

Quality Assurance of Administrative Data Property Characteristics from the Northern Ireland Valuation List: November 2017

This is the Quality assurance of administrative data (QAAD) of the data source in Property Characteristics from the Northern Ireland Valuation List used the production of the UK House Price Index (UK HPI) and Northern Ireland House Price Index (NI HPI).

- [Department of Finance \(DoF\) website](#)

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1. Introduction

The Northern Ireland House Price Index (NI HPI) measures the change in the price paid to purchase residential property in Northern Ireland. The NI HPI is the NI component of the UK House Price Index, which is the single official measure of change in the price paid for residential properties in the UK.

The Office for National Statistics (ONS) take the raw data on prices paid for properties in England, Scotland and Wales to produce a Great Britain (England, Scotland and Wales) HPI. Due to data restrictions, the raw data on prices paid for properties in NI cannot be transferred to ONS, so Land and Property Services (LPS) produces the NI HPI using the single agreed methodology and transfers the aggregate results to ONS. ONS then combine the GB index with the NI index to produce the UK HPI.

As the NI HPI in its entirety is used in the UK HPI, this assessment therefore serves as an assessment of the data for both the NI HPI and the UK HPI.

A number of different administrative datasets are used in the production of the quarterly House Price Index using a technique known as hedonic regression. In simple terms, hedonic regression is a technique which accounts for the changing quality of property transacted each period to isolate only pure price change, so that the change in price is not distorted by differences in the composition of property sold (for example, you cannot directly compare the price of a one bedroom property sold in one period with a three bedroom property sold in another).

The hedonic regression approach requires detailed information on the characteristics of property sold, both regarding the physical attributes of the property (such as type, floor space) and the location of the property (such as what type of neighbourhood, where in the country). For the production of the NI HPI this data is obtained from a variety of administrative data sources that cover the price paid for transacted property (as reported to HM Revenues & Customs (HMRC) via Stamp Duty Land Tax returns), the attributes of a property (as held in the Northern Ireland Valuation List maintained by Land & Property Services) and characteristics related to the location of the property (such as the type of neighbourhood where the property is situated, defined by the Acorn classification from Consolidated Analysis Centers, Inc. (CACI)). The quality of the Stamp Duty Land Tax database and Acorn classification data has been assessed separately and [details of all of the assessments](#) are available, along with a short document summarising the overall quality of the data sources for the NI HPI.

This document will focus on the attributes of a property from the Northern Ireland Valuation List, which is maintained by Land & Property Services. The NI Domestic Valuation List holds a record of the characteristics of all dwellings assessed for rates. All domestic property in Northern Ireland is assessed on the basis of its capital value in line with comparable properties in its locality. A property is considered to be domestic if it is used for the purposes of a dwelling. The current Valuation List for domestic properties became operative on 1 April 2007 and is based on capital values as at 1 January 2005.

The property characteristics shown to be significant in modelling house prices are:

- size
- build class
- property type
- housing market area
- new and previously sold property

The NI Valuation List is a live system which is updated daily through LPS business as usual activity. Each month a snapshot is extracted and the property characteristics are matched to the latest set of property transactions received from HMRC (using the property ID variable as the match key), with the resultant data then used in the production of the latest quarter's house price index.

2. Risk rationale

The production and publication of house price data can be considered as medium profile, in that there is wider user and media interest in the results that are published, with moderate economic or political sensitivity. Errors in the construction and publication of the statistics would have a moderate impact on the economy and affect the reputation of those responsible for the data.

The data quality concern attached to the NI Valuation List is considered a low quality concern, given that the data is collected by chartered surveyors under the Rates Order (NI) 1977 with a view to assessing the property for tax. The data collected by chartered surveyors and trained assistant valuers is essential for them to carry out their duties and produce a valuation. As such surveyors and valuers are not only data collectors but also data users, who may be called to defend their decisions and evidence base in court. Therefore they have a clear incentive to ensure that the data is accurate and of good quality. The data is published on the DoF website and provided to the property owners on an annual basis (at the start of each financial year in the rates bill), allowing for any errors to be identified and corrected. Further detail is provided in each section of this document to justify this assessment.

When taking into consideration the public profile of house price statistics, its potential impact and the level of quality concern from the provider, the level of assurance attached to the use of the NI Valuation List data in the production of the NI House Price Index has been assessed as [A2: Enhanced assurance](#).

As such, this Administrative data is deemed as being of medium risk, and an enhanced level of quality assurance is required.

Data Type	Administrative Source	Data Quality Concern	Public Interest	Matrix Classification
Property Characteristics	NI Valuation List	Low	Medium	A2

3. Assessment of Valuation List Data using the Administrative Data QA Toolkit

LPS has reviewed the LPS Valuation List data against the Administrative Data Toolkit. The evidence meets the A2: Enhanced assurance category with regards to the property characteristics from the Valuation List which is used in the production of the NI HPI.

3.1 Practice area 1: operational context and administrative data collection:

Land & Property Services (LPS) collect, process and manage land and property information, which underpins the collection of rates, in support of the Northern Ireland Executive's commitment to economic and social development in Northern Ireland.

The Domestic Capital Value List holds a record of all domestic properties in NI which have been assessed for the purposes of collecting rates. Data is collected under the Rates Order (Northern Ireland) 1977. There are seven LPS offices across Northern Ireland and each office collects the same information by following detailed guidelines which are held in a process map. The process map is technical in nature and is only available internally within LPS. All staff across the offices are trained in using the valuation system and collecting and entering the data required. The property characteristic information is held in the IT system Assessment Office (AO), which has in-built validation tools for key characteristics for example number of bedrooms must be numeric, however there is no restriction on the magnitude of the number entered. Also location and classifications are selected from drop down menus, ensuring standardisation of entry. The data collection process is not subject to any source of bias as properties are entered into the list as and when they are ready to value. Targets are in place to ensure that properties are valued in a timely manner (within 90 days) regardless of type, location or owner.

Each characteristic held within the AO system is defined within a codebook listing the possible value names and a short explanation of when and how these should be used. The majority of fields are completed using drop down menus which ensures that data is entered in a standardised manner and avoids spelling mistakes etc. It is not possible to lock down all fields to standard data entry therefore in order to ensure high data quality LPS Statistics Branch, in conjunction with Valuation Directorate have introduced an internal data quality feedback mechanism, where errors or issues found within the data are emailed to local staff and the local staff then notify LPS statistics branch that the correction has been made. This process ensures that errors are corrected quickly and has been approved by the Chief Executive of LPS and adopted as business as usual by the Commissioner of Valuation and all valuation staff.

The NI Valuation List data is a live operational system so changes happen on a daily basis and customers can contact LPS at any time raising concerns or requesting re-assessment for a range of circumstances. Characteristic details of each property in the Valuation List are published on the DoF website, and are available to purchase from LPS in a machine readable format. The details are also provided on the annual rates bill sent to customers at the beginning of the financial year. Property owners have the ability to check the accuracy of their property details and contact LPS to highlight any issues. Contact is available through a number of channels including online and by telephone. The highlighted issues can range from change of characteristics (for example room number change) or a change of address to a request for a re-assessment of the valuation. Information from customers only cause a change in the Valuation List data once the information/property has been re-

inspected by valuation staff and agree that the new information is accurate and requires updating on the system. In this regard, property owners serve as good independent quality assurers of the data.

3.2 Practice area 2: communication with data supply partners

Statisticians are based within the same building and have worked alongside LPS Valuation colleagues for the past ten years building a sound knowledge and understanding of the NI Valuation List data. Statisticians are in regular contact (could be daily or weekly depending on necessity) with valuation and IT colleagues regarding the specification, supply and correction of Domestic Valuation List data. Specifications of data extracts and highlighting of errors and issues are usually communicated via e-mail, whereas discussions to aid understanding or ad-hoc questions regarding data may be discussed face-to-face. Statisticians have regular meetings with the Commissioner of Valuation and chartered surveyors regarding data and valuation processes. The Commissioner of Valuation is the LPS Senior Responsible Owner (SRO) for the NI HPI. He has a legislative duty to ensure that the Valuation List is accurate and up-to-date. This then ensures the quality of the data used to produce the NI HPI. At these meetings the Commissioner is provided with an update on the number of data quality changes that have been actioned and where this falls below expectations this is highlighted to senior staff to ensure the changes are actioned quickly.

The data provided includes individual records of each domestic property in NI along with their characteristics such as size, address, power, glazing type for example.

The data are held securely within the LPS servers and are accessed by LPS statisticians over a secure electronic connection via the statistical package SPSS. The information contained in the dataset is not sensitive as standalone data, however it does contain the address of the property and if merged with other datasets could become disclosive. LPS statisticians, along with all LPS staff, are trained regularly in information assurance and adhere to the eight data protection principles to ensure that all data is protected appropriately and only non-disclosive data is released or published.

LPS Statistics Branch in conjunction with Valuation Directorate have introduced an internal data quality feedback mechanism, where errors or issues found within the data are emailed to local staff and the local staff then notify LPS statistics branch that the correction has been made. This process ensures that errors are corrected quickly.

There is no formal sign-off required by Valuation colleagues as statisticians are employed within LPS and have been tasked to access the Valuation List data and produce the NI HPI as an LPS product, at the request of the Chief Executive and the Commissioner of Valuation. As the data is a live operational system, all statistical analysis is based on a snapshot, at a point in time. As both valuation and statistician staff work together within LPS they discuss regularly any upcoming changes to the system and any impacts that may have on the data for example during re-valuations

where mass data cleansing exercises take place or during address alignment where addresses are corrected to make sure they reflect the standard address Northern Ireland database (called POINTER). Changes to definitions would be notified to statisticians by IT colleagues, however as changes are likely to be the result of legislative changes or re-valuation projects, statisticians would be aware of them through the regular contact with Valuers and involvement in the re-valuation projects.

3.3 Practice area 3: Quality Assurance principles, standards and checks applied by data suppliers:

The NI Valuation List is a live system from which statisticians take an extract of the complete Domestic Valuation List on a monthly basis (usually the first working day of the month). The data shows the position at the beginning of each month and is used to add characteristics to the sales data received during the month. The sales and characteristics data is used in the production of the quarterly NI HPI.

The property details are entered onto the Assessment Office (AO) electronic system. AO is a bespoke database, specifically designed for the purposes of assessing the valuation of properties and came into use in 2007. Each record is uniquely identified by a Property Identifier number, so there is no issue of duplicate records. There is in-built validation of fields within the system eg number of bedrooms must be numeric, however there is no restriction on the magnitude of the number entered. Also location and classifications are selected from drop down menus, ensuring standardisation of entry.

There are a number of groups which oversee the data quality and enhancements to the AO system. The AO Change Advisory Board consists of representatives of valuation and IT directorates and meets monthly to discuss the functionality, content quality and possible enhancements to the valuation system (AO).

The Address Management group meets bi-monthly and consists of representatives from all directorates in LPS who oversee the quality of address data across each of the LPS systems, including AO. LPS statisticians are members of this group.

A large dynamic operational system which holds details of approximately 900,000 properties requires multiple people to input and maintain the data held, making changes daily, to ensure that the system is as up-to-date as possible, as required by legislation. All staff are trained and access is restricted according to role with experienced staff checking the work of data entry staff.

The data input process begins with the registration of a case on the AO system. This action is carried out by administrative staff and triggers the beginning of a workflow.

The case is then passed to valuation field staff who check and verify the case registration details and inspect the property to ascertain size of property/alterations. Data collected while in the field is currently entered into the AO system retrospectively when staff return to the office. By Autumn 2017, field staff will be equipped with mobile technology which will allow automatic capture of most data in

the field and instant entry of any extra data. This will improve the timeliness of the information and the use of additional drop-down fields and in-built validation within the software means improved data quality.

Following inspection and data entry to AO, the property survey and accompanying data is verified by a Chartered Surveyor and when approved the valuation of the property is calculated. The usual practice is to examine values of similar properties (similar on size or location or other value significant characteristics). Through this process surveyors are checking data held not only on the target property but also on properties that they deem to be comparators, therefore there is constant review of property characteristics data.

Data entered at each previous stage of the process are checked by managers entering data at the current stage. Anomalies are highlighted and amended in a timely manner. The final data is only entered into the list following approval by a senior chartered surveyor.

Records entered into the list for newly built dwellings or altered dwellings, where the alterations are value significant, are included in a certificate which is sent to the owner of the property. The owner can contact LPS to highlight any errors or inconsistencies in the data and, if verified by a surveyor, these will be corrected on the system. The purpose of the Valuation List is to collect property tax and rates bills are issued annually with monies collected during the course of the financial year. However, the nature of the property market is such that properties and alterations can be ready to value and therefore added to the Valuation List at any time during the year.

There is low risk to the quality of the administrative data collected for the NI Domestic Valuation List as there is a legislative reason underpinning collection of the data which raises money for Government services. LPS have embraced enhancements in digital technology and over the next few months will equip valuation field staff with mobile technology which will allow key data to be captured automatically and extra information to be entered immediately on site. This will improve data quality and standardisation.

3.4 Practice area 4: Producers QA Investigations and documentation

The NI Valuation List is a set of characteristics (about a property) that is used as input in the production of NI modelled house prices, which in turn are used in the production of the monthly UK House Price Index (HPI). Full details on the NI HPI production methodology used can be accessed via the attached article:

<https://www.finance-ni.gov.uk/publications/lpsnisra-ni-house-price-index-methodology-report>

LPS statisticians quality assure the monthly extract of the NI Valuation List to assess the property characteristics held within the system. The main quality assurance is to check that all build type, property type, and location values are valid, ie the codes and descriptions used are one of the defined list for each characteristic. The size

variable, which is numeric, is also checked to highlight any extreme values in the data. Only properties greater than 30m² and less than 1,000m² are included in the HPI methodology - more details available at <https://www.finance-ni.gov.uk/publications/lpsnisra-ni-house-price-index-methodology-report>

Any anomalies are notified by e-mail to the local LPS office responsible for the area in which the property lies and corrections are made promptly and notified to LPS Statistics branch.

The Domestic Valuation List data contains the address and property characteristics of every domestic property which is liable for rates (council tax) in Northern Ireland. The dataset is a snapshot of a live operational system showing the position on the first working day of each month. There is no issue with missing characteristic data within the Valuation List as all key characteristics (size, classification, type and location) must be present for a chartered surveyor to be able to calculate a valuation and enter the property into the list.

The Valuation List does not contain information on the sale price of the property, occupier or tenure information as this data is not required to be collected for the purposes of calculating a valuation.

Further quality assurance then takes place on a weekly basis to ensure the matching of Valuation List to sales data takes place successfully, and the resulting modelled house price data is of good quality. This includes manually checking sales have matched to the correct domestic property characteristics, and sales are non-arm's length. The modelling process used in the production of house price data includes an automated statistical technique (Cook's Distance) that assesses modelled house prices for property with a certain set of attributes (which are derived using the various sources of input data) against the price for a similar property. If the modelled price is substantially different (meaning it exceeds a predefined tolerance) then the price is excluded from being used in the final house price estimate.

Errors in the four characteristics from the Domestic Valuation List used in the production of the NI HPI would have minimal impact on the overall price calculated at all levels (NI, Local Government District, Property Type and new/existing resold) as the modelling process used includes an automated statistical technique ([Cook's Distance](#)) that assesses modelled house prices for property with a certain set of attributes (which are derived using the various sources of input data) against the price for a similar property. If the modelled price is substantially different (meaning it exceeds a predefined tolerance) then the price is excluded from being used in the final house price estimate.