

# **Abstract for “Persistence in Poverty and the Longitudinal Dynamics of Income Distributions in the PSID and EU-SILC: Comparing Income Mobility in Poverty, Affluence and Middle Class Positions”**

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## **Introduction**

Recent scholarly work has shown the importance of the dynamic aspect of poverty and new challenges for longitudinal analyses (Christiaensen & Shorrocks 2012, Hoy, Thompson and Zheng 2012). In contrast to former static analyses of poverty, new indexes reflecting persistence in poverty offer a better view on longitudinal deprivation (Bossert, Chakravarty and D’Ambrosio 2012). However, one of the main challenges for analyses observing income changes of particular income groups (most notably the poor) is that the membership to groups can change over time as some members enter and some exit poverty. Therefore, analyses of changes in poverty do neither provide information on moves of individuals in the income distribution nor on the disproportional increase between individuals’ income over time (Mussini 2013).

While most of the literature on poverty and inequality trends have employed the method mentioned before, we adopt an approach that overcomes this problem, namely by tracking individuals instead (Jenkins and Van Kerm 2006). In other words, we compare income mobility at different levels of the income distribution (including the persistence of poverty). Such decomposition methods differentiating structural inequality trends and income mobility have become more popular in recent years (Shorrocks 1999, Yitzhaki 2002, Mussard and Pi Alperin 2011).

Previous research has shown that over the last decades, the Gini index for the U.S. has increased due to a polarization at the bottom and the top of the income structure. Put differently, inequality in the U.S. has increased faster in the 1980s than in other Western countries and is today one of the nations with the highest household income inequality in the Western developed countries (Atkinson et al. 1995, Gottschalk 1997, Gottschalk and Smeeding 1997, Danziger and Gottschalk 1995). Research questions we tackle here relate to income mobility (as changes in ranking along the income scale) and its comparison over the income distribution, time and space: Are the poor particularly mobile? How has the picture changed over the last decades? Are international comparisons able to show differences in mobility patterns?

## **Method and Data**

A few concepts shall be clarified. In the context of our longitudinal analysis, inequality is both the structural stretching over time of the income distribution between the extremes (the wider the stretching, the greater the inequality) and the individual-level moves in the distribution. In order to appropriately reflect individual income mobility, we refer to changes in ranking along the income scale: the stable benchmark is not the income scale which structure is changing but the percentile-rank. We consider thus the relative position of individuals (p-rank between 0 and 1) on the income scale and their variation over

time, and we argue that the appropriate metrics able to give meaningful comparisons over time and countries are based on the logit of p-rank (logpra). So, longitudinal income mobility results from individual mobility in terms of logpra and from structural transformations of the whole distribution. In this way we can define persistence of individuals on the income distribution as the stability of their logpra. This approach is applied to individuals near the poverty threshold as well as to the rest of the distribution in order to compare persistence in poverty, with persistence in the middle and in the top of the distribution.

We proceed as follows. We medianize the level of living (equivalized post-governmental income: variable *medincome*), log and rank it subsequently. The percentile rank (p-rank) of a person with *medincome*  $x$  is given by the inverse of the cumulative distribution function  $F(x)$  (the quantile function) and is thus proportion of people with an income less than  $x$ . Individuals are defined at time  $t$  by their percentile rank: the relative rank between 0 and 1 on the income scale, 0 referring to the poorest and 1 to the richest. We then calculate the logit of the p-rank (logpra). In the tradition of the Champernowne-Fisk distribution analysis (Fisk 1961),  $\text{logpra} = \alpha * \text{logmedinc}$  as an acceptable specification of the distribution in first approximation (Chauvel 1995, Chauvel 2013). Moves in terms of the logit of the percentile rank are in other words the linear expression of the log of the medianized income ( $\text{log}(\text{medincome})$ ).

We test the dissymmetry hypothesis (mobility differs at the top and the bottom of the distribution) with the Panel Survey of Income Dynamics on several decades (PSID 1970-2007, biannual intervals). We compare short-term (two years) income mobility and middle-term mobility (ten years) and measure the variation in the mobility patterns over time. These results are compared with Bossert et al (2012) and with Foster–Greer–Thorbecke (FGT) types of poverty measures (Gradin et al. 2012). We give a contemporary comparison on short-term mobility (2 years) with the longitudinal EU Statistics on Income and Living Conditions (EU-SILC 2010) to understand better the diversity of patterns. The comparative aspect is a main contribution of this paper as to date only a small number of European-American comparisons exist (e.g. Jenkins and Van Kerm 2006 comparing the U.S. and Western Germany, Van Kerm and Pi Alperin 2013 comparing 26 EU countries based on the EU-SILC 2003-2007).

### **Preliminary Results**

Our main result is that mobility is not a constant over the income scale. We moreover show that mobility and inequality at the bottom and at the top of the income distribution are not uniform but behave differently. More precisely, our results based on the PSID reveal that mobility is the highest among the poorest, is relatively important as well at the top but is at its lowest level in the middle classes of incomes. These results qualify those of Gottschalk (1997) based on a discrete approach of the top and the bottom (in terms of quintile groups), which underestimates intra fractile mobility. The U.S. are experiencing an increase of income mobility and in instability notably at the bottom.

The comparison of two year trajectories in Europe and the U.S. shows moreover that mobility patterns are diverse in Europe: Nordic countries and the Netherlands are characterized by lower income mobility specifically at the bottom whereas the UK and Spain show strong instability of the poor.