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Conectividad social y patrones migratorios: un estudio de caso de México a Estados Unidos

Social Connectedness and Migration Patterns: A Case Study of Mexico to the United States

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Resumen

Propósito: analizar si la conectividad social existente entre residentes mexicanos y residentes estadounidenses influye en los flujos migratorios de México a Estados Unidos.
Diseño metodológico: regresiones lineales con efectos fijos utilizando el Facebook Social Connectedness Index (SCI) como medida de conectividad social entre dos regiones y los registros de matrícula consular como proxy para medir la migración.
Resultados: la conectividad social tiene un efecto positivo en el flujo migratorio entre estados mexicanos y estadounidenses
Limitaciones de la investigación: el análisis descriptivo no es suficiente para establecer causalidad entre las variables de interés. Sin embargo, las correlaciones fuertes siguen siendo informativas.
Resultados: una desviación estándar en nuestra medida de conectividad se asocia positivamente con aproximadamente un 5 por ciento más de tarjetas consulares autorizadas.

Palabras clave: migración Internacional, Conectividad Social, México-Estados Unidos, Facebook.

Abstract

Purpose: Analyze whether the existing social connectivity between Mexican and American residents influences migratory flows from Mexico to the United States.
Methodological design: Linear regressions with fixed effects using the Facebook Social Connectedness Index (SCI) as a measure of social connectedness among two regions and consular registration records are a proxy to measure migration.
Results: Social connectedness has a positive effect on the migratory flow between Mexican and U.S. states
Research limitations: Descriptive analysis is not enough to establish causality among the variables of interest. However, strong correlations are still informative.
Findings: One standard deviation on our measure of connectedness is positively associated with approximately 5 percent more authorized consular cards.

Keywords: International Migration, Social Connectedness, United States-Mexico, Facebook.

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Introduction

Migration is a global phenomenon that has been part of human history, driven by several factors, such as the search for better economic opportunities, family reunification, escape from violence, economic instability, and others. In the case of Mexico, during the five years 2015-2020, it is estimated that the median age of female migrants was 25 years, while for men, it was 27 years (BBVA Research, 2023). However, an increase in the number of migrant children has also been observed, highlighting the inhumane conditions migrants face in this process. Examples include human trafficking, which exploits them in several ways, and lack of protection and adequate care in receiving countries, among others. This phenomenon has significantly impacted societies of origin and destination, giving rise to demographic, cultural, and socioeconomic changes.

Mexico is an interesting country for researching migratory flows towards its neighbor, the United States because it allows us to consider the possible influence that social connectivity has on these patterns. There are two reasons why addressing this issue is important. First, this migratory phenomenon is rooted in systemic issues such as poverty, violence, and unemployment and persists and intensifies over time, as mentioned previously (Bucheli *et al.*, 2019; Harris and Todaro, 1970; Kilic *et al.*, 2019). Thus, between 2021 and 2023, there was an average monthly record of 63 thousand encounters with undocumented migrants (BBVA Research, 2023). Second, this migratory phenomenon has been the subject of debate in the political agendas of Mexico and the United States (International Institute for Strategis Studies, 2024; Katz *et al.*, 2007). And even after the implementation of strategies, agreements, restrictive policies, physial barriers, and, unfortunately, dehumanizing treatments that violate the human rights of migrants, migration continues to increase.

In this context, this paper proposes an innovative perspective, using the Facebook Social Connectivity Index (SCI) to assess the potential impact of connections between people on migration flows from Mexico to the United States. The complexity of social connectivity between the inhabitants of both nations, despite geographical proximity, raises the question of the need for a precise metric to determine how to measure this connectivity. In this specific context, literature has employed various metrics over time to address this challenge; however, the SCI is the most recent and innovative option. Its methodology, grounded in the tools provided by globalization, positions it as a relevant instrument to address this issue.

For the reasons previously mentioned, the main objective of this work is to determine if the existing connectivity between American and Mexican influences, in any way, the migratory flow from Mexico to the United States over 11 years from 2010 to 2021. The specific objectives follow the same line. To address this goal, a dataset was built, including information for migration, social connectedness –measured by the Facebook SCI–, violence, FDI, trade, poverty, distance, and Mexico's and United States' GDP using data at a state level. The empirical model we use is the pooled ordinary least squares (OLS). Additionally, we run a fixed effects (FE) model to control for the non-observable characteristics that remain constant over time (fixed effect), such as geography, culture, or any other constant feature of each one of the states.

The main finding of this research is that social connectedness is positively correlated with migration flows between Mexico and the United States. Moreover, the results observed for distance, violence, and Mexico's GDP indicate that an increment in any of these variables would reduce migration, whereas an increase in poverty and unemployment in the Mexican states, as well as the trade among states, would increase migration flow between Mexico and the United States.

This case study is presented in the following sections: a brief literature review, an explanation of the data used, which includes a description of the information sources employed as well as the methodology followed, the econometric estimation with its specific results, the limitations of the study and a concluding analysis.

Literature Review

The exploration of social networks and their role as determinants of migration have been insufficiently addressed in economic literature. There are still numerous gaps

that must be addressed to formulate concrete policies, as the understanding of the migration phenomenon is still incomplete. Nevertheless, recent research has incorporated the connections that individuals have both at the place of origin and the destination as influential factors in migration. Munshi (2020) incorporates into the base migration model, the "Roy Model", the destination networks to highlight how social networks influence migratory decisions, the migration process, and the interactions of migrants in their new home, as well as the overall magnitude of this phenomenon. Once it is used the augmented Roy Model to analyze migration, Munshi (2020) contends that networks offer support to their members by providing essential information on employment, housing, finances, opportunities, and the assimilation process, among other aspects. This support has the potential to reduce the barriers that often lead individuals to choose to remain in their place of origin. Furthermore, while the wage gap is positively correlated with migratory flows, research demonstrates that the most influential factor is the number of existing migrants in a specific location originating from a particular place.

Similarly, Manchin and Orazbayev (2018) examined how social networks impact people's intentions to migrate internationally and within their home countries. They analyzed data from Gallup's World Poll, which is a large, repeated cross-section, individual-level dataset conducted over multiple years in over 150 countries. The results showed that social connections both in one's home country and abroad were the most influential factors for migration intentions. Having close friends or relatives living in another country significantly increases someone's likelihood of planning to migrate internationally, explaining around 18% of the variability in intentions. Broad social networks also explained about 19% of the variability in intentions to migrate internationally and over 20% of the variability in intentions to migrate domestically within one's home country (Manchin and Orazbayev, 2018).

Being specific about the bilateral relationship between Mexico and the United States, particularly regarding the issue of migration. Amuedo-Dorantes and Mundra (2007) found that the use of social networks as a tool for creating and maintaining social ties in migrants, given their migration status –legal or illegal- showed no difference. However, when maintaining social ties, legal migrants were more susceptible to gathering more native friends than their counterparts. Meanwhile, illegal migrants had more long-lasting relations with family because they felt closer to their communities.

Also, Amuedo-Dorantes and Mundra (2007) emphasize the positive relationship between family and social ties in working wages; the article demonstrates that family relations in the United States of America will increase working wages by 2.6% for illegal migrants and 8% for legal migrants on average. And for social relations, this improves for illegal migrants with a 5.4% increase in working wage and 3.6% for legal migrants. Amuedo-Dorantes and Mundra (2007) point out the importance of social networks as a tool to create and maintain family and social ties due to the impact on working wages for both types of Mexican migrants.

Following the same logic, McKenzie and Rapoport (2010) analyze how migration networks influence the migration decisions of Mexicans to the United States, considering origin networks and building upon Roy´s Model. If costs, which include a variety of monetized factors, decrease with the size of the community network, it is determined that the effect of the networks on the probability of individuals migrating depends on their level of education. The results indicate that in places where networks are big and strong, migration decreases as the education level rises, whereas in places where networks are low, migration increases as education levels increase (McKenzie & Rapoport, 2010). These results are related to the type of migration in each community, as depending on the educational level and skills, it can be determined whether it is positive or negative migration, which should be considered when establishing policies in the United States.

Regarding the Facebook Social Connectedness Index (SCI), Bailey *et al.* (2018) are pioneers in using this index to measure the effects of social connectedness. Their main findings include that SCI explains trade levels, migration, and patent citations –to measure economic growth– with a positive and significant correlation. All three regressions they use have as control variables distance and SCI, as well as state/county fixed effects. Specifically, in the case of migration, the "Social Connectedness Index has significant explanatory power [...], beyond what is predicted by geographic distance" (Bailey *et al.*, 2018, p. 274). In other words, the effect of

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distance on migration can be due to the social connectedness that exists.

The Facebook Social Connectedness Index (SCI) has been previously used to study the migration phenomenon as one of the main applications is to predict further migration patterns. Minora *et al.* (2022) used Facebook SCI to forecast the countries where Ukrainian refugees will be placed. Their most important finding is that there is a positive and high correlation between the number of Ukrainian citizens residing in the European Union countries and the number of registrations for temporary protection –a proxy for migration–. This is useful for the authorities of the countries that expect to receive immigrants as they can manage issues regarding their integration and adaptation –social and economic– to the new place.

Data

To assess the effect of social connectedness on the migratory flows of Mexicans to the United States, a diverse array of data sources is employed to gather information and data concerning migration, social connectivity, and various determinants of the migratory phenomenon. Specifically, for the variables of interest of the model, consular identification cards issued in the U.S. for Mexicans are used as a proxy for migration, while for social connectivity, the Facebook Social Connectedness Index (SCI) is used instead.

On the other hand, the economic studies and analyses conducted have determined the existence of diverse factors influencing the migration phenomenon. Following Mendoza-Cota (2014), the econometric specification includes the Gross Domestic Product (GDP) of Mexico and the United States, unemployment, the distance between each pair of states, Foreign Direct Investment (FDI), and the total population. Nevertheless, this work will also incorporate other variables that affect migratory flows, such as poverty, trade, and violence. It is worth noting that the data were adjusted to ensure observations for all the variables mentioned for the years 2010 to 2021. Additionally, variables such as unemployment, FDI, total population, poverty, trade, and violence are considered at the state level in the Mexican Republic.

In the end, our sample is a panel database that includes 19 584 observations; each of these represents the interconnection between a Mexican state and a U.S. state each year. The sample covers the period 2010-2021, where variables such as migration, FDI, violence, and trade change across years and states. Even though Facebook SCI does not vary across time, Bailey *et al.* (2018) argue that this limitation is not significant because social networks tend to be stable over time. Moreover, even if our dataset does not allow conducting, for example, a difference-in-difference regression (DID), it still provides more robust results than those obtained with a simple cross-section. The inclusion of time and state-level fixed effects assures that the correlation we observe between migration flows among states and social connections is a persistent phenomenon that is not being driven by a specific event (like migration policies) or unobserved fixed factor (racism).

Sources of information

In this section, we describe the sources of information consulted to obtain the respective data for each mentioned variable.

For migration, consular identification cards are used in accordance with Mexico's Matricular Consular Program, which is consistent with the work conducted by other authors like Massey, Rugh, & Pren (2010). This data is employed because conventional information sources, such as censuses, do not have the required level of disaggregation for this study, which entails a state-level analysis for both Mexico and the United States. This data is obtained from the Institute of Mexicans Abroad (IME, by its Spanish acronym), which keeps track of the number of Mexicans registered at consular offices in each state in the United States, who indicate their state of origin when registering (IME, n.d.). This approach allows for a proxy to measure undocumented migrants in each state of the United States, identifying the Mexican state of origin from 2010 to 2021 (Massey, Rugh & Pren, 2010).

As for Facebook's Social Connectedness Index (SCI), it employs anonymous data to assess the probability of individuals being "friends" on Facebook between two different people from two distinct locations (Humanitarian Data Exchange, [HDX], 2021). This index is a ratio, with the numerator consisting of Facebook

Connections, which is the overall count of Facebook friendships between people in the two specified places. Meanwhile, the denominator involves the product of Mexican Facebook users and United States Facebook users. Which is expressed in the following equation:

$$Social\ Connectedness_{i,j} = \frac{FB\_Connections_{i,j}}{FB\_Users_i \times FB\_Users_j}$$

In this equation, one can observe that the information is composed of pairs, as the index provides a number representing connections between individuals from each country with a state-level breakdown. The minimum value can be 1, meaning that the larger the value, the greater the likelihood of a connection between the two locations. In this context, the subscript *i* corresponds to each of the 32 states of Mexico, while j represents each of the 52 states of the United States. It is important to note that there is no temporal information in this index; there is only one data point for each pair of states. Thus, the index it is used was last updated on December 15th, 2021.

The unemployment rate is used for the variable "Unemployment", the data is sourced from the National Survey of Occupation and Employment (ENOE) and generated by the National Institute of Statistics and Geography (Inegi, by its Spanish acronym). These observations correspond to a sample restricted to individuals aged 15 and over and have a quarterly frequency, representing a percentage of the economically active population (PEA) (Inegi, 2023a).

Population data for the years 2010 and 2020 were obtained from the National Institute of Statistics and Geography (Inegi) and are expressed in thousands of people (Inegi, n.d.). For the other years, the population projection estimated by the Ministry of Economy (SE, by its Spanish acronym) was used (Secretaría de Economía [SE], n.d.a). United States Gross Domestic Product (GDP) data for the U.S. were obtained from the Bureau of Economic Analysis (BEA) and are expressed in billions of dollars at current prices (Bureau of Economic Analysis, 2023). For each state in Mexico, GDP data were obtained from Inegi and are expressed in millions of pesos at current prices (Inegi, 2022). To calculate the distance between the capitals of each U.S. state and each Mexican state, Google Maps was used. The measurement was made considering the distance in a straight line between these geographic points.

As well as population data, violence data was obtained from the mortality statistics of the National Institute of Statistics and Geography (Inegi, 2023b). It is expressed in the number of deaths, which cause was cataloged as murder.

Both for Foreign Direct Investment (FDI) and for trade, data is obtained from Data México, a data platform created by the Ministry of Economy (SE, by its Spanish acronym). While FDI is measured in millions of dollars, trade is measured by the trade flow amount in millions of dollars. Both are only related to the United States and are restricted to the years mentioned (Secretaría de Economía [SE], n.d.b).

As for poverty, data was obtained from the Evaluation National Council (Coneval, by its Spanish acronym). It is measured in thousands of people, and it considers anyone who is under the poverty line (not moderate or severe poverty). Information includes the following years: 2010, 2012, 2014, 2015, 2016, 2018 and 2020 (Coneval, 2022).

Methodology

As it was mentioned previously, the econometric specification includes all these variables, so the model is represented as follows:

$$Mig_{ijt} = \beta_0 + \beta_1 SCI_{ij} + \beta_2 Unemp_{it} + \beta_3 Pop_{it} + \beta_4 GDP_{jt} + \beta_5 GDP_{it} + \beta_6 Dist_{ij} + \beta_7 Violence_{it} + \beta_8 Pov_{it} + \beta_9 FDI_{it} + \beta_{10} Trade_{it} + + \gamma_i + \gamma_j + \tau_t + \mu_{it}$$

Where:

Mig = migration, which are the consular identification cards issued in the United States for undocumented Mexican migrants.
SCI = Facebook Social Connectedness Index per capita.
Unemp = unemployment rate in Mexico at the state level.
Pop = total population in each state of Mexico.
GDP = Gross Domestic Product, both for Mexico and for the United States.

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Dist = distance between each state of Mexico and each state of the United States.
Violence = rate of violence in Mexico at the state level.
Pov = rate of poverty in Mexico at the state level.
FDI = Foreign Direct Investment in Mexico.
Trade = trade flow in Mexico.
$\gamma_{i,j}$ = State fixed effects.
τ_t = Time fixed effects.
μ_{it} = Error term.

While the subscript *i* represents each of the states of Mexico, *j* indicates each state of the United States, and *t* corresponds to the specific year so *t = 1* will be the first year under analysis (2010), *t = 2* will be 2011, and so on until 2021.

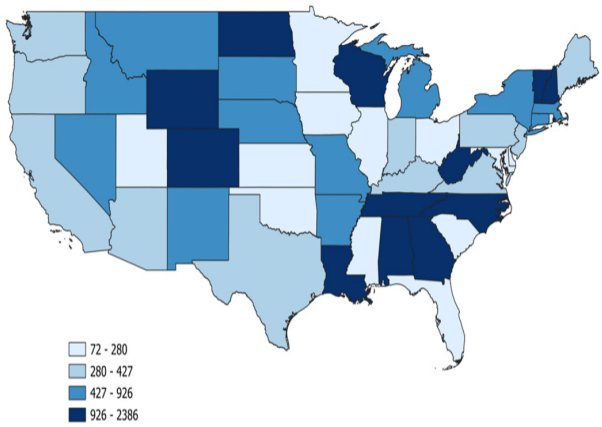
In this way, the following procedure is followed to estimate the effect of social connectedness on Mexican migration flows to the United States from 2010 to 2021. Firstly, a database was constructed comprising all variables involved in the model, which is considered a panel dataset as it contains information for each state in Mexico for the 11 years studied in this work. Secondly, an estimation is carried out using Pooled Ordinary Least Squares (POLS) to test the proposed hypothesis and determine if there is a relationship with the theory.

Finally, the econometric model is estimated by adding two more variables to control for the time and each state's fixed effects, as will account for the economic conditions of each year and state. Where the variables are the same as the previous formula but adding three terms; γ_i, that represents the fixed effects for each state of Mexico, γ_j the fixed effects for each state of the United States, and τ_t stands for the fixed effects for each year.

The SCI index only considers the number of connections between the two states, considering the number of Facebook users. Hence, it does not consider the fact that in places where the territory and the population are larger, there will be more users and simultaneously more connections and friendships on Facebook. For this reason, to control for this variation among the states, the SCI is adjusted with the total population of each of the Mexican and U.S. states.

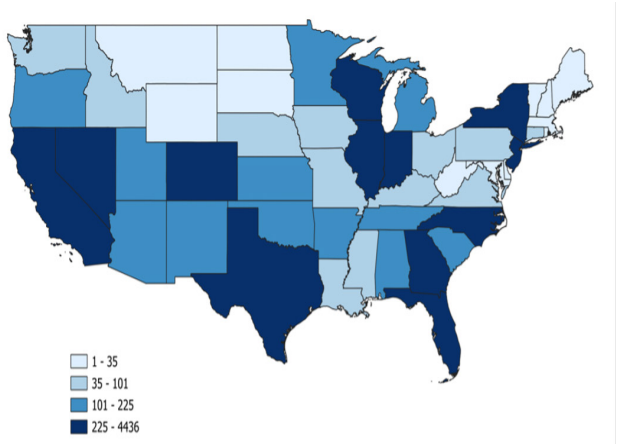
In addition, below, the relation analyzed in this study is graphically represented in two maps of the contiguous United States territory, reflecting the variables of interest. The first map (Figure 1) measures the average Social Connectivity Index between Mexico and the United States across the 32 states of the Mexican Republic, with each state in the United States, Meanwhile, Figure 2 gauges the average number of Consular Identification Cards issued in the United States for Mexicans from the 32 states of the Mexican Republic with each state in the United States.

Figure 1. Average Social Connectivity Index between Mexico and the United States across the 32 states of the Mexican Republic, with each state in the United States



Source: Author's elaboration with software QGIS using data from HDX, 2021.

Figure 2. Average number of Consular Identification Cards issued in the United States for Mexicans from the 32 states of the Mexican Republic



Source: Author's elaboration with software QGIS using data from IME, (n.d.).

One can observe that certain states, such as Michigan, Wisconsin, North Carolina, and Arkansas, among others display a comparable intensity in the average Social Connectedness Index and the number of consular identification cards issued. More thoroughly, the maps can indicate that in states where there is a high average of social connectivity index, there is also a high average of consular identification cards issued. Similarly, in these states with similar average intensities, when there is a low average of the Social Connectedness Index, there is also a low average number of Consular Identification Cards issued.

It is important to acknowledge that there are some key states - Texas, California, Florida, among others- that should follow these relationships –high Social Connectedness Index states have high Consular Identification Card emissions-, but there are some external factors that affect this relationship, which will be addressed and discussed in the limitations section.

Table 1 presents the descriptive statistics of the data. The number of consular identification cards each state received on average each year during the study period is 492.36. Nevertheless, the standard deviation indicates that the data is highly dispersed around the mean. Mexican states had, on average, 1,689.86 thousand people living in poverty, 886.10 murders per year, and around 4.11 percent of the population were unemployed during the period. U.S. states have, on average, a GDP of 340,576.94 billion US dollars, whereas Mexican states have a significantly lower GDP with only 510,369.80 million Mexican pesos (MXN).

Table 1. Descriptive Statistics

Variables	Mean	SD	Min	Max
Migration	492.36	2283.56	0	59427
SCI per capita	.0002604	.0005304	3.36e-06	.0123172
Distance	2727.34	942.33	462	7400
Poverty	1689.86	1615.4	151.74	9206.18
Unemployment	4.11	1.42	1.17	7.6
Violence	886.1	917.38	34	6421
FDI	14263720.26	85063988.08	-1258.6	7.62E+08
Trade	1.09E+10	1.31E+10	14706000	5.86E+10
GDPMX	510369.8	528027.62	81992.18	3132839
GDPUSA	340576.94	430043.38	28403.7	2874731
Observations	19584			

Source: Author's calculations using data from sources previously mentioned.

Results

Column 1 in Table 2 shows the OLS results of the effect of social connectivity (measured by the SCI per capita) on migration. This effect is positive, with a magnitude of 579.6. However, this result is not significant at any level. One of the reasons why the effect of social connectivity on migration is not significant may be because there are unobserved factors that drive our main results. For example, states where Mexican migrants have had low representation historically. To account for these unobserved factors, we include time and state-fixed effects. This will help alleviate the bias resulting from unobserved time-invariant features. Nonetheless, our estimates may still be biased if our results are affected by unobserved time-varying features (e.g., increasing levels of anti-migration sentiment in red vs blue states).

We present the results of our fixed effects model in column 2 of Table 2, where we add fixed effects for each year and for each state for both nations. In this case, we see that the coefficient for the SCI per capita is positive and significant. In terms of the magnitude, a one standard deviation in our index increases the number of consular cards by 27. Given that our sample shows an average of 492 cards in the period under analysis, this represents a 5 percent increase in migration.

In addition to the above, we can observe that distance has a negative and significant effect. This is not sur-

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prising as the literature on migration shows a negative relation between the cost of migrating and migration flows (Roy, 1951; Borjas, 1987). Meanwhile, the rest of the controls mentioned in the fixed effects model do not show any significance, except for the GDP of the United States, which has a negative and significant effect on migration flows. Finally, the R-squared is 0.368, which indicates that approximately 36.8% of the variability of migration can be explained by the independent variables included in the model.[1]

These results suggest social connections play a crucial role in shaping migration patterns and the well-being of migrants. Networks of family, friends, and community members in both the state of origin and destination provide vital support, including information about job opportunities, housing, legal assistance, and emotional guidance. These connections significantly reduce the uncertainties and costs associated with migration, making the transition smoother. Moreover, they help migrants integrate into their new environment by fostering a sense of belonging and reducing isolation. Research shows that migrants embedded in strong social networks experience better health outcomes, higher wages, and greater overall well-being (Amuedo-Dorantes & Mundra, 2007; Munshi, 2020).

Limitations

The economic analysis conducted in this study presents several limitations. The first of these is the lack of data measuring migratory flows with a state-level breakdown between Mexico and the United States. Many information sources only provide state or municipal data for Mexican migrants leaving the country without specifically indicating their destination. Other sources only capture the number of Mexicans living in the United States without specifying the Mexican state they originate from. Thus, commonly used censuses and surveys in the analysis of the migratory phenomenon are not useful for examining migratory flows, as they do not allow the observation of the origin-destination of migrants.

Table 2. The effect of SCI on migration (Dependent variable: Consular cards)

Variables	OLS	FE
SCI per capita	579.6	55,035***
	(13,254)	(13,435)
Distance	-0.127***	-0.223***
	(0.0167)	(0.0346)
Poverty	0.126***	0.0301
	(0.00962)	(0.0908)
Unemployment	-30.67***	0.481
	(10.05)	(23.78)
Violence	0.0875***	-0.0541
	(0.0183)	(0.0336)
GDPMX	6.26e-05*	-0.000426
	(3.44e-05)	(0.000321)
GDPUSA	0.00251***	-0.00226***
	(0.000141)	(0.000778)
Trade	.	4.49e-10
	(.)	(5.33e-09)
FDI	.	1.45e-08
		(2.51e-07)
Year fixed effects	No	Yes
Mexican states fixed effects	No	Yes
U.S. states fixed effects	No	Yes
Observations	16,416	16,416
R-squared	0.246	0.368

Source: Author's calculations using data from sources previously mentioned. SCI adjusted is used instead of the SCI. Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

However, the analysis required in this study specifically focuses on migrants whose destination is the United States, and it is necessary to know in detail which state they are heading to. Therefore, to measure migration in this study, consular registrations of undocumented migrants in the United States are used as a proxy for migratory flows from each state in Mexico to each state in the United States.

This leads to the second limitation, as this variable used to measure migration does not accurately reflect migratory flows, as it excludes certain groups of Mexicans who migrate. Additionally, many migrants do not register in these offices, which could lead to underestimating or

[1] Other factors that could affect migration besides social connections and the controls we include in our analysis are discrimination and migration policies (such as the attempt of ending the Deferred Action for Childhood Arrivals (DACA) by former president Donald Trump). Although these are relevant factors, we do not think that they will bias our results for two reasons. First, migration policies tend to be national in scope, so our time trend variable captures any variation related to time changing factors. Second, our U.S. state-level fixed effect corrects for all unobserved time fixed characteristic such as population's attitudes towards immigrants.

overestimating values since not all types of migration are captured.

Another evident limitation lies in the econometric specification. As mentioned earlier, the variable capturing observations of migratory flows does not fully encompass all migrants, resulting in a problem known as measurement error. This issue, combined with a possible bidirectional causality between migration and social connectivity, may cause an endogeneity problem, which would need to be addressed using instrumental variables.

On the other hand, the Facebook Social Connectedness Index (SCI), which is the control of interest and a determinant of migration analyzed in this study, is not a variable that can be tracked over time. Only one observation is available, calculated in 2021 (cross-section data). This implies that changes in the connection between people in the United States and Mexico over time cannot be observed. This could also lead to underestimating results since social networks have strengthened, and more people are in contact with electronic devices and social media over time. However, some authors have claimed that this limitation is not particularly important since social connectedness is relatively stable across time (Bailey *et al.*, 2018).

Conclusion

Mexico has a high migratory flow towards the United States, with approximately 63 000 encounters of undocumented migrants between 2021 and 2023 (BBVA Research, 2023); the reason this has become a topic of debate in the political agenda of both nations and a subject of study in identifying the causes of this phenomenon. Likewise, studies on migration in other parts of the world have linked migration to social connectivity as a determinant. However, this relationship has been barely studied in Latin America, specifically in the bilateral relationship between the U.S. and Mexico. Therefore, this study lays the groundwork for future research using the Facebook Social Connectivity Index as a tool.

Using the OLS estimator with fixed effects, it is found that the SCI has explanatory power in migratory flows between the two countries from 2010 to 2021; this explanatory power can be explained as an increase of one standard deviation in the SCI results in an approximate 27 more authorized consular identification cards. On the other hand, among the variables included in the model, distance stands out as a reducer of migratory flows, serving as a proxy variable for transportation costs. Incorporating these insights into public policy is essential for enhancing migration management and support systems. Policymakers could design programs that strengthen these social ties, such as community-based integration initiatives or reunification policies that enable family and community support. Additionally, fostering partnerships between origin and destination countries to facilitate communication and services for migrants could further enhance their well-being. Migration policies that recognize and build upon existing social networks can lead to more sustainable migration outcomes and a smoother integration process for migrants.

Finally, one of the main limitations of this study was the challenge of obtaining comprehensive data to measure migration flows, particularly at the state-to-state level between Mexico and the United States. Future research can address these data limitations by leveraging more granular and updated sources of migration data, such as longitudinal surveys that track migrants over time or by integrating administrative datasets from government agencies that record migratory movements more accurately. Additionally, studies could explore the use of alternative proxies for migration, such as mobile phone data, social media activity, or remittance flows, which may offer real-time and geographically precise insights into migratory patterns. Advancements in big data analytics could also allow for the combination of various data sources, reducing the reliance on single proxies like consular registrations. By addressing these data gaps, future research will not only provide more precise results but also enhance the understanding of migration dynamics, supporting the design and implementation of policies that foster a more coordinated and beneficial relationship between both countries. This would contribute to a better understanding, facilitating the creation and implementation of policies for the benefit of both countries encouraging a better and prosperous relationship.

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