Statement of Research

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I am an economist interested in understanding labor mobility, with a focus on local labor markets and the spatial equilibrium. My research can be inscribed in the broader fields of labor economics, urban economics, and international trade. My research is predominantly empirical, however, I often use economic models to either guide my empirical research or to structurally quantify the importance of my main findings and to provide policy-relevant counterfactuals.

I. Labor mobility and the spatial equilibrium

A. *The effects of immigration on the labor market*

A central question in the immigration literature is the extent to which immigration affects labor market outcomes in host economies. The literature seems to be divided between papers that find that immigration has negligible effects and others that document substantially larger ones, at least for particular groups of workers.

In "Immigration and Wage Dynamics: Evidence from the Mexican Peso Crisis" (published at the ***Journal of Political Economy***) I argue that the disagreement in the literature comes from a lack of understanding of the wage dynamics that follow immigrant shocks. In this paper, I study how US local labor markets absorbed Mexican immigration over the 1990s.

To do so, I start by documenting the short-run effects of a large and unexpected inflow of low-skilled immigrants to the US. In December 1994, Mexico entered into a large and unexpected economic recession, usually referred as the Mexican Peso or Tequila crisis. In the paper, I document that this crisis led many more Mexicans than usual to emigrate to the United States. I use this unexpectedly large inflow of Mexican immigrants to study the effects of immigration in the short-run. By comparing high- to low-immigrant locations, I document large wage declines for low-skilled native workers: a 10 percent immigrant induced labor supply shock is estimated to decrease native low-skilled wages by around 7 to 10 percent on impact. The labor market outcomes of high-skilled workers, if anything, improved.

At the same time, I document a substantial internal migration response following the unexpectedly large arrival of Mexican workers. For each immigrant arriving to a local labor market in 1995, around .7 workers had already left by 1996. This helped dissipate the shock across locations. By 1999, wage effects across locations were small and comparable to what has been documented in prior literature.

In the second part of the paper, I use this short-run results to estimate a dynamic spatial equilibrium model. In the model, local labor markets are well characterized by a production function that combines high- and low-skilled labor. Workers of different skills compete in the labor market. Workers also decide whether to rent or own a housing unit. Each worker decides where to live based on the indirect utility obtained in each location. Indirect utility depends on amenity levels, real wages, and the future discounted value of living in each location. The model, estimated on short-run moments, can match well the dynamics in the labor market.

I then use the model to study the role of internal migration in dissipating local shocks, the effects of local policies that restrict immigration into one location, and the importance of housing markets. In the paper, more broadly, I also document how Mexican immigration affected housing markets, since

Mexican immigrants are both a source of demand for housing, but also help to decrease housing market prices as many of these immigrants entered the construction sector and lowered production costs.

The paper argues that perhaps rather than trying to summarize the effects of immigration on the host economy with one number like by how much wages change given an immigrant induced labor supply shock, the effect of immigration on local labor markets crucially depends on the time horizon. In the short-run, effects may be large, but they also dissipate quite rapidly. The paper documents that the only lasting consequences may be on low-skilled workers who enter the labor market in unexpectedly high immigration years.

The way in which local labor markets absorbed Mexican immigration during the 1990s is also observed in other episodes. In "Local Adjustment to Immigrant-Driven Labor Supply Shocks" (published at the *Journal of Human Capital*) I show that I obtain very similar evidence on both wage effects and internal migration with the unexpectedly large inflow of Cuban migrants following the Mariel Boatlift. In this paper, I document a similar wage decline and recovery, and similar patterns of internal migration during the 1980s. I use the variation generated by the Mariel shock to estimate a small open city model. The fact that in the model I assume that Miami is a small city (relative to the US) means that wages recover when there is a shock. Indeed, in the data wages did not increase less in Miami than in other cities between 1980 and 1990.

The model in the paper allows wages to recover through two mechanisms. One, if there is internal migration (or more generally labor supply responses) then the Mariel shock is bound to dissipate across space. The amount of internal migration is observable by comparing the share of low-skilled people in Miami in 1980 to that of 1990 relative to other cities. Two, the model allows for local technologies and other labor demand factors to adapt to the inflow of immigrants. The residual wage recovery that cannot be explained by internal migration is assigned to this. The paper documents that these two channels are equally important in explaining the wage recovery.

There are a number of papers in the literature that use "natural" experiments to evaluate the effect of immigration. Oftentimes, the researcher who analyses a given natural experiment, i.e. an exogenously driven increase in the supply of immigrants, does it in the way that (s)he finds more convenient or interesting. As a result, there is a wide range of estimates in the literature coming from "natural" experiments. Oftentimes, though, it is hard to compare estimates from different papers. Perhaps the biggest contribution of the paper "The Labor Market Consequences of Refugee Supply Shocks" (published at *Economic Policy*, joint with G. Borjas) is to analyze four natural experiments that were studied in landmark studies using the exact same data source (Census data from Ipums) and the exact same code (posted on my website). This allowed us to draw some general conclusions. It seems that in the short-run, immigrant shocks have negative consequences for natives that are similar to immigrants in terms of skills and positive ones for natives with different skills. This is so, irrespective of whether the immigrant-driven shock is mainly a low-, middle-, or high-skilled labor supply shock.

While perhaps not so well studied in the literature, one of the most important recent phenomena associated to immigration is the large presence of undocumented immigrants in many countries. By many accounts the US leads the ranking, with an estimated 11 million undocumented immigrants. The US is not alone however. There were close to one million undocumented immigrants in Spain by the year 2004. In "Understanding the Effects of Granting Work Permits to Undocumented Immigrants" (CEPR DP 12726, joint with J. Vázquez-Grenno and F. Elias) we study the unexpected legalization of a large fraction of the undocumented immigrants in Spain. Only three days before the general election date, Madrid suffered the largest terrorist attack in Spanish history. The mishandling of the three days that lead to the election supposed the unexpected victory of Zapatero.

The newly elected government soon passed the largest amnesty in Spain ever, something that likely would not have happened had the Popular Party won that election as every poll predicted.

In the paper, we use this episode to investigate the effect of amnesty programs for the overall economy. First, we document that, contrary to the talks of the time, the amnesty program did not lead to magnet effects. In other words, we do not see a disproportionate entry of immigrants from countries of origin eligible for the amnesty. Second, we document that newly legalized immigrant workers started to move to jobs and regions in Spain where they had experienced large entry barriers in the past. Third, we document large fiscal gains for local economies and a deterioration of labor market conditions of native low-skilled workers in the informal economy.

B. *The role of labor mobility*

In most of the papers where I have studied international immigration one theme stands out. The extent to which immigrant-driven shocks are long-lasting depends crucially on labor mobility. Hence, an important question for our understanding of local economies seems to be how local shocks induce or are absorbed thanks to labor mobility.

In the paper "Economic Shocks and Internal Migration" (under revision at the **Review of Economics and Statistics**) I investigate to what extend internal migration helped to dissipate the intensity with which the Great Recession hit different local economies. I document that most of the internal migration response in that period came from reduced in-migration into the most affected metropolitan areas rather than increased out-migration. Moreover, I document that this is a common feature of internal migration in the US. I use this fact to estimate a dynamic spatial equilibrium model that allows me to understand to what extend internal migration provides insurance against local shocks.

Perhaps the most important contribution in that paper is the modeling of internal migration. One of the key features about internal mobility is that the home location needs to have a special role. Otherwise, it is difficult to rationalize the empirical fact that many people prefer to stay in the location where they live rather than choosing any other of the available ones. The typical way in which the literature makes the home location special is by introducing fixed costs of moving. While realistic, it is very difficult to estimate general equilibrium models with many locations and fixed costs of moving, mainly because of the large choice set of considering all the future potential moves while keeping track of these fixed costs of mobility. In my paper, I deal with this issue by introducing a nested structure in the mobility decision. The upper nest essentially captures the out-migration rate. In that nest, the comparison is between the value of staying versus the value of looking for an alternative location. The lower nest captures the in-migration rate, i.e. which of the potential final destinations is actually chosen. This flexible structure matches the data well and is particularly simple to work with, even with a large number of locations.

Policy changes also likely change the value of living in a location, at least for particular groups of workers. In "Minimum Wages and Spatial Equilibrium: Theory and Evidence" (published at the **Journal of Labor Economics**) I investigate the extent to which this is true by using changes in minimum wages. Minimum wages increase the wage of mainly low-skilled workers. They may also generate some disemployment effects. A priori it is not clear which of these two forces dominates. In a simplified way, the value of living in a location is essentially the expected income that can be obtained, which in turn is the probability of finding a job times the wage in the job. In spatial equilibrium models, in turn, the value of living in a location determines the mobility response to policy changes. Hence, depending on the local labor demand elasticity, i.e. how much employment reacts to wage changes, we should see either workers moving towards or away from states where minimum wages increase. This is precisely what I investigate in the paper. The main finding in this

paper is that the in-migration rate of low skilled workers decreases in states that increase the minimum wage.

Related to this paper, in "Local Public Goods and the Spatial Distribution of Economic Activity", joint with A. Guillouzouic and E. Henry, we investigate how fixed pay in the public sector shapes the spatial equilibrium. Very much like a fixed minimum wage, public sector workers are paid the same, or at least very similar, nominal wages across locations irrespective of the cost of living. In this paper, we argue that another key characteristic of the public sector is its dominant position in the labor market. In most local labor markets, the public sector is, in fact, the largest employer. In this context, we argue that fix pay across locations limits public administration's monopsony power, while distorting economic activity towards the most productive locations. The paper sheds light on how labor market regulations of the public sector affect the economy.

Mobility can occur across sectors within a region rather than across regions. This is what we document in the paper "Industrialization without Innovation" (under revision at the **Review of Economic Studies**, joint paper with P. Bustos, J.M. Castro-Vincenzi, and J. Ponticelli). The starting point for that paper is to document that when developing countries import agricultural technologies from developed ones, these new technologies, which are usually labor saving, typically favor the productivity of relatively high-skilled workers in agriculture. Hence, the workers who leave agriculture as a result of agricultural technology adoption are often times relatively low-skilled.

We document that this is the case with the adoption of Genetically Engineered soy beans in Brazil. For identification we exploit differences in soil suitability for the new seed across regions. We show that these low-skilled workers that left agriculture found accommodation in manufacturing. Within manufacturing, these workers contributed to making low-skill intensive, low R&D industries larger, which we argue and provide evidence for, lowered manufacturing productivity growth.

C. *Immigration and price indexes*

Something that almost defines what being an immigrant means is that immigrants spend a considerable fraction of their income in their countries of origin. Many send remittances, plan on returning home, or spend an important fraction of their time in their country of origin. We argue in "Immigration and Spatial Equilibrium: the Role of Expenditures in the Country of Origin" (under revision at the **American Economic Review**, joint with C. Albert) that this has a profound influence on the types of locations (within the host economy) where immigrants decide to locate.

In the first part of the paper, we document a number of empirical regularities. First, we show that immigrants concentrate much more than natives in expensive locations, even when conditioning on narrowly defined education or occupation groups. Second, we show that the gap in wages between natives and immigrants is larger in these expensive cities. We argue that this may reflect the fact that wages in part reflect the value of living in a location. Third, we document systematic heterogeneity across different immigrant groups. If there is some degree of substitutability between consuming locally and in the country of origin, we should observe that immigrants from low price index countries of origin concentrate more, and their wages are relatively lower, in large and expensive cities. We provide ample evidence that this is the case using plausibly exogenous variation from exchange rates and housing supply elasticity estimates.

In the second part of the paper, we estimate a spatial equilibrium model where natives and immigrants are identical except for the extra good in the utility function of immigrants that represents consumption at origin. The identification of the model comes from the relative distribution of immigrants from different countries of origin across metropolitan areas and their

wages. The model suggests that the patterns in the labor market data are consistent with immigrants spending, on average, around 20 percent of their income in their countries of origin. The model-based estimates also suggests that the elasticity of substitution between consuming locally and in the country of origin is around 1.6. The model matches well non-targeted consumption moments.

We use the model to study how an immigrant-induced increase in the overall population changes the distribution of economic activity compared to a native-induced one. We show how immigrant locations choices "move" economic activity towards the most productive cities. In turn, this induces some general equilibrium gains, which solve, in part, the misallocation of labor across US cities identified in the literature.

In previous literature, there are essentially two theories on how immigrants decide to locate within host economies. On the one hand, it is well known that immigrants tend to go where there is demand for labor. This is the main endogeneity concern when evaluating the labor market effects of immigration. On the other hand, many authors have argued that immigrants tend to move to places where previous immigrants settled. This has been used to build what is known as the networks instrument, one of the most widely used IVs in the literature. In "The Regional Impact of Economic Shocks: Why Immigration is Different than Import Competition" (mimeo, joint with C. Albert) we construct a new IV based on immigrant location choices based on the theory developed in "Immigration and Spatial Equilibrium: the Role of Expenditures in the Country of Origin". In particular, we use exchange rate fluctuations between the US and the many sending countries and its interaction with the housing supply elasticity of each metropolitan area to predict how many immigrants will move into each location during the decade. We show that this new instrument has more predictive power on immigrant location patterns than the traditional networks IV.

Using this new IV we revisit the evidence on the effect of immigration on wage changes, employment rates, and internal reallocation. We find, like in previous literature, that immigration did not lead to substantial decreases in wages or employment rates. Instead, we show that immigration lead to a substantial reallocation of natives away from immigrant shocked locations. All of this reallocation comes from metropolitan areas with housing supply elasticities below one (i.e. with constrained housing markets). This suggests a very important and unexplored interaction between immigration and housing markets. We argue that the reason why natives reallocate so strongly in response to immigrant shocks is related to the fact that it is not very costly to move from a high cost of living to a low cost of living city, while the movement in the opposite direction may be more costly. We contrast that to other types of regional shocks, like import competition from China, that is not systematically related to the metropolitan area housing supply elasticity. Import competition from China, unlike immigration shocks, leads to persistent labor market effects and low internal migration responses.

D. *Consumption and price indexes*

In some sense, one of the fundamental points we make in the paper "Immigration and Spatial Equilibrium: the Role of Expenditures in the Country of Origin" is that local price indexes depend on who you are. This insight is very much at the core of "How Segregated is Urban Consumption?" (published at the ***Journal of Political Economy***, joint with D. Davis, J. Dingel, and E. Morales).

In this paper, we gathered data from Yelp, a website where users post reviews about restaurants. By looking at the text of the reviews of all the restaurants in New York City, we obtained information on the home and work location of a sample of Yelp users and the restaurants they reviewed. We also coded some of the users characteristics, like race and gender, as well as the characteristics of the neighborhoods where they lived.

With these data we estimate a model of restaurant choice. Taking the home and work locations, we estimate how much distance and what we labeled as "social" frictions shape the patterns of visits within New York City. With the estimated model we compute measures of consumption segregation, i.e. how do consumption patterns in New York of people of different races differs. A priori, the fact that people do move inside cities and given the well documented residential segregation in any major US city, it could be that restaurant consumption is less segregated than residential choices. That would be necessarily the case if consumers randomly visited different parts of the city, the more so the lower the deterrent effect of distance is. However, we document that consumers systematically visit restaurants in neighborhoods that look like their own. When taking the two forces together, we show that consumption is half as segregated as residential locations. We also use the estimated model to explore how the patterns of consumption segregation change with transport infrastructures and gentrification.

II. Works by the author

1. "Local Adjustment to Immigrant-Driven Labor Supply Shocks", *Journal of Human Capital*. Volume 15. Issue 1. Spring 2021.

2. "Immigration and Wage Dynamics: Evidence from the Mexican Peso Crisis". *Journal of Political Economy*, *Volume 128, Issue 8, August 2020.*

3. "How Segregated is Urban Consumption?" with Donald R. Davis, Jonathan I. Dingel, and Eduardo Morales. *Journal of Political Economy*, Volume 127, no. 4, August 2019, Pages 1684-1738: link

4. "Minimum Wages and Spatial Equilibrium: Theory and Evidence". *Journal of Labor Economics*, Volume 37, Issue 3, July 2019, Pages 853-904

5. "The Labor Market Consequences of Refugee Supply Shocks", with George J. Borjas. *Economic Policy*, Volume 32, Issue 91, 1 July 2017, Pages 361–413

6. "Immigration and Spatial Equilibrium: the Role of Expenditures in the Country of Origin", with Christoph Albert. Under revision at the *American Economic Review*. CEPR Discussion Paper 12842.

7. "Industrialization without Innovation", with Paula Bustos, Juan Manuel Castro Vincenzi, and Jacopo Ponticelli. Under revision at the *Review of Economic Studies*. CEPR Discussion Paper 13379.

8. "Economic Shocks and Internal Migration". Under revision at the *Review of Economics and Statistics*. CEPR Discusion Paper 12977.

9. "Understanding the Effects of Granting Work Permits to Undocumented Immigrants", with Javier Vázquez-Grenno and Ferran Elias. CEPR Discussion Paper 12726.

10. "The Regional Impact of Economic Shocks: Why Immigration is Different than Import Competition", joint with Christoph Albert.

11. "Local Public Goods and the Spatial Distribution of Economic Activity", with Arthur Guillouzouic and Emeric.

III. Impact

Google Scholar: more than 620 citations (June 2021).

IV. Editorial Service

2021 – Member of the Editorial Board at the *Journal of Urban Economics*
2021 – Associate Editor (equivalent to co-editor) at the *Journal of Human Capital*
2021 – Associate Editor at the *Journal of the Spanish Economic Association - SERIEs*
2019 – 2021 Panel member of *Economic Policy*