

I am a macroeconomist interested in international economics, with a primary focus on applied labor economics, corporate finance, and sovereign default. A unifying theme of my research is the study of the economic consequences of financial shocks in the presence of financial frictions. My job market paper focuses on understanding the employment consequences of a drop in real estate prices. In a second research paper, I study the response of firm investment to changes in the sovereign spread. For both cases, my research combines empirical analysis with quantitative models.

CURRENT RESEARCH

1. *Employment Fluctuations, Real Estate Prices and Property Taxes (Job Market Paper)*

This paper studies the employment effect of a drop in real estate prices on employment. A decline in real estate prices can materialize in lower housing prices or lower commercial real estate prices. Both cases generate a decline in labor demand through two different channels. First, a housing wealth channel generates a drop in labor demand because lower housing prices cause a decline in household consumption, which translates into lower sales for firms. Second, a firm collateral channel reduces employment demand because lower prices for commercial real estate translate into lower values for collateralizable assets owned by firms, thus reducing loans available to fund regular operations. The paper's primary goal is to understand the relative importance of the housing wealth channel and firm collateral channel on employment. The approach on this paper combines empirical evidence with a quantitative model with financial frictions.

The empirical analysis of the paper focuses on estimating the effect of an increase in property taxes. Intuitively, higher property taxes reduce demand and market prices for real estate assets. Thus, an increase in housing taxes should affect employment through the housing wealth channel. In contrast, an increase in commercial real estate taxes generates a labor response via the firm collateral channel.

Italian municipalities from 2008 to 2014. The Italian economy provides a suitable environment for two reasons. First, property taxation in Italy is based on two tax rates: *prin* and *sec*; the *prin* tax rate is applied specifically to residential properties, while commercial real estate properties pay the *sec* tax rate; the *prin* and *sec* tax rates are determined every year by local authorities in each municipality across Italy. Second, the 2012 property tax reform imposed by the central government forced local governments to increase property taxes. This reform created a unique variation in property tax changes for houses and commercial real estate across Italian municipalities. Based on these features, I use a difference-in-difference strategy with municipal-level data to estimate the reduced form effect of changes in property taxes on employment, consumption expenditure, and real estate prices.

Next, I build a quantitative model with two real estate assets: houses and commercial real estate. Owners of real estate need to pay differentiated property taxes to the government. The model shows that the employment response to changes in the tax rate for houses is explained partially by the household collateral effect. In comparison, the employment response to changes in the tax rate for commercial real estate captures the firm collateral effect. Finally, to discipline the model, I use the reduced form effects estimated with Italian data. The calibrated model allows quantifying the importance of each channel. I find that about 80% of the decline in employment growth after an increase in property taxes is explained by the firm collateral and housing wealth channel, with the firm collateral channel contributing the most.

2. Maturity, Leverage and Investment Decisions During a Sovereign Debt Crisis (Working Paper)

This paper study the effect of changes in the sovereign spread on firms' investment and the potential heterogeneous response for different maturity and leverage decisions using detailed firm-level data for Italian firms during the sovereign debt crisis of 2013. The estimations results show that for high leverage firms, an 100 bps (basis points) increase in the sovereign spread produces a decrease of 0.59 pp (percentage points) in the growth rate of capital for high maturity firms relative to low maturity firms. For low leverage firms, the same 100 bps increase in sovereign spread generates a 0.38 pp higher capital growth rate for high maturity firms relative to low maturity firms. For firms with low maturity, if the sovereign spread increase by 100 bps, the capital growth rate for firms with high leverage reduces by 1.41 pp relative to firms with low leverage. For firms with high maturity, the 100 bps increase in the spread produces a drop in the growth rate of capital equivalent to 2.41 pp for firms with high leverage relative to low leverage firms.

In order to understand the empirical results, the paper builds a partial equilibrium model with exogenous sovereign spread shocks. This model allows firms to issue risky long-term and short-term debt. In qualitative terms, the model shows that firms with low maturity levels and a high probability of default in the long-run or short-run increase the share of long-run debt in their liabilities portfolio, by increasing maturity, these firms reduce the probability of default in the short run; while long-run default risk does not change significantly. In this case, investment reduces relatively less compared to firms initially holding high levels of maturity. For firms facing only long-run default risk, a sovereign spread shock generate an adjustment in their liabilities portfolio towards risk-free short-term debt. Thus, maturity reduces problems associated with long-run default risk. Compared to low maturity levels, the reduction of investment for these firms is relatively lower.

FUTURE WORK

In the years to come, I plan to pursue research on the relation between labor market frictions and sovereign spread to provide a novel mechanism explaining the output losses associated with default. Previous work has found that defaults produce significant declines in domestic output (De Paoli, Hoggarth, and Saporta 2009). The quantitative models in the literature on sovereign default use an ad-hoc approach to model output cost associated with default (Aguiar and Gopinath 2006; Arellano 2008). Mendoza and Yue (2012) endogenize the output costs as an efficiency loss in production due to the substitution between imported and domestic inputs after a country defaults. My goal is to provide an alternative channel based on changes in the labor market during a sovereign default episode. I will study this channel in the context of Brazil, this country experienced a spike in the sovereign spread of 795 basis points between January 2013 and November 2015. I will use detailed employment data at the establishment level from RAIS (*Relacao Anual de Informacoes Sociais*) database to estimate the changes in labor market frictions due to an increase in the sovereign spread during this period.