



# Wealth distribution and output fluctuations <sup>☆</sup>

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## Abstract

We explore the link between wealth inequality and output fluctuations in a general two-sector neoclassical growth model with endogenous labor and heterogeneous agents. When agents have homogeneous CRRA preferences and individual wealth is Pareto distributed, a sufficiently large rise in the Gini index typically leads to an increase in endogenous fluctuations of output. For general economies, we show that under plausible conditions on the fundamentals, wealth inequality is still a destabilizing factor.

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## 1. Introduction

Is there a relationship between income or wealth inequality and output fluctuations? Recent data concerning the Latin American and the OECD countries, as well as the East Asian “tigers”, suggest a positive answer. In 1990, the Gini coefficient of the distribution of income was on

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average 59.5% for Brazil, Chile, Mexico and Venezuela while it was 34% for the OECD countries. During the same decade, the average standard deviation of the rate of output growth was 5.9% for the mentioned Latin American countries and only 2.7% for the OECD. East Asian countries behaved similarly: Hong Kong, Korea, Taiwan and Singapore had on average a (small) Gini coefficient of 35.5% and a volatility of 2.8%. Building on these data, Breen and García-Peñalosa [14] show the existence of a significant positive correlation between a country's output volatility and income inequality. Extensive data for wealth inequality are hardly available, mainly because of measurement issues. However, the available data show that in most countries income and wealth are highly (but not perfectly) correlated.<sup>2</sup> Consequently, a positive relationship is also expected to hold between wealth inequality and output volatility.

In the present paper we explore the impact of the wealth distribution on output fluctuations from a theoretical perspective. Two remarks guide our modeling choices. First, we take the view that the link between wealth inequality and business cycle fluctuations needs first to be examined in a model without distortions and in the limit with no external stochastic disturbances. Indeed, following Benhabib and Nishimura [9], it is possible to link the standard notion of macroeconomic fluctuation (based on stochastic oscillations) to endogenous instability of deterministic models, through the concept of cyclic sets.<sup>3</sup> Secondly, it is known that instability easily occurs in perfectly competitive multi-sector growth models. Whenever endogenous leisure is a normal good, the simplest of such models is the two-sector optimal growth model *à la* Uzawa. Finally, we introduce heterogeneous agents and characterize the level of wealth inequality by the distribution of shares that the individuals have in the firms and by the distribution of individual endowments.

The message of the present paper is that, within this standard framework, in most realistic situations wealth inequality is a destabilizing factor. When agents have homogeneous CRRA preferences and individual wealth follows a Pareto distribution, a sufficiently large rise in the Gini index typically leads to an increase in endogenous fluctuations of output. For general economies, we provide a general characterization and then focus on two configurations: (i) heterogeneous CRRA preferences, and (ii) homogeneous preferences characterized by non-linear individual absolute risk tolerance indices as functions of consumption and labor supply, respectively. In both cases, we show that under the plausible assumptions of a large enough social elasticity of intertemporal substitution in consumption and a low enough social elasticity of labor, an increase of wealth inequality generates output fluctuations.

The sharp results obtained in this paper contrast with some of the previous related literature, in particular with Ghiglino and Venditti [21] who also investigate the link between inequality and instability in a neoclassical model. However, their assumption of inelastic labor supply has two major drawbacks: 1) the model does not produce any significant relationship between inequality and fluctuations when agents have standard CRRA preferences, and 2) the role of the wealth distribution depends exclusively on the curvature of the absolute risk tolerance index. In the present model we allow for endogenous labor supply, implying that also the aggregate steady state depends on the wealth distribution. Interestingly, the shape of preferences loses its predominant role in the link between inequality in wealth and fluctuations, allowing a much better characterization.

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<sup>2</sup> The Luxembourg Wealth Study allows to show for instance that although assets are more concentrated than income, the correlation between them is highly positive (see OECD [34], Sierminska et al. [39]).

<sup>3</sup> Benhabib and Nishimura [9] show that introducing small stochastic shocks into a deterministic model characterized by periodic cycles generates cyclic sets.

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