<u>**Question Bank Commentary: Income**</u>

<u>**This article was written by Roger Thomas, 1999**</u>

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1) Income and Wealth

Income, wealth and capital accumulation, wages, prices, production and consumption have always been concepts of central interest to economists and are basic variables in the models through which they seek to explain and forecast the workings of national economies, the effects of incentives on supply and demand in the capital goods, labour and consumer markets and other economic phenomena. At the micro level the agents and units of interest are typically individuals and households and activities of interest are economically productive activity, consumption activity, saving and capital accumulation.

Governments, too, are preoccupied with these matters, with the levels and distribution of income and wealth amongst the governed and with how to maintain the fiscal base which supports their policies. Since economic actors at this level are also voters and since many of the policies of modern governments (as well as factors beyond their control) influence wage and price levels and redistribute income in ways which are politically sensitive, they are also very interested in obtaining data to monitor incomes, wages and prices.

The behaviour of key economic variables in the aggregate can often be monitored more or less accurately without recourse to social survey methods. For example, macro-economic indicators such as aggregate money supply, credit and debt and liquid asset holdings can be monitored through financial institutions, income levels can be monitored through Inland Revenue statistics, wage levels via surveys of employers (a UK example is the New Earnings Survey) and consumer prices by sampling retail outlets, as is done in the UK and elsewhere for the purpose of maintaining the Retail Price Index (RPI).

A limitation of these aggregate methods is that individuals, households and families are economic actors with varying economic attributes who are differentially affected by aggregate economic conditions and who pursue their own interests, choices and agendas. Thus for example, in order to construct a realistic RPI, it is necessary to have estimates not only of the current prices of goods and services, but also of the current contents of the average "basket of goods and services" that consumers in general and particular classes of consumers choose to buy. Similarly; an indicated level of national prosperity at the macro level needs to be interpreted in terms of the distribution of benefits across households in different circumstances, in different parts of the country and so on.

It is very hard to monitor the population distributions of income and expenditure variables without conducting social surveys of samples of income-receiving and spending units. Hence almost all governments conduct official surveys of the economy at the level of income and consumer spending units - that is, households and their individual members.

2) Surveys of the Income and Expenditure of Individuals and Households

a) Household budget surveys

The most typical form taken by such surveys is the household budget survey and the prime UK example is the Family Expenditure Survey (FES). The FES is conducted by the Office for National Statistics (ONS) and has run continuously since 1957. It collects exhaustive information about both the income and the expenditure of a sample of households. The even older National Food Survey (from 1941) focuses on food expenditure, but contains little on income.

b) Other surveys with substantial income sections

Aside from the FES, several other government surveys cover income in some detail. Since 1993 the Department of Social Security (DSS) has sponsored the large continuous Family Resources Survey, conducted jointly by ONS and The National Centre for Social Research (The National Centre for Social Research), an independent research institute. The FRS goes into FES-style detail in collecting income information from a national cross-sectional sample of tax/benefit units. It is specially concerned to monitor eligibility for, and the redistributional effects of, the various state benefits, but covers only particular types of expenditure of relevance to the benefits system, such as expenditure on housing. It also has some questions on capital assets, but these again are focused on eligibility for benefits.

Several other major surveys covered by the Question Bank, such as the General Household Survey (GHS), the Survey of English Housing (SEH) and the Labour Force Survey (LFS) contain sets of questions intended to provide measures of income, though they are not as elaborate and exhaustive in their approach as the FES and the FRS.

Even given the substantial provision in official government surveys for collecting and analysing data on income, there is persistent further demand for income estimates, in particular at local level. This is reflected in repeated attempts over several decades to have income questions included in the decennial National Census of Population. The attempt may or may not succeed with respect to the 2001 Census, but there has already been an extensive programme of testing of possible census questions and this has thrown considerable light on the way in which household form-fillers approach the task of providing income information.

Outside the realm of government surveys, the British Household Panel Survey collects substantial amounts of detail on income and household finance, with a somewhat different slant from the FES and the FRS. In the meantime many other surveys which are not centrally concerned with financial topics, such as the British Social Attitudes Survey (BSA), nevertheless seek to construct a rough measure of household or individual income, typically by using just one or two questions (see summary table). Many commercial market research surveys are centrally concerned with aspects of income, consumption and expenditure, but these are outside the scope of the Question Bank.

Survey Title	Responsible organisation, frequency, response rate	Currently in Question Bank?	Coverage of income and expenditure and other comments about data collection and data processing.

Family Expenditure Survey	Conducted by ONS. Continuous since 1957. Household response rate about 70%.	Yes, from 1991	Exhaustive prompted coverage of all sources and amounts of income through interviews with all adult household members. Documentary evidence sought. Much cross-checking, editing and imputation to provide correct and complete income data. Diaries completed by all spenders to collect exhaustive details of expenditures over 2 weeks. Questionnaire used to collect regular and less frequent expenditures.
Family Resources Survey	Conducted by ONS and The National Centre for Social Research for DSS. Continuous since 1993. Household response rate about 67%.	Yes, from 1993	Exhaustive prompted coverage of sources and amounts of income for benefit units and individuals. Documentary evidence sought. Much cross-checking, editing and imputation to provide correct and complete income data. Housing expenditure covered with reference to housing benefit and Income Support. Some coverage of liquid assets.
Survey of English Housing	Conducted by ONS. Continuous since 1993. Household response rate about X%.	Yes, from 1993.	Detailed household and "tenancy group" income and housing expenditure sections for private renters using prompts. Less detail on other types of household. Accepts estimates for income components. Detail on housing costs but no coverage of expenditure generally.

Survey Title	Responsible organisation, frequency, response rate	Currently in Question Bank?	Coverage of income and expenditure and other comments about data collection and data processing.
General Household Survey	Conducted by ONS. Continuous since 1971. May be biennial from 1998-9. Household response rate about 80%	Yes, from 1991.	Collects income data for general purposes using about 25 interview prompt questions taking about 3-8 minutes. Estimates accepted for income components. No coverage of expenditure except for particular topic purposes.
Labour Force Survey	Conducted by ONS. Continuous in	Yes, from 1991	Income data collected in some detail, using source prompts, with special emphasis on income from economic

	present form since 1988. Household address sample revisited five times. Household response rate about X% at first round.		activity and from state benefits including training allowances, Job-Seeker's Allowance etc. Information obtained through proxy household respondent in about 40% of cases. No coverage of expenditure except for particular topic purposes.
British Social Attitudes Survey	Conducted by The National Centre for Social Research in most years starting 1984.	Yes, from 1991	Contains only a single question on household gross income. Questions on receipt of benefits and of investment income asked, but not amounts received. Does not cover expenditure.
British Household Panel Survey	Conducted as a longitudinal study by NOP for the Centre for Study of Micro-social Change.	Yes, from start of study	Selected adult completes, in response to prompts, individual and household income record extending over previous year, including earnings, benefits and interest from savings etc. Also covers transfers of money within and between households. Other household members not interviewed.

Survey Title	Responsible organisation, frequency, response rate	Currently in Question Bank?	Coverage of income and expenditure and other comments about data collection and data processing.
National Food Survey	Conducted by ONS for MAFF & Dept of Health. Continuous since 1941. Household response rate about X%.	No.	Diary survey of household expenditures on food. Main diary kept by household member mainly responsible for food purchases, with special supplements for meals eaten away from home. Much detail on brands and nutritional content. Only a broad and simplified measure of income.

c) Surveys which aim only for a rough household or individual income indicator

Aside from these major continuous and repeated surveys, many other social surveys conducted within and outside government contain questions designed to get a rough indication of personal or household income. Some approaches often used are discussed at section 10.

3) Surveys of the Wealth Holdings of Individuals and Households

So far little has been said about wealth. There is no doubt that both academic economists and government would very much like to have a survey instrument which monitored on an adequate and continuing sample basis and to a credible level of completeness and accuracy the wealth and capital asset holdings of

individuals and households. In practice this would need to be linked to a survey which also collected details of incomes. In fact, several attempts have been made to set up such a survey, but all so far have been defeated by an interlocking combination of technical problems and problems in obtaining a sufficient level of co-operation and response.

One of the major factors which makes the problems so intractable is that wealth is much more unevenly distributed across the populations of households and individuals than is income. Because of that, securing co-operation amongst the small proportion of units that accounts for a very large share of wealth holdings becomes very important where the aim is to construct economic models which account for a high proportion of total wealth holdings, savings etc. The minority of very wealthy households and individuals unfortunately tend to be resistant to the idea of revealing details of their financial affairs in response to voluntary surveys.

In spite of the very unequal distribution of wealth, it remains true that most of the wealth held by individuals and households is held in relatively small lots by large numbers of owners. The response and non-response bias problems for this sector are probably not as severe as they are for the very wealthy and in principle it would appear a more feasible proposition to classify the majority of households in terms of their wealth holdings (without worrying too much about accounting for a high proportion of all wealth).

Here, however, a different but equally intractable problem confronts the survey researcher. Typically the bulk of the wealth held by ordinary "non-wealthy" households and individuals is tied up in housing and consumer durables and also in pension rights, insurance policies and the like, rather than existing as liquid assets with an instant cash value. The key problem with estimating wealth in these latter forms is probably not so much the reluctance of modest wealth holders to reveal what their assets are, but the fact that most are unaccustomed to assessing what they are worth and have little idea of the current market or surrender value of their assets.

None of the surveys currently in the Question Bank attempts comprehensively to measure the wealth holdings of individuals or households. However, the Family Resources Survey does attempt to measure the liquid assets and savings of individuals, households and families (benefit units) within the value range £1,500 - £20,000. It was estimated that about a third of households had no liquid asset savings of any kind, about 54% had assets within the above range, while about 15% had holdings worth £20,000 or more However, the experience of the survey in this area, as described in the FRS 1994-95 Report Chapter 5, also illustrates some of the difficulties discussed above and again in the section on the FRS.

4) Income, Consumption and Deprivation

Not only economists, politicians and administrators, but also market researchers, social policy analysts and other social researchers are interested in measuring income, wealth, expenditure and consumption. In economically developed societies not only the material side of the lives of individuals and households but also much of the social and cultural side of life is strongly determined by levels of income and wealth and by the levels and types of consumption which they afford.

Social researchers and social policy analysts have typically approached surveys of income and expenditure from a slightly different perspective from that of economists and fiscal analysts. One of their major preoccupations has been with the unequal distribution of power and status within society which is mediated by the unequal distribution of incomes (and wealth). In particular, there is concern about deprivation and exclusion. Linked to that, many social researchers have been dissatisfied with

the tendency of government survey sponsors to lose interest in distributional issues below the level of the household, arguing that this tends to mask further inequalities, particularly within families and between genders.

Also, social researchers often tend to be more interested in who gets what material benefits from employment and other societal activity than they are in the distinctions between "income", "wealth", "consumption" and benefits which might not technically fall under either heading, which from a technical economist's viewpoint are crucial. Some key concepts in this tradition of research are "poverty", "deprivation" and "exclusion" as well as "income"

This difference of focus between (typical) economists and (typical) sociologists has important practical survey implications. The former tend to be interested in accounting for total flows of income within the economy and that causes them to be concerned to cover the behaviour and characteristics of high as well as low income recipients and, of course, to measure as accurately as possible in money terms the amounts of income they receive. Many sociologists, on the other hand, and also those policy analysts and politicians who are concerned with problems of poverty and deprivation, focus on the other end of the income distribution and are particularly concerned to distinguish the minority of households and individuals who are poor and deprived in both economic and social senses (and likely to be state benefit claimants) from the better-off majority, and to document the nature of the deprivations suffered and the impacts of the benefits system.

Where the focus of interest is on poverty and deprivation, issues to do with the choice of survey concepts and measures need to be raised. If the focus of the survey is genuinely on amounts and sources of income received, then there is no avoiding the need to tackle the many technical problems discussed in this commentary, using the best methods and allocation of survey resources that can be brought to bear. If, on the other hand, the main need is to identify a materially deprived group, then a simplified consumption-based measure, which reflects both (low) income and/or (lack of) wealth and possessions and/or low consumption norms, may well be easier to obtain for the total sample and technically much less problematic. Such measures can be developed, for example, on the basis of (non) access to housing amenities and key consumer durables, stocks of "household capital", frequency of social participation and so on [reference to Townsend-style measures here].

5) Addressing Problems of Collecting Information

Against a background of unfailing official and academic interest in measuring income of households and individuals, it needs to be said at this point said that income is a difficult and problematic variable to measure in terms of exact money amounts through social surveys. There are several basic and interlocking problems.

1. There are a number of different income concepts and definitions which may be of interest for particular research purposes. In particular there are potential issues over cash income versus other forms of income, "net" versus "gross" income and income as attributable to individuals versus income as attributable to households, tax/benefit benefit units, tenancy groups or other groupings of individuals. There are often difficulties in relating the answers that respondents are able to give to the income concepts required.

2. Most survey respondents do not know, offhand, exactly what their total income is. In an ideal world survey researchers would like to ask just one question which would obtain an accurate and non-biased estimate of the required "income" concept for an individual, a household or some other group. Unfortunately,

however, most individuals and household informants do not carry around in their heads an exact figure for their income according to either a "gross" or a "net" definition <link here>. They may well have a fairly accurate idea of their earnings from their main job or the amount they receive in benefit and for many that makes up the lion's share of their income, but the majority of households also have other sources of income.

3. Survey respondents often cannot recall offhand all the sources of income that they have. Survey experience shows that respondents in general have difficulty in identifying and remembering without prompting all their sources of household (or even personal) income. Unless corrective action in the form of prompting is taken, the net effect is to produce underestimates the extent of which will vary, but which can be very substantial.

4. Survey respondents cannot be trusted to do arithmetic accurately. Experience also shows very clearly that respondents in general cannot be trusted to add up amounts correctly in their heads (or even on paper), particularly in the course of an interview which in general expects them to respond quickly. Therefore questions which implicitly require them to do addition, subtraction, multiplication or division are guaranteed to produce seriously inaccurate money amounts in many cases.

5. There are limits to respondents' knowledge. In practice many respondents cannot or will not recall exactly how much income they receive from particular sources. That is particularly the case where amounts have to relate to an income reference period <link here> different from the period to which amounts which the respondent is able to recall actually related.

6. Reluctance to reveal details of income. In our culture many people consider details of their income to be private. The problem is often overestimated, but is significant for certain groups such as the self employed and those with very high incomes, but some refusals also come from people who are quite poor, but may find it embarrassing to admit how low their incomes are. Researchers (and interviewers) often fear that respondents will not only refuse to answer the income questions as such, but that the presence of income questions will destroy interview rapport and lead to complete refusals to take part in the survey.

a) Overcoming reluctance to provide income information

Survey researchers often have a somewhat ambivalent attitude towards income as a survey variable. They and their sponsors perceive that income is an important variable in many social and policy research contexts, since differences in income are fundamental to the structure and functioning of our economy and society. But they are also aware that the topic of personal and household income is regarded as sensitive and of lurking conceptual and technical complexities. Addressing and solving the problems is likely to be demanding on research resources and interview time, or may even lead to a conclusion that a more expensive mode of data collection is needed than their budget allows.

The response is sometimes to shrug the shoulders in the face of the difficulties and to accept a variable and a method of obtaining information which is labelled "income", but can be seen from many symptoms such as item non-response and anomalous estimates to be measured with gross error and bias. There are many cases where researchers have accepted the need to measure "income" but, in the event, the resulting variable has to be given a "health warning" in the datafile because of such obvious deficiencies.

It is certainly true that problems in obtaining response to income questions must be faced when the whole survey is effectively about personal finances, and something non-misleading has to be said about content "on the doorstep". However, the large measure of success achieved by the FES and the FRS, for example, shows that even that is not insuperable. Where income is only a subsidiary topic, as it is in most surveys, the only way in which including income questions is likely to affect doorstep response nonresponse is through lack of confidence on the part of researcher and interviewers Lack of confidence may make researchers tentative not only in drafting questions (eg asking viewer and vaguer questions than they need to ask for their purpose) but also in briefing interviewers, who then pose the questions in an apologetic tone which invites refusals and contributes to item non-response rates which are much higher than they need be.

As an indication of an achievable target in such circumstances, on the General Household Survey, the proportion of employee respondents who refuse to give details of their pay is only about 3%, the proportion who refuse to give details of interest on investments or dividends is about 1% and the proportion of self-employed persons who refuse to reveal (or estimate) gross profits received is about 8% (Thomas 1994). This illustrates that, given a sensible approach, the refusals problem is not as great as many researchers fear - or as many cause it to be by taking the wrong approach.

It is very important, therefore, that both social researchers and the interviewers whom they employ should approach the need to measure income in a positive way, aiming to convey to respondents that, while co-operation is of course voluntary in all respects, this is a serious survey and that there is a genuine need to measure income in order to understand how people's circumstances affect the answers they may give to questions on other topics. Once this attitude is conveyed, most respondents respect a thorough approach to getting income details right.

b) Getting the questioning approach right

Because of the basic problems set out above, survey researchers wishing to construct reasonably valid, reliable and unbiased income estimates for individuals, households and other groups find themselves driven towards a strategy which consists of the following main strands.

1. Imposing a consistent definition of income, in terms of concepts such as "individual", "household", "benefit unit" or "tenancy group" income.

2. Imposing a consistent definition of income, in terms of concepts such as "net" or "gross" income.

3. More or less exhaustive prompting and probing, to ensure that all sources of income are taken into account by the respondent and reported for the correct reference period <link here> and according to the correct definitions

4. Collecting of amounts per source piecemeal so that the total income figures generally required can be computed.

5. Where precise information is not forthcoming, accepting approximations so as to avoid the alternative of gaps in the data which will seriously distort estimates of total individual or total household income concepts. This brings with it further problems of how to handle approximations, such as answers in terms of income ranges, for purposes of computing and analysis.

Each of these issues can be pursued in a more or less thoroughgoing and comprehensive manner. In the following sections our aim is to indicate ways in which reasonable technical devices and compromises can be worked out in the face of the technical problems in order to produce an income variable which will be reasonably adequate for the purposes intended.

6) Deciding what is to be included in income

The number of different forms of income and sources from which income may be received is large. Researchers working in the urbanised, individualistic and commercialised societies of the developed world often impose certain exclusions. This is often done without thinking about the underlying conceptual issues involved. It is worth noting them here as a way of pointing out that the "income" concept as generally implemented in surveys usually excludes, for practical or theoretical reasons, certain elements that one might be covered by an ideal and inclusive answer to the question: "What are the sources and the value of all the means of material, practical and economic support accruing to this individual/this household etc.?"

a) Dominance of the cash economy

Households, families and individuals are assumed to operate very predominantly in the "cash economy" so far as producing and obtaining goods and services is concerned. This distinguishes industrialised societies from the peasant societies still found in many parts of the world, which typically operate only partially within the cash economy.

b) Income in kind

The main exception to cash economy assumptions is the case of income in kind. Some households, for example, engage in agriculture or horticulture, or in the production or preparation of other goods or services, and generate or receive part of their income in the form of their own products or other goods and services for which they exchange these.

Another exception is the case of inter-household transfers non-cash contributions made by one household to another household and generally. If these are made in the form of cash a careful approach to income measurement should pick them up, but also cases quite frequently occur where a relative makes voluntary contributions in services or kind (eg loan of to a vehicle, free clothes washing or use of facilities, passing on of second hand appliances, guaranteeing loans from third parties etc.) towards the upkeep of an elderly or infirm person, or parents to that of a student living away from home. In those circumstances the low (visible) income of the recipient may be somewhat misleading and the value of income in kind quite high.

c) Assumption of regular cash income receipts

A third assumption generally made is that most households or individuals receive most of their "income" on a more or less regular and routine basis, typically as a wage or salary payment. This assumption, together with the assumption that income is received as cash, or in a form to which a cash value can easily be given, is very important in the practical survey context. It implies that the concept of "usual income" makes sense to the respondents and that a reasonable estimate of it (which is often the type of measure ideally required) can be obtained either by asking how much income was received during a short, recent and therefore easily recalled reference period, or otherwise by asking directly about "usual" income. For most households and individuals, questions based on the concept of "usual income" may work reasonably well, but in general it is liable to break down where the true values of "usual income", "average income" and "amount most often received"

seriously diverge, as they do for individuals with irregular and varying incomes. "Simple" income questions therefore tend to lead to distortion in those cases where there is no regularly received income amount that a survey respondent can readily quote in response to a simplistic "current or usual income" question.

d) Assumption of income sharing within households

There are certain forms of income, such as Child Benefit or Housing Benefit) which are thought of as accruing to a household or tax/benefit unit (an individual adult or couple with dependent children) as a whole, rather than to an individual household member. Of course it is possible to make rules for data collection purposes whereby housing benefit is counted and asked about as part of the "personal" income of a "head of household" and Child Benefit is counted as part of the "personal" income of the mother, but the underlying reality is to do with pooling (or not) of income to meet common needs. Most government surveys make use of a "household" or "tax/benefit unit" income concept because they assume that such pooling does take place (as within most such units it plainly does).

Where income is measured at the household level <link here> it is generally assumed that income is shared "fairly" within households - that is, that there is no sub-household unit which monopolises some source(s) of income. This assumption is clearly often breached in practice to some extent, as where wage earners hold back some of their earnings from the common pool for their own use, and the concepts of "fair sharing" or "common budgeting" are themselves problematic. The income pooling assumption obscures the issue of who gets what in terms of income and spending power within households. Government survey research has in general been reluctant to intrude into the area of how households (particularly family households) make these decisions and allocations, but academically driven surveys such as the BHPS, using the results of previous research, have explored the area to some extent.

e) Exclusion of non-cash benefits

There are some forms of "income" or "benefit" which make an important contribution to the economic position of households and individuals, but do not fall within the normal scope of "How much do you earn?" or "How much cash income do you receive?" questions. These may take the form, for example, of "fringe benefits", such as the use of a vehicle owned or subsidised by an employer or a self-employed business, as well as membership of pension schemes and other privileges associated with particular terms of employment. Here the practice of serious income surveys tries to follow the practice on the Inland Revenue as regards attempting to value these types of benefit - that is, to treat as income benefits which are valued and taxed as such.

An example of another type of "good" which would certainly not be counted as "income" by an economist (or by the Inland Revenue), but which certainly eases the problems of households and individuals under economic stress is access to credit. This tends to be differentially available to those who have other advantages such as secure employment or a credit guarantor (eg parent as a guarantor of student loans).

f) Exclusion of windfalls

A category of receipt which is generally excluded from "income" is "windfalls" such as capital gains, betting or lottery winnings, legacies, one-off personal subventions and the like. There are conceptual issues as to how these should be handled: on the one hand they are "one-off", irregular and therefore not typical of the normal circumstances of the sample unit; but on the other hand they are cash receipts.

7) Main Sources of Income

Given the use of these assumptions and exclusions, the broad categories of money income which have to be considered in compiling any measure of income with a claim to reasonable completeness across the population of the UK are then the following.

1. Earned income in the shape of wages, salaries, tips etc. from main, second and third jobs, occasional or casual employment etc.
2. Cash allowances or taxable benefits from an employer such as car allowance.
3. Income from self-employment in the form of fees etc.
4. Income from self-employment in the form of profits from a business (taking account of various allowances against tax etc.).
5. Rents from property or subletting etc.
6. State benefits such as Child Benefit, State Retirement Pension, Job Seeker's Allowance, Income Support, NI Sickness Benefit, Incapacity Benefit, Mobility Allowance, Attendance Allowance etc.
7. Occupational or other pensions, annuities etc. other than state benefits.
8. Income generated from capital, share dividends, savings and investments etc.
9. Transfers from another individual or household, such as alimony payments or an allowance.
10. Capital gains from sale of assets, such as a house or stocks and shares (often excluded from "income" as such and treated as "capital").

It should be noted that the above are broad conceptual categories only and not a prompt list which makes it easy for respondents to give estimates. Particularly in the case of investment income, it may be difficult for a respondent to produce an estimate of the total amount received without resort to source documents and calculator. An extra source of difficulty is where income amounts received relate to different periods, particularly if none of those is identical with the income reference period <link here> for the survey.

8) Income Concepts: gross versus net income

There is often a considerable difference between the gross wage, salary, expenses etc. paid by an employer and the net amount of income which the recipient "takes home". This is primarily due to the deduction at source of PAYE income tax, pension and national insurance contributions. Other examples of deductions from income made with legal backing are alimony or child maintenance payments and certain debt repayments and many people also opt to have voluntary deductions made at source. For forms of income other than earnings tax may or may not be deducted at source, so again there is both a gross and a net figure which may differ considerably.

Faced with this, different survey researchers make different choices regarding the most appropriate income concept for data collection and analysis purposes.

a) Gross income

Deductions at source and unavoidable expenditure commitments reduce the "effective" income of individuals and, more especially, of households to very different extents, according to the circumstances of the recipient unit. Also, households of differing size and composition have very different spending needs. Therefore the "gross income" concept is not in general a very useful one for analytical purposes.

It is nevertheless adopted by survey researchers, one suspects, for either or both of two reasons. First, the concept of "The total of all your income sources without worrying about deductions" sounds to be a simple one to communicate to respondents and it is assumed that, having understood the concept, they will have a fairly ready answer. Second, there is an implicit assumed parallel with individual earnings, where it may be useful and meaningful to compare individuals in terms of their "earning power".

However, there are fallacies here. In the first place, as emphasised above, even though a "grand total" may be a simple concept in theory, most respondents do not have an accurate grand total for income "in their heads" and cannot be relied on to estimate it accurately in a survey context without prompting and consultation of records. In the second place, the analogy with earnings is often misleading, since large components of individual as well as household income come in other forms and because "earning power" and "effective income" or "spending power" are quite different concepts. For example, employed young adults who live in the parental home but spend most of their earnings on themselves may be much "better off" than their parents, who have higher gross income, but also much heavier essential spending commitments.

b) Net income concepts

Very often, therefore, some version of net income seems to represent best the amount of income which is available to a household to meet its needs. Aside from the statutory deductions, there may be a conceptual case for deducting other amounts from the "take-home" figure (after tax etc. have been deducted), so as to put households on a more even footing so far as their disposable income is concerned. For example, basic housing costs are sometimes deducted to arrive at the "net" figure. This leads to various definitions and amounts of "net income", which differ substantially from "gross income". Since different individuals pay tax, pension and National Insurance contributions at different rates according to their circumstances and options, it is not in general possible to create a correct "net income" variable starting from a report of gross income, or vice versa, though an approximation which will be roughly correct on average taken across households can be arrived at.

c) Compromising with survey practicality

What must be kept clearly in mind in considering these options is that considerations of survey practicality, particularly with a view to data quality, tend to cut across analytic choices as to what is the most appropriate income concept to aim at. In practice it is necessary to ask questions of a kind that are likely to obtain reasonably valid and accurate answers from respondents of the type one is addressing, under the particular circumstances of data collection (eg interview versus self-completion, large or little scope for asking large numbers of prompt questions to build up an income estimate). It is pointless to insist on maintaining some theoretically refined income concept(s) if in practice one cannot ask the necessary detailed questions and take the necessary steps to obtain accurate answers. To put the same point in reverse, the survey approach to collecting income data needs to be designed with a view to obtaining data of the kind and of the quality which are required by the income concept(s) it is intended to measure and the analytic uses to which they are to be put.

9) Income Concepts: individual versus household or family income

a) Individual income

Inexperienced researchers sometimes set out to measure "income" with a concept in mind which is unduly influenced by the model of "earnings", or of personal social security benefits. Earnings and benefit income may well be variables worth measuring in their own right, but they should not be identified with "income", since many people live in family or household circumstances where income is to a large extent shared and their lifestyle and standard of living are mainly a function of the income level of the household, rather than of themselves as individuals. That is particularly so, of course, in the case of dependent children.

Nevertheless it is meaningful and useful for some analytic purposes to invoke the concept of personal or individual income, while always bearing in mind that, where individuals live as family members, large parts of their income may be pooled into family income. It should also be remembered that, a high proportion of households (28% in 1994) consist of one person living alone and in those cases household income and individual income amount to the same thing

b) Personal disposable income

If the focus of analysis is on "spending power" and the purchasing by individual consumers of goods and services of their choice without reference to the finances of the household, then "personal disposable income" may be the most appropriate income concept and income measured at the household level may be fairly irrelevant. For that reason much market research attempts to define and implement a survey concept of "personal disposable income", asking questions along the lines of: "When you have paid for all necessary things that you don't have any choice about, how much money do you usually have left each week to spend on whatever you choose?"

c) Household or benefit unit income

In general, however, personal (disposable) income is not the most appropriate concept for social surveys. Most individuals live as members of households, or sometimes of family groups within households, and these groups are defined party in terms of shared income, shared catering and budgeting and a degree of shared decision making about major spending items. Moreover, some forms of income, such as housing benefit, are explicitly paid to a household (or similar domestic group).

For these reasons many major social surveys which concern themselves with income define and measure the income variable primarily at the household, family or tax/benefit unit level.

d) Income concepts: practical survey implications

At a practical survey level the decision to go for an individual or for a household income concept has important implications. If individual (disposable) income is the concept thought to be most relevant, then the logical sampling strategy is to select as sample units and also as direct respondents individuals of the types whose spending decisions are of the greatest interest. If, however, the choice is to measure household income, important issues arise as to how many household informants may be needed to contribute information on their personal incomes to the household estimate or, failing that, how to define a single household-level respondent who is likely to be best informed about income of all kinds entering the household or accruing to household members (whether or not it is shared in practice).

10) Income Reference Periods

Most surveys are concerned to obtain an estimate of "current income" or "usual current income" for households and individuals. The normal way of standardising this is by giving a common recent reference period for income receipts to which the survey respondent's answers are to relate. For persons whose main or only source of income is a wage or salary the "natural" reference period tends to be the last period for which pay was received, most often a week or a month. For income of other kinds (such as income from investments) this reference period may not be ideal, however, and more or less complicated arithmetic may be required to produce a correct adjusted estimate.

a) Strict reference period income

If the main aim of a survey is to estimate aggregate distributions of income in the population on the basis of large samples, then getting the most accurate estimate for individual sample units strictly limited to the reference period is likely to be the priority, since this will produce the most accurate and least biased group means and distributions. Variations in individual circumstances, such as where a unit's income was much higher or much lower than usual during the given reference period are averaged out in the mean, while measures of the dispersion of the distribution give a true estimate of variability. However, the classification of units in terms of concepts such as "usual income" may be subject to error and bias.

b) Usual income

Other surveys are more concerned to provide a measure which is as valid as possible as an indicator of the current income status of individual sample units and they often attempt to approximate a concept of "usual" current income. The way of doing this is often to ask supplementary questions following the one requesting a reference period estimate, to find out whether and by how much income during the reference period was higher or lower "than usual". Reasons why it might be higher could be, for example, receipt of a Christmas bonus or arrears of salary; reasons why it might be lower could be, for example, that a self-employed person was unable to work or on holiday.

If the amount received during the reference period is judged (by the respondent) to be "unusual", an estimate of "usual income" is substituted. Where it is just a case of deducting the Christmas bonus, this may be simple to do (though of course in aggregate it leads to an underestimation of income). However, where the income of a sample unit is highly variable over time, responses to such "usual income" questions are likely to be subjective and not very accurate. There is therefore no guarantee that the mean across the sample of adjusted "normal income" will correspond to the mean of strict reference period estimates and the variability is likely to be reduced.

11) Creating the right income variable for the application

From what has been said above it may appear discouragingly difficult to collect any accurate, valid and reliable estimate of income for a household or an individual, particularly in circumstances where there is space for only one or two questions on the topic in an already long questionnaire.

Much depends, however, on the analytic purposes to which it is intended to put the income variables which are constructed. The researcher should certainly pause and consider this carefully, before committing him or herself either to a "simple" income measure that may appear to obtain responses but nevertheless yields very deficient

data, or to a more elaborate approach which takes up valuable interview time, incurs response and processing problems and still may not fully answer the analytic need. In this section we consider the merits of various simplifications, in the light of the purposes to which income variables in surveys are most often put.

There are broadly two quite different uses to which the data obtained from "income" questions are typically put. Which of these uses is intended has major implications for what is required in order to construct a measure of adequate reliability, validity, accuracy and sensitivity for its purpose.

a) Full income data in money terms (ratio measurement)

Income in full unsummarised detail is an example of a continuous variable, measured in terms of currency units. It provides a variable measured on a continuous interval scale with a meaningful zero point, which allows for the full range of arithmetical and statistical operations (a ratio measure). For example, it is possible to calculate and to interpret meaningfully:

- that household A has (or households in sample subgroup A have a mean) income which is £X higher than that of household B (or the mean for households in sample subgroup B);
- that the (mean) income of household(s) A is X times that of household B;
- a mean and standard deviation for all the households in the sample (and to infer the values of the corresponding statistics for the population);
- and quantiles of the distribution, such as deciles for example, which are defined such that one tenth of the total population is estimated to have an income falling into each decile.

Where results are being presented as distributions in summary form it is often useful to calculate deciles (say) of the raw income distribution for the total sample, so as to define ten groups corresponding to the inter-decile ranges. However it should be noted that the raw income distribution for the total population is compounded of quite different distributions for groups such as pensioner households dependent on benefits, family households with and without dependent children, single persons below retirement age, households containing several economically active adults and so on. For this reason it is often best to present data for different types of household or benefit unit separately.

b) Approximating the true income distribution

An alternative to measuring income in full detail is to aim to place responding units in pre-specified income ranges. The expedient may be adopted where it is desired to maximise the proportion of cases where a usable estimate is obtained, but it is not thought practicable to obtain exact answers in sufficient cases by, for example, requesting documentary evidence. This makes it possible for respondents to answer even if they cannot recall an exact amount. However, it is very important that interviewers and, through them, respondents should understand that the purpose is still to get as accurate an estimate as possible, rather than to avoid a topic thought to be embarrassing by implying that "Any old guess will do and if you want to give a more or less deliberately misleading answer, so be it."

The approximate income information is generally obtained by proffering a prompt card to respondents which specifies the ranges on a "per week", a "per month" or a "per year" basis, so that they can choose an amount corresponding to the period which is most familiar to them when thinking about income. It is extremely important (and surprisingly often forgotten) that the income ranges specified must match current income distributions, since otherwise not only will an out-of-date prompt

card in times of income inflation produce too many cases in the top and too few in the bottom income categories, but a distorting "concept-scale interaction" may take place, in that income recipients who do not think their incomes are very high may resist placing themselves in what appears to be the top income category, even though they know that in monetary terms that is what should happen.

It is best to proffer the card separately for each of a prompted list of possible sources of income, since that avoids the respondent having to attempt mental additions in order to answer and at the same time reminds them of all the amounts that they should be recalling.

The grouped income approach has two disadvantages. One is that, if it is intended to add up the amounts from each source to reach a total income figure, the approximations involved in grouping will accumulate. The problem can be minimised by using narrower, rather than wider, income ranges in the groupings. In aggregating it is usual to convert ranges to their midpoints (eg answers in the range £101-£150 are all treated as £125). With reasonably smooth underlying true income distributions and narrow group ranges this should not bias distributions and means unduly, though it does produce measures of income variability which are biased downwards.

A second disadvantage is that the very highest income group is unbounded (eg "Annual £35,000 or over", so that it is not possible to determine a true midpoint. Rauta (1993) suggests a way in which this can often be overcome by asking high annual income recipients to estimate their average monthly income by choosing one of the bounded ranges.

 c) Measuring income as an ordinal classificatory variable

Many sample survey researchers are prepared to sacrifice the ideal of measuring or approximating the true income distribution and instead are looking much more simply to produce a classificatory income variable in the form of an ordinal scale with a limited number of points - say 5 to 7. This can again be achieved by using prompt cars showing income ranges, but there is no need to interpret

In constructing such classificatory income variables the researcher will typically find it most convenient for analytic purposes if the number of cases within the sample falling into each range is roughly equal. This again requires that they consult up-to-date income distributions obtained from some external source, so as to fix appropriate group boundaries.

d) Choosing between approaches

Where income is a variable of central interest in the analysis and the data are to be subjected to analysis to test highly quantitative economic theories or provide accurate forecasts of the consumer economy in real money terms, measurement at the full ratio level is generally thought necessary.

A basic problem is, however, that because of the constraints of the survey data collection situation and procedures, the precision and reliability of the measuring instrument in practice may be quite poor, particularly for particular income components or for particular population subgroups. In other words, the income variable(s) obtained may formally satisfy the full requirements of ratio measurement, but in practice may contain large amounts of random variability and bias, which will then tend to distort analysis and interpretation. The choice is then:

- either to persist with high-level (eg ratio) measurement and correspondingly demanding methods of analysis (eg linear regression) and hope to adjust the

variables (eg through algebraic transformations) or the results of the analyses by other means in order to at least partially compensate for distortions; or

- to aim for a lower and less demanding level of measurement and accept that the methods of analysis which can be used will need to be correspondingly less powerful statistically, but also less vulnerable to data collection errors.

There is a tendency for economists when dealing with survey-based estimates of household or individual income to adopt the first strategy, since their theories are typically framed in terms of expected relationships of the regression type which require a ratio or, at least, an interval-level measurement assumption. Sociologists and other experienced survey analysts, on the other hand, are used to handling data at lower levels of measurement (such as nominal and ordinal as well as interval and ratio) and often opt for the second strategy. While both these strategies are rational, there are unfortunately, many examples in the literature where researchers have used survey-based measurement techniques for dealing with income which are out of keeping with the analysis methods which they intend to use, either because of insufficient thought beforehand, or because of a try it and "hope for the best" approach to measurement which pays little regard to the evidence on measurement error.

Quantitative general population survey measurement typically relies for obtaining income data on unaided and unprepared responses of household informants. Given that, aims in terms of level of measurement should be set with a realistic appreciation of the generally limited power of the interview method in these circumstances to control error and bias.

Where the method of analysis requires precise, valid and reliable data, an alternative to making strong and, quite probably, unrealistic assumptions at the stage of analysis and interpretation is to adopt a stronger method of collecting income (or expenditure) data, such as the collection of documentary evidence in the form of payslips etc. or the use of a diary. Unfortunately, of course, such methods are in general much more complex and expensive to apply operationally.

13) Approaches to collecting income information on household surveys

As has been explained, there are many possible ways in which the technical issues of collecting income data my be approached and most of these have important and differential survey design and resource implications. There are also different uses to which income information may be put. Conceptual ideals regarding the appropriate income concept have to come to terms with the limitations of the particular survey data collection situation and also with the analytic requirements of intended uses of the data.

There is, then, a very large practical difference between the scope afforded by the approach of the Family Expenditure Survey and the Family Resources Survey, for example, and the scope afforded where an income estimate is to be collected using just one or two questions, perhaps even as part of a postal or self-completion survey.

In this section we discuss in more detail the approaches adopted on five surveys included in the Question Bank, which represent different positions on the above continuum. The examples are:

1. the Family Expenditure Survey/Family Resources Survey approach;
2. the General Household Survey approach
3. the Survey of English Housing approach
4. the Labour Force Survey approach
5. the British Household Panel Survey approach

6. the simplified approach used in many ad hoc surveys on non-financial topics, including British Social Attitudes.

In each case we draw some conclusions about the strengths and limitations of the approach.

a) The FES and FRS approach

Data collection

> Surveys such as the FES and the FRS construct estimates of household or individual income "bottom-up", by asking exhaustive questions about all possible sources of income, devoting whole questionnaires and large amounts of expensive interview time to the topic of income and seeking to record an exact amount from each source. In order to achieve this, respondents are asked to look out recent pay slips, benefit pass books and other payment notices which give gross amounts and deductions. Many respondents have difficulty in interpreting these documents and the trained and experienced interviewers used on these specialised finance surveys often themselves pick out and record the figures required. Of course, access to such documents is obtained in only a proportion of cases (a current or recent payslip is seen in about three quarters of cases on the FRS).

Office imputation and editing

> This piecemeal, bottom-up approach to constructing total income variables was and is always vulnerable to item non-response, in that some respondents could not (or would not) place a figure on some components of their income. It therefore needs to be matched by a further large investment of time and skilled staff resources in editing and imputation effort in the office, or by a data collection strategy that judiciously accepts estimates where the respondent is genuinely unable to give and exact figure, or (as actually happens) both.

> The recent introduction of computer assisted interviewing and editing methods has had a considerable impact on these procedures, since some arithmetical and plausibility checks can now be performed on-line in the interview situation and responses which seem inconsistent or implausible can, in principle, be checked with the respondent on the spot. However, it is a mistake to regard such technology as a panacea, since in many cases the limitation on the accuracy and validity of estimates is the respondent's understanding of what is being asked for and ability to recall income details.

> In the case of the FES, which was the pioneer of the detailed bottom-up approach, the problem of missing data and inconsistencies was dealt with from the outset through a complex and labour-intensive system of manual imputation and editing. This filled in all gaps in the data for responding households and detected and edited obviously inconsistent or implausible responses prior to the computation of values for the various summary individual and household income variables required in analysis. In addition to imputation, much manual and computer editing of the income data was carried out on the FES in order to detect and correct income component figures which were obviously in error or inconsistent. Both the FES and, in its footsteps, the FRS continue to follow this policy. The editing has been streamlined somewhat with the introduction of computer assisted methods, but remains resource-intensive.

The FRS has introduced some extra refinements to the imputation process, which are described in Semmence et al.(1996) pp180-186. This report section also provides some interesting information on the extent of imputation and on the quality of the FRS data as checked against information from the administration of the benefits system by DSS Agencies. The items for which the highest proportions of responses have to be imputed (figures 20% and over quoted) are:

Amount of Council Tax included in rent (63%)

Insured value of furnishings (domestic residence) (53%)

Insured value of (domestic) structure (31%)

Tax relief allowed on work expenses (21%)

Amount drawn from a business for personal use (self-employed) 15%;

Amount of profit/loss (self employed) 18%;

By contrast, items such "Usual net pay" are imputed in only 2% of cases and "Amounts paid for endowment policy on mortgage" in 7% of cases. These numbers provide empirical evidence of the limits of what respondents to questions about domestic finance are able and willing to tell FRS interviewers (or to make what they think is a useful guess). It should be noted that the first two instances are "wealth" items and illustrate points made at Section 3 <link here>.

The innovation introduced by DSS in handling data passed on to it by the survey organisations, which still contains gaps, is probabilistic imputation by computer using "neural networks". This method has considerable promise, but should probably still be regarded as experimental.

Remaining imperfections

As a result of all this effort and expense, the FES and the FRS are in a position (having either obtained or imputed responses to all the relevant detailed questions) to construct almost any required income concept or concepts by adding together amounts from sources to be included and disregarding the remainder.

Even so, it should be understood that the resulting income estimates are not perfect in all cases. It is important to realise that office manual or computer assisted editing and imputation, even when done by highly experienced and conscientious staff, is for some items (though not all) likely to be inferior in accuracy to a guess that is made by the respondent. It is probably better than a guess where the name of a benefit is recalled and it is possible, using other information obtained on the survey, to enter benefit tables and read off what should be the correct amount. However, it is probably worse where investment income is concerned, unless the respondent, while unable or unwilling to recall or look up the amount of interest etc. received, both recalls and is willing to divulge the capital sum invested and the nature of the investments (eg unit trusts, bank deposit account etc.). Where that is not so the best that can be done may be to impute a sample mean figure based on those cases where the household is believed to received income of the relevant type and has given a response.

It is virtually impossible systematically to check the effectiveness of data editing and imputation on these surveys in terms of the validity and data improvement (as opposed to merely the removal of gaps and visible inconsistencies) because of the lack of any full validation criterion (ie the "correct" income figures from some reliable external source). The work by the DSS referred to in the last paragraph probably comes closest to this and the publication quoted is highly recommended for its brief but illuminating discussion of the problems of editing and imputation on a survey such as the FRS.

The dangers of false security

It is likely that the extent of imputation done in the FES is comparable to that done on the FRS for identical or similar data items, even though the imputation methods used may be different in detail. One side-effect of the FES approach over the years has been to conceal from data users the imperfections of the raw FES income data and what the effects of editing and imputation are. In principle it would be possible to place flags on the data file to indicate whether or not each data item had been edited or imputed, so as to make such methodological checks possible. However, that would have caused immense complications to a computing system which was already overloaded and has so far, it seems, never been done or published.

Conclusions about the FES/FRS approach

Researchers for whom it is central to their project to construct the best possible measures, using ratio scales expressed in true cash, of a wide and flexible range of income measures at individual, householder, household and benefit level, the very high investment which the FES/FRS approach demands is justified. These researchers are few in number, but the key importance attached by government to the estimates generated by the surveys, for reasons sketched at Section 1 above shows that their expertise carries great weight.

The necessarily frank approach adopted in explaining the financial nature of the surveys (and, in the case of the FES, the need to complete expenditure diaries) to potential respondents affects response, so that response to the FRS and the FES tends to run about 10-12 percentage points below response to the GHS, for example. However, this penalty is not as great as many researchers tend to assume.

The success of the two surveys in constructing the complete and elaborate financial data sets demanded by users of the two surveys is purchased at a price, in the face of the limited ability or willingness of respondents to supply all the detail required.

In the first place it has been pointed out earlier in this section that surveys of this kind, even when carried out under government sponsorship by thoroughly experienced professional survey organisations with a brief to maximise response, seldom achieve unit (eg household level) response rates above about 70%, and that clearly leaves scope for nonresponse bias which has been demonstrated by checks carried out by ONS of responding and non-responding FES households against census returns (see for example Foster 1996)

In the second place the surveys explicitly or implicitly accept best guesses from respondents as to the value of income components, where they are not certain

and cannot or will not provide documentary evidence.

In the third place the DSS evidence shows that numbers of income component items require imputation in quite high proportions of cases and the remarks at sections 10a(ii)-(iii) then apply more strongly.

b) The General Household Survey approach

An example of a survey which aims to achieve the best possible results while aiming between the two extremes of data collection cost and complication is the General Household Survey.

Data collection

The approach to collecting income data on the GHS has varied over the years since it was started in 1971, reflecting the different pressures upon the survey.

For most GHS topic analysis purposes what was needed was the ability to construct a sufficiently valid and reliable set of total income variables for individuals, families and households to serve to divide the sample of households into (say) seven or so income categories for classificatory purposes. For this a relatively small number of questions about income components was judged to suffice over the early years of the survey.

There was, however, persistent pressure for the GHS to provide income estimates comparable with those produced by the FES, thereby effectively boosting the size of the FES sample for analysis of topics requiring exact measures of income. As against that, space could not be provided in a GHS questionnaire (which is of its nature intended to cover many other topics) for the exhaustive questioning on income that is used on the FES.

There was therefore no way of making the GHS Income Section a "carbon copy" of the FES, but in 1979 changes were introduced in an effort to measure in an exact way more of the income concepts important in FES analysis. The previously short Income Section was expanded, a long list of possible sources of income was prompted in the interview, with follow-up questions on exact amounts received and the responses obtained were manually edited to detect and remove inconsistencies. However, the different priorities, cost economics and tradition of the GHS resulted in a decision not to use the complex and resource-intensive FES system for imputing missing income components.

An effect of this "halfway" policy was that, for as many as 25% of households responding to the GHS between 1979 and 1991, the "gross income" variable was set as "missing", because no estimate was available for one or more of components which are added together in order to compile this variable. Therefore, the GHS sample size for analyses involving total income variables was reduced by a quarter and much data collected was effectively thrown away.

Not only that, but there was a risk of significant bias for the following reason. In general, the more income earners exist in a household and the more separate sources of income they report, the higher the probability that at least one estimated income component will be missing. Under the GHS policy used from 1979-82 that meant that "total income" variables were set as "missing" disproportionately for households with multiple income recipients and multiple sources of income. These households tend to have higher gross and net

incomes than average.

In 1992 the situation was again reviewed. It was found that the existing policy was not cost effective, since -

1. the "FES-type users" for whom the relatively elaborate checklist of income sources (but not the full FES data collection and editing procedures) had been adopted on the GHS could not cope with GHS estimates and derived variables which failed to mirror FES derived variables exactly (and which did not necessarily agree with FES estimates even where comparable;
2. the 1979-92 approach produced unacceptably high "missing value" rates at the level of aggregate income variables which many GHS data analysts did in fact use for classification; and
3. data-editing the GHS Income Section and deriving the complex variables which had been specified made heavy demands on skilled resources and on processing time, when OPCS (as it then was) was under pressure to cut survey costs and shorten timetables.

On the other hand, it was not acceptable to data users to go back to the short and simple income questions asked on the GHS prior to 1979. A new policy was therefore devised, extensively pilot tested and applied from 1992 onwards which focused on maximising the proportion of cases for which values were available for the derived gross and net income variables which are most widely used in the analysis of GHS data.

It is worth describing this new approach in some detail, as it illustrates decision-making in the face of a number of problems in collecting income data which have already been discussed. The following account draws heavily on Thomas, M Income in the General Household Survey Survey Methodology Bulletin 34 OPCS January 1994 (also published as Appendix C of the 1992 GHS Annual Report <link here>); and Savage, D Income questions for use in the General Household Survey Survey Methodology Bulletin 29 OPCS July 1991. To view the 1992 GHS Income Section click here <link here>.

1. When laid out GHS printed questionnaire-style, the new Income Section occupied five pages.
2. There were about 25 questions and interviewer checks, though some were alternatives or filters so that most respondents probably were required to answer about 15. In theory this should have taken about 3-10 minutes, but there were complaints from the interviewers that, in order to obtain satisfactory answers, they had to ask many unscripted questions and probes, which took more time.
3. In cases where the respondent was unable to give an exact figure corresponding to income from a particular source, estimates of the amount were invited and encouraged.
4. State benefits were combined into two prompt lists. Each list included those benefits most likely to be paid in combination with another on the same list. Interviewers recorded which benefits were received and asked for the total amount received from each of the two lists of benefits (as relevant). A weekly rate was required, so this had to be calculated by the interviewer if a payment was made for some other period. The calculation was more difficult if someone was receiving two or more benefits paid for different time periods.
5. Other sources of income, apart from earnings, interest and dividends from investments, were also grouped together into two groups, but unlike in earlier

years of the GHS no attempt was made to arrive at individual figures for each source and only one (total) amount was asked for each group. Current monthly income was required and as with benefits this had to be calculated if income was received for some other time period.

6. As regards income from employment, employees were asked to give their usual take-home pay after all deductions (but not the amount of individual deductions other than income tax and National Insurance) and their usual gross pay. Estimates were accepted, but informants were first encouraged to get out their most recent pay slip and look up this information. To help with subsequent editing interviewers were asked to check that gross pay equalled the sum of take-home pay and deductions for income tax and National Insurance. (There were again complaints from interviewers that in its original version the questionnaire provided no space for making the necessary calculations.)

7. As regards self-employed earnings, just two simple questions were asked and estimates were accepted from those who did not know how much they had earned.

8. Questions about interest from investments and dividends were placed at the end of the new Income Section because they were known to be the most sensitive. Respondents were shown a card to remind them of the different types of investment income. The approach first tried was to ask respondents to combine interest and dividends to provide total amounts received net and gross, but not to ask for individual amounts. However, this led to inconsistencies and confusion on the part of some respondents, so the 1993 GHS reverted to asking about individual amounts and time periods. Estimates of amounts received were accepted if an amount was not known, but only after the interviewer had encouraged the informant to look up paying-in books and other relevant documents.

9. The GHS aims to interview in person all adult members of each household, but where there is no prospect of interviewing a particular person an interview with another household member as proxy respondent is accepted. This happens in about 7% of cases. Previous practice on the GHS had been to omit income questions from proxy interviews, but for 1992 and following years proxy questions were included. It was noted that the quality of proxy responses often seemed poor, but the proxy approach led to income information becoming available for a further 4% of individuals and also had the effect of boosting the number of households for which total income variables could be calculated.

The items of income information collected in this way were used to derive what were assessed to be the income variables most commonly used by analysts. These were:

- Usual gross weekly income for individual adults, households, families, heads of household and partner;
- Usual net weekly income for individual adults, households, heads of household;
- Usual gross and net weekly earnings for employed individual adults

The performance of the new GHS Income Section was assessed after one month's fieldwork. It was found that the proportion of individuals and households for which the "total income" variables had to be entered as "missing" was much reduced (see below), but that there was still a significant number where derived values could not be calculated because of missing responses to the questions

on interest and dividends. It was noted that the majority of the respondents concerned (86%) were either receiving a state benefit, or were employees in receipt of an earned income and it was judged that the amounts of income on investments being missed was not large. Accordingly a decision was made to treat these cases as having zero income from investments and as a result the proportion of cases for which total income values could be derived was further increased.

Office processing

The GHS data collection approach has since 1994 been automated using CAPI, which eases calculations and makes the interviewer's task in eliciting income information easier in certain respects. The nature of the approach and the fact that the GHS data, unlike the FES and the FRS, still does not aim for 100% data on all the derived "total income" variables, does not involve nearly as much office editing and processing as the FES and FRS data. Nevertheless it is still not possible by any means to eliminate a substantial input at this stage to reading interviewer comments and making consequent adjustments to the data.

Conclusions about the GHS approach

The effect of the new GHS approach has been drastically to reduce the proportion of individuals and households for which no values for the "total income" derived variables cannot be computed, from the order of 25% down to the order of 5-9%. These figures include total refusals to provide income information as well as cases where the information is not adequate for totals to be calculated. The main reasons for the coverage improvement has been the acceptance of estimates made by respondents where exact figures are not available and of estimates made by proxy respondents. The most obvious outstanding problem area is the self-employed, for whom data are still missing in about 12% of cases.

c) The Survey of English Housing approach – Incomplete

d) The Labour Force Survey approach – Incomplete

e) The British Household Panel Survey approach - Incomplete

f) The "one or two questions" approach

Probably a high proportion of researchers who consult this section of the Question Bank will be thinking of collecting information on income in the context of a survey not centrally concerned with financial matters. Most will probably be hoping to obtain a measure adequate for their purpose by asking just one or two questions in the course of an interview or on a self-completion questionnaire. Their aim will be to measure some "total income" concept (either "net or "gross") using answers obtained from a household respondent, with reference either to personal or to household income. Very often they will hope to make it easier for the respondent, while still obtaining a measure precise enough for their purpose, by showing a prompt card on which ranges of income are set out and asking the respondent to choose the range within which their own or their household's or their family's income falls. At the data analysis stage they may intend either to use the income variable so obtained as an ordinal classification running from "high income" to "low

income", or to convert income ranges into a quasi-numeric variable by attributing to each sample unit an income value corresponding the midpoint of the range chosen.

In this type of situation the researcher effectively thrusts upon the respondent (though without saying so in so many words) the tasks of:

a) comprehending a complex question, containing words and clauses such as "usual", "- that is, after income tax, National Insurance and occupational pension contributions have been paid but before any other deductions have been made." and "counting all sources of income for every member of this household";
b) identifying those parts of their individual or household income which are to be included and excluded;
c) recalling subtotals and mentally computing at a figure which represents the net income concept required;
d) deciding into which of the proffered income ranges the result of this calculation falls;
e) checking the "total" income answer given for plausibility, so as to detect errors of omission or calculation.

Question formulations such as this break most of the empirical rules that survey researchers have learned to observe over the years [REFERENCES HERE] to make it as likely as possible that questions asked in impromptu interview situations will be understood by respondents, and to encourage respondents to go through the processes required to come up with a reasonably complete, valid and reliable answer. Leaving aside the issue of reluctance to reveal income details, the problems are likely to be the following.

1. The respondent does not attempt to go through processes (b)-(e) above, but simply looks at the card and chooses an income range that "sounds about right".
2. The respondent does not fully take in the question with its various qualifying clauses.
3. Having taken in the question, the respondent fails to remember all the sources of income that should be taken into account.
4. Having identified various sources of income, the respondent does not know or misremembers the amount to be attributed to each for the relevant income reference period.
5. Having identified sources and amounts, the respondent calculates the total incorrectly.
6. Having calculated a total, the respondent becomes confused about income ranges and chooses the wrong one.

Many researchers probably hope that responses arrived at by the method described at (1) will be sufficiently accurate answer in a high proportion of cases. For that to be true, of course, respondents need to have in their heads at least a rough idea of what the right answer is (ie the answer that would result from applying the proffered income definition accurately and without error to their own or their household's circumstances). If on the contrary the respondent has no real idea, or if the idea that he or she has does not fit the income definition, this breaks down. What probably occurs quite often is that the respondent has a reasonable idea of the amount of certain components of income such as earnings or amount of benefit received (though probably without explicitly distinguishing between "net" and "gross" concepts) and then makes a guess at the amount of other income components of which he or she is vaguely aware and carries out some mental adjustment to take

them into account when selecting an income range. Available results of methodological work suggest that answers thus obtained are on average biased downwards.

The format of the prompt card showing income ranges can influence respondents' mental processes, as well as the form of the income variable which results. One problem is that some respondents give more psychological weight to the top limit than to the bottom limit of an income range. If they see their own income as falling into the lower part of the range, they may resist the idea that they should be classed with what they regard as much better-off people than they are. Hence, if they estimate their own income at £205 per week, they may select the income group "£150-£200" rather than the group "£200-£250", on the grounds that they have more in common with people or households in the first group than with people or households in the second group. This tendency is exacerbated if the group ranges shown on the card are relatively wide ones.

A card which shows a relatively large number of relatively narrow ranges suggests to the respondent that a fairly accurate answer is required. The top income range shown is likely to be open-ended (eg "£36,000 per year / £3,000 per month or more") and this presents several problems.

13) Problems in the collection and interpretation of income data from surveys

a) Variability between households in number of income recipients and consumers

There is very wide variation in the total amounts of income that households receive. Much of the variation reflects not differential rates of income per person, but rather the fact that some households include more income recipients than others.

Because it partly reflects variability in household size and composition, "raw" household income is often of limited use as an analysis variable across the whole sample, though it may be meaningful for particular subgroups within the sample (eg family households with two parents and two dependent children present, pensioners living alone, households containing three economically active adults, etc. etc.). A way of transforming or standardising the raw household income variable to make it more meaningful across the whole sample is the use of "equivalence scales", which allow using empirical evidence for the "cost" of maintaining each member of a "typical" household and discount income actually received accordingly. This is a technical topic which is dealt with in.

b) Variability in the number of different sources and amounts of income to be included

The existence of several income recipients within a household also complicates the practical issues of collecting complete, accurate and reliable information. The problems tend to be most acute in non-family households consisting of several unrelated adults who share living accommodation but live otherwise independent lives, since here one household member may know little of the financial affairs of the other household members. The same problem may arise even in family households.

The solution is to interview or otherwise obtain information personally from each income recipient, but that often has important implications for survey data collection costs and complication. Moreover, if a separate approach is made to each adult there is some danger that particular sources of income will be missed or double counted by accident. It is for this reason that surveys such as the FES and the FRS go to the trouble and expense of conducting joint interviews wherever possible.

In general, those households or individuals with higher incomes are likely to have more complex financial affairs and to be less dominated by and aware of tight

weekly or monthly budgets than those with lower incomes. This makes it more difficult for them to keep in their heads, or to calculate ad hoc in answer to an unprepared survey question, what their exact income is. The problem is made worse by the fact that different forms of income are received over different time periods (eg monthly salary, six-monthly dividend payments on investments, irregular payments resulting from self-employment etc.) and that none of these periods may coincide with the survey income reference period <link here>.

c) Multiple jobs and self-employment

The proportion of the economically active population who are self-employed is increasing (currently about 18% of men and 8% of women) and therefore do not receive their income from employment in the relatively straightforward form of a regular wage or salary. Reluctance aside, it is often difficult for such people to say what their income from employment is until their annual accounts have been made up.

The proportion of economically active persons who have more than one job (eg several part-time jobs) is also increasing. The pattern of part-time working (and, for some individuals, full-time working) is in some cases spasmodic or irregular and for people in this position questions about earnings from employment over a reference period may not be entirely straightforward to answer.

d) The uneven quality of income data collected using a given method

From a technical survey and question drafting and data quality viewpoint it is very important that the income affairs of some people and households (typically those on modest or low fixed incomes) are relatively simple and straightforward, whereas those of other people and households (often but not always those with higher incomes) may be very complicated. In the case of a single survey "income" question which without prior notice requires respondents to recall and calculate a total income figure, respondents who only have to remember the values of one or two regular receipts from which tax is deducted at source have an enormously easier task than respondents who have a complex set of receipts including (say) interest on investments, capital gains, self-employed earnings and allowances, fringe benefits and so on, all differentially taxed and subject to different sets of allowances. Such people may well say in good faith that, to provide an accurate answer, they need the advice of their personal accountants. And of course, the difficulties are multiplied if we are trying to get a total income estimate for a multi adult household all of whose members have more or less complicated income affairs, the details of which may be private to themselves.

e) Problematic subgroups

What this means is that a given set of survey questions may well be successful in obtaining reasonably accurate estimates of (usual) current income for quite a high proportion of a general population sample - say for the sake of argument 80%. However, the remaining 20%, for whom there may well be major shortfalls, distortions and inaccuracies, are not likely to be typical of the survey population. They will contain, for example, disproportionate numbers of units who have irregular incomes and employment and for whom the concept of "usual current income" is hard both to conceptualise and to quantify; but also of units who have high incomes derived from a variety of sources.

The first of these problematic groups is likely to consist largely of units who are on the fringe of the labour force (whether as employees or as self-employed, or as both) and in highly insecure employment carrying few or no extra benefits. The second group contains many who are self-employed in a professional or business occupation and may be receiving many extra benefits. There is also evidence that

units in this latter group are more reluctant than average to supply details of income, partly because of a reluctance to reveal details of their affairs which they suspect might be used to their detriment in some ways, but partly also because it is much more difficult than average for them actually to produce reasonably accurate responses. Where they do participate, the reliability of their estimates may be relatively low.

Hence it is quite possible that, considered as an instrument for obtaining a rough indication of the income level of most sample units, a particular set of survey questions works reasonably well; but considered as an instrument for estimating the incomes of the more "difficult" groups discussed, it works much less well. Furthermore, since incomes vary so much between sample units and the group of "difficult" units who do not produce a usable or accurate response is biased towards the high earners, the same survey may not work well as a means of estimating the mean level and dispersion of incomes across the population. In fact is likely to produce a significant underestimate. This is because we are dealing with absolute amounts of income. Some "difficult" respondents have low incomes, but the effects of omitting them through unit nonresponse, or of inaccuracies in their reports, will be relatively small in absolute terms (though not necessarily in terms relative to their "true" numbers and incomes). However, other "difficult" respondents have high incomes, and the result of omitting them or getting inaccurate estimates of their incomes will be relatively large in its effect on aggregate estimates of the mean (and the dispersion) of incomes.

14) Substitutes for income as an analysis variable

Income, whether at household or at individual level, is undoubtedly one of the more difficult variables to measure in surveys to an acceptable level of response, reliability, validity, completeness and absence of bias. Many survey designers wish to obtain a broad indication of the financial circumstances of a family or household and its members, but hope not to have to devote several pages of questions to the problematic task of eliciting exact amounts and sources of income.

In these circumstances there is a demand for a simple, robust, but not necessarily very fine-grained measure which captures the affluence-poverty dimension at the level of households and individuals by a route other than that of eliciting details of income. Such measures are usually ordinal in nature and not translatable directly into money terms, but may nevertheless serve their analytic purpose. Several different approaches have been tried.

The purely subjective approach involves asking respondents whether they feel themselves to be under financial stress, using some form of response scale the points of which are described in terms of different stress levels. An example is shown below.

Thinking about the cost of living as it affects you (your household), which of the descriptions

on this card (SHOW CARD) best describes your situation? Just say A, B, C or D.

(CODE ONE)

A Find it a strain to get by from week to week 1

B Have to be careful about money………….. 2

C Able to manage without much difficulty…. 3

D Quite comfortably off ……………………. 4

There are, of course, obvious objections to such questions in many applications, for example because spendthrifts may feel themselves to be under as much stress as

much poorer people who have lower expectations. However, "stress" is essentially a subjective concept and in situations when financial stress experienced is the central variable to be measured the subjective approach may be the best.

A second and more frequently used approach relies on constructing indexes using various indicators of material circumstances and lifestyle, including for example:

- possession of "adequate" living space and housing amenities;
- possession of cars and other consumer durables;
- frequency of purchase of items which the index constructor judges to indicate an "acceptable" material standard of living;
- frequency of participation in activities which the index constructor judges to indicate an "acceptable" level of social participation.

Such indexes are usually constructed at the level of the household, rather than that of the individual, though of course household-level measures can be applied to individuals on the basis that members of the same household have a common standard of living. There is a considerable published literature which focuses mainly on the identification and counting by these means of individuals or households suffering poverty or deprivation. (Most social researchers tend to be interested in identifying the poor, rather than the rich, though the opposite is often true of market researchers). The literature raises numerous conceptual and technical issues to do with the selection of indicator items and the establishment of standards such that households and individuals falling below the standard could reasonably be described as "deprived" or "in poverty". The standards applied may be absolute ones, but are more often based on empirical evidence of what minimum standards the majority of the population enjoy.

An advantage of such indexes from a conceptual viewpoint is that they claim to capture aspects of affluence/poverty other than, but arguably at least as important as, current cash income. These aspects include:

- possession (or not) of "household" capital in the shape of amenities and consumer durables, which cushion the effects of falls in income due to short term unemployment or other misfortunes;
- ability (or not) to participate in various activities according to socially accepted norms.

Practical and methodological advantages are that they can be based on easily measured and robust items which apply to households, so that scoring the whole of a general population sample on the index is much easier and simpler than is the case with direct measures of income or occupation-based measures of socio-economic position.

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Substitutes for income as an analysis variable

Classification by number and types of durables owned or services bought

Classification by indicators of poverty or deprivation

Notes

Income and expenditure as survey concepts and survey variables

1. The importance of income as a measure of social and economic position and power
2. The importance of expenditure estimates as indicators of consumption
3. Income, wealth, affluence, consumption, poverty and deprivation

INCOME

1. Income concepts and definitions
   - Income reference periods
   - Individual income versus household or family income
   - Net and gross income
   - Disposable income
2. Uses of income variables in survey research
   - Income as a classificatory variable
   - Income as a dependent variable
   - Levels of measurement and statistical summary measures
   - Measurement error and missing data
3. Sources of income
4. Approaches to collecting income information
   - Documentary sources
   - How do survey respondents answer recall questions about income?
5. Problem areas in the collection of income data
   - Reluctance to reveal totals or details of income sources
   - Failure to take account of all sources of income
   - Confusion between personal and household income
6. Substitutes for income as an analysis variable
   - Classification by number and types of durables owned or services bought
   - Classification by indicators of poverty or deprivation
7. Methodological evidence on the performance of survey measurement of income

FALLOUT

For many people the idea of a regular income is strongly associated with the idea of a regular weekly or monthly wage payment from an employer, or, failing that, with a regular cash benefit payment in the form of a pension or state allowances to compensate for disability, unemployment or low income from other sources. With that as their underlying model of "income", researchers whose main attention is on

other variables often assume that the concept of "income" is not, in itself, particularly problematic. Most students, for example, tend to assume that the main problem will be the reluctance of some respondents to divulge details of their income to researchers or other outsiders.

A little further reflection, however, tends to bring other issues to light.

Wealth

A more fundamental consideration where questions about income are intended to provide and estimate of "standard of living" is that the concept of "income" can give a false indication (from that viewpoint) unless it is in some way linked to the concept of "wealth". "Wealth" is itself a particularly complicated concept, of course, since it should properly include all forms of economic good counted by economists as "capital assets", such as real estate, personal and household possessions, bank balances and savings and investment accounts, on the one hand, and intangibles such as pension rights and the "client good-will" of a self-employed business-person on the other.

Persons who have already amassed, often over much of a lifetime, major property items such as a home, furniture, a private vehicle and personal possessions are clearly at a great economic advantage, for a given level of cash income, over someone receiving a similar income who owns none of these capital items. Whereas most survey researchers regard "income" as a potentially sensitive topic, the topic of "wealth" is notoriously much more difficult still and few general population surveys based on interviews can be said to have tackled it at all successfully.

Aside from these data collection considerations, there is also the issue of which income concept, gross or some version of net, is considered most appropriate for purposes of analysis of the survey data. Where only an ordinal classificatory income variable is intended, say in five broad groups, this is of lesser importance than if we are concerned with actual amounts. It is possible that the distortions for certain purposes of substituting a gross income question for the ideal net income question will become relatively insignificant. In other words, although the total amount of income recorded will be larger than it should have been if a net concept were imposed, the vast majority of cases will be assigned to the same broad ordinal income category as they would have if good net income information had been available.

The major government surveys concerned with income, such as the FES and the FRS, use exhaustive and expensive joint interviewing procedures at multi-adult households to ensure that all sources of income are identified, that none are double-counted and that the best estimate of amount is obtained for each. The evidence is that anything short of this, such as reliance on a single household informant, is likely to pay a penalty (to set against reduced cost) in the form of omissions and of poor estimates of amounts received other than by the respondent by him or herself. Response error of this kind is likely to be more serious in the case of more loosely organised households, such as those consisting of unrelated adults or of two or more family groups.

This type of problem and paradox is not unique to measurement of income. An analogy would be surveys of alcohol consumption, which may well give reasonably good coverage and estimates of the drinking behaviour of that 80% of the population who drink at moderate levels and to a fairly regular pattern, but much worse for heavy drinkers and, in particular, for alcoholics, whose consumption is many times the average.

Another indirect way of identifying cases who fall into a "deprived" category is through receipt of means-tested benefits. Obviously there is a problem here with non-takeup of benefits for which the household or individual may be eligible, but this has to be balanced against the severe inadequacies of "income" measures obtained under survey conditions which are extremely error-prone.

Only the FES is a comprehensive survey of household expenditures. The SEH, the FRS and the various national House Condition Surveys focus on expenditure on housing but do not cover expenditure generally. The NFS covers food only.

In the light of that, there will be found in the commentary that follows frequent references to:

1. the need to be clear as to whether a tightly defined "income" variable is definitely required and, if so, what kind of measure and what level of measurement is required by the analytic application ;
2. the practical and methodological problems which have to be faced if a consistently valid, accurate and precise survey measure of income is to be obtained at the level of individuals or households; and
3. what alternative survey means exist of capturing an income indicator which is adequate for the purpose intended or, possibly, a measure of some other related, but technically more tractable, concept.

, a confident approach backed by proper guarantees of confidentiality in the context of what the respondent can see is a serious and bona fide research study, generally reduces the refusals problem to proportions which are negligible except in certain small population subgroups. These groups include the

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This situation presents the researcher with a strategic choice. It is, however, possible to avoid or minimise some of the penalties in terms of bias and lack of precision that this kind of approach otherwise incurs, while still keeping the amount of time and space devoted to income questions to a reasonable minimum.

In general, surveys which have relatively little time and questioning resources to spend on obtaining good income estimates need to go for what household respondents are most likely to be able to estimate reasonably accurately when faced with, say, a household income question using a prompt card specifying income ranges. The trouble is, that some respondents have most clearly in their memory the amount they "take home" (some version of net income), whereas others have most clearly in memory the wage or salary of their main job (partial gross income). The first of these is perhaps more prevalent. <link here to section 9>

In this kind of unprepared situation it is unrealistic to expect respondents to perform arithmetical operations to discount specific deductions from or additions to "the number they first thought of" in order to arrive at some specific net income concept. But equally, if someone has a net figure in mind, it may be unrealistic to expect them to work out a gross figure unaided by recalling and adding in deductions which have been made at source.

For this reason it is usually helpful, when putting a question which expects the respondent to come up with a single estimate, to include a preamble, perhaps with a separate prompt card that the respondent can look at simultaneously with the card showing income ranges, which reminds him or her of all the main sources of income that are to be included in the estimate, plus any deductions that are to be discounted. A firm offer ("Most people find it helpful…) of paper and pencil with

which to write down and add up amounts also helps to convey the idea that an exact amount and not just a guess is being asked for.

Questions of this kind tend to produce underestimates of true income and it is likely that the underestimation is worse in the case of households which have a number of earners and/or a number of different sources of income. As a result there is likely to be a shortfall in the highest income group (and also for people who do not have a high income, but do receive irregular payments of different kinds and from different sources, such as those who survive on "odd jobs" and benefits).

However, the situation is not always as bad as it might seem, if what is asked analytically of the income variable is not too demanding. If the purpose of asking the question is to generate a fairly crude ordinal classificatory variable with few, broad categories, rather than to provide estimates of actual money income amounts, then some distortion may be tolerable, since much of the error will be removed by the broad grouping (ie the case will end up in the group where it truly belongs, even though the exact amount is in error.

Written for the Question Bank by Roger Thomas 1999