The role of education and household composition for transitory and permanent income inequality–evidence from PSID data

Johannes Ludwig*

Institute of Macroeconomics, Ruhr-Universität Bochum, Building GC 2/159, Bochum 44780, Germany

A B S T R A C T

Transitory and permanent shocks to income have been shown to be important determinants of household consumption. This paper shows that there are significant differences in the trends of transitory and permanent income inequality between demographic groups since the 1980s. Using data from the Panel Study of Income Dynamics, educational attainment and the composition of a household are found to play a key role. While permanent inequality increases steadily for educated households, it is flat over large parts of the sample period for the less educated households. Transitory inequality increases for all households headed by couples whereas it is constant for single households. Altogether, permanent shocks account for a larger part of the income variance of educated households whereas transitory shocks are relatively more important for the less educated. These results are able to shed light on the transmission of changes in income inequality to consumption inequality.

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1. Introduction

There is a broad consensus that income inequality in the US has risen drastically since the beginning of the 1980s (see e.g. Autor et al., 2008; Heathcote et al., 2010a , for a different view see Sabelhaus and Song, 2010). However, few authors use the insight of Gottschalk and Moffitt (1994) who measure income inequality as consisting of two components evolving differently over time: inequality due to factors that affect household income permanently and inequality due to transitory income fluctuations. This paper shows that in the last three decades the evolution of transitory and permanent inequality of household income varies significantly between groups of different educational attainment and household composition.

Disentangling the different elements of overall income inequality helps one to understand the reasons behind its enormous increase. The increase in permanent inequality is usually explained by skill-biased technical progress and increased international trade, whereas the increase in transitory fluctuations is attributed to a rise in job and firm instability Gottschalk and Moffitt (2009). Variation between groups can help to understand how the importance of these reasons differs according to educational status or household composition.

It has been shown empirically by Blundell et al. (2008) that the differentiation between permanent and transitory inequality is also important for welfare analysis. A basic version of the permanent income hypothesis predicts that an increase in overall income inequality leads to an equivalent increase in the inequality of consumption. Blundell et al. (2008) demonstrate that this is not the case in the US in the 1980s because only permanent changes in income are found to affect household consumption whereas transitory fluctuations do not. The question of whether the magnitude of permanent and transitory inequality differs

* Tel.: +492343226912; fax: +492343214453.
  E-mail address: johannes.ludwig@rgs-econ.de

between population subgroups is important since Krueger et al. (2010) find that changes in income inequality translate differently into consumption inequality for households in the upper and lower part of the income distribution. Similar evidence has recently been found by Meyer and Sullivan (2013).

The data in this paper come from the Michigan Panel Study of Income Dynamics (PSID). The variances of transitory and permanent household income for the various groups are identified by using the moments in levels as proposed by Moffitt and Gottschalk (1995) and in differences as proposed by Meghir and Pistaferri (2004). Applying both procedures is necessary since Daly et al. (2013) have recently shown that transitory variances estimated in levels and permanent variances estimated in differences are biased when unbalanced panel data is used.

All demographic groups are found to suffer from increases in overall residual income inequality. However, the subgroup analysis shows that there are significant differences between groups. Higher educated households experience a drastic and steady rise in permanent income inequality while less educated households do not show any increase in permanent variation between 1978 and 1996. The development of transitory inequality on the contrary is affected significantly by household composition. All couple households experience an increase in transitory fluctuations during the last three decades whereas I do not find any evidence for a positive trend in transitory inequality for households headed by singles.

By relating the size of transitory and permanent inequality to each other for each group it can be shown that the composition of overall income variance differs considerably between education groups. For the less educated households, transitory shocks to income account for a larger share of the overall residual variance in comparison to educated households where permanent shocks clearly dominate. It is usually found that households can insure their consumption more easily against transitory shocks to income. Thus, this evidence can explain why income inequality translates to a higher degree into consumption inequality at the upper end of the income distribution as found by Krueger et al. (2010) and Meyer and Sullivan (2013).

As has been proposed by Lemieux (2006), I also examine the importance of composition effects for the development of aggregate inequality. However, despite the fact that single households and educated households have become more numerous over time, the estimated composition effects are found to be relatively small. At the beginning of the sample period the differences in inequality levels between educated and less educated groups are still small so that changes in composition have only little effect and merely become important towards the end of the sample period.

The paper contributes to the literature on transitory and permanent income inequality by showing that not only the levels, but also the trends of the two components of overall inequality differ for demographic subgroups. This is particularly true for the differences between households headed by singles and those headed by couples, a difference that has not received much attention. In demonstrating that transitory and permanent income variances necessarily need to be estimated in levels *and* in differences, the paper makes a methodological contribution, too. The results of the paper concerning permanent inequality can also be connected to recent evidence on the effects of technical progress and computerization on the income distribution. Among others, Autor et al. (2008) show that a process of "polarization of work" increases income inequality in the upper part of the income distribution, but not necessarily in the lower part of the income distribution. Different trends in transitory inequality between single and couple households can potentially be explained by an increase in female labor force participation.

The paper is organized as follows. Section 2 summarizes the most important findings on transitory and permanent inequality. In Section 3, I describe the construction of the dataset and sample selection. Section 4 outlines the methodological aspects: the income process, the identification of transitory and permanent inequality and the definition of population subgroups. The empirical results – descriptive statistics and the figures for transitory and permanent inequality – are presented in Section 5. I also investigate whether the results depend on the parametric income model chosen. Section 6 investigates the importance of composition effects for the aggregate. Finally, Section 7 discusses the results with regard to the literature and Section 8 concludes.

2. Characteristics of transitory and permanent inequality

The original finding of Peter Gottschalk and Robert Moffitt was that permanent and transitory inequality of male earnings contribute roughly equally to the rising earnings inequality between 1970 and 1990 (Gottschalk and Moffitt, 1994; Moffitt and Gottschalk, 1995). Gottschalk and Moffitt (2009) extend the sample until 2004 and find that after 1990 permanent earnings inequality increases further until the end of the sample whereas transitory inequality is flat. Thus, the share of transitory variation in overall earnings inequality drops. The transitory variation of total household income, on the contrary, is found to increase rather constantly throughout the last three decades (Gottschalk and Moffitt, 2009; Dynan et al., 2012). However, using administrative data, DeBacker et al. (2013) have recently found that since the end of the 1980s permanent inequality of total household income has increased much more strongly and accounts for the vast majority of the increase in overall inequality.

The main reasons for the increase in permanent income inequality are well-known and broadly discussed – skill-biased technical progress and increased international trade are the most important factors mentioned (see e.g. Autor et al., 2008). There is far less consensus on the precise reasons for the increase in transitory income inequality. Most authors conjecture that labor market and business cycle effects drive the observed patterns since transitory fluctuations of earnings are found to be positively correlated with the unemployment rate (Moffitt and Gottschalk, 2002; Hacker and Jacobs, 2008). Ziliak et al. (2011) show that declining job stability in the US labor market that increases transitions between employment and unemployment is an important factor contributing to male earnings volatility. Other reasons mentioned are declining firm stability due to increased international competition, a higher importance of bonuses and overtime labor compensation and a higher share of self-employed workers with more unstable earnings profiles in the labor force Gottschalk and Moffitt (2009).