Redistribution, Sovereign Debt, and Optimal Taxation

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Overview

- This research proposes a theory of external debt sustainability based on the government's motive for redistribution.
- I study a small open economy model in which taxes are distortionary and the government has a redistributive concern and faces endogenous borrowing constraints due to its lack of commitment.
- When the government can borrow externally, it redistributes the external funds to domestic households via domestic financial markets. The government uses low distortionary labor taxes for redistribution.
- Default resulting in financial autarky is endogenously costly because, without access to external financing, redistribution comes with a high efficiency cost in terms of high distortionary labor taxes.
- Higher inequality implies a higher cost of default, which results in the government willing to sustaining a higher level of debt.
- Quantitatively, the theory can account for the external debt's recent buildup in Italy and is consistent with the positive correlation between pre-tax income inequality and external debt across countries.
- In response to a negative productivity shock, the optimal austerity policies are increasing external borrowing and redistribution while reducing redistribution to repay debt in the future.

Introduction

The recent European debt crises have prompted intense policy debates on fiscal consolidations reduce the government's budget. These policies help repay debt but have an unequal effect on the domestic economy. Governments often face a trade-off between its commitment to debt repayment and its commitment to maintain a level of redistribution. To show how this trade-off is present in the data, I document the cross-country and time series properties of pre-tax income inequality and external debt. First, highly indebted countries have also experienced high levels of pre-tax income inequality:

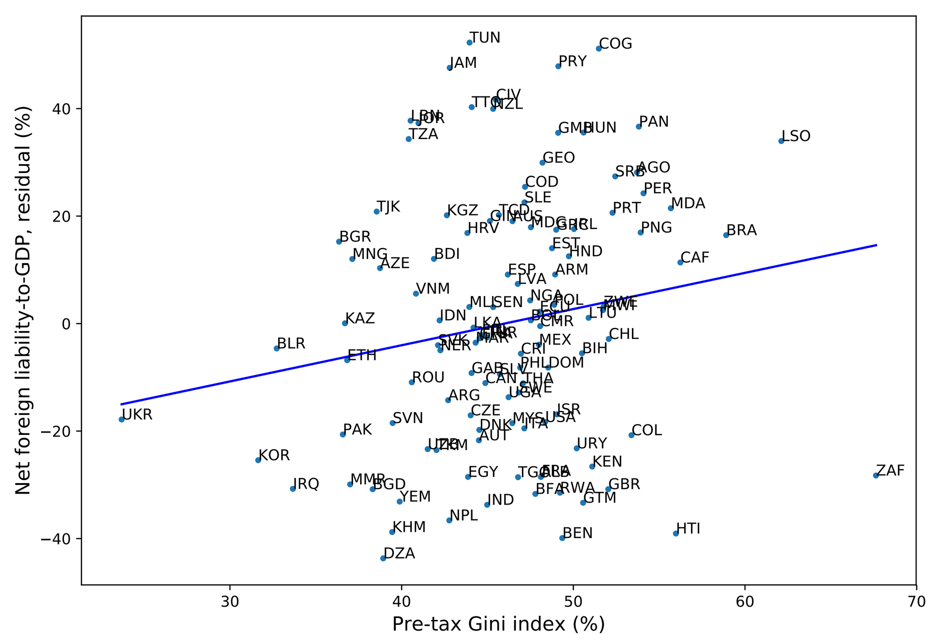

Figure 1: Inequality & External Debt Across Countries, 1985-2015 Average

Second, the increase in the country's net financial outflows has coincided with an increase in aggregate pre-tax income inequality:

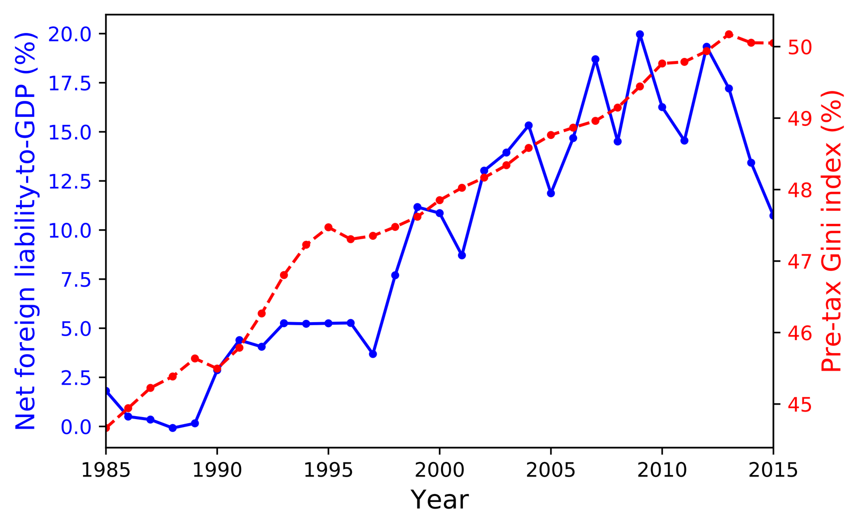

Figure 2: Inequality & External Debt Over Time, EU-Country Average

Research Questions

- How does the government's motive for redistribution affect its external debt repayment?
- What austerity policies should the government follow in the presence of inequality?

Model

The model is a small open economy that faces aggregate productivity shock. The economy consists of three types of agents: domestic households, a government, and foreign lenders.

Domestic Households. Households are *heterogenous* in labor productivity types $\left(\theta^i\right)_{i\in I}$. They are *impatient* and have preferences over consumption c^i and labor in efficiency units l^i:

$$\mathbb{E}_0 \sum_t \beta^t U\left(c_t^i, \frac{l_t^i}{\theta^i}\right)$$

Households only have access to state-contingent domestic bonds.

Government. Government uses *affine taxes* to redistribute resources: marginal taxes on labor income τ^n and domestic asset return τ^d and lump-sum tax T. Government has access to both state-contingent domestic and foreign bonds. Government is benevolent and maximizes weighted utility of all households. Government *lacks commitment in all tax and debt policies*.

Lack-of-commitment constraints (Endogenous borrowing constraints)

$$\underbrace{\mathbb{E}_t \sum_{i,k\geq t} \overbrace{\lambda^i}^{\text{welfare weight}} \pi^i \beta^{k-t} U^i(c_k^i, l_k^i)}_{\text{continuation value}} \geq \underbrace{\underline{U}(z^t)}_{\text{value of default (financial autarky)}}$$

Foreign Lenders. There is a continuum of risk neutral foreign lenders that lend to the government with fixed interest rate r^*.

Mechanism

Why does greater income inequality imply more external debt?
Consider the following deterministic economies:

- **Economy 1: No heterogeneity $\Longrightarrow$ No external debt**
  - Government defaults on any borrowing.
  - Lenders anticipate defaults and do not lend ex-ante.
- **Economy 2: Heterogeneity $\Longrightarrow$ Positive external debt**
  Government wants to sustain external debt because
  - External resources can be redistributed among households via domestic financial markets.
  - Government can achieve redistribution with lower distortionary labor taxes than in financial autarky.

Quantitative Analysis

Key assumptions

- Two types: $\left\{\theta^H, \theta^L\right\}$ with equal measures
- Utilitarian welfare: $\lambda^H = \lambda^L$
- Impatience: $\beta(1+r^*) < 1$
- Aggregate productivity shock z follows log AR(1)

Calibration

- Data: Italy, annual frequency from 1985 to 2015
- Key parameters and moments
  - Discount factor β to match avg. domestic real interest rate
  - Wage ratio θ^H/θ^L to match mean wage top 50% / bottom 50% in cross-sectional household data

Result I: Inequality and External Debt Across Countries

I perform a cross-country estimation of the correlation between pre-tax income inequality and external debt both in the model and in the data. Data from the model is obtained by simulating the model for 30 different levels of wage inequality. Table 1 reports the results.

	Dependent Variable: Net foreign liability-to-GDP (%)	
	Data: 1985-2015 Average	Model
Pre-tax Gini (%)	**0.968****	**2.423*****
	(0.487)	(0.0674)
Controls	Yes	Yes
No. Observations	120	30

Table 1: Cross-Country Regression Analysis

Result II: Inequality and External Debt Over Time: The Case of Italy

I conduct a comparative statics exercise in the case of Italy for two time periods of 1985-2001 and 2002-2015. I feed in the model the change the average pre-tax Gini income from 1985-2001 to 2002-2015 that is the same as the change in the data. Table 2 shows that the model accounts for 93% of the increase in external debt-to-output.

Statistics: 1985-2001 to 2002-2015	Data: Italy	Model
Targeted		
Δ Pre-tax Gini	3%	3%
Non-targeted		
Δ Extenal debt/Y	**14%**	**13%**

Table 2: Comparative Statics Results

Result III: Optimal Austerity

Figure 3 depicts the impulse responses of aggregates and policies to a negative productivity shock. I use the difference in utilities as a measure for the degree of redistribution. Panel (d) and (g) shows that the optimal austerity policies are increasing external borrowing and redistribution while reducing redistribution to repay debt in the future.

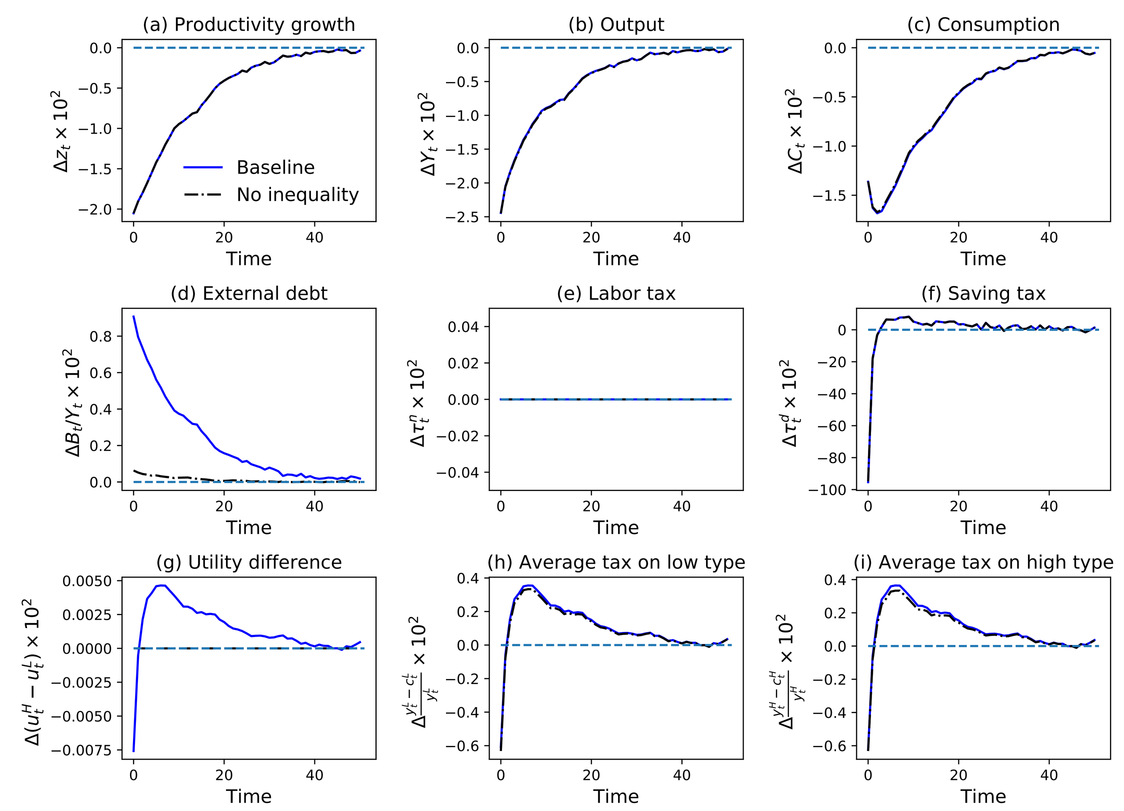

Figure 3: Impulse response functions to a negative productivity shock

Conclusion

- I develop a new theory in which the government is willing to sustain positive external debt that is related to its desire for redistribution.
- I introduce a new endogenous cost of default as a result of redistribution requiring high distortions in default when governments do not have access to external financing.
- The theory quantitatively accounts for observed inequality and external debt levels as well as their correlation across countries and over time.