

Research Statement

I obtained my Ph.D. at University of Barcelona and my interest fields are macroeconomics, development and growth. Macroeconomics focuses on the performance of economies, on changes in economic output, inflation, interest and foreign exchange rates, and the balance of payments. Poverty reduction, social equity, and sustainable growth are only possible with sound monetary and fiscal policies. In my research, I use survey tools and large panel data to show empirical evidence, and theoretical model, as general equilibrium model, to explore different areas of development and growth for formulation and implementation of different policies. This research statement is organized as follows: The second section discusses my work in the area of development economics, with a focus on my dissertation papers. The third and the fourth section discusses my work in progress and my future research in the respective areas.

My dissertation

My PhD dissertation explores three characteristics of developing countries: structural change, fertility, and informality, and their implications.

In the first chapter, co-authored with Xavier Raurich, we explore how remittances affect the sectoral composition of developing countries. Empirical evidence shows that employment in the service sector has risen while employment in the agriculture sector has decreased in the last 24 years. We argue that remittances affect the sectoral composition through an income effect, increasing households' income and consumption demand, and shifting employment towards the service sector when the service sector has a more significant income elasticity. To this end, we calibrate a two-sector growth model with non-homothetic preferences and perform two counterfactual exercises to address the importance of remittances. The result of the first exercise suggests that, on average, a receipt-remittances economy allocates almost 5.17% of total employment into the services sector due to remittances. In the second exercise, we study how important are remittance to explain the change in the sectoral employment composition for El Salvador, Guatemala, and Honduras, characterized by a high level of money flow. We found that remittance contributes to explaining between 5% and 27% of the total variation of the employment share.

In the second chapter, I develop a fertility choice model to analyze how migration affects fertility in developing countries. In this model, migration decreases the fertility rate through two mechanisms. When migration occurs, the household's income rises due to remittances sent to home. This remittance implies a rise in education expenditure for children. At the same time, the second mechanism is a general equilibrium effect due to migration. When people migrate, the local labor supply decrease while the local salary increases. The individuals who stay have a higher salary, but less time to take care of the children. This raises the opportunity cost to have children, which induces a reduction in fertility. This increase in the relative cost of children implies a decline in fertility. I calibrate the model to replicate the fertility pattern for a group of developing countries. Then I perform two counterfactual exercises to assess the importance of migration. The results indicate that the migration process is a complementary explanation for the demographic transition in developing countries.

In the third chapter, co-authored with E.Cruz, we study informality from the demand perspective. Taking into consideration the case of the Mexican economy, we explore how quality explains the increase in formal employment. We argue that the increasing consumer quality demand for goods and services is a driver for the change in the sectoral composition. To this end, we propose a dual growth model consisting of two broad

sectors, goods, and services, which are composed by a formal and an informal industry. We assume that the formal and informal industries produce goods and services, and just the formal firms produce goods or services that embody quality. Quality increases exogenous along the development process. The increasing demand for formal goods and services induces the reallocation of labor from informal to formal firms. Our numerical findings suggest that quality is an important mechanism that contributes to explaining the decrease in the size of the informal sector and the change in the sectoral composition of the Mexican economy.

Future extensions of the thesis papers

The main contributions and the future extension of the papers are the following. The first chapter reports the importance of remittances in driving employment from agriculture to services. Future work will investigate how international remittances can affect the TFP and the economic development of the countries of Latin America. In the second chapter, since we showed the negative relationship between fertility and migration, a future extension will be using microdata, in particular, time-use surveys and migration surveys, to understand the dynamics of the female labor markets of the migrant countries. In this sense, when the labor demand generally expands, we could analyze which sector of economic activity women incorporate. Lastly, in the third chapter, we show that quality is a driver for the change in the sectoral composition. A possible work could be expanding the counterfactual exercise to a cross-country level for developing countries, using different micro survey data.

Future papers

In the future I would like to explore the relationship between the patent and the structural change. For this purpose I present to facts. The first fact that we observe, is that in developing countries, as GDP grows, the employment share in agriculture and manufacturing decrease, while increases in service sector. Then to present the second fact we introduce the OECD classification of manufacturing industries into categories based on R&D intensities: high-technology industries, Medium-high and Medium low-technology industries and Low-technology industries. The second fact we observe is that low manufacturing share decreases and medium-high manufacturing share increases as innovation (measured as patents) increases.

I argue that the increase of the employment share in the service sector is driven by the investment innovation of R&D in the manufacturing sector. The intuition is the following: as firms increases in R&D in high-tech manufacturing sector, the number of patents raises and the demand for high-skilled workers increases (high skilled workers are complementary to investment in R&D). This implies that the demand for low-skilled workers decreases. At the same time, firms in low-manufacturing sector require fewer low-skilled workers because innovations, generated by the high-tech firms, substitutes low-skilled workers. As a consequence, this drives the low skill workers into the service sector. The aim of this paper will be: to build a general equilibrium model to explain how patents modify the sectoral composition and, to quantify the effect of the patents.

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