Projeto # 7
The effects of international immigration in the early 20th century on the long run development of the Brazilian economy

Lykke Andersen, INESAD, La Paz, Bolivia

The project will exploit the Brazilian worries over increased foreign ownership of land and capital, which led the 1920 Census to list agricultural and industrial assets by ownership nationality thus providing an invaluable data source to test the immigrants contribution to long run growth. In addition to the effects of immigrants on the labor market and human capital, the project will evaluate their contribution to physical capital, technology and entrepreneurial capacity both in the agricultural and industrial sector. These issues were extremely important in the backward Brazilian context of the early 20th century and they clearly lack empirical research.

Objective and hypothesis

The objective of the study is to examine the effects of international immigrants on the long run development of the Brazilian economy using data from the first part of the 20th century, just after the main immigration boom in Brazil had ended.

The hypothesis is that immigrants made significant contribution to capital (both human and physical) accumulation, technology, and entrepreneurial capacity and thus contribute differently to long-run growth and development than do native people.

Existing empirical literature

While there is a large body of literature investigating the impact of immigrants on labor market variables such as human capital, wages and unemployment, the empirical literature investigating the long run growth impact of immigrants though physical capital, technology and entrepreneurial capacity is extremely limited.

O'Rourke & Williams (1999 and references therein) are classical studies of international immigration in the late 19th century. Their results show that mass migration, not trade, played the critical globalization role in the late nineteenth century." Accounting for at least 70% of the productivity and real wage convergence, it was the central force of this process, whereas human capital accumulation and technological catch-up played minor roles. In addition, it had a fundamental impact on inequality with a globalization backlash in the restrictive migrations policies after the First World War.

Barro and Sala-i-Martin (1992) also include migration variables in regional convergence regressions for United States and Japan, and find that higher net migration rates are associated with higher growth, even when using instrumental variables to avoid reverse causality.

Dolado, Goria and Ichino (1993) show that the growth impacts of immigrants into OECD countries depend on their human capital endowments. Their empirical results show a slightly negative impact on steady state income because of the slighly lower human capital of immigrants. Shamsuddin & DeVoretz (1999), on the other hand, show that foreign born Canadian residents tend to accumulate more capital, and thus potentially contribute more to long run growth than Canadian-born residents.

Friedberg & Hunt (1995) provides a survey of labor market and growth impacts of immigration, but find very little empirical literature on the growth impacts. DeVoretz (2004) provides a more recent survey, and manages to include some empirical research from Canada, United States, Sweden and Germany, but the paper addresses growth impacts only indirectly.

Methodology and data

The idea is to investigate the contribution of international immigrants to capital stocks (both physical and human) in a cross-section of Brazilian municipalities in the year 1920 and then to estimate the impact of immigrants on subsequent growth (1920-1940) in each of these municipalities.

The project will use census data from 1920, which is the only year that capital stocks were differentiated by ownership nationality. Data exists for about 1330 municipalities and the main variables available are output (value and quantity), capital stocks, establishment areas, education levels, among many others.

The basic methodology would be to estimate cross-municipality growth equations (or production functions). Thus, we model economic growth and/or productivity growth as a function of capital stock, total labor supply, and land area, plus additional variables measuring extent of immigrants' share of capital and labor. Such variables would be a) percent of total establishment area owned by international immigrants, b) percent of working age population that are immigrants, and c) percent of capital stock owned by immigrants. Interaction terms would measure the extent to which productivity of, say, capital is a function of immigrant ownership.

If there is a significant effect of immigrants in the basic regression, additional investigation would have to determine through which mechanisms this works. Do immigrants have higher levels of education? Do they accumulate more physical capital (land, cattle, machinery)? Do they have a higher propensity to become entrepreneurs? Do immigrants serve as substitutes for native labor or do they complement it? Are there differences between agriculture and industry?

All the data to answer these questions are available in printed form in the tabulations of the 1920 census.

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