

SOURCES OF WEIGHTING DATA FOR THE CPI

BY

VINCENT MUSOKE NSUBUGA

PRINCIPAL STATISTICIAN

UGANDA BUREAU OF STATISTICS (UBOS)

P.O. BOX, 7186 – KAMPALA – UGANDA

E.MAIL: [NSUVIM@MAIL.COM/](mailto:NSUVIM@MAIL.COM)

VINCENT.NSUBUGA@UBOS.ORG

MOBILE: +256 772 933 803

A paper presented during the meeting of the group of experts on Consumer Price Indices held in Geneva, between 30th May and 01st June, 2012

TABLE OF CONTENTS

1. BACKGROUND.....	3
2. SOURCES OF INFORMATION FOR ELEMENTARY AGGREGATES.....	4
2.1. Household Budget Survey (HBS) Data	4
2.2. National Accounts (NA) Data Sources.....	6
2.3. Data sources on Alcoholic drinks and Tobacco.....	7
2.4. Data sources for Large and Irregular purchases	7
2.5. Data sources on Food Consumption Expenditure	8
2.5.1. Special Surveys on chain stores	8
2.5.2. Special Surveys on Food products alone.....	8
2.6. Retail sales surveys	8
2.7. Production and Trade Statistics Data.....	9
2.8. Expenditure and Motivation Surveys on foreign visitors.....	9
2.9. Organizations representing insurance companies.....	10
2.10. Business Inquiry Surveys.....	10
2.11. Information from neighbouring countries	11
3. SOURCES OF INFORMATION FOR REGIONAL WEIGHTS.....	11
4. SOURCES OF INFORMATION FOR OUTLET-TYPE WEIGHTS.....	14
5. SOURCES OF INFORMATION FOR PRICE UPDATING OF WEIGHTS.....	15
6. CONCLUSION AND RECOMMENDATION.....	15
7. REFERENCES	15

SOURCES OF WEIGHTING DATA FOR THE CPI

1. BACKGROUND

This paper gives sources of information needed to obtain an accurate set of weights of the Consumer Price Index (CPI). It deals with issues concerning the primary sources of data, including Household Budget Surveys (HBS), together with other data sources from National Accounts (NA), Food surveys, surveys on point of purchase as well as statistics on sales, tax, production and trade. The sources of information that should be used to compute the weights are those which are considered to be the most accurate estimates of consumers' expenditure for each category of products. Though HBS is the major source of information, the other sources also play a major role given the inadequacies of the HBS. Thus, compilers of the CPI weights are expected to gather as much relevant data as possible instead of relying on HBS results only. The aim of this paper is to document how the best estimates of household consumption expenditures, regardless of their source they could be achieved, which in turn would result into accurate weight compilation. The paper does not however, go into details about the methods used to compile the data sources.

Weight is the share of total household expenditure which is spent on a particular product during the weight reference period. Weight reference period is the period of time for which the weights are calculated or on which they are based. The recommended weight reference period is twelve consecutive months, and preferably a single calendar year. Thus all sources of information used during the compilation of weights should in principle also provide at least annual data. Thus the reference period should be kept in mind both when establishing weights and when revising them. According to the international CPI Manual of 2004, "A month or quarter is too short a period to use as a weight base period, since any one month or quarter is likely to be affected by accidental or seasonal influences. However, there are special situations where data for a single year, may not be adequate either because of unusual economic conditions or because the sample is not large enough. An average of several years of expenditure data may then be used to calculate the weights". For instance, weights for insurance services should be based on the average data for three consecutive years.

Household Final Consumption Expenditure (HFCE) is the expenditure on final consumption goods and services incurred by individual households on themselves. It excludes expenditure by governments or non-profit institutions on goods or services provided to households as free and social transfers in kind. If the major objective of the CPI is to measure inflation as it affects households, the monetary component of HFCE is used for estimation of weights for the CPI. Thus, the computation of weights must follow the concept of Household Final Monetary Consumption Expenditure (HFMCCE) which is used for the CPI. Thus while computing weights for products as health, education, insurance, second hand goods and the like, weights must reflect expenditures excluding any reimbursements or inter households transfers.

The term weights, is often taken solely in terms of product weights. In this paper, however, two additional dimensions are presented: regional weights and outlet type weights. Each of the three dimensions needs its own weight, at least at the elementary aggregate level.

2. SOURCES OF INFORMATION FOR ELEMENTARY AGGREGATES

2.1. Household Budget Survey (HBS) Data

The HBS, also known as the Household Expenditure Survey (HES), is the most important source of information for the CPI weights. This paper focuses on the quality of information which may be expected from the HBS, and the extent to which the results need to be adjusted before they can be used as CPI weights.

Weights that are based on a shorter periods will not be representative of annual seasonal patterns of household expenditure. Indeed, for some product groups, it is better to extend the reference period to two or even three years. This is particularly useful when the weights for fresh food products are very high compared to other periods as a result of prolonged draught and other causes. As a result, production and hence expenditure on agricultural produce can vary enormously from one year to another because of such fluctuations in weather which may occur in one year but not necessarily every year. For instance, the “The weight reference period normally covers a period of 12 months, but it may be longer for some types of product, such as agricultural produce, where annual weights may have fluctuated significantly.”

Fluctuations in expenditure patterns can also happen as a result of other influences, such as oil shocks, economic booms or recessions, natural disasters such as earthquakes and so on. This lends weight to the idea of averaging weights data over a period of two to three years.

If a national HBS covers shorter periods than one year, great care should be taken on the estimation of weights based on the HBS, since certain types of expenditure may be significantly under-estimated. As a result, this would result in other types of expenditure being over-estimated.

The most common problem with HBS data is the widespread under-reporting of certain products. These include: alcoholic drinks and tobacco products. Other products which are often under-reported are drugs, gambling, prostitution and black market purchases. Another common source of under-reporting is the expenditures made by children, out of pocket money earned or given to them by their parents. In all cases where under-reporting is suspected, steps should be taken to make adjustments to the data. Even if the adjustments are little more than educated guesswork, the results are likely to be more accurate than simply using the raw data.

Adjustments made for under-reported category of products are undertaken by looking into more detail at particular types of expenditure. It should be noted that the methods of adjustment are likely to differ between countries, depending on the alternative data sources available. The best that can be done here is to point CPI statisticians in those directions which have been known to be useful in some countries.

Another problem with the HBS data is that the expenditure coverage may be wider than that in the CPI. For example, it may include expenditures on income taxes, life insurance premiums, and remittances to and from abroad or to relatives within the country, payment into savings accounts, gifts, debt repayments, the value of own-account consumption, and the like. When calculating the expenditure shares for those products within the scope of the CPI, care must be taken to exclude all the various types of payment as mentioned above which fall outside the scope of the CPI.

It may also happen that the HBS estimates of food expenditure are based on the value of food consumed in the period of the survey, rather than the value of food purchases made during the period. This is done because of the need for estimating the nutritional value of food consumption of households. Care should be taken to ensure that the correct values are used for the CPI weights.

Besides, it is a well-known phenomenon that response to HBS questionnaires is biased against the wealthier households. Since normally HBSs are voluntary, this creates a serious problem of estimation. Unfortunately for the CPI statistician, the primary purpose of the HBS is often related to issues concerning poverty, nutrition and so on, sometimes with a particular focus on rural households. This is a real concern as far as CPI weights are concerned, because the CPI needs to cover all household monetary transactions, including those made by the wealthier households. If no corrective action is taken, the grossed-up HBS data are likely to underestimate significantly expenditures on items which tend to be bought more frequently by the wealthier households, such as cars, televisions and other durables, as well as the more expensive types of food, catering, clothing etc. Furthermore, the wealthier households tend to live in larger houses, with inevitably higher expenditure on utilities such as fuel, water and so on, as well as for domestic servants including cooks, cleaners and gardeners. It is important to bear in mind that the CPI covers the entire domestic resident population as well as foreign visitors. Thus, HBSs or alternative expenditure surveys need to cover resident foreign households, including diplomatic households, whose total expenditures are likely to be above the average for the national population, and with probably differing expenditure patterns.

This paper cannot prescribe ways of dealing with this problem, as it affects countries in different ways. Unfortunately there seem to be no generally accepted methods of making adjustments, though some countries have devised various useful techniques aimed at going some way to correcting the bias. The most that can be said here is that the bias is potentially very serious, and that national CPI staff needs to consider solutions, some of which have been suggested in the previous paragraphs.

The use of a common classification between the source of CPI weights and the CPI itself makes the process of calculating expenditure weights more efficient. The classification used in the HBS should make it possible to assign accurate weights to the most detailed level in the CPI for which weights are

required. But when it is necessary, price statisticians have to make use of data expressed in a national classification or other international classification such as Classification of Product by Activity (CPA), Central Product Classification (CPC) or International Standard of Industrial Classification (ISIC). These are not designed for the purpose of consumer price statistics, so often special transition codes between them and Classification of Individual Consumption According to Purpose (COICOP) usually already established in the National Statistical Institutions are needed.

2.2. National Accounts (NA) Data Sources

There are close links between household consumption data derived from HBS's and from national accounts. Each of these sources is covered in this paper, by first looking at the usual difference between the two sources.

The first challenge is the matter of classification. If a country is compiling its national accounts on the basis of the SNA93 (the UN standard) or the SNA 2008, it should use COICOP as the consumption expenditure classification. If a country is an ILO member, it should be conducting its HBS using COICOP as the classification, at least at the Division level (ILO Resolution on HBS, 2004, paragraph 20).

Thus it should normally be the case that the HBS data map the national accounts data, at least at certain levels of aggregation. But it would be unusual for the NA to have data down to the level of the elementary aggregate, which is the lowest level for which CPI weights are needed. So it may be that the NA data can be used at aggregated levels, but reliance may need to be placed on the HBS at more detailed levels.

A country publishes national accounts data on household consumption expenditure at the COICOP Class level. In such a case, there would only be one heading covering Fruit, for example. If the CPI has elementary aggregates at a lower level (e.g. (a) fresh, chilled and frozen fruit; (b) dried fruit; (c) preserved fruit) then the split of the class weight would need to be made using data from the HBS.

The coverage of the NA will normally differ from that of the HBS – and indeed from the CPI coverage. Examples are: own account consumption, imputed rent for owner occupied houses which in fact is a specific case of own account consumption; expenditure on goods and services which are fully or partially subsidized by the state, such as health and education expenditures; and the expenditures of non-profit-making organisations such as churches or trade unions.

The removal of all such coverage differences must be done before comparing HBS and NA data, and this will necessarily involve close co-operation between the CPI statistician and the national accountants – even perhaps especially where the national accounts are compiled in a different institution from the National Statistics Institute (NSI), such as the central bank or the finance ministry.

Despite the potentially difficult tasks involved in adjusting the NA data to align better with data from the HBS, it is strongly recommended that it is done, since it provides a very useful cross-check on both of the

data-sets. As the international CPI Manual says. It should be noted that those national accounts should not be viewed as if they were an alternative, independent data source to HBSs. On the contrary, HBSs provide one of the main sources for the expenditure data on household consumption used to compile national accounts.

2.3. Data sources on Alcoholic drinks and Tobacco

Where these products are reported in HBSs, it is probably wise to assume that the figures are underestimated, and therefore additional sources of data should be investigated. Many countries impose special taxes on both alcoholic drinks and tobacco, usually excise taxes. Official data should therefore be available which would provide estimates of consumption. However, care needs to be taken with such data. Alcoholic drinks are purchased by companies, particularly those in the catering business, as well as by individuals. Tax-based estimates of total alcoholic drinks sales are thus likely to overestimate the household part of sales, and some estimation of the proportions of sales to consumers and sales to other sectors should be made.

In the case of tobacco, it is more likely that most purchases are made by consumers, so that tax estimates may need relatively little adjustment.

Statisticians should always be on the alert for special surveys, not necessarily official surveys, which shed light on consumer behaviour. For example, there may have been a survey on the proportions of males and females who are regular smokers, and how many cigarettes they smoke on average per day. Of course, such data need to be considered alongside with other data, such as HBS and tax-based data. As with alcoholic drinks and tobacco, no single data source is likely to give an accurate figure, but using good judgments, the statistician should be able to come up with a reasonable estimate taking into account of each of the various data sources.

2.4. Data sources for Large and Irregular purchases

Many HBS surveys are divided into a daily diary section, where respondents record their daily expenditure over a period of, say, two to four weeks. These can give reliable data on the smaller items, in particular food and drinks, and other items like newspapers, small medications such as cough medicines and headache pills, domestic cleaning items, shaving items, cosmetics and so on. But more expensive items obviously tend to be bought less frequently. So many HBS forms have a second section in which respondents are asked to record their expenditure on these larger items over a past period, say six months or even a year. Data from these sections can be unreliable. First of all, people tend to forget that they have even bought large items such as a television if it is many months since the purchase. Secondly, even if the purchase is recalled, the price paid may not always be recalled with accuracy, especially if paid for in installments.

So in the case of these larger items, it is better if the CPI statistician can look for other data sources to act as a cross-check on the HBS results. Different countries will have different possibilities, but it may,

for example, be possible to obtain sales data direct from retailers or from retailers' organisations. If televisions, say, are all imported, it may be possible to obtain domestic sales data from the official trade statistics. Again, care must be taken to exclude non-household purchases: TVs are often purchased for offices, government departments, hotels and so on.

2.5. Data sources on Food Consumption Expenditure

2.5.1. Special Surveys on chain stores

In some countries, a large proportion of sales of food and certain other fast moving consumer goods are sold by supermarkets. It may be possible in such cases to organize a special survey of chain stores. This would probably not provide an estimate of total sales, but it may provide a means of estimating the weights within the category totals. The method would be rather similar to that described above in the case of the more regular retail sales surveys. Food purchases carry a large weight in most countries, so a special effort should be made to ensure that data of the greatest accuracy are obtained.

2.5.2. Special Surveys on Food products alone

Some countries conduct official surveys on household expenditure on food products, separately from the less frequent HBS. Food surveys often provide more detailed data on food consumption and expenditure than the HBS. Thus, maximum use of the results of such surveys should be made, especially if they provide more detailed information than that available from the HBS or other sources. The results from such surveys could be used to decompose expenditure reported in aggregated form into reasonably smaller elementary aggregates. This can be achieved by using the proportions of expenditures obtained from the results of this survey to disaggregate those product expenditures reported in aggregated form during the HBS. The results of such surveys could also be used to improve some expenditure normally misreported during the HBS. In such a case, multipliers are developed that are used to adjust the HBS results for specific products.

2.6 Retail sales surveys

Some countries conduct surveys of retail sales data. Where such surveys exist, they can be used to derive household expenditure weights over a potentially wide range of products. As always, care must be taken to exclude business purchases. Often, the data from retail surveys are aggregated to a relative high level, so it may be necessary to use detailed HBS data to disaggregate the retail sales information.

Example:

A retail sales survey identifies with reasonable accuracy total sales of men's clothing to households. This is \$50 million over one year. But there are no figures at a more detailed level. The equivalent figure summed up from the HBS is \$40 million. The NSI considers that the retail sales figure is more likely to be closer to the truth. Within the HBS data, the total of \$40m is broken down into:

Men's outerwear (\$30m);

Men's underwear (\$7m);

Other men's clothing articles such as ties, handkerchiefs, gloves etc (\$3m).

The weights of these three categories within the total for men's clothing are respectively 75%

(30/40); 17.5% and 7.5%. Applying these percentages to the more reliable total of \$50m gives the following estimated values:

Men's outerwear: \$37.5m;

Men's underwear: \$8.75m;

Other men's clothing articles such as ties, handkerchiefs, gloves etc.: \$3.75m.

2.7 Production and Trade Statistics Data

The National Accounts departments of many countries compile Commodity Flow Accounts (CFAs), either annually or from time to time. They can be used to highlight sectors of the economy where the statistics cannot be reconciled, and hence point to areas where improvements in data quality need to be made.

CFAs are related to Input-Output tables. They aim to match the supply and demand data for a wide range of commodity groups. Data are shown for each of the main elements of supply and demand; thus, within supply are shown figures relating to domestic output and imports, while demand is broken down into household consumption, government consumption, capital formation, stock building and exports.

Estimates of the proportion of domestic consumption can then be used to estimate total household consumption. This figure is then compared with the results of the HBS to provide conversion factors to apply to HBS data so as to account for under- or over-reporting. These conversion factors can be calculated for different product groups, depending on the CFA aggregations. The factors are likely to be fairly stable over time, so they can be used for several years.

2.8 Expenditure and Motivation Surveys on foreign visitors

CPI compiled by some countries is based on the Domestic concept. Domestic concept refers to all household final consumption expenditures on the economic territory of a Member State. Thus, it includes non business household consumption of visiting foreign households: Tourists, Foreign visitors and cross-border purchases but excludes the consumption of resident households outside the territory of the Member State. Economic territory of a country is the geographic territory administered by a government within which persons, goods, and capital circulate freely. HBS normally do not cover such category of households.

In the case of Uganda, such surveys are carried out for a period of six months. The six months are spread during a calendar year such that the three months, March to May, cover the low peak of foreign visitors and months October to December cover the high peak of foreign visitors. The survey is conducted by the Ministry of Tourism, Trade and Industry (MTTI) with technical assistance from Uganda Bureau of Statistics (UBOS) staff. The main objective of such surveys is to get baseline statistics on general characteristics of the foreign visitors to Uganda. However, due to financial constraints such surveys are not regular. The second shortcoming of the results of the survey is that consumption data is collected and published in aggregated form: Accommodation and room service, Meals in restaurants and bars outside place of stay, sightseeing tours, and visits to national parks, car rental, domestic air transport, and other services. Despite such limitations, the results of the survey are very useful to improve on the household consumption data for those categories of expenditures.

2.9 Organizations representing insurance companies

Insurance is a process by which large groups of households co-operate in such a way that if one household suffers some form of loss, the other households will jointly compensate the first household for the value of its loss. This is achieved by means of premiums paid by all households into a communal fund, from which compensation claims are paid out. Thus weights for insurance products are computed entirely by using the total service charges of all the insurance companies within the economy.

The management of such a process is given to a third party which is the insurance company. The company's essential functions are to set the required level of premiums, collect them, assess the claims, and pay out the compensations. To do this work, it incurs administrative costs, and in addition it will usually take a profit. From the economic point of view, the principal transactions comprise the transfer of premiums from all of the contributing households to the central fund, and the transfer of claims from the central fund to the claimant households. Such transfers do not form part of Household Final Monetary Consumption Expenditure (HFMCCE), and hence do not fall within the scope of the CPI. The difference between the sum of all premiums and the sum of all claims is described as the service charges, though in reality the situation is slightly more complex. It is the service charges which are the true cost of insurance, and it is these charges which are used to compute weights for insurance category of products.

The required data on service charges cannot be obtained from Household Budget Surveys. Instead, they obtain the data from insurance companies, either individually or, perhaps more conveniently, from an organization representing insurance companies. In the case of Uganda, such information can be obtained from the "Uganda Insurance Authority."

There is a further problem with the compilation of insurance weights. The difference between premiums paid and claims paid tends to fluctuate considerably from one year to the next, and can occasionally be negative. Unlike the weights for most other products in the CPI, which generally remain relatively stable from one year to the next, it would be unreliable to use a single year's data for insurance weights. Thus, this requires Member States to calculate insurance weights on the basis of a three-year average. The choice of three years is somewhat arbitrary, but if the weights are to be reasonably up-to-date, the reference period should not be excessively long. Three years should usually be long enough to iron out any large annual fluctuations. The three-year period should include the weights reference year used for the general rebasing of the CPI. These could be the three years for which the weights reference year is in the middle or should be the three years ending with the weights reference year.

2.10 Business Inquiry Surveys

Results from the Business Inquiry Survey provide information on the performance of the main sectors of the economy and their contribution to the GDP. Information is collected from all the sectors of the economy. In the case of Uganda, the activities of the economy have been categorised into eleven major sectors and each sector has its own questionnaire. The sectors are Agriculture, Trading which covers large establishments with an annual turnover of ten million Uganda shillings and above which is

equivalent to four thousand three hundred United States dollars (USD 4,300), Small Trading and Services which covers small establishments with an annual turnover of below USD 4,300, Finance, Insurance, Small Mining and Manufacturing, Manufacturing, Hotels & Restaurants, Education & Health, Construction and Non Government Organisations (NGO) that are engaged in Business.

The information collected from such surveys include Sales of goods bought for resale to public as well as those of own produce, sale passenger and freight transport services to the public, sale of accommodation, food and bed to the public. Other information is income received from the public for services rendered in form of interest, rent, professional fees as well as income from foreign exchange transactions. Also collected are Receipts from the public for repair and maintenance such as machineries, equipments, dwellings and the like. Also collected is information on nursing fees, tuition fees. Additional information is sales of medicine and medical goods, uniforms etc. to the public.

The information can be used to compare the accuracy of the HBS results and also to compute multiplying factors that would be used to improve on the HBS results. In addition, the information can be used to fill the gap as a result of missing information from the HBS and other supplementary sources.

One of the limitations of the information is that is that there is a need to decompose receipts of sales of goods and services to the public into those sold for household final consumption and the rest. However, there are some sectors almost all whose receipts from the public are for household final consumption which implies that it can be utilised the way they are. The second limitation is that the information is in aggregated form and therefore cannot be utilised directly to compute CPI elementary aggregate weights. Despite those two limitations, the information is very useful and if it is available, it has to be utilized during the computation of weights for the CPI.

2.11 Information from neighbouring countries

There is always a need to look at the weights from the neighbouring countries and compare them with final computed weights. This is very useful more especially for countries within a similar situation like culture and those within the same economic blocks like those in the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC) and the like. Neighbouring countries that are found within the same economic block have a lot in common. In situations where a country has failed to undertake an HBS for a long time, information from neighbouring countries with wider economic ties and with similar culture could be used as source of weights for her CPI. The CPI computed using such information is more representative and gives a better picture of the current expenditure pattern instead of continuing to compile a national CPI with a very old base.

3. SOURCES OF INFORMATION FOR REGIONAL WEIGHTS

If the national CPI is compiled on the basis of aggregating regional CPIs, all the elementary aggregates will have a regional as well as a product dimension. Thus, there will be weights not only for "Sugar" but also for, say, "Sugar – North Region", "Sugar – West Region" etc. Countries which compile regional CPIs

will usually have a national HBS which is designed in such a way as to be able to give statistically reliable estimates of household expenditures by region. Where this is the case, the estimation of CPI weights is done region by region in the same way as for national weights as described in the previous sections of this paper. Though the CPI is not being designed for the publication of regional indices, the purpose of any regional dimension is to improve the accuracy of the national CPI by introducing stratification at the regional level.

As always with spatial estimates, problems may occur at or near the regional borders. Especially near large towns, a consumer may live in one region but make their purchases in a town over the border in the adjoining region. There is a need to assign that expenditure to a region. From the social point of view, it would normally be the region of residence. From the economic point of view, it would be more likely to be the region where the economic transactions take place. If the HBS questionnaire requires the respondent to indicate the place of purchase, this should present no difficulties of analysis for the CPI statistician. In fact, some HBSs include a column of point of purchase (POP) which can also be useful for the CPI statistician as it may help to decide which retail outlets to include in the price survey.

Where the HBS does not provide sufficiently reliable estimates of regional expenditure at the product level, other sources must be sought if regional sub-index of the CPI is to be calculated. Here, the official population census may be useful. The idea is that census estimates of regional populations can be used as a proxy for allocating regional weights to CPI expenditures. These estimates should be done very carefully, as a superficial approach can lead to serious errors.

Example: In case of Uganda suppose that there are no regional estimates of total household expenditure. The national total is broken down into regional estimates using simply the midyear population for the 2011 calendar year. In Uganda there are four regions: Central, Western, Eastern and Northern. Population data is:

Total: 32.94 million (100%)

Central: 8.465m (25.70%)

Western: 8.230m (24.98%)

Eastern: 8.623m (26.18%)

Northern: 7.621m (23.14%)

These proportions could then be applied to the national CPI weights to arrive at regional weights. The reader will see that such a process yields nothing of any value. The crucial and false assumption made is that total expenditure in each region is directly proportionate to its population. This would ignore the fact that the capital city is in the Central region, with much larger average household incomes and expenditures, while the Northern region is almost entirely rural, with a relatively poor population.

What is necessary, then, is to have available some independent estimates of regional total expenditures. These estimates could come from a variety of different sources, including official data on incomes which may be used as a proxy for expenditures.

However, by using the results of the 2009/10 Uganda National Household Survey (UNHS), the total monthly income for Ugandan households is 2,353 million Uganda shillings (100%)

Central: 1,393 m (59.18%)

Western: 489m (20.79%)

Eastern: 264m (11.22%)

Northern: 207m (8.81%)

The national CPI results you get by using the regional weights obtained in first example above will be significantly different from those that will be obtained using the expenditure or income.

Given that the Central region includes the capital, with higher-income households and hence different expenditure patterns, as well as a major part of total national expenditure, the best procedure would be to calculate two sets of estimated expenditure weights: one for the capital city, and another for the rest of the country. Applying these weights to the level of total expenditure as shown above will allow the calculation of a more reliable national set of CPI weights. In Uganda, regional weights are computed by using the regional household consumption expenditure values. Thus Statisticians should avoid using population figures to derive regional weights since it will lead to biased national CPI numbers hence wrong policy formulation and implementation.

4. SOURCES OF INFORMATION FOR OUTLET-TYPE WEIGHTS

Some countries will have three dimensions or stratifications for their CPI i.e. product group within region and outlet-type. Thus, there would be separate elementary aggregates for, say, “Sugar, North Region, open markets”; “Sugar, North Region, supermarkets” etc. It is also possible to have just two dimension, product group and outlet-type, but without regions. The decision on this is not for this paper, since considerations are context-specific capturing national characteristics. The CPI statistician may consider that there is more variability of price trends between outlet-types than between regions, so that priority would be given to stratification by outlet-types rather than by regions.

The principles involved in estimating outlet-type weights are similar to those described above in estimating regional weights. But the sources will be different. And in this case it is even more difficult to generalize, since the sources of information are likely to differ considerably between countries. The best starting point is perhaps to obtain information on total sales from the large supermarkets, and hence to obtain a national or regional estimate of total supermarket sales – ideally with some product breakdown, even if only at a broad level, such as food, household goods etc. Surveys on points of purchase in which households are asked about the amounts spent in specific outlets could be a very good source of information in such a situation. Results of such surveys could serve two purposes: to disaggregate the expenditure data into outlet-types and also to select outlets for price collection. The other source of information here are the results of the business inquiries. At the other end of the scale, it may be possible to make some approximate estimates of the total sales of open markets, many of which will be covered in the price surveys. This would need to rely on special estimates based on observation by price collectors and field supervisors, since individual stallholders would often be unable or unwilling to provide their own estimates of, say, total weekly turnover.

Each country’s classification of outlet-types may be different, but as an example, assume that a country has three types: supermarkets, open markets, and other outlets. The possible methods of obtaining approximations of total annual sales by supermarkets and open markets have been discussed. The estimate for other outlets could be obtained simply by difference. These methods would of course apply only to the types of product sold in these types of outlet. Other products, for example, sales of electricity or of bus tickets, have their own unique “outlet-types”, and it should be relatively easy to obtain information on total and regional sales direct from the organisations concerned: electricity and bus companies or the government ministries responsible.

5. SOURCES OF INFORMATION FOR PRICE UPDATING OF WEIGHTS

It is rare to get data which can be used for the CPI weight revision that refers to the price reference period. For this reason it is important to price update weights since the quantities refer to some years preceding the price reference period. Price updating is a procedure whereby the quantities in an earlier period are revalued at the prices of a later period. The resulting expenditures are described as “hybrid”. In practice, the price-updated expenditures may be obtained by multiplying the original expenditures by price relatives or price indices. Price-updating is usually applied at the lowest level of aggregation, i.e. at the elementary aggregate level, where each expenditure weight is multiplied by its corresponding elementary aggregate index for the period between the weight reference and the price reference period. Thus the source of information to carry out this process are the indices at the elementary aggregate level used to compile the CPI one needs to revise her weights. Alternatively, this can be done by using index numbers for a group elementary aggregates that could give a representative picture in cases where indices of a specific elementary aggregate cannot be used.

However, Price-updating should not be used to update weights obtained from an old HBS, to align with a price reference period many years later. It should not be used as an alternative to carry out new HBSs, e.g. to update weights which do not meet the “age” standards recommended by the CPI manual. Secondly, price-updating of weights should not be done in an automatic or mechanistic way but only by taking care in such a way that that it is appropriate for each elementary aggregate.

6. CONCLUSION AND RECOMMENDATION

This paper has reviewed various sources of data that could be used during the construction of weights for the CPI. The sources highlighted in this paper are household budget surveys, national accounts data, official statistics data on alcoholic drinks and tobacco, data sources for large and irregular surveys, special surveys on chain stores, special surveys on food products, retail sales surveys, production statistics data, trade statistics data, expenditure and motivation surveys on foreign visitors, organizations representing insurance companies and business inquiry surveys.

The paper should be taken as a tool for all Statisticians responsible for construction of CPI weights to always look around for whatever source of information that could be used to compute household final consumption expenditures for any category of products. It should be noted that all sources of information including HBS are supplementary to one another.

7. REFERENCES

1. Practical Guide to Producing Consumer Price Indices by UNECE/ILO/IMF/OECD/EUROSTAT/THE WORLD BANK
2. International Consumer Price Index Manual 2004 by the International Labour Office (ILO)
3. COMESA HCPI Technical Guidance Notes May, 2010