Household Surveys and the National Accounts

An overview of uses

of household survey data in

National Accounting

Revised Draft

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List of Abbreviations

COICOP   Classification of Individual COnsumption by Purpose
CPI   Consumer Price Index
CWIQ   Core Welfare Indicators Questionnaire

DHS   Demographic and Health Survey

FISIM   Financial Intermediation Services Indirectly Measured

GDP   Gross Domestic Product

HBS   Household Budget Survey
HIES   Household Income and Expenditure Survey (used in this note also as a generic description of broad household surveys)

ICP   International Comparison Project
ISIC   International Standard Industrial Classification of All Economic Activities

LFS   Labour Force Survey
LSMS   Living Standards Measurement Survey

NGO   Non-Government Organisation
NPISH   Non-Profit Institutions Serving Households (the formal name of the institutional sector commonly described as NGS's)
NSS   (Indian) National Sample Survey

OECD   Organization of Economic Cooperation and Development

SNA   System of National Accounts

SUT   Supply and Use Table

VAT   Value Added Tax (a consumption tax)

Household Surveys and the National Accounts

1. Introduction

The purpose of this note is to describe the many possible uses of household surveys (HIES in this document) in the compilation of the national accounts. The possibilities for use of the data in the national accounts depend on both the data contents of the available HIES as well as the detail at which the national accounts are compiled.

There are many different types of household surveys, and a wide range of designs for each of them. The data requirements for the national accounts can also be at vastly different levels of aggregation. When a Supply and Use Table (SUT) is used as basis for the estimation process, generally for the establishment of a new base year for the series, large volumes of information are required for the preparation but if only the standard accounts are prepared, the compilation requires much less information that also can be at a much more aggregated level. However, in most developing countries household surveys of the type that provide the information required for the national accounts are held only infrequently and therefore the information is generally used only for the base years of the constant-price series of the national accounts.

The following sections cover various aspects of the national accounts and their use of household surveys. First a brief introduction of the national accounts compilation process is given. This is followed by a discussion on the various types of household surveys and the information available from them for use in the national accounts. Then, the minimum required contents of the survey instrument, the questionnaire, is listed. Next, a description of the uses of HIES data in the production account is given followed by various aspects of HIES information used in the expenditure accounts. The next section enumerates the deflators in the national accounts and how HIES data could or should be used.

The above sets out the maximum use of HIES information for the national accounts, in situations where the data contain the detail of information sought. The optimum contents of household surveys for national accounting are summarised next. Finally, a rating system for existing survey materials in terms of their usefulness for national accounting purposes is described.

The availability of economic data is, on average, the weakest in Africa, and references in this note are mostly to the situation in Africa even though they are often applicable to a much wider range of countries. It does not cover practices in OECD countries as those generally have a much more advanced statistical system.

2. National Accounts compilation

Overview

In this section national accounts compilation practices commonly found in developing countries are described. The discussion is limited to the production account and the associated goods and services account and the primary distribution of income account[1]. In this section, the discussion covers all actors in the economy while later sections are mostly

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1 The first two accounts of the SNA sequence of accounts; most developing countries do not compile the other SNA accounts, and definitely not on a regular basis.

limited to the household sector only. The principal reason to first provide an overview of the entire economy is to properly place the household sector within this environment and show the potential for gaps and double counts in the system when using survey data covering parts of the universe only.

The national accounts can be compiled in three different ways, namely as the aggregate of production, expenditures and incomes respectively. Theoretically, the results are identical but in practice they differ because of incomplete data nad the resulting estimation procedures. In developing countries, the production approach[2] is the one mostly used to prepare the GDP estimates. The expenditure approach has generally been developed at a later stage and often is not an independent series as one of the expenditure items is often used to "close" the gap between the production estimates and the sum of the other expenditure categories. Household consumption is most frequently used for this purpose. As this results in all estimation errors and data gaps to become part of the household consumption estimate, this has no meaning as an independent indicator series. When the two estimates have been developed in an integrated approach through a Supply and Use Table (which balances commodity supply and demand in entire economy) and the errors and omissions are given separately in the annual estimates, the two estimates are independent.

The time series estimates of the national accounts, generally presented in terms of gross domestic product (GDP), are prepared in constant prices for ease of comparison over time. Appropriate price deflator series are required to convert current-price information to its constant-price equivalent. The first price index series available in a country is invariably the consumer price index (CPI)[3], which is being compiled in all countries at regular intervals. Other price index series generally receive a much lower priority and their availability is often not continuous. As is clear from the purpose of the CPI, it reflects household expenditures and is a very appropriate deflator for household consumption expenditures and some small parts of the production account. However, for most other purposes, other price series would be more appropriate.

The preparation of SUT's requires a large amount of data in very detailed format. In order to get the proper detail, all original survey data sets available for periods close to the selected year are used and processed to the exact specifications of the SUT. This includes revision of classifications, recoding of the information as needed and also the re-editing some of the data. In this manner, the available information could be put to use in the best ways possible. This elaborate approach to the preparation of the base-line for the national accounts is necessary as there generally are large data gaps in the available statistics. For most activities and expenditure categories, in many developing countries information is not collected on a regular basis.

The selection of the new base year for the national accounts in most countries therefore is restricted to years for which the important datasets are available. Required data sets for the proper rebasing the national accounts include a household survey and an industrial or economic census (or large-scale survey), either for the selected year or for a year very close to this selected base year[4]. Even when an optimal selection of the new base period is made,

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2 The discussion is limited to the production and expenditure approaches. In most developing countries the income approach is not used as the attribution of mixed income from own-account work and imputed values of own produced consumption make the estimates rather arbitrary, while for the other data items information is often also incomplete.

3 The CPI itself may, however, have serious shortcomings. For instance, in Francophone African countries, the CPI is limited to the capital cities. In many other countries only larger cities are included.

4 There are other important considerations for the selection of a base year for the national accounts,

in most developing countries major data gaps still occur. The description of the many uses of household survey information for national accounting that follows is therefore much more extensive than just deriving household expenditures for the expenditure approach of the national accounts and the consumption structure for the preparation of the CPI weights.

Various types of household income and expenditure information are used in the compilation of the national accounts and its deflators. Assuming that the survey contains the common modules, but also including one on non-agricultural economic activities, the overview below indicates the varied uses of an HIES in the compilation of the national accounts. For each, the importance of the HIES as source of the data is given in one of three categories, whereby '*critical*' indicates that in most countries[5] the information is only available from household surveys.

The HIES and its use in the National Accounts

	Type of information	Importance
	Production approach	
1	Production for own consumption (agricultural and processed goods)	Critical
2	Production of subsistence agriculture	Critical
3	Output of household enterprises (of any size)	Important
4	Imputed rent of owner-occupied dwellings	Critical
5	Activities of households as employers of domestic personnel	Critical
6	Retail trade volume	Secondary
7	Education and health production (private sector)	Secondary
	Expenditure approach	
1	Household consumption	Critical
2	Household expenditures	Critical
	Deflators	
1	CPI – aggregate indices	Critical
2	CPI – detailed, specific information	Critical
3	Local farmers' market prices	Important

Some definitions and concepts

Before continuing, it is necessary to define some of the terms used in this note. First the definition of the fundamental units in the System of National Accounts (SNA) is given. This is followed by the definition of the household sector. Next, household consumption and expenditure are given. After that, the types of household surveys are described.

The fundamental units identified in the SNA are the economic units that can engage in the full range of transactions and are capable of owning assets and incurring liabilities on their own behalf. These units are called institutional units. These units can be classified into five domestic institutional sectors, namely the (1) financial and (2) non-financial corporations, (3)

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of course, such as the economic conditions during the period. No extreme weather conditions, major natural or man-made disasters or political instability should have occurred. In other words, it should be a "normal" year, with enough statistical information.

5   Because of the enormous variety in statistical services and their activities, special surveys or administrative data sources may provide the information for such countries but those are the exceptions rather than the rule.

the government, (4) the household sector and (5) the non-profit institutions serving households (NPISH). For the first three, books of accounts are available and reliable statistical information can be obtained from these sources. NPISH are generally also required to maintain proper accounts but in many countries enforcement of this rule is weak and moreover a central repository for this information is often also lacking. In many instances, therefore, NPISH are lumped together with households proper in the national accounts. In addition to these five domestic institutional sectors, all transactions with foreigners are classified in a single institutional sector "*rest of the world*".

The <u>household sector</u> covers all unincorporated entities, either as individual proprietorship or as informal partnerships. While some of those may be very large and others sizeable, the vast majority of such units are very small. Surveys of household economic activities indicate that the average number of workers in all household establishments is mostly below two, which number includes the working proprietors and unpaid family workers.

The informal sector (also called micro enterprises or household economic activities) cover all economic activities carried out by unincorporated units that are not registered at a national or regional level. Registration at municipal level is thereby not considered as many small-scale activities are subject to licences or other local regulations. Also, registration as a fixed-fee small enterprise under the VAT system is not considered to bring such units in the formal sector.

<u>Household consumption</u> is the total use of goods and services for household consumption purposes, regardless of the source ((a) own production, (b) purchased or (c) received as gifts in kind). <u>Household expenditure</u> is limited to item (b). The timing of the production, consumption or purchase is not specified here. For national accounting purposes, this is a minor issue at best. For the annual accounts, the time difference between production/purchase and consumption can be assumed to be zero as the two are nearly always less than one year apart. For the quarterly accounts, the same applies for most products except for the production of seasonal crops that are kept for consumption through the remainder of the year. Thus, to be sure that the household consumption is measured properly in the HIES, it is the consumption of own-produced goods that needs to be asked for rather than their production. The latter information is however needed for the estimation of subsistence production.

For the purpose of this note, <u>household surveys</u> can be classified into two groups, namely those with a narrow scope and others with a broad scope. The descriptors broad and narrow have been used here rather than single-purpose and multi-purpose as there are nearly no household surveys conducted with a single purpose, for the simple reason that these survey operations are very expensive. The population and housing census, the labour force survey (LFS) and the Demographic and Health Survey (DHS) are examples of narrow-scope surveys. Household Income and Expenditure Surveys (HIES) of various types can be considered as surveys with a broad scope.

Household income and expenditure surveys (HIES), the term used in this note for all surveys capturing a range of household features including income and/or expenditures, come in several flavours. The basic difference between these types does not lie in the questionnaire contents but primarily in the methodology employed. The LSMS-type surveys cover a full-year of records and the expenditure information is generally collected by the diary method. The CWIQ-type uses a single or dual-visit model applying the recall method for all data items. Data collection is also limited to a few months rather a full year, thus not capturing seasonality. The number of modules and their contents varies widely between surveys of either type, but it is common that data is collected on eight to ten topics in a single survey. It

may be noted that the various terms used to name a survey[6] (LSMS, CWIQ[7], HIES) are not mutually exclusive and a survey that in one country is called HIES may be called LSMS in another one, even though methodology and data modules may be the same. Similarly, a CWIQ in one country may be equivalent to a HIES in another.

The <u>valuation of consumption from own production</u> is done at producers' prices as this is both income-neutral for the household and in line with the concepts of valuation of production. Households in general sell some of their products, even if they do not have any cash crops or do not really have surplus production of food crops, as they need cash for various purposes. Such sales are normally conducted at the local farmers market. The farmers often carry or transport their goods to those markets by themselves, the farmers market prices can be considered equivalent to the (farm-gate) producer prices. In case production is priced at producer prices and consumption would be valued at retail prices, there would be a difference between the value of goods produced for own consumption, and this consumption as trade and transport margins are included in the retail price. Such margins should be attributed to the household as they are the one "selling" the products. Since there is no transport – or trade – involved, those margins are zero by definition. This therefore makes the consumer price of own-produced goods by definition identical to their producers' prices.

Data sources

The national accounts are very complex and require vast amounts of information, which come from a wide range of sources. Prominent among those are administrative records for government and external trade and enterprise and household surveys of various kinds.

Administrative records
Administrative records used to be collected and aggregated only for the purposes of the agency involved only, but over time the statistical uses of the information have been recognised and international standards and classifications for their encoding have been developed. Thus, the government budget information can easily be converted to the various aggregates required for the national accounts ans similarly, external trade information on both goods and services has become available in standardized formats.

Enterprise data
Enterprise information is not so well organised in most developing countries. Traditionally, data collection for enterprises has not been organised along the lines of the institutional sectors. Mostly an employment size classification[8] has been used and occasionally investment or other criteria. The same criteria were generally also used to establish the low-end cut-off point for survey coverage.

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6 The naming of a survey as Living Standards Survey or HIES/HBS more often indicates the difference in (principal) source of funding rather than in methodology, design or coverage. As LSMS surveys were introduced by the World bank only in the latter part of the eighties, all older surveys, whether similar in design or not, were named HIES/HBS by default.

7 These are two World Bank sponsored household survey models. Of course, international guidelines for household surveys started much earlier with the United Nations publishing the first "*Handbook of Household Surveys*" (Statistical Papers, series F, No.10) in 1964. A revised version of the Handbook was published in 1983 (series F, No.31). At that time, the UN Statistical Office had also started the UNFPA-sponsored "*National Household Survey Capability Programme*" while the World Bank had started the research project that ultimately lead to the LSMS survey programme.

8 E.g. the United Nations "*International Recommendations for Industrial Statistics (IRIS)*", Statistical Papers, series M, No.48, 1953 and its subsequent revisions of 1960, 1968 and 1983. Only in its 2007 revision (M 48, rev.4) is the institutional sector approach to data collection introduced.

Enterprises can be part of any of the domestic institutional sectors except government[9]. The main difference between the corporate sectors (including NPISH) and the household sector is that the former need to maintain proper accounts while the latter in most countries are not required to do so. Thus, for the corporate sector, accurate data can be obtained from their records, but for most household enterprises recall is the only option available.

Coverage is seldom comprehensive, though, as most surveys have a lower cut-off point, generally in terms of paid employment or the number of workers engaged. In either case, such as at least one paid employee or four or more workers, which are common lower limits, the majority of household units, in numbers, is excluded. In general, this leaves a gap between the coverage of the economic surveys and the information on household economic activities collected in a HIES.

This coverage gap is further enhanced by the fact that most economic surveys limit themselves to establishments, that is, activities with a fixed location from where they operate. It leaves out the kind-of-activity units that are predominant in transport and construction and several other types of services as well as the smallest component of trade. Therefore, a comprehensive survey methodology was introduced by the UNSD to ensure a full coverage of the activities targeted[10]. It basically employs a list frame for the corporate sector (and NGOs) and applies an area frame for the entire household sector. This method ensures that the entire spectrum of activities, from the smallest household units to the largest unincorporated establishments is covered by the set of surveys.

As establishments may be part of an incorporated unit and thus covered in the list frame, the only extra precaution to be taken is to include a few simple questions to record the legal characteristics of all units so that their actual status can be determined later on in the office and the branches or subsidiaries of corporate units can be excluded from the field data during data processing as it has already been included in the list-based frame. In the field, the simplest is to enumerate all units in the selected areas unless it is very obvious that the establishment is an incorporated enterprise or part of one. For instance, branches of banks or telecommunication companies could be omitted during field work as it is very clear that those are covered through the list frame for large units.

As mentioned, to ensure complete coverage of all enterprises in the selected economic activities (no single survey covers all economic activities) it is best to have a survey system whereby the incorporated units[11] are covered under a "large-scale" establishment survey while the remaining – household – units are covered by an area sample approach, regardless of their scale of operation. This would include all establishments, kind-of-activity units and household activities falling within the production boundary of the national accounts[12] that are done for own consumption only or principally. Another reason to cover all

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9   Government-owned enterprises are classified in the sectors of financial or non-financial corporations according to their activities.

10 UN (1994): Strategies for Measuring Industrial Structure and Growth, Studies in Methods, Series F, No. 65.

11 Not necessarily only incorporated units, but all those that are required to register with the appropriate national authorities to obtain operating licenses. This includes all incorporated units but may also include large unincorporated units engaged in logging and mining for instance. The principal determinant is that the units can easily be identified both in the field and over time (e.g. all new mining operations require the registration, which is not permanent but requires renewal on a regular basis).

12 This includes all goods-producing activities. Of the services, only the imputed value of rental services of owner-occupied dwellings are included within the SNA production boundary.

household units in the same way is that one of the characteristics of such units is that they generally do not maintain accounts and that most information therefore has to come from recall. The accounting year is then not the most suitable reference period, especially not a reference year that is some time ago. The previous month (or week) is a more suitable reference period for this type of small establishments.

For survey planning, this two-part approach also has implications. The household survey and the large-enterprise survey for a particular period cannot be carried out at the same time. This is so, because a list-based survey will collect data for the previous accounting year while a household survey will have information for the previous month (or week). In practice, therefore, the household survey needs to be conducted a year before the large-scale enterprise survey is carried out. If the latter is done on an annual basis, it just means that the information collected through a household survey a year ago would be compatible with the data collected in an enterprise survey carried out this year. Of course, since the reference period for the recall survey is typically much shorter than the financial year of a company, the information obtained during an area survey needs to be adjusted to annual estimates by multiplication of the data with the appropriate factors. These factors depend on seasonality and other information on the length of operation of the small units during the reference year of the large-scale survey. Therefore, questions covering these specifics need to be included in the questionnaire for the small enterprises.

3. Household Surveys

Types of household surveys

In the broadest sense, household surveys have been conducted since times immemorial. In many societies household and population counts were conducted from time to time, generally for military or taxation purposes. A memorable one was a Roman population census about two thousand years ago when Joseph and Mary travelled from Nazareth to Jerusalem to be registered and counted. Household sample surveys are a newer invention and started to be used widely in the second half of last century. The largest, most consistent survey series of this kind is the Indian National Sample Survey (NSS) of which the 68th (annual) round[13] was carried out recently.

While the purpose of HIES surveys with a broad scope differs between countries and over time, the main objectives nowadays are the measurement of poverty (and vulnerability) in its various dimensions, the provision of benchmarks for national accounting and the determination of household consumption patterns for the construction of weights for the CPI.

For sample surveys, the minimum acceptable size is largely dependent on per capita income in the country and the detail at which the information needs to be available. For the national accounts, which only requires aggregated information, small surveys of 1,500 to 2,000 households are adequate in most countries, possibly with the exception of countries with a very high economic diversity (that is, higher per capita incomes and substantial income inequalities). For the preparation of expenditure weights for rebasing the CPI, the same applies if only a national index is to be prepared. When details need to be available by region and/or rural/urban strata, the minimum survey size needed for adequate data would quickly rise to eight to ten thousand household, if ten regions (twenty strata) are to be represented.

In middle and high-income countries, where the propensity to save is higher and possibilities

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13 The Indian NSS conforms to the fiscal year and a round runs from July in one year through June the following year.

of borrowing money are well established[14], the consumption pattern does not depend on income but on the needs of the season. For low-income countries, and the poorest part of the population in other developing countries, expenditure is closely linked to income as the poor do not possess significant savings or have much capacity to borrow. For those countries it is therefore less important to measure seasonal expenditure patterns but rather the seasonality of production or income.

The questionnaire

As mentioned earlier, a rather comprehensive HIES questionnaire[15] is assumed and for clarity, the data contents of the different modules of interest for national accounting is briefly described here. This list covers only those items that are of particular relevance in the compilation of the national accounts:
1. Household roster with age and sex of all household members - *this will allow per-capita calculations and adjustments (after raising) to independent population numbers*;
2. agricultural production information - *including land holdings and livestock numbers*
3. household, micro and small enterprise information – *gross output, value added and labour*
4. housing information – *quality characteristics, location, facilities, rent (actual) to verify imputed rents*
5. all household consumption - *from own production, purchased and gifts in kind*
6. all household expenditures in detail, *either in a single module/list or subdivided over different subjects such as education expenses in the education module, health expenses in the health module, house rent (imputed or actual) in the housing module, and so on*.
7. money transfers received and paid - *by source/destination (domestic or international)*

In many developing countries, especially in the rural areas, consumption from own production is very important. Valuation of this consumption is often very subjective as the values are often in the mind of the respondents rather than based on fact. For own produced goods it is therefore important to obtain quantitative information (maybe values in addition) so that it is possible to review the implicit prices and compare them with the local farmer market producer prices or, if those are not available, consumer prices as second-best option.

4. HIES and the production approach of the National Accounts

In the production approach of the national accounts, output and value added for all activities in the economy is estimated. After adjustments for indirect taxes (import duties and VAT) and FISIM[16], this gives the total GDP of the nation. Several major sources of information are

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14 There is no society where borrowing is impossible, even for the poorest, but costs are so high that this is generally only done to finance special occasions such as marriage and funeral or emergencies such as serious illness. Here, reference is made to regular consumer credit, which is mostly not available.

15 Except for the measurement of seasonality, there seems to be little difference in the resulting data for national accounts or CPI weights, whether the more extensive LSMS-type or the simpler CWIQ-type have been used. Generally, a few data entry errors that slip through the editing process often result in substantial distortions however, making comparisons of survey quality based on published data rather hazardeous.

16 Financial Intermediary Services Indirectly Measured (FISIM) are the services implicit in the interest received by banking institutions (net of interest payments) in so far as those relate to productive activities in the economy, that is, corporations, government and household enterprises but

available for estimating different components of GDP. These can be classified simplest when grouping activities by institutional sector, that is, the financial and non-financial corporations, the government, non-profit institutions serving households (NPISH) and the household sector. For the first three, books of accounts are available and reliable statistical information can be obtained from these sources. NPISH are generally also required to maintain proper accounts but in many countries enforcement of this rule is weak and moreover a central repository for this information is often also lacking. The household sector is very important in the economies of many developing, but specifically African countries. However, in terms of statistical data it is by far the weakest. The major information source for this sector is the HIES, which in most countries in Africa is conducted irregularly, often at five to ten year intervals, but sometimes with gaps of twenty or more years. They are generally only conducted when donor funds are available.

Agriculture, forestry and fisheries

This group of activities can be subdivided into large-scale commercial operations, generally carried out by corporate entities and otherwise controlled by a system of licences and concessions. Entities operating in this type of business, and their main operational characteristics can be obtained from their annual reports or the licensing authorities. Operations covered under this group include, for instance, plantations (coconut, coffee, palm oil, rubber, sisal, sugar, tea, etc.), commercial farms (cereals, soya, horticultural products, etc.), industrial livestock operations (poultry, piggeries, dairy farms, etc.), logging concessions and industrial fishing operations (mostly marine, but in some cases inland or fish farming). The majority of these operations serve export markets, which means that external trade statistics provide another possibility of data verification.

Households and small household enterprises produce, however, most food for the domestic market in all developing countries except for some small-island nations where nearly everything is imported. Documentation of such production is scarce, if it exists at all. In many countries, the ministry responsible for agriculture prepares some estimates, sometimes based on surveys of farm land being cultivated and crop-cutting surveys to determine yields. In many cases, the results are not very good. There have been instances where total cropped area (after adjustment for multi-cropping) was larger than the total land area of the country. In other instances, production of major staples was reported from year to year at several times consumption, even after taking into account other uses and crop losses in the different stages of the process. In other words, the information is often not useful for the national accounts.

One advantage of the use of an agricultural module in the HIES is that for a major component of production of the households, that of subsistence production for own consumption, the values can be verified at household level with the consumption reported in the same survey. When both are reported in quantities, the same prices can be used to value domestic production and consumption, as explained earlier.

Livestock production is an integral part of rural life in Africa, as it is in most developing countries. Some of these practices are carried on even when households migrate to urban areas, or urban expansion absorbs villages. For some tribes, livestock is the mainstay of their livelihoods, such as for the Fulhani in the Sahel belt of Western Africa or the Masai in East Africa. For others, it is a principal store of wealth and the animals are reared only for their sale value rather than for current production (milk, wool, etc.). In much of Africa, brides-prices and other traditional payments are set in heads of cattle, further indicating the importance of livestock in the rural communities of Africa.

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excluding home mortgages and personal loans.

For the larger species of livestock, such as cattle, camels, pigs, sheep and goat, livestock counts through censuses or by other means can provide information on the value of the herds and estimates of annual meat production using livestock models. For poultry this is not possible as reproduction cycles are too short. For the latter, and for estimating production of milk, wool and other livestock products, a HIES is often the only source of information. It may be noted that meat consumption in many societies is concentrated at specific times. *Eid-al-Adha, for instance*, is the main festival in Islamic culture for the consumption of meat. In Christian societies, Christmas and Easter are times that meat is consumed in much larger quantities than average. Traditional festivals throughout Africa are other occasions that meat is consumed in abundance. As the latter are often organised by communities and offerings are in the form of live animals, this consumption does normally not show up in household consumption.

In forestry, household activities concentrate on firewood gathering, charcoal burning, gathering of various wild fruits, gums, honey, herbs and the like and trapping or otherwise catching of wild animals (bush meat). This is an impressive range of activities and much of the production never enters the markets as it is consumed within the household or shared with neighbours, family or friends.

Artisan fisheries, both inland and marine along with secondary fishing activities of households near water bodies are wide-spread in Africa. In some parts of the continent, small fish ponds are also popular. In all cases, fish contributes a significant of the food intake of the households. The relative importance of fish in the household consumption in various countries can be seen from the fact that in both Uganda and Ghana, the value of fish consumed is more than double that of meat; in other words, in these two diverse countries it is the major source of animal proteins. In Senegal and Togo, household expenditures on fish are also much higher than those on meat and even in Malawi and Zambia, land-locked countries, household expenditure on fish is at the same level as that of meat. In most countries, no information whatsoever is available on the household production of fish and seafood.

As described above, in most countries of Africa, information on agricultural production at household level is lacking. While an infrequent household survey cannot fill all the needs of the annual national accounts, the HIES gives the best opportunity for detailed information on this topic for the periods covered. The main reason that intermittent information on agricultural production is not entirely adequate for the annual accounts lies in the fact that much of the production is depending on weather conditions, which can vary sharply from year to year.

To be useful, the agricultural module of the HIES should cover all current production information as well as counts of livestock and land area cultivated. Livestock counts can be used to estimate production over a longer period using demographic models while the area cultivated provides the opportunity to at least make estimates of "normal" crop production in countries where agricultural extension services provide annual estimates of area cultivated. As forestry activities normally take place on communal or government lands, only information on current production is relevant. For fisheries, a distinction could be made between fishermen, that is those that make fishing their primary occupation, households that have fish ponds and those that fish as a secondary activity.

For both crop production and fisheries, the owners of the agricultural land or the fishing boats are not necessarily the same as the farmers or fishermen. It is therefore necessary to include questions on the breakdown of the crop or catch between owner and workers as well as the distribution of input costs. These distributions are known to vary widely by region and

management system.

The proper capture of production data not only requires the production quantities and other characteristics described above, but also the price information from the local farmers markets so that volumes can be correctly valued to derive the correct production and consumption information.

Non-agricultural household economic activities

It may be noted that in countries without a comprehensive social security system, such as most developing countries, all adults and many children have to be working. Except for countries such as North Korea, Cuba and some others where private activities are not allowed or very restricted, the formal sector in these countries, has only a limited absorption capacity, and most of workers therefore end up in the informal sector. This has several implications as it is generally not free choice that moves people to household economic activities, but survival needs. Therefore, prices are not necessarily set at economic levels and output of informal sector participants may be very limited too. As long as an activity brings in more than it costs to produce, there is some money left to survive on. In general, entry requirements for the various types of activities are low and many people shift from one activity to another when it is expected that income from the new activity will be better than the current levels. As a result, levels of income generated from different informal activities tend to be rather similar.

In the rural areas of developing countries, agriculture and related activities are by far the most important. For most part, those are carried out at household level. There are, however, also many other activities operated at household level. In the urban areas, household activities are as prevalent but these activities are nearly all of a non-agricultural nature. Major activities are trading of all types of commodities, in markets, stalls along the streets as well as street trading in general. The operation of taxis, minibuses and goods transport vehicles such as hand- and animal drawn carts, bicycles, pick-up trucks,and so on also are important activities. Tailoring, hair dressing, butchering and many other manufacturing and service activities are conducted in or around the houses. Construction is also often carried out by individual workers or small crews of a craftsman with some helpers.

In addition to these very small-scale (individual) activities, households or their members also operate the vast majority of retail businesses in developing countries, as well as most of the personal service and repair activities. Those establishments are recognisable and often are covered in business registers and various economic surveys.

Imputed rent of owner-occupied dwellings

As mentioned, the imputed rent of owner-occupied dwellings is the only service provided on own account that is included within the production boundary of the national accounts. There are many good reasons for this exception to the standard rule, but this document is not the place to elaborate them. (*alternatively*: A description of the SNA production boundary and the treatment of imputed rents is given in Annex A.)

Measurement of the imputed rent is not easy, especially in the rural areas where nearly all families have their own housing and the market for rental housing is very limited. Therefore, few data-points are available even in an extensive survey. The problems with imputation is that, in addition to the limited number of observations, the rented units generally are not representative for the entire stock in the area. In general, housing units are rented for medical staff, teachers, NGO workers and others that come to work in the village from

outside, Such units are mostly smaller than the average house, but have better facilities (toilet, water, electricity) than the average. The construction materials used also tend to be better than average. In other words, many variables differ and, except for the location, few are comparable. As housing costs, whether imputed or not, are an important part of total household expenditures, and thus of output of the activity, good estimation procedures are important and for that the best possible information needs to be available. By combining information on the size of the dwellings, their main construction materials and the availability of facilities, all information collected in the HIES, an index can be constructed that gives an aggregate value for each house. All available rent information can then be compared and anomalies, especially between urban and rural markets, corrected before valuing all units in a uniform way. The results can be compared also with the average share of housing in the total consumption expenditure. For different income groups, this share should be fairly constant, regardless of the status of the housing unit as rented or owner-occupied.

Activities of households as employers of domestic personnel
In developing countries, the employment of domestic personnel is wide-spread. Households of moderate income normally have live-in housemaids and other domestic staff while all richer households in addition employ drivers, security guards, gardeners and so on. Except for the population censuses, there are generally no other sources of information on the number of persons engaged in this activity while the incomes are not known from any source[17]. The HIES is the only survey that can capture this information without conduction - expensive- special surveys. In general, the household roster prepared for the selected households includes the live-in staff, as these form part of the households, but staff living by themselves or, with their families, in servants quarters on the compounds of the selected households are generally not covered in an HIES as they do not form part of the selected household as they are preparing their own meals and are living in a separate housing unit. In order to capture both the number of workers and their remuneration, it is therefore necessary to include a separate, small module for this purpose in the survey questionnaire.

Retail trade volume

The output of retail trade is defined as sum of all the trade margins generated by this activity. Those trade margins result nearly entirely from the provision of retail trading services to the households. The main exceptions are that some of the goods traded are sold to businesses and others to foreign visitors. On the other hand, households sometimes buy from wholesalers and at other times directly from the producers, for instance, as described earlier when travelling and buying from roadside stalls or on farmers markets. Nonetheless, retail trade and household expenditures on consumer goods are so closely related that information on the one allows the estimation of the other, especially when the information available is broken down by major categories, such as food, clothing, household goods, electronics, etc., as the trade margins on those different categories of consumer items are quite different but rather stable over time.

In European countries, where the Value Added Tax (VAT) system is comprehensive in that it covers nearly all consumer goods and services and is also collected from nearly all outlets. Retail volumes, and changes in those volumes over time, can be derived from such VAT data when available for broad categories of consumer items. In Africa, most countries also have a VAT system. However, agricultural products are generally exempted and small retailers also

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17 In various countries, employers of domestic staff are required to register them with the social security system and pay social security premiums. These systems are generally not enforced and only a small fraction of employers (generally expatriates advised to do so by their embassies or businesses) actually pay these premiums.

do not pay tax on their net turnover[18]. The smallest ones are not covered at all. Of course, manufactured products and factory-processed foods are taxed at the producer and wholesale levels, but this cannot always be converted to retail values in a straightforward way. Furthermore, exports of consumer products are sometimes important and the VAT collected at production and wholesale levels often includes this part of output too[19]. It may be noted that VAT is often collected on both goods and services and the breakdown is not always available. Retail trade is, of course, restricted to goods only. Thus the information available may not always be useful also on account of this difference.

Information on household expenditure collected through the HIES always separately covers many different items. It is therefore possible to aggregate the information according the requirements for a specific analysis, including the one described here. As a first step, household expenditures should be expressed net of VAT, since that is method used for the production accounts. This can be done by deduction the applicable VAT at appropriate rates from each of the expenditure items. Different products are taxed at different rates (VAT exceptions are in effect items taxed at a rate of zero percent) and it is therefore needed to evaluate the individual product groups against their VAT rates to obtain ex-VAT retail values. The average retail margins of the different products or groups of products can then be used to derive the gross output of retail trade for these products, and by aggregation, for the total retail trade activity. As this information is derived directly from the expenditure data collected in the HIES, no extra data collection effort is required.

For retail trade there are sometimes other sources of information, such as trade surveys, in addition to VAT data. In general, smaller units are not covered by either and those make up a large share of the retailers, especially in the rural areas of developing countries. Therefore, the calculation of retail output using HIES expenditure information can provide valuable checks in the system. Over time, in different countries, It was noticed that some times retail trade was estimated at levels implying a margin of more than half household consumption expenditure, while in other cases it was only a few percent of the same. Obviously, both results were wrong and this additional knowledge derived from the HIES data assisted in locating the measurement problems and in making modifications to the estimation procedures.

Education and health production (private/NGO sector)

Similar to the situation in retail trade, expenditures on education and health can be derived from production surveys, such as the NAAS in Liberia. The surveys in general have a lower cut-off and this excludes smaller activities, such as tuition provided by individual teachers or the private practices of medical staff working in government facilities in addition to the smallest schools and health facilities. Because of the cut-off point and the difficulty in locating the service providers in economic surveys, practitioners of traditional medicine are mostly excluded. Together those omissions can be quite significant. Comparison of expenditures reported by households with the production accounts generated for these activities, by type of operator, should show the major discrepancies between the estimates for the production account and the household expenditures on these items.

Of course, households do not report on the full cost of the education and health services that are provided by government and NGOs because they do not pay the full costs of these

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18 In some countries, part of the retailers are covered by a fixed levy per period, but it is not possible to derive turnover or other information from this.

19 VAT is normally refunded on exported goods but the refund system is often different from the assessment system and VAT refunds are not always deducted from collections in the information made available by the tax authorities to the statistical organisation.

services. However, they often pay a contribution to these costs and also pay the full cost to private providers of these services. In other words, the sum of expenditures reported in government budgets (net of receipt of client-payments) and those of NGOs has to be added to the direct outlays by the households give the total for these services. Production estimates for these activities tend to be under-estimated as the private sector is often not fully covered. In addition, clients of government institutions in these activities often are asked for contributions that are off the books. Such payments can be quite significant and while they may be illegal or not accruing to the institutions, they are actual incomes of these activities and their providers and thus form part of their output. Households will tend to report these payments as from their perspective this are expenditures on these services. For them it is not different than paying for textbooks, exercise books and writing materials for their children or for medicine at the private pharmacy even when these items should have been provided by the schools and clinics for free.

5. HIES and the expenditure approach of the National Accounts

Household final consumption expenditures are the largest component of the expenditure account. If the deficit in external trade is large, they may actually be more than 100% of GDP. In general they are somewhat smaller though, at between 60 and 80 percent of GDP. For the preparation of independent estimates of the expenditures in the National Accounts[20], the proper assessment of household expenditures is therefore very important. The HIES provides the sole source for the estimation of household consumption expenditure and is therefore indispensable.

Household consumption

Household consumption consists of the consumption of purchased goods and services; the consumption of goods and services[21] received as gifts in kind; the consumption of own-produced goods and the value of imputed rents of owner-occupied dwellings. As described in the relevant sections of the production approach, the production and consumption of own-produced goods is valued uniformly at producer's prices so that the two sides of the accounts are consistent. Similarly, imputed rental of owner-occupied dwellings is valued once and the same number is subsequently used in the production account and the expenditure account.

For services, the time of purchase is by default the time of consumption. For goods, the same needs not be true as it purchases are often done for stock, that is, a single purchase covers consumption over a longer period of time. For own-produced agricultural crops the harvest in general is done over a short period while the products are consumed over the better part of the year. For the annual national accounts, the difference between consumption and purchase or production is generally very small. There may be significant differences in

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20 In many countries the original way to complete the expenditure estimates of the national accounts was to prepare the production estimates and all components of the expenditures except for household final consumption expenditure and then calculate the value for this item as the residual which balances the production and expenditure estimates.

21 The production of services for own consumption is outside the national accounts production boundary but their provision by others, be they individuals, companies, NGOs or the government, is included, even when provide for free or at nominal prices. Thus, braiding hair by a friend is a service, but when done by a member of the own family, it is not part of the economy. This apparent contradiction can be explained rather simply. As the service is provided from outside the household, presumably because nobody in the household could do the same, the alternative would be to go to the beauty saloon and pay to have the braids made.

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the quarterly national accounts and for this reason, the agricultural production module of the HIES normally includes a time-line of harvests of the major crops through the year. This can then be used to adjust for the irregular production pattern inherent in this activity.

Consumption in the HIES is measured in one of two ways. In the simplest format (such as in the CWIQ[22] survey), a recall method is used to obtain consumption and/or expenditure information. Households are visited only a single time. The recall period depends on the items. For food and other frequently purchased items, it may be one week, for other items it may be a month and for consumer durables it is generally twelve months. For education expenditure, the school year or last term is commonly used for reference.

In the more common HIES model, household consumption is measured over an extended period of time (generally a month) during which time the household maintains a record book, or enumerators visit every two or three days, to note down the consumption of all items since the previous visit. This generally gives a more accurate estimate of consumption than the single-recall method, but it requires much more time and resources. For items that are purchased infrequently, such as consumer durables and educational expenses, information on the past twelve months, school year or term may be collected instead of, or in addition to, the actual expenditures on these items recorded in the daily consumption journals.

In order to value own-consumption items consistently within a community, it is important that quantities are recorded rather than values, and subsequently value them all against the prices prevailing at the farmers market during that time. It is therefore necessary to collect prices at the local farmers' markets for all items that are produced for own consumption. This should be done during the same period as the household survey is conducted in the community.

Household expenditures

Household expenditures are the payment for those household consumption items that are obtained for cash or, when bartered, the value of goods given in exchange. Using the timing of consumption, household expenditure for any item cannot be larger than household consumption for the item as the latter adds the value of consumption from own production, if any, to the expenditures.

It should be noted that not all household expenditures involve consumption expenditures. For instance, payment of property taxes, of interest on bank overdrafts and for traffic fines are household expenditures but not consumption. In order to ensure that this type of expenditures can be separated out during data processing, it is important that all expenditures are itemised during enumeration.

In general even the most detailed household expenditure surveys suffer from under-reporting of out-of-pocket expenses by the individual family members. As most of these out-of-pocket expenditures are for a limited number of goods and services, the values obtained for them from a household survey can be under-estimated quite severely. Out-of-pocket expenses are incurred mostly by household members going to work outside the house and adolescents and others attending school. Examples of such expenditures include transport costs to and from the place of work or school, the food and drinks purchased during the course of the day, mobile phone scratch cards and any tobacco products, drinks and other items purchased after work before going home. While these persons may also purchase items for use in the house during these trips, those will generally be recorded in the expenditure journals as the

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22 The Core Welfare Indicator Questionnaire (CWIQ).

respondent has been made aware of their purchase when they came into the house.

In order to obtain proper overall consumption and expenditure estimates it is therefore important to adjust the reported values using other information. For some items, this is very difficult, but for others, that are produced only by large-scale enterprises or are imported through the formal system, the production and import data provide good guidance on the levels of consumption, once exports, if any, have been taken into account.

6. HIES and National Accounts deflators

The national accounts of the nation are compiled in constant prices for ease of comparison over time. However, much of the information going into the estimates is in current prices. Therefore, it is necessary to develop methods to restate these current-price values to constant prices. This process is called deflation and the indicators used for the purpose are the deflators. It is not always easy to find proper deflators and in many cases the Consumer Price Index (CPI) is used as the deflator by default rather than choice.

The CPI measures the average change in prices of household consumption. Price collection is done on a regular basis for all products in the consumption basket. This basket comprises a representative selection of items consumed by the general population in the country and it is based on the pattern of consumption expenditures obtained from a household survey. While specific surveys are sometimes conducted for the preparation of the weights that represent the relative shares of consumption in the country, in general, because of the high costs of extensive household surveys, the HIES is used also as the source of information for the derivation of the weights for the CPI.

It may be noted that the HIES is used to establish the relative importance of the different products in household consumption expenditure, but that the actual (monthly) price collection is a completely different operation. The price developments of individual consumption items are measured and these detailed indices are subsequently weighted with the relative consumption shares as obtained from the HIES.

For the construction of the CPI weights, only purchased consumption goods are taken into account. This is based on the assumption that consumption from own production is largely insensitive to price changes. The basic consideration of deciding how much to keep for own consumption and how much to sell is normally that the household wants to have enough for its consumption requirements. Surplus sales may be influenced by price changes, seasonal or otherwise, but only when prices or the need for cash are very high it is likely that the average household will forgo consumption and sell its stocks.

As the household survey generally is the only source of consumption expenditure information it needs to be exhaustive to determine the relative importance of various expenditure items, but can be less detailed once the relative importance of the various expenditure categories has been determined. These two different requirements can only be aligned by using the most extensive list for the HIES. For the CPI, expenditure categories that are too small to register in the weights set can be dropped although the ICP often encourages their inclusion, supposedly for international comparability of the price data. For a price index series of developing countries, three to four hundred pricing items are normally sufficient to represent all types of consumption purchases. These do not cover all the 113 categories of the ICP/COICOP classification but the latter does not include all household consumption expenditures that should be included in the CPI. For instance, the ICP list for price data collection does not include medical services, education and some other services (COICOP

codes 06.2, 06.3, 10, 12.2, 12.4 and 12.5 respectively) even though these product groups are covered in the national accounting information collected for the ICP.

CPI – aggregate indices

It will be obvious that for the deflation of the household consumption, the CPI is the most appropriate price index series as it exactly reflects the consumption pattern of the average household in the base (reference) period. In countries where the national accounts estimates are very basic, the CPI is used also for deflating, or inflating, as the case may be, the major part of the production account. This is not done because it is assumed that it is the proper deflator for the various items but it is driven by the fact that no other price indices are available.

If production, wholesale, construction and external trade price indices are available and an index of government wages has been prepared, the use of the general CPI is not required as there are more suitable index series available. The main reason to limit the use of the CPI for deflation purposes is that consumer prices normally do not develop in line with prices prevailing at earlier stages in the production process. One obvious reason is that the CPI only covers household consumption items while the economy produces a wide range of other goods and services for use in intermediate consumption of companies, for capital formation and for export. Similarly, a substantial part of consumer items may be imported rather than locally manufactured. In addition, price pressures are different at the consumption level and other parts of the economy.

CPI – detailed, specific information

As mentioned above, the general CPI indices are not suitable for deflating most items in national accounts, except for the household final consumption expenditure in the expenditure side of the national accounts. However, there are some activities, depending on the level of disaggregation in the production side, that are mostly or purely rendered to households. For instance, at the four-digit ISIC level, barber shops and beauty saloons, and at the broader level, personal services in general are rendered to households only (with the exception of a small fraction used by visiting foreigners). Similarly, insurance coverage in developing countries is mostly limited to vehicles and health. While vehicles are operated by businesses and households alike, the insurance premiums measured in the CPI are broadly the same as those prevailing for businesses when corrected for possible differences because of usage intensities. Health insurance is purely personal consumption, even though the premiums may be paid by employers as part of the remuneration package offered to the employees. Telecommunication services cover a wide range of activities but in developing countries a major part consists of mobile phone services used by households. The cost per call-minute is the same whether for private of corporate use. Businesses might opt for other packages but the basic principle is the same. Prices collected for the CPI will reflect developments for all. Similarly, the basic price for a letter is the same whether sent by an individual or a corporation. Again, some corporations may have special bulk-mail agreements at a lower rate, but even then those rates are dependent on the basic rates and will be adjusted at regular intervals accordingly. Restaurants and bars of course also only cater to persons, even though the bill may be paid by others.

In the above-mentioned situations, and other similar ones, the most appropriate price index series is the sub-index at the appropriate level that most closely matches the outputs produced by the activities. Thus for activities like telecommunications, postal services, insurance, personal services and restaurants, the CPI series for the particular group of commodities provide accurate measures of the overall price changes for the commodities

produced by those activities.

7. Overview of HIES survey requirements for national accounting

Ideally, the HIES data modules on which the national accounts items are based should have the following contents.
The household agricultural production estimates require a module that contains the following information in the *household questionnaire*:
1. general: land holding, livestock counts, ownership structure, land owner's share
2. crop production: production quantity by crop in the past year, amount sold, sales price
3. livestock production: in the past year number of animals, by species, bought, sold, born, died, slaughtered, prices where applicable
4. forestry: in the last month, quantity of firewood collected, charcoal made, timber collected, wildlife (bushmeat) collected, other products gathered
5. fishing: in the past month, quantity of fish and seafood caught, number of fish collected from fish ponds

In the *community questionnaire*, a pricing sheet with farmer market prices for all agricultural products traded has to be prepared for a period in the middle of the household survey time in the locality.

The non-agricultural economic activities of the household are to be covered by asking, for each individual household member, the principal income-earning activity outside agriculture (covered above) and paid employment (covered in the labour module), if any:
1. type of activity,
2. location,
3. weekly hours,
4. number of persons employed,
5. turnover, cost of inputs, labour, etc.,
6. type of capital equipment used and current (sales) value of this equipment

For the imputed rent of owner-occupied dwellings, the following information is needed to verify the household's estimate and to adjust as required:
1. type of tenure of the household's accommodation (owned, rented, company-provided, rent-free)
2. size of the dwelling used by the household (number of rooms, total floor area)
3. main construction materials used for walls, roof, floors
4. facilities available (electricity, water, plumbing)
5. rent paid per month, if rented
6. estimated value of rent, if owner-occupied

For activities of households as employers of domestic staff, the following information should be collected, for each staff member individually:
1. Name, sex and age
2. Whether live-in (on household roster) or not
3. Job title (housemaid, gardener, driver, guard, nanny, etc.)
4. Monthly remuneration (salaries, other benefits, etc.)

For education and health, the modules on those subjects should include also the following information, aside from data items used for other purposes, for each household member:
1. education: amount of money spent in the past (school) year on school fees, tuition, books, materials, uniforms, lodging, etc.

2. <u>health</u>: in the past month, the amount of money spent on doctors consults, hospital, medicines, transport to/from medical facility, other costs associated with illness, injury or disease
3. <u>both</u>: the type of ownership of the facility used, that is government, NGO or private

Household consumption and expenditures are to be enumerated on a detailed schedule to prevent omissions and to allow pre-coding of the questionnaires, preferably by using a scheme based on the ICP detail of the COICOP classification.

Separate modules should be used for the own-produced consumption and consumption of purchased goods and services. In the former, quantities of consumption should be asked along with the household's estimated value (in some countries, the HIES provided households with scales to facilitate recording of quantities). For the latter only values are required, but it might help to know where (e.g. local market, nearby towns or the capital) the household bought the item.

As mentioned earlier, for items not purchased regularly, a separate module should be used to as for expenditures on those items (durables, travel, clothing, education, etc.) during the previous year or quarter.

For the calculation of the CPI weights and the retail trade volumes, no additional information is required. They both are calculated from the values of purchases recorded in the household expenditure module. If information is spread over this module and some others, such as education, health and housing, the expenditure data in the latter is included as well, of course.

8. How to rate HIES data for national accounting uses

In many cases, the design of the HIES does not take into account the requirements of the national accounts. Therefore, the national accountant normally needs to use whatever is available in existing HIES data rather than what is optimal for the preparation of the various national accounts estimates. In order to measure the usefulness of the information in a particular HIES for national accounts purposes, individual data items can be rated, bearing in mind the relative importance of various data items presented in the table given at the beginning of this note. As in most developing countries comprehensive information on household activities is only available from the HIES, all economic information collected during the survey is useful, because no other source of the type of information is available. This is reflected by the fact that out of the 12 items listed in the table, eight are marked critical and another two as important. As mentioned earlier, critical means both that the information is important for national accounts while in general the HIES is the only source.

This general statement of importance, however, does not give the specifics and detail that is needed for the various data items. For the evaluation of the usefulness of the data for national accounts, this supplementary information is, of course, important. It should thereby also be borne in mind that is often a matter of data collection methods rather than the need for all the detailed information that results in the use of long lists. Much of the household information is recorded on the basis of recall. It is easier to get complete answers during probing by using more or less exhaustive lists of possible incomes or expenditures rather than expecting the respondent to recall the information unaided. Once the detailed information has been collected, some of it can be used in the analysis as well. However, in other cases, the level of detail provided for in the questionnaire is specifically designed to obtain that information from the survey for analytical uses. Afterwards, it is not always easy to

determine what the original purpose of the line of questioning was, though.

There is likely also a difference between an original HIES in a territory or a repeat. Unless details are asked, it is impossible to determine the importance of the item in the country. In practice this would imply that an original HIES has to be more extensive than repetitions as the results from the first one can help in eliminating those questions that will not give useful information. Unfortunately, the design of HIES surveys is not always that rational and questionnaires for the initial surveys tend to be less exhaustive than those used in later surveys which also seek to fill in information gaps that were detected in the dataset of the previous HIES at the time of its analysis only.

As mentioned earlier, for many data items on household economic activities, the HIES is the only source of information. Unless independent estimates of overall levels of various data items are available, which is highly unlikely, there is no way to ensure that the data is (more or less) complete other than asking all possible detail. Furthermore, for the preparation of CPI weights sets, rather detailed information on household expenditures is required but for most other national accounts uses it is sufficient to have household data in aggregated form. In reverse, with no other information available on many data items, any information on a subject is useful for national accounts, although not necessarily for the preparation of CPI weights. The most important supplementary information that is required for national accounting, and which is mostly missing, is the design of and methodology used in the survey so that the available information can be placed in the proper context. The usefulness of the data can therefore be looked at from the perspective of the national accounts and the CPI separately.

For national accounts:
1. Information is required on both household consumption and expenditures, the difference being home-production;
2. For home-produced goods, the timing should be consumption rather than production, an important difference for seasonal crops only;
3. Quantitative information of home-produced goods is more important than values as uniform valuation of the those goods (using local farmers' market prices) improves data quality; Adequate information for the imputation of rents (size, quality and location of house) is important but the actual values given by respondents is less so;
4. For the national accounts the stock of consumer durables is not important;
5. Information on the public provision of education, health and social services is commonly available from government budgets, and therefore need not be estimated from the household information;
6. Seasonality is more important for production than consumption. If HIES information is collected over the period of a year, seasonal patterns are implicitly captured. For shorter surveys (such as CWIQ) a seasonal adjustment should be carried out but the appropriate reference data is generally not available.

For the construction of weights for the CPI:
1. The value of expenditures on all consumer items over the year is needed to calculate the relative importance of each;
2. In some countries, such as those in the CFA zone of West Africa, seasonal (monthly) weights are used for fruits, vegetables and some other goods but the standard method whereby weights of goods that are not available are distributed over those in the same group that are priced, achieves similar results with less effort;
3. Only the more important item groups should be included in the CPI. In developing countries this generally this does not cover all ICP groups, but includes items that are

not in the pricing list of ICP. However, the only source of information on the relative importance of items in household expenditure is the same HIES. Expenditure information (at least in the first HIES) therefore needs to be detailed enough to determine the relative importance of all items.

In summary, for the national accounts all available data can be used. A proper split between purchased and home-produced goods, especially when the latter is given in quantities and price information is available from local farmers markets, gives much better estimates. For national accounts, income information for self-employed and micro/small enterprises is also very important.

For CPI, enough information should be available to determine the relative importance of the various expenditure groups. In the weights set itself, only the more important item groups are represented. This creates some tension with the target of ICP which wants to be more inclusive regarding the item-groups covered.

As for defining criteria to measure the relevance of a household survey for national accounting and CPI, the two uses should be treated as distinct activities. For creating weights for CPI, information on household expenditures that is not detailed is largely useless. So, for CPI there is a binary classification Useful/Useless only. For national accounting, all economic information has some use, but its usefulness is improved with broader coverage and especially, good documentation of this coverage.

A two-step rating may be more appropriate for national accounts uses. In the first step, the data content of the questionnaire is compared with the " ideal" one for national accounts purposes described in section 7. After that has been determined, this can be combined with the relative importance of the HIES for information on the data item for national accounts (critical, important and secondary) to assign values. These may be adjusted downwards if not sufficient information on the methodology used to obtain the various data is available. National accounting is largely a balancing act. The relative quality of data items is used, implicitly or explicitly, to assess all available information. Inadequate information sometimes renders seemingly good data items completely useless.

Annex A. The SNA production boundary and imputed rents

The compilation of the national accounts and the preparation of the CPI uses a number of conventions. Two important, related ones are those of the SNA production boundary and the imputed rental services of owner-occupied dwellings. Their definitions and arguments leading to the adoption of those definitions have been provided in this Annex. They consist of direct quotations of a number of paragraphs from the latest SNA[23] and CPI[24] manuals, with comments added where appropriate. The original paragraph numbering is maintained for ease of reference.

The 2008 SNA describes the production boundary as follows:

Production boundary
6.24 Economic production may be defined as an activity carried out under the control and responsibility of an institutional unit that uses inputs of labour, capital, and goods and services to produce outputs of goods or services. There must be an institutional unit that assumes responsibility for the process of production and owns any resulting goods or knowledge-capturing products or is entitled to be paid, or otherwise compensated, for the change-effecting or margin services provided. A purely natural process without any human involvement or direction is not production in an economic sense. For example, the unmanaged growth of fish stocks in international waters is not production, whereas the activity of fish farming is production.

6.25 While production processes that produce goods can be identified without difficulty, it is not always so easy to distinguish the production of services from other activities that may be both important and beneficial. Activities that are not productive in an economic sense include basic human activities such as eating, drinking, sleeping, taking exercise, etc., that it is impossible for one person to employ another person to perform instead. Paying someone else to take exercise is no way to keep fit. On the other hand, activities such as washing, preparing meals, caring for children, the sick or aged are all activities that can be provided by other units and, therefore, fall within the general production boundary. Many households employ paid domestic staff to carry out these activities for them.

6.26 The production boundary in the SNA is more restricted than the general production boundary. For reasons explained below, activities undertaken by households that produce services for their own use are excluded from the concept of production in the SNA, except for services provided by owner-occupied dwellings and services produced by employing paid domestic staff. Otherwise, the production boundary in the SNA is the same as the more general one defined in the previous paragraphs.

6.27 The production boundary of the SNA includes the following activities:
   a) *The production of all goods or services that are supplied to units other than their producers, or intended to be so supplied, including the production of goods or services used up in the process of producing such goods or services;*
   b) *The own-account production of all goods that are retained by their producers for their own final consumption or gross capital formation;*
   c) *The own-account production of knowledge-capturing products that are retained by their producers for their own final consumption or gross capital formation but excluding (by convention) such products produced by households for their own use;*
   d) *The own-account production of housing services by owner occupiers; and*
   e) *The production of domestic and personal services by employing paid domestic staff.*

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23 United Nations, *System of National Accounts 2008 (2008 SNA)*, Statistical Papers, Series: F, No. 2/Rev. 5, New York, 2008
24 International Labour Office, Consumer Price Index Manual: Theory And Practice, Geneva, 2004

The reasoning for the exclusion of services produced for own use (except imputed rents) in the 2008 SNA is as follows:

The exclusion of most services produced for own use by households
6.28 The production of services by members of the household for their own final consumption has traditionally been excluded from measured production in national accounts and it is worth explaining briefly why this is so. It is useful to begin by listing those services for which no entries are recorded in the accounts when they are produced by household members and consumed within the same household:

    a) The cleaning, decoration and maintenance of the dwelling occupied by the household, including small repairs of a kind usually carried out by tenants as well as owners;

    b) The cleaning, servicing and repair of household durables or other goods, including vehicles used for household purposes;

    c) The preparation and serving of meals;

    d) The care, training and instruction of children;

    e) The care of sick, infirm or old people;

    f) The transportation of members of the household or their goods.

6.29 In most countries a considerable amount of labour is devoted to the production of these services, and their consumption makes an important contribution to economic welfare. However, national accounts serve a variety of analytical and policy purposes and are not compiled simply, or even primarily, to produce indicators of welfare. The reasons for not imputing values for unpaid domestic or personal services produced and consumed within households may be summarized as follows:

    a) The own-account production of services within households is a self-contained activity with limited repercussions on the rest of the economy. The decision to produce a household service entails a simultaneous decision to consume that service. This is not true for goods. For example, if a household engages in the production of agricultural goods, it does not follow that it intends to consume them all. Once the crop has been harvested, the producer has a choice about how much to consume, how much to store for future consumption or production and how much to offer for sale or barter on the market. Indeed, although it is customary to refer to the own-account production of goods, it is not possible to determine at the time the production takes place how much of it will eventually be consumed by the producer. For example, if an agricultural crop turns out to be better than expected, the household may dispose of some of it on the market even though it may have originally supposed it would consume it all. This kind of possibility is non-existent for services; it is not possible to produce a service and then decide whether to offer it for sale or not.

    b) As the vast majority of household services are not produced for the market, there are typically no suitable market prices that can be used to value such services. It is therefore extremely difficult to estimate values not only for the outputs of the services but also for the associated incomes and expenditures that can be meaningfully added to the values of the monetary transactions on which most of the entries in the accounts are based.

    c) With the exception of the imputed rent of owner-occupied dwellings, the decision to produce services for own consumption is not influenced by and does not influence economic policy because the imputed values are not equivalent to monetary flows. Changes in the levels of household services produced do not affect the tax yield of the economy or the level of the exchange rate, to give two examples.

The special treatment of services of owner-occupied dwellings (imputed rents) in the 2008 SNA is argued as follows:

Services of owner-occupied dwellings
6.34 The production of housing services for their own final consumption by owner occupiers has always been included within the production boundary in national accounts, although it constitutes an exception to the general exclusion of own-account service production. The ratio of owner-occupied to rented dwellings can vary significantly between countries, between regions of a country and even over short periods of time within a single country or region, so that both international and inter-temporal comparisons of the production and consumption of housing services could be distorted if no imputation were made for the value of own-account housing services. The imputed value of the income generated by such production is taxed in some countries.

The CPI Manual describes some problems relating to production of goods for own consumption (mostly agricultural products).

3.80 A CPI may record either the actual input prices or the imputed output prices, but not both. If the imputed output prices for subsistence agriculture are included in a CPI,the prices of the purchased inputs should be excluded. This could remove from the index most of the market transactions made by such households. Expenditures on inputs may constitute the principal contact that the households have with the market and through which they experience the effects of inflation. It therefore seems preferable to record the actual prices of the inputs and not the imputed prices of the outputs in CPIs.

The CPI Manual provides some other arguments than those given in the SNA for the treatment of imputed rents in the system, as given in the following paragraphs.

3.81 *Housing services produced for own consumption.*
The treatment of owner-occupied housing is difficult and somewhat controversial. There may no consensus on what is best practice. ….. Conceptually, the production of housing services for own consumption by owner-occupiers is no different from other types of own account production taking place within households. The distinctive feature of the production of housing services for own consumption, as compared with other kinds of household production, is that it requires the use of an extremely large fixed asset in the form of the dwelling itself. In economics,and also national accounting, a dwelling is usually regarded as a fixed asset so that the purchase of a dwelling is classified as gross fixed capital formation and not as the acquisition of a durable consumer good. Fixed assets are used for purposes of production,not consumption. The dwelling is not consumed directly. The dwelling provides a stream of capital services that are consumed as inputs into the production of housing services. This production requires other inputs, such as repairs, maintenance and insurance. Households consume the housing services produced as outputs from this production.

3.82 It is important to note that there are two quite distinct service flows involved:
- 🜋 One consists of the flow of capital services provided by the dwelling which are consumed *as inputs* into the production of housing services.
- 🜋 The other consists of the flow of housing services produced as outputs which are consumed by members of the household.

The two flows are not the same. The value of the output flow will be greater than that of the input flow. The capital services are defined and measured in exactly the same way as the capital services provided by other kinds of fixed assets, such as equipment or structures other than dwellings. ... the value of the capital services is equal to the user cost and consists primarily of two elements, depreciation and the interest (or capital) costs. Capital costs are incurred whether or not the dwelling is purchased by borrowing on a mortgage. When the dwelling is purchased out of own funds, the interest costs represent the opportunity cost of the capital tied up in the dwelling; that is, the foregone interest that could have been earned by investing elsewhere.

3.83 There are two main options for the own-account production and consumption of housing services in CPIs. One is to price the output of housing services consumed. The other is to price the inputs, including the inputs of capital services. If housing services are to be treated consistently with other forms of production for own consumption within households,the input approach must be adopted. The production and consumption of housing services by owner-occupiers may,however, be considered to be so important as to merit special treatment.

In summary, it can be concluded that the SNA production boundary and the treatment of owner-occupied dwellings is both theoretically sound and practically feasible. The theoretical point is that the national accounts do not attempt to measure welfare but rather to describe the economy, thereby logically limiting itself to (potential) transactions. That explains the difference in treatment of goods and services as the time of consumption of the former is independent from the time of production but services have to be consumed at the time of their production.

The practical reason for the treatment is that no appropriate prices can be determined. Several examples have been given in the 2008 SNA text given above. Another example amplifies the possible choices. Laundry can be hand-washed by a household member or machine-washed by the same, it can be washed by a domestic worker or sent to a laundry for cleaning. Furthermore there are self-service laundromats. Thus, the time used for washing can be valued at either the electricity (and repair) cost of the washing machine[25] and dryer, the cost of using the laundromat, the salary of the domestic worker for the time used washing or the cost of the laundry service. The range of costs per piece of clothing washed may differ by a factor of one hundred between the cheapest and most expensive options. The selection of any reference service for pricing the time used by the household member is arbitrary and the resulting values are similarly useless for economic statistics.

Furthermore, the relative costs of the different options vary widely between countries and over time. While domestic help was affordable for the middle-income classes in Europe fifty years ago, it is now affordable only for rich or, on an hourly basis, for the needy who receive subsidies to purchase these services. Currently, the hourly rate for domestic help in Western Europe ranges between fifteen and twenty five Euro per hour, while in much of Africa, live-in servants can be had for fifty to one hundred dollars per month. What therefore seems to be a reasonable valuation base at one period of time or one country, may be far out in another country or at another time.

Another problem would occur when different activities have to be valued. Economic theory expects that the utility of an hour spent is the same for all economic activities within the same time frame. That implies that the valuation of the different activities, such as laundering, preparing food, attending to the children, and so on, by the same person would be the same. This implies that it can be expected that valuations for the same activity, at the same time, differ between members of the same household as the opportunity costs for the different household members vary.

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25 These are consumer durables for which capital costs do not play a role, thus no depreciation and financing costs are charged.