

## TOWARD A UNIFORM DEFINITION OF HOUSEHOLD INCOME

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By marrying a “top-down” national income-based approach with a “bottom-up” microdata approach, and a national income accounting perspective with a theoretical perspective, this article attempts to provide a unified framework for aggregating income types to create an income definition that enables researchers to make valid comparisons across nations. An examination of several national household income surveys shows that it is next to impossible to quantify all elements of any new definition in a way that makes international comparisons easy. The framework nonetheless illuminates the differences in current practice and allows researchers to assess the effect of those differences on income distribution measures.

### I. INTRODUCTION

This article attempts to provide a unified framework for aggregating income types to create an income definition allowing valid international comparisons. It blends the “top-down” national income-based approaches (e.g. Walton, 1997; Franz, Ramprakash, and Walton, 1998; Harrison, 1999) with a “bottom-up” microdata perspective (Smeeding, 1997; Smeeding, Ward, Castles, and Lee, 2000), and an income accounting perspective with a theoretical perspective.

An examination of income components collected by a wide variety of countries (Weinberg, 1999) shows that it is next to impossible to quantify all elements of any new comprehensive income definition in a way that makes comparisons easy. Yet by providing this framework, we hope to illuminate the differences in current practice and allow researchers to assess the effect of those differences on income distribution measures.

Section II discusses the extant theoretical approaches to income definition. Section III presents our recommendations for constructing a new income definition. Section IV discusses the feasibility of collecting enough data to create

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comparable international measures. Finally, Section V presents some concluding remarks.

## II. THEORETICAL APPROACHES

All practical definitions of income require choosing an accounting period and a measure of well-being as an organizing principle. Here we choose to measure the effect of income on current economic well-being. To comply with data collection practices of both typical microeconomic household surveys and macroeconomic national income accounts, we define “current” income as “annual” income. To this choice of welfare measure and accounting period, we add the theoretical insights of Haig (1921), Simons (1938), and Hicks (1943): economic income is equal to consumption plus change in net worth as realized over the course of a year. Such a framework encompasses recent attempts to defining income both for microeconomic purposes (e.g. Australian Bureau of Statistics, 1995; McEwin and MacDonald, 1998) and for comparing and contrasting national income accounting definitions of annual income to those of microeconomists (Harrison, 1999). Further, this concept accords with the still provisional *Guidelines for Income Distribution* developed by the United Nations (1977) and used by Eurostat (Franz *et al.*, 1998).

### *What is Income?*

To choose what constitutes income, we asked a simple question: Does this item make the household better off today (able to consume more goods and services)? Both regular and irregular income, as well as cash and non-cash income are included if they are received in a form that can be spent (consumed) immediately. Thus, for example, life insurance proceeds (net of prior premiums paid) are income to the beneficiaries. Whether they are actually spent or saved, they are returns to “investments” made through regular payments of premiums in past years, similar to realized capital gains. Of course, recipients often choose to save such proceeds for future needs.

On the other hand, if some action must be taken to convert the item to spendable income—such as selling equity shares or exercising stock options (with subsequent sale)—then we do not consider it to be income, as the change in net worth has not been actually realized by the household. For example, if a company executive receives stock options, his “wealth” has increased but not, we assert, his “income,” because the gain from the option was not actually realized (and may disappear if a company’s stock price falls).

### *Family vs. Household*

To analyze well-being we must also define the income-sharing unit. This unit must be large enough to capture all regular forms of income sharing as well as economies of scale derived from sharing resources and durable goods within the unit. Two major contenders emerge: the *family* (all related members sharing the same dwelling unit) and the household (all members, related or unrelated, who share the same dwelling unit). On the one hand, the family is the most natural

sharing unit. On the other hand, cohabitation by unrelated individuals is a common living arrangement. If people who cohabit, and thus share some resources and economies of scale (e.g. heat, light, TV) are categorized as single-person families, they may appear in the resulting data as less well-off than they really are. While one can argue with our selection, we believe, as do others who have studied this subject, that the household is the income-sharing unit that most closely, though not perfectly, captures resource sharing (see also Atkinson, Rainwater, and Smeeding, 1995; Sheridan and Macredie, 1999).

### *Equivalence Scales*

Usually some consideration of economies of scale and scope in choice of living arrangements is also needed—an *equivalence scale*. Equivalence scales usually represent the different relative costs of supporting different size families at minimally adequate levels. Researchers must use care in making cross-national comparisons of equivalent income, as the relationships within a household or family are likely to be culturally different in different countries. On the other hand, use of nationally specific equivalence scales is likely to bias cross-national comparisons. However, no single scale now exists that is generally accepted. Finally, the researcher or government statistician needs to realize that to make no adjustment for differential needs is to make an implicit choice of a particular equivalence scale (see Atkinson *et al.*, 1995). We do not attempt to resolve the equivalence scale issues in this article, though it should be noted in all cross-national income comparisons. We suggest that researchers indicate the sensitivity of their findings to alternative choices of equivalence scale.

## III. COMPONENTS OF NET TOTAL INCOME

This section describes some categories of income that are more or less amenable to household survey data collection. We intend to address all sources of income. Each of the sources of income defined in Sections A through L below is summarized in Table 1.

At the current time, the Luxembourg Income Study (LIS) has developed a comparable cross-national definition of after-tax disposable cash and near-cash money income (Atkinson *et al.*, 1995). This definition is far from ideal as it excludes both cash and non-cash income categories.<sup>1</sup> However, LIS can use only the types and categories of income data that countries collect. The sections that follow discuss a broader set of components which, if available in all nations, would improve the LIS income definition and cross-national comparability, as well.

### A. *Cash Earnings*

This income component is the most familiar to income analysts and perhaps the most easily measured by household surveys. Even in developed countries,

<sup>1</sup>LIS includes almost all types of cash income except for capital gains. It does not include interest, child support, and alimony paid. It excludes non-cash health, housing, and education benefits (“social transfers in kind”) as well as imputed rent. For more on the LIS definition, see Atkinson *et al.* (1995), chapters 2 and 3.

TABLE 1  
ONE COMPREHENSIVE INCOME DEFINITION\*

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A.	Cash earnings (wages, salaries, sick pay, vacation pay, farm and non-farm net self-employment income) plus
B.	Other cash market income (e.g. net interest, dividends, rents, royalties, private pensions) plus
C.	Cash transfers (e.g. social security, social assistance) plus
D.	Other regularly received money income plus
E.	Net realized capital gains and intermittent income <i>equals</i> <b>Gross Cash Income (GCI)</b> plus
F.	Net interhousehold transfers (e.g. alimony, child support) plus
G.	Value of in-kind earnings and home production (used for consumption) minus
H.	Net (non-discretionary) work expenses including payroll taxes minus
I.	Net direct income taxes <i>equals</i> <b>Real Disposable Personal Income (RDPI)</b> plus
J.	In-kind market income (e.g. fringe benefits, company cars) plus
K.	In-kind transfers (e.g. food vouchers, housing assistance) plus
L.	Imputed rent for owner-occupied dwellings <i>equals</i> <b>Net Total Income (NTI)</b>

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*Notes:* \*Letters refer to individual parts of Section III of the paper.

more than 70 percent of national income comes from earnings. Typically, analysts classify cash earnings into three types:

- *Money wage or salary income*, that is, the total received for work performed as an employee during the income year. In the United States, this category includes wages, salary, commissions, tips, piece-rate payments, and cash bonuses earned, before deductions for items such as taxes, bonds, pensions, insurance, and union dues. Taxes are separately accounted for below (section III.I).
- *Net income from non-farm self-employment*, the net money income (gross receipts minus operating expenses) from one's own business, professional enterprise, or partnership, before taxes.
- *Net income from farm (agricultural) self-employment*, the net money income from the operation of a farm by a person on their own account, as an owner, renter (tenant farmer), or sharecropper, before taxes.

Both self-employment definitions treat realized depreciation as a current operating expense. Depreciation of capital assets could also be considered a positive cash flow to the household, but we interpret spending from this internal account for consumption as a reduction in net worth.

Included in non-farm self-employment income are the net proceeds from home production of goods and services that are sold for cash (or barter) in the

marketplace (minus the non-labor costs of production). Home production for own use is discussed below, in section III.G.

### B. *Other Cash Market Income*

People receive cash for providing land and capital for production, just as they do for labor. Also, labor receives delayed payments plus accrued earnings on deferred compensation, such as occupational pensions. Examples include but are not limited to:

- *Pension or retirement income*, such as payments reported from companies, unions, or governments, including military retirement pay or other retirement income.
- *Net interest income*, that is, payments received (or credited to bank accounts) net of interest paid. Most national income accountants argue that, at an aggregate level, countries should treat interest paid in the same fashion as interest earned and, therefore, accounts should report only net amounts. On the other hand, some microeconomists argue that interest paid reflects consumption decisions made by households (e.g. to buy or rent housing), and also that interest paid is difficult to measure. The definition proposed here uses net interest and thus implies that prior period decisions to use loan proceeds for consumption might well result in reductions of current period income.

In the case of mortgage interest for owner-occupied dwellings, interest payments are a cost of ownership and netted out against the positive service flow of housing received by owners. Hence, mortgage interest fits best in this framework as part of *net* imputed rental value under section III.L below.

This category also includes net income from private and government bonds, certificates of deposit, interest-bearing savings and checking accounts, and all other investments that pay interest or reflect interest paid, especially interest payments on credit card debt or on loans for consumer durables other than homeownership. If insurance annuities have been purchased, the income is included here (net of premiums paid, also annuitized). Existing financial institutions, particularly in the more developed countries, allow households to maintain net liabilities (negative net worth) based on collateral that has depreciated or on their assessment of potential future recoupment. Bankruptcy laws and hyperinflation transfer some of the net liability to the owners of those institutions.

- *Dividends* include income received from stock holdings and mutual fund shares. We do not treat capital gains or losses from the sale of stock holdings or other assets as income (see section III.F).
- *Rents, royalties, and income from estates and trusts* include the net income from the rental of a house, store, land, or other property; receipts from boarders or lodgers; net royalty income; and periodic payments from estate or trust funds. Some consider rental income as self-employment income from an unincorporated business.

We identify the need to initiate an explicit financial transaction as the dividing line between potential and current income, that is, between realized and

unrealized changes in net worth. Therefore, interest credited to special (tax-favored) retirement accounts (such as Individual Retirement Accounts in the United States) is not current income, since the interest accrues without being withdrawn for current consumption.

### C. *Cash Transfers*

Governments provide both cash and in-kind benefits to their citizens. All or a category of citizens, without regard to their income level or prior contribution status, may receive so-called universal benefits, such as *child allowances*, without requiring the recipient to have less than a certain level of assets or income, because they are the result of previous contributions or activities that generate eligibility status. (The tax system may recapture some benefits.) The most prominent examples of non-means-tested social insurance transfers are *social security* or *retirement insurance* (cash transfers to the elderly and their survivors) and *disability insurance* (for the permanently disabled). Other examples include *unemployment compensation* (payments received from government unemployment agencies) and *workers' compensation* (payments received periodically from public or private insurance companies for injuries received at work). They may also include government-provided cash scholarships and education stipends or assistance, and veterans' benefits.

This category also includes other types of transfers not conditioned by income or assets, such as *advanced maintenance* or *child support assurance*, by which governments provide child support to lone parents when the absent spouse cannot or will not pay. Section III.J discusses redistribution carried out through the direct income tax system.

The complement to cash universal and social insurance benefits is income- or asset-tested (collectively means-tested) cash assistance, often known as social assistance (or “welfare”) payments. These payments typically depend on the level of resources of an individual, family, or household. Examples include *Supplemental Security Income* (payments made by federal, state, and local welfare agencies in the United States to low-income people who are aged 65 or over, blind, or disabled) and *public assistance* or *general welfare payments* (public assistance payments made to low-income people or families, such as the United States' Temporary Assistance for Needy Families program or the United Kingdom's Supplemental Benefits program).

In many countries, social assistance is income-tested but not asset-tested. Canada's Supplemental Guaranteed Income System (GIS) and Sweden's Social Assistance System are two examples. Further, many nations supplement low incomes in “near cash” form, via rental allowances or food subsidies paid directly to the recipient and flexibly spent on subsidized market goods. Examples include housing allowances in Sweden and food stamps in the United States. Because these benefits are paid to recipients in cash or by other methods with equivalent cash value (coupons), their value to the recipient is very close to cash. We choose to deal with these benefits as non-cash benefits (see section III.J below).

#### D. *Other Regularly Received Money Income*

Other income includes all other regularly received payments not included elsewhere. Examples from the United States are state programs such as foster child subsidies (non-means-tested payments by a state agency to foster parents), pay supplements to dependent families of members of the military, benefits from private companies during periods of unemployment, and any strike benefits received from union funds). While less than 1 percent of total income comes in these forms, they can be important sources of income for the targeted recipients.

#### E. *Net Realized Capital Gains and Intermittent Income*

Selling assets can sometimes enable a household to meet its everyday needs for food, clothing, shelter, and the like. One could, in principle, also impute an income stream for those assets that do not pay interest or dividends (we raise this issue specifically for owner-occupied housing, the largest asset, in section III.L). But since we are mainly interested in whether a household can meet its everyday needs, the relevant approach is to count only realized capital gains and losses (including realized gains from the exercise of stock options). We include realized capital gains in income because either consumption or reinvestment is a possible household choice. We acknowledge that counting such gains may yield substantial unevenness in year-to-year income as tax laws change.

Intermittent income include insurance proceeds, net of premiums paid (life insurance policies turned into annuities would yield regular money income). Another type of “one time” income is gambling or lottery winnings, net the costs of obtaining those winnings. These windfalls are not typically large; we expect households to save most of them. We deal with intra-household transfers and inheritances below (section III.F). We do not include insurance proceeds from non-life insurance, as these typically restore or replace a destroyed asset.

Another source of intermittent income is lump sum retirement payouts. While a prudent household would invest most if not all such lump sums, they nevertheless are available for immediate consumption and we would include them in current income.<sup>2</sup>

We designate the sum of these first five components (cash earnings, other cash market income, cash transfers, other regularly received money income, and net realized capital gains and intermittent income) as *Gross Cash Income (GCI)*. Receipts not counted in GCI include withdrawals of bank deposits, money borrowed, and tax refunds. All three are “capital accounts” transactions. For example, tax refunds are the repayment of an interest-free loan made to government by the taxpayer and should not be counted as income because the original income from which taxes were withheld was counted. We realize that large, unexpected, typically one-time sources of income are often saved rather than consumed; we nevertheless recommend counting them as current income.

<sup>2</sup>Rollovers directly to financial investments are not immediately available and are therefore excluded from current income.

## F. *Net Interhousehold Transfers*

As we noted above, it is ultimately a household's ability to consume goods and services that defines its economic well-being, not its gross cash income. Accordingly, we turn next to net interhousehold transfers, such as alimony and child support—both paid and received. We count them outside of gross cash income so that they will not be double-counted (in the aggregate) in the income of those who pay them. We therefore recommend that they be added to recipients' incomes and subtracted from donors' incomes in a separate category rather than as part of GCI.<sup>3</sup>

This category also includes regular payments to students for living expenses, periodic gifts, and the like, if the student is treated as a separate household unit. If the student is included in the unit of the parent (or grandparent) making the transfer, these payments should, of course, not be counted since the "transfer" takes place within the household. Whether to treat students living away from home as separate households is an important household definition issue in itself.

Relatives can also provide in-kind services, such as child care or elder care, or directly pay tuition for a student in another household unit. These transfers free up the recipient household's cash resources for other spending. If we could agree on how to measure these transfers, they could be treated like other cash transfers and included in the recipient household's income. Similarly, an individual who provides uncompensated services to someone outside the household sacrifices the value of those services from his own income. These musings raise tricky questions about the value of leisure time. If one cooks a meal and takes it to an elderly relative, should that loss of leisure time be deducted from the cook's income? Should this transfer be treated differently if it is to someone outside versus inside the household? Because of these conceptual difficulties as well as valuation issues, we recommend excluding in-kind interhousehold transfers, including direct consumption expenditures on behalf of another household, from our proposed measure of income, even though they should be included in principle.

The treatment of one-time gifts or sporadic assistance is controversial. Some countries, such as the United Kingdom, exclude them from their current official definition of income, but other countries include them. They may include one-time transfers from an older non-household member, inheritances received at death, and other gifts, in cash or in kind. We recommend treating them as asset transfers, though others may prefer to treat them as income received in the current period.

## G. *In-Kind Earnings and Home Production*

Not all households engage fully in the market economy. Households with more hours working for pay in the cash economy spend fewer hours in unpaid housework, *ceteris paribus* (Juster and Stafford, 1991). Thus, to compare two households (or two nations) with similar money earnings but different hours of

<sup>3</sup>One might decide to include net cash transfers in GCI only if they are mandatory (e.g. as the result of legally binding agreements) and not voluntary, though determining such a distinction accurately in a survey context is difficult.



market and non-market production is to bias the comparison. Furthermore, in many less-developed countries and in rural areas of developed nations, many households produce agricultural and manufactured goods for their own consumption, for barter with other households (and businesses), and for sale. (If these goods or services are sold for cash or bartered, they should be included as cash earnings from self-employment as noted above in section III.A.)

We think it makes more sense to focus on the means of production rather than the actual means of exchange and its value, and, for that reason, we include in-kind income from home production as income. But it is difficult to compute a value for home production for own consumption, since it is not cash income. If the household trades goods in the market, then it makes sense to use the competitive market price for those goods, excluding non-labor costs of production, just as a business reports profits as revenue net of costs. The returns to labor accrue to the household in this context anyway, so we need not deduct them from the market revenue. When a good is not publicly traded, we need to approximate its value using closely substitutable commodities. Many nations are collecting time use data to help them measure and value non-cash earnings (e.g. see Jackson, 1997).

Another complication for all households is the home production of consumer services (e.g. food preparation, hair cutting, garment repair, child care of their own or others' children) by household members. Because many households obtain these goods and services through spending their earnings, to include them in income means one must measure their value as well. Again, the cost of the closest market equivalent is appropriate as the measure of value, but services provided to other members of the household (cooking, cleaning, etc.), even though they improve the household members' well-being, are not income to the household. As economies shift to the market production of goods and services and away from home production (e.g. day care centers, takeout food), total income (and gross domestic product) will rise. Further, research on valuing *all* uses of time is needed to improve comparability over time and across countries in different stages of development. Meanwhile, note that international comparisons of income levels may be biased against developing countries.

The valuation of goods and services produced for home consumption (and barter) may be the biggest problem in international comparison of household incomes. If researchers include developing nations in cross-national comparisons, and if they attempt to measure accurately the net economic well-being of households where the number of market earners differs, then they must develop acceptable, estimable, and universal measures of non-market household production. The issue is not whether to value this income, as it is clearly important to do so, but how.

#### H. *Work Expenses*

Some employees may require non-discretionary expenditures on the part of their employees to hold a job (e.g. purchase of uniforms). In some cases, employers provide a clothing allowance for such expenses. We believe it is relatively non-controversial to exclude such an allowance and deduct net spending

from income. Others have suggested deducting other types of work expenses for wage earners, such as child care and transportation costs, net of government, and employer subsidies for such expenses (e.g. subsidized child care) when computing disposable income (Citro and Michael, 1995). A complication is that many of these expenses are optional: workers may choose to live close to work to reduce transportation costs and time but pay more for their dwelling unit. We recommend identifying mandatory work expenses by consulting the income tax laws of each nation and excluding them from income. We consider government-mandated contributions to national insurance schemes, such as payroll taxes, to be mandatory work expenses.

### I. *Taxes*

For a complete accounting, we cannot ignore taxes, just as we cannot ignore redistributive subsidies (negative taxes) paid directly to households as refundable tax credits and child allowances. Direct income taxes reduce the income available to the household, and their net value should be subtracted from income. Indirect taxes are different—they typically result from consumption decisions. For example, property taxes are the government’s user charge for providing local government services (e.g. fire protection); sales and excise taxes can be considered to increase prices (as do value-added taxes). We recommend that indirect taxes should *not* be subtracted from income (though see section III.L below for property taxes).

We designate  $GCI + (\text{net interhousehold transfers}) + (\text{in-kind earnings}) - (\text{net mandatory work expenses}) - (\text{net direct income taxes})$  as *Real Disposable Personal Income (RDPI)*. Note that this measure of income differs from disposable personal income as currently computed by many, if not most, national and international statistical bodies in that it includes net amounts of several additional types of income (e.g. child support, interest, and taxes) and deducts some of the expenses of earning income.

### J. *In-Kind Market Income*

Employers often provide their workers with fringe benefits (e.g. contributions to health or life insurance premiums, company cars) which should be included as employee income. While employers also pay their share of payroll taxes, incidence studies (e.g. Fullerton, 1993) suggest that, at least in the United States, workers bear the entire burden of those taxes in lower cash wages. Therefore, we recommend excluding the employers’ share of payroll taxes from employees’ income.

Finally, one could consider employer contributions for retirement (pensions) as earned income, but there are the issues of vesting, valuation, and access to those assets. We recommend not counting these contributions as income when earned, but rather to count them when they are received later in life as pension income. They do increase the household’s wealth when earned, however.

### K. *In-Kind Transfers*

Some have argued that household income should include some value for public elementary and secondary education, including early schooling (pre-school) when provided as a right of citizenship (e.g. école maternel in France). Most countries also give their citizens in-kind social insurance benefits. The most popular are government health care services and benefits for public education tied to previous government employment (e.g. educational support for veterans in the United States). But governments also provide many other public services, such as defense. Where should we draw this line?

A serious concern for cross-national comparisons is developing both a consistent set of benefits to include and a consistent value for these benefits. All health care systems are not alike, nor are all education systems (though there may be more variation within a country than between countries). Furthermore, those who are sick do not get more income from such health programs than those who are healthy, if existing systems serve both groups equally well. Measuring the quality of universal non-cash benefits and then valuing them in money terms is quite difficult (Smeeding *et al.*, 1993). Another concern is assessing the benefit incidence of government services. Families with children benefit directly from educational expenditures compared to elderly citizens.

If broad classes of beneficiaries can be identified (e.g. the elderly, the disabled, children), we recommend including their benefits if they can be valued and if a reasonable subset of the population can be identified as receiving the benefits. Similarly, health benefits may be provided to targeted populations by certain countries. If they are included, care must be taken in making comparisons to other countries that provide universal health care.

Most countries also provide in-kind means-tested assistance to their low-income populations. They provide some of these in near-cash form, such as food (food stamps in the United States) and cash housing allowances (the United Kingdom, Sweden), and one might easily count them as cash (see section III.C above). Beyond these near-cash benefits, some true non-cash transfers are aimed at the poor. These include public housing units, surplus food and clothing, and related benefits in-kind, such as free health care for the poor. These benefits differ from near-cash benefits in that they have a value to the recipient that is sometimes different from the government cost of these benefits.

In many circumstances, legislators have chosen to provide assistance for particular needs rather than to provide cash that the recipient could spend however he or she wanted to. Valuation issues arise and are magnified due to the lower cash incomes of recipients, underlining the fact that the recipient may be willing to trade the rights to his or her benefits for a lower amount of scarce cash income than the cost of those benefits. We find some agreement with Walton (1997), who recommends valuing them at cost. But we are also concerned about cases where benefits in-kind are very large relative to cash income. In such cases the household's true economic well-being may be overstated by valuing these benefits at cost.

### L. *Net Imputed Rent for Owner-Occupied Dwellings*

Homeownership varies significantly across nations. For instance, 82 percent of Spanish households own their own homes compared to only about 50 percent

of German households (Eurostat, 2000). Net imputed return on the equity in one's own home is estimated as the benefit of converting one's net home equity into an annuity, net of property taxes and of mortgage interest paid on the dwelling. Thus, mortgage interest is treated as a cost to owners in determining the net service flow from the dwelling. If net imputed rent is included in income, one must be careful that it is measured in a way that leads to greater international standardization instead of nation-specific measures of its value. One suggestion is to use a low government bond-based interest rate times the net value of home equity (e.g. as in Smeeding *et al.*, 1993).

However, this treatment would not address the issue of equal treatment for other assets that yield unrealized capital income (e.g. automobiles for transportation). Consistency suggests that imputed rent from consumer durables also needs to be counted along with that of owned homes, but valuing the imputed rent from homes and perhaps also from automobiles would cover most of the benefits.

We designate Real Disposable Personal Income plus the three noted in-kind income sources (J, K, and L) as *Net Total Income (NTI)*.

#### IV. CURRENT PRACTICES IN INTERNATIONAL HOUSEHOLD SURVEY INCOME DATA COLLECTION

One important issue is whether any existing household survey collects all (or most) of the income types described in section III. A corollary issue is whether omissions can be compensated for by other means. This section reports on the results of a "metasurvey" (survey about surveys) of 106 income components that are actually collected on international household income surveys. Good data collection practice requires asking the most detailed questions about those income components most difficult to collect and more summary questions about easier-to-collect components. Accordingly, the data collection instrument was organized into nine sections, each oriented toward a different "macro" concept. The nine types of income are: (A) income from employment; (B) fringe benefits; (C) income from property, and three types of income from government; (D) universal benefits; (E) social insurance; (F) transfer programs; (G) private transfers; (H) deductions from income; and (K) income from other sources.<sup>4</sup>

After the prototype table of income components was developed, it was reviewed by two other members of the International Expert [Canberra] Group on Household Income Statistics, and changes were made. Instructions were prepared and the questionnaire (as a blank table in four electronic formats) was sent to all members of the Canberra Group. The revised questionnaire responses and the new income components identified were sent back to the original fourteen respondents for review, along with clarifying questions. Responses were eventually received from individuals about thirty income surveys in twenty-five countries. We must note that not all respondents always understood what income component was being described in the short description provided on the questionnaire, and we did not always understand how to describe the new income components

<sup>4</sup>These letters designate the type of income component in Table 2.

contributed by the respondents. Besides language differences, there are substantial institutional differences among countries. Consequently, further revisions are likely. Finally, in April 2000, the list of income components was reconciled with the System of National Accounts (SNA) and income components were added and eliminated. Unfortunately, there was no time to submit the new list to the original respondents, so revisions for that reason can be expected as well. Respondents were asked to note the following aspects of each component:

- whether an amount was collected at all;
- if not, indicate that by *N* unless it was imputed (allocated) by the statistical agency conducting the survey (denoted *I*);
- if so, then whether it was collected as a separate income component (denoted *S*) or jointly with another component (denoted *J*); and
- if jointly, which components were collected together.

If a component was collected only by inference in some sort of summary catchall question, or the source was identified but no amount collected, then the respondent was asked to mark the component *N*. In the follow-up, respondents were also asked to mark *O* if an income component was not applicable to their country. Four countries—Finland, The Netherlands, Norway, and Sweden—reported on the data available to them from the administrative records they use to report income distribution statistics.

Table 2 answers the question, “Is the income component collected at all?”<sup>5</sup> When counting the number of countries responding “yes,” responses of *O* are added as well (if a country does not have a program or income component, it implicitly collects its value as zero). Also, a component is considered collected if at least one survey in that country collects that component.<sup>6</sup>

Interestingly, there were nine income components collected by twenty-eight or more of the surveys—wages and salaries from the main and other jobs (A1–2), bonuses (A4), non-farm and farm self-employment income (A9–10), employer-based pensions (A13), and interest, dividends, and rental income received (C1, C3, C4).

Eight kinds of income from employment (*A*) are collected in at least nineteen of the twenty-five countries included here—wages and salaries from the main and other jobs (A1–2), tips (A3), bonuses (A4), net non-farm and farm self-employment income (A9–10), and employer-based and foreign pensions (A13–14). All but one of the rest are collected by eleven or more countries.

Very little information is collected on home production for barter transactions (A12). Whereas fourteen countries did collect information on home production for home use (A11), only six—China, Gambia, Mauritius, Mexico, The Netherlands, and Switzerland—collected home production for barter. This income component is key to creating an international income measure that is comparable across countries at various stages of development.

<sup>5</sup>“Not collected” responses (*N*) have been converted to blanks to aid readers. The complete results (available from the authors) indicate which components are collected jointly. These results will be updated if additional information is received and can be found at <<http://www.lis.ceps.lu/canberra.htm>> .

<sup>6</sup>For example, both components B1 and B2 are collected by the United States; the Current Population Survey collects only B2 while the Survey of Income and Program Participation collects only B1.

TABLE 2  
SUMMARY OF INCOME COMPONENT DATA COLLECTION BY COUNTRY

	Arg	Aus	Bra	Can	Chl	Chn	Col	CR	ES	Fin	Gam	Ger	Itl	Kor	Mly	Mau	Mex	Nth	NZ	Nor	Per	Swd	Swt	UK	US	No.	
<i>A. Income from employment</i>																											
A1	*	J	J,S	J	J	J	J	J	J	J	J	J	J	J	J	S	S	J	S	J	J	J	J	J	J	J	25
A2	*	J	J,S	J	J	J	J	J	J	S	J	J	J	J	J	S	S	J	S	J	J	J	J	J	J	J	24
A3		J	J	J	J	J	J	J	J	S	J	J	J	J	S	J	S	J	J	J	J	J	J	J	J	J	22
A4		S	J		J	S	S	J	J	S	J	J	J	J	S	J	S	J	S	J	J	J	J	J	J,S	J	24
A5						J				J				J		J	S	J	J	J		J	S	J,S		13	
A6			J			J				J	O	J	J		O		O		J	J	J	J	J	S	S,I	S	14
A7		S	S			J			S	J		J,S				J	S	J	S	J		J	S	S	J,S		15
A8			S		O					S	O	O	O	O		O		S		J	S	O	O			13	
A9	*	J	J	J	S	J	J	J	J	S	J	J,S	S	J	J	J	S	J	J	J	J	J	J	J	J	S	24
A10	*	J	J	J	S	J	J	J	J	S	J	J,S	S		J	J	S	J	J	J	S	J	J	J	J	S	23
A11	*			S		S		S		I	S	S			S	S	S	J		J	S		S			14	
A12	*					S				J						S	S	J					S			6	
A13	*	J	J	J	S	J	J	J	J	J	J	S	S		S	J	S	J	S	J	J	J	S	J	S	J	24
A14		J	J	J		J	J	J	J	S	J		S			J	J	J	S	J	J			S	J	19	
A15			S			J				J		J	J			J	S	J	J	J		J	J		S	13	
A16				S					J		J	J	J		J	J	J	J	J			J	J	O		11	
<i>B. Fringe benefits</i>																											
B1										J					S					J					S	4	
B2	*								S	J		I			J			J							I	6	
B3										J					J					J						3	
B4															J		O	I		O						4	
B5						S						O			O		O	I		O						6	
B6	*		S			J			S	J			J	J	S		S		S	J	J	J	J	I		13	
B7	*					J			S	J			J	J	J		S	J	J	J	J	J	J	I		13	
B8										J								J	J	J	J	J	J			5	
B9			S		S	J	S		S	J				J	S	S	S	J	J	J	S		J	J		14	
B10						J					O	I					S	J	J	J		J	J			8	
B11						J			S	J							O	J	J	J		J				7	
<i>C. Income from property</i>																											
C1	*	J	J,S	J	J	S	J	J	S	S		J,S	I	S	S	S	S	S	S	S	S	J	J	S	S	24	
C2			S	J	J	J	J	J	S	S	J			J	S	J	S	J	S	J	S	J	J	S	J,S	16	
C3	*	J	S	J	J	S	J	J	S	J		J	S	S	J	S	S	S	S	S	S	J	J	S	S	24	
C4	*	J	S	S	J	S	J	S	S	S	J	J,S	S	J	S	S	S	S	S	S	S	S	S	S	J,S	24	
C5			J,S	J	J	J				S		J			S	J	S	S	S	J	J	J	J	S	J,S	15	
C6	*	J		J	S			J		S		J					S			S		S		I		11	
C7						S											S									2	
C8						S			J						J	J	S			O		J	S			8	

D. *Income from government—universal benefits*

D1	*	O	O	J	J	J	O	S,I	J	O	S	I	O	S	J	J	S	O	17
D2	*	I						O										I	3
D3		I																	1
D4	*	I	O	J	J	S, I	O	S					O	S	J	S	S	O	13

E. *Income from government and private social insurance*

E1	*	O	J	J	S	S	J	S	J	O	S	S	J	S	J	J	S	J	S	S	19
E2	*	O	J	J	S	J	J	S	J	O	J	S	S or J	S	J		S	J	J	S	18
E3					S	J	J	S			J	S	J	S	J		S	J	O	S	12
E4	*	J	O	S	J	S	O	S	S	J	O	J	O	S	O	S	J	J	S	S	19
E5					S	O					J	O	J					J			6
E6		S	S	J	S	J	S	S	J			S	S or J	J	J	J	J		S	S	15
E7															J						1
E8				J											J			J			3
E9		S			S	J	S						S	J		J	J	J	S	S	11
E10		O	O	J	S	O	S					J	S or J	J	J	J	J	S	J	O	14
E11				S		O								J				S			4
E12		S	S		S			S	S	J	S	J	S	S	O	S	S	J	S	S	18
E13											J			S				J			3
E14					O																1
E15		O	O		S	O	O			O		J		O				I			9
E16	*	S		J	S	J	S	S	J	O	J	S	J	S	J		O	S	S	S	17

F. *Income from government means-tested transfer programs*

F1		J	J		S	O	J	J		O	J	S		J			J	S	O	13	
F2	*	S	J	J	J	J	O	S	J	J	J	J	S	J	S	S	S	J	S	S	18
F3	*	I	J	J	J	J	O	S		O	O	J	S	J	S	O	O	J	S	J	17
F4	*	J				S	O	S	J		J	J	S	S	S		S	J	S	I	15
F5	*	O		J		O	O	O	J		J	J	S			O	O	J	I	S, I	14
F6	*	I				S	O	S, I	S			O	O				O	J		I	10
F7				J		O	O	O	J		O	O	O		O	O	O	J			12
F8	*	J	S	O	S	S	O	S		O	O	S	O	J	S		J	J	S	O	18
F9		S	O	S		S	O	S		O	O	J	S		S		S	J	S	J	15
F10		S	S	S	J	S	O	S		O	S	O	S	S	S	O	S	J	O	O	18
F11		S	O	S	J	S	J	O		O		J	S	J	S		S	J	S	O	18
F12		I	I			O	O	O			O	O		I	S		O		O		11
F13		O	O			S	O	O			O			I	O		O		O	I	11
F14		O	I			S	O	O			O			I			S		O		9

TABLE 2—continued

	Arg	Aus	Bra	Can	Chl	Chn	Col	CR	ES	Fin	Gam	Ger	Itl	Kor	Mly	Mau	Mex	Nth	NZ	Nor	Per	Swd	Swt	UK	US	No.	
<i>G. Private transfers</i>																											
G1	*	J	J		J	J			J	J	J	J	J	J	S	J	S	S	J	J	J	S	J	J	S	21	
G2	*	J	S		J	J			J	J	J	J	J	J	J	J	S		J	S	J		J	J	S	19	
G3		J				S					S			J	J	S							S			6	
G4		J	S	J		J	J	J	J	J	S	J	J			S	J		J	S			J		S	17	
G5	*	J	J	J		J	J	J	J	J	J	J	J	J	J	J	J		J		J		J	S	S	20	
G6			S			J			J		J	J			S		S		S	S			J		J	10	
G7		J	J			S	J		J	S	J	J			J	J	S	J	S		J		J	S	S	17	
<i>H. Deductions from income</i>																											
H1			S			J			S	J			I				J	J	S	J		J	S	S		12	
H2			S			J			S	J	J,S		I				J	J	S	J		J	S			12	
H3	*		J		J				J	J	J	J	J		S	J	S	S	J	J		S	J	J		15	
H4	*		J,S		J		S		J	J	J	J	J		S	J	S		J	J			J	J	S	15	
H5	*		S						S	S						J	S		J				J	J		8	
H6			S			J			S	S					S		S		J				J			8	
H7						J				J									J				J			4	
H8				S		J									S	S		I	S				J	S		7	
H9	*		I			S			S		I				S			I		J		O	J	O		10	
H10									J														J	S		3	
H11									J														J			2	
H12			S						S	S							S		S	S		S	J			8	
H13			S		S				S	J	I								S	S		S	J		S	10	
H14			S		S				S						J	S			S	S		S				8	
H15	*		I		S		S		S	J	S,I				S	S		I	I	J		J	J	S	S,I	15	
H16			S			J			S	J	O							S	S	S		J	J	S,I	S,I	12	
H17			I			J				S	O													I		5	
H18				I					S	S			O						S	S		S	S			8	
H19			O		S		S		S	O	S,I						O		O				S	S		10	
H20			S		S				S		S,I					J		I	S				S			9	
H21						J					O				J				S				J			5	
H22			S			S					J				S				S				S			6	



K. Income from other sources

K1		O				J				S	O	O				O	J				S		J	9	
K2		S								S	J	S	S			S	J		J		J	J	S	10	
K3										J		O				J	J	J		O	O	J	S	9	
K4										S		S				J	J	J			O	J	S	8	
K5		S				J			J			S				S	J	S	O		J	J	J	10	
K6	*				S				S	I	I	I	S		S	S	I		S	S	S		I	13	
K7										S	S										S	S		4	
K8		J	J	J	S		J	J	J	S	J		S			J	J		J	J	S	J	S	J	18

Note: \*Indicates a “major” income component (see Table 3). See Table 3 for description of individual income components. Multiple entries in the same box indicates either multiple surveys or multiple approaches.

Key: Blank = no answer or not collected; S = collected by a separate question; J = collected jointly with another source; I = imputed; O = not applicable.

Country/survey

Arg	Argentina	Permanent Household Survey
Aus	Australia	Survey of Income and Housing Costs; Household Expenditure Survey
Bra	Brazil	National Household Survey
Can	Canada	Survey of Labour and Income Dynamics
Chl	Chile	National Socioeconomic Survey
Chn	China	Urban Household Survey; Rural Household Survey
Col	Colombia	National Household Labor Force Survey
CR	Costa Rica	Multipurpose Household Survey
ES	El Salvador	Multipurpose Household Survey
Fin	Finland	Income Distribution Survey (administrative records)
Gam	The Gambia	Household Poverty Survey
Ger	Germany	Income and Consumption Survey; Socioeconomic Panel Study
Itl	Italy	Bank of Italy Survey of Household Income and Wealth
Kor	Republic of Korea	National Survey of Family Income and Expenditure
Mly	Malaysia	Household Income Survey
Mau	Mauritius	Household Budget Survey
Mex	Mexico	National Survey of Income and Expenditure in Households
Nth	The Netherlands	Income Panel Survey (administrative records)
NZ	New Zealand	Household Economic Survey
Nor	Norway	Income Distribution Survey (administrative records)
Per	Peru	National Household Survey of Life and Poverty Conditions
Swd	Sweden	Income Distribution Survey (administrative records)
Swt	Switzerland	Income and Consumption Survey
UK	United Kingdom	Family Expenditure Survey; Family Resources Survey
US	United States	Current Population Survey; Survey of Income and Program Participation
No.	Number collecting	

Not much data are collected on fringe benefits (B). Only three types are collected by at least half the countries reporting—company cars (B6) and subsidized meals (B7) in thirteen countries, and subsidized housing (B9) in fourteen. In contrast, income from property (C) is much more widely collected. Interest received (C1), dividends (C3), and rental income (C4) are collected in twenty-four countries; royalties (C2) and interest and dividends from estates and trusts (C5) are collected in sixteen and fifteen countries, respectively. Realized capital gains (C6) is collected in eleven countries.

Determining the full coverage of data collection on government programs is more difficult, as some programs listed may not be offered in all countries, and this portion of the questionnaire has not yet been fully completed for Latin American countries. By counting the failure to offer a program as collection (amount zero), we note that information on universal family and child benefits (D1) is collected by seventeen of the twenty-five countries surveyed, and thirteen collect data on maternity benefits (D4). Most striking was that only one country (Australia) collects information on public education (D3) programs, and only three—Australia, Germany, and the United States—collect information on government-subsidized health care services (D2).

Collection of information on government and private social insurance (E) programs was reasonably widespread. Ten components were collected by at least nine countries. Thirteen or more countries collected information on retirement and survivors' benefits (social security) (E1), government disability disablement insurance (E2), government unemployment benefits (E4), government workers' compensation for on-the-job injuries (E6), government scholarships and other educational assistance (excluding loans) (E10), reduction in interest on student loans (E12), and veterans' benefits (E16). In addition, nine or more countries collected private disability benefits (E3), private sickness/medical benefits reimbursed (E9), and payments for child care (E15).

Transfer program benefits, including tax credits (F), were collected by a reasonable number of countries (or they did not exist). All fourteen components were collected by nine or more countries and all but four were collected by about one-half (twelve or more) countries.

Three private transfers (G) are broadly collected—alimony received (G1) in twenty-one countries, and child support received (G2) and regular gifts (G5) by nineteen and twenty of twenty-five, respectively. Two other transfers were collected by more than one-half the countries—one-time gifts (G4) and other regular payments (G7) by seventeen. In-kind inter-household transfers (G3) are collected by only six countries—Argentina, China, Gambia, Malaysia, Mexico, and New Zealand.

Deductions from income (H) are clearly part of understanding economic well-being, and twenty-two different types were part of the survey. However, only nine were collected (or imputed) by ten or more countries—interest paid on mortgage and non-mortgage loans (H1–2), alimony paid (H3), child support paid (H4), employee contributions to government-mandated insurance premiums (H9), child care costs (H13), income and property (real estate) taxes (H15–16), and government-mandated employee contributions to unemployment insurance

(H19). Between a quarter and a half of the countries collected several other deductions.

All but one of the eight kinds of “other source” income (K) were collected by eight or more countries—most notably profits from life insurance (K2) and lottery or gambling winnings (K5) by ten, net imputed return on the equity in one’s own home (K6) by thirteen, and pension or annuity income from self-financed investments (K8) by eighteen.

### *Key Components*

Since the ultimate goal of this cross-national comparison is determining whether aggregates can be created for meaningful international comparisons, it is important to focus on the key components of each definition rather than on the minor components whose omission would have little effect on overall income statistics. Accordingly, Table 3 presents our interpretation of the major and minor survey-based components of the income definition. We have identified thirty-six of the 106 components as major for cross-national comparisons of income. We emphasize that this distinction between major and minor components is our opinion only, and, depending on the specific comparison or group of countries involved, some of our “minor” income components might play a more important role.

*Gross Cash Income* is an income definition that can be collected almost completely by every country in the survey. The most serious shortcomings are two—realized capital gains (C6) is collected by only eleven countries and home production for barter (A12) is collected by only five countries. Several countries, most notably Germany, The Netherlands, Norway, and Sweden, would have difficulty in reporting an unambiguous measure, as many collect fringe benefits jointly with cash compensation.

*Real Disposable Personal Income* is a bit more difficult to collect than Gross Cash Income. Two of its major components are collected by fewer than half the countries: payments made on behalf of another household (H5), and employee contributions to government insurance premiums (including payroll taxes) (H9). Often, however, H9 can be imputed.

*Net Total Income.* Of the seven additional major elements needed to compute Net Total Income, four are collected by more than one-half the countries while three are not. Government health care services (D2) are collected by only three countries, employer contributions to private health insurance (B2) by six, and public housing subsidies (F6) by eight, though perhaps not all countries with national health insurance have appropriately indicated the inapplicability of B2 or D2 for their country. Argentina, Canada, Colombia, and Costa Rica do not collect any of these seven extra components.

## V. CONCLUSION

Clearly, no single income survey collects all components of any of the income summary measures. Research is needed on how to value non-market home production. There are also other problems that affect the completeness and accuracy of income data reporting on these surveys.

TABLE 3  
MAJOR AND MINOR INCOME COMPONENTS OF THE COMPREHENSIVE INCOME DEFINITION

Major Element	Minor Element
Gross Cash Income (GCI) = $a + b + c + d + e$	
<i>a Cash earnings</i>	
A1 Wages and salaries (main job)	A3 Tips
A2 Wages and salaries (other jobs)	A4 Bonuses
A9 (Net) non-farm self-employment	A7 Severance pay
A10 (Net) farm self-employment	
A12 Net income (after expenses) from home production for barter transactions	
<i>b Other cash market income</i>	
A13 employer-based pensions or other periodic retirement including pensions bought with additional employee voluntary contributions	A5 Profit-sharing including stock options
C1 Interest received	A14 Foreign pensions
C3 Dividends	C2 Royalties earned by households as unincorporated enterprises
C4 Rental income earned by households as unincorporated enterprises	C5 Interest and dividends from estates and trusts
	C8 Profits from unincorporated business capital investment
	H2 Interest paid on non-mortgage loans
	K8 Pension or annuity income from self-financed investments
<i>c Cash transfers</i>	
D1 Family or child benefits/credits/allowance	A8 Parenting payment
D4 Maternity benefits/allowances/grants	E6 Government workers' compensation (on-the-job injuries)
E1 [Government] social security (retirement and survivors) benefits	E12 Government scholarships and educational assistance (excluding loans)
E2 Government disability insurance/incapacity/disablement benefits	E14 Reduction in interest on student loans
E4 Government unemployment benefit/job search allowance	E15 Government payments for child care to permit employment
E16 Veterans' benefits (injury, pension, etc.)	F1 Child support assurance (public) benefits
F2 Public assistance or general welfare benefits	F9 Means-tested disability support
F3 Public assistance for elderly	F10 Means-tested age pension
F4 Rental allowances (housing subsidies)	F11 Other transfer programs (catch-all item)
F8 Means-tested unemployment benefits	
<i>d Other regularly received money income</i>	
	A6 Payments for fostering children
	E3 Private disability insurance/incapacity/disablement benefits
	E5 Private unemployment/redundancy insurance
	E7 Private workers' compensation (on-the-job injuries)
	E13 Private scholarships & educational assistance (excluding loans)
	K1 Military family allotments
	K3 Union sick or disability pay
	K4 Union strike pay
	K7 Regular receipts from non-profit entities

TABLE 3—continued

Major Element		Minor Element	
<i>e</i>	<i>Net realized capital gains and intermittent income</i>		
C6	Realized capital gains	A15	Lump sum retirement payout
		K2	Profits from life insurance
		K5	Lottery or gambling winnings
Real Disposable Personal Income (RDPI) = GCI + <i>f</i> + <i>g</i> - <i>h</i> - <i>l</i>			
<i>f</i>	<i>Net interhousehold transfers</i>		
G1	Alimony received from another household	G7	Other regular payments from outside household
G2	Child support received from another household	H7	Regular inter-household transfers paid (gifts)
G5	Regular cash inter-household transfers received (gifts)		
H3	Alimony paid to another household		
H4	Child support paid to another household		
H5	Payments on behalf of another household		
<i>g</i>	<i>In-kind earnings and home production</i>		
A11	Net income (after expenses) from home production for home use		
<i>h</i>	<i>Net (non-discretionary) work expenses</i>		
H9	Employee contributions to government insurance premiums (including payroll taxes)	H11	Employer reimbursements for discretionary work expenses
		H19	Government-mandated employee contributions to unemployment insurance
<i>i</i>	<i>Net direct income taxes</i>		
H15	Income taxes net of refunds	F12	Child tax credit
		F13	Earned income tax credit
		F14	Other tax credits
		H22	Compulsory fees and fines
Net Total Income = RDPI + <i>j</i> + <i>k</i> + <i>l</i>			
<i>j</i>	<i>In-kind market income</i>		
B2	Employer contributions to private health insurance	B3	Employer contributions to life insurance
B6	Company cars	B4	Employer contributions to employer other insurance schemes (e.g. disability)
B7	Subsidized meals	B5	Employer contributions to government insurance schemes (including payroll taxes)
		B8	Subsidized (low-interest) loans
		B9	Subsidized housing, electricity
		B10	Subsidized child care
		B11	Subsidized vacations
<i>k</i>	<i>In-kind transfers</i>		
D2	Government-subsidized health care services	D3	Public education
F5	Food subsidies or vouchers	F7	Surplus food and clothing
F6	Publicly owned housing subsidy		
<i>l</i>	<i>Imputed rent for owner-occupied dwellings</i>		
K6	Net imputed return on the equity in one's own home		

TABLE 3—continued

Major Element		Minor Element	
<i>Not included</i>			
A16	Non-periodic draw from retirement account	H6	One-time inter-household transfers paid (gifts)
B1	Employer contribution to private retirement (pension) plans	H8	Employee contributions to private social insurance (pensions, health, etc.)
C7	Unrealized capital gains	H10	Employer reimbursements for non-discretionary work expenses
E8	Medical expenses reimbursed by government sickness, accident, or hospital insurance	H12	Transportation costs
E9	Medical expenses reimbursed by private sickness, accident, or hospital insurance	H13	Child care costs
E10	Government sickness/medical benefits	H14	Union and professional dues
E11	Private sickness/medical benefits	H16	Property (real estate) taxes (part of K6)
G3	In-kind interhousehold transfers	H17	Sales or value-added taxes
G4	One-time cash inter-household transfers received (gifts)	H18	Medical expenses not reimbursed by insurance
G6	Inheritances	H20	Privately purchased health insurance premiums
H1	Interest paid on mortgage loans (part of K6)	H21	Privately purchased unemployment/ redundancy insurance premiums

*Note:* Lower-case letters refer to section III subsections (see text).

Atkinson *et al.* (1995) show that while wages and salaries are fairly accurately reported across countries, total income reported in the microdata sets varies widely across the seven countries for which they have such comparisons. Their findings show that income surveys account for 77–93 percent of the aggregate amounts reported by external sources, with five nations at 90 percent or above. While these aggregates may also be measured with some error, there is evidence of differential income underreporting across survey types. Different nations have each made their own assumptions and imputations to compare aggregated microdata income component totals with adjusted administrative data. There has been no comprehensive cross-national study of comparisons on a wholly consistent basis in each country.

Comparisons with aggregate totals give some idea of the magnitude of underreporting, but they do not tell us whether underreporting affects distributional measures as it would if underreporting were correlated with income. If everyone underreports their income proportionately, which is unlikely, then the mean of the distribution of income would be lower but most measures of inequality would be unaffected.

Underreporting is typically high for government transfers, property income, and self-employment income in all nations (see Harris, 1998). Since transfers are more likely to be received by people in the lower tail of the distribution, this underreporting increases measured inequality. On the other hand, underreporting of property income tends to lower the income of households at the top of the distribution, which reduces measured inequality. Since these two sources of income have opposite effects on inequality, it is difficult to judge whether inequality is underestimated or overestimated in a given country. Identifying the

bias caused by underreporting is even harder when comparing countries. Whether underreporting affects cross-national comparisons depends on the degree to which underreporting varies across countries. If the distribution of underreporting is similar in all countries, it would affect the level of inequality but not necessarily cross-national differences in inequality. Additional investment in improved imputation methods, such as microsimulation and use of administrative records, and a willingness to experiment with alternative income series are necessary to make further progress.

The uniform definition of income suggested in this article for cross-national comparisons of income is not yet within our reach. One of the proposed components, *Gross Cash Income* (the sum of cash earnings, other cash market income, cash government transfer benefits, other regular income, and realized capital gains), is for now the closest that international researchers can come to a comparable measure, although realized capital gains is a key missing component in many surveys.

*Real Disposable Personal Income* adds interhousehold transfers and in-kind earnings to Gross Cash Income and subtracts out non-discretionary work expenses and direct taxes. While these are sensible changes to make to the income definition, they make it somewhat harder to obtain comparable international measures. *Net Total Income*, the most comprehensive income measure we propose, further adds in-kind market income, in-kind government transfers, and the imputed rent for owner-occupied homes, which are typically even less available on a cross-national basis.

Clearly, full cross-national comparisons of income require major changes in survey practice in many nations. While income survey data harmonization projects such as the Luxembourg Income Study (LIS) have made progress in defining net cash disposable income for OECD countries, not all of the components of the broader income measures developed here can be included and still maintain cross-national comparability.

For instance, uniform measurement of realized capital gains by countries that do not currently do so could improve the LIS income definition. Further important improvements beyond this definition would require additional information on non-cash transfers, imputed rent, and a host of other less important items (Smeeding *et al.*, 2000). We believe that all these components are needed to make full international comparisons of income, and we urge researchers and data collectors in all countries to improve their national estimates along the lines we have suggested. Hopefully, the forthcoming final report of the International Expert [Canberra] Group on Household Income Statistics (forthcoming) will help move nations to adopt a more comparable and uniform definition of household income from the outset.

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