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Maximum Entropy Estimation of Income Distributions from Basmann's Weighted Geometric Mean Measure¹

Hang K. Ryu² and Daniel J. Slottje³

Abstract

This paper introduces a new Maximum Entropy based inequality measure that is related to Basmann's class of weighted geometric mean (WGM) measures, but with the added feature that the new measure is flexible enough to describe other characteristics of an observed income distribution function (IDF), a feature that other well-known measures do not possess. As an application, using Current Population Survey (CPS) data, we apply the new measure to Blinder and Esaki's (1978) aggregate macro-modelling approach to examine US income inequality trends from 1947 - 2014. Increases in the unemployment rate and decreases in inflation rates and in the growth rate in gross domestic product (GDP) were found to deepen income inequality; rising inequality is a recent trend many policymakers have been watching with concern.

JEL Classification: D31, D63

Keywords: Decomposition of Basmann's WGM measure, Gini Coefficient, Theil's entropy measure, Maximum entropy method

I. Introduction

Income inequality and poverty have re-emerged as central policy concerns under the recent eight year Democratic administration in the U.S. The consensus among economists who study inequality seems to be that inequality and poverty are rising and that the middle class is dwindling. This "polarization" is alarming and its nexus is heavily debated, cf. Piketty (1995,

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