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# Essays on International Migration: Dissertation Summary

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International migration happens because individuals want to increase their personal welfare by moving to a new country. In addition, it has effects on the welfare of those who decide not to migrate and remain in their origin countries. This dissertation looks at the overall topic of international migration from three very different angles: 1) who the migrants are or the study of the productive characteristics of migrating individuals with respect to nonmigrants, 2) what the long run effect of migration is and specifically whether it can contribute to Social Security sustainability, and 3) why countries sign bilateral migration agreements to try to regulate migration flows.

In Chapter 1, “New Evidence on Emigrant Selection,” I examine the extent to which Mexican emigrants to the United States are negatively selected; that is, they have lower skills than individuals who remain in Mexico. Previous studies have been limited by the lack of nationally representative longitudinal data. This one uses a newly available household survey, which identifies emigrants before they leave and allows a direct comparison to nonmigrants. I find that, on average, U.S.-bound Mexican emigrants from 2000 to 2004 earn a lower wage and have fewer schooling years than individuals who remain in Mexico, evidence of negative selection. This supports the original hypothesis of Borjas (1987) and argues against recent findings, notably those of Chiquiar and Hanson (2005). The discrepancy with the latter is primarily due to an undercount of unskilled migrants in U.S. sources and secondarily to the omission of unobservables in their methodology.

Studying emigrant selection is relevant because it affects welfare and its distribution both in immigrant-receiving and in emigrant-sending countries. Thus, economists have long tried to explain how emigrants self-select. On the theory side, Borjas (1987) stated that most immigrants should be low skilled when the reward to skills or earnings inequality in their home country is higher than the reward to skill or earnings inequality in the receiving country. This is the case between Mexico and the United States (2006) so that negative selection, meaning that emigrants are on average less skilled or productive than those who do not migrate, should characterize migration flows between the two countries. However, Chiquiar and Hanson (2005) found that Mexican immigrants in the United States originated in the medium-high range of the Mexican wage distribution, which is interpreted as evidence of positive selection. Their data on Mexican immigrants came mainly from the U.S. census, which is known to suffer from undercounting immigrants, especially if they are undocumented. Other studies finding positive selection were mainly based on the Mexican Migration Project, which

provides detailed information about a particular region in Mexico but is not representative of the whole country.

This chapter addresses these data problems by using the Encuesta Nacional de Empleo Trimestral (ENET) and the Quarterly National Labor Survey (INEGI). This household survey is representative at a national level and it follows households for five quarters so that it allows recovering the wage income and other characteristics (like education) of Mexican emigrants (both documented and undocumented) in the previous quarter to that in which they decided to leave the country. The wage distribution of Mexican emigrants is shifted to the left of the wage distribution of Mexican nonmigrants for both men and women. As long as the wage is a valid measure of the marginal product of labor, this implies that Mexican emigrants to the United States are on average less productive than those who remain at home. In conclusion, the main result of this chapter is the existence of negative selection in the emigration flows from Mexico to the United States for the period 2000–2004.

The procedure to test the selectivity of emigrants from Mexico to the United States is similar to Chiquiar and Hanson’s (2005) methodology. They compare the 1990 and 2000 distribution of wages from individuals in the Mexican census with the counterfactual wage densities Mexican immigrants to the United States would obtain were they to return to Mexico according to their characteristics in the corresponding U.S. census. Chiquiar and Hanson follow the DiNardo et al. (1996) approach to build counterfactual wage densities and find they lie to the right of the actual resident wage distribution, interpreting this as evidence of positive to intermediate selection in terms of observable skills reflected in the wage. The ENET does not require the construction of counterfactual wage densities since actual wages of future emigrants can be observed directly. The only exercise is to estimate wage densities for migrants and nonmigrants based on the direct observation of their wages at the same period and to compare them. Contrary to Chiquiar and Hanson, I find evidence of negative selection in terms of skills (both observable and unobservable) reflected in the wage levels. The comparison of the schooling distributions of migrants and nonmigrants also displays negative selection.

The discrepancy between this chapter and Chiquiar and Hanson could be related to three factors. First, their results reflect selection in the stock of migrants in the United States, obtained from the U.S. census, whereas the information in the ENET corresponds to selection on the flow of migrants. Second, their methodology cannot take potentially relevant unobservable characteristics into consideration in the estimation of counterfactual wages. Third, U.S. sources are known to undercount Mexican immigrants. All three explanations can be explored with the ENET data.

In order to address the first point, stock versus flows, whenever I replicate Chiquiar and Hanson’s result, I use information only on recently arrived Mexican immigrants.

Recently arrived migrants are those who have only been in the United States for less than a year, the closest possible concept to measuring flows in U.S. sources. To investigate which of the two other factors is responsible for the differences in results, I first ignore the information on emigrant wages from the ENET and use only the emigrants' observable characteristics to counterfactually estimate their wage levels. I find that negative selection still characterizes the emigration flows, although the degree of selection is lower than the one obtained when actual wages are employed. This is evidence that there is negative selection on both observables and unobservables. It follows that the methodology biases the result toward finding positive selection, although not enough to overturn the negative selection outcome. I then ignore all the information on emigrants available in the ENET and use data on recently arrived Mexican immigrants from U.S. sources instead. In this case, I find that the results are consistent with those of Chiquiar and Hanson (2005), and positive selection is obtained. These results suggest that the undercount of low-skilled immigrants in U.S. data sources is the main reason why this chapter finds negative selection whereas Chiquiar and Hanson find positive selection.

In the case of the other group of studies finding positive emigrant selection from Mexico to the United States, their main drawback is that the data sources used are either incomplete (the U.S. census undercounts Mexican undocumented immigrants and the Mexican census does not record the education level of emigrants) or nonrepresentative at a national level (MMP), which forced researchers to impose strong assumptions on the data. For example, I show that using the MMP as representative of Mexico is misleading since the ENET shows that rural Mexico is actually characterized by positive selection and the general negative selection result is driven by urban Mexico. In fact, it can be said that this chapter does not contradict any previous work but rather complements their main inconveniences.

Chapter 2, "Fiscal Sustainability and Public Debt in an Endogenous Growth Model," coauthored with Jean-Pierre Vidal, investigates fiscal sustainability in an overlapping generations economy with endogenous growth coming from human capital formation through educational spending. We assess how budgetary imbalances affect economic dynamics and the outlook for economic growth, thereby providing a rationale for fiscal rules ensuring sustainability. Our results show that the appropriate response of fiscal policy to temporary shocks is not trivial in the absence of fiscal rules. Fiscal rules allow for a timely reaction, thereby avoiding possibly disruptive fiscal adjustment in the future: the more adjustment is delayed, the larger its necessary scale is. We perform a rough calibration of the model to simulate the effects of a demographic shock (change in the population growth rate) under different fiscal policy scenarios. The demographic shock can also be interpreted as a change in the immigration rate so that the model can be used to study the effects

of immigration on key macroeconomic variables in a partial equilibrium setting. It is partial equilibrium in the sense that immigrants do not respond to wage differential but are modelled as an exogenous shock instead.

The tax and transfer system examined in this chapter is fairly rich. Pension benefits are assumed to be paid in a lump-sum manner. Individuals pay a proportional tax on labor income and at the same time they either pay a lump-sum tax or receive a lump-sum transfer. Labor income taxation is characterized by high top marginal tax rates and relatively lower average effective tax rates, reflecting the progressiveness of income taxation. This is well captured in our model by combining a proportional income tax with a lump-sum transfer. In addition to the tax-benefit system, the government finances general public spending, which benefits individuals but does not distort their economic decisions, and issues bonds. As individuals maximize utility and therefore react to fiscal policy, the model provides a suitable framework to inquire about fiscal sustainability.

Overlapping generations' models are suitable theoretical tools to address fiscal sustainability issues. Since the Ricardian equivalence does not apply in these models and debt dynamics are in general unstable, fiscal rules are needed to maintain fiscal sustainability. There are two sources of economic growth in our model: the accumulation of physical capital and the formation of human capital. The accumulation of physical capital stems from individual savings. Endogenous growth results from the formation of human capital, which is assumed to result from parental education and educational spending, financed out of altruism. The human capital part of the model includes another channel through which government debt affects the economy. Not only is physical capital crowded out by government debt, but human capital is as well so that the growth potential of the economy is affected. In other words, not only the steady state level of capital is altered, as it is in existing exogenous growth models, but also the growth rate.

The main findings are the following. First, the existence of steady states is not sufficient to ensure fiscal sustainability. Second, in the presence of multiple steady states, the initial conditions in the economy matter for the long-run equilibrium that will result from economic dynamics. Third, the stability properties of the economy depend on the set of fiscal instruments, that is, on the adopted fiscal rules. Fiscal policy rules are generally needed to ensure the stability of equilibria that are dynamically efficient.

The appropriate response of fiscal policy to exogenous temporary shocks is not trivial in the absence of fiscal rules. If temporary small shocks occur in the neighborhood of a stable steady state, there is no strong case for adjustments to fiscal policy, as the economy can come back to its initial position by itself. However, when temporary shocks occur in the neighborhood of an unstable steady state, which is the standard case in an economy with public debt, they endanger

fiscal sustainability. Without timely reaction to such shocks, ensuring fiscal sustainability would require adjustments, possibly of a disruptive nature, in the future: the more the adjustment is delayed, the larger its necessary scale is. Fiscal rules preserving fiscal sustainability seem more appropriate to deal with small shocks, as they timely maintain the economy on a sustainable path and do not lead to disruptive adjustments.

We illustrate this point by performing a rough simulation in which a baseline version of our model, parameterized to fit the values of economic variables in the pre-enlargement European Union, is exposed to a demographic shock. To be precise, we assume that the projected decrease in population happens in the next 50 years and show how this can lead to unsustainable debt unless a fiscal rule is introduced.

Chapter 3, “The Case for International Cooperation in Migration Policies,” explains how unilateral migration policies impose externalities on other countries. In order to try to internalize these externalities, countries sign bilateral migration agreements. One element of these agreements is the emphasis on enforcing migration policies: immigrant-receiving countries agree to allow more immigrants from their emigrant-sending partner if they cooperate in enforcing their migration policy at the border. I present a simple theoretical model that justifies this behavior by combining a two-country, two-good classical Ricardian model with welfare-maximizing governments. These governments establish migration quotas that need to be enforced at a cost (modeled according to Ethier [1986]). I prove that Nash unilateral migration policies are inefficient whereas both countries can improve welfare by exchanging a more “generous” migration quota or terms of trade advantages for expenditure on enforcement policy. Contrary to what could be expected, this result does not depend on the enforcement technology that both countries employ. The Ricardian assumption is not crucial either and a generalization of the model is introduced.

The World Trade Organization (WTO) is an institution where countries can get together and negotiate mutually beneficial trade agreements. When countries set their tariffs unilaterally, they hurt other countries because they improve their own terms of trade at the expense of others’ terms of trade. This creates a Prisoner’s Dilemma where countries would be better off if they all lowered their tariffs, but in fact they do not have the incentive to do so unilaterally. In order to remove this inefficiency, international cooperation is required and is obtained through the WTO. A key element why international cooperation enhances efficiency is the assumption that freer trade increases world output. This chapter shows that a similar reasoning can be applied to migration policy. Most theoretical models of migration coincide in concluding that the free movement of factors contributes to better allocation of resources at the world level. In most cases, the upper estimate of these efficiency gains is notably superior to the efficiency gains that can be expected from, for example, free trade. The typical explanation about why these immense

efficiency gains are not obtained through international cooperation is that the movement of people has opposing effects on immigrant receiving and emigrant-sending countries. Immigrant-receiving countries tend to ask for lower migration whereas emigrant-sending countries tend to ask for freer migration, at least in terms of low-skill migrants.

However, as of 2004, there were at least 176 bilateral agreements on migration issues. One useful starting point to address the economic justification behind all of these is to incorporate the arguments that are currently given for signing bilateral migration agreements. According to the background paper for the joint IOM/World Bank/WTO Trade and Migration Seminar (2004), the reasons why migrant-receiving countries sign these agreements are combating irregular migration, responding to labor market needs of temporary or permanent nature, and promoting economic links with sending countries. On the other hand, the reasons why sending states agree to sign these bilateral agreements are relieving labor surpluses, protecting the rights of their nationals abroad, and limiting the effects of brain drain by ensuring the return of their nationals.

The models presented in this chapter concentrate on the first point of both sets of objectives, that is, the reason for immigrant-receiving countries to sign an agreement will be the will to combat irregular migration. For some reason, they will consider that additional immigration is welfare-reducing. On the contrary, emigrant sending countries will want to relieve their labor market surplus, that is, they will consider that additional emigration is welfare-improving for them.

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