

# Gambling for America

## The First Wave of Migration to the Americas, 1492-1540

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## The setup

The westward exploration started with Columbus was one of the most important migrations in human history.

We know very little about it from a systematic and quantitative perspective.

- First attempts by philologists (Neasham, 1939; Boyd-Bowman, 1964, 1968; Lockhart, 1968; Rosenblat, 1971)
- Rough estimates using number of ships and tonnage (Chaunu and Chaunu, 1955; Mörner 1975)
- Other papers used estimates by Boyd-Bowman (1964, 1968)

▶ estimates

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We know much more about transatlantic migration during the Age of Mass migration and about early modern slave trade.

**BUT!**

So far, we have not been able to study the creation and development of migration networks from their inception.

## Questions

- How large was the pioneer migration wave to the Americas (1492-1540)?
- Where did these free migrants come from? Where did they go?
- What drove this migration wave?
- How did networks develop?

## Answers

- We find that at least 19,000 migrants left Europe to the Americas from 1492 to 1540
- About one-third departed from the provinces of Sevilla and Badajoz
- The first settlers (until 1510) went to the Caribbean, then to Tierra Firme (Central America, Colombia, and Venezuela) followed by Mexico and Peru (1520s and 1530s respectively)
- Two important forces at play: explorers pushing the settlement frontier over time and the origin networks
  - Regional specialization consistent both with network effects and formed early on
  - Not much evidence of regional specialization in particular destination

## Free migrants to the “New World”

“To serve God and His Majesty and become rich”

Bernal Díaz del Castillo (1568)

Two types of free migrants:

- The first movers
- The followers

(Caveat: this paper is *not* about enslaved people or indentured servitude. That is another paper(s). We know that around one-sixth of free migrants brought enslaved servants with them to the Americas.)



## The first movers: the explorers

- The “New World” was divided between Portugal and Spain per the Pope Alexander VI and the Treaty of Tordesillas
- All exploration voyages had to be sanctioned by the Crown
- Most of them were financed privately, not by the Crown
- Initially, Columbus had the monopoly of exploration and settlement of the Spanish Americas
- Columbus’ ineptitude and brutality in the first two expeditions led the Crown to limit his authority and to open up exploration

▶ summary



## The followers

- The Crown needed settlers to pacify, control, and develop the new territories.
- First settlements: Navidad (1492), Isabela (1493)—both failed
- The Crown designed restrictive migration policies.
  - Migrants had to be “qualified and professional”
  - Migrants had to be subjects of the Crown of Castile and Aragon and Christian, i.e. no foreigners (later naturalized Christians were allowed)
  - Migrants had to apply for a license to travel



► cost

## The data

- Individual records of voluntary migrants from Spain (ship manifests and licenses from the Archivo General de Indias) ▶ pares
  - Origin, destination, characteristics
- Population data from different regions in Spain (from a variety of censuses)

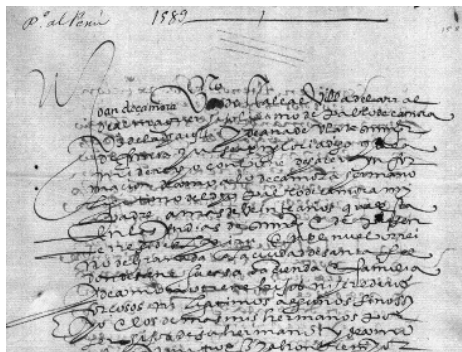
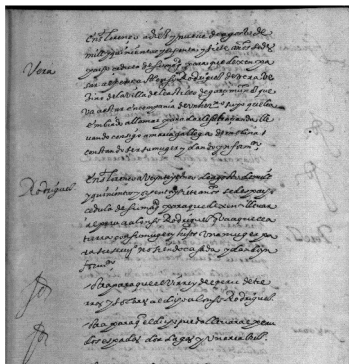


Figure: Records of Juan Zamora's trip to New Granada

## The data: example of a migration record



**Figure:** Alonso Rodriguez de Vera's license

### License

San Lorenzo, August 19th, 1587:

**Petition** to travel for Alonso Rodriguez de Vera, neighbor of the Castillo de Garcimuñoz village to join his brother in his hacienda in Peru.

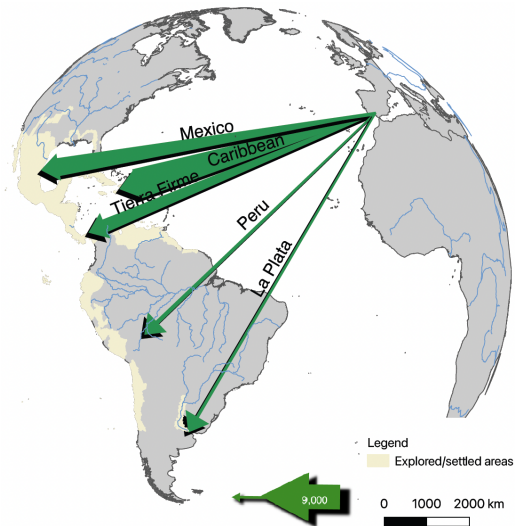
San Lorenzo, August 25th, 1587:

**Petition** to travel for Alonso Rodriguez and his wife and children; including a single female servant.

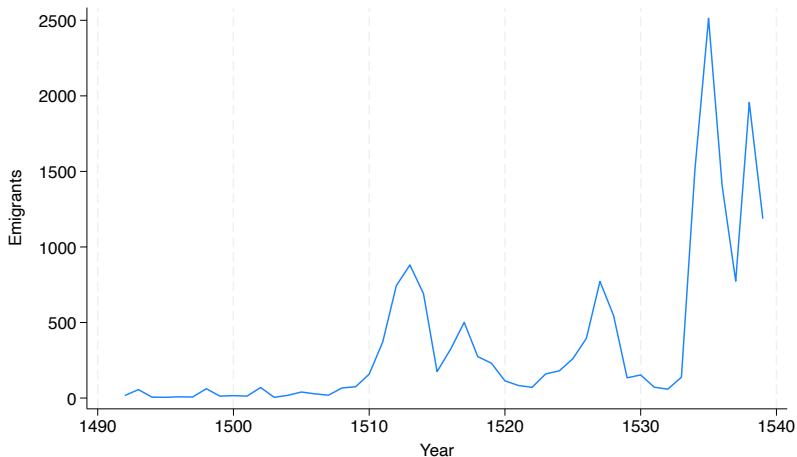
**Petition** to have the viceroy of Peru grant lands to Alonso Rodriguez.

**Petition** to approve travel with two swords, two daggers, and one arquebus.

# Total migration flows to Spanish America, 1492-1540



## Migration flows to Spanish America over time, 1492-1540

[▶ more](#)

## Migration rates by district and decade

Districts are divided into deciles of their aggregate migration rate over each decade. Darker colors indicate a higher migration rate. Districts in white have either no migration, or no denominator with which to compute migration rates.

▶ rates by destination

## The role of networks

Networks explaining origins and quantities of migration.

Estimation using a variety of logit regressions (binominal, multinomial, nested).



## The role of networks

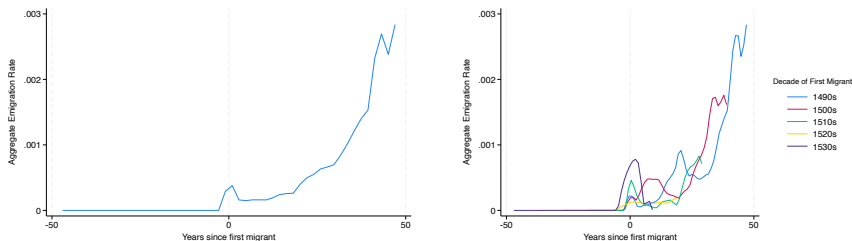
Networks explaining origins and quantities of migration.

Estimation using a variety of logit regressions (binominal, multinomial, nested).

- Bulk of migrants came from locations that had already sent migrants by 1510, slow at first but no leveling off by 1540.
- Distance to Sevilla an important determinant of migration
- Stock of migrants has a strong effect on the rate of migration
  - especially in the earlier period (pre-1519)
  - more important for more distant locations
  - negatively related to elevation

# Migration rates to any destination, relative to year of first migration

Bulk of migrants came from locations that had already sent migrants by 1510, slow at first but no leveling off by 1540.



This figure presents nonlinear regressions of migration rates relative to the year in which a place sent its first migrant.

► Origin-Destination

# Networks

Migrant stock predicts migration rates.

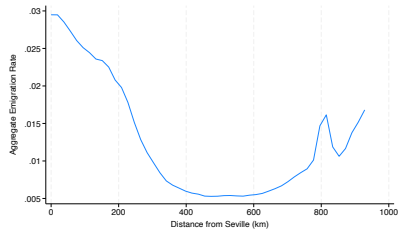
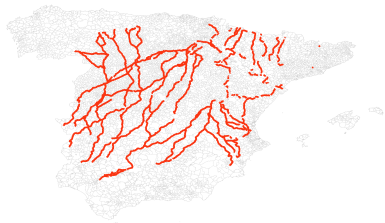
Dependent variable: Rate of migration for district  $i$  and year  $t$

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Migrant Stock	31.646 <sup>a</sup> (2.118)	25.092 <sup>a</sup> (1.492)	18.163 <sup>a</sup> (0.878)	18.268 <sup>a</sup> (1.302)	46.905 <sup>a</sup> (6.669)	21.711 <sup>a</sup> (6.150)	41.383 <sup>a</sup> (9.569)	16.514 <sup>a</sup> (0.701)
Stock × Extremadura					-4.252 (5.484)			
Stock × Andalucía					-29.437 <sup>a</sup> (6.138)			
Stock × pre-1519				38.991 <sup>a</sup> (6.291)				
Stock × Badajoz						15.902 <sup>a</sup> (6.158)		
Stock × Seville						-0.000 (0.000)		
Seville Distance							-1.541 (1.002)	
Stock × Seville Distance							14.286 <sup>a</sup> (4.614)	
Explorers Stock								221.637 (184.771)
Observations	13,488	13,488	13,488	13,488	13,488	13,488	13,488	13,488
Year FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes

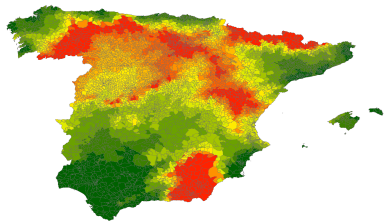
Significance levels: <sup>a</sup>  $p < 0.01$ , <sup>b</sup>  $p < 0.05$ , <sup>c</sup>  $p < 0.1$

Notes: Standard errors clustered at the province level. Unit of observation is a district-year. This table presents the results of a binomial regression for migration to any destination. Coefficients can be interpreted as in a logit regression. Migrant stock is defined as the total number of emigrants from a district from 1492 to the year prior to the year in question, divided by population. Explorers stock is defined similarly for explorers. Distance to seville is standardized to have mean zero and standard deviation one, and is based on travel distance, as explained in text.

# Distance and migration

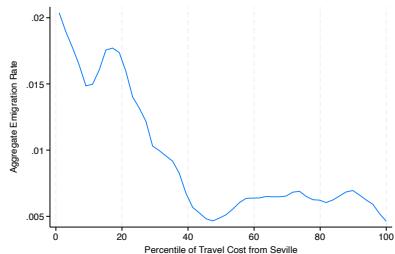


# Travel costs and migration



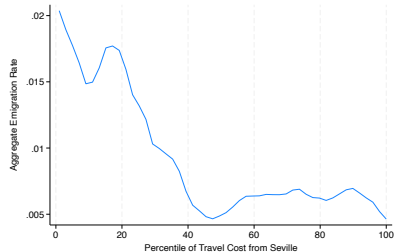
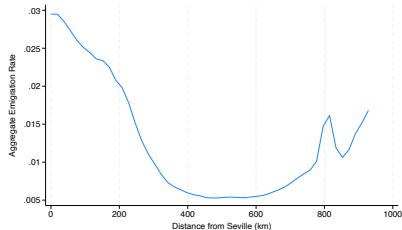
▶ traveldistance

▶ Other



Divided into deciles of distance from Sevilla.

## Distance v travel costs and migration



Distance gives an unusual relationship with migration whereas travel costs give a more monotonic relationship.

## Networks and distance to Sevilla

Getting to Sevilla was first-order important

Binomial regression:

Dependent variable: Rate of migration for district  $i$  and year  $t$

Variables	(1)	(2)	(3)	(4)
Pre-1513 Migration Rate	26.761 <sup>a</sup> (8.649)		31.173 <sup>a</sup> (5.444)	61.758 <sup>a</sup> (11.725)
Sevilla Distance		-1.058 <sup>a</sup> (0.233)	-0.985 <sup>a</sup> (0.138)	-0.732 <sup>b</sup> (0.352)
Observations	281	281	281	281
Kingdom FE	No	No	No	Yes

Significance levels: <sup>a</sup>  $p < 0.01$ , <sup>b</sup>  $p < 0.05$ , <sup>c</sup>  $p < 0.1$  Notes: Standard errors clustered at the province level. This table presents the results of a binomial regression for migration to any destination. Coefficients can be interpreted as in a logit regression. Distance to Sevilla is standardized to have mean zero and standard deviation one, and is based on the travel distance, as explained in text.

# Networks, distance, and elevation

## Binomial logit regressions

Dependent variable: Emigration to any destination for municipality  $i$  and year  $t$

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Migrant Stock	2.511 (1.835)								2.537 <sup>a</sup> (0.977)	2.488 <sup>a</sup> (0.734)
Percentile of Distance from Sevilla		-0.027 <sup>a</sup> (0.002)								
Percentile of Simple Travel Cost from Sevilla			-0.029 <sup>a</sup> (0.002)							
Percentile of Travel Cost from Sevilla (Elevation)				-0.027 <sup>a</sup> (0.002)			-0.017 <sup>a</sup> (0.001)			
Percentile of Travel Cost from Sevilla (Elevation and Water)					-0.020 <sup>a</sup> (0.002)			-0.005 <sup>a</sup> (0.001)	-0.005 <sup>a</sup> (0.001)	0.006 <sup>a</sup> (0.001)
Percentile of Elevation						-0.024 <sup>a</sup> (0.002)	-0.020 <sup>a</sup> (0.002)	-0.019 <sup>a</sup> (0.002)	-0.039 <sup>a</sup> (0.002)	-0.029 <sup>a</sup> (0.002)
Elevation and Water Cost × Year										-0.000 <sup>a</sup> (0.000)
Observations	352,857	321,465	321,465	320,889	321,081	321,129	320,889	321,081	321,081	320,889
Year Controls	No	No	No	No	No	No	No	No	No	Yes

Significance levels: <sup>a</sup>  $p < 0.01$ , <sup>b</sup>  $p < 0.05$ , <sup>c</sup>  $p < 0.1$  Notes: These are logit coefficients from a binomial maximum likelihood regression. Robust standard errors in parentheses. Migrant stock is defined as the total number of emigrants from a district



## Networks, distance, and elevation by destination

Multinomial logit regressions

Dependent variable: Emigration to each destination separately for municipality  $i$  and year  $t$

Variables	(1) All Destinations	(2) Caribbean	(3) Mexico	(4) Tierra Firme	(5) Peru
Percentile of Elevation		-0.023 <sup>a</sup> (0.003)	-0.014 <sup>a</sup> (0.004)	-0.018 <sup>a</sup> (0.003)	-0.016 <sup>a</sup> (0.004)
Percentile of Travel Cost from Sevilla (Elevation and Water)		-0.006 <sup>a</sup> (0.001)	-0.011 <sup>a</sup> (0.003)	-0.003 (0.002)	0.002 (0.003)
Migrant Stock to Destination	1.918 <sup>a</sup> (0.241)				
Observations	321,081	321,081	321,081	321,081	321,081
Year Controls	Yes	Yes	Yes	Yes	Yes

Significance levels: <sup>a</sup>  $p < 0.01$ , <sup>b</sup>  $p < 0.05$ , <sup>c</sup>  $p < 0.1$  Notes: These are logit regressions using a multinomial maximum likelihood regression. Robust standard errors in parentheses. Migrant stock is defined as the total number of emigrants from a district from 1492 to the year prior to the year in question, divided by population. All estimates are from the same model. The coefficient in column (1) indicates how much more likely individuals are to choose a given destination as its migrant

## Networks, distance, and elevation by destination

Nested logit regressions

Dependent variable: Emigration to each destination separately for municipality  $i$  and year  $t$

Variables	(1) All Destinations	(2) Mexico	(3) Tierra Firme	(4) Peru	(5) Migration
Percentile of Elevation					-0.014 <sup>a</sup> (0.002)
Percentile of Travel Cost from Sevilla (Elevation and Water)		0.065 <sup>a</sup> (0.016)	0.052 <sup>a</sup> (0.021)	-0.014 (0.034)	-0.038 <sup>a</sup> (0.011)
Migrant Stock to Destination	57.211 <sup>a</sup> (4.061)				-1.046 <sup>a</sup> (0.108)
Observations	321,081	321,081	321,081	321,081	321,081
Year Controls	Yes	Yes	Yes	Yes	Yes

Significance levels: <sup>a</sup>  $p < 0.01$ , <sup>b</sup>  $p < 0.05$ , <sup>c</sup>  $p < 0.1$  Notes: These are logit coefficients from a nested multinomial regression, in which individuals first choose whether or not to migrate and then choose where to migrate if they do, allowing for the possibility that we do not observe individuals' choice of destination. Robust standard errors in parentheses. Dependent variable is emigration to each destination separately, or to an unknown destination. Unit of observation is a municipality-year. Migrant stock is defined as the total number of emigrants from a district from 1492 to the year prior to the year in question, divided by population. All estimates are from the same model. Column (1) provides the coefficient on the

## Concluding remarks

- We study one of the most important migration in human history.
- We find that at least 19,000 free migrants tried their luck in the New World
- Explorers expanded the frontier and thousands followed their footsteps
- The migrants chose from an expanding menu of destinations starting with the Caribbean to then add Tierra Firme, Mexico, and Peru
- We observe the creation of migrant networks:
  - Regional specialization consistent both with network effects and formed early on
  - Not much evidence of regional specialization in particular destination
- We will look at the anatomy of these networks (role of pioneers, availability of networks)

## Moving ahead

- Adding additional records for earlier period (from a different collection)
- Cross-check total numbers with ships' records
- Add occupations to analyze networks by occupation-origin & occupation-destination
- Incorporate your brilliant comments
- Write lots of papers!