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RESEARCH STATEMENT

I am a macroeconomist who studies how features of internal economic geography matter for the economy as a whole. In particular, I examine how barriers that separate local housing and labor markets affect the allocation of labor across space, and thus local and aggregate economic outcomes. I also quantitatively evaluate policies that improve the outcomes by counteracting these barriers. Another line of my research focuses on understanding why incentives to invest in managerial human capital differ across countries and what these differences imply for country-level productivity. Below I describe my current and future research agenda.

Barriers to Allocation of Labor across Space

As a macroeconomist, I am interested in aggregate outcomes. Yet economic activity largely happens in cities. I argue that constraints inherent in housing and labor markets limit the ability of workers to locate where they are most productive, and therefore may lead to adverse macroeconomic and distributional outcomes.

In my job market paper, "**The Rise of Housing Supply Regulation in the U.S.: Local Causes and Aggregate Implications**," I focus on housing. Regulatory restrictions on the supply of housing have increased in recent decades and have become a major determinant of house prices. In this paper I ask: what are the implications of the rise in regulation for aggregate productivity, and for wage and house price dispersion across metropolitan areas?

Underlying this work is the evidence that the dispersion of wages and house prices across U.S. metro areas has grown, and that the sorting of college graduates into highly productive and expensive places has become stronger since 1980 (Moretti, 2004; Berry and Glaeser, 2005; Van Nieuwerburgh and Weill, 2010; Diamond, 2016). I argue that these rising regional disparities have been amplified by the choices of residents of the most demanded metro areas to tighten regulation. To quantify this amplification effect, I build a general equilibrium model with multiple locations and heterogeneous workers. Local house prices depend on regulation, which is decided endogenously by voting: renters want less regulation and owners want more. Faster productivity growth in some locations attracts workers and raises housing prices there. High-skilled workers, being less sensitive to rising prices, sort into productive and expensive areas. The growing prices in turn make homeowners vote for stricter regulation, which raises prices even more and leads to stronger sorting and larger wage differences.

This amplification effect of endogenous regulation choices turns out to be sizable. Using the Wharton index of regulation (Gyourko, Saiz and Summers, 2008), and observations on local housing and labor markets, and workers' mobility, I calibrate the model to the U.S. Then I compare the benchmark model economy in 2007 to a counterfactual 2007 economy in which regulation is at the level of 1980, imputed using the model. I find that the rise in regulation accounts for 23% of the increase in wage dispersion and 85% of the growth in house price dispersion across metro areas between 1980 and 2007. Moreover, the increase in regulation led to slower productivity growth: had regulation remained at the level of 1980 in each city, aggregate productivity would be 2% higher in 2007.

These adverse effects arise because regulation is determined locally and residents in each city do not internalize the consequences of their choices for the rest of the economy. That is, each location imposes an externality on all other locations. This implies that there might be a policy that reduces the externalities by lowering incentives of local governments to restrict supply. I quantitatively evaluate a federal redistribution scheme that taxes highly regulated places and provides transfers to the lightly regulated ones. I find that such could raise GDP by 1.5%, reduce average house prices by 25%, and lower wage and house price differences across locations.

In "**Opportunity to Move: Macroeconomic Effects of Relocation Subsidies**," I turn my attention to barriers that constrain geographic mobility of workers. Job opportunities differ tremendously across local labor markets in the U.S. As a result, there is a large variation in unemployment rates across locations. Given that moving involves substantial costs, both monetary and non-monetary, and is impeded by information frictions, some unemployed workers are stuck in places where suitable jobs are scarce. At the same time, the unemployment insurance system in the U.S. does not provide incentives to look for jobs outside local labor markets.

In this paper I introduce relocation subsidies, first proposed by Moretti (2012), as a supplement to conventional unemployment benefits, and study their effects on unemployment, output and welfare. To this end, I build a job search model with heterogeneous workers and multiple locations, in which migration is impeded by moving expenses, cross-location search frictions, borrowing constraints, and utility costs. I calibrate the model to the U.S. economy, and then introduce a subsidy that reimburses a part of the moving expenses to the unemployed and is financed by labor income taxes.

I find that during 2009-2011, a period of high unemployment in the aftermath of the Great Recession, a relocation subsidy that pays half of the moving expenses would lower unemployment rate by 0.36 percentage points (or 4.8%) and increase output by nearly 1%. Most importantly, these subsidies cost nothing to the taxpayer: the additional spending on the subsidies is offset by the reduction in spending on unemployment benefits. On the other hand, the policy does not seem to produce a positive welfare effect. The subsidies attract workers toward more productive places, which leads to higher housing prices there.

Managerial Capital and Aggregate Productivity

While the research I described above focuses on differences in local economies within a country, in "**Managers and Productivity Differences**" we, jointly with Nezih Guner (CEMFI) and Gustavo Ventura (Arizona State University), investigate the determinants of productivity differences across countries. We build upon the recent literature that demonstrates that cross-country differences in the average quality of management at the firm level feed into aggregate productivity differences (Bloom and Van Reenen, 2011). We go further and propose an explanation why the average quality of managers differs across countries in the first place.

First we document that for a group of high-income countries earnings of managers tend to grow much faster over the life cycle than earnings of individuals with a non-managerial job. Moreover, the life-cycle growth of earnings of managers relative to non managers is positively correlated with a country's productivity (measured as output per worker). We interpret this evidence through the lens of an equilibrium life-cycle, span-of-control model in which managers invest in their skills. We parameterize this model with U.S. observations on managerial earnings, the size distribution of plants and macroeconomic aggregates.

Then we quantify the relative importance of exogenous productivity differences and the size-dependent distortions, emphasized in the misallocation literature, for productivity differences across countries in our sample. Our findings indicate that such distortions are critical to generate the observed variation in the growth of relative managerial earnings across countries. We find that distortions that halve the growth of the relative earnings (a move from the U.S. to Italy in our data), lead to a 27% fall in managerial quality and a 7% reduction in output – more than a half of the observed gap between the U.S. and Italy. Finally, we calculate that on average the distortions account for 42% of the cross-country variation in the productivity gap with the U.S.

Work in Progress and Future Research

In the nearest future I plan to continue working on understanding how, on the one hand, economic geography is shaped by macroeconomic conditions and how, on the other hand, aggregate outcomes depend on the workings of local economies.

In particular, there is one important pattern I believe we should understand better. The evolution of economic geography of the U.S. (and some other developed countries) since the 1980s exhibits a broad pattern of divergence: differences in wages and housing prices across locations are becoming larger, while skilled workers are increasingly sorting into a selected set of metro areas. However, in the decades before the 1980s the opposite was happening: wages were converging and skilled workers tended to locate in initially "unskilled" places, making the skill supply more balanced across space. A few studies provided an explanation for the wage convergence before the 1980s (Caselli and Coleman, 2001), and several papers investigated the wage and housing price divergence and the skill sorting since the 1980s

(Moretti, 2004; Berry and Glaeser, 2005; Van Nieuwerburgh and Weill, 2010; Diamond, 2016). Yet, in order to learn more about the origins of the existing economic differences across cities, we must understand what caused the reversal around the 1980s.

In "**Structural Transformation, Skill Sorting and Income Inequality**," I argue that the structural transformation from manufacturing to services can provide an explanation for the initial convergence and the subsequent divergence. I propose a framework with service and manufacturing sectors in which local productivity in the (high-skilled) service sector depends on the supply of skilled labor via an agglomeration externality. From 1950 to 1980, when the service sector is small and skilled labor is scarce, agglomeration externalities are relatively unimportant. As a result, cities with low exogenous productivity in services catch up with the high-productivity cities, bringing convergence of college shares. But between 1980 and 2010, when the service sector becomes large and the supply of skilled labor grows, local knowledge spillovers become important and attract skilled labor to cities where it is already abundant. While the qualitative predictions of the model are consistent with the empirical evidence on the evolution of wages, housing prices and skill supply, its quantitative power has yet to be evaluated.

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