



# A tale of transition: An empirical analysis of economic inequality in urban China, 1986–2009 <sup>☆</sup>



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## ABSTRACT

This paper is the first comprehensive empirical study of earnings, income, and consumption inequality in urban China from 1986 to 2009, conducted using micro-level data from the Urban Household Survey (UHS). We document a drastic increase in economic inequality for the sample period. We find that consumption inequality closely tracks with income inequality, both over time and over the life cycle. We believe that the main driver of this co-movement could be the dramatic increase in uninsurable permanent income shocks that occurred after the early 1990s, a result of the economic transition in urban China.

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## 1. Introduction

Over the past three decades, the world witnessed a fast-growing and changing Chinese economy. Against the backdrop of the tremendous economic growth, there is an increasing concern among policymakers and the public over the widening economic inequality in China. Compared to our knowledge on China's growth miracle, we know much less about the trend of economic inequality. This paper aims to bridge the gap by providing the first comprehensive look at rising economic inequality in China for the period 1986–2009.

Employing the micro-level annual Urban Household Survey (UHS) data from 1986 to 2009, this paper empirically investigates the evolution of inequalities in earnings, income, and consumption in urban China for this time period. To make the

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analysis consistent with the literature and also comparable to other country studies, we closely follow the special issue of the *Review of Economic Dynamics* (RED) 2010 (“Cross-Sectional Facts for Macroeconomists”) in our sample selection and data processing.

We find that, just as the public has speculated, economic inequality has been increasing drastically in China. For example, the variance of log household disposable income in China increased from 0.14 in 1986 to 0.41 in 2006—almost threefold—over 20 years. The speed of increase is far higher than in any country covered in the RED special issue.<sup>1</sup> We also find that total consumption inequality is higher than disposable income inequality for most of the period. Nondurable consumption inequality, however, is slightly lower than disposable income inequality. This implies that durable consumption inequality is much higher than disposable income inequality.

What surprises us most is that consumption inequality, whether total consumption or nondurable consumption, closely tracks with disposable income inequality over time. The strong co-movement between income inequality and consumption inequality is robust even after using an alternative definition of income and consumption, as in [Krueger and Perri \(2006\)](#), correcting well-known measurement error problems in consumption data ([Attanasio et al., 2012](#)), using an alternative dataset, and conducting other robustness checks. This pattern contrasts sharply with what others have found in the United States and other advanced economies. In those countries, consumption inequality has been increasing much more slowly than income inequality. Also, the level of consumption inequality is usually significantly lower than that of income inequality. This pattern is viewed as compelling evidence of consumption smoothing ([Krueger and Perri, 2006](#)). Russia is the only country studied in the RED 2010 special issue shows that consumption inequality is higher than income inequality during the time period that it was investigated ([Gorodnichenko et al., 2010](#)). However, even in the Russian case, consumption inequality does not track as closely with income inequality as it does in China.

We also look at the evolution of inequality over the life cycle, following the method employed in [Deaton and Paxson \(1994\)](#). We find that the variances of log household earnings, disposable income, and nondurable consumption all rise over the life cycle, consistent with the pattern observed in the U.S. data (see [Heathcote et al., 2010](#)). However, the variance of log of disposable income closely tracks with that of nondurable consumption over the entire life cycle, which is consistent with the time-series pattern mentioned previously in this section. At the same time, in the U.S. data, we observe a divergence between disposable income and nondurable consumption inequality over the life cycle.

This unique phenomenon of a strong co-movement between income inequality and consumption inequality over both time and the life cycle probably indicates limited consumption smoothing across individuals over time. We investigate two possible explanations for this co-movement. First, it could be an indication of the prevailing existence of “hand-to-mouth” (HtM) consumers (or more precisely, the “rule-of-thumb” consumers described in [Campbell and Mankiw, 1989](#)).<sup>2</sup> HtM consumers are individuals who simply consume what they earn. With consumption being roughly equal to income, their variances are also roughly equal. This theory implies that the saving rate should be close to zero across households. However, in the data, only the lowest income quintile of households has average saving rates close to zero. For other income quintiles, we observe significantly positive saving rates. More importantly, the household saving rate rises over time for all other income quintiles. We thus conclude that except in the lowest income quintile, little evidence supports the existence of hand-to-mouth consumers in urban China.

Our second explanation lies in the changes of underlying income shocks structure. The literature shows that it is much more difficult for households to insure against idiosyncratic permanent income shocks than against transitory income shocks ([Blundell et al., 2008](#)). Therefore, a possible explanation for why consumption inequality closely tracks with income inequality in urban China is that rising permanent income shocks dominate the transitory income shocks over time. It makes the uninsurable part of idiosyncratic income shocks increase over time, and thereby impeding a household's ability to smooth consumption. To test this hypothesis, we estimate labor income dynamics following the literature ([Heathcote et al., 2010](#)). We explore the panel structure of the UHS to construct a two- or three-period short panel at the household level. As in [Heathcote et al. \(2010\)](#), we use a method with moments based on income growth rates (“difference”) and a method with moments based on log income levels (“level”). As found in [Heathcote et al. \(2010\)](#) and other articles in the RED special issue, we find that there is a substantial divergence between the average transitory and permanent variances obtained by the two methods. Compared to the level method, the difference method gives us a much less volatile estimation of the income process. We therefore choose to focus on the difference method for the analysis of the income process in China.

The estimation done using the difference method shows that permanent income shocks have been increasing significantly relative to transitory income shocks since the mid-1990s. From 1994 to 2005, permanent income variance in urban China increased from 0.012 to 0.095, that is, by about eight times. By contrast, transitory income variance decreased from 0.04 to 0.017 for the same time period. Taking into account the fact that individuals can only partially insure against permanent income shocks, and almost fully insure against transitory income shocks ([Blundell et al., 2008](#)), the underlying change in the composition of income shocks implies that sharing risks across individuals over time is becoming more difficult. This leads to a stronger synchronization between consumption inequality and income inequality. We believe that this could be a plausible explanation for the observed co-movement of income and consumption inequalities.

<sup>1</sup> For comparison, variance of log of household disposable income increased from 0.48 in 1986 to 0.54 in 2006 in the United States (see Figure 13 in [Heathcote et al., 2010](#)). For Japan, the same statistics increased from 0.18 in 1986 to 0.21 in 2006 (see Figure 4.9 in [Lise et al., 2014](#)).

<sup>2</sup> See [Kaplan et al. \(2014\)](#) for a survey of HtM consumers. They report that HtM consumers (both wealthy and poor HtMs) have significantly higher marginal propensities to consume in response to transitory income shocks than non-hand-to-mouth consumers do.

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