Research Statement
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Modern macroeconomics has been built on the assumption of a representative agent. My research has focused on the effects for business cycles of relaxing this assumption by adding heterogeneous agents either on the household side or on the firm side.

In my job market paper, "Consumption and Labor Risk, Aggregation and Business Cycles", I explore the effects of adding household-specific productivity shocks to the standard real business cycle model. I find that if agents cannot perfectly insure against idiosyncratic consumption and labor income risk, because markets are incomplete, the expression for the labor supply decision at the aggregate level includes an extra term that will be interpreted as a distortion, if the underlying heterogeneity is ignored. Aggregation, over the undistorted labor-leisure condition of each household, leads to a wedge between the Marginal Rate of Substitution between consumption and leisure (MRS) and the Marginal Product of Labor (MPL), through the lens of the representative agent model.

This wedge is consistent with data on aggregate consumption, hours worked and output, which reveals a systematic deviation between the MRS of the representative household and the MPL. This deviation has been labeled the "Labor Wedge" and it has received special attention from recent macroeconomic papers, mostly because of its cyclical properties. From the perspective of the neoclassical growth model, this wedge behaves as if labor was heavily taxed during recessions. Several modifications, including search frictions in labor markets and wage rigidities, have been proposed to disconnect wages from the marginal product of labor. However, most of them have been unsuccessful in explaining the counter-cyclical behavior of the "Labor Wedge".

My model reproduces this feature without relying on labor market frictions and without assuming additional aggregate shocks. The key mechanism that delivers this counter-cyclical labor tax, from the perspective of the representative agent model, is the different labor supply elasticities of various households. In this economy, both the wealth distribution and the distribution of household-specific wages matter for the aggregate labor supply. In addition, the two distributions change along the cycle. The wealth distribution is not constant because markets are not complete: agents face a borrowing constraint that prevents them from borrowing against future labor income. The labor income distribution changes along the cycle too, as I assume that during recessions the variance of idiosyncratic shocks increases.

When a negative shock hits the economy, people who are financially constrained supply the same amount of labor, despite the fact that wages are depressed. On the other hand, agents who are not constrained and have accumulated more assets, because of precautionary motives, will supply less labor than they would do in a model with perfect insurance. Upon shock, aggregate labor is
less responsive than in the standard model because of the former effect. However, aggregate hours worked remain subdued for a longer period, as if labor taxes were higher, because of the weaker income effect of the various agents who have accumulated precautionary wealth.

The assumption of incomplete markets is critical for this result. In a model with perfect insurance, highly productive agents will work more during recessions, relative to people with bad productivity draws. This will be equivalent to a lower tax -or a higher subsidy- to aggregate labor supply, just the opposite of what is needed to reconcile the standard model with the data.

I test the aggregation hypothesis by calculating directly the deviation between the MRS and the MPL implied by the aggregation condition, using household micro-level data on consumption and wages for the US. I find that this calculation replicates the observed decline of the labor wedge since the 1980s. I also find that it is positively correlated with the cyclical changes of the labor wedge, as measured using aggregate data.

In my previous paper "Entry, Trade Costs and International Business Cycles", joint work with Roberto Fattal, we examine the role of entry and exporting costs for international business cycles, in the context of a model with heterogeneous firms. We solve a two-country model in which sunk entry costs and fixed exporting costs cause the set of firms to change endogenously along the cycle. We find this model to share the failures of the standard model regarding the co-movements of aggregate variables, yet to deliver novel dynamics for investment and the trade balance and a better fit for the second moments of the data. The model predicts, as the benchmark Backus, Kehoe and Kydland (1992), a too high cross-country correlation of consumption and a low correlation of output, the so-called ”consumption-output anomaly”. After a positive aggregate productivity shock, production gets reallocated to the most productive economy, but consumption increases in both countries because international financial markets allow some risk sharing between households across countries. The two extensive margins we add don’t change this reallocation force.

However, our specification improves relative to the standard model regarding aggregate volatilities. The key mechanism behind these new findings is the interaction between investment and entry. Creation of new firms provides households with an additional margin to smooth consumption over time. Having an extensive margin of production dampens the volatility of investment in physical capital, enabling the model to have a high elasticity of substitution between home and foreign goods, and still get plausible values for the volatility of investment and trade balance. For the same parameter values, the standard model delivers unrealistic high numbers for these two variables.

In a related paper: "Asset Prices in a Production Economy with Endogenous Number of Firms and Love for Variety" I explore the effect of creation of new goods (firms) on asset prices. In this paper I argue that under preferences that exhibit love for variety, creation of new goods along the
business cycle can help to explain the risk premium observed in the data. In this environment, a larger set of goods have an effect on the marginal utility of consumers, and therefore in the pricing kernel of households. The high risk premium of the model is a result of the positive covariance between changes in the number of goods (firms) and equity returns.

In conclusion, these three papers show that departing from the canonical assumption of the representative agent can enrich the dynamics of the standard business cycle model depending on whether there are aggregation issues or some extensive margin that has first order effects on aggregate quantities or prices.