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Poverty Levels in the Developed World

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The study of poverty by social scientists and social policy analysts has yielded important insights into both the causes and consequences of economic deprivation for individuals and families. This field of study as a scientific discipline has its modern origins at the turn of the last century when Seebohm Rowntree (1901) first surveyed the poor in England. During the 1960s, it became reinvigorated as United States federal policy makers shifted their attention towards the alleviation and even the eradication of poverty. John Kennedy and Lyndon Johnson's "Great Society" and the United States' "War on Poverty" exemplify these efforts. In fact, much of the debate and indeed many of the measures of poverty still used by analysts today were framed during this time.

More recent scholarship, however, offers a good deal of refinement and a wider range of choices. Despite these advances, a clear consensus over the preferred method of measuring poverty has yet to emerge. This debate is not merely an academic one, however, as the choice of one particular approach over another has important consequences for both the measurement of poverty and how policy might best alleviate it (see Townsend, 1980).

Furthermore, as modern societies confront economic liberalization, aging populations, marital dissolution and increased labour force participation by women, there has been a greater demand for comparative research on poverty, so that researchers can assess how successfully different policy regimes cope with poverty alleviation. In this contribution, we discuss the major concepts and approaches adopted by researchers in this area. We also present the most recent figures available for 22 countries for a variety of indicators using the most comprehensive source of income data currently available. Finally, we caution researchers to pay close attention

to issues of data quality and suggest areas where more research is particularly warranted.

At its most basic level, poverty is defined as having a lack of resources relative to needs. Consumption, assets, or income are often used to measure resources. Initial efforts at defining poverty in the U.S. used income as the index of well-being, but relied on household food consumption data to set the poverty line (Orshansky, 1965). In England, the measure of households with incomes below half the average, or the 'HBAI', was also introduced during this period. The preference for income or consumption data for measuring poverty is based on data availability, ease of measurement and national traditions. It is also based on the need for comparability for cross-national research.

Nearly all poverty research on rich countries focuses on disposable money income. For most persons and households, their primary income source is market income, which includes earned income from wages, salaries, self-employment, and other cash income from private sources such as property, pensions, alimony, or child support. To reach disposable income, public transfer payments (e.g., retirement, family allowances, unemployment compensation, social assistance benefits) are added and income taxes and social security contributions are subtracted from market income. (In fact, many researchers assess the effectiveness of government efforts at poverty reduction by estimating the percent change in the poverty rate when moving from market income to disposable income). Estimating needs can be either relative or absolute, but in either case one establishes a poverty threshold or poverty line below which individuals or families are considered "poor."

Using the absolute approach to determining a poverty line, one begins by defining a market-priced basket of goods and services comprising the basic

commodities considered essential for maintaining a minimum level of individual or family well-being, including food, housing, clothing and other essentials. The monetary amount needed to purchase these goods is set as the poverty line. The official U.S. poverty line and the Canadian equivalent, termed the Low Income Cut-Off (LICO), as well as the World Bank, have adopted this approach. In 2000, for example, the U.S. official poverty line for a single-member household in the continental 48 states equalled $8,350 per year (http://aspe.os.dhhs.gov/poverty/00poverty.htm).

Of course, even "absolute" poverty lines are dependent on the context (e.g., nations and period examined) within which they will be used. For example, the World Bank uses poverty lines of US $1.00, $2.00, or $3.00 per person per day depending on which region of the world is being investigated. However, the notion of an "absolute" poverty line is misleading since there is no one "absolute" poverty line or needs standard. Indeed, the goods and services included within the basket of goods considered essential to well-being are subject to numerous value judgments and relative to the individual's local culture and context.

Therefore, relative deprivation is often the preferred measure, both nationally and cross-nationally when measuring poverty in rich countries, because it examines deprivation subject to a household's social and economic context. Relative poverty is defined by establishing a poverty line that is some fraction of either the mean or median income of the social reference group, which is most often the nation as a whole. For example, the European Union has chosen an official line equal to 60 percent of the mean income for measuring poverty (Eurostat, 2000). However, the approach of using the average to establish a poverty line means that changes in the incomes of the richest persons affect the poverty threshold, which many scholars

reject on theoretical grounds (Jäntti and Danziger, 2000: 327). Therefore, many researchers prefer using the median to establish a relative poverty line. For example, the most widely used definition of a relative poverty line establishes the threshold equal to 50 percent of the median income (Rainwater, Smeeding and Burtless, 2002). Regardless, a clear consensus is lacking and relative poverty rates based on various fractions (40, 50 and 60 percent) of either mean or median income are often reported.

Research on poverty measurement also raises the question of the social reference group by which the poverty lines are estimated. For example, in the case of the European Union, there have been efforts to generate a European Poverty Line based on 60 percent of the *European-wide* mean income (see e.g., Beblo and Knaus, 2001). In this case, the European Union as a whole, rather than the country under investigation, is taken as the reference society. At the other extreme, some researchers define the reference society at the sub-national level, so that local estimates of poverty may be generated (see e.g., Rainwater, Smeeding and Coder, 2001). In this latter case, the poverty line is established using a local rather than a national standard (i.e., local median income instead of national). One advantage of this approach is that local price variations in the market-basket of goods and services may be taken into account, which has been recommended for the U.S. poverty line (see e.g., Citro and Michael, 1995), though only Alaska and Hawaii currently use "local" thresholds.

We have thus far focused on poverty rates or head count ratios. These measures of poverty simply estimate the proportion of a population falling below the particular poverty line that is being used and are the figures most commonly reported. However, poverty rates do not take into account the level of economic despair among the poor and thus some argue that they are insufficient estimates of poverty (Sen, 1976). A single measure, known as the Sen poverty index, incorporating two

additional factors, the income gap, or the "depth" of poverty, and the Gini coefficient among the poor, has been proposed in order to meet these criticisms.

The income gap is usually estimated as the distance between the mean income of the "poor" and the poverty line. This holds whether one uses a relative or an absolute approach and it is often standardized as a fraction of the poverty line. For example, if the poverty line equals 1000 monetary units in country "x" and the average income of those persons falling below the line equals 500 units, the poverty gap equals 500 units and is standardized as 50 percent (500/1000). The intuition behind this measure is that "…the desperately poor with zero income are worse off than the poor just below the poverty threshold" (Brady, 2001: 23).

In calculating the degree of income inequality among the poor, Sen proposed using the Gini coefficient, one of the most commonly used measures of income inequality. The Gini is based on the Lorenz curve, which plots cumulative percentages of the population against their cumulative aggregate incomes. A value of zero indicates "perfect equality", in which every individual has the same income. A value of one indicates "perfect inequality" and results if one person has all the income. These three factors, the headcount ratio (HC), the income gap ratio (IG), and the Gini (GI) are combined in the following equation:

Sen Index (SI) = HC * IG * (1 + GI).

In this way, the measure counts the incomes of the poorest persons more heavily than the incomes of persons closer to the threshold. There are various ways of expressing the formula and several modifications to this basic index have been put forward. We have chosen to report this one for the sake of clarity (see Brady, 2001: 23; and Jäntti and Danziger, 2000: 326-333).

As our results will show, there are some important differences in the rankings of countries that emerge when such measures as the Sen index are compared to basic headcount ratios. However, while the Sen and related indices are theoretically appealing to researchers, they are very much reliant on the quality of the data used to measure poverty. If incomes are reported as zero (a physical impossibility), or if data reporting is poor for low-income households, the Sen measure ends up being a product of data quality and not true poverty depth or intensity. Thus researchers need to be attuned to the quality of the data to which they apply their measure. Furthermore, the use of and understanding of these measures is still restricted; the public policy debate continues to be based upon the poverty rate and the choice of a poverty line alone.

Finally, since there are economics of scale in consumption of most household goods, income itself (or other measures of resources) are usually adjusted for these differences by means of an equivalence scale. The equivalence scale measures the cost of providing an equal level of living for households that differ by characteristics such as household size, age of members, etc. For instance, household size raised to the power .5 is a common equivalence scale adjustor. It says that if a single person needs "100" monetary units to be non-poor, a unit of 4 persons needs $4^{(.5)}$ or "200" monetary units to be non-poor. One usually estimates individual disposable income by aggregating the income of all household members and using an equivalence scale to arrive at each individual person's equivalent income. Equal sharing of incomes within the household is therefore assumed.

Databases for Measuring Poverty

Until the late 1980s, the majority of research on poverty focused on a single-nation and data sources used to measure poverty were not comparable across

countries. However, as interest in international comparisons has increased, the demand for comparable estimates has grown. The World Bank has made large strides in this area, especially with regard to less developed countries, and poverty estimates are available for nearly every country in the world (see http://www.worldbank.org/poverty/). At present, however, the most comprehensive source of comparable survey data is the Luxembourg income Study (LIS), a non-for-profit international organization (http://www.lisproject.org). The LIS includes over 100 datasets from 27 different countries, mostly in the developed world, covering four decades. Unlike other data sources, the LIS data are harmonized so that comparability between countries in measures of disposable income is enhanced.

Relative Differences in Poverty and Inequality Across Nations

How do nations measure up? In Table 1 we report levels of poverty for 22 countries, based on data from the LIS. The data are all not from the same year but rather we include the most recent dataset currently available. We use a relative poverty line, defined as 50 percent of the median equivalent income, and report poverty rates for children and the elderly. Finally, the income gaps, the Gini coefficients among the poor and the resulting Sen indices for these countries are also reported.

The Table has been arranged in ascending order based upon the poverty rate. We have also listed the ranking according to the Sen index, the column on the far right. This Table shows that in 1994, approximately 4 percent of persons in Luxembourg fell below the poverty line, the lowest rate of poverty among the countries we examine. Finland, Sweden, Taiwan and Norway follow with the next lowest levels of poverty, respectively (all measured in 1995). In fact, the Scandinavian countries, plus Finland and Taiwan, all cluster at the top of the ranking,

having the lowest levels of poverty. The continental European countries, such as Germany, France and the Netherlands are in the middle, while the Anglo-Saxon and North American countries have the highest rates of poverty. Italy stands apart from the other continental European countries we examine, having a rate of poverty equal to approximately 14 percent in 1995. Meanwhile, the United States is the developed market economy country having the highest rate of poverty, approximately 17 percent in 1997. In Mexico, however, the rate was even higher and more than 1 out of 5 persons were "poor" in 1998.

Examining child and elderly poverty rates, we find an even larger variation among the countries we examine. For example, fewer than 3 Swedish children and elderly persons out of a hundred lived in poverty in 1995 while more than 27 percent of children and almost 30 percent of elderly persons in Mexico were poor. Once again, among the developed countries, the U.S. is set apart by it relatively high levels of child and elderly poverty. In fact, more than 1 in 5 children and elderly persons fell below the poverty line in 1997. Overall, child poverty rates were lower than rates of poverty for elderly persons in half the countries and in 20 of the 22 countries we examine, either the child poverty rate or the elderly rate was greater than the rate of poverty for the total population.

The figures under the heading "Poverty Index" in the next three columns offer some comparisons between the Sen index, and its components, and the headcount ratio. The income gap gauges the depth of poverty and as shown in this column, the social safety net in Sweden prevents people from falling into extreme economic despair, since the mean income of the poor is just more than 4 percent below the poverty line. On the other hand, the relatively high Gini coefficient shown in the next column suggests that while the average poor Swede is just below the poverty

threshold, there is a wide distribution of incomes among the poor. However, Statistics Sweden considers children aged 18 and over as independent households even if they are still living with their parents. As Eriksson and Petterson show, this unique definition limits the international comparability of Swedish income data and thus we must be particularly cautious when interpreting these figures (2000). Nonetheless, once the Sen index is computed, shown in the last column under this heading, the clustering re-emerges, with some exceptions, and we have a more detailed portrait of poverty within each country.

Conclusions and Implications

Despite advances in the scientific measurement of poverty since the 1960s, a consensus among researchers on a single approach has yet to emerge. Significantly, the choice of approach affects the resulting estimates of poverty and thus may influence policies designed to alleviate economic despair. Indeed, we find considerable variation in levels of poverty within the developed countries we examine, particularly with regard to child and elderly poverty. While there are many areas where more research on poverty measurement is warranted, we identify three that need greater attention:

1. How does sharing of incomes within households affect the rate of poverty?
2. In what way does accounting for special needs related to consumption, e.g. disability, affect the estimates?
3. How do measures of deprivation as direct measures of poverty—e.g. inadequate money for food, rent, etc. alter the ranking of countries?

Finally, we caution researchers to not only concentrate on the quality of their theories in measuring poverty, but also the quality of the data itself. Sometimes what is measured is an artifact of the data and not a real phenomenon.

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Table 1: Poverty For Total Population, Children and the Elderly and Sen Indices in 22 Countries (Ranked in ascending order of the Head Count, Total Population).

	Head Count Ratios (%)[1]			Poverty Index[2]				
	Population Group			Population "Poor"			Rank	
Country	Total	Children	Elderly	Gap (%)	Gini	Sen	HC	Sen
Luxembourg 1994	3.9	4.5	6.7	18.9	0.117	0.8	1	2
Finland 1995	5.1	4.2	5.2	21.3	0.129	1.2	2	3
Sweden 1995	6.6	2.6	2.7	4.4	0.300	0.4	3	1
Taiwan 1995	6.7	6.2	21.7	20.3	0.113	1.5	4	4
Norway 1995	6.9	3.9	14.5	28.4	0.197	2.3	5	6
Germany 1994	7.5	10.6	7.0	29.8	0.190	2.7	6	8
France 1994	8.0	7.9	9.8	22.0	0.128	2.0	7	5
Netherlands 1994	8.1	8.1	6.4	41.6	0.316	4.4	8	13
Belgium 1997	8.2	7.6	12.4	25.6	0.169	2.4	9	7
Denmark 1997	9.2	8.7	6.6	38.7	0.295	4.6	10	14
Switzerland 1992	9.3	10.0	8.4	53.4	0.451	7.2	11	21
Spain 1990	10.1	12.2	11.3	27.2	0.168	3.2	12	9
Austria 1995	10.6	15.0	10.3	37.4	0.225	4.9	13	16
Ireland 1987	11.1	13.8	14.4	27.5	0.221	3.7	14	10
Poland 1995	11.6	15.4	8.4	39.6	0.300	6.0	15	18
Canada 1997	11.9	15.7	5.3	31.2	0.193	4.4	16	12
U.K. 1995	13.4	19.8	13.7	28.6	0.206	4.6	17	15
Israel 1997	13.5	13.3	26.4	27.7	0.152	4.3	18	11
Italy 1995	14.2	20.2	12.2	36.6	0.237	6.4	19	19
Australia 1994	14.3	15.8	29.4	31.6	0.230	5.6	20	17
United States 1997	16.9	22.3	20.7	33.7	0.209	6.9	21	20
Mexico 1998	22.1	27.7	29.9	40.7	0.245	11.2	22	22
Simple Average	10.4	12.1	12.9	30.3	0.218	4.1		

[1]The poverty line is defined as 50 percent of the median disposable income (adjusted) in each country.

[2]Sen = Head Count (Total pop.) * Poverty Gap * (1+Gini). Multipled by 100 for presentation.

Source: Authors' calculations from LIS data and LIS "Key Figures" (http://www.lisproject.org/keyfigures.htm)