Office for National Statistics

Compendium

Chapter 10: Methodological annex

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1 . Annex 1 – Methodology for all the activities

Home-produced childcare

The methodology for estimating hours and output for informal childcare is largely unchanged from the previous release. However, 2 minor amendments have been made. The first revises estimates of informal childcare hours for 2005 to 2010 using population estimates that are consistent with 2011 Census. This means that all estimates produced within this release are now entirely consistent with 2011 Census population information. As a result, the number of informal childcare hours for 2005 to 2010 will be different in this article as compared with previously published results. You should be wary of comparing informal childcare hours for 2005 to 2014 published here with pre-2005 figures published previously.

The second change to the methodology is in relation to the method in which informal hours of childcare are valued. In previous releases the wages of live-in nannies, taken from the Professional Nanny/Nannytax Annual Survey, have been used to value informal childcare. We have updated this methodology and now use the hourly cost of placing a child in a child minder service using information from the Childcare Costs Survey undertaken by Family and Childcare Trust. This decision was taken, primarily over concerns regarding the quality of wage estimates of live-in nannies from the Nannytax Annual Survey. Further, child minder services are arguably a more realistic market alternative to informal childcare than live-in nannies. As a result of this methodological change, estimates of the value of informal childcare published previously are now revised for 2005 to 2010. Previously published estimates relating to years before 2005 are not comparable with the estimates published in this release.

Home-produced adult care

The methodology for valuing informal adult care is entirely consistent with previous published estimates. The methodology is presented in detail in a previous article.

Home-produced housing services

As explained in the analytical breakdown of household housing services, using the input/production approach to estimating the value of output requires the following components to be estimated:

- Compensation of Employees
- hours of labour
- wage rates
- Intermediate Consumption
- Gross Operating Surplus

The following section will describe the process used to estimate each component.

Compensation of Employees

Hours of labour

Data for the number of hours spent carrying out productive non-market activities within UK households is taken from the Time Use Survey (TUS) (2000). This is then modelled on both the British Household Panel Survey which was conducted for even-numbered years between 1998 and 2008 and on the Understanding Society Survey carried out on even-numbered years over the years 2009 to 2013. Hours for 2014 (compared with 2013) were modelled using annual average growth rates across the series applied to 2013 data. The data was calibrated using the Time Use Survey (TUS) (2000) where the British Household Panel Survey (BHPS) was more likely to overestimate the amount of time spent carrying out productive non-market activities. The BHPS relies on stylised questions which refer to events in the past month as opposed to the TUS where respondents record their daily activities throughout the day or as they are taking place.

Wage rates

Wage data has been sourced from the Annual Survey of Hours and Earnings (ASHE) for professional specialist and generalist occupations. Due to the specialist nature of some specialist trade professions, the 25th percentile wage has been used for all professions with a Standard Occupational Classification (SOC) prefixed with a ‘5xxx’ (apart from for gardeners/grounds persons whose median pay is significantly lower). A similar approach was taken by Suh and Folbre (2015) who apply a 25% downward adjustment on various wages to compensate for an assumed difference in quality.

For both gardening/grounds person and cleaning professions the median wage is taken. This assumes that work carried out in home-produced services would warrant the median hourly rate of pay as professional cleaners and gardeners/landscapers. The median is taken in preference to the mean to avoid unwanted skew from the highest or lowest wages reported in the survey.

This approach is called the market ‘replacement cost’ model for applying wage rates to non-market household ‘housing’ service activities of upkeep.

Intermediate Consumption

See overall Intermediate Consumption methodology section.

Gross Operating Surplus

The market price for a service would normally include an element of profit (Gross Operating Surplus). However, when using an input/production method to estimate the GVA for non-market services (where the services are essentially unpaid) a gross operating surplus has to be imputed. This avoids distortions both:

- in the level of GVA when services transition from the paid to the unpaid economy
- between functions within the Household Satellite Account where some use market prices to calculate output (using an output estimation technique akin to GDP(O)) while others estimate compensation of employees and intermediate consumption and have to add in an adjustment for gross operating surplus separately (using input/production technique akin to GDP(i))

Home-produced nutrition services

There are 2 possibilities for measuring home production; to measure inputs or outputs. Measuring inputs focuses on the time spent on productive activities and relies principally on time use data. This usually takes the form of a diary, which the survey respondent is asked to complete, giving information about their principal activities throughout a 24-hour period. The alternative is to attempt to measure outputs, this is the approach we take.

The output method values what the household produces, for example the number of children cared for or the number of washing loads undertaken. This is important because it is often easier to value outputs than inputs, particularly when there is a market equivalent to the service being produced. Output measurement is also more consistent with the way the rest of the National Accounts are constructed and reflects household productivity.

The output of household nutrition services is the meals, snacks and drinks prepared by the members of households for consumption, for which no monetary transaction takes place. For example, if a household were to prepare free food for a birthday party this would be included, whereas if they sell the prepared food it would not. Further, if an item of food requires no preparation at all, such as a chocolate bar, it should not theoretically be counted. A differentiation between adult and child portions should also theoretically be made.

There is currently a lack of detailed information on meals produced within the household. In the absence of this data, we estimate the value of nutrition services within a household using data from the Family Food Survey, published by the Department for Environment Food and Rural Affairs (DEFRA). This approach uses calories consumed at home as a proxy for volume prepared. As discussed earlier, this assumes that consumption is equal to production, and doesn't make any adjustment for food produced but not eaten. Further, this methodology does not adjust for the type or quality of the meals and snacks being produced, purely quantity indicated by calories, although we do remove alcoholic beverages.

The DEFRA Family Food Survey also provides information on the consumption and expenditure of calories eaten 'out' (not sourced from household supplies). Expenditure per calorie is derived from this information, and used to value calories eaten in to estimate output of nutrition services. GVA is estimated by making an adjustment for intermediate consumption and the input of household transport services. This process is described in the methodology section of the full UK account.

Home-produced clothing and laundry services

The methodology for valuing clothing and laundry services is entirely consistent with previous published estimates. The methodology is presented in detail in a previous article.

Home- produced transport services

The methodology used to create these latest estimates is consistent with the methodology used in our previous publication - released in 2014 (see Annex 1) - with a few exceptions.

From 2013 onwards the National Travel Survey (NTS) moved from surveying residents of Great Britain to residents of England only. Therefore, from 2013 onwards the average miles travelled per person per year (MPPPY) for residents of Scotland and Wales were extrapolated using the average growth rate from 2002 to 2011.

In addition, the NTS variable used to calculate the cost of private hire vehicles was dropped in 2013. As a result, private hire vehicle costs were up-rated from 2013 onwards using a Consumer Price Index (CPI) for minicab costs.

The results in the 2010 publication were estimated using minicab costs for London and outside of London, which was equivalent to the rest of Great Britain. However, given the change to the NTS from 2013 onwards, 'outside of London' from 2013 onwards refers to the rest of England. From 2013 onwards these private hire vehicle costs for the rest of England are applied to Scotland, Wales and Northern Ireland. This is also the case for the calculations on the average number of people in a party.

Private hire vehicles (PHV) prices for London short trips were based on a small sample size and so in this publication a 3-year average was taken. This had the effect of smoothing the estimates.

In the previous methodology, short journeys in Northern Ireland were defined as journeys of 2 miles or under and long journeys were defined as journeys over 2 miles. Trips in other regions, however, treated short trips as those under 2 miles and long trips as trips of 2 miles and over. This has now been applied for all regions for consistency.

Home-produced volunteering services

The methodology for valuing volunteering activities is entirely consistent with previous published estimates. The methodology is presented in detail in a previous article.

2 . Annex 2 – Methodology for constructing the full account

Housing as an input into other functions within the Household Satellite Account

Housing also produces inputs to other functions within the Household Satellite Account, for example, the kitchen is used for nutrition and other rooms in a household may be used to accommodate child or adult care activities and clothing and laundry services (Eurostat, 2003). In this Household Satellite Account, housing output and intermediate consumption is accounted for in its entirety within under the household 'housing' services function and then a proportion of the output is then recorded on a separate row of the final tables as an input to other functions (see datasets 1 to 10) including:

- nutrition (proportion of kitchens to total rooms where 64% of kitchen output is relevant)
- laundry (proportion of kitchens to total rooms where 16% of kitchen output is relevant)
- childcare (one room per household allocated to childcare)
- adult care (one room per household allocated to adult care)

This allows all GVA from household 'housing' services to be recorded under the household 'housing' tab and net off from the GVA of other functions to avoid double counting.

Private household transport as an input to nutrition

Private household transport is considered an input to the output of nutrition services. This accounts for the fact that an element of the market price of meals eaten out will include transportation costs of purchasing food. This is accounted for in the Household Satellite Account by applying a proportion of output of private household transport as input to nutrition services. This is based on the proportion of total miles accounted for by shopping trips.

Intermediate consumption

Household Final Consumption estimates (HHFCE) from the core System of National Accounts (SNA) are used to calculate the value of intermediate consumption within households.

These items of final consumption are both in current prices and non-seasonally adjusted and represent the resources which are used up in the process of home production. Each different function (other than adultcare and volunteering where intermediate consumption is not measured) of home production within the HHSA has an element of intermediate consumption and these are listed below.

Home-produced childcare

In the home provision of childcare, some other personal effects and clothing items are included such as articles for babies including an element of the value of baby carriages, pushchairs, carrycots, recliners, car beds and seats, back-carriers, front carriers, reins and harnesses, etc. An element of the value of children’s clothing is also included.

Home-produced housing services

In the home provision of housing, the value of the rent paid (actual rentals) due to an occupant living in a property is presumed to be the value of the housing which is used up to provide that warm and dry shelter while non-durable household goods could include cleaning products used to clean the property.

Home-produced nutrition services

In the home provision of nutrition services, a proportion of a range of food items are counted as intermediate consumption. In addition to this, a proportion of small kitchen appliances and food production utensils are also counted.

Home-produced clothing and laundry services

In the home provision of clothing and laundry services, a proportion of non-durable household goods are counted as intermediate consumption, for example, washing powders, softeners, detergents and stain removers.

Home-produced transport services

In the home provision of transport services, a proportion of expenditure on fuel, tyres and other transport-related household expenditure is allocated as intermediate consumption.

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