on the methodology of the survey, including processing and quality control, please see PIAAC Technical Standards and Guidelines (OECD, 2011).

Field staff recruitment

The successful implementation of data collection required field co-ordinators and interviewers to have clearly defined roles and responsibilities. Field staff recruitment and training commenced eight weeks prior to data collection in line with PIAAC's Technical Standards and Guidelines. The data collection process was carried out by a team of four Temporary Full-Time Field Co-ordinators and 65 Temporary Part-Time Field Interviewers.

Field staff training

As outlined in the Technical Standards and Guidelines, interviewers received home study training prior to in-person training on all aspects of survey work. Training materials provided by the Consortium were used along with country-specific training guides developed by the CSO.

Sample Design

The core PIAAC target population consisted of all non-institutionalised adults between the ages of 16 and 65 (inclusive) residing in the country (whose usual place of residency is in the country) at the time of data collection. Adults were to be included regardless of citizenship, nationality or language.

Participating countries were required to use a probability sample representative of the target population. Each person in the PIAAC target population had a calculable non-zero probability of being selected as part of the sample, i.e. every in-scope person was required to have a chance of being selected.

Sample Size

The minimum sample size requirement for the main study was 5,000 completed interviews for the core target population, for a self-weighting (proportional to the population) core design.

Respondent Selection

Ireland's PIAAC sample was selected by county and stratum, proportional to the 2006 Census of Population. The Technical Standards and Guidelines instructed that persons must be selected from within households using a fully enumerated grid of household members. A nationally representative sample was selected using the latest geo-directory information and a three-stage sample design with areas, households and adults selected at random within each county.

No substitution of sampling units was allowed. Ireland's sample selection involved the sub-selection of a person within a selected household and required a set of screening questions to identify the target population members within a selected household and to facilitate the random selection of one person.

Data Collection

A computer-assisted data collection instrument was used at all stages of the survey, including completion of the Background Questionnaire. Face to face interviews were used to complete the Background Questionnaire and administer the direct assessments (literacy, numeracy and problem solving in technology-rich environments).

While conceived primarily as a computer based assessment (CBA), the option of taking the literacy and numeracy components of the assessment in paper and pencil format (PBA) had to be provided for those adults who had insufficient experience with computers to take the assessment in CBA mode.

Proxy responses were not acceptable for the direct assessments.

Quality Control Procedures

All national versions of newly developed materials were put through a two-step verification procedure:

- a sentence-by-sentence check of linguistic correctness, equivalence to the source version and appropriateness of national adaptations, with suggested corrections listed and justified in the Verification Follow-up Form
- A final optical check to verify the final layout of the instruments after verification, the equivalence of computer and paper forms, and the correct implementation of verifiers' crucial suggestions from the first step.

Quality Control monitoring forms were submitted to the Consortium on a monthly basis during survey planning and data collection, reporting the status of all aspects of the survey and discussing these issues with the Consortium during scheduled quality control monthly phone calls.

Respondent incentives

Ireland used a €30 gift voucher incentive to obtain respondent cooperation as was allowed by the PIAAC consortium. Other countries also used incentives.

Response Rates

Nonresponse to a survey increases the possibility that bias may exist in the survey results. The risk of bias increases as the response rate decreases. All reasonable efforts were made during the data collection phase to maximise survey response. Response rates were computed using a standard formula for the Screener, Background Questionnaire and Assessment items. Countries were required to compute item response rates and conduct an item nonresponse bias analysis for any Background Questionnaire items with response rates below 85%. To facilitate nonresponse adjustment, the Consortium instructed countries to use variables that had less than 5% missing data.

Ireland achieved a response rate of 72% or 5,983 cases.

Sample monitoring

During data collection, participating countries submitted monthly quality control monitoring forms to the Consortium. The report contained the number of cases completed, the number of cases worked, response rates by demographic variables and expected yield. The report was reviewed by the Consortium and any concerns were addressed.

At the end of sample selection, a survey control file with a record for each sampled household was constructed.

PIAAC SURVEY DEFINITIONS

Dwelling Unit

A dwelling unit (DU) is defined as a room or a group of rooms used, or intended to be used, for living purposes. A DU must be suitable for permanent human habitation and must have a private entrance either outside or from a common hall, lobby, vestibule or stairway inside the building. A private entrance is one that can be used without passing through the living quarters of someone else with cooking, living, sleeping and sanitary facilities that the occupants of the dwelling do not have to share with any persons other than their own household members.

Private Household

A private household comprises either one person living alone or a group of people (not necessarily related) living at the same address with common housekeeping arrangements - that is, sharing at least one meal a day or sharing a living room or sitting room.

Non-private Household (Communal Establishment)

A non-private household is a group of persons enumerated in a boarding house, hotel, guest house, hostel, barrack, hospital, nursing home, boarding school, religious institution, welfare institution, prison or ship, etc. A non-private household may include usual residents and/or visitors. However, proprietors and managers of hotels, principals of boarding schools, persons in charge of various other types of institutions and members of staff who, with or without their families, occupy separate living accommodation on the premises are classified as private households.

Usual Resident

A person is defined as a "Usual Resident" of a private household if he or she:

- (i) lives regularly (spending four nights per week) at the dwelling in question
- (ii) shares the main living accommodation (i.e. kitchen, living room or bathroom) with the other members of the household.

PROCESSING AND PRODUCTION OF RESULTS

At the end of data collection, sample selection data for each sampled unit was returned to the Consortium, including sampling strata, probabilities of selection, ID variables, disposition codes and auxiliary variables for weighting adjustments (i.e. Sample Design International File - SDIF).

Sampling Weights

Sampling weights are designed to take account of differential sampling rates, differential response rates and under coverage, and are calibrated to population control totals. They ensure that the estimates represent each country's target population and reduce the potential for bias due to nonresponse. The OECD Consortium calculated Ireland's sample weights based on information supplied to them.

Replicate Weights

Replicate weights are created to capture the variation due to the sample design and selection as well as weighting adjustments to generate more accurate standard errors. Replicate weights were created using a jack-knife approach which effectively uses the variation within the sample to estimate the likely quality of the sample.

Literacy-Related Non Response

Literacy-related non-respondents could not be represented by survey respondents as their reason for not completing the survey was directly related to the survey outcome. Therefore, they were excluded from the adjustment for non-literacy-related nonresponse. However, the literacy-related non-respondents were included in the benchmarking adjustment with the survey respondents as they were considered part of the PIAAC target population.

CLASSIFICATIONS USED IN THE OUTPUT

Highest Level of Education (ISCED 97)

This classification is derived from a single question and refers to educational standards that have been attained and can be compared in some measurable way. The question is included in the Background Questionnaire and is phrased as follows: "What is the highest level of education or training you have successfully completed?"

UNESCO developed the International Standard Classification of Education (ISCED) to facilitate comparisons of education statistics and indicators across countries on the basis of uniform and internationally agreed definitions. The current revision of ISCED is ISCED 1997 (ISCED97). At the national level the National Framework of Qualifications (NFQ) was launched in 2003 and it is now the single structure mechanism for recognising all education and training in Ireland. All framework awards now have an NFQ Level, numbered from 1 to 10, which tells you about the standard of learning and an NFQ Award-Type which tells you about the purpose, volume and progression opportunities associated with a particular award.

In this publication educational attainment results are presented using a descriptive name and the corresponding NFQ levels. For information on the NFQ: <http://www.nfq.ie/nfq/en/>. For information on the ISCED97 classification: http://www.uis.unesco.org/ev_en.php?ID=7433_201&ID2=DO_TOPIC

Industrial Classification (ISIC Rev4)

Four-digit codes from the International Standard Industrial Classification of All Economic Activities (ISIC), Revision 4, were used to code the sector in which the respondent is working: <http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=27&Lg=1>.

The industry in which a person is engaged is determined (regardless of their occupation) by the main economic activity carried out in the local unit in which he or she works. If, however, the local unit provides an ancillary service to another unit in the business (e.g. administration, storage, etc.) then the persons in the ancillary unit are classified to the industry of the unit it services. Thus, while the occupational classification is concerned only with the particular work performed by an individual regardless of the activity carried on at the local unit, the industrial classification is concerned only with the ultimate purpose of the unit or end product regardless of the precise nature of the work performed by each individual.

A manufacturing or commercial unit may employ persons with many different occupations for the purpose of making a particular product or for giving a particular service. Conversely, there are cases in which particular occupations are largely confined to a single industry. For example, the majority of persons with agricultural occupations are in the agriculture industry and most miners are in the mining industry.

The basis of the industrial classification is, in the case of employees, the business or profession of their employer and in the case of self-employed persons, the nature of their own business or profession.

Occupational Classification (ISCO08)

The occupation data in this publication are based on the UK Standard Occupation Classification (SOC) with some modifications to reflect Irish Labour Market conditions. The latest version of SOC is SOC2010.

The code to which a person's occupation is classified is determined by the kind of work he or she performs in earning a living, irrespective of the place in which, or the purpose for which, it is performed. The nature of the industry, business or service in which the person is working has no bearing upon the classification of the occupation. For example, the occupation "clerk" covers clerks employed in manufacturing industries, commerce, banking, insurance, public administration, professions and other services.

Once the data was collected the SOC coding was translated into the ISCO08 classification system in order to maintain international comparability. Further information on ISCO08 can be found at:

<http://www.ilo.org/public/english/bureau/stat/isco/isco08/>

Principal Economic Status (PES) classification

Results are also available using the Principal Economic Status (PES) classification which is used in the Labour Force Survey and the Census of Population. The PES classification is based on a single question in which respondents were asked: "which ONE of the statements best describes your current situation". Response options are listed below:

- Full-time employed (self employed, employee)
- Part-time employed (self employed, employee)
- Unemployed
- Pupil, student
- Apprentice, internship
- In retirement or early retirement
- Permanently disabled
- Fulfilling domestic tasks or looking after children/family
- Other

NOTES ON THE TABLES

Rounding

The row or column percentages in tables may not add to 100% due to rounding and the exclusion of a small number of 'don't know' or 'not stated' responses. Individual figures have been rounded independently and the sum of the component items therefore may not necessarily add to the totals shown.

Statistical Significance

All estimates based on sample surveys are subject to error, some of which is measurable. Where an estimate is statistically significantly different from another estimate it means that differences between those two estimates are not due to sampling error. Unless otherwise stated, changes and differences mentioned in the text have been found to be statistically significant at the 95% confidence level.

Standard Error

A standard error (SE) is an estimate of how accurately the survey mean reflects the population mean with smaller standard errors indicating a more precise estimate.

For more information please see <http://www.cso.ie/en/surveysandmethodology/education/piaac/>