Received: 9 May 2017 | Revised: 13 August 2018

DOI: 10.1002/jae.2663

RESEARCH ARTICLE

WILEY Journal of APPLIED ECONOMETRICS

Actual and counterfactual growth incidence and delta Lorenz curves: Estimation and inference

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Summary

Different economic growth episodes display very different distributional characteristics, both across countries and over time. Growth is sometimes accompanied by rising and sometimes by falling inequality. Applied economists have come to rely on the growth incidence curve, which gives the quantile-specific rate of income growth over a certain period, to describe these differences. This paper introduces a mean-independent analogue, the delta Lorenz curve, which gives the cumulative change in income share up to each quantile. We also develop estimation and inference procedures for both functions of quantiles. We establish the limiting null distribution of the test statistics of interest for those functions, and propose resampling methods to implement inference in practice. The proposed methods are used to compare the growth processes in the USA and Brazil during 1995–2007. Although growth in the average real wages was disappointing in both countries, the distribution of that growth was markedly different. In the USA, wage growth was mediocre for the bottom 80% of the sample, but much more rapid for the top 20%. In Brazil, conversely, wage growth was rapid below the median, and negative at the top. Wage shares fell in the USA up to the 83rd percentile, and rose in Brazil up to the 65th percentile.

1 | INTRODUCTION

Growth episodes display very different distributional characteristics across countries and over time. The same rate of growth in average incomes has been accompanied by rising inequality in some cases, and by falling inequality in others. A large literature on "pro-poor growth" and, more generally, on the incidence of economic growth processes has developed, and attracted attention among both researchers and policymakers.

Over time, this literature has come to rely heavily on the growth incidence curve (GIC), which describes the rate of income growth at each quantile $\tau \in (0, 1)$ of the distribution (Ravallion & Chen, 2003). It has been used to compare the distributional characteristics of growth processes both across countries and over time (see, e.g., Besley and Cord, 2007). It has also been shown to underlie changes in certain widely used classes of poverty and inequality measures, which can be formally expressed as functionals of the GIC (Ferreira, 2012).

GICs have also featured in a long-standing literature that uses counterfactual income distributions to decompose changes (or differences) in inequality and poverty over time (or between countries), and to attribute such changes to different factors—for example, changes in worker characteristics or in the returns to those characteristics. The original contributions to this literature, including Juhn et al. (1993), Dinardo et al. (1996), and Donald et al. (2000), pre-date the Ravallion and Chen (2003) article that introduced the term GIC, and hence do not use it. Yet, each of those papers

