

## Chapter 5

# Measurement guidelines for standard components of household wealth

*This chapter focuses on how the standard components for micro statistics on household wealth, specified in Chapter 3, are best measured using sound, consistent methodology. For each standard component or group of components, the main measurement issues are considered in depth, and practical guidance is provided in the light of data collection experience from countries that produce statistics in this field.*

### 5.1. Measurement units

As discussed in Chapter 3, the unit of analysis when studying micro wealth data may be the household, a smaller unit such as the family economic unit or income unit, or the individual. Whatever the unit of analysis, the data items studied are normally household variables because of the sharing that takes place within households. For example, a person-level distributional study would categorise people according to the wealth of the household in which they live, and not the wealth they hold as individuals.

The measurement units, or units about which data are collected, need to support the units to be used in analysis of the data. Therefore, at a minimum, a wealth micro data set needs to contain information about assets and liabilities at the household level. The data set also needs demographic information about the individuals in the household, so that the household wealth data can be analysed from a life-cycle perspective, which is fundamental for understanding the distribution of wealth, as discussed in Chapter 7. Information about individuals is also essential to support use of the individual or family as the unit of analysis, including the derivation of equivalised estimates of wealth, as discussed in Chapter 7.

While the asset and liability data need to be collected with respect to the household, it may be useful or even necessary to collect the data at an individual level. If the data are being collected through a sample survey, more complete results might be obtained by asking for certain data items with respect to each individual in the household, for example the value of bank deposits. If the data are being collected by matching survey data to administrative or other records (as described in Chapter 4), it is most likely that the matching can be done only at the level of the individual.

### 5.2. Reference points and reference periods

Wealth is a stock concept and relates to a point in time, or a reference point. This contrasts to the concept of a flow over a period of time, which underlies variables such as income, consumption, saving, capital transfers, holding gains and losses, and so on. Because flows are measured over a period of time, flow statistics relate to a reference period. For maximum comparability within data sets, all wealth observations should have a common reference point and all flow statistics should have a common reference period. Furthermore, if wealth statistics are to be compared to related flow statistics, the reference point of the wealth statistics should be defined in terms of the reference period of the flow statistics. The most common way of doing this is to have the wealth reference point equal to the end of the flow reference period.

In a complete and fully integrated set of micro data, there would be two subsets of wealth data, one with a reference point at the beginning of the reference period and a second with a reference point at the end of the reference period. It would then be possible to explain changes in wealth between the two reference points by analysing all the flows that contributed to changes in wealth, such as saving, capital transfers, holding gains and losses, and so on.

For practical reasons, wealth collected in household surveys is often collected with respect to the time of interview or a time for which data are available, rather than with respect to a standard reference point. Departures from the preferred basis of collecting wealth data should always be clearly explained to users of the data, along with the likely implications of those departures.

### 5.3. Valuation basis

In principle, for micro statistics on household wealth, all of a household's assets and liabilities should be valued at their current value in the market at the reference point date, or at the closest equivalent to this, as discussed in Chapter 3. This valuation basis is applicable to all types of assets and liabilities and allows a consistent, coherent and comparable set of aggregate measures to be produced.

In practice, it can be difficult to establish current value on the market, since there may not have been recent transactions in assets or liabilities identical to those which need to be valued, and there might be no markets at all for some assets or liabilities that are not new. Some assets, such as pension entitlements, cannot be traded at all. In all such cases, it is necessary to estimate the value. This is sometimes known as estimating a "fair value", i.e. an estimate of the value that would have been observed if an arms-length market transaction had taken place. There are a number of approaches that might be taken, summarised below and explained in more detail in the following sections.

The household may know the historical cost. For non-financial assets and some financial assets, it may be possible to adjust the historic value using a price index that can be expected to move in a similar way to the price of the asset concerned. It may also be necessary to make an allowance for depreciation if it is a non-financial asset that has a finite life and wears out over time. For loans, it may be possible to take the original value of the loan and work out how much the value of the loan has reduced (or increased), if the interest rate(s) and schedule of payments are known.

It may be possible to estimate how much it would cost to replace a used non-financial asset with a new one, and make adjustments to reflect the age and depreciation of the asset.

Some assets, such as pension entitlements, cannot be traded and are defined in terms of a cash flow to be paid in the future. In order to derive a current asset value, it may be necessary to estimate the present value of the cash flow expected to be received from the asset over time. Whenever calculated, present value estimates for an asset should be derived using a conservative discount rate, such as a risk-free government bond rate, rather than a discount rate based on the expected rate of return of the asset, even if such a rate of return can be estimated.

Some loans involve a series of set payments; this implies that during the life of the loan, it is difficult to determine how much principal is still outstanding, that is, i.e. what the current value of the liability is. In such cases, it may be necessary to estimate the present value of the loan repayments still to be made. Alternatively, for short-term loans, it may be sufficient to assume that the principal of the loan is paid off evenly over the period of the loan contract.

For assets such as dwellings, which normally have features that make them unique to some degree, it may be necessary to obtain an estimate of the likely market value on the basis of actual market values for assets that are as similar as possible. The estimate may be made by an experienced expert or by the household.

Guidelines to the measurement of individual assets and liabilities are provided in the following sections. In many cases, alternative methods are presented, reflecting the variety of contexts found in different countries and data collection agencies. Users of the guidelines will need to consider which of these methods are the most cost-effective to their particular circumstances.

## 5.4. Non-financial assets

### 5.4.1. Real estate

Three real estate components are included in the list of standard components of Chapter 3, excluding the real estate comprising part of the assets of an unincorporated business owned by household members. These are:

- *Principal residence*, defined as the main dwelling or other type of housing unit occupied by the household and owned by one or more of its members. The residence may or may not have a mortgage or loan secured against it. The land on which the residence is located should be included.
- *Other owner-occupied residences*, defined as dwellings or other types of housing unit regularly occupied by the household and owned by one or more of its members. They include dwellings used by one or more household members during the working week but not regarded as the principal residence of those members. These do not include dwellings owned by household members but used only occasionally, such as holiday homes.<sup>1</sup>
- *Other real estate*, defined as other residential and non-residential buildings and land owned by household members, other than own unincorporated business assets. It includes residences such as holiday homes for living temporarily, blocks of flats, commercial real estate, agricultural and forestry land, and other sites and plots of land.

There exist other types of dwellings or housing units in which households reside permanently or temporarily. For instance, a houseboat or a mobile home might be a place for permanent living. In the case of permanent living, the value of these dwellings should be included in the category of principal residence, but the measurement should be done in the same way as for vehicles, as described later in this chapter. If the houseboat or the mobile home is used for temporary living, e.g. for vacation, it should be included in vehicles.

Sometimes a household's residence is owned by an incorporated enterprise that is owned by the household. In that case, the household is not an owner-occupier household but a renting household, and the residence is not regarded as a non-financial asset of the household.<sup>2</sup> The value of the dwelling is included in the value of the incorporated enterprise, and contributes to household wealth in this way.

In the case of an unincorporated enterprise, like a self-employment business, an owner-occupied residence that is integrated with business assets ought to be separated as private-owned housing, with the value of the residence treated as a non-financial asset and the business assets included in the financial asset of equity in an own unincorporated enterprise. However, it might be hard to distinguish the owner-occupied housing from the business, especially if the dwelling is not a regular house or apartment. If it is not possible to separate it from the business assets, it should be treated in the same way as a dwelling owned by an incorporated enterprise.

If a household owns real estate that is not an owner-occupied residence, it should be included as part of equity in an own unincorporated enterprise, if the real estate is an

integral part of the operations of a self-employment business. If it is not part of a self-employment business, it should be included as part of the other real estate category.

In most countries, the value of an owner-occupied dwelling is the main asset for many households. It is also the main collateral security for loans. Thus it is very important to get accurate statistics on this asset.

### **Valuation of real estate**

The main task of data compilers is to get a valuation of the real estate at the current value on the market. While there is an active market for real estate in many localities, it can be difficult to extrapolate the prices obtained in actual sales to obtain market valuations for other real estate in the same area. Many factors may impact on the value of individual items of real estate, including the size of buildings, the quality of buildings and their fittings, distance to shops or other facilities, ease of access, neighbourhood reputation, view, the area of land included, and the suitability and quality of the land for building activity, agriculture, forestry or other purposes.

Given the many factors influencing real estate values, it is likely that a value can only be estimated directly if the real estate has been recently purchased by the household. In all other cases, an indirect method is required, with a number of possible approaches to making an indirect estimate.

The most accurate in most cases is probably to have professional real estate valuers inspect and provide an opinion on the value of the real estate of each household. This is also likely to be the most expensive approach. Valuations provided by professional valuers are based on relevant experience. In addition to the sales in which they have personally been involved, they are likely to utilise databases of sales information that are maintained by their organisation or by an industry body for that purpose.

Estimates of market value can also be obtained from the households themselves. Such valuations will vary greatly in accuracy, depending on whether the household has recently bought the real estate, has actively monitored the local market, and has a realistic (rather than optimistic or pessimistic) view of the market, and perhaps also on how active the relevant local market is. Box 5.1 provides a summary of an Israeli study into the accuracy of self-reported dwelling valuations, while Box 5.2 describes how self-reported property values are collected in the Wealth and Assets Survey of Great Britain, and how the results compare to other estimates of property prices.

Valuations could be based on information supplied by households and supplemented by other information. Households could be asked for the purchase price of the real estate and the date around which it was acquired, and that value could be indexed by an appropriate price index, if such an index exists. However, there would be difficulties for real estate that has been owned by the household for a very long time, perhaps having been passed on from a previous generation. In addition, there are unlikely to be price indices for each locality, and over time relative prices between localities are likely to change. For example, prices of inner city real estate are likely to behave differently to the prices in outer suburban areas.

In many countries, households pay some form of property tax based on a valuation of the real estate. Households liable for property tax should be able to provide that valuation. Alternatively, it may be available from administrative sources. Sometimes such valuations are based on the average valuation over several years or are only updated every few years, and so do not represent current market value. Consideration could be given to establishing

### Box 5.1. Self-reported dwelling valuations in Israel

Owners' valuations of dwelling prices are central in the construction of price indices, for empirical research into housing markets and households' economic behaviour. Previous studies show that, on average, owners tend to overestimate the value of their dwellings by 5% relative to the market valuation. Romanov (2001) analysed the variation of the bias over the distribution of dwelling sale prices, using a unique data set of more than 22 000 observations from Israel's Household Expenditure Survey, from 1997 to 2008, merged with the national sample of housing sale transactions by census tract. The author found that the self-reported estimates of dwelling values were, on average, 27% higher than the mean market prices of houses in the corresponding census tracts. Valuations of inexpensive and costly dwellings are biased in different directions: estimates reported by people who occupy dwellings in the lowest eight deciles of the price distribution were upward-biased, whereas those who live in the most expensive dwellings more typically understate the value of their homes. The valuation bias is systematically associated with owner's traits as well as with dwelling and neighbourhood characteristics. The frequency of dwelling sales in the respondent's tract also had an effect on the self-reported valuation bias.

Source: Romanov, Fleishman and Tur-Sinai (2011).

### Box 5.2. Estimates of property wealth from the Wealth and Assets Survey for Great Britain

The Wealth and Assets Survey (WAS) for Great Britain is a longitudinal household survey that aims to provide measures of the economic well-being of households and individuals by gathering information on, among other items, the level of savings and debt, saving for retirement, how wealth is distributed among households, and factors that affect financial planning. Measures of household wealth are split into four categories: property wealth, financial wealth, physical wealth and private pension wealth.<sup>1</sup>

Property wealth comprises: the value of the main residence and of any additional property or properties owned by the household (or persons within the household). Estimates of gross property wealth and any mortgages secured on the properties (liabilities) are used to provide estimates of net property wealth. Property wealth is derived from the respondents' own valuation of their property. A number of steps are used to collect the value of properties.

- For households who own, part own or are buying their main residence, the value of the main residence and of any mortgages or loans secured on it is gathered at a household level, with the response usually being obtained from the household reference person (HRP) or the spouse.<sup>2</sup>
- For other property owned by members of the household, the value of the individual's share of other property (and any liabilities on these properties) is gathered at an individual level – as other members of the household could own property that the HRP may not be aware of or know the details of.
- For all estimated values of property assets and liabilities collected through the WAS, respondents are first asked to give a point estimate. If the respondent does not feel able to estimate it to this level, they are shown a list of banded values and asked to estimate which of the bands is most appropriate. From this banded value, a point estimate is imputed using recognised statistical imputation methodologies. Similarly, any missing estimates are imputed so that estimates of property wealth are available for all households, which can then be fed into estimates of overall household total wealth.

**Box 5.2. Estimates of property wealth from the Wealth and Assets Survey for Great Britain (cont.)**

The table below compares estimates from the WAS with three other sources of house prices available in the United Kingdom, broken down by type of property.

**Table 5.1. Value of principal residence in Great Britain, by dwelling type, 2006-08 and 2008-10**

Thousands of pounds

		2006-08	2008-10
Detached	Land registry	267	249
	Halifax	324	282
	Nationwide	244	224
	WAS	327	317
Semi-detached	Land registry	167	152
	Halifax	198	166
	Nationwide	174	156
	WAS	202	195
Terraced	Land registry	138	124
	Halifax	184	148
	Nationwide	148	131
	WAS	178	178
Flat	Land registry	167	150
	Halifax	189	154
	Nationwide	135	121
	WAS	173	132

The values derived from these external sources vary considerably, with the Halifax data being consistently higher than the data from both the Land Registry and Nationwide (a financial institution). Whilst in 2006-08, the WAS results are very similar (or lower) than the Halifax estimates, WAS was consistently higher than all three sources in 2008-10.

While the perceived value of property may lead to an over-estimate of property wealth compared with market prices, the importance of the perceived value should not be underestimated. It is the perceived value that may be influencing the behaviour of households with respect to their property assets as well as their other assets such as financial, pensions and to a lesser extent their physical wealth.

1. For more information, see "Wealth in Great Britain: Main Results from the Wealth and Assets Survey 20086H10", [www.ons.gov.uk/ons/rel/was/wealth-in-great-britain-wave-2/2008-2010--part-1-/index.html](http://www.ons.gov.uk/ons/rel/was/wealth-in-great-britain-wave-2/2008-2010--part-1-/index.html).
2. The household reference person is defined as follows: i) in households with a sole householder, that person is the HRP; ii) in households with joint householders, the person with the highest income is taken as the HRP; iii) if both householders have exactly the same income, the older is taken as the HRP.

the average relationship between the property tax valuation and average current market prices available from real estate industry databases or similar sources, and then adjusting the reported valuations accordingly. It should be noted, however, that certain types of property may be sold more frequently than others, for example dwellings at the high end of the market, or dwellings purchased by landlords for rental. The typical property sold may then be of different quality to the typical property not sold, and these may affect the accuracy of the relationship between property tax valuations and market prices. Box 5.3 describes experience using administrative data on property values in Sweden and

### Box 5.3. Using administrative register data for the valuation of real estate in Sweden and Denmark

In some countries, different administrative registers can be used to get information on households' or individuals' holdings of real estate. By connecting this information to a wealth survey, one will get very good estimates on the extent of real estate ownership. Depending on what information exists in these registers, a proper value of a tax or asset value can be obtained. However these tax values very often are far from the market values.

Tax values often reflect differences in value between houses based on regions, size and other variables. Sometimes the value is based on a fixed proportion of market value. Thus the tax value may take into account the standard, size, type, age and location of a dwelling. If the status of the real estate as a principal residence or a holiday house is recorded, this information can be used to produce more detailed data on the composition of wealth.

Combining these tax registers with data on purchasing statistics, one can get better estimates on the market value. The main path to obtain this market value is to calculate the ratio between the purchase value and the tax value for units that have been sold during a specific period, often during a year. In Denmark and Sweden, there exists data on the purchase-price coefficient for different types of real estate and in different local regions, municipalities or lower subdivisions. This has been used to adjust the tax value to make an estimate of the market value.

The average of the purchase price coefficient for each local area must have enough observations, otherwise one has to get a coefficient based on a larger area. By performing some statistical calculations on this ratio, one can get information on the dispersion of the ratio and thus on how much the market value for real estate can vary.

The estimate of the market value of the real estate can differ from the actual market value, since it relies on the average ratio between purchase price and tax value. Within a municipality, the market prices might have changed at varying levels. Therefore the real estate value of some households might be overestimated, while the value for others is underestimated.

There are two methods of using the ratio of purchase price to tax value.

$$\Sigma \text{ purchase values} / \Sigma \text{ tax values} \quad [1]$$

$$\Sigma (\text{purchase value} / \text{tax value}) / \Sigma \text{ number of observations} \quad [2]$$

It is recommended to use [2], as using [1] will increase the risk that extreme values will influence the result disproportionately.

Denmark, while Box 5.4 describes the New Zealand proposal to use the rateable capital value of properties in its Household Economic Survey.

In some cases, property taxes may in effect be a land tax, based on the unimproved value of the land and therefore not include the value of any structures on that land, the value of a dwelling or any other buildings. Furthermore, dwellings that are in blocks of apartments may not pay land tax for their individual dwellings, especially if they are owned under a co-operative arrangement. In such cases, property tax data may be suitable for obtaining values for rural land, but not urban real estate.

Sometimes a household may have real estate located in an area where there is no active real estate market, at least for a property with the type of building or other construction as the property of interest. In such cases, it may be necessary to estimate the value of the construction by estimating the cost of replacing the construction, and adding that value to



#### Box 5.4. Use of rateable capital value of property in New Zealand

In the Household Economic Survey for 2014-15, Statistics New Zealand will collect information on net worth, including the value of property owned. The method of valuing property that will be used in the survey will be to collect from households the current rateable capital value of the property, if this cannot be provided, the address of the property will be collected.

The current rateable capital value is the rating valuation of a property. Rates are a charge against a property (rating unit) set by local and regional councils. Rates are based on a valuation of the property. The capital value is the probable price that would be paid for the property at the date of the latest general revaluation. Revaluations for rating purposes are generally performed every three years. If the household has had a more recent valuation done, then this is what will be collected.

The information on the capital value is available on rates statements that are issued every three months, so this information is readily available for most households. If the household cannot provide the capital value for whatever reason, Statistics New Zealand will use publically available information on the capital value of the property to estimate the value.

The advantage of using current rateable value to value property is that a consistent methodology is used to value properties for all households.

an estimate of the land value. However, consideration would have to be given to the quality of the original construction and whether the property is likely to be marketable in current times. Some unique structures may still be marketable, especially if they are the only one in the area, while others may not be marketable because, for example, they have been superseded in their use.

In summary, a number of approaches can be taken to obtain real estate values for household properties, and it may be necessary to take a mix of approaches. Countries need to select an approach or approaches on the basis of data availability, the nature of their real estate markets and the relative implementation costs.

#### 5.4.2. Vehicles

The vehicles category includes the cars, motor cycles, boats, caravans, aircraft, etc., owned by household members other than those mainly used in own unincorporated enterprises.

There are alternative survey approaches on how best to estimate the value of vehicles. The most common and most straightforward approach is to ask respondents to provide their own estimates, even though such estimates may not be very accurate.

Alternatively, households could be asked for the age and historical cost of the vehicle, and then standard depreciation rates and appropriate price indices could be applied. If vehicles are insured against theft or destruction in an accident, obtaining the insured value of the vehicle may give a similar value, depending on the valuation practices used by the insurance companies concerned. However, many factors affect the actual rate of depreciation of individual vehicles, and so these approaches may not always be a very reliable way of valuing individual vehicles.

Another approach for the more common vehicles is to obtain the information needed and the year of each vehicle from the respondent, and then look up the wholesale prices of those vehicles in the databases of second-hand vehicle prices that are maintained in many countries.

### 5.4.3. Other consumer durables

Other consumer durables include the contents of the household's principal residence and other housing units, where these contents are owned by the household other than own unincorporated enterprise assets. Examples are kitchen and laundry appliances, furniture, computer and entertainment equipment, clothing and other personal items, excluding valuables.

A relatively small proportion of used consumer durables other than motor vehicles are traded in the second-hand market. Those that are traded probably tend to be in above-average condition for their age. Therefore, even in principle, the current value of these consumer durables cannot normally be established by referring to actual market values. A sounder approach would be to consider the cost of replacing each durable with a new item and then discounting the value by a depreciation factor that reflects the age of the durable and its expected life span. An equivalent approach would be to adjust the historical cost of the durable with a price index, and then discount a current value by the depreciation factor.

Generally, it would not be practicable to separately list and account for each of the consumer durables owned by a household, apart from motor vehicles and perhaps a few other major items. Therefore more approximate methods are required. It is possible to simply ask households for the value of their consumer durables, perhaps by broad group as a check list. However, households are likely to have difficulty knowing on what basis to make their estimates.

A better approach may be to ask the respondent how much it would cost to *replace* each broad category of consumer durable, and the average age of those durables. A depreciation factor can then be derived for each category of durables and applied to the respondent's estimates. The depreciation factor can be based either on an estimate from the respondent about how long they expect to keep those items, or on a standard factor established by the statistician or data analyst for general application.

Households often have insurance policies that provide cover against the loss of the contents of their dwellings, sometimes with major items listed and valued separately. Households are likely to be able to provide the value covered by insurance relatively easily, and this value can be taken as an estimate of the value of consumer durables owned, excluding motor vehicles. However, care needs to be taken to ensure that the insurance policy covers the same items defined as consumer durables in the wealth statistics. For example, a policy may cover valuables, which are not included in the wealth category of consumer durables, but may not cover outdoor furniture, which is included. Consideration also needs to be given to whether the insurance policy valuation covers the cost of replacing used items with new items, and how accurate households are likely to have been in establishing the value that is used for insurance purposes. The appropriateness of using insurance policy valuations may vary from country to country.

### 5.4.4. Valuables

Valuables are defined as goods whose primary role is as stores of value. Examples are precious stones and metals, fine jewellery, works of art, antiques, and stamp and coin collections.

Since valuables are stores of value, there are by definition active markets for valuables. However, individual items are often likely to have unique features whose value cannot necessarily be determined directly by reference to a standard price in a catalogue or

database of past sales. Therefore, in some cases a reasonably accurate valuation can be determined only by an industry expert. Households that own high-value valuables are likely to have them insured separately, and the insurance company will normally require a valuation for this purpose. It will normally be satisfactory to accept the respondent's estimate of the value of household valuables, using insured values where these exist.

#### **5.4.5. Intellectual property and other non-financial assets**

Other non-financial assets include intellectual property products (e.g. literary or artistic originals, or computer software) and contracts, leases and licences that meet the conditions for treatment as assets (e.g. marketable operating leases allowing a tenant to sub-let a building, or tradeable licences and permits to undertake specific activities). It will normally be satisfactory to value these assets by asking households how much they would receive if they sold these assets.

### **5.5. Financial assets**

#### **5.5.1. Currency and deposits**

Currency includes the notes and coins that are of fixed nominal value and issued or authorised by the central bank or government. It is sometimes known as cash, although the term cash is sometimes also used to include deposits with financial institutions that can easily be converted to currency. Deposits are claims that are represented by evidence of deposit: examples are transaction accounts, saving accounts, fixed-term deposits and non-negotiable certificates of deposit. Also included are special saving accounts, such as those relating to saving plans under which income taxes on funds deposited in the account can be deferred until money is withdrawn.

Deposits are in many countries the most common form of financial asset. This category comprises highly liquid assets that allow access to currency relatively quickly for performing economic transactions. Deposits can be classified into three subgroups in terms of the speed with which they can be converted into cash:

- *Overnight deposits*, when convertible into cash and transferable on demand without delay and penalty.
- *Agreed maturity deposits*, defined as non-transferable deposits which cannot be converted into currency before an agreed fixed term or which can be converted into cash before the agreed term by accepting some kind of penalty.
- *Redeemable at notice deposits* are non-transferable deposits without any agreed maturity, which cannot be converted into currency without a period of prior notice, without which the conversion into cash is not possible or possible only with a penalty.<sup>3</sup>

If household members own an unincorporated enterprise, it may be that currency and deposits used for household purposes are not kept separate from those used for business purposes. If the household cannot easily allocate currency and deposits into these two purposes, they should all be allocated to the major purpose. Currency and deposits allocated to unincorporated enterprise purposes should then be included in the net value of the unincorporated business, as described later in this chapter.

Currency and overnight deposits should be valued at their nominal value. Agreed maturity deposits should be valued at the present value of their expected redeemable value (assuming that that amount is higher than their redeemable value at the current time after penalty for early redemption). Redeemable at notice deposits should be valued at the

present value of the amount expected if notice of redemption were given at the current time (also assuming that that amount is higher than their redeemable value at the current time after penalty for redemption without notice).

Sample surveys provide a feasible way to obtain information on the amounts of these assets. It is recommended that information be collected separately for each deposit category in order to avoid under-reporting of the less-used accounts.

In some countries, a direct measure of the assets can be obtained using administrative personal data. Even if this source offers more precise data, some caution should be exercised since the aggregation of personal information at the household level may create duplications, for example in the case of joint account holders. Also, if one account is held by members of different households, it may not be clear how to share its amount among the households.

Bank administrative data are an alternative data source, which is particularly useful in the compilation of macro statistics. However, this information is often available only at an aggregated level. If it is available at the individual level, it is unlikely that the demographic characteristics of the holder will be available to enable matching to other data for the household. Therefore, these statistics are normally useful for reference values for an external validation of aggregate data.

### **5.5.2. Bonds and other debt securities**

Bonds and other debt securities are negotiable instruments serving as evidence of debt. Examples are government saving bonds, corporate bonds, commercial paper, state or municipal non-saving bonds, foreign bonds and other non-saving bonds, debentures, mortgage-backed securities, negotiable certificates of deposit, treasury bills and similar instruments normally traded in financial markets.

This category includes quite different fixed-income securities that can be classified according to the maturity date, the frequency of coupon payments and the nature of the issuer. Among these financial assets, government bonds usually have an important share. Corporate bonds, issued by resident enterprises and banks, also have a significant presence in household portfolios, while the other debt securities usually play a minor role.

The standard valuation method of fixed-income securities is to report the market price at the end of the reference year. The market value of a bond depends mainly on the value of the principal amount, the accrued interest, the length of time until the amounts are received, and the difference between the market interest rate and the interest rate of the security.

Sample surveys collect information on the stock of bonds and other debt securities held by households. However, respondents often report the face value of these securities instead of the market value. For bonds in particular, this difference is likely to be significant since the value of bonds sold in the secondary market fluctuates in response to interest rate changes.

A standard practice with survey data on fixed-income securities is to collect their face values from respondents and then revalue the face values by taking into account the difference between the market interest rate and the interest rate of the security. For this revaluation operation, it is recommended to collect the stock information separately for each of the most common fixed-income security categories (government bonds and bonds of listed and unlisted companies). In particular, it is a standard practice to classify government bonds by the type of payments (coupon vs. zero-coupon bonds), the type of interest rate (fixed vs. floating) or the maturity length (within a year or longer).

It is unlikely that information about bonds held by households could be supplied by the financial institutions issuing the bonds in a way that would enable the data to be linked to the households of interest.

### **5.5.3. Equity in own unincorporated enterprises**

*Equity in own unincorporated enterprises* comprises household members' share of the value of the non-financial assets plus financial assets less liabilities of unincorporated enterprises that those members both own (or partly own) and work in.<sup>4</sup> Equity in unincorporated enterprises in which household members do not work is included in the category of shares and other equity.

The most appropriate valuation for an unincorporated enterprise is its net market value, i.e. the amount that it could be sold for as an operating entity, including any business good-will and the like, less any liabilities. If it is unlikely that the business could be sold as an operating entity (because, for example, it is largely dependent on the unique attributes of the owner, or the business has no prospect of being profitable), the appropriate valuation is to sum the market value of the individual saleable business assets and deduct the amount needed to satisfy any outstanding business liabilities. The latter valuation approach can be applied to industrial land and buildings, livestock, inventories, machinery and equipment of various types (including company vehicles), intellectual property, cash and deposits of the business, and shares and other investments managed as an integral part of the business. Liabilities of an unincorporated business include business loans and accounts with business suppliers still to be paid. An unincorporated enterprise may have negative value because the value of the liabilities may be greater than the gross market value of the business assets.

The valuation of a household's equity in own unincorporated enterprises is normally obtained by sample survey from the household. The valuation may not be very accurate, for a variety of reasons, including because there may not have been recent sales of similar businesses. Also, respondents may need assistance in understanding what should and should not be included as part of this item, especially the boundary between this asset and other household assets such as real estate, motor vehicles, and cash and deposits. In some cases it may be very difficult to make this distinction.

### **5.5.4. Shares and other equity**

*Shares in corporations* are instruments and records acknowledging claims on the residual value of a corporation after the claims of all creditors have been met. They generally entitle the holders to a share in the profits of the corporations. Examples are publicly traded shares that are listed on an exchange and unlisted shares (i.e. private equity securities or unquoted limited liability companies).

*Other equity* comprises instruments and records acknowledging claims on the residual value of a non-corporate business after the claims of all creditors have been met. Examples are household members' equity in partnerships in which the household members do not work,<sup>5</sup> and equity in family trusts. Household members' equity in own unincorporated enterprises (i.e. unincorporated businesses which the members own or partly own and in which they also work), mutual funds and other investment funds is excluded.

For listed companies, the value of the assets should be based on the quotation prices of the shares. For unquoted companies and other equities, their value should usually

correspond to the current market value of the financial and non-financial assets of the owned business activity, net of its financial liabilities (and adjusted for the ownership percentage). In practice, obtaining such a valuation may be difficult for many households. First, anyone making a valuation will face the same issues as those described in the discussion above of equity in own unincorporated enterprises. Second, households that own shares in unquoted companies and the other equities included in this item may not be closely involved in the management of the businesses concerned and therefore not have access to the information required for the market valuation of their worth.

While households may have difficulty providing values for these items, it is unlikely that there are alternative sources of information that can be used.

#### **5.5.5. Mutual funds and other investment funds**

Mutual funds and other investment funds are collective investment schemes through which investors pool funds for investment in financial or non-financial assets. Examples are mutual funds, hedge funds, unit trusts, income trusts and other managed investment funds.

Investment fund shares are usually split into subcategories of funds classified according to their main support: money market funds, real estate funds, bond funds, mixed funds and equity funds. A common distinction is drawn between open-end investment funds and closed-end ones. Open-end investment funds are dedicated to small retail investors and for that reason are prevalent in many countries. Other open-end funds include funds reserved to qualified investors and hedge funds. Close-end funds are usually specialised for investments in real estate or securities. With open-end funds there is no restriction on the amount of shares that can be issued from the fund, while for close-end funds the number of shares is fixed.

The standard valuation method is to report market values at the reference point. Household data are collected in sample surveys. It should be noted that the distribution of these financial instruments is highly concentrated in the hands of rich households. Unfortunately, these households usually have both a lower propensity to participate in surveys and a greater under-reporting behaviour.

#### **5.5.6. Life insurance funds**

Life insurance funds are claims of policy holders on enterprises offering life insurance or providing annuities. These claims include life insurance entitlements where the insurer guarantees to pay a beneficiary an agreed minimum sum or an annuity at a given date, or earlier if the insured person dies beforehand. Although life insurance has an insurance component, it is primarily seen as a saving and investment vehicle, and there is a guaranteed return whether or not the event insured against (the death of the insured person) actually occurs. An entitlement to a life insurance payout at the policy maturity date is therefore regarded as an asset. Term insurance providing benefits in the case of death within a given period (e.g. from an accident) but in no other circumstances is regarded as non-life insurance, as recommended in the SNA (para. 17.6), and is therefore excluded.

##### ***Life insurance policy before maturity***

This wealth asset is based on a life insurance contract between an insurance company and a policy holder. The holder pays a premium, either regularly or as a lump sum. The asset is owned by the policy holder until it matures, even if the beneficiary is a third party to whom the pay-out is transferred when the policy matures.

The pay-out to the beneficiary of a life-insurance policy can be determined in a number of different ways, depending on the nature of the policy. At one extreme, the pay-out is largely determined by the current equity of the policy holder in the fund, plus a true insurance component against early death which diminishes according to a set schedule as the policy ages. The “true” insurance component may reach zero by the time of the specified maturity of the policy. The benefit paid is therefore largely determined by the yields obtained from the investment portfolio of the fund, especially as the policy nears the maturity date, and such policies are described as unit-linked. At the other extreme is an index-linked policy, where the total benefit to be paid is stipulated from the commencement of the policy in terms of a current value that is increased over time in line with an indicator such as the consumer price index. The true insurance component is greater in these policies, and the proportion of premiums going to policy holder equity consequently lower, because the policies insure against adverse investment outcomes as well as early death. Other policies lie somewhere in-between, with lower and upper caps on the amount that will be paid out.

In some cases the company allows a policy holder to borrow against part of the insurance cash value. The amount eventually paid out on the policy needs to be reduced by any such borrowings that have been made.

A policy holder in a life-insurance scheme explicitly pays into the scheme by making premium payments and implicitly pays into the scheme because the fund earns investment returns on equity already in the fund. Notionally, the aggregate of the two forms of payment are disbursed in three ways.

First, the insurance company will take some part of the aggregate as compensation for operating the scheme and to pay any tax and other costs incurred.

Second, there is a true insurance component, which is used to provide cover for when policy pay-outs are greater than policy holder equity at the time the insured person dies.

Third, there is a residual component, i.e. an addition to the policy holder’s equity in the fund. If the fund has had poor investment returns, this residual may be negative and policy holder equity may decline. It is the notional policy holder equity in the fund that should be included as a financial asset of the household.

While the policy holder’s equity in the fund can be described notionally, this may not be consistent with the way that insurance companies actually structure their accounts, at least at the policy holder level. Even if insurance companies do have values that approximate the concepts described above, they may not appear on the annual statements provided to policy holders, and almost certainly will not appear labelled with the terms used above. An approximation to the required values is most likely to appear on the annual statement of a unit-indexed policy. It may indicate that the benefits payable on death at the time of the statement comprise an insured sum and various other components, such as annual bonuses. Current equity in the fund can be taken as the total benefit payable, minus the insurance component as indicated by the insured sum. As a policy ages, the insured sum is likely to decline, and the other components will increase as equity increases.

Life insurance policies sometimes have a surrender value. To discourage policy holders from exiting the policies before they mature, the surrender value is likely to be discounted significantly below the actual equity value as defined above. Nevertheless, it may be possible to assume a relationship between the surrender value and the equity value and use it as a basis for estimation.

The discussion above assumed that the benefit to be paid from a life insurance policy that has not yet matured is in the form of a lump sum. If it is in the form of an annuity, the present value of the annuity should be treated in the same way as a lump sum of equivalent value.

In general, data collectors will need to negotiate with the life insurance industry of the country to determine the best way of approximating policy holder equity value, either through rules of thumb that can be applied to data contained in annual statements or through access to insurance company records when authorised by respondents.

### **Annuities**

An annuity is an obligation for a life insurance company or similar institution to make a stream of payments to a beneficiary in exchange for an initial deposit of money. The deposit may be the benefit received on the maturation of a life insurance policy, as discussed above, or it may not be related to a previous life insurance policy. It is an asset of the beneficiary, rather than of the original policy holder, if they are different; a capital transfer from the original policy holder to the beneficiary takes place at the time the annuity commences.

The nature of the stream of payments varies widely. At one extreme, it is a guaranteed regular payment at least once a year for the remainder of the beneficiary's life, where the payment may be for a fixed amount or it may be linked to the consumer price index or some other index. At the other extreme, the initial deposit is simply an investment fund from which the beneficiary makes withdrawals. It is differentiated from other types of investment fund because the beneficiary normally has to make a minimum withdrawal each year, and there may also be a cap on the maximum withdrawal that can be made. Investment earnings within some annuity funds may attract taxation concessions, and may only be available to people of retirement age.

The asset value of an annuity depends on the type of annuity. For an annuity with guaranteed payments for the remainder of the beneficiary's life, the data collection agency needs to derive the asset value, which is equal to the present value of the payments expected to be made. Payments expected to be made are derived by using actuarial life expectancy data for the beneficiary and the schedule of payments, which the beneficiary should normally be able to provide. For an annuity that is essentially an investment fund, the asset value is equal to the equity remaining in the fund, which would normally be reported in an annual statement received by the beneficiary.

Sometimes annuities have more than one beneficiary, and the payment stream may be reduced when one of the beneficiaries dies. In these cases, the calculation of present value needs to include the appropriate actuarial probabilities and potential payment streams that are covered by the terms of the annuity.

#### **5.5.7. Pension funds**

Pension funds are claims of members and account holders on pension schemes, sometimes also known as retirement plans or superannuation schemes. These claims include entitlements in both defined benefit schemes (where the formula for defining a member's pension is agreed in advance) and defined contribution schemes (where the amount of the pension depends on the performance of the assets acquired with the member's contributions). The schemes may be compulsory or voluntary, and government or private. Examples are current balances of accounts with public, occupational and industry schemes; personal pension accounts with financial institutions (e.g. superannuation or



retirement savings accounts that meet conditions specified under pension fund or tax laws, and tax-deferred retirement accounts); and, in countries where permitted, private investment funds meeting specified pension fund requirements. Entitlements in pension schemes for a government's own employees are included, provided such schemes are distinct from social security and have separate accounting information. Other pension entitlements, accruing under government social security schemes, are excluded for reasons discussed in Chapter 3.

For many individuals, claims on pension funds are one of their largest assets – without some measurement of this asset, any estimate of total wealth is an underestimate of the true wealth of the household. However, as for life insurance, the assets held by households' pension funds are not tradable, and there is no market that can be used to determine the current value of these assets in a direct way. It is therefore recommended to use a more indirect approach to valuing these assets, especially for defined benefit schemes and hybrid schemes, which have a defined contribution element and a defined benefit element. The remainder of this section provides an overview of the approach to be taken in valuing pension entitlements. It is necessarily a broad description because of the variety of pension schemes in existence, and the need to adopt a methodology that is appropriate and feasible for the country concerned. Box 5.5 is a case study of the estimation of pension wealth in Statistics Canada's Survey of Financial Security, and Box 5.6 describes measures of private pension wealth from the Wealth and Assets Survey for Great Britain.

### ***Defined contribution schemes***

In a defined contribution scheme, employer and/or employee contribute to a pension fund throughout the time of an employee's eligible employment. The contributions are invested and the employee's equity in the fund accumulates over time. In some schemes, the employee must withdraw his or her entitlement from the fund on retirement. In other schemes, it may be possible to leave part or all the entitlement there as an investment until a later date. In some schemes, the entitlement must be rolled over into an annuity.

In the simplest case, the pension benefit received from the scheme equals the employee's equity in the fund at or after retirement. If the employee has not yet retired, or has retired and not taken all the benefit available, the current value of this asset is simply equal to the equity accumulated in the fund at the current time and not yet withdrawn or rolled over into an annuity. The value of the accumulated equity would normally be available from an annual statement received by the employee or directly from the pension fund manager if permission is given by the respondent. Whether or not the lump sum will be converted into an annuity in the future is not relevant to the estimation of the asset value, since the lump sum is a well-defined asset at the point at which it becomes due.<sup>6</sup> If, on the other hand, a respondent is currently in receipt of an annuity that has been converted from or rolled over from a defined contribution fund entitlement, the asset value of the annuity should be estimated as discussed earlier in this chapter.

In some schemes, some or all of the employer's contribution may be made only at the time that the employee retires, perhaps as a multiple of employee equity already in the fund or as a function of the length of time that the employee has been employed. There may be other reasons why the final benefit is not simply equal to the equity that has accumulated in the fund for the employee over time. For example, it may be possible to convert the equity in the fund into an annuity at more favourable rates than would be available in the commercial market, or the benefit may include health insurance that is not

### Box 5.5. Estimating the value of pensions in Statistics Canada's Survey of Financial Security\*

#### Types of pensions valued

SFS estimated the value of occupational pension plans. It did not include an estimate of the social security wealth from the Canada/Québec Pension Plans (C/QPP). In order to produce a reliable estimate of the wealth associated with the C/QPP, it was ideally necessary to obtain the information on work history from the administrative file for these plans, which Statistics Canada does not have access to. SFS also included an estimate of the value of personal retirement savings held in Registered Retirement Savings Plans (RRSPs). This information was reported by the respondent from financial statements provided to them.

#### Data sources

SFS used a number of sources to estimate the value of occupational pension plans such as:

**Respondents:** Every attempt was made to include in the survey questions that could, with reasonable ease, be answered by the respondent (e.g. demographic information, earnings). Respondents were not asked about the provisions of their occupational pension plan, because of concerns that they would not be familiar with these details. Whenever possible, they were asked to consult their own records (e.g. financial statements, tax forms).

**Tax records:** Respondents were asked for permission to access their tax records from the Canada Revenue Agency (CRA – the agency that administers the federal tax laws). Permission was provided by about 80% of respondents. This information was vital to the estimation of pension wealth, as it included the identification number of the pension plan to which the respondent belonged. With this information it was possible to confirm that a respondent did belong to an occupational pension plan.

**Database on occupational pension plans:** Statistics Canada conducts a survey of occupational pension plans (entitled Pension Plans in Canada [PPIC]). This database contains information on the provisions of these plans. It also contains the same plan identifier used by the CRA. Using this identifier, it was possible to identify the plan characteristics (e.g. benefit rate) required to estimate the pension value. Without this information a much more generalised estimation process would have been required. For those respondents who did not provide permission to use their tax records, the provisions of typical plans, determined based on the industry of employment, were identified and used in the estimation process.

**Actuarial data:** Actuaries provided the required information on interest rates and life expectancy as well as the factors used to estimate pension wealth.

#### Estimation method

The estimation method is described in detail in the report Survey of Financial Security: Methodology for estimating the value of employer pension plan benefits.

\* Pension wealth was first estimated in Canada's Household Asset and Debt Survey (SFS) in 1999.

purchased using equity accumulated in the fund. In these cases, the amount reported as employee equity in the fund at the current time needs to be adjusted according to procedures that will determine the final retirement benefit of the employee. If the adjustment relates to the employee's length of service, the current length of service (rather than the expected final length of service) should be used.

### Box 5.6. Measures of private pension wealth from the Wealth and Assets Survey for Great Britain

Private pension wealth is one of the four categories of wealth (alongside property wealth, financial wealth and physical wealth) considered by the Wealth and Assets Survey (WAS) for Great Britain. Private pensions are defined as all pensions that are not state basic retirement or state earnings-related.<sup>1</sup> They include occupational and personal pensions, including those for public sector employees. The WAS collects information about membership of private pension schemes, including the types of these pensions and the value of the assets held in these schemes, at the time of the survey. In addition, information is collected on private pension schemes from which the respondents expect to receive an income in the future on the basis of contributions made by a former spouse and also on private pensions from which they were receiving an income at the time of the survey (including pension income based on a former spouse's pension membership).

Respondents are asked either for information that allows analysts to calculate their pension wealth or to estimate the value of their pension pots. However, where possible, respondents are encouraged to consult recent statements from their pension provider to improve the accuracy of their responses. Like other areas of the WAS, point estimates of values are asked through banded values if respondents are unable to give a point estimate. Any missing data in any of the variables that feed into the pension wealth measures are imputed using recognised statistical imputation methodologies.

Calculating the value of private pensions is more complicated than measuring the other forms of wealth. There are different categories of private pension wealth to which slightly different valuation methodologies are applied in order to arrive at comparable figures. These categories are defined benefit pensions, pensions and personal pensions to which the individual was contributing at the time of the interview, additional voluntary contributions (AVCs) made to current pensions, retained rights in defined benefit (DB) and defined contribution (DC) schemes, pension funds from which the individual was drawing an income through income drawdown, pensions in payment, and pensions expected in the future based on the pension contributions of a former spouse.

The exact methodologies used for calculating these measures are explained in the main reports of the survey.<sup>2</sup> Broadly speaking, the pension wealth figures from the WAS represent the amount of money that an individual would have needed to set aside at the date of interview to provide themselves with the same income stream throughout retirement as that which they will receive from their private pensions, given the pension rights accrued at the date of the interview.

All wealth from state pensions is excluded from the WAS pension figures. The exclusion of state pension wealth leads to two issues relating to the comparability of pension wealth across individuals.

- Firstly, some individuals would have been “contracted-out” of the second tier of the state pension system, receiving rebates of their National Insurance Contributions that would have been invested in their private pension. For these individuals, this element of pension wealth will show up in the private pension wealth figures, whereas for those who did not contract out of the second tier, this wealth will show up in state pension wealth.
- Secondly, some DB pensions are “integrated” with the state pension system – i.e. the pension income that members will receive from their private DB scheme will be reduced by the amount of their entitlement to state pensions. To this extent, for some individuals the DB pension wealth shown below will include some wealth that ought to be labelled as state pension wealth and excluded from these figures. However, knowledge of scheme integration

**Box 5.6. Measures of private pension wealth  
from the Wealth and Assets Survey for Great Britain (cont.)**

has been found to be extremely low and so no attempt was made in the WAS to distinguish individuals whose schemes were integrated from those whose schemes were not.

*Employer-provided defined benefit pensions: Current members.* Some employers offer their employees the opportunity to join a pension scheme from which the income received will depend on some function of the member's years in the scheme multiplied by some fraction (typically 1/60th or 1/80th), multiplied by some measure of the member's salary. These types of schemes are known as defined benefit pensions. Individuals who were in employment when surveyed were asked if they were at that time a member of such a scheme offered by their employer.

*Additional voluntary contributions to employer-provided defined benefit pensions: Current members.* Individuals who belong to a DB scheme offered by their employer can choose to build up extra pension entitlement by making Additional Voluntary Contributions (AVCs). These contributions are placed in a separate fund and the pension income derived from them at retirement will depend on the investment return earned on this fund. Very few individuals reported having made AVCs. Only those who were members of employer DB pensions would have been able to make this type of pension contribution.

*Employer-provided defined contribution pensions: current members.* Some employers offer their employees the opportunity to join a pension scheme from which the income received will depend on the contributions paid in and the investment return received on those contributions. These types of schemes are known as defined contribution pensions. Individuals who were in employment when surveyed were asked if they were members of such a scheme offered by their employer.

*Personal pensions: Current members.* Individuals (including the self-employed, those not currently working, those not offered a pension scheme by their employer and also, in some cases, those who are) are eligible to make contributions to personal pensions should they choose to do so. Personal pensions are usually purchased from a pensions or insurance company by an individual, and as such, in most cases, do not attract any employer contributions. This type of pension also includes Group Personal Pensions and Stakeholder Pensions offered by employers where individuals choose not to classify these as employer-provided or occupational pensions.

*Retained rights in private pensions.* Some individuals have a private pension scheme to which they can no longer make contributions but from which they are not yet drawing an income. This will typically be the case when an individual has been a member of their employer's pension scheme and then left that employer. The proportion of individuals with this type of scheme therefore increases with age, before falling again once individuals start cashing in their retained rights and drawing their pension incomes.

*Private pensions in receipt.* Some respondents will be receiving an income from a private pension at the time of interview. This includes private pensions received from a former spouse. The wealth from pensions in receipt is calculated as the present value of the future income stream that the individual will receive over their remaining life.

*Total Private Pension Wealth.* Private pension wealth is calculated on a person level basis – this being the most meaningful level for pensions. However, in order to calculate household pension wealth, the pension wealth of every member of a household is combined. This also feeds into measures of total household wealth.

1. For more information, see "Wealth in Great Britain: Main Results from the Wealth and Assets Survey 2008-10". [www.ons.gov.uk/ons/rel/was/wealth-in-great-britain-wave-2/2008-2010--part-1-/index.html](http://www.ons.gov.uk/ons/rel/was/wealth-in-great-britain-wave-2/2008-2010--part-1-/index.html).
2. [www.ons.gov.uk/ons/rel/was/wealth-in-great-britain-wave-2/2008-2010--part-2-/index.html](http://www.ons.gov.uk/ons/rel/was/wealth-in-great-britain-wave-2/2008-2010--part-2-/index.html).

### ***Defined benefit schemes***

The benefit that an employee receives from a defined benefit scheme is not directly tied to the value of the contributions made to the fund and to the associated investment earnings by the fund. Rather, the benefit is defined by other factors such as the employee's salary (either shortly before retirement or over a longer period) and length of employment.

If a participant in a defined benefit scheme has not yet retired, their current pension asset is based on the pension benefit that they would receive from this scheme at retirement time (if they were not employed under the scheme between the current time and the time of retirement, in other words, as if they earn no additional benefits in the scheme between the current time and retirement). After the nominal value of the benefit at retirement is derived, it needs to be discounted to a present value to give the current value of the participant's entitlement.

The benefit at retirement may be derived partly or in its entirety as a lump sum, for example as a multiple of the final salary. It is then straightforward to derive the present value of that lump sum. In some cases the lump sum may be converted into an annuity, but that does not necessarily need to be considered in the derivation of current asset value, as discussed above for defined contribution scheme benefits.

The benefit at retirement may also be defined partly or in its entirety as an income stream or annuity, for example as a percentage of final salary to be paid monthly for the remainder of the participant's life. In this case, each payment needs to be converted to its present value. The adjusted values can then be weighted by the probability of each of them being paid, as based on actuarial information, and the average aggregate value derived. This value is the current asset value of the pension scheme entitlement.<sup>7</sup>

When defined in terms of an income stream, defined benefit pension scheme entitlements often also provide survivor benefits that are paid if the employee has a spouse or dependent children at the time of his or her death. If so, these also have to be included in the possible stream of payments, with the appropriate probabilities attached.

If a respondent is currently in receipt of an annuity that is being paid from a defined benefit pension scheme or that has been rolled over from a defined benefit pension fund entitlement, the asset value of the annuity should be estimated as discussed in the annuities sub-section in this chapter.

### ***Retirement age***

There is normally a minimum retirement age for pension schemes, although participants may often choose to work beyond that age. Some schemes also have a maximum retirement age. There are two approaches that can be taken in defining retirement age when deriving entitlements in pension schemes:

- The first approach is to use the minimum retirement age for people who are below that age and current age for people who are at or above the minimum retirement age but have not yet taken their benefit.
- The second approach is to use the minimum retirement age or the age that the respondent nominates as their expected retirement age, whichever is the greater.

The advantage of the first approach is that it better reflects entitlements currently available and minimises the need to project into the future. The advantage of the

second is that it may better reflect the basis of economic decision-making in the household.

### ***Benefits before retirement age***

Pension schemes normally include special provisions for the benefits to be provided if the scheme participants are unable to work until retirement age because of incapacity or death. The benefits are normally greater than the entitlement in the fund that would apply if they voluntarily stopped working at that age. Most scheme participants will not receive this extra benefit, and therefore it need not be treated as an asset, but rather as a form of accident insurance that is not included in wealth. However, for those recipients who do receive benefits from this insurance, there is an increase in wealth equal to any additional lump sum, pension or other annuity that they receive.

Some pension schemes allow participants to make early withdrawals, perhaps with some penalty. The ability to do so does not alter the value of the entitlement in the scheme, but any early withdrawals actually taken will obviously impact on the value of the remaining entitlement.

### ***Collecting data***

If the present value of a pension fund is provided to scheme participants in an annual statement, it can be relatively easy to collect the detailed information required in the context of a wealth survey. Nonetheless, it will be necessary for the survey organisation to have researched the various pension options in their country and to structure the survey questions so as to collect information based on the types of funds available in that country.

Generally, the challenge for wealth surveys is that very few individuals can provide this type of detailed information in the context of an interview. In such cases, the survey organisations must therefore look for another way to collect the information required to estimate the respondent's claim on a pension fund.

Other than getting the information on their pension plans from the individuals covered by the plans, the other option is to obtain the information from their employer or another administrative source. In the case of government-administered pension schemes,<sup>8</sup> this should be fairly straightforward, since there normally is a common set of provisions that applies to all participants in the plan, though a fair amount of research may be required on the part of the survey organisation to get the detail required to estimate the value of the pensions.

For employer-sponsored schemes, it can be quite a challenge to get the detailed information that is required. If the survey organisation already has information on employer-sponsored schemes, it may be relatively simple in the context of the survey to collect some key information on the pension plans an individual is covered by, and then link to the information they have on the employer-sponsored schemes in order to get the detail required to estimate the respondent's claim on a pension fund. Statistics Canada uses this approach to estimate the value of pensions for its *Survey of Financial Security* (see Box 5.5).

If a survey organisation does not have the information on employer-sponsored schemes, the organisation could contact the employers of the respondents to the survey to obtain the details on the pension scheme based on summary information provided by the respondents

(Box 5.6). However, this could add significantly to the costs of the survey and result in delays in producing the estimates of total wealth, including the values of pensions.

### 5.5.8. Other financial assets

Other financial assets are miscellaneous assets including loans made to other people except other members of the same household, option contracts, other types of financial derivatives and other accounts receivable. This residual category may comprise very different financial assets. Its importance in the household portfolio is usually marginal. As for all financial assets, the valuation method is usually to report at market value. For loans made to other people, this value should include any interest accrued to date, but not interest that may accrue in the future.

In survey data, the standard practice is separately to collect the private loans, that is, loans to friends or relatives, and then have a generic residual category for all other loans not already recorded.

## 5.6. Liabilities

The liabilities of households are primarily loans that have been taken out by household members. Loans are categorised according to the purpose of the loan so that interest payments on those loans can be matched to the income streams that are derived from ownership of the associated assets. For example, a mortgage on the household's principal residence is classified to an owner-occupied residence loan if the mortgage is primarily for the purpose of constructing, purchasing or improving the residence; but if it is primarily for purchasing a motor vehicle, it is classified as a vehicle loan; and if it is primarily to fund an overseas holiday, it is a consumer credit loan included in the other loans and liabilities. With this treatment, only interest on loans that have primarily been used to provide the household with a dwelling is deducted from gross imputed rent when deriving the income item "net value of housing services provided by owner-occupied dwellings" (see Chapter 3 of the ICW Framework for more detail).

While loans are categorised according to the purpose of the loan, it is also of interest to know the collateral or security used to obtain the loans. Therefore, the form of collateral is recommended as a secondary criterion for the classification of loans. In order to help respondents to provide more precise information, it is recommended organising the loans section of the questionnaire by classifying each debt for its purpose rather than for the collateral pledged. Clearly, the combination of the information on the purpose of the loan and on the collateral used allows reorganising *ex post* the information from a collateral perspective.

In some countries (i.e. Belgium, France, Italy and Spain), a central credit register collects information on customers' borrowings from the financial institutions for quantifying the risk position of each customer *vis-à-vis* the banking system. The information included relates to all loans as well as any overdue payment arising from them. However, often there exists a minimum threshold for reporting a loan to the register, so a problem may arise with sample representativeness. Furthermore, a person is the reference unit of these administrative archives; if they are to be used to produce household statistics, there needs to be some way of linking the person data to household information, as discussed in Chapter 4.

### 5.6.1. Real estate loans

*Owner-occupied residence loans* are loans for the purpose of constructing, purchasing or improving the household's principal residence and any other owner-occupied residences they may have, whether or not the loans are secured against the residence. Examples are home mortgage loans, reverse mortgage loans, home equity lines of credit for home improvement and investment purposes, money borrowed for a deposit on a home purchase, and bridging finance taken out before a home loan is obtained.

*Other real estate loans* are loans for the purpose of constructing, purchasing or improving other dwellings, buildings and land (other than own unincorporated enterprise properties). Examples are loans for the purchase of holiday homes and loans for the purchase of rental properties for investment purposes.

Among the major types of household liabilities, home mortgages represent the largest share of total outstanding debt: in 2009, this percentage ranged from 42% in Italy to 75% in the United States.<sup>9</sup> However, not all home mortgages are used primarily for the purpose of constructing, purchasing or improving the household's owner-occupied residences, and not all owner-occupied residence loans are mortgages. In particular, households often borrow from relatives in other households.

Of the means of borrowing available to households, home mortgages are usually the most effective in terms of cost of financing. The redefinition of the contractual terms of the primary residence loan is often much easier with respect to other debt refinancing.

In general, household liabilities are valued at the outstanding balance of the debt, including any outstanding interest that is currently due, i.e. any interest that has already accrued but has not yet been paid. In survey data, the direct method of measurement of the amount of debt outstanding is the respondent valuation. In some countries, this quantification is not difficult for the respondent. While the respondent may not know how much of a regular mortgage repayment is principal and how much is interest, they are likely to get an annual statement from the financial institution that reports the amount of principal still outstanding. In countries where this quantification could be difficult, additional information is needed. This would include the initial amount borrowed, the cost of mortgage repayments in the reference period (which also includes interest), the year in which the mortgage was obtained, the total contract length (or term) of the mortgage, and the interest rate and its characteristics (i.e. fixed or floating); such information will allow the researcher to internally validate the declared outstanding balance or to impute it.<sup>10, 11</sup>

### 5.6.2. Other investment loans

Other investment loans include a range of items:

- *Financial asset loans* are loans used to purchase shares and other financial assets, excluding loans used to finance purchases of, or the operations of, own unincorporated enterprises. Loans used for own unincorporated enterprises are deducted when deriving the value of equity in those enterprises and are not included separately as a liability of the household.
- *Valuables loans* are loans used to purchase art works, jewellery and other valuables primarily as stores of value.



- *Intellectual property and other non-financial asset loans* are loans used to purchase intellectual property and other non-financial assets not included elsewhere (excluding loans for own unincorporated enterprises).

As for real estate loans, other investment loans are valued at the amount currently outstanding, i.e. the amount of principal still to be paid and the value of any currently accrued interest still outstanding.

The data would normally be obtained from survey respondents. It is recommended to make an initial division of all the liabilities involving business activities into medium and long-term debts (i.e. over 12-18 months) and short-term debts (less than 12-18 months). The medium and long-term loans are more often mortgages, while short-term debts consist in bank account overdrafts or in loans against personal guarantee. The distinction in terms of the loan maturity implicitly not only reflects the characteristics of the collateral and the purpose, but also facilitates the calculation of the outstanding debt. In fact, without consulting accounting records, a self-reported evaluation of the outstanding debt in a bank account overdraft may be very inaccurate.

### 5.6.3. Consumer durable loans

- *Vehicle loans* are loans for the purchase of cars, motorcycles, boats, aircraft, etc., excluding vehicles used primarily for the business of an own unincorporated enterprise. Loans for vehicles such as motor homes, caravans or house boats that are used as a household's principal dwelling are categorised as principal dwelling loans, but the collection of the data is the same as for regular vehicle loans.
- *Other consumer durable loans* are loans for the purchase of other consumer durables such as furniture, electrical appliances, clothes, etc., excluding vehicles used primarily for an own unincorporated enterprise.

As for other loans, consumer durable loans should be valued at the amount currently outstanding, i.e. the amount of principal still to be paid and the value of any currently accrued interest still outstanding. However, the loans used to purchase motor vehicles and other consumer durables are more frequently obtained through short-term financing arrangements such as instalment credit, which may make it more difficult to identify how much principal is outstanding. For example, the financing arrangement may specify that regular monthly payments are made over two or three years, and during the life of the contract there may be no monthly or annual statement reporting the extent to which past monthly payments have paid off principal and the extent to which they have met accrued interest liabilities. It may be possible to derive the amount outstanding by obtaining the value of the original loan, the interest rate being charged, and the amount already paid. If this is not possible, or if the procedure does not seem cost-effective, a more approximate method can be considered. For relatively short-term contracts covering only a few years, an adequate approximation to the preferred value can be obtained by the *pro rata* method in which the total amount to be paid under the loan contract is multiplied by the proportion of regular payments already made. This is particularly appropriate if the loan is a fixed-interest loan rather than a variable-rate loan, and if interest is worked out as simple interest rather than compound interest. Alternatively, an estimate can be made of the present value of the repayments scheduled to be paid in the future.

Consumer durable loans may also be in the form of a bank overdraft or credit card debt. Documentation on the amount of debt outstanding for these types of loan will normally be available. However, these types of loan may provide financing for many different purposes. Respondents should be asked to nominate the main use of overdraft and credit card debts, and the entire debt allocated to that purpose category.

#### **5.6.4. Education loans**

Education loans are loans to cover study expenses. These loans are prevalent in countries where the tuition fees of college or graduate school are substantial. Education loans can be subsidised and, in this case, can be considered as a form of financial aid that must be repaid with a low interest rate. Education loans come in two major categories, i.e. student and *parent loans*. In the former case, it is recommended to include these loans only if the student is a member of the household according to the survey definition (e.g. she/he lives in the household for most of the year).

#### **5.6.5. Other loans and liabilities**

Other loans and liabilities includes all loans and liabilities of the household not included in previous items (excluding loans and liabilities of own unincorporated enterprises), such as loans taken to purchase consumption items (e.g. food or holidays), to purchase valuables (except if they are purchased primarily as an investment), to pay tax obligations or make a capital transfer to another household (e.g. to help a relative purchase a dwelling) or to make a loan to another household, for example because the first household has better security or access to a better interest rate than the other household.<sup>12</sup>

In practice, it is likely to be difficult to decompose credit card debt, bank overdrafts and similar types of ongoing loan facilities into separate categories. If that is the case, they should be allocated to the major purpose for which they are normally used. If the household is unable to nominate the major purpose of such a loan, it should be included there.

### **5.7. Summary**

The key highlights from this chapter can be summarised as follows:

- The unit of analysis when studying micro wealth data may be the household or a smaller unit, including the individual. However, whatever the unit of analysis, the data items studied are normally household variables because of the sharing that takes place within households. The measurement units, or units about which data are collected, need to support the units to be used in analysis of the data.
- Ideally, wealth data relate to the stock of wealth held at a single point in time, i.e. the reference point. It may be the end of the reference period used for comparable income and consumption data, or it may be the mid-point of the period.
- Household assets and liabilities should be valued at their current value in the market at the reference point date, or at the closest equivalent to this. This can, however, be difficult to establish. There may not have been recent transactions in assets or liabilities identical to those that need to be valued, and there may be no markets for certain assets or liabilities that are not new. Some assets, such as pension entitlements, cannot be traded. In all these cases, it is necessary to estimate an approximation to a current market value, with different approaches used for different types of assets.

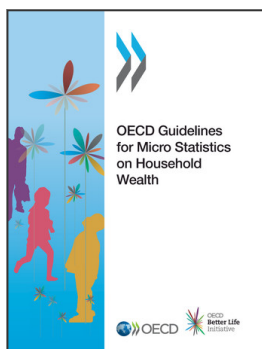
- If the historical cost of an asset is known, it may be possible to work out the approximate current market value by adjusting the historical value by a relevant price index. It may also be necessary to make an allowance for depreciation in the case of a non-financial asset that has a finite life and wears out over time. For loans, it may be possible to take the original value of the loan and work out how much the value of the loan has reduced (or increased) if the interest rate(s) and schedule of payments are known.
- It may be possible to estimate how much it would cost to replace a used non-financial asset with a new one, and make adjustments to reflect the age and depreciation of the asset.
- For assets such as dwellings, which normally have some features that make them unique to some degree, it may be necessary to obtain an estimate of the likely market value on the basis of actual market values for assets that are as similar as possible. The estimate may be made by an expert or by the household.
- Some assets, such as pension entitlements, cannot be traded and are defined in terms of a cash flow to be paid in the future. In order to derive a current asset value, it may be necessary to estimate the present value of the cash flow expected to be received from the asset over time.
- Some loans involve a series of set payments, and during the life of the loan it is difficult to determine how much principal is still outstanding, i.e. what the current value of the liability is. In such cases it may be necessary to estimate the present value of the loan repayments still to be made. Alternatively, for short-term loans it may be sufficient to assume that the loan principal is paid off evenly over the period of the loan contract.

### Notes

1. Owner-occupied residences are usually houses or flats/apartments/condominiums. Sometimes owner-occupied apartments/condominiums are owned as part of a co-operative, without occupants having separate title to the individual dwelling in which they live. However, tenants and lodgers do not fulfil the condition for owning their own residence.
2. If the household does not pay market rent to the enterprise for use of the dwelling, micro income statistics regard the difference between the value of the market rent and any rent actually paid as dividend income in kind.
3. Some classification problems are associated with non-negotiable certificates of deposit, which are more similar to long-term bonds in terms of characteristics, but are classified within deposits due to the lack of a secondary market.
4. Income from that work is regarded as self-employment income.
5. These investors are sometimes known as “sleeping” or “silent” partners.
6. This assumes that the annuity is purchased at more or less commercial rates. If the beneficiary can purchase the annuity through the pension scheme at significantly more favourable rates than available in the commercial market, some additional adjustment may be needed.
7. The current value of this pension scheme entitlement can be viewed as approximately the amount of money the participant would have to set aside now in a conservative investment fund so that at the time of retirement he or she could withdraw the invested money and buy an annuity with the same income flow as would be provided by the pension scheme.
8. Entitlements to pensions paid from social assistance and social security schemes are not included in wealth. As discussed in Chapter 3, only entitlements in employment-related social insurance schemes and private pension schemes are treated as financial assets. However, an employment-related social insurance scheme may be administered by the government.
9. Sources: OECD (2011), “Household wealth and indebtedness”, Economics: Key Tables from OECD, No. 18 (<http://dx.doi.org/10.1787/2074384x-table18>) and Bank of Italy (2011), “Household Wealth in Italy

– Year 2010”, Supplements to the *Statistical Bulletin*, No. 64 ([www.bancaditalia.it/statistiche/stat\\_mon\\_cred\\_fin/banc\\_fin/ricfamit/2011/en\\_suppl\\_64\\_11.pdf](http://www.bancaditalia.it/statistiche/stat_mon_cred_fin/banc_fin/ricfamit/2011/en_suppl_64_11.pdf)).

10. If the original loan was refinanced, the information collected should refer to the characteristics of the latest refinancing.
11. For loans to purchase an owner-occupied residence, it is recommended that the original acquisition price also be collected. This information allows the calculation of important economic indicators such as the loan-to-value ratio. Survey field experiences have shown that directly requesting this information is subject to significant rounding and recall errors.
12. The first household would also have a financial asset equal to the value of the loan to the other household.



**From:**  
**OECD Guidelines for Micro Statistics on Household Wealth**

**Access the complete publication at:**  
<https://doi.org/10.1787/9789264194878-en>

**Please cite this chapter as:**

OECD (2013), “Measurement guidelines for standard components of household wealth”, in *OECD Guidelines for Micro Statistics on Household Wealth*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/9789264194878-8-en>

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to [rights@oecd.org](mailto:rights@oecd.org). Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at [info@copyright.com](mailto:info@copyright.com) or the Centre français d'exploitation du droit de copie (CFC) at [contact@cfcopies.com](mailto:contact@cfcopies.com).