

# Three Essays on International Economics and Macroeconomics

## Chapter 1 Globalization and Top Income Shares

This paper studies the impact of globalization on the income gaps between the rich and the poor. This paper presents a new piece of empirical evidence showing that the access to global market, either through exporting or through multinational production, is associated with higher executive-to-worker pay ratio within the firm. It further shows that firm-level inequality is higher among exporting and multinational firms because those firms are on average larger than non-exporting firms.

It then builds a model with heterogeneous firms, occupational choice, and executive compensation to model analytically and assess quantitatively the impact of globalization on the income gaps between the rich and the poor. The key mechanism is that the “gains from trade” are not distributed evenly within the same firm. The compensation of an executive is positively linked to the size of the firm, while the wage paid to the workers is determined in a country-wide labor market. Any extra profit earned in the foreign markets benefits the executives more than an average worker. Consistent with the empirical patterns described above, in the model the size of the firm solely determines the level of firm-level inequality, therefore once the size is controlled for, the exporting status of a firm has no impact on its executive-to-worker pay ratio.

The model is then calibrated to create a counterfactual world where the only source of change is the access to the global markets. The model-generated top income shares closely resemble the dynamics of income shares in the U.S. data. The correlation between the model-generated income share and the data is 0.95 for the top 0.01 percent. The adjusted R-squared of regressing the data sequence against the model-generated sequence is 0.89. In terms of magnitude, the surge in top 0.01 percent income shares in the model is about 33 percent of the surge in the data.

## Chapter 2 Lumpy Investment, Lumpy Inventories

The link between the physical micro environment (frictions and heterogeneity) and the macroeconomic dynamics in general equilibrium macro models is influenced by the details of how exactly general equilibrium closes such a model. This chapter makes this general observation concrete in the context of the recent literature on how important nonconvex capital adjustment costs are for aggregate investment dynamics. Specifically, this paper introduces inventories into a two-sector lumpy investment model. We find that with inventories nonconvex capital adjustment costs dampen and propagate the reaction of investment to shocks: the initial response of fixed capital investment to productivity shocks is 50% higher with frictionless adjustment than with the calibrated capital adjustment frictions, once inventories are introduced. The reason for this result is that with two means of transferring consumption into the future, fixed capital and inventories, the tight link between aggregate saving and fixed capital investment is broken. In contrast, in the case the literature has focused on with only one type of capital good to save and invest in, fixed capital investment dynamics are more tightly linked to consumption dynamics, which, in turn, are determined by the Euler equation of a representative household, which holds regardless of whether fixed capital investment is costly or not.

## Chapter 3 Non-Linearities in Aggregate Import Dynamics

This chapter presents a novel empirical fact that the aggregate U.S. imports show conditional heteroscedasticity. Based on an ARCH-type econometric model, we find that the variance of the residual is 26 percent higher when the recent values of aggregate imports are at the 75 percentile than at the median. We introduce a DSGE trade model with lumpy microeconomic inventory adjustment to match this feature. The key mechanism of our model is that the impulse response function of aggregate imports is history dependent: the response is stronger in times of high imports compared to times of low imports. Our DSGE model can match up to 60 percent of the non-linearities in the data.