On the Move

Changing Mechanisms of Mexico-U.S. Migration

Filiz Garip
Cornell University
There are 12 million Mexican-born in the United States, about half of them are undocumented.

Who are these migrants? What brings them here?
Many theories, from multiple disciplines, speak to these questions.
Neoclassical economics:
Individuals migrate to maximize earnings.

New economics of labor migration:
Families send migrants to diversify risks to earnings.

Cumulative causation:
Individuals follow former migrants in family or community.
These theories are not mutually exclusive.
Empirical work fails to capture causal heterogeneity.

Most studies characterize the average case and select a theory that best accounts for that case.
This study considers the following:

Individuals might migrate for different reasons.

Different theories might apply to different groups or under different circumstances.
How do we capture the heterogeneity in migration behavior?
Strategy

1. Fix the outcome and study only the migrants.
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2. Search for different groups among migrants. Groups are defined by shared configurations of attributes. Assumption: Individuals with similar attributes face similar opportunity structures.

3. Study the conditions that set apart each group from the other groups as well as non-migrants.
Who migrates?

When?

Why?
Data

Mexican Migration Project (MMP) surveyed about 200 randomly-selected households in 143 Mexican communities from 24 states between 1982 and 2013.

Our sample contains 19,243 migrants observed during their first U.S. trip between 1965 and 2010.
Method: Cluster analysis

Discovers groups with similar attributes in data
Method: Cluster analysis

How it works:

1. Choose and scale the relevant attributes
Method: Cluster analysis

How it works:

1. Choose and scale the relevant attributes
2. Choose an algorithm: K-means
Method: Cluster analysis

How it works:

1. Choose and scale the relevant attributes
2. Choose an algorithm: K-means
3. Choose a similarity measure: City-block distance

\[ d_{ij} = \sum_{k=1}^{p} |x_{ik} - x_{jk}| \]

- \(d_{ij}\): distance between individuals \(i\) and \(j\)
- \(x_{ik}\): value of attribute \(k\) for individual \(i\)
- \(p\): number of attributes
Method: Cluster analysis

How it works:

1. Choose and scale the relevant attributes
2. Choose an algorithm: K-means
3. Choose a similarity measure: City-block distance
4. Determine K, the number of clusters, using cluster validation measures
Cluster validation measures

- **Goodman–Kruskall Gamma**
- **Pearson Gamma**
- **Dunn Index**
- **Within-to-Between Distance Ratio**
Cluster stability measures

Average Proportion of Non-Overlap

Average Distance between Means

Average Distance

Figure of Merit
Who migrates?

When?

Why?
Cluster 1
Man
No education
No assets
Rural community
Central-west
Cluster 1

Man
No education
No assets
Rural community
Central-west

FROM PARTIAL DATA

Household head
Married
Frequent trips
Sends remittances
Returns to Mexico
Cluster 1

Man
No education
No assets
Rural community
Central-west

FROM PARTIAL DATA

Household head
Married
Frequent trips
Sends remittances
Returns to Mexico

CIRCULAR MIGRANTS
Cluster 2

Man

Primary education

Owns land/business

Poor community

Central-west
Cluster 2

Man
Primary education
Owns land/business
Poor community
Central-west

FROM PARTIAL DATA

Younger son
Single
Sends remittances
Returns to Mexico
Cluster 2
Man
Primary education
Owns land/business
Poor community
Central-west

FROM PARTIAL DATA

Younger son
Single
Sends remittances
Returns to Mexico

CRISIS
MIGRANTS
Cluster 3

Woman
Primary education
Ties to U.S. migrants
Rural community
Central-west
Cluster 3
Woman
Primary education
Ties to U.S. migrants
Rural community
Central-west

FROM PARTIAL DATA

Daughter or spouse
Married
Single trip
Settles in the U.S.
Cluster 3

Woman
Primary education
Ties to U.S. migrants
Rural community
Central-west

FROM PARTIAL DATA

Daughter or spouse
Married
Single trip
Settles in the U.S.

FAMILY MIGRANTS
Cluster 4

Man

Middle school +

Owns home

Urban community

Border or Central
Cluster 4

Man
Middle school +
Owns home
Urban community
Border or Central

FROM PARTIAL DATA

Son or head
Works in a factory
Earns high wages
Cluster 4
Man
Middle school +
Owns home
Urban community
Border or Central

FROM PARTIAL DATA

Son or head
Works in a factory
Earns high wages

URBAN MIGRANTS
<table>
<thead>
<tr>
<th>Cluster 1</th>
<th>Cluster 2</th>
<th>Cluster 3</th>
<th>Cluster 4</th>
</tr>
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<tbody>
<tr>
<td>Man</td>
<td>Man</td>
<td>Woman</td>
<td>Man</td>
</tr>
<tr>
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<td>Urban community</td>
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<tr>
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<td>Central-west</td>
<td>Border or Central</td>
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FROM PARTIAL DATA

- Household head
- Married
- Frequent trips
- Sends remittances
- Returns to Mexico

- Younger son
- Single
- Sends remittances
- Returns to Mexico

- Daughter or spouse
- Married
- Single trip
- Settles in the U.S.

- Son or head
- Works in a factory
- Earns high wages

CIRCULAR MIGRANTS
CRISIS MIGRANTS
FAMILY MIGRANTS
URBAN MIGRANTS
Who migrates?

When?

Why?
Each migrant group becomes prevalent in a particular period.

Are differences between groups real or are they an artifact of secular trends in Mexico?
TRENDS IN EDUCATION

Years of education

Year

1965 to 1990

Non-migrants
TRENDS IN EDUCATION

Urban migrants

Non-migrants

Circular migrants
TRENDS IN URBAN RESIDENCE

Share in urban area

Year


Non-migrants
TRENDS IN URBAN RESIDENCE

Urban migrants

Non-migrants

Circular migrants

Year

Share in urban area
TRENDS IN WEALTH

Number of rooms owned

Year

Non-migrants

TRENDS IN WEALTH

Number of rooms owned

Crisis migrants

Non-migrants

Circular migrants

Year

Logit model of first-migration (run separately for each cluster)
Logit model of first-migration (run separately for each cluster)
Logit model of first-migration (run separately for each cluster)
The distinct characteristics of each group are not just a reflection of changing Mexican population over time, but also of changing selectivity of migrants from that population.
Who migrates?

When?

Why?
Are different groups responding to different *macro-level* conditions?
<table>
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<tr>
<th>Category</th>
<th>Variables</th>
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<tbody>
<tr>
<td>Neoclassical model</td>
<td>Low-skill wage in US, GDP per capita in MX, Unemployment in US, Unemployment in MX, Border patrol enforcement (BPE) budget</td>
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<tr>
<td>New economics</td>
<td>Inflation in MX</td>
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<td>Cumulative causation</td>
<td>MX migrant stock in US, Visa availability for MX in US</td>
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<td>Segmented markets</td>
<td>Δ in employment in migrant-heavy sectors in US</td>
</tr>
<tr>
<td>World systems</td>
<td>MX-US trade</td>
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<td>Other</td>
<td>Lagged birth rate in MX</td>
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Standardized estimates from an OLS model of annual number of first-time migrants (per 1000 of population)

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Coefficient significant (p<0.05)
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CIRCULAR MIGRANTS & BORDER PATROL BUDGET

- Cluster 1 migrants
- Log of U.S. BPE budget

% of total migrants vs. Year

Log US$ in 2010

CIRCULAR MIGRANTS ~ Neoclassical model
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CRISIS MIGRANTS & MEXICAN INFLATION

- **Cluster 2 migrants**
- **Mexican inflation rate**

% of total migrants

Year

Year

Inflation rate (%)

Crisis Migrants

Mexican Inflation
CIRCULAR MIGRANTS ~ Neoclassical model

CRISIS MIGRANTS ~ New economics model
States impacted by the coffee crisis, 1990-92
The number of crisis migrants....

doubled in the coffee-growing states after the coffee crisis
States impacted by the earthquake, 1985
The number of crisis migrants....

doubled in the coffee-growing states after the coffee crisis

increased by 50 percent in the states hit by the earthquake
Meso-level analysis increases confidence in the aggregate regression estimates.
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FAMILY MIGRANTS & US RESIDENCIES TO MEXICANS

Cluster 2 migrants

U.S. permanent residencies to Mexicans

IRCA

Year

% of total migrants

Log of permanent residents admitted
CIRCULAR MIGRANTS ~ Neoclassical model
CRISIS MIGRANTS ~ New economics model
FAMILY MIGRANTS ~ Cumulative causation model
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CIRCULAR MIGRANTS ~ Neoclassical model
CRISIS MIGRANTS ~ New economics model
FAMILY MIGRANTS ~ Cumulative causation model
URBAN MIGRANTS ~ World-systems model
States with the highest exposure to foreign investments
“...one of two or three cardinal problems that social science has not yet come to grips with is precisely this issue of heterogeneity... The ubiquity of heterogeneity means that for the most part we substitute actuarial probabilities for the true individual probabilities, and therefore we generate mainly descriptively accurate but theoretically empty and prognostically useless statistics.” (Letter from Otis Dudley Duncan to Yu Xie, 30 July 1996)

“The most important discovery [in microeconomic investigations] was the evidence on the pervasiveness of heterogeneity and diversity in economic life. When a full analysis of heterogeneity in responses was made, a variety of candidate averages emerged to describe the “average” person, and the long-standing edifice of the representative consumer was shown to lack empirical support.” (James Heckman, Nobel Memorial Lecture in Economic Sciences, 8 December 2000)