Income Inequality, Permanent Incomes, and Income Dynamics

Comparing Europe to the United States

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As income mobility over time serves to offset income inequality existing at any point in time, cross-national differences in social stratification are preferably assessed from data on average incomes over an extended period of time. Hence, this article uses longitudinal income data from the Panel Study of Income Dynamics and the European Community Household Panel to reassess the received empirical evidence. Even discounting the impact of income mobility, however, the United States continues to exhibit the highest level of permanent income inequality in this particular sample of industrial countries. In addition, older workers and individuals at the bottom of the income distribution have faced significantly worse income prospects than common in many European countries.

Keywords: *income inequality; income mobility; permanent income; transitory variance of incomes; cross-national comparison*

In the industrialized world, the United States is probably the country with the highest inequality of standards of living among its population. What is more, the United States is probably also the country where income inequality has most clearly been growing over the past 2 or 3 decades. Based on the observation that industrialized countries differ in the level of income inequality they tolerate and on the fact that inequality trends over the past decades have varied across industrial societies, an important body of research has

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emerged that explains these differences from the impact of institutional differences between countries and their interaction with processes of technological and structural change (e.g., Alderson & Nielsen, 2002; Atkinson, Rainwater, & Smeeding, 1995; Blau & Kahn, 2002; Gottschalk & Smeeding, 2000; Gustafsson & Johansson, 1999; Western & Healy, 1999). Given the importance of having adequate descriptions of cross-national differences in social stratification first, the current article addresses the more fundamental question of whether conventional income inequality data obtained from cross-sectional sources are actually appropriate for this task.

Conceptually, it is readily apparent that they are not. Social stratification refers to the inequality of social positions and typical standards of living; that is, what is important in assessing social stratification is not so much the existence of income differences per se but, rather, their persistence over the life course (e.g., DiPrete, 2002; Sørensen, 2000). In fact, whenever income mobility is sufficiently strong, high levels of cross-sectional income inequality may actually be a rather poor indicator of persistent inequality of incomes, because income mobility over time will tend to equalize individuals' long-run (or permanent) incomes (e.g., Buchinsky & Hunt, 1999; Flinn, 2002; Gittleman & Joyce, 1999; Shorrocks, 1978). In consequence, snapshot measures of income inequality existing at any specific point in time will always exceed the true level of permanent inequality in a given society.

From the perspective of comparative research, these conceptual difficulties raise two important empirical questions. First, it is of immediate interest to ascertain the extent to which income mobility over time reduces cross-sectional income inequality. That is, the question simply is how much inequality that exists at any given point in time is empirically offset by the fact that over time some poor or middle-class households are able to move up the income ladder, whereas some middle- or upper-class households are falling down. Furthermore, the importance of income mobility might vary across countries with different institutional and cultural backgrounds. For example, it is quite conceivable that countries that exhibit high levels of cross-sectional income inequality are also those where individuals and households experience ample opportunities for upward mobility over time. In the latter case, cross-national comparisons of conventional income inequality figures based on cross-sectional data would obviously not only be slightly off the mark but would also provide a potentially distorted picture of cross-national differences in social stratification.

The following analysis presents empirical data on levels of income inequality and income mobility in the United States and 11 European Union (EU) countries during the second half of the 1990s. Using longitudinal data on individual and household incomes, the analysis seeks to ascertain the strength of income mobility in these 12 industrialized countries to reassess the existing evidence on cross-national differences in social stratification—that is, to assess whether high income mobility in the United States might not be capable of reducing the high level of cross-sectional inequality to a level of permanent income inequality close to what is found for most European countries. Before proceeding with my own empirical analysis, the following section reviews the available evidence on the issue. Afterward, I will discuss data sources and the statistical methodology applied in the empirical analysis. Empirical results on U.S.-European differences in the level and structure of income mobility are presented in detail in the fourth section and summarized in the concluding section of the article.

A REVIEW OF THE EMPIRICAL EVIDENCE

Cross-nationally, comparative research on the inequality of earnings and incomes leaves little doubt about the fact that the United States is the country with the highest dispersion of wages and earnings and the highest inequality of standards of living in the industrialized world. In their overview of findings from the Luxembourg Income Study, Atkinson et al. (1995) presented evidence that income inequality in the United States was higher in the 1980s than in any other of the 15 Organization for Economic Cooperation and Development (OECD) comparison countries in their database. That is, the dispersion of standards of living as measured by disposable equivalent incomes is higher in the United States than probably anywhere else in the OECD countries. This basic finding has been replicated many times and for other points in time. Summarizing much of the evidence, Gottschalk and Smeeding (2000) concluded that the United States has consistently had the highest inequality of disposable equivalent incomes among OECD countries during the latter part of the 20th century, whereas Scandinavian and Continental European countries consistently experienced much lower levels of income inequality. Moreover, the United States has also seen a remarkably strong increase in income inequality since the 1970s that was hardly paralleled by respective changes in other countries. Inequality has clearly increased in the United Kingdom since the 1980s and in the Netherlands or in Sweden during the 1990s, yet other countries like Germany, France, or Canada have experienced much smaller changes, if any (cf. Gottschalk & Smeeding, 2000).

These cross-national differences in income inequality are directly related to cross-national differences in (changes of) welfare state institutions (e.g., see Atkinson et al., 1995; Esping-Andersen, 1990; Gustafsson & Johansson, 1999). However, industrialized countries also differ significantly in the level of earnings inequality generated in the market to begin with. In fact, the United States is also the country with the highest inequality of earnings among OECD countries, which has moreover significantly increased since the 1970s. In contrast, earnings inequality is typically much lower in Europe, and European countries have typically also seen but modest increases in earnings inequality since the 1970s (cf. Blau & Kahn, 2002; Gottschalk & Smeeding, 1997). In addition, European governments have been able to achieve a much more significant reduction of market-generated inequalities than has been the case in the United States so that both a stronger compression of market incomes and more egalitarian welfare state institutions contribute to lower inequality of disposable incomes in many European countries.

These cross-sectional estimates of income inequality may actually be poor indicators of cross-national differences in social stratification, however, if countries differ significantly in the extent of income mobility over time. Cross-sectional measures necessarily provide a snapshot measure of income inequality existing at any given point in time that, by including a component of transitory income gains or losses that become equalized between households and individuals over time, may actually constitute an artificially inflated measure of the inequality of typical standards of living (e.g., Shorrocks, 1978). Hence, if countries differ in the extent to which individuals may improve their economic status over time, any comparison of cross-sectional income inequality will constitute a biased measure of underlying cross-national differences in the dispersion of typical standards of living or, as economists would phrase it, permanent incomes (cf. Friedman, 1957).

In fact, there is good empirical evidence that income mobility over time indeed implies a significant compression of income inequality observed at any single point in time. Using 1979 to 1991 National Longitudinal Survey of Youth data, Buchinsky and Hunt (1999), for example, estimated inequality of 4-year wages to be 12% to 26% below single-year measures depending on the specific index chosen. Similarly, inequality of 4- to 6-year annual earnings was about 25% lower than average cross-sectional figures in their sample of younger workers. Results consistent with Buchinsky and Hunt's data have also been found in other studies that have used more representative surveys. For example, Burkhauser and Poupore (1997) reported reductions in inequality indices of about 15% to 20% for both pregovernment and post-government equivalent income earnings when the accounting period was extended from 1 to 6 years. Using income data for a whole decade, both Gittleman and Joyce (1999) and Aaberge et al. (2002) reported cross-sectional inequality indices to overstate permanent income inequality by 25% to 30%.

Although incomes in European countries tend to be less variable than in the United States (e.g., see DiPrete & McManus, 2000; Goodin, Heady, Muffels, & Dirven, 1999; McManus & DiPrete, 2000), all available empirical evidence implies that the United States might actually not be much of an exception with respect to the extent to which cross-sectional inequalities are offset by income mobility. For example, Jarvis and Jenkins (1998) analyzed British Household Panel Survey data and found 4-year income dynamics to compress cross-sectional inequality by about 20%, and Cantó (2000) reported similar or even higher figures for Spain. In a six-country study with data for the 1980s, the Organization for Economic Cooperation & Development (OECD) (1997) reported few consistent differences between key European countries and the United States with respect to the level of earnings mobility. Burkhauser and Poupore (1997) used Panel Study of Income Dynamics (PSID) data and data from the German Socio-Economic Panel and actually found evidence of higher mobility in Germany for both pregovernment and postgovernment family income individual earnings. As a benchmark, Burkhauser and Poupore found U.S. income mobility to have been only about two thirds of the German figure in the 1980s.

These findings were replicated with slightly more recent data by Schluter (1998) who again found little evidence of country differences with respect to income mobility levels in the United States, the United Kingdom, and Germany. Similarly, Aaberge et al. (2002) reported income mobility levels in Scandinavian countries comparable to or even above U.S. levels, and Goodin et al. (1999) found a stronger equalization of long-run incomes in the Netherlands than in both West Germany and the United States. Goodin et al. (1999) moreover emphasized particularly egalitarian mobility effects in Europe: They found Dutch and German households to have had significantly fewer poverty spells than was common for U.S. households over a 10-year observation window. Earlier on, the study of Duncan et al. (1993; cf. similar results in Jenkins & Van Kerm, 2003; Schluter, 1998) had also indicated higher transitions rates out of poverty in European nations despite their already lower poverty rates and lower levels of income inequality.

In sum, the received empirical evidence on cross-national differences in income mobility is hardly indicative of any clear-cut U.S.-European differences with respect to either the level or structure of income mobility. Still, the relatively scant comparative literature is probably far from being fully conclusive, and results may be specific for particular country comparisons or time periods. In what follows, the current article uses longitudinal data for the United States and 11 European countries to provide a systematic cross-national comparison of income inequality and income dynamics that extends to the full set of Western European nations and hence includes countries with different economic structures but also very different labor market and welfare state institutions. By using data for the late 1990s, this study will moreover be able to update results from earlier research for selected countries.

DATA AND STATISTICAL ANALYSIS

To decompose overall cross-sectional income inequality into the components of permanent income inequality and income mobility requires repeated income data on the same individuals and households over some period of time. For the following analyses, this article draws on such data generated from the Cross-National Equivalent File (CNEF) of the PSID (Burkhauser, Butrica, Daly, & Lillard, 2001; Hill, 1992) and the European Community Household Panel (ECHP; Eurostat, 2002). Sharing many features of their study design, these two panel studies provide an ideal starting point for cross-nationally comparative work. Like the PSID, the ECHP is designed as a panel survey of annually repeated interviews that generates information on current incomes, labor force participation, family and household structures, and many other features of living conditions. What is more, the ECHP actually constitutes the first genuinely cross-national panel survey that was administered jointly by all EU member states since 1994. From the beginning, the ECHP has thus been designed to provide cross-nationally comparable panel data on (currently) 15 European countries. These data are easily integrated with income data coming from the PSID, in particular those from the PSID-CNEF files that have also been explicitly produced for the purpose of cross-national comparisons (to, among others, the German Socio-Economic Panel study and the British Household Panel study, both of which also form integral parts of the ECHP; cf. Burkhauser et al., 2001).

Based on these data sources, all subsequent analyses extract panel data on individual and household incomes over an observation window of six consecutive annual survey interviews. The analyses use data for the subset of individuals for whom nonzero annual household incomes are observed for all 6 survey years, including cases with partly imputed income data. The extracted 6 years of data refer to survey years 1994 to 1999 in the ECHP and 1992 to 1997 for the PSID-CNEF.[1] In total, the following analyses are based on annual income data for some 43,000 individuals from 12 countries including the United States and the EU member countries Belgium, Denmark, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain, and the United Kingdom.[2] The key dependent variable of the analysis will be the distribution and dynamics of individuals' real disposable equivalent annual incomes as a summary measure of individual standards of living or welfare.[3] In addition, the sample has been restricted to individuals aged 25 to 54. With this comparison of individuals and households in their prime working age, any observed cross-national differences should primarily be a consequence of cross-national differences in the structure of labor markets and family demographics, whereas cross-national differences in pension and social security systems (other than unemployment benefit and general assistance systems) should be less important.

For these data, the level of cross-sectional income inequality is easily determined using standard inequality measures. To replicate conventional empirical data, this study uses the three inequality indices, I, in its empirical analyses:[4]

$$\text{Gini:} \quad I(Y) = \frac{1}{2n^2\mu} \sum_{i=1}^{n} \sum_{j=1}^{n} \left| y_i - y_j \right| \tag{1}$$

$$\text{MLD:} \quad I(Y) = \frac{1}{n} \sum_{i} \log \frac{\mu}{y_i} \tag{2}$$

$$\text{Theil:} \quad I(Y) = \frac{1}{n} \sum_{i} \frac{y_i}{\mu} \log \frac{y_i}{\mu} \tag{3}$$

Next to being standard indicators of cross-national research on income inequality, the three indices also differ in their sensitivity to income inequalities in different parts of the income distribution—the Gini being most sensitive to inequalities about the mode of the distribution, the mean logarithmic deviation (MLD) to inequalities in the lower tail, and the Theil index disproportionately weighting inequalities in both the lower and the upper tail of the income distribution. In consequence, the use of multiple indices may serve to check the sensitivity of the reported empirical results to the choice of any particular index.

Having multiperiod data on individual incomes at hand, one can also calculate a simple indicator of the extent to which income dynamics over time empirically offset income inequalities at any given point in time. This measure of the persistence of income inequalities, also known as Shorrocks's R (cf. Shorrocks, 1978), is then given as:

$$R = I(Y^M) \Big/ \sum_{t=1}^{T} \frac{\mu_t / \bar{\mu}}{T} I(Y^t) \leq 1 \tag{4}$$

that is, as the ratio of inequality of multiperiod (or average) incomes Y^M to the weighted average of inequality for single-period incomes Y^t. R always lies between 0 and 1 and represents the proportion of income inequality that is permanent over the observation period. Hence, $1 - R$ gives the relative reduction of cross-sectional inequality achieved through income mobility over time. If income mobility was clearly any stronger in the United States than in European countries, one would thus expect European countries to exhibit significantly higher levels of inequality persistence as measured by Shorrocks's R.

Shorrocks's R is only informative with respect to a relatively crude decomposition into a permanent and a dynamic component of income inequality, however. To get a better grip on the structure of income dynamics in different countries, much of what follows will be based on a statistical model that allows for a refined decomposition of observed income inequalities. More specifically, the subsequent analyses posit the model:

$$\log(Y_{it}) = y_{0i} + b_r t + b_a t + b_i t + v_{it} \tag{5}$$

(observed log income Y at time t = permanent income in the observation period + real income growth over the observation period + life-cycle effects + heterogeneous income trends + transitory income dynamics in the observation period)

that is, decompose observed incomes into a permanent component y_0 equivalent to individual average incomes in the 6-year observation window and the sum of several aspects of income change over time. In that dynamic income component, the model distinguishes three systematic income trends: (a) real income growth b_r in the observation period, (b) age-specific (i.e., life-cycle) income growth b_a, and (c) individually specific, heterogeneous income trends b_i. The residual v_{it}, unaccounted for by either stable income inequalities or systematic income trends, is seen as the genuinely transitory component of income dynamics—that is, unsystematic fluctuation of incomes about some individually specific trend. By and large, the model is thus guided by Friedman's (1957) model of permanent and transitory incomes yet incorporates some more recent refinements in the empirical implementation (e.g., for related applications, see Baker & Solon, 2003; Gittleman & Joyce, 1999; Gottschalk, 1982; Gottschalk & Moffitt, 1994; Moffitt & Gottschalk, 2002). For each country, the model is estimated by a two-stage process that first estimates the parameters y_0, b_r, and b_a from a fixed-effects regression on the panel data and then further uses local (i.e., person-specific) linear regressions to decompose the first-stage residuals into b_i and v_{it}.

In more substantive terms, this decomposition should enable an assessment of cross-national differences in the overall level of income mobility in the relative reduction of cross-sectional inequality occurring over a 6-year period but also of cross-national differences in the structure of income mobility. For example, it might be the case that the level of compensatory income mobility across different parts of the income distribution may actually not be very different between the United States and Europe yet that real income growth in the 1990s has been much stronger than in Europe. Also, one might argue that U.S.-European differences in income mobility might actually be expected not so much in the overall level of income dynamics but, rather, in their structure. Given its largely unregulated labor market, one might, for example, expect stronger life-cycle effects on incomes for U.S. workers. Equally well, one could expect that the weakness of U.S. labor market institutions translates into more heterogeneity in individual income trends and also a higher transitory variance in incomes in the United States—that is, a more important component of essentially unpredictable and also nonsustainable chance income fluctuation.

Also, there might be good reasons for expecting the United States to actually not look too different from European liberal welfare regimes like Ireland or the United Kingdom, yet more significant labor market regulation, corporatism, and stronger welfare state commitments in Scandinavian and conservative Continental European countries might be expected to achieve significantly higher levels of income stability even under the economic strains of the early to mid-1990s. Finally, these relationships may vary by households' economic position in the income distribution, and the income dynamics among low-income individuals and households certainly deserve special attention. Based on the descriptive regression model given in Equation 5, empirical results on all of these issues are reported and discussed below.

EMPIRICAL RESULTS

CROSS-NATIONAL DIFFERENCES IN THE CROSS-SECTIONAL AND PERMANENT INCOME INEQUALITY

As a first step, it is of interest to have a look at U.S.-European differences in terms of cross-sectional income inequality and compare this traditional measure to cross-national differences of inequality of permanent incomes—that is, average standards of living over the 6-year observation window used in this study. To the extent that U.S.-European differences in the level of permanent income inequalities are actually found to be smaller than cross-national differences in single-year income inequality, one would conclude that strong income dynamics in the United States are an important factor in equalizing the distribution of individuals' permanent (i.e., average or long-run) incomes that is not present to a similar extent in European countries.

Table 1 provides the necessary empirical data to potentially substantiate this claim. For each of the 12 countries, Table 1 displays the average income inequality based on single-year incomes, the income inequality of permanent individual incomes, and the Shorrocks's *R* ratio between these two figures as the measure of inequality persistence. To have a sensitivity analysis, these figures have been calculated for the Gini, MLD, and the Theil inequality indices. Although specific numbers vary, Table 1 shows that results on cross-national differences in inequality levels or also for country rankings are not overly sensitive to the choice of any particular inequality index. In consequence, the United States still stands out as the country exhibiting the highest level of cross-sectional inequality (cf. the first row of Table 1) among this sample of 12 industrialized countries. As was true for the 1970s and 1980s, European countries like Denmark, Germany, the Netherlands, Belgium, and, to a lesser extent, France have also seen much less inequality in standards of living during the 1990s than was common in the United States. However, there are also considerable differences in inequality levels *between* European countries. Income inequality in Ireland and the United Kingdom was certainly higher than in Scandinavian and Continental Northern European countries, and inequality levels in Southern Europe actually approach those of the United States. Clearly, the data reflect both significant institutional differences between European countries as much as differences between the United States and Europe more generally.

Interestingly, there is little change in this particular country ranking once inequality indices are calculated for multiperiod individual incomes (cf. the second row of Table 1). For all countries, it is true that the inequality of multiperiod incomes is significantly smaller than income inequality measured at any single point in time. Hence, income mobility over time actually tends to equalize individual standards of living so that persistent inequality of incomes is indeed smaller than suggested by the conventional measure of income inequality at a single point in time. However, there is little in the data to suggest that the reduction of income inequality over time would be disproportionately stronger in the United States or even in high-inequality nations more generally.

In fact, the relative persistence of income inequalities over time varies much less cross-nationally than do inequality levels. For the Theil index, Shorrocks's *R* measure of persistence indicates that about 75% to 80% of observed income inequality has been permanent over the 6-year observation

TABLE 1: Cross-National Differences in the Level and Persistence of Income Inequality

		Inequality Index		
		Gini	*MLD*	*Theil*
Denmark	Single-year incomes	.190 (1)	.063 (1)	.067 (1)
	Six-year average incomes	.161 (1)	.042 (1)	.044 (1)
	Relative persistence *R* 1994-1999	.847 (1)	.667 (2)	.657 (1)
Germany	Single-year incomes	.251 (3)	.115 (2)	.113 (2)
	Six-year average incomes	.226 (4)	.086 (3)	.091 (3)
	Relative persistence *R* 1994-1999	.900 (8)	.748 (9)	.805 (10)
Netherlands	Single-year incomes	.249 (4)	.117 (3)	.122 (3)
	Six-year average incomes	.221 (3)	.079 (2)	.083 (2)
	Relative persistence *R* 1994-1999	.888 (5)	.675 (3)	.680 (2)
Belgium	Single-year incomes	.255 (2)	.123 (4)	.144 (4)
	Six-year average incomes	.218 (2)	.086 (3)	.108 (4)
	Relative persistence *R* 1994-1999	.855 (2)	.699 (6)	.750 (5)
France	Single-year incomes	.280 (5)	.146 (5)	.163 (5)
	Six-year average incomes	.254 (5)	.106 (5)	.118 (5)
	Relative persistence *R* 1994-1999	.907 (9)	.726 (7)	.724 (4)
Italy	Single-year incomes	.311 (7)	.197 (8)	.165 (6)
	Six-year average incomes	.274 (7)	.129 (7)	.124 (6)
	Relative persistence *R* 1994-1999	.881 (4)	.655 (1)	.752 (6)
United Kingdom	Single-year incomes	.302 (6)	.167 (7)	.168 (7)
	Six-year average incomes	.271 (6)	.125 (6)	.130 (7)
	Relative persistence *R* 1994-1999	.897 (6)	.749 (10)	.774 (7)
Ireland	Single-year incomes	.316 (8)	.166 (6)	.182 (8)
	Six-year average incomes	.293 (9)	.138 (8)	.152 (9)
	Relative persistence *R* 1994-1999	.927 (12)	.831 (12)	.835 (11)
Spain	Single-year incomes	.338 (10)	.220 (11)	.193 (9)
	Six-year average incomes	.304 (10)	.152 (10)	.152 (9)
	Relative persistence *R* 1994-1999	.899 (7)	.691 (5)	.788 (8)
Greece	Single-year incomes	.335 (9)	.205 (9)	.200 (10)
	Six-year average incomes	.291 (8)	.139 (9)	.142 (8)
	Relative persistence *R* 1994-1999	.869 (3)	.678 (4)	.710 (3)
Portugal	Single-year incomes	.342 (12)	.219 (10)	.202 (11)
	Six-year average incomes	.315 (12)	.169 (12)	.169 (11)
	Relative persistence *R* 1994-1999	.921 (11)	.772 (11)	.837 (12)
United States	Single-year incomes	.338 (10)	.224 (12)	.215 (12)
	Six-year average incomes	.307 (11)	.167 (11)	.172 (12)
	Relative persistence *R* 1992-1997	.908 (10)	.746 (8)	.800 (9)

SOURCE: European Community Household Panel (ECHP) 1994-99; Panel Study of Income Dynamics (PSID)–Cross-National Equivalent File (CNEF) 1992-97.
NOTE: Population aged 25 to 55. The first row for each country reports inequality indices for single-year incomes averaged over the six time points. Countries are sorted by increasing cross-sectional income inequality according to the Theil index (column 3). Country ranks are given in parentheses. MLD = mean logarithmic deviation.

period in most countries. Actually, Denmark and the Netherlands turn out to be the most fluid societies on this measure despite their already low levels of cross-sectional inequality of incomes. Only two European countries, Ireland and Germany, are found to exhibit an even smaller (relative) compression of cross-sectional income inequality than observed for the United States. In sum, these findings conform to the overall conclusions in the earlier literature that suggest the inequality offsetting effects of mobility to be by no means especially large in the United States. The similarity of income persistence in the United States and Germany is striking against earlier results of a much more dynamic income distribution in Germany during the 1980s, however. Comparing the evidence for the 1990s with Burkhauser and Poupore's (1997) data for the 1980s, it seems that income mobility has increased in the United States but sharply declined in the reunified Germany. In general, however, the correlation between income inequality and inequality persistence is positive rather than negative for this sample of industrialized countries; that is, low-inequality countries actually also tend to be the countries exhibiting the lowest degree of persistence in income inequality over time.

CROSS-NATIONAL DIFFERENCES IN THE STRUCTURE OF INCOME DYNAMICS

Now, the above results should not be misread as to imply similar levels of income mobility in all 12 industrialized countries under study. Rather, the finding of cross-national similarity in the persistence of income inequalities over time implies that high-inequality countries also exhibit high levels of income dynamics yet that the ratio between the two is by and large the same in the industrialized world. That is, the United States in fact does exhibit more income mobility than, say, Germany, yet relatively speaking, because the cross-sectional inequality in the United States is larger to begin with, the proportion of overall income inequality that is offset by income mobility over time is roughly equivalent in both nations.

The point is probably best illustrated by taking a look at the variance decomposition implied by fitting the regression model described in Equation 5 above. The model decomposes observed disposable log incomes into a component of permanent incomes and into the dynamic components of real income growth, life-cycle trends, heterogeneous income trends, and transitory variance in incomes. Implicitly, the variance decomposition for log disposable incomes given in Table 2 also amounts to using the variance of log incomes as a fourth index of income inequality. As is evident from the first column of Table 2, the country ranking is again pretty much the same as with the indices used in Table 1: Denmark, Germany, the Netherlands, and

Belgium are the countries that exhibit the least income inequality, whereas the Southern European countries and particularly the United States had seen relatively high levels of income inequality during the 1990s.

Using the variance of log incomes metric, the second column of Table 2 also closely reproduces the earlier results on both the relative persistence of income inequality and cross-national differences in terms of permanent income inequality. As before, most (i.e., 65%-70%) of the observed total income inequality for any single country is permanent income inequality with countries like Denmark, the Netherlands, Spain, or Italy at the low end and Ireland, Portugal, the United States, and Germany at the upper end of the scale. Still, cross-national variations in relative income persistence are small, and the country ranking in terms of permanent income inequality in consequence almost exactly mirrors the country ranking for total income inequality.

As a consequence, the proportion of overall variance in log incomes that is related to income dynamics is also fairly comparable across countries and is about 30% to 35% over a 6-year period for most countries. Of course, this is a cross-national similarity in relative terms only. In absolute terms, this same proportion of the total variance of log incomes in each country of course implies a fairly low level of income mobility in Denmark (a variance of some .12 – .08 = .04 log income points) or Germany (.06 points) as compared to high income mobility in Italy (.18), Spain (.20), or the United States (.16 points). As this comparison clarifies, there is actually both more income inequality and more income mobility in the United States than in many European countries. The two caveats to this are that (a) the United States actually does not look very different from the Southern European countries on these global measures and (b) in relative terms, the reduction of cross-sectional inequality that comes through income mobility is no larger in the United States than elsewhere.

However, the real strength of the regression decomposition lies in the fact that it enables us to move beyond the global decomposition of permanent versus dynamic components of income inequalities to take a closer look at potential cross-national differences in the *structure* of income dynamics. At first sight, cross-national similarity rather than difference again dominates the picture. For example, real income growth in the United States has not been remarkably different from European countries. In fact, during the late 1990s, of all European countries, only Germany and Belgium have seen weaker income growth than the United States; the Netherlands, Denmark, and France have had about similar or slightly higher income growth; and the rest of Europe had annual growth rates well above those experienced by U.S. households. Also in terms of the relative importance of the different trend

TABLE 2: Variance Decomposition of Log Real Equivalent Incomes by Country

			Income Dynamics			
	Total Variance of Log Incomes (Y_{it})	*Variance of Log Permanent Incomes* (y_0i)	*Real Income Growth* (b_t)	*Life-Cycle Effects* (b_a)	*Heterogeneous Income Trends* (b_i)	*Transitory Variance* (e_{it})
Denmark	.120	.079 (.652)	+.016* (.006)	.003 (.024)	.013 (.107)	.029 (.244)
Germany	.209	.150 (.717)	+.007* (.001)	.001 (.004)	.023 (.109)	.036 (.174)
Netherlands	.238	.153 (.642)	+.013* (.003)	.002 (.007)	.022 (.093)	.063 (.262)
Belgium	.251	.165 (.656)	+.008* (.002)	.003 (.012)	.026 (.102)	.062 (.248)
France	.300	.197 (.658)	+.019* (.001)	.002 (.006)	.033 (.109)	.067 (.222)
Ireland	.308	.244 (.794)	+.048* (.001)	.002 (.008)	.022 (.073)	.037 (.121)
United Kingdom	.365	.258 (.708)	+.032* (.001)	.001 (.004)	.040 (.109)	.065 (.179)
Greece	.453	.300 (.661)	+.038* (.002)	.002 (.005)	.042 (.093)	.109 (.240)
Italy	.512	.336 (.656)	+.031* (.001)	.002 (.003)	.054 (.106)	.121 (.237)
Portugal	.573	.435 (.759)	+.045* (.002)	.003 (.006)	.048 (.084)	.087 (.152)
Spain	.575	.370 (.644)	+.027* (.002)	.004 (.007)	.054 (.093)	.152 (.265)
United States	.608	.440 (.723)	+.012* (.002)	.002 (.003)	.044 (.072)	.127 (.208)

SOURCE: European Community Household Panel (ECHP) 1994-99; Panel Study of Income Dynamics (PSID)–Cross-National Equivalent File (CNEF) 1992-97.
NOTE: Population aged 25 to 55. Country data sorted according to the total variance of log incomes (column 1). Numbers in parentheses give variance proportions relative to the total variance of incomes, except for the trend in real log incomes (column 3) that has the standard error of the coefficient in parentheses. Because of the presence of nonzero covariance terms, variance components shown do not add to 100%.
* $p < .05$.

components distinguished in the model, the 12 countries again appear remarkably similar. Overall, real income growth and life-cycle effects actually constitute but minor components of total income mobility in all countries (variance estimates for income growth are not shown in Table 2),[5] whereas individual-specific income trends and, even more so, genuinely transitory variance in incomes dominate income mobility.

In fact, in most countries, about 20% to 25% of total income inequality (i.e., about two thirds of total income mobility) is nothing but chance fluctuations and income instability about individuals' average (permanent) income (e.g., see Buchinsky & Hunt, 1999, for similar results with respect to wages). Apparently, largely unpredictable income changes that have little (either positive or negative) long-run consequences are an important element of social stratification in all industrialized countries. However, it is this transitory variance (i.e., genuine instability) of incomes that is particularly large in the United States, Greece, Italy, or Spain but much less so in Denmark, Germany, or Ireland. Pretty much the same is true for individual heterogeneity in income trends over the 1990s, although about 10% of the total variance of incomes in all countries, that was particularly strong in the United States and the Southern European countries but much weaker in most of Northern Europe. In sum, income dynamics in the United States (and much of Southern Europe) are certainly less socially stratified, more heterogeneous, and less predictable than is the case in the Scandinavian countries and the conservative welfare regimes of Continental Europe.

As it turns out, the United States is also clearly distinct from practically all European countries with respect to its life-cycle pattern of income mobility. Figure 1 displays the (slightly smoothed) parameter estimates of age-specific income trends from the regression of log disposable incomes. According to this, the United States has not just relatively weak systematic income dynamics across individual work histories (cf. column 4 in Table 2) but also a life-cycle pattern of mobility that is very different from European standards. Whereas virtually all European countries exhibit a stretched U-shaped pattern of declining disposable incomes during individuals' 30s and increasing incomes during their 40s and early 50s, the pattern found for the United States is exactly the reverse. Here, individuals' standard of living continues to improve during their 30s and into their early 40s yet sharply declines for older workers aged 45 and above. Clearly, the current analyses are not set up to already provide explanations for this unique structure of income dynamics over the life cycle in the United States. One plausible mechanism that might deserve further attention could be that Figure 1 depicts the effect of the unregulated U.S. labor market that offers high income growth for young workers but also little income protection for older workers. In contrast, the European

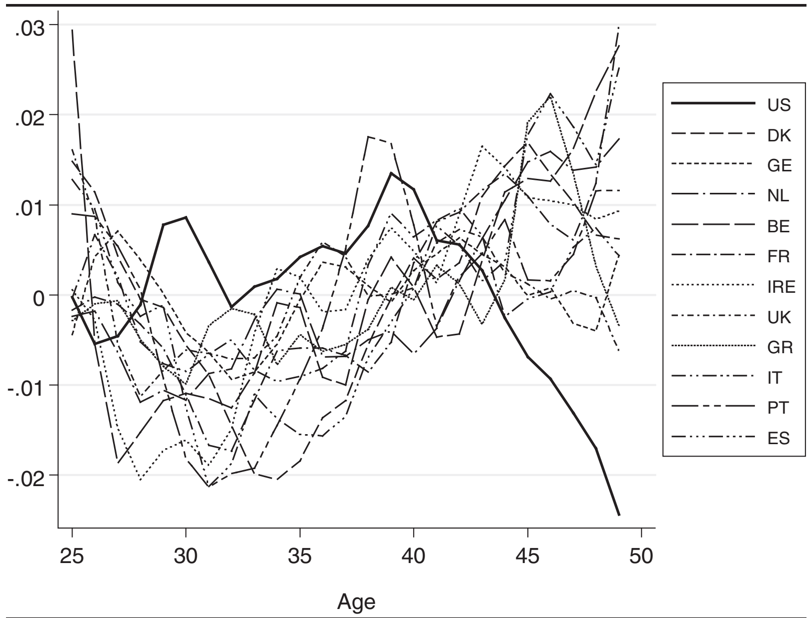

Figure 1: Life-Cycle Trends in Log Real Equivalent Incomes, Age-Specific Slope Parameters b_a

SOURCE: European Community Household Panel (ECHP) 1994-99; Panel Study of Income Dynamics (PSID)–Cross-National Equivalent File (CNEF) 1992-97.
NOTE: Lowess-smoothed age-specific income trend parameters (bandwidth $h = 0.25$). US = United States; DK = Denmark; GE = Germany; NL = the Netherlands; BE = Belgium; FR = France; IRE = Ireland; UK = United Kingdom; GR = Greece; IT = Italy; PT = Portugal; ES = Spain.

pattern would be consistent with generally weaker age-earnings profiles and thus life cycle patterns that are more clearly determined by family demographics. Besides, McManus and DiPrete (2000, p. 425) have also pointed out that, compared to the United States, families tend to be considerably more stable in Germany thus offering yet another potential explanation for the peculiar pattern of life-cycle income mobility in the United States.

As Figure 2 demonstrates, however, income dynamics in the United States are also clearly distinct from European patterns in yet other respects. Figure 2 graphs the average individual income trend over the observation period (model parameter b_i) by individuals' permanent income position. That is, Figure 2 displays individual income growth—the net of overall real income growth and also the net of life-cycle factors—in different parts of the income distribution. Hence, the data permit an assessment of the extent to which income dynamics tend to compress income inequality over time because of

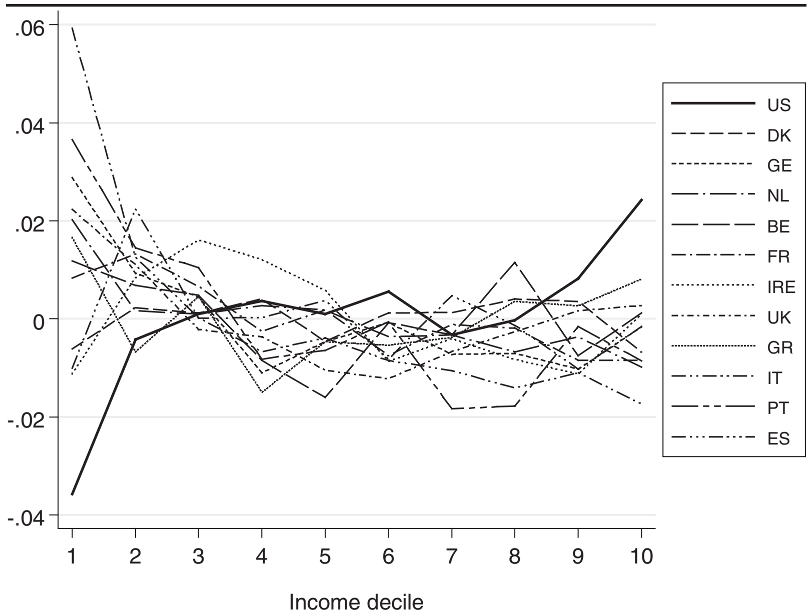

Figure 2: Trends in Log Real Equivalent Incomes (b_i) by Permanent Income Position

SOURCE: European Community Household Panel (ECHP) 1994-99; Panel Study of Income Dynamics (PSID)–Cross-National Equivalent File (CNEF) 1992-97.
NOTE: Arithmetic means of individual-specific income trends (parameter b_i). Income deciles derived from the distribution of permanent incomes y_0. US = United States; DK = Denmark; GE = Germany; NL = the Netherlands; BE = Belgium; FR = France; IRE = Ireland; UK = United Kingdom; GR = Greece; IT = Italy; PT = Portugal; ES = Spain.

the fact that low-income individuals experience stronger income growth than high-income individuals. In fact, Figure 2 shows a clear-cut U.S.-European difference in that respect. In virtually all European countries, individuals in the bottom two income deciles saw significantly more positive income trends than higher-income individuals during the 1990s. Particularly strong upward mobility among the poor is evident for the Netherlands, Portugal, and Germany but also for Spain and the United Kingdom. In contrast, the United States shows exactly the reverse pattern. Actually, the United States has evidently been the only country that exhibited an outright polarization of the income distribution with individuals at the bottom of the distribution experiencing significant income losses, whereas incomes among top-income individuals have markedly grown. Compared to the more egalitarian income dynamics in European countries that by and large consist of growing incomes for the poor and stable incomes for middle- and upper-income

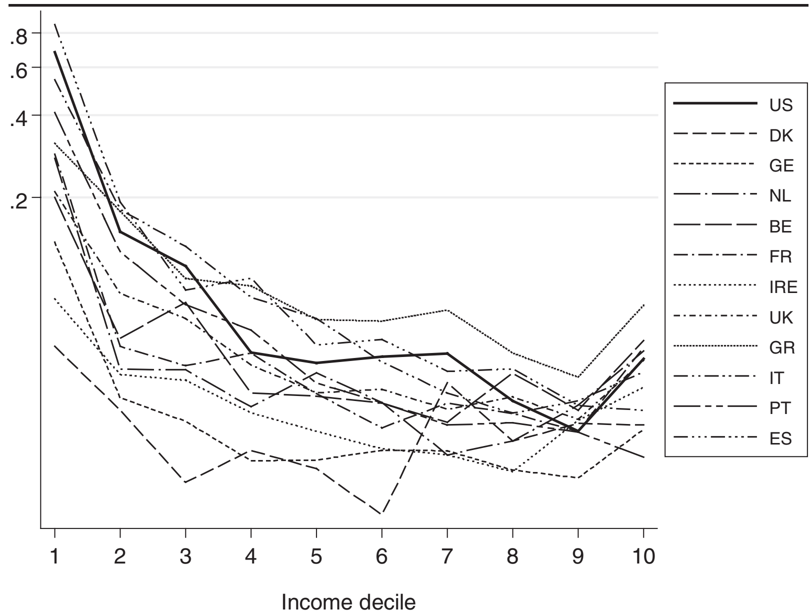

Figure 3: Transitory Variance of Log Real Equivalent Incomes by Permanent Income Position

SOURCE: European Community Household Panel (ECHP) 1994-99; Panel Study of Income Dynamics (PSID)–Cross-National Equivalent File (CNEF) 1992-97.

NOTE: Income deciles derived from the distribution of permanent incomes y_0. US = United States; DK = Denmark; GE = Germany; NL = the Netherlands; BE = Belgium; FR = France; IRE = Ireland; UK = United Kingdom; GR = Greece; IT = Italy; PT = Portugal; ES = Spain.

individuals, this is again an exceptional aspect of the structure of income dynamics in the United States.

Income dynamics in the United States are, finally, also exceptional in terms of the transitory variance of incomes, although not hardly as much as with respect to both life-cycle trends and the polarization of income mobility evident in Figure 2. Figure 3 completes this review of cross-national differences in the structure of income dynamics by mapping the level of transitory income changes—that is, by and large unpredictable changes of incomes over time. Above, it was already noted that the United States clearly is among the countries with the highest level of genuine income instability in the sample. The United States is not a clear outlier case in that respect, though, as the level of transitory income changes is about equal in the Southern European countries. Figure 3 now again disaggregates the transitory component of incomes by permanent income position to address potential cross-national differences in the distribution of income uncertainty in the population. As it turns out, the basic patterns are fairly similar across all 12 countries studied here. For all countries, income instability is highest for individuals and households in the bottom of the income distribution, whereas high-income individuals usually also enjoy a much greater stability of incomes over time. However, cross-national differences in the level of genuine income instability are considerable. As measured by the transitory variance in log disposable incomes, income instability among low-income individuals in the United States is about 3 times as high as for comparable individuals in Belgium or Germany. In sum, much of the stronger income dynamics in the United States is actually a significantly higher level of income instability over time than found for (most) European countries.

DISCUSSION AND CONCLUSIONS

Taking a longitudinal perspective on income inequality does not fundamentally alter the received wisdom on cross-national differences in social stratification among industrialized countries. During the 1990s, the United States has continued to be the country with the highest level of income inequality in the industrialized world, and this outcome does not really depend on income inequality being measured cross-sectionally in terms of current incomes at any given point in time or longitudinally in terms of average incomes over a certain observation period.

The reason for the fact that country rankings are hardly affected by the choice of accounting periods is simple: Certainly, income mobility is strong in the high-inequality U.S. labor market, yet income mobility is occurring to an almost similar extent in the low-inequality European labor markets of Denmark, the Netherlands, and Germany. As a consequence, the degree to which income mobility over time contributes to compress income inequality existing at any single point in time is largely constant across the industrialized world. In terms of the Gini coefficient, for example, income mobility over an observation window of 6 years only reduces income inequality to about 85% to 90% of its cross-sectional value. In that sense, the low-inequality labor markets of Europe are no less dynamic than the high-inequality U.S. one, and cross-national differences in income inequality at any given point in time quite closely reflect cross-national differences in permanent incomes or average standards of living measured over a longer period of time.

Upon a closer look, the structure of income dynamics in the United States does exhibit some quite unique features in comparison to European countries, however. First of all, the transitory variance of incomes in the United

States is simply among the highest in this particular sample of industrialized countries. That is, genuine income instability in the sense of unpredictable fluctuations between years of poverty and years of plenty is quite pronounced in the United States (and many Southern European countries as well). Quite likely, households' propensity to plan and household decision making might be severely affected by such a pronounced component of transitory income fluctuations, as households might easily respond to sudden income gains (or losses) by consuming either too little or too much relative to their average standards of living over some extended period of time (e.g., Blundell & Preston, 1998). In any event, transitory income fluctuation and all potentially ensuing consequences are a particular problem among low-income individuals and, again, particularly so in the United States.

In addition, the analyses provided quite robust empirical evidence that, compared to the United States, low-income persons stand significantly better chances to be upwardly mobile in many European countries. In fact, the United States was found to be the only country in the sample that experienced a clear polarization of income mobility during the 1990s: In the United States, income trends have actually been negative in the bottom of the income distribution and positive in the top deciles, whereas the typical European pattern was exactly the reverse. That is, net of other factors, the typical European income distribution shows evidence of regression-to-the-mean effects in individual incomes over time, whereas the U.S. distribution does not. Also, the United States was found to be quite distinct from European countries in terms of observed life-cycle patterns of income dynamics. Only for the United States could one observe rising standards of living into individuals' late 30s and early 40s, whereas older workers would have to accept significant declines in standards of living—a pattern that is virtually unknown in European countries. Against the background that, in most of Europe, real income growth was actually higher than in the United States, many European countries thus achieve not just less income inequality but are able to combine this with higher levels of income stability, better chances of upward mobility for the poor, and a higher protection of the incomes of older workers than common in the United States.

Such fairly striking evidence of consistent U.S.-European differences in income dynamics naturally begs the question of potential explanations, in particular with respect to the role of differences in labor market and welfare state institutions. For one thing, the findings of substantial heterogeneity among European countries (that differ greatly in the institutional underpinnings of labor markets) bolster claims of the welfare regime literature (e.g., Esping-Andersen, 1990, 1999) about the importance of institutions per se. What has so far been little appreciated in that literature, however, is that low cross-sectional inequality is, at best, hardly hampering individual mobility over time. Low cross-sectional inequality, low income insecurity, and nevertheless open and dynamic economic structures are thus a joint outcome of, especially, social democratic and corporatist welfare regimes in Europe. Research is direly needed that addresses the contribution of any specific institution like employment protection legislation, labor market regulation, unemployment benefits, or institutions supporting families but also the underlying micro- and macroeconomic mechanisms that are capable of producing such systematic cross-national differences in social stratification outcomes (cf. DiPrete, 2002). Naturally, the present study could not be more than indicative of potentially promising avenues for further research on the subject.

NOTES

1. The Panel Study of Income Dynamics (PSID) switched to a biannual survey interview in 1997. To maximize cross-national comparability of the data structure, the earlier 1992 to 1997 time period that still offers six consecutive waves of annual income data was chosen for the PSID Cross-National Equivalent File sample. Because the United States is usually ahead of the European business cycle by about 1 year, it seems quite unlikely that any major distortion of findings should result from this choice. The European Community Household Panel (ECHP), in turn, was only begun in 1994.

2. The three European countries that joined the European Union in 1995 (Austria, Finland, Sweden) are not considered in this article, because respective ECHP data have only been available since 1996. For Germany, the subsequent analyses use only the ECHP German Socio-Economic Panel data; for the United Kingdom, only the ECHP British Household Panel data are used.

3. The equivalent scale is the revised Organization for Economic Cooperation and Development (OECD) scale that uses a weight of .5 for the second and .3 for the third and any further household member. The scale thus assumes fairly sizeable economies of scale in living costs, which are stronger than usually presumed in national poverty lines or targeted programs and are thus probably best thought of as appropriate for middle-income households. As it turns out, the results to be presented are not sensitive to the choice of the equivalent scale. Results based on the assumption of smaller household economies of scale (using the older OECD scale that consists of weights of .7 for the second and .5 for any other household member) are practically identical and available from the author on request. The article also follows the usual practice of assuming that any income is equally shared among household members.

4. In Equations 1, 2, and 3, y_i denotes individual real equivalent disposable income in a given survey year, μ is mean disposable income in that year, and n gives the number of individuals in the sample in that year.

5. The variance of incomes accounted for by real income growth over the 6-year period varies from a mere 0.1% in Germany, the United States, and Belgium to about 1% in high-growth countries like Portugal and Greece and is at a maximum at 2.2% for Ireland.

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