

Inequality and remittances in MERCOSUR. The case of Paraguay and Uruguay in 2000-2006

Adela Pellegrino
Andrea Vigorito

Abstract

Most papers assessing the economic impact of emigration on origin communities concentrate on the role of remittances. In this study we address the role of emigration on income inequality by jointly considering the impact of emigrant characteristics on the distribution of earnings and the role of remittances, comparing its effects in Paraguay and Uruguay. We chose two small countries that have experienced relevant population outflows in the recent years but with very different profiles. Our analysis is based on retrospective data coming from the 2006 Household Surveys of the two countries. We build counterfactual density functions of earnings based on the observed characteristics of emigrants and adding up remittances, based on the methodology developed by Di Nardo et al (1996) and Chiquiar and Hanson (2002). We further explore the inclusion of labour supply responses and differences in relative wages.

Extended abstract

The purpose of this paper is to assess the impact of emigration on inequality at origin communities, comparing its effects in Paraguay and Uruguay. Most papers assessing the economic impact of emigration on origin communities only concentrate on the role of remittances (World Bank, 2006). We aim at expanding this perspective by including the impact of emigration on inequality.

Our analysis is based on retrospective data coming from the 2006 Household Surveys of Paraguay and Uruguay. We chose Paraguay and Uruguay, as they are two small countries that have experienced relevant population outflows in the recent years but that show very different profiles. While emigration from Paraguay has been concentrated in low skilled workers moving to Argentina and in the last years to Spain [0](#), Uruguayan emigrants show higher skills than the average population and mainly migrated to the US, Italy and Spain (Pellegrino and Vigorito, 2005; Macadar and Pellegrino, 2007).

In the first part of our paper, we present the main characteristics of the countries and their migratory outflows (Section I). After that, we describe the main characteristics of

the data and the methodology used in the study (Section II) and then carry out our counterfactual exercise (Section III). Finally, we gather our final remarks in Section IV. The databases we use are the 2006 household surveys of the two countries in 2006. Both surveys contain a module that gathers information on whether a member of the household emigrated since 2000. Both modules included questions on age, destination country, year of departure and educational attainment of emigrants. In the Uruguayan case, information on labor force status of emigrants, frequency of visits to Uruguay and access to networks at destination countries was also recorded. At the same time, the two surveys record information on reception of remittances.

The Paraguayan survey includes 7,800 households representative of the whole country. The Uruguayan survey that will be used in this study corresponds to the last quarter because the module on international emigration was run during October-December and contains 20,000 households. Recent emigrants are around 800 persons.

In order to carry out our counterfactual exercise, we follow three steps:

- i) we build counterfactual density distributions of earnings based on the characteristics of emigrants.
- ii) we assess the impact of remittances on income inequality
- iii) we calculate the net impact of emigration by considering the two previous steps together (including emigrants and subtracting remittances).

In order to build a counterfactual density distributions of earnings we use two different approaches. In the first one, we only consider the effect of the characteristics of emigrants, leaving aside general equilibrium effects and potential effects of emigration on labor supply and relative wages. Here, we base our exercise on Di Nardo et al (1996) and Chiquiar and Hanson (2002).

The methods developed by these authors allow us to estimate counterfactual kernel density functions based on re-weighting observed densities, considering the characteristics of emigrants and non emigrants. A new income vector is produced that also allows for the calculation of inequality indexes.

The methodology used in this paper relies in getting the 2006 observed earnings distribution and reweight it by a function that includes the observable characteristics of recent emigrants, with the wage structure and labor force participation of 2006.

We depart from the labor earnings distribution for emigrants and non emigrants:

$$g(w) = \int f(w|x)h(x)dx, \quad (1)$$

Where (x) represent population characteristics (sex, age, education, etc.), $f(w|x)$ is the conditional density of earnings and $h(x)$ is the density function of characteristics. The earnings distribution results from the combination of the density of characteristics with the earnings structure (unchanged by assumption). As long as in our case the whole population refers to emigrants and non emigrants, the counterfactual density function is obtained under the 2006 observed labor earnings structure for non emigrants:

$$g_{Tot}^{ne}(w) = \int f^{ne}(w|x)h(x)dx, \quad (2)$$

where $h(x)$ is the density function of characteristics of the whole population. As long as our aim is to decompose the counterfactual distribution as an expression of the observed distribution for non emigrants, we use Bayes rule:

$$h(x) = \frac{h(x|j = ne, D_i = 1) \Pr(j = ne, D_i = 1)}{\Pr(j = ne, D_i = 1|x)}. \quad (3)$$

Substituting (31) en (30) we obtain:

$$g_{Tot}^{ne}(w) = \int f^{ne}(w|x) \frac{h(x|j = ne, D_i = 1) \Pr(j = ne, D_i = 1)}{\Pr(j = ne, D_i = 1|x)} dx. \quad (4)$$

Notice that the counterfactual density function for the whole population equalises the 2006 observed density multiplied by a function θ_{Tot} :

$$g_{Tot}^{ne}(w) = \int \theta_{Tot} f^{ne}(w|x) h(x|j = ne, D_i = 1) dx,$$

$$\theta_{Tot} = \frac{\Pr(j = ne, D_i = 1)}{\Pr(j = ne, D_i = 1|x)}, \quad (5)$$

Where θ_{Tot} is a ratio of conditional probabilities.

Then,

$$\theta_{Tot} = \theta^M_{Tot} \text{ y } \theta^P_{Tot} = 1. \quad (6)$$

These probabilities are estimated on the basis of a probit model that takes the value 1 if the individual is an emigrant and 0 otherwise against personal and household characteristics. On the basis of these estimations, the reweighting function is calculated and the counterfactual kernel density functions are obtained (see DiNardo *et al.*, 1996).

Once the counterfactual income is estimated, we rework it with remittances and estimate the net economic impact of emigration.

After the exercise is done, we remove the assumption of unchanged labor participation effect and proceed to assess the impact of emigration on the wage structure, considering different skill groups (Aydemir and Borjas, 2006).

Studies assessing the economic impact of emigration on origin countries are scarce. Most of them have assessed the case of Mexico as long as emigrants are concentrated in the US and can be studied using the corresponding censuses. The aim of this study is to assess the impact of emigration on two small countries exposed to high rates of emigration but with very different features. We expect that the results we obtain for each country will considerably differ. As long as emigrants in Uruguay are mainly drawn from the middle parts of the earnings distribution, we expect emigration to slightly foster inequality. In the Paraguayan case, the existing evidence does not allow us to build yet a hypotheses.

References

- Aydemir A. and Borjas J. (2006). *A Comparative Analysis of the Labor Market Impact Of International Migration: Canada, Mexico, and the United States*. Working Paper 12327. NBER.
- Chiquiar D. and Hanson G. (2002). *International Migration, Self-Selection, and the Distribution of Wages: Evidence from Mexico and the United States*. Working Paper 9242. NBER.
- DiNardo, J., Fortin, N. & Lemieux, T. (1996). Labor Market Institutions and the Distribution of Wages, 1973-1992: A Semiparametric Approach, en *Econometrica* 64(5).
- Macadar D. and Pellegrino A. (2007)
- Pellegrino A. and Vigorito A. (2005).
- World Bank (2007). *Migration, Development and Remittances*. World Bank.