Accounting for Spatial Heterogeneity in Educational Outcomes and International Migration in Mexico

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Abstract. This paper analyzes the link between international migration and educational attainment of the Mexican youth at the municipality level in 2000. This approach examines spatial heterogeneity in such relationship by testing two regionalization proposals, through spatial regime models. On one hand, we test well-known hypothesis that geographical differences obey to the historical-migratory trajectory of each region. On the other hand, we propose a model that accounts for the spatial differences based on the interface of migration and labor markets performance. Results suggest a large, negative effect of international migration on educational achievement, and strong spatial heterogeneity in that association. Results from groupwise heteroskedastic spatial regimes support the second hypothesis, since it captures better the spatial variability, as well as the behavior of the international migration variable across these regimes. These outcomes highlight the need to use proper geostatistical methods to examine territorial disparities.

Keywords: regional variations, spatial regimes, heterogeneity, migration, educational attainment, Mexico.

1 Introduction

Studies of international migration effects on educational achievement are still inconclusive. On one hand, remittances could affect positively youth’s educational trajectories delaying their school to work transition, especially in poor families [4][8][18][22]. On the other hand, exposure to international migration decreases the probabilities of attending school because of an expanding “culture of migration”: joining the stream is a better mechanism of social mobility than education [18][19][25][29]. Therefore, migration disincentivizes adolescents to stay in school [26][29].

This paper contributes to the discussion by analyzing the link between international migration and educational attainment of the Mexican youth at the municipality level. This aggregated approach allows us to consider dimensions that have been underexplored. First, we want to examine regional variations in educational achievement and international migration rates, accounting for local job opportunities and educational services. Second, we test the well-known hypothesis that negative
effects depend on the historical migration trajectory of a region—a spatial heterogeneity hypothesis—through proper geostatistical models. Finally, we propose a model that accounts for the spatial differences in the effects of international migrations on educational achievement based on the interface of migration and labor markets performance.

2 Theoretical Background and Hypothesis

Mexican migration to USA is the largest cross-border migration flow in the world [24]. Despite the wide spread of migration along the Mexican territory, it is known that the stream has a strong regional component due to historical trajectories, the proximity to the border and the variations in the prevalence at the local level [13][15]. Such regional pattern, however, is becoming more diversified since 1990s, when migration rates grew to unprecedented levels and regions without any previous migration experience to US incorporated into the flows: in the 1987-1992 period only 8.8% of migrant population was from the South, while ten years later this percentage grew 3.1 points [28]. Within this emerging scenario, it is likely that the relationship between educational attainment and international migration varies significantly at the regional level.

Previous studies suggest that international migration could positively impact educational achievement, increasing households’ resources through remittances of both money and transferred knowledge. Those resources would allow children and adolescent to stay in school longer, and this may also have a demonstration effect in nearby localities [4][8][22]. Some studies suggest that even in places of strong migration tradition, educational attainment would not decrease because the expected returns to education are greater in US. Still, other studies suggest that, in order to be competitive in the American labor markets, the Mexican youth would have to complete at least upper secondary education, a level unattainable for most Mexicans; which suggest that migration expectations are unlikely to incentive youth’s investments in education [18].

In contrast, other studies indicate that international migration may have a negative effect on educational achievement since it disincentives adolescents to stay in school, given that migrating is a better alternative for social mobility [18][19][25][29]. These studies concur with the culture of migration theory, where “going north” is part of an economic strategy as well as a cultural experience for the youth [11][20][26][29]. Migration negative effects on education, therefore, will be largely dependent on the regional history of the stream and its prevalence rate, since how much migration is framed as an alternative to education depends on those characteristics. Durand and Massey [15] define four regions based on the historical intensity of Mexicans flows to the United States and on migration prevalence ratio (see Figure 2, top map): traditional, border, central and the southeast region. The authors suggest that each region reflects unique cultural characteristics, migrant social networks and a migration system built upon the historical resettlement flow. Although Massey and Durand [15] do not analyze educational achievement, their overarching argument about how spatial differentiation is shaped by the historicity of the migration stream holds for this variable too. Under this argument, international migration is expected to