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**Rural youth and migration in
Ecuador, Mexico and Peru**

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Rural youth and migration in Ecuador, Mexico and Peru



Abstract

This paper uses data on the most recent population Censuses to analyse internal migration flows of rural youth in Ecuador, Mexico and Peru, focusing on two questions. First, are rural youth more likely to migrate than the adult population? Second, what are the characteristics of the main poles of expulsion and attraction of young migrants?

Results provide evidence that supports the conventional wisdom on youth migration: first, in the three countries, with no exception, young people are more geographically mobile compared to adults; second, poles of expulsion of younger population are concentrated in rural areas, while poles of attraction are predominantly urban areas. However, results also show that some nuance is needed when thinking about rural youths and migration. Not all rural areas are losing youths: those which do are poorer, more dependent on agriculture, and with lower levels of human capital.

Overall, results suggest that, for emigration to be an actual option and not a forced decision, policies focused on increasing individual or household assets might not be enough and may need to be combined with territorial policies improving local opportunities, for young people to be able to realize their potential in the place of their choosing.

Resumen

Este trabajo usa los datos de los censos de población más recientes y analiza los flujos de migración interna de los jóvenes rurales en Ecuador, México y Perú, con foco en dos preguntas. Primero, ¿tienen los jóvenes rurales mayor probabilidad de migrar comparado con la población adulta? Segundo, ¿cuáles son las características de los principales polos de expulsión y de atracción de los jóvenes migrantes?

Los resultados confirman que, primero, en los tres países, los jóvenes tienen un mayor grado de movilidad geográfica que los adultos; y segundo, que los polos de expulsión de la población joven se concentran en las áreas rurales, mientras que los polos de atracción se concentran en las áreas urbanas. Sin embargo, los resultados también muestran que es necesario matizar algunos de los mitos sobre juventud rural y migración. En particular, no todas las áreas rurales están perdiendo población joven: las que más población joven pierden, son las que tienen mayores niveles de pobreza y dependencia de la agricultura, y menores niveles de capital humano. En su conjunto, estos resultados sugieren que, para que la migración sea efectivamente una opción y no una decisión obligada, políticas públicas que se enfocan sólo en mejorar los activos individuales podrían no ser suficientes, y deberían ir combinadas con políticas de desarrollo territorial enfocadas en mejorar las oportunidades locales, para que los jóvenes puedan realizar su potencial en el lugar que elijan.

1. INTRODUCTION

Migration is a complex phenomenon involving many economic, social and psychological aspects of people's lives. The International Organization for Migration defines migrants as "persons, and family members, moving to another country or region to better their material or social conditions and improve the prospect for themselves or their family" (IOM, 2011). Migration is one of the livelihood strategies available to rural households for diversifying their income sources and risk, facilitate access to goods and services, or invest in income-generating activities (World Bank 2008), and one of the main mechanisms that foster linkages between rural and urban areas (Berdegué et al., 2014).

Over the past few decades, the magnitude and impacts of migration flows have increased worldwide, and with them the relevance of migration as a national and international policy issue. About 243 million people, representing 3.3% of the world population, were international migrants in 2015 (IOM, 2018). Internal migration is even more prevalent, and on the rise: in the first decade of the century, more than 740 million people were living in a different region or city from where they were born (UNDP, 2009). More than a third of all migrants worldwide are under the age of 29 (UNDESA, 2013), and most migrants currently between 25 and 49 years old moved in the first half of their twenties (Young, 2013). Overall, young people (usually defined as people between 15 and 29 years of age) are estimated to be 40% more likely to move from rural to urban areas or across urban areas than older people (World Bank, 2006).

In Latin America, the latest census rounds indicate that about 30 million people are international migrants, representing about 5% of the population of the region (Martínez Pizarro et al., 2014). Also in this case, internal migration is much more widespread and growing faster than international migration, with over 100 million people living in a different place from where they were born, representing about 20% of the population (Bell and Charles-Edwards, 2013). In terms of volumes, the largest migration flows in the region occur among urban areas. However, the predominant migration pattern in the region over the last decades has involved the depopulation of rural areas, in favor, first, of large cities, and, more recently, of small and medium cities (Rodríguez, 2008). Young Latin Americans have a higher propensity to migrate than older people, with about 20% of young people estimated to be international migrants (Hopenhayn, 2008), and 30% to migrate internally (Rodríguez, 2008). Analyzing movements among major administrative divisions (such as regions or departments), Rodríguez (2008) finds that young people are more likely than older migrants to move from rural to urban areas and, unlike older people, continue to be mostly attracted by large cities and metropolitan areas.

Focusing on migration of young people is relevant because of its prevalence, but also because it tends to overlap with youth transitions to adulthood and is therefore part of young people's life trajectories and outcomes. Youth transitions can be defined as the shift from childhood to adulthood, during which young people take on new roles and responsibilities and make important choices, which are always bound by the opportunities and constraints offered by their environment (Elders et al., 2003). Transitions into adulthood include decisions about education, employment, and family formation, all of which may be related with the decision to migrate, domestically or internationally. The decisions taken in each transition are typically interrelated, have a bearing on subsequent decisions and outcomes, and are part of the pathway to achieving a life where young people can exercise their economic, social, and political rights, develop their abilities, and broaden their opportunities (Taylor, 2010).

Among young people, those living in rural areas are in a particularly vulnerable position: rural youths have fewer opportunities for accessing decent employment and high-quality education, and are at higher risk of poverty, compared to their urban peers (Espejo, 2017). Emigration to urban areas is seen as a way to cope with the lack of opportunities and of an attractive future in rural areas and in agriculture. Reasons for the emigration of rural youths include unemployment and underemployment, limited access to credit, resources (including land) and markets, and search for better education (Crivello, 2011; Archambault et al., 2012; Azaola, 2012; Bezu and Holden, 2014; Dirven, 2016).

Indeed, spatial inequality, that is, disparity among places in opportunities and quality of life, is one of the main rationales for migration (Lall et al., 2006; Lucas, 1997). However, migration is not always an available option: because of its costs, not all people who wish to migrate can do so (Dustmann y Okatenko 2014). Migration cannot always be considered a *choice* either: for some people it represents a necessity for survival or the only chance to improve their wellbeing and quality of life. This occurs mostly because of the characteristics of the place where they live, whether because of high levels of poverty and lack of opportunity (Alvarez-Cuadrado y Poschke, 2011; Archambault et al., 2012; UNDP, 2009), violence (Ibáñez y Vélez, 2008; Lozano-Gracia et al., 2010; Martinez, 2014), or vulnerability to climate change (Barrios et al., 2006; Ghimire et al., 2015; Gray y Mueller, 2012; Nawrotzki et al., 2013). On the other hand, migration can have positive impacts on individual migrants and their families, on receiving places, and also on places of origin, through remittances and knowledge transfer (among others, Gupta et al., 2009; Calí and Menon, 2013; Nguyen et al., 2013; Housen et al., 2013).

Understanding the context and place characteristics that motivate or discourage emigration is especially important in Latin America, which is still one of the world's most unequal regions, and where spatial inequality has an important weight on overall inequality (Escobal and Ponce 2012; Ramírez et al. 2009). There is evidence that, in Latin America, the place where someone is born, and lives, is an important determinant not only of her wellbeing (Bebbington et al., 2017), but also of her ability to emigrate and of her gains from it, over and above individual characteristics (Cazzuffi and Modrego, 2017; Cazzuffi, 2016).

The empirical literature on youth migration predominantly focuses on higher income countries, especially Europe, North America and Australia, and on China. Qualitative studies of youth migration exist for Peru (e.g. Crivello, 2012) and México (e.g. Azaola, 2012). Quantitative studies are scarcer, and typically do not consider the role of place characteristics in migration decisions and outcomes, beyond the inclusion of a variable indicating whether the place of origin is rural or urban (e.g. Franco Gavonel, 2017).

This paper investigates internal migration flows of rural youth (age 15 to 29) in Ecuador, Mexico and Peru, using data on the most recent population Censuses and analyzing movements among municipalities, and focuses on two questions. First, are rural youth more likely to migrate than the adult population? Second, what are the characteristics of the main poles of expulsion and attraction of young migrants? The paper contributes to the scarce literature on migration of rural youths in Latin America by identifying the main patterns and territorial drivers of internal migration of rural youths. It also goes beyond the traditional, dichotomic definition of rural and urban categories, to explore youth migration patterns in rural-urban areas, that is, small and medium cities functionally connected with their rural hinterland. In turn, results shed some light on how public policy may help youth migration to be more of a choice and less of a necessity given local circumstances.

The remainder of the paper is organized as follows. Section 2 provides some context on recent trends in rural youth migration in the three countries. Section 3 describes the methods used and section 4 presents the results. Section 5 provides a discussion and conclusion.

2. THE CONTEXT: YOUTHS AND MIGRATION IN ECUADOR, MEXICO AND PERU

According to the latest censuses, young people in the three countries represents between 7% and 11% of the total population (Díaz & Fernández, 2017): 1.5 million in Ecuador (9% of total population), 1.8 million in Peru (7% of total population) and 14 million in Mexico (11% of total population). Evidence on migration flows of rural youths in the three countries is limited and heterogeneous. Ecuador and Peru seem to be experiencing a process of ageing of the population living in rural areas, suggesting net emigration of rural youths (Estévez, 2017; Urrutia, 2017). Meanwhile, rural youths in Mexico appear to be less mobile than their urban peer (Soloaga, forthcoming).

In Ecuador, the issue of youth migration and its movements between rural and urban areas has been little explored. Migrants in Ecuador in 2014 represent around 10% of the total population and are more likely to migrate internationally than internally, on average. When distinguishing by type of place of origin, however, the picture is significantly different: 93% of migrants coming from rural areas are migrating internally, that is, internal migration appears to be a predominantly rural phenomenon. Meanwhile, the cohort between 15 and 24 years old is the one experiencing the fastest growth in urban areas (Estévez, 2017).

The emigration rate of rural youths in Peru in 2015 is 6% and is mainly motivated by employment reasons, because of income needs of the rest of the household in a context of lack of local employment opportunities (Chacaltana, 2010; Crivello, 2010; Sihuay, 2013; Ortega, 2016).

In Mexico, the analysis of inter-municipal youth migration flows between 2010 and 2015 indicates that about 9% of the urban population between 17 and 22 years old had migrated internally, versus 7% among rural youths in the same cohort. Migrants and non-migrants differ by level of schooling but not by gender. The migration rate of youths with at least nine years of education is three percentage points higher than among youths with less schooling. That is, the probability of changing municipality between 2010 and 2015 is higher for urban than rural youths, and for youths with higher levels of human capital (Soloaga, forthcoming).

Meanwhile, Gordillo and Plassot (2017: 21-22) analyse migration flows in Mexico over the period 1970 to 2015, and argue that migration tends to reinforce regional inequalities because migrants are predominantly young and qualified individuals that move towards larger and more dynamic cities. This leads to a process of aging of the countryside and of whole states, with serious repercussions on agricultural production. Migration also leads to a process of feminization of rural areas (Gordillo and Wagner, 2005), with important territorial impacts (Couturier Bañuelos and Concheiro Bóquez, 2010). For the specific case of youth migration from Yucatan, Echeverría and Lewin (2016) find that schooling promotes emigration from rural areas, and that migrant relatives and other information on migration generate expectations about possibilities at destination that do not always reflect reality.

3. METHODS

3.1. Data and definitions

The identification and characterization of the main poles of expulsion and attraction of young migrants requires data at the lowest possible level of spatial aggregation. Household surveys of the three countries provide detailed information on migration but are only representative at the level of larger administrative units: states in Mexico and *departamentos* in Ecuador and Peru. However, most internal migration flows in the region tend to be intra-state or intra-departmental (Rodríguez 2017) and would remain hidden in an analysis that uses household surveys. The Population Census of the three countries, albeit less recent, is the only source that allows analysing migration flows at the level of spatial disaggregation we seek. For each country, we use data on five-year internal migration flows across municipalities compiled by CELADE in its Database on Internal Migration in Latin America and the Caribbean (MIALC from its Spanish acronym), which is based on the latest Population Census. Table 1 summarizes for each country the number of municipalities, the last available census year, and the period of migration we analyze.

MIALC data provide a picture of the number of people living in each municipality at two points in time and allow calculating municipal-level migration flows for the five years before the last available census.¹ We define a young rural migrant as a person between 15 and 29 years old who five years

¹ Census data provide an accurate representation of internal migration patterns, but not of international ones. Thus, and although we recognize the heterogeneity of the different types of migration behaviors (internal, international, temporal, permanent, circular, etc.), this paper focuses on internal migration. We believe this restriction does not represent a significant limitation to our study, because there are no theoretical reasons that

before was living in a rural municipality, and at the time of the last census is living in a different municipality. Given the increasing importance in Latin American countries of small and medium cities functionally linked with their rural hinterland (Berdegué et al., 2014; Modrego & Berdegué, 2015), in this paper we go beyond the traditional rural-urban dichotomy and define three categories of a rural-urban continuum: rural municipalities, with less than 15,000 inhabitants; rural-urban municipalities, between 15,000 and 300,000 inhabitants; and urban municipalities, with more than 300,000 inhabitants, consistent with Berdegué et al. (2017).

Table 1: Number of municipalities and migration period by country

Data	Ecuador	México	Peru
Number of municipalities	1013	2456	1822
Census year	2010	2010	2007
Migration period	2005-2010	2005-2010	2002-2007

Source: Authors' elaboration using MIALC data.

3.2. Identification of the main immigration and emigration poles of the rural youth

The variable of interest for this study is the net migration rate. For each municipality i , the net migration rate is the ratio between net migration and average population during the period of analysis, expressed for 1000 people. Net migration is the difference between the total number of immigrants received and the total number of emigrants sent by each municipality during the period of analysis. Net migration is negative when the number of emigrants is larger than the number of immigrants. The net migration rate can thus be expressed as

$$N_i = ((I_i - E_i)/P_i) * 1000$$

Where

N_i = net migration rate in the previous five years in municipality i

I_i = total number of immigrants received by the municipality over the previous five years

E_i = total number of emigrants who left the municipality over the previous five years

P_i = total population in the municipality, calculated as the average population between the last census and the five years before the last census.

The net migration rate is negative where the number of emigrants is larger than the number of immigrants. The intensity of population gain, or loss, is defined relative to the distribution of the net migration rate per municipality in each country. The main emigration poles are defined as municipalities with a net migration rate that is negative and smaller than two standard deviations from the average. Meanwhile, the main immigration poles are defined as municipalities with a net migration rate that is positive and larger than two standard deviations from the average.

3.3. Characteristics of the origin and destination of rural youth migration

We focus the analysis of the role of place characteristics in municipal migration outcomes on one of the main causes of migration identified in the literature, that is, poverty and lack of opportunity. We measure municipal poverty rates using small area estimates for Mexico (Modrego and Berdegué, 2015), official poverty data for Peru, and a simple index of housing quality for Ecuador.² Lack of opportunities is measured with the share of the population with less than secondary education and the rate of unemployment, calculated using census data. Together with poverty rates, these two indicators are typically used by the literature on neighborhood effects to identify disadvantaged places (Hill and Maimon, 2013). As a proxy for the degree of diversification of opportunities, we use the share

suggest, *a priori*, that push factors are different for internal and international migrants, and because often international migration is preceded by one or more internal moves (King and Skeldon, 2010).

² The index is constructed as the simple average of quality of floors, walls and roof.

of the population employed in agriculture, also from census data. For Ecuador and Mexico, we are also able to explore another one of the main causes of migration, that is, violence, measured with the homicide rate per 100 thousand inhabitants calculated from vital statistics. It is not possible to extend this part of the analysis to Peru, because vital statistics are not publicly available for years close to the census period.

3.4. Statistical and econometric analysis

The first part of the results presented in the next section uses descriptive statistics, such as differences in means between different groups, to show broad migration patterns of rural youths and to compare them with those of rural-urban and urban youths, and with those of the adult population. OLS regressions are then used to analyze the multivariate correlation between net migration rates and territorial characteristics in each country, estimating the following equation:

$$N_i = \beta_0 + \beta_1 T_i + \varepsilon_i$$

Where N_i is the net migration rate in the previous five years in municipality i , T_i is the vector of territorial characteristics described in the previous section, and ε_i is the error term.

4. RESULTS

4.1. Young people are more mobile than the rest of the population

As a first approximation to understanding the internal mobility of younger people, Table 2 shows gross migration rates of young people, expressed as a share of the youth population, and compares it to gross migration rates of adults, expressed as a share of the adult population. It presents the national figures and then disaggregates between rural, rural-urban, and urban areas. In the three countries, with no exceptions, young people are more mobile than older ones. The difference is most marked in Peru: 33% of young people have changed municipality at some point during the 2002-2007 period, versus 20% of older people. In Mexico, youth mobility increases with the degree of urbanization. In Ecuador and Peru, in contrast, the highest mobility is observed in rural-urban municipalities. Rural youths in Ecuador are slightly more mobile than their urban counterparts, while in Peru they are less mobile than urban youths.

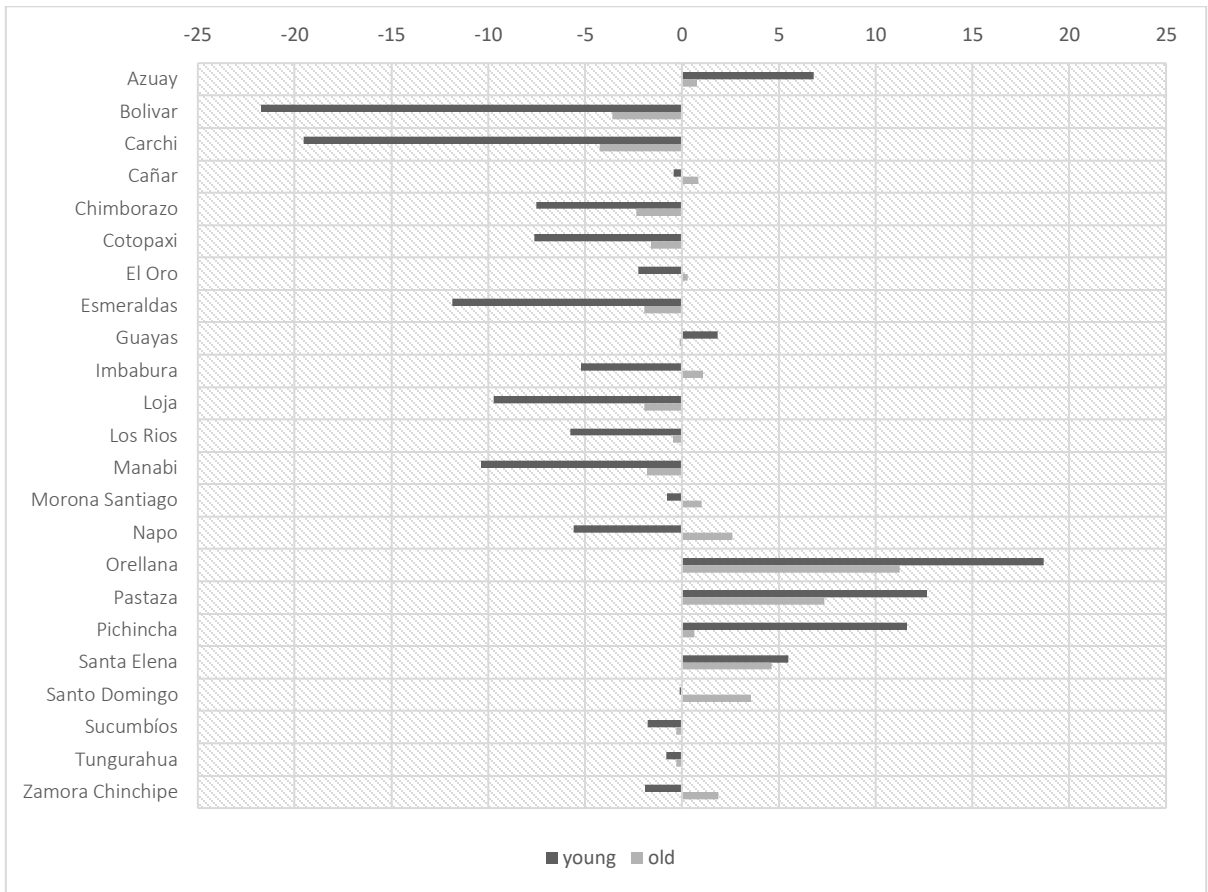
Table 2: Youth mobility: gross migration as share of the population

Gross migration	Ecuador		Mexico		Peru	
	Youth	Adults	Youth	Adults	Youth	Adults
National	20.0%	11.3%	16.2%	11.1%	32.9%	20.3%
Rural	21.4%	11.3%	13.3%	7.6%	28.7%	14.2%
Rural-urban	22.5%	13.2%	15.3%	9.6%	35.0%	22.7%
Urban	14.6%	8.2%	18.1%	13.6%	31.7%	21.2%

Source: Authors' calculation using MIALC data.

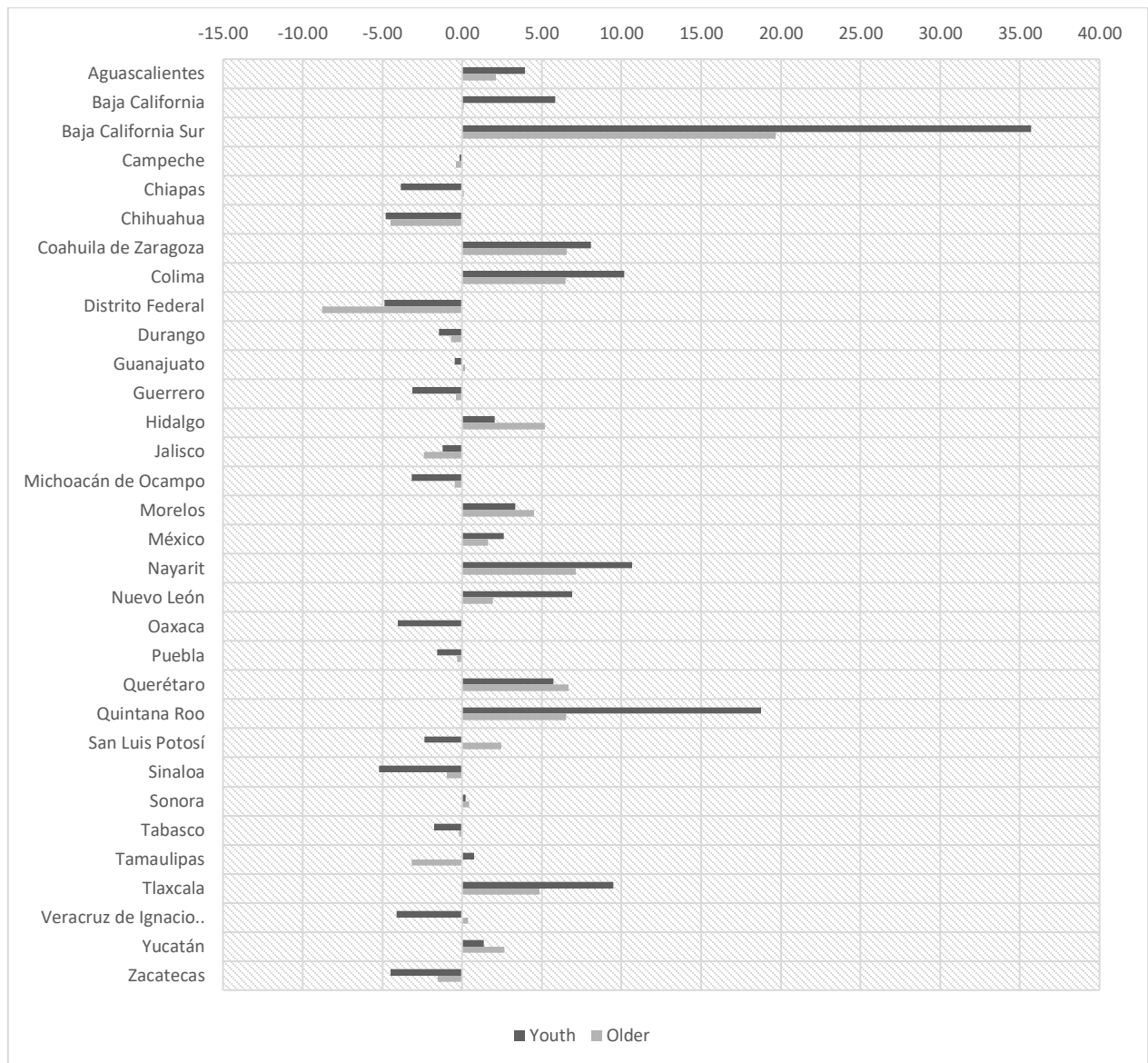
Figures 1, 2 and 3 show net gain and net loss of population across higher administrative units, by age group, for each country. In Ecuador and Peru, youth mobility is larger in almost every region, while in Mexico the picture is more heterogeneous. Net loss of youths in Ecuador is largest in the provinces of Bolivar and Carchi, while net gain is concentrated in the provinces of Orellana, Pastaza and Pichincha. In Mexico, net loss of youths is highest in Sinaloa, Distrito Federal, Chihuahua y Zacatecas, while net gain is concentrated in Baja California Sur and Quintana Roo. In Peru, net loss of youths is highest in the regions of Ucayali, Amazonas y Apurimac, while net gain is concentrated in Madre de Dios, Callao y Lima.

Figure 1: Ecuador: Net gain and net loss of population by province and age groups



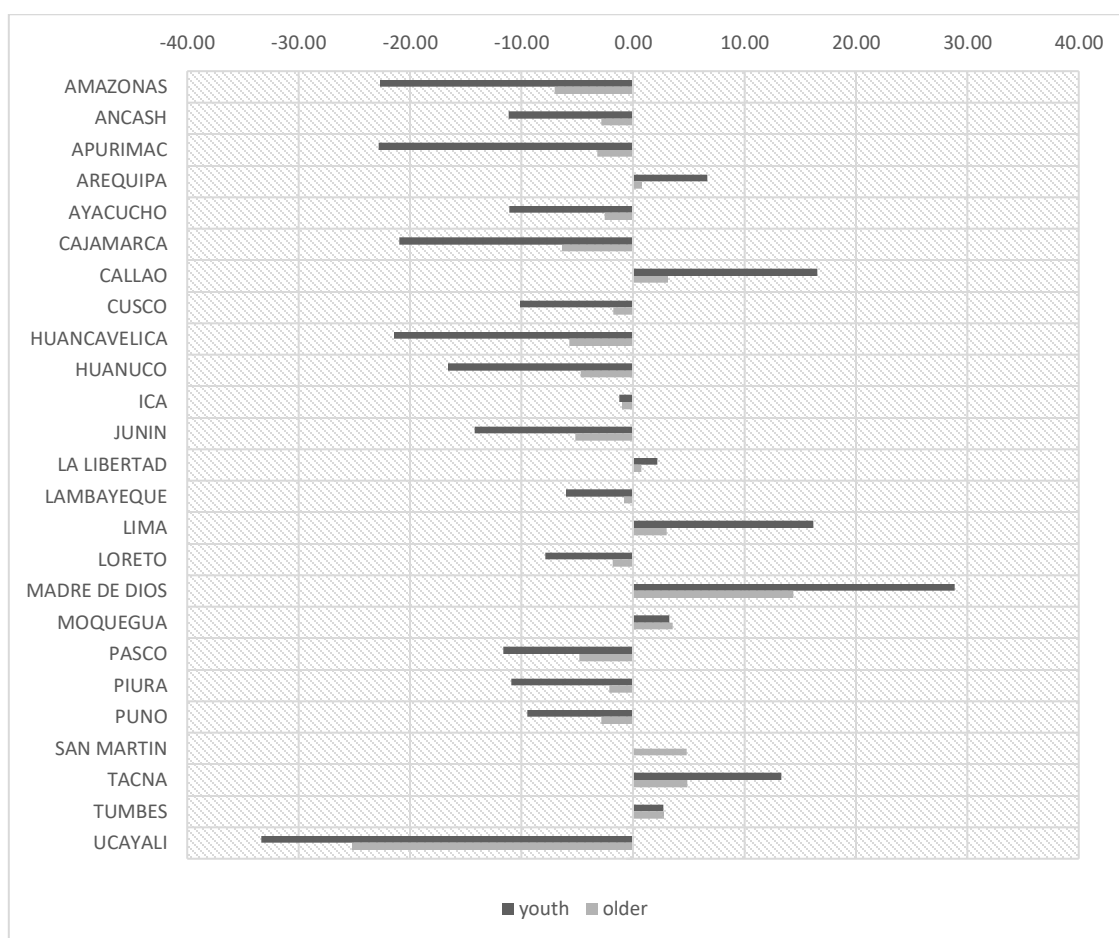
Source: Authors' calculation using MIALC data.

Figure 2: Mexico: Net gain and net loss of population by state and age groups



Source: Authors' calculation using MIALC data.

Figure 3: Peru: Net gain and net loss of population by region and age groups



Source: Authors' calculation using MIALC data.

4.2. Net loss of youths in rural areas

Table 3 shows immigration and emigration rates in rural, rural-urban and urban areas by age group. Youth immigration rates in Mexico and Peru follow a gradient that increases with the level of urbanization. Meanwhile, in Ecuador youth immigration rates are highest in rural-urban areas. The pattern of youth emigration across levels of urbanization is also heterogeneous among the three countries: youth emigration rates are highest in rural areas in Peru, in urban areas in Mexico, and in rural-urban areas in Peru.

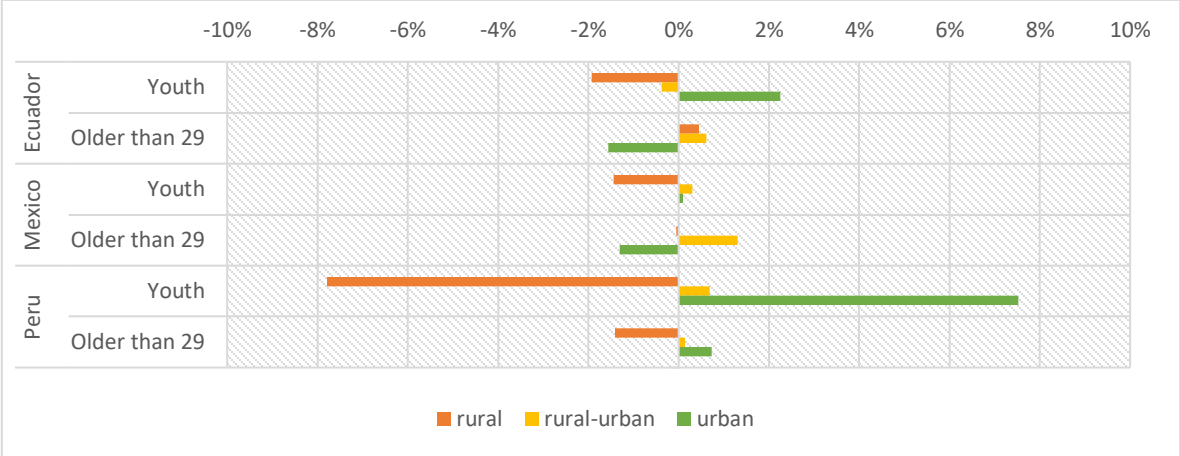
Table 3: Immigration and emigration rates in rural and urban areas

Migration rates	Ecuador		Mexico		Peru	
	Youth	Adult	Youth	Adult	Youth	Adult
<i>Immigration rates</i>						
Rural	9.8%	5.9%	6.0%	3.8%	10.4%	6.4%
Rural-urban	11.1%	6.9%	7.8%	5.5%	17.8%	11.4%
Urban	8.4%	3.3%	9.1%	6.1%	19.6%	11.0%
<i>Emigration rates</i>						
Rural	11.5%	5.4%	7.3%	3.8%	16.9%	7.7%
Rural-urban	11.4%	6.3%	7.5%	4.2%	17.3%	11.3%
Urban	6.3%	4.8%	9.0%	7.3%	13.1%	10.3%

Source: Authors' calculation using MIALC data.

With respect to net migration, however, rural areas have experienced a net loss of youths in the three countries, as Figure 4 shows. Youth depopulation in rural areas is most severe in Peru, followed by Ecuador. Net migration patterns of younger and older people show some significant differences. In Ecuador, rural and rural-urban areas lose youths and gain older population, while urban areas gain youths and lose older population. In Mexico, depopulation in rural areas is limited to younger people, while urban areas are losing older population; rural-urban areas are gaining both adults and, to a lesser extent, youths. In Peru, adults follow the same net migration pattern as the younger population, but at a much slower rate.

Figure 4: Net migration rate in rural and urban areas by age group



Source: Authors' calculation using MIALC data.

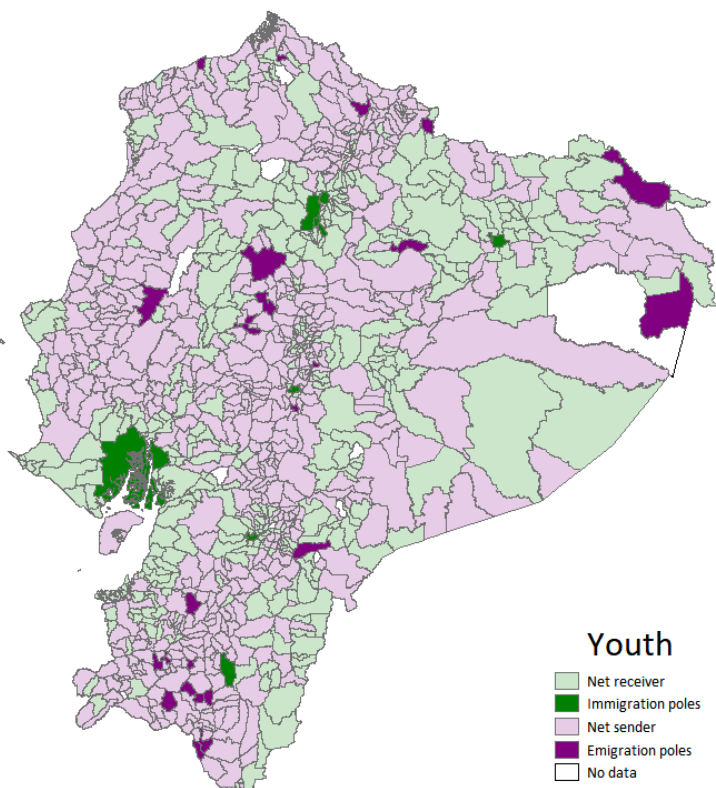
The analysis of migration intensity across levels of urbanization, summarized in Table 4, shows that most of urban areas are poles of youth attraction, that is, municipalities exhibiting a net youth migration rate that is positive and larger than two standard deviations from the average. Meanwhile, poles of youth expulsion, that is, municipalities exhibiting a net youth migration rate that is negative and larger than two standard deviations from the average, concentrate in rural areas. Figures 5, 6 and 7 show the spatial distribution of migration poles in each country. In Ecuador, poles of youth attraction are concentrated in urban (Quito and Guayaquil) and rural-urban municipalities. Poles of youth expulsion, on the other hand, are all rural except for the rural-urban municipality of Pichincha, in the Manabi province, and are relatively concentrated in the Loja province. Poles of youth attraction in Mexico are all either urban or rural-urban, and their relative majority is concentrated in the state of Mexico. Poles of youth expulsion are all rural, and predominantly located in the state of Oaxaca. In Peru, poles of youth attraction concentrate in the Lima region and are all rural-urban or urban, while poles of youth expulsion are mostly rural and concentrated in the provinces of Amazonas, Ancash, and Lima.

Table 4: Percentage of municipalities by degree of urbanization and intensity of youth migration

% of municipalities	Net receiver	Immigration pole	Net sender	Emigration pole
Ecuador				
Rural	39.39	0	58.00	2.61
Rural-urban	36.36	6.61	56.20	0.83
Urban	0	100	0	0
Mexico				
Rural	50.18	0	49.18	0.64
Rural-urban	34.64	2.67	62.69	0
Urban	18.87	28.30	52.83	0
Peru				
Rural	16.64	0	79.95	3.41
Rural-urban	35.59	7.83	54.80	1.78
Urban	0	88.89	11.11	0

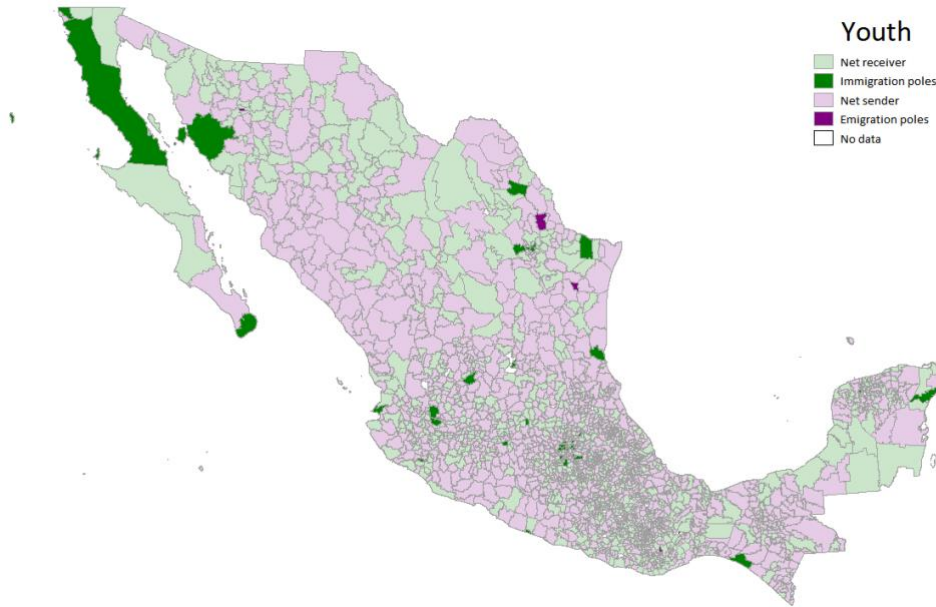
Source: Authors' calculation using MIALC data.

Figure 5: Ecuador: spatial distribution of youth migration



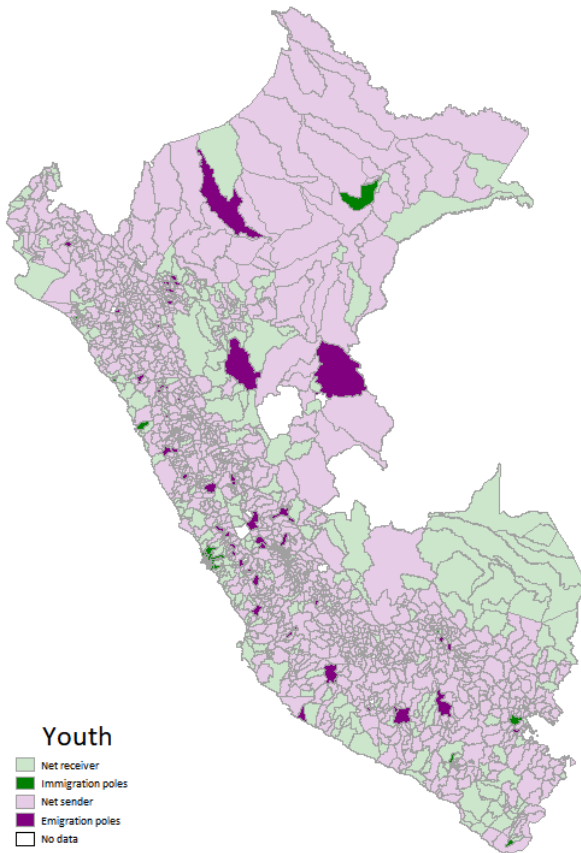
Source: Authors' calculation using MIALC data.

Figure 6: Mexico: spatial distribution of youth migration



Source: Authors' calculation using MIALC data.

Figure 7: Peru: spatial distribution of youth migration



Source: Authors' calculation using MIALC data.

4.3. Not all rural areas are losing youth

While, on aggregate, rural areas are losing young population, not all rural municipalities are net senders of youths, as Table 4 shows. About 40% of rural municipalities in Ecuador, 50% in Mexico and 17% in Peru are net receivers of young people. Migration outcomes in rural-urban areas are also heterogeneous: the majority of rural-urban municipalities are net senders of youths, but at least in Ecuador and Peru they are more likely than rural municipalities to be net receivers of young people. Meanwhile, all urban municipalities in Ecuador and almost 90% in Peru are net receivers of youths, versus only half of urban municipalities in Mexico.

Table 5 compares mean characteristics of rural municipalities that are net senders and net receivers of young and adult population. In the three countries and on average, rural municipalities that are net senders of youths have higher rates of poverty (or of unsatisfied basic needs), a higher share of the population with less than secondary education, and a higher share of the labor force employed in agriculture. In Peru, rural net senders also have higher unemployment rates than net receivers, while in Ecuador and Mexico we find no significant differences. The level of local violence does not appear to be significantly related to loss of young population in rural areas in Mexico and Ecuador, for which data are available. The characteristics of rural municipalities that are net senders of adults are the same as those of net senders of youths in Ecuador and Peru. Meanwhile, in Mexico, rural net senders of adult population are not significantly different from rural net receivers in terms of poverty and education, but they do tend to have a higher share of the population employed in agriculture and also, unlike youth senders, a higher rate of unemployment.

Table 5: Characteristics of rural senders and receivers of youth and adult migration

Rural areas	Youth sender		Youth receiver		t-stat	Adult sender		Adult receiver		t-stat
	Mean	S.d.	Mean	S.d.		Mean	S.d.	Mean	S.d.	
Ecuador										
Poverty	28.9	13.8	23.4	12.4	-6.1***	30.5	13.8	23.4	12.4	-7.97***
Low education	70.6	7.0	67.0	6.0	-8.2***	71.3	7.0	67.3	6.1	-8.96***
Unemployment	3.1	2.8	3.0	2.0	-0.5	3.2	5.7	3.2	2.3	-0.03
Agriculture	59.3	17.6	49.1	19.7	-7.8***	60.7	17.5	50.1	19.3	-8.51***
Homicides	0.0	0.2	0.0	0.1	-0.6	0.0	0.1	0.0	0.1	0.14
Mexico										
Poverty	0.5	0.2	0.5	0.3	-3.10***	0.5	0.2	0.5	0.3	-0.82
Low education	35.6	9.0	34.4	9.0	-2.46**	35.3	8.6	34.8	9.3	-1.12
Unemployment	4.0	4.0	3.8	3.2	-1.19	4.3	4.0	3.7	3.4	-2.58*
Agriculture	59.1	19.0	55.0	19.4	-4.03***	58.8	18.8	55.8	19.7	-2.90**
Homicides	1.9	5.8	6.8	142.1	0.91	2.2	6.4	5.7	128.0	0.81
Peru										
Poverty	64.8	19.9	43.7	19.5	-16.25***	65.4	19.8	49.6	21.4	-13.23***
Low education	65.3	12.6	52.7	14.8	-13.15***	65.7	12.6	55.8	14.5	-12.34***
Unemployment	5.2	5.8	3.9	2.9	-5.33***	5.2	5.9	4.3	3.8	-3.55***
Agriculture	64.7	17.9	46.2	27.7	-10.60***	65.4	18.0	50.7	25.1	-11.02***

Source: Authors' calculation using MIALC and Census data.

Table 6 presents the same analysis for rural-urban areas. Rural-urban areas that are net senders of youths have the same characteristics as rural net senders: poorer, more dependent on agriculture, and with lower levels of human capital. In Peru, they also present higher unemployment rates. In Ecuador, contrary to what is observed among rural net senders, local violence appears to be a push

factor for youth migration in rural-urban areas: net senders of young people show a higher homicide rate than net receivers. While push factors in rural areas appear, overall, to be similar among youths and adults, the comparison of rural-urban net senders and net receivers of adult population show some differences. In Ecuador, no significant differences appear, on average, among rural-urban net receivers and net senders of adult population. In Mexico and Peru, push factors for the adult population are the same as for youths, with two key differences: in Mexico, higher levels of local violence push adult population, but not youths, out of rural-urban areas; in Peru, unemployment is a significant push factor among youths, but not among adults.

Table 6: Characteristics of rural-urban senders and receivers of youth and adult migration

Rural-urban areas	Youth sender		Youth receiver		t-stat	Adult sender		Adult receiver		t-stat
	Mean	S.d.	Mean	S.d.		Mean	S.d.	Mean	S.d.	
Ecuador										
Poverty	15.9	8.3	11.0	8.0	-3.24**	15.5	8.9	12.6	8.1	-1.81
Low education	60.6	7.6	56.4	10.0	-2.52**	59.5	7.8	58.3	9.7	-0.73
Unemployment	5.7	2.3	5.1	2.3	-1.21	5.9	2.6	5.1	2.1	-1.66
Agriculture	32.6	19.2	23.2	20.9	-2.55**	30.5	18.9	27.2	21.4	-0.89
Homicides	0.1	0.1	0.1	0.1	-3.36**	0.1	0.1	0.1	0.1	-1.32
Mexico										
Poverty	0.5	0.2	0.4	0.2	-7.89***	0.4	0.2	0.4	0.2	-2.70**
Low education	31.8	9.0	28.2	8.6	-6.20***	31.5	9.8	29.7	8.2	-2.95**
Unemployment	4.4	2.6	4.5	2.2	0.95	4.4	2.5	4.5	2.8	0.46
Agriculture	45.3	19.9	35.1	18.3	-8.05***	44.3	20.6	39.4	19.1	-3.79***
Homicides	10.5	20.5	9.1	22.4	-0.90	12.2	22.5	8.0	19.6	-3.05***
Peru										
Poverty	46.6	22.3	25.5	15.0	-8.17***	42.3	23.5	28.9	16.8	-4.84***
Low education	52.8	16.7	36.0	12.2	-8.48***	48.8	18.4	39.5	13.0	-4.31***
Unemployment	5.1	2.2	4.5	1.7	-2.32*	5.0	2.2	4.6	1.7	-1.51
Agriculture	36.4	25.6	12.7	19.4	-7.69***	31.0	27.1	17.2	21.5	-4.15***

Source: Authors' calculation using MIALC and Census data.

4.4. Place characteristics and migration of different demographic groups

Table 7 reports regression results for least square estimations of the correlation between municipal characteristics and net migration rates of youths and adults in rural and rural-urban municipalities. A negative coefficient implies that the worsening of a place characteristic is associated with net loss of population. Comparison across countries shows three key results. First, in general terms, places where poverty, unemployment, violence and dependence on agriculture are higher, and where human capital is lower, also tend to be places experiencing net loss of population. However, the statistical significance and magnitude of the relationship vary significantly across countries and demographic groups. Clearly, the causality behind this correlation may run both ways: on the one hand, these place characteristics may represent push factors encouraging people to move elsewhere; on the other, these observed characteristics may be the result of a process of selective emigration, whereby more educated, qualified and wealthier individuals move away from rural areas, changing the socio-economic composition of their place of origin and leaving it worse off at least with respect to these characteristics. Second, the most consistent result for rural areas across the three countries is that an increase in the share of the population employed in agriculture is significantly associated with a net loss of younger population. Higher dependence on agriculture is also associated with net loss of adult population in Peru, but the strength of the relationship is smaller compared to younger people. No significant relationship between dependence on agriculture and net loss of adult

population is found in rural areas of Ecuador and Mexico. Third, the magnitude of significant coefficients is always larger for net migration rates of youths than adults. This suggests that, on average, a municipality experiencing a worsening in its characteristics is more likely to lose youths than adult population.

Does the importance of place characteristics operate through high emigration rates, low immigration rates, or both? Tables 8 and 9 present results of OLS regressions of place characteristics and net emigration and immigration rates, respectively. Like net migration rates, emigration and immigration rates of younger people are always more strongly associated with place characteristics compared to adults. We find that an increase in municipal poverty levels makes emigration more difficult, especially in Peru, as implied by the negative coefficient in Table 8; but it also strongly discourages immigration, across the three countries. Lower levels of human capital and higher unemployment, in contrast, are associated with both emigration and immigration flows, although results presented in Table 7 suggest that the net outcome is population loss, especially of youths. A higher dependence on agriculture encourages youth emigration from rural areas in Mexico and Ecuador, and consistently discourages immigration. Meanwhile, an increase in local violence is significantly associated with emigration in Ecuador and Mexico, while it tends to have no significant relationship with immigration rates in either country.

Table 7: OLS regression results, net migration rate by demographic group and degree of urbanization.

	Ecuador				Mexico				Peru			
	Rural		Rural-urban		Rural		Rural-urban		Rural		Rural-urban	
	Youths	Adults	Youths	Adults	Youths	Adults	Youths	Adults	Youths	Adults	Youths	Adults
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Poverty	-0.357 (0.824)	-0.973*** (0.368)	-2.107 (3.242)	-1.100 (1.578)	-1.409** (0.708)	0.236 (0.424)	-2.359** (1.159)	-1.009 (0.837)	-3.673*** (1.131)	-1.114** (0.499)	-2.434 (4.193)	-0.295 (2.631)
Low education	-6.359*** (1.003)	-1.322*** (0.448)	-0.754 (2.137)	-0.467 (1.040)	0.339 (0.740)	-0.032 (0.443)	-2.071* (1.079)	-1.781** (0.779)	-2.792** (1.373)	-0.438 (0.605)	-6.808* (4.103)	2.399 (2.575)
Unemployment	-1.278* (0.706)	-0.211 (0.315)	-4.825** (2.185)	-0.109 (1.063)	-0.343 (0.467)	-0.928*** (0.280)	-0.657 (0.764)	-0.164 (0.552)	-1.139 (0.774)	-0.853** (0.341)	-3.194 (4.480)	-1.766 (2.812)
Agriculture	-2.957*** (1.078)	-0.588 (0.482)	-0.948 (2.642)	-0.698 (1.286)	-1.819** (0.765)	-0.624 (0.459)	-0.368 (1.042)	-1.167 (0.752)	-8.724*** (1.306)	-3.072*** (0.576)	4.557 (2.975)	-2.842 (1.867)
Homicides	-1.020 (0.678)	-0.456 (0.303)	-4.871*** (1.501)	-1.756** (0.730)	0.033 (0.456)	-0.014 (0.273)	-7.061*** (2.648)	-5.949*** (1.913)				
Observations	889	889	121	121	1369	1369	933	933	1599	1599	214	214
R ²	0.121	0.054	0.172	0.177	0.019	0.009	0.044	0.059	0.125	0.067	0.087	0.019

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: OLS regression results, emigration rate by demographic group and degree of urbanization.

Emigration rate	Ecuador				Mexico				Peru			
	Rural		Rural-urban		Rural		Rural-urban		Rural		Rural-urban	
	Youths	Adults	Youths	Adults	Youths	Adults	Youths	Adults	Youths	Adults	Youths	Adults
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Poverty	-0.043 (0.048)	-0.008 (0.024)	-0.155 (0.225)	-0.243** (0.109)	0.476 (2.538)	-3.283** (1.414)	-1.489 (2.920)	-2.585 (1.630)	-0.181*** (0.040)	-0.116*** (0.022)	-0.326** (0.164)	-0.342*** (0.127)
Low education	0.303*** (0.032)	0.177*** (0.016)	0.383*** (0.076)	0.240*** (0.037)	0.176*** (0.053)	0.101*** (0.029)	0.341*** (0.053)	0.235*** (0.030)	0.833*** (0.054)	0.411*** (0.029)	0.941*** (0.167)	0.635*** (0.130)
Unemployment	0.209 (0.136)	0.122* (0.069)	0.279 (0.526)	0.164 (0.256)	0.364*** (0.119)	0.332*** (0.066)	0.561*** (0.129)	0.276*** (0.072)	-0.081 (0.119)	0.011 (0.065)	1.702** (0.782)	1.496** (0.608)
Agriculture	0.087** (0.039)	-0.018 (0.020)	-0.045 (0.105)	-0.020 (0.051)	0.086*** (0.031)	0.038** (0.017)	-0.005 (0.031)	-0.044*** (0.017)	-0.052 (0.043)	-0.056** (0.023)	-0.237* (0.123)	-0.176* (0.095)
Homicides	7.310* (3.789)	2.856 (1.932)	24.294** (10.013)	13.106*** (4.868)	0.000 (0.004)	-0.000 (0.002)	0.104*** (0.017)	0.059*** (0.010)				
Observations	889	889	121	121	1369	1369	933	933	1599	1599	214	214
R ²	0.713	0.661	0.793	0.823	0.381	0.255	0.577	0.492	0.705	0.574	0.683	0.548

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: OLS regression results, immigration rate by demographic group and degree of urbanization

Immigration rate	Ecuador				Mexico				Peru			
	Rural		Rural-urban		Rural		Rural-urban		Rural		Rural-urban	
	Youths	Adults	Youths	Adults	Youths	Adults	Youths	Adults	Youths	Adults	Youths	Adults
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Poverty	-0.077 (0.049)	-0.088*** (0.026)	-0.740*** (0.169)	-0.359*** (0.123)	-6.48*** (1.722)	-2.896** (1.184)	-12.58*** (4.289)	-8.482** (3.456)	-0.323*** (0.033)	-0.166*** (0.021)	-0.730*** (0.155)	-0.366*** (0.101)
Low education	0.434*** (0.032)	0.271*** (0.017)	0.618*** (0.057)	0.351*** (0.041)	0.302*** (0.036)	0.192*** (0.025)	0.508*** (0.078)	0.367*** (0.063)	0.870*** (0.044)	0.511*** (0.028)	1.432*** (0.158)	0.837*** (0.103)
Unemployment	0.000 (0.138)	0.123 (0.075)	-0.235 (0.395)	0.125 (0.286)	0.323*** (0.081)	0.156*** (0.056)	0.953*** (0.189)	0.666*** (0.153)	-0.111 (0.098)	-0.075 (0.062)	1.524* (0.739)	0.914* (0.480)
Agriculture	-0.143*** (0.039)	-0.083*** (0.021)	-0.133* (0.079)	-0.086 (0.057)	0.039* (0.021)	0.005 (0.014)	-0.096** (0.045)	-0.086** (0.036)	-0.256*** (0.035)	-0.160*** (0.022)	-0.622*** (0.116)	-0.395*** (0.075)
Homicides	-0.145 (3.842)	0.212 (2.083)	-2.417 (7.526)	0.124 (5.449)	0.001 (0.003)	0.001 (0.002)	0.056** (0.026)	0.033 (0.021)				
Observations	889	889	121	121	1369	1369	933	933	1599	1599	214	214
R ²	0.599	0.655	0.854	0.830	0.484	0.394	0.326	0.252	0.491	0.488	0.686	0.672

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

5. DISCUSSION AND CONCLUSIONS

This paper focused on internal migration flows of rural youth in Ecuador, Mexico and Peru in recent years, at the lowest available level of spatial disaggregation. Results provide evidence that supports some of the conventional wisdom on youth migration: first, in the three countries, with no exception, young people are more geographically mobile compared to adults; second, poles of expulsion of younger population are concentrated in rural areas, while poles of attraction are predominantly urban areas.

However, results also show that some nuance is needed when thinking about rural youths and migration. Not all rural areas are losing youths: those which do are poorer, more dependent on agriculture, and with lower levels of human capital. Meanwhile, a worsening of these territorial characteristics is more likely to be associated with loss of younger population than of adults. These results are consistent with previous findings on the importance of territorial characteristics, but also suggest that territorial characteristics may be more relevant for the decisions and outcomes of younger people than of adults.

Two results are particularly important from a policy point of view. First, the relationship between loss of young population and local dependence on agriculture indicates that youths are looking for different employment opportunities that they do not find in places where agriculture is predominant. Emigration may be reduced by diversification of the local production structure. Diversification needs not imply abandoning agriculture: it may also be achieved, at least in part, by diversifying agricultural production towards higher value crops, and increasing employment opportunities in the other segments of the food systems, such as processing and services. This, however, requires both private and public investment.

Second, the increase in youth emigration as local levels of human capital decline suggests that investment in human capital matters for individual wellbeing and ability to find employment but is also relevant for generating opportunities in the territory. Increasing local human capital requires improving the conditions for youths to access education and training, but also place-based policies improving the provision, quality and relevance of technical and non-technical education and training.

Overall, results suggest that, for emigration to be an actual option and not a forced decision, policies focused on increasing individual or household assets might not be enough and may need to be combined with territorial policies to improve local opportunities, for young people to be able to realize their potential in the place of their choosing. To provide insights that are useful for policies addressing rural migration, future work should combine this analysis of place characteristics with the analysis of individual characteristics of migrants and non-migrants, and how they interact with the characteristics of their place of origin.

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APPENDIX: PLOT OF COEFFICIENTS FROM OLS REGRESSIONS PRESENTED IN TABLE 7

Figure 8: Ecuador: Coefficients for the estimation of net migration rates

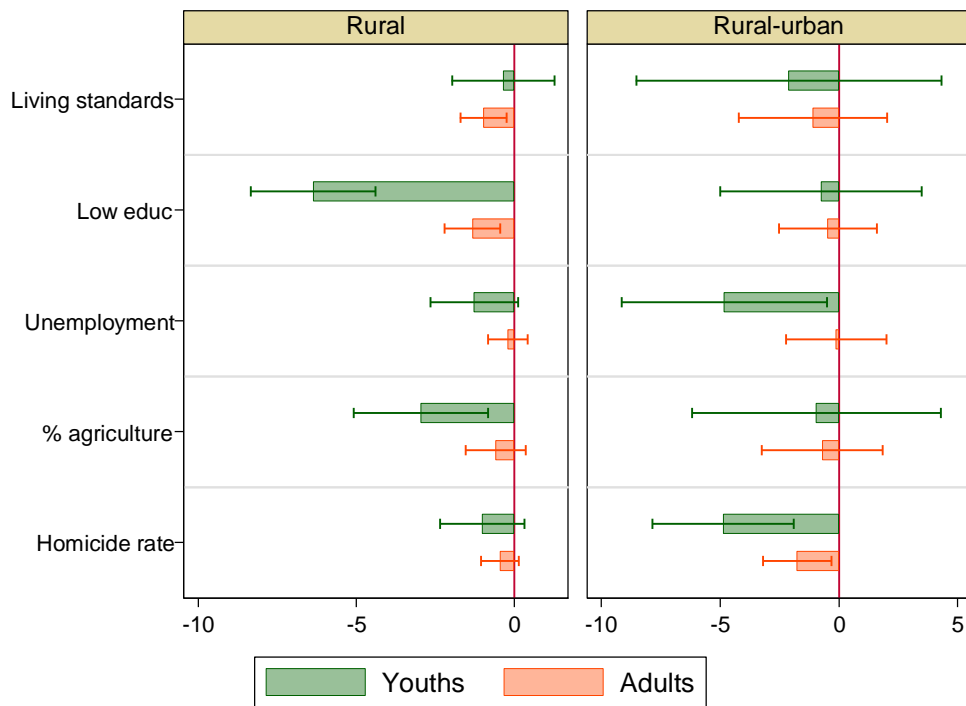


Figure 9: Mexico: Coefficients for the estimation of net migration rates

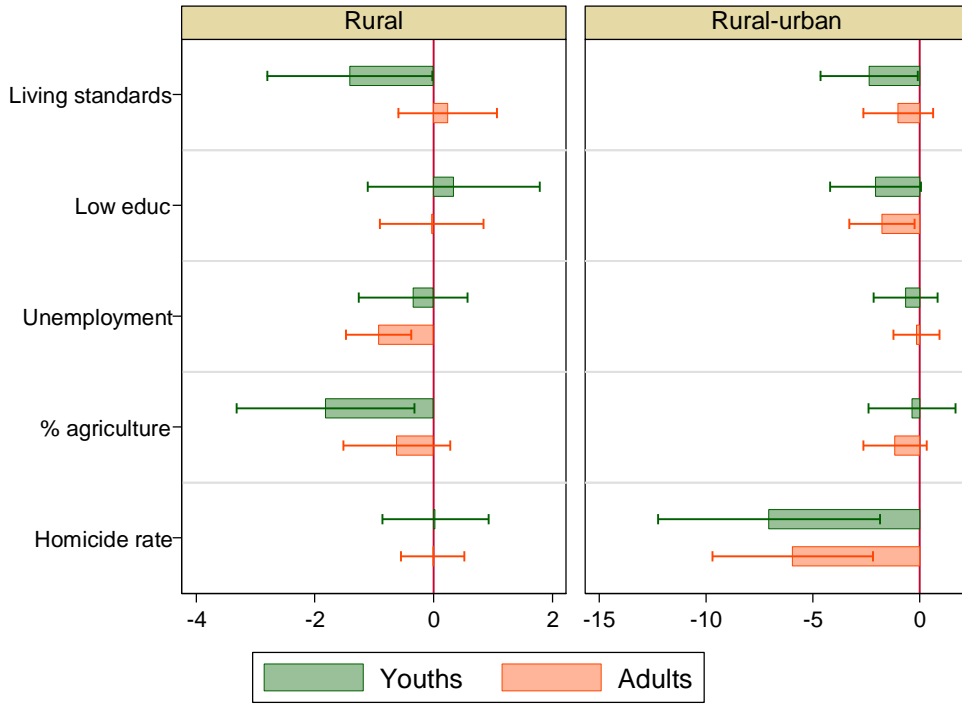


Figure 10: Peru: Coefficients for the estimation of net migration rates

