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POVERTY AND INCOME DISTRIBUTION

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Poverty and income distribution have risen to the top of the list of social issues in many countries. In the last three decades, the United States and United Kingdom have seen large increases in both poverty and economic inequality. But they are not unique; many developed countries have experienced at least modest increases in the inequality of income. As economies and labor markets become more international and these countries wrestle with the social and economic consequences of an aging population, increased market work by women, and marital dissolution, public interest has come to focus on how successfully different social polities cope with inequality, poverty, and joblessness.

Poverty is measured by a lack of resources relative to needs. Resources can be measured by consumption, assets, or income, though most prefer income because of both availability and comparability. Needs measures can be either relative or absolute. Relative deprivation is almost always the preferred measure, both nationally and cross-nationally, because it examines deprivation subject to a household's social and economic context. There is no one best measure of absolute poverty for precisely this reason. Depending on the nation, period, and context, the World Bank uses poverty lines of US $1.00, $2.00, or $3.00 per person per day. In contrast, the United States "official" poverty line is set at a level of $10.00 to $15.00 per person per day (depending on the household size). Hence, there is no one "absolute" poverty line or needs standard.

Relative poverty can be defined using any set of measures. The United States 'absolute" poverty line is close to 40 percent of the median household income. Most international analysts, and many nations, choose a poverty line of half the median. The European Union has chosen a line of 60 percent of the median for measuring deprivation (Smeeding, Rainwater, and Burtless 2002).

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" to be non-poor, a unit of 4 persons needs $4^{(.5)}$ or "200" to be non-poor. Measures of poverty include the head count (fraction poor), the poverty gap (sum of incomes of those less than the poverty line) and more sophisticated measures. For a recent comparative survey of poverty and equivalence scales see Jantti and Dangizer (2000).

Income inequality refers to the distribution of income among households or persons. All analysts of income inequality need to answer the questions: The distribution of what measured when and amongst whom? Most analysts of inequality use a measure of disposable money income. For most households, the primary income source is market income, which includes earned income from wages, salaries, and self-employment, and other cash income from private sources such as property, pensions, alimony, or child support. To reach disposable income, governments add public transfer payments (e.g., retirement, family allowances, unemployment compensation, welfare benefits) and deduct income tax and social security contributions from market income. Most analysts measure income on an annual basis. This may be too long an accounting period for families that are severely credit-constrained and too short for those that can smooth consumption over several years—but almost all available surveys report income for the calendar year.

The answer to the question "distribution among whom?" is "among individuals." Most surveys focus on the individual as the unit of analysis and the household as the unit of income

sharing. The most common unit of analysis is the household, defined as all persons sharing the same housing unit, regardless of any familial relationship. One therefore 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.

There exist many different summary measures of inequality, most of them based on the Lorenz Curve, or other variants. We demonstrate their usage below (See also, Atkinson, Rainwater and Smeeding, 1995).

Databases for Measuring Poverty and Inequality

The heightened interest in these topics has led to greater efforts to assemble comparable cross-national measures of economic inequality—not an easy task, for the data that exist are not uniform in nature or purpose. Some national surveys are designed to collect income data and some to collect expenditure data. Some are longitudinal household panel surveys, while others are cross-sectional income or labor force surveys. For some countries, most data are derived from income tax or administrative records. Despite the difficulties, projects such as the Luxembourg Income Study (LIS) and, to a lesser extent the International Social Survey Program (ISSP), are bearing fruit in a richer body of comparative economic studies. It is now possible to provide a more complete picture of cross-national differences at many points in the income distribution, instead of merely providing snapshot comparisons of the "average" or "typical" family in different countries. Researchers have not only been able to address the factual question of whether inequality has grown in other countries but also to start to probe more deeply into sources of changes in economic inequality.

The LIS provides standardized measures of poverty and inequality for a set of 25 rich nations over the period 1979-1999. Interested parties can find these figures at http://www.lisproject.org/keyfigures.htm. Unfortunately, there is no other database that allows one to comprehensively and comparatively measure poverty or inequality at this time. Figures published by various sources are not as comparable as in the LIS. Trend data, which rely on changes in the same measure within any one country, are thought to be more reliable, assuming that there is no substantial change in surveys or measures (see Gottschalk and Smeeding 2000). The set of estimates briefly summarized below are based on this source.

Relative Differences in Poverty and Inequality Across Nations

A large body of research has documented comparative levels of poverty and inequality among nations and also the substantial increases in inequality in many nations. How do nations measure up? Figure 1 compares the distribution of disposable income in 22 nations for various years around 1995. Within each country we focus on the relative differences between those at the bottom and those at the top of the income distribution. To do so we first measure, in each country, the ratio of the income of a household at the 10^{th} percentile (P10 in Figure 1) and a household at the 90^{th} percentile (P90) to median income. This gives us some indication of how far below or above the middle of the distribution the poor and the rich are located on the continuum of income. Second, we measure the ratio between the incomes of those at the 90^{th} and 10^{th} percentiles (the "decile ratio"). This gives us the size of the gap between the richest and the poorest in each country.

Most measures of inequality, including those presented here, are conducted on a relative basis within nations. However, carefully using Purchasing Power Parties, one may also be able to compare income distributions and percentiles of the distribution among similarly developed

nations in real income terms (e.g., Smeeding and Rainwater 2001). The measures presented here are therefore of relative social distance. They are easy to understand but focus on only a few points in the distribution of income. We also use the most common Lorenz curve based measure of inequality—the Gini Coefficient.

Figure 1 shows us that the United States has an exceptionally large gap between the rich and the poor when compared to other advanced market economy countries. A low-income American at the 10th percentile in 1997 had an income that is only 38 percent of median income, whereas a high-income American in the 90th percentile had an income that is 214 percent of the median. The income of the high-income American is nearly six times the income of the low-income American, even after we have adjusted for taxes, transfers, and family size (the decile ratio is 5.57). In contrast, across the other countries in Figure 1 (excluding the United States), the income of the poor averages 51 percent of the income of middle-income person; that of high-income persons averages 184 percent of the median income. The average rich person has only 3.7 times the income of the average poor person.

The countries in Figure 1 fall into clusters. Inequality is least in Northern Europe (the Scandinavian countries, Finland, Luxembourg, and the Netherlands), where the income of those at the 10th percentile averages 57 percent of the median. Central and Southern Europe comes next (Germany, Belgium, Austria, Switzerland, France – plus Taiwan for the sake of comparison). Israel and the United Kingdom have the highest levels of inequality, outside the United States. In some countries, for example, Italy, Ireland, Israel, and the United Kingdom, the incomes of the richest, those at the 90th percentile are all more than 200 percent of median income – not so very different from the United States. The United States differs, above all, in the relative disadvantage of its poorest residents.

Poverty rates in these same countries (fraction of persons below 50 percent of median income) are presented for all persons, children, and elderly in Table 2. Once again, these figures show that the United States stands apart from other countries with the highest levels of poverty for the total population (16.9 percent) and for children. In fact, more than 1 child out of 5 fell below the poverty line in the U.S. in 1997 (22.3 percent). Furthermore, only Australia has a higher percentage of elderly persons below the poverty line (nearly 30 percent of elderly Australians were living in poverty in 1994). At the other extreme, only 3.9 percent of Luxembourgers (1994), 2.6 percent of Swedish children (1995) and 2.7 percent of elderly Swedes were below the poverty line in their countries. Excluding the U.S. in calculating a simple average Poverty Rate for the other countries we find that 9.5 percent of the total population, 10.8 percent of children and 11.6 percent of elderly persons were living in poverty in the 1990s.

While the clustering of countries displayed in Table 1 is similar to the portrait shown earlier in Figure 1, it is immediately apparent that poverty and inequality measures differ across nations (e.g. compare Luxembourg or Australia in Table 1 and Figure 1). Still, the Northern European countries tend to have the lowest levels of poverty, followed by Central Europe and then Southern Europe and the Anglo-Saxon Countries (U.S., U.K. and Australia).

Extensions and Summary

Poverty and income distribution are concrete and valid measures of economic status. Broader measures of well-being may also include such items as health status and literacy, for a wider range of nations, such as in the United Nations Human Development Programme's Human Poverty Index (2001). The World Bank (2000) has recently devoted its annual report to world poverty. The effect of inequality and poverty on economic growth, crime, and related social outcomes is also a growing field of inquiry. Using measures such as those described above, and

developing more comparable datasets, like the LIS, will in time give us a good picture of how well the world does in combating poverty and in understanding the effects of both poverty and inequality in social well-being.

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Figure 1: "Social Distance": Relative Income Comparisons Across 22 Nations
(Adjusted Disposable Income)

(numbers for P10 and P90 are percent of median in each country)

Country	P10 (Low)	Length of bars represents the gap between high and low income individuals	P90 (High)	P90/P10 (Decile Ratio)	Gini Index
Sweden 1995	60		156	2.61	0.221
Finland 1995	59		159	2.68	0.226
Norway 1995	56		157	2.83	0.238
Denmark 1997	51		162	3.15	0.257
Luxembourg 1994	59		173	2.92	0.235
Netherlands 1994	56		171	3.07	0.253
Germany 1994	55		174	3.18	0.261
Belgium 1997	53		173	3.26	0.255
Austria 1995	48		179	3.73	0.277
Taiwan 1995	56		189	3.38	0.277
Switzerland 1992	52		188	3.62	0.307
France 1994	54		191	3.54	0.288
Canada 1997	47		186	4.00	0.291
Poland 1995	47		189	4.04	0.318
Japan 1992	46		192	4.17	NA
Spain 1990	50		197	3.96	0.303
Australia 1994	45		195	4.33	0.311
Italy 1995	42		202	4.77	0.342
Ireland 1987	49		209	4.23	0.328
U.K. 1995	46		210	4.57	0.344
Israel 1997	43		210	4.86	0.336
United States 1997	38		214	5.57	0.372
		0 50 100 150 200 250			
Simple Average	51		185	3.75	0.288

Source: Authors' calculations from LIS data and LIS "Key Figures" (http://www.lisproject.org/keyfigures.htm)
Japan taken from Ishikawa (1996)

Table 1: Percent Poverty[1] For Total Population, Children and the Elderly in 21 Countries

Country	Total Population	Children	Elderly
Luxembourg 1994	3.9	4.5	6.7
Finland 1995	5.1	4.2	5.2
Sweden 1995	6.6	2.6	2.7
Taiwan 1995	6.7	6.2	21.7
Norway 1995	6.9	3.9	14.5
Germany 1994	7.5	10.6	7.0
France 1994	8.0	7.9	9.8
Netherlands 1994	8.1	8.1	6.4
Belgium 1997	8.2	7.6	12.4
Denmark 1997	9.2	8.7	6.6
Switzerland 1992	9.3	10.0	8.4
Spain 1990	10.1	12.2	11.3
Austria 1995	10.6	15.0	10.3
Ireland 1987	11.1	13.8	14.4
Poland 1995	11.6	15.4	8.4
Canada 1997	11.9	15.7	5.3
U.K. 1995	13.4	19.8	13.7
Israel 1997	13.5	13.3	26.4
Italy 1995	14.2	20.2	12.2
Australia 1994	14.3	15.8	29.4
United States 1997	16.9	22.3	20.7
Simple Average	9.9	11.3	12.1

[1]The poverty line is defined as 50 percent of the median disposable income (adjusted) in each country.
Source: Authors' calculations from LIS data and LIS "Key Figures" (http://www.lisproject.org/keyfigures.htm)