

# The Geography of Intergenerational Mobility in Latin America and the Caribbean

Ercio A. Munoz  
CUNY Graduate Center and the World Bank

November 2021

# Background and Motivation

# What is Intergenerational Mobility (IGM) and Why it Matters

- “Absolute” mobility measures progress in absolute terms with respect to parents. It matters as a measure of long-term improvement of living standards for all.
- “Relative” mobility measures progress in relative position with respect to peers compared to the position of parents relative to their peers. It matters for economic growth, and both can reinforce each other.
- This paper focuses on absolute mobility measured as the probability of children achieving a given outcome (e.g. primary education) conditional on a given achievement of parents (e.g. less than primary).

# What is Intergenerational Mobility (IGM) and Why it Matters

- “Absolute” mobility measures progress in absolute terms with respect to parents. It matters as a measure of long-term improvement of living standards for all.
- “Relative” mobility measures progress in relative position with respect to peers compared to the position of parents relative to their peers. It matters for economic growth, and both can reinforce each other.
- This paper focuses on absolute mobility measured as the probability of children achieving a given outcome (e.g. primary education) conditional on a given achievement of parents (e.g. less than primary).

# What is Intergenerational Mobility (IGM) and Why it Matters

- “Absolute” mobility measures progress in absolute terms with respect to parents. It matters as a measure of long-term improvement of living standards for all.
- “Relative” mobility measures progress in relative position with respect to peers compared to the position of parents relative to their peers. It matters for economic growth, and both can reinforce each other.
- This paper focuses on absolute mobility measured as the probability of children achieving a given outcome (e.g. primary education) conditional on a given achievement of parents (e.g. less than primary).

## Recent work on IGM relevant to this paper

- **IGM in income within a single country:** Chetty, Hendren, Kline, and Saez (2014), Connolly, Corak, and Harck (2019), Corak (2020), and Eriksen and Munk (2020).
- **IGM in education at country level:** Neidhofer, Serrano and Gasparini (2018) and Narayan, Van der Weide, Cojocaru, Redaelli, Lakner, Mahler, Ramasubbaiah, and Thewissen (2018).
- **IGM in education within a single country:** Card, Domnisoru, and Taylor (2018), Asher, Novosad, and Rafkin (2020), and Van der Weide, Ferreira de Souza, and Barbosa (2021).
- **IGM in education within countries:** Alesina, Hohmann, Michalopoulos, and Papaioannou (2021a, 2021b).

## Recent work on IGM relevant to this paper

- **IGM in income within a single country:** Chetty, Hendren, Kline, and Saez (2014), Connolly, Corak, and Harck (2019), Corak (2020), and Eriksen and Munk (2020).
- **IGM in education at country level:** Neidhofer, Serrano and Gasparini (2018) and Narayan, Van der Weide, Cojocaru, Redaelli, Lakner, Mahler, Ramasubbaiah, and Thewissen (2018).
- **IGM in education within a single country:** Card, Domnisoru, and Taylor (2018), Asher, Novosad, and Rafkin (2020), and Van der Weide, Ferreira de Souza, and Barbosa (2021).
- **IGM in education within countries:** Alesina, Hohmann, Michalopoulos, and Papaioannou (2021a, 2021b).

## Recent work on IGM relevant to this paper

- **IGM in income within a single country:** Chetty, Hendren, Kline, and Saez (2014), Connolly, Corak, and Harck (2019), Corak (2020), and Eriksen and Munk (2020).
- **IGM in education at country level:** Neidhofer, Serrano and Gasparini (2018) and Narayan, Van der Weide, Cojocaru, Redaelli, Lakner, Mahler, Ramasubbaiah, and Thewissen (2018).
- **IGM in education within a single country:** Card, Domnisoru, and Taylor (2018), Asher, Novosad, and Rafkin (2020), and Van der Weide, Ferreira de Souza, and Barbosa (2021).
- **IGM in education within countries:** Alesina, Hohmann, Michalopoulos, and Papaioannou (2021a, 2021b).



## Recent work on IGM relevant to this paper

- **IGM in income within a single country:** Chetty, Hendren, Kline, and Saez (2014), Connolly, Corak, and Harck (2019), Corak (2020), and Eriksen and Munk (2020).
- **IGM in education at country level:** Neidhofer, Serrano and Gasparini (2018) and Narayan, Van der Weide, Cojocaru, Redaelli, Lakner, Mahler, Ramasubbaiah, and Thewissen (2018).
- **IGM in education within a single country:** Card, Domnisoru, and Taylor (2018), Asher, Novosad, and Rafkin (2020), and Van der Weide, Ferreira de Souza, and Barbosa (2021).
- **IGM in education within countries:** Alesina, Hohmann, Michalopoulos, and Papaioannou (2021a, 2021b).

This paper

## Questions that this research engage

- Where is the land of educational mobility in Latin America and the Caribbean? I generate a data set of educational intergenerational mobility at the province and district-level for LAC using data from over half a century, which will be made available for anyone to use.
- Other questions I address in the paper: Is there a gender gap? Is there a urban-rural gap? Is IGM correlated to elements of geography and historical characteristics?
- In a companion paper, I ask: Does the environment cause the observed geographic differences or it is selection-sorting?

## Questions that this research engage

- Where is the land of educational mobility in Latin America and the Caribbean? I generate a data set of educational intergenerational mobility at the province and district-level for LAC using data from over half a century, which will be made available for anyone to use.
- Other questions I address in the paper: Is there a gender gap? Is there a urban-rural gap? Is IGM correlated to elements of geography and historical characteristics?
- In a companion paper, I ask: Does the environment cause the observed geographic differences or it is selection-sorting?

## Questions that this research engage

- Where is the land of educational mobility in Latin America and the Caribbean? I generate a data set of educational intergenerational mobility at the province and district-level for LAC using data from over half a century, which will be made available for anyone to use.
- Other questions I address in the paper: Is there a gender gap? Is there a urban-rural gap? Is IGM correlated to elements of geography and historical characteristics?
- In a companion paper, I ask: Does the environment cause the observed geographic differences or it is selection-sorting?

## Preview of findings

- There is substantial heterogeneity within Latin American countries. The distance between the country with the highest and lowest level of upward mobility is comparable to Africa.
- I find a decreasing gap in mobility between urban/rural population but I do not find big differences by gender.
- Within countries, there are mixed results. Some of them show important heterogeneity across provinces (e.g. Paraguay, Mexico, Guatemala, Bolivia, and Peru). Others are very homogeneous such as Jamaica and Haiti.
- I find high inertia in the sense that upward mobility is highly correlated to primary completion of the old generation. IGM is also significantly correlated to distance to capital and employment shares by sector at the beginning of the sample.

## Preview of findings

- There is substantial heterogeneity within Latin American countries. The distance between the country with the highest and lowest level of upward mobility is comparable to Africa.
- I find a decreasing gap in mobility between urban/rural population but I do not find big differences by gender.
- Within countries, there are mixed results. Some of them show important heterogeneity across provinces (e.g. Paraguay, Mexico, Guatemala, Bolivia, and Peru). Others are very homogeneous such as Jamaica and Haiti.
- I find high inertia in the sense that upward mobility is highly correlated to primary completion of the old generation. IGM is also significantly correlated to distance to capital and employment shares by sector at the beginning of the sample.

## Preview of findings

- There is substantial heterogeneity within Latin American countries. The distance between the country with the highest and lowest level of upward mobility is comparable to Africa.
- I find a decreasing gap in mobility between urban/rural population but I do not find big differences by gender.
- Within countries, there are mixed results. Some of them show important heterogeneity across provinces (e.g. Paraguay, Mexico, Guatemala, Bolivia, and Peru). Others are very homogeneous such as Jamaica and Haiti.
- I find high inertia in the sense that upward mobility is highly correlated to primary completion of the old generation. IGM is also significantly correlated to distance to capital and employment shares by sector at the beginning of the sample.



## Preview of findings

- There is substantial heterogeneity within Latin American countries. The distance between the country with the highest and lowest level of upward mobility is comparable to Africa.
- I find a decreasing gap in mobility between urban/rural population but I do not find big differences by gender.
- Within countries, there are mixed results. Some of them show important heterogeneity across provinces (e.g. Paraguay, Mexico, Guatemala, Bolivia, and Peru). Others are very homogeneous such as Jamaica and Haiti.
- I find high inertia in the sense that upward mobility is highly correlated to primary completion of the old generation. IGM is also significantly correlated to distance to capital and employment shares by sector at the beginning of the sample.

# Data and Methods

## Census data

I use data from 91 censuses obtained from IPUMS-International that span 24 countries:

Country	Years	Country	Years
Argentina	70, 80, 91, 01, 10	Honduras	74, 88, 01
Bolivia	76, 92, 01, 12	Jamaica	82, 91, 01
Brazil	60, 70, 80, 91, 00, 10	Mexico	70, 90, 00, 10
Chile	70, 82, 92, 02	Nicaragua	71, 95, 05
Colombia	73, 85, 93, 05	Panama	60, 70, 80, 90, 00, 10
Costa Rica	73, 84, 00, 11	Paraguay	62, 72, 82, 92, 02
Cuba	02, 12	Peru	93, 07
Dominican Republic	81, 02, 10	Uruguay	63, 75, 85, 96, 06, 11
Ecuador	74, 82, 90, 01, 10	Saint Lucia	80, 91
El Salvador	92, 07	Suriname	12
Guatemala	64, 73, 81, 94, 02	Trinidad and Tobago	70, 80, 90, 00, 11
Haiti	71, 82, 03	Venezuela	71, 81, 90, 01

## Geography and education

- IPUMS reports residence at the time of the interview for at most two levels of administrative units in which the households were enumerated.
- Provinces: “coarse” administrative units similar to states in the US. **The sample spans 400 provinces** (admin-1 units).
- Districts: “fine” administrative units similar to counties in the US. **The sample spans 6,684 districts** (admin-2 units).
- **Educational attainment:** completed less than primary, completed primary, completed secondary, and completed tertiary. It does not reflect any particular system but to the extend possible it applies the UN standard of 6-3-3.

## Geography and education

- IPUMS reports residence at the time of the interview for at most two levels of administrative units in which the households were enumerated.
- Provinces: “coarse” administrative units similar to states in the US. **The sample spans 400 provinces** (admin-1 units).
- Districts: “fine” administrative units similar to counties in the US. **The sample spans 6,684 districts** (admin-2 units).
- **Educational attainment:** completed less than primary, completed primary, completed secondary, and completed tertiary. It does not reflect any particular system but to the extend possible it applies the UN standard of 6-3-3.

## Geography and education

- IPUMS reports residence at the time of the interview for at most two levels of administrative units in which the households were enumerated.
- Provinces: “coarse” administrative units similar to states in the US. **The sample spans 400 provinces** (admin-1 units).
- Districts: “fine” administrative units similar to counties in the US. **The sample spans 6,684 districts** (admin-2 units).
- **Educational attainment:** completed less than primary, completed primary, completed secondary, and completed tertiary. It does not reflect any particular system but to the extend possible it applies the UN standard of 6-3-3.

## Geography and education

- IPUMS reports residence at the time of the interview for at most two levels of administrative units in which the households were enumerated.
- Provinces: “coarse” administrative units similar to states in the US. **The sample spans 400 provinces** (admin-1 units).
- Districts: “fine” administrative units similar to counties in the US. **The sample spans 6,684 districts** (admin-2 units).
- **Educational attainment:** completed less than primary, completed primary, completed secondary, and completed tertiary. It does not reflect any particular system but to the extend possible it applies the UN standard of 6-3-3.

## Upward IGM

To estimate upward mobility I use a sample of individuals with ages between 14 and 18, for whom the generation above (parents or older relatives) have on average less than primary education and estimate the following specification, pooling observations from all the censuses and countries:

$$y_{ibct}^{up} = \alpha_c^{up} + \gamma_b^o + \gamma_b^y + \theta_t + \epsilon_{ibct}$$

where  $y_{ibct}^{up}$  is a dummy variable about completion of primary education,  $\alpha_c^{up}$  is a fixed effect by country, and  $\gamma_b^o$ ,  $\gamma_b^y$ , and  $\theta_t$  are respectively fixed effects by birth-cohort of the old, birth-cohort of the young and census year.

Hence,  $\alpha_c^{up}$  measures the likelihood of completing primary for children whose “parents” did not complete primary net of cohort and census year effects.



## Downward IGM

To estimate downward mobility I use a sample of individuals with age between 14 and 18, where the generation above (parents or older relatives) have completed at least primary education and estimate the following specification, pooling observations from all the censuses and countries:

$$y_{ibct}^{down} = \alpha_c^{down} + \gamma_b^o + \gamma_b^y + \theta_t + \epsilon_{ibct}$$

where  $y_{ibct}^{down}$  is an indicator variable about failing to complete primary education,  $\alpha_c^{down}$  is a fixed effect by country, and  $\gamma_b^o$ ,  $\gamma_b^y$ , and  $\theta_t$  are respectively fixed effects by birth-cohort of the old, birth-cohort of the young and census year.

Hence,  $\alpha_c^{down}$  measures the likelihood of failing to complete primary for children whose “parents” were able to complete at least primary net of cohort and census year effects.

## Upward/Downward IGM within countries

To estimate mobility at the province/district level, I run similar regressions country by country:

$$y_{ibcrt}^{up} = \alpha_{cr}^{up} + \gamma_b^o + \gamma_b^y + \theta_t + \epsilon_{ibcrt}$$

$$y_{ibcrt}^{down} = \alpha_{cr}^{down} + \gamma_b^o + \gamma_b^y + \theta_t + \epsilon_{ibcrt}$$

where the new subscript  $r$  denotes a particular province/district.

▶ [Linking details](#)

▶ [Coresidence rate](#)

▶ [Coresidence bias](#)

# Results: Country-level results

## IGM: Country-level estimates

mobility / N	census years	(1)	(2)	(3)	(4)	(5)	(6)
		upward 14-18	upward 14-25	downward 14-18	downward 14-25	N 14-18	N 14-25
Jamaica	1982,1991,2001	.868	.864	-.004	.003	43,404	77,227
Trinidad and Tobago	1970,1980,1990,2000,2011	.839	.833	.023	.023	41,253	81,100
Argentina	1970,1980,1991,2001,2010	.762	.789	.035	.034	1,068,471	2,017,618
Chile	1970,1982,1992,2002	.682	.709	.05	.044	344,149	651,737
Uruguay	1963,1975,1985,1996,2006,2011	.668	.685	.064	.052	108,528	199,653
Cuba	2002,2012	.662	.688	.027	.024	101,268	214,486
Panama	1960,1970,1980,1990,2000,2010	.635	.665	.049	.04	86,527	157,906
Costa Rica	1973,1984,2000,2011	.634	.643	.086	.068	107,088	197,018
Bolivia	1976,1992,2001,2012	.609	.634	.068	.057	206,745	358,013
Mexico	1970,1990,2000,2010	.602	.622	.048	.042	2,811,581	4,961,471
Ecuador	1974,1982,1990,2001,2010	.543	.572	.089	.074	373,130	667,055
Suriname	2012	.535	.563	.042	.031	2,999	6,141
Venezuela	1971,1981,1990,2001	.533	.587	.096	.08	517,834	940,766
Saint Lucia	1980,1991	.523	.492	.126	.142	2,089	3,679
Peru	1993,2007	.48	.524	.115	.088	357,472	668,806
Paraguay	1962,1972,1982,1992,2002	.432	.463	.116	.096	118,082	207,766
Colombia	1973,1985,1993,2005	.402	.437	.142	.114	886,765	1,605,718
Honduras	1974,1988,2001	.398	.433	.151	.133	109,458	182,786
Dominican Republic	1981,2002,2010	.376	.442	.15	.124	173,340	312,654
Brazil	1960,1970,1980,1991,2000,2010	.367	.422	.171	.128	10,755,296	18,713,402
El Salvador	1992,2007	.342	.374	.164	.138	85,402	150,582
Haiti	1971,1982,2003	.212	.266	.226	.178	104,465	183,588
Nicaragua	1971,1995,2005	.194	.238	.223	.18	93,635	167,740
Guatemala	1964,1973,1981,1994,2002	.181	.212	.159	.129	238,047	402,133
mean / total		.52	.548	.101	.084	18,737,028	33,129,045

Two observations: 1) Jamaica (.868) - Guatemala (.181) = 0.687 is close to South Africa (.791) - South Sudan (.041) = 0.75. 2) Upward mobility of the median country by ranking (Suriname & Venezuela) is 0.53-0.54 while in Africa (Benin) is 0.38.

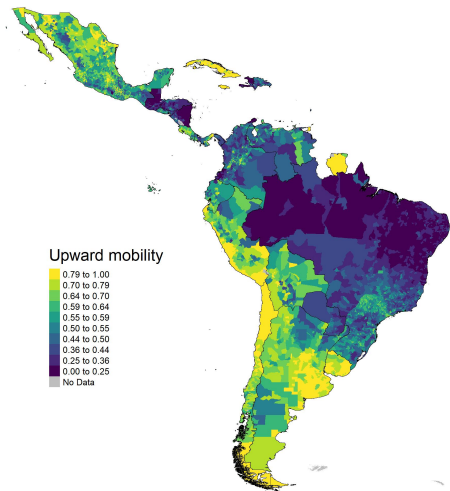
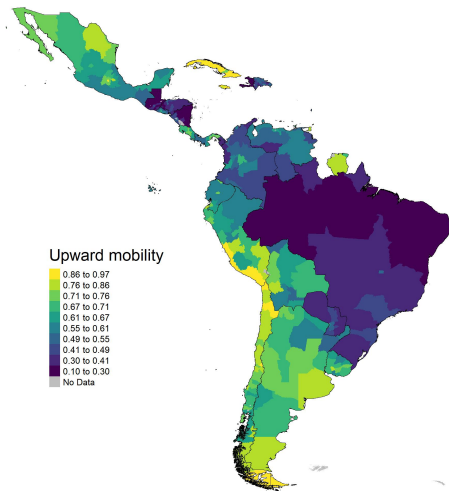
# Results: Within country results

## Upward mobility: Province-level estimates

country	provinces	mean	median	stdev	min	max	Nmin	Nmean
Cuba	14	.917	.932	.056	.757	.972	63	146
Suriname	7	.897	.897	.095	.83	.965	56	73
Jamaica	14	.888	.893	.029	.84	.936	106	322
Trinidad and Tobago	4	.872	.871	.043	.822	.923	66	1763
Chile	44	.773	.767	.066	.655	.915	93	1523
Peru	25	.749	.702	.115	.555	.93	298	5728
Argentina	24	.702	.691	.087	.545	.874	204	9763
Costa Rica	7	.693	.693	.054	.623	.753	2261	4929
Uruguay	19	.679	.677	.048	.598	.781	281	1418
Mexico	32	.674	.67	.079	.498	.899	2265	38282
Bolivia	9	.651	.641	.097	.504	.814	534	9900
Ecuador	14	.622	.602	.057	.561	.718	1371	10618
Panama	7	.596	.629	.108	.401	.744	802	3829
Venezuela	22	.545	.526	.079	.402	.708	801	10079
El Salvador	14	.538	.541	.062	.436	.669	1740	3346
Colombia	22	.519	.526	.094	.373	.724	164	19078
Saint Lucia	4	.474	.475	.049	.429	.516	325	446
Paraguay	14	.458	.412	.118	.33	.777	1740	5381
Dominican Republic	23	.451	.469	.071	.302	.584	688	2176
Honduras	18	.381	.377	.094	.22	.575	211	4291
Nicaragua	12	.349	.366	.109	.205	.529	1211	5000
Brazil	25	.285	.249	.103	.144	.493	7290	332632
Guatemala	22	.256	.256	.085	.099	.479	2399	8340
Haiti	4	.223	.218	.032	.191	.266	5399	20467
total	400	.587	.604	.203	.099	.972	56	29432

Two observations: 1) Paraguay shows the widest range while Haiti the smallest one. 2) Within Paraguay, the provinces with min/max upward mobility have levels approximately equal to El Salvador and Argentina at the country level. [▶ Full table](#)

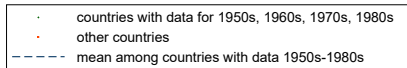
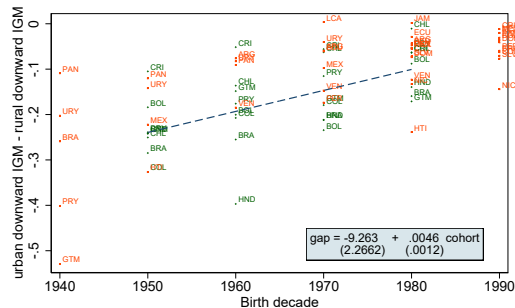
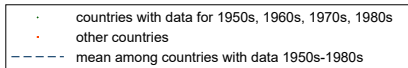
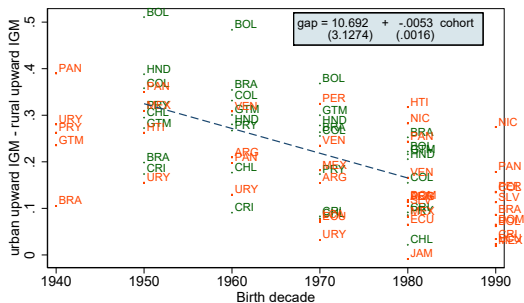
# Upward mobility within countries



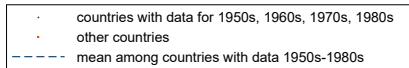
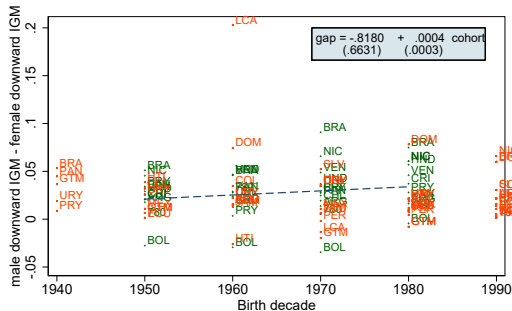
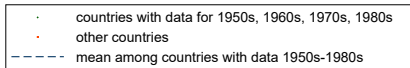
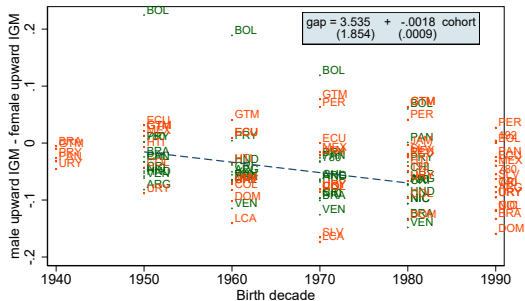
# Results: Heterogeneity



# Heterogeneity: Urban-rural gap decreasing over time

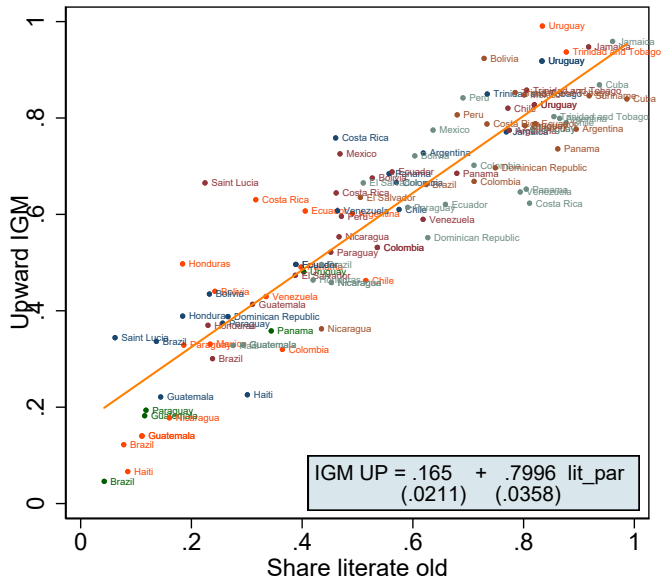


# Heterogeneity: Gender gap that is null but increasing in favor of women

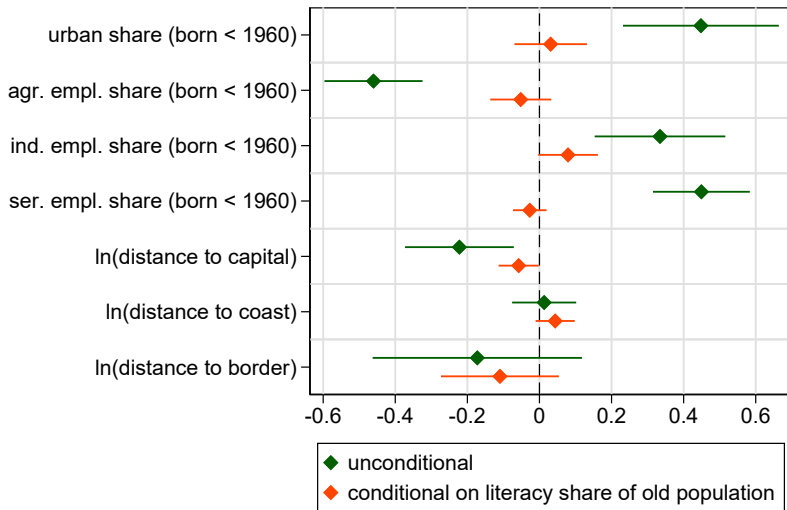


# Results: Correlates of IGM

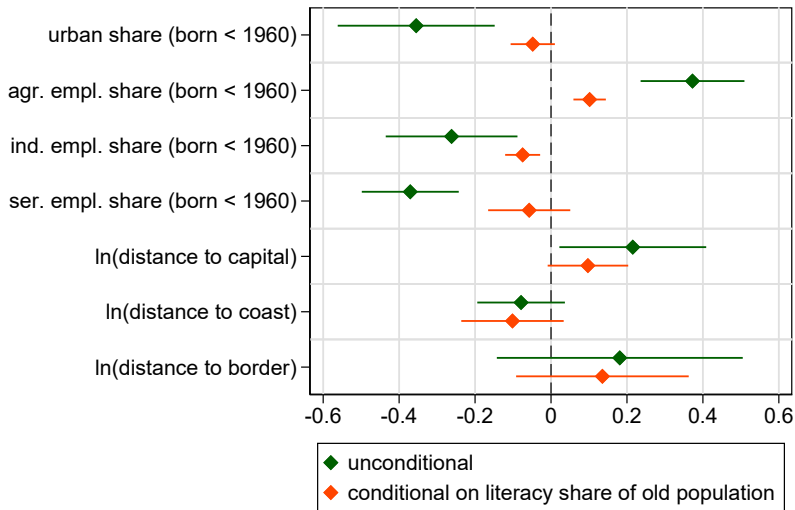
# Inertia: Literacy of the Old and Upward Mobility



## Distance to capital positively correlated to upward mobility



# Employment in agriculture & industry are correlated to downward mobility



## Summary

- In this paper I map and characterize intergenerational mobility in education in Latin America and the Caribbean. I have created a data set of IGM at the province and district-level that can be used to address the role of potential drivers or policies on IGM.
- I show substantial heterogeneity across LAC countries with higher levels of upward mobility than Africa but similar range at the country level. I also show that some countries show important variation within their territory.
- I find urban/rural gaps that decline over cohorts and a trend in favor of women.
- I find high inertia in the sense that upward mobility is highly correlated to primary completion of the old generation. IGM is also significantly correlated to distance to capital and share of employment by sector at the beginning of the sample.

## Summary

- In this paper I map and characterize intergenerational mobility in education in Latin America and the Caribbean. I have created a data set of IGM at the province and district-level that can be used to address the role of potential drivers or policies on IGM.
- I show substantial heterogeneity across LAC countries with higher levels of upward mobility than Africa but similar range at the country level. I also show that some countries show important variation within their territory.
- I find urban/rural gaps that decline over cohorts and a trend in favor of women.
- I find high inertia in the sense that upward mobility is highly correlated to primary completion of the old generation. IGM is also significantly correlated to distance to capital and share of employment by sector at the beginning of the sample.



## Summary

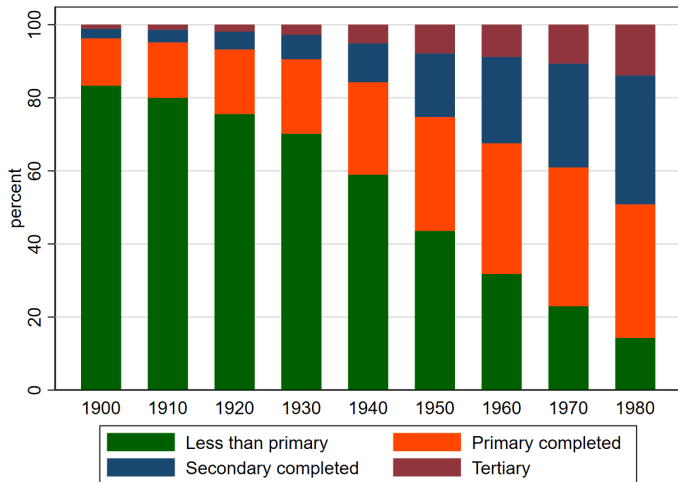
- In this paper I map and characterize intergenerational mobility in education in Latin America and the Caribbean. I have created a data set of IGM at the province and district-level that can be used to address the role of potential drivers or policies on IGM.
- I show substantial heterogeneity across LAC countries with higher levels of upward mobility than Africa but similar range at the country level. I also show that some countries show important variation within their territory.
- I find urban/rural gaps that decline over cohorts and a trend in favor of women.
- I find high inertia in the sense that upward mobility is highly correlated to primary completion of the old generation. IGM is also significantly correlated to distance to capital and share of employment by sector at the beginning of the sample.

## Summary

- In this paper I map and characterize intergenerational mobility in education in Latin America and the Caribbean. I have created a data set of IGM at the province and district-level that can be used to address the role of potential drivers or policies on IGM.
- I show substantial heterogeneity across LAC countries with higher levels of upward mobility than Africa but similar range at the country level. I also show that some countries show important variation within their territory.
- I find urban/rural gaps that decline over cohorts and a trend in favor of women.
- I find high inertia in the sense that upward mobility is highly correlated to primary completion of the old generation. IGM is also significantly correlated to distance to capital and share of employment by sector at the beginning of the sample.

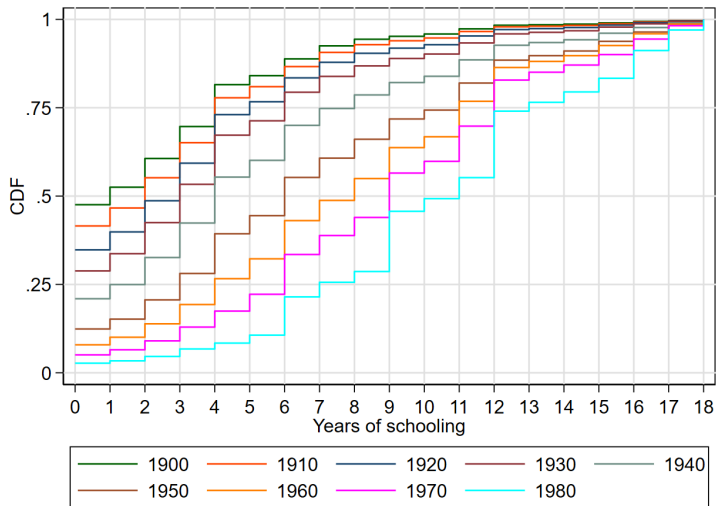
# Additional Slides

## Educational achievement by birth cohort

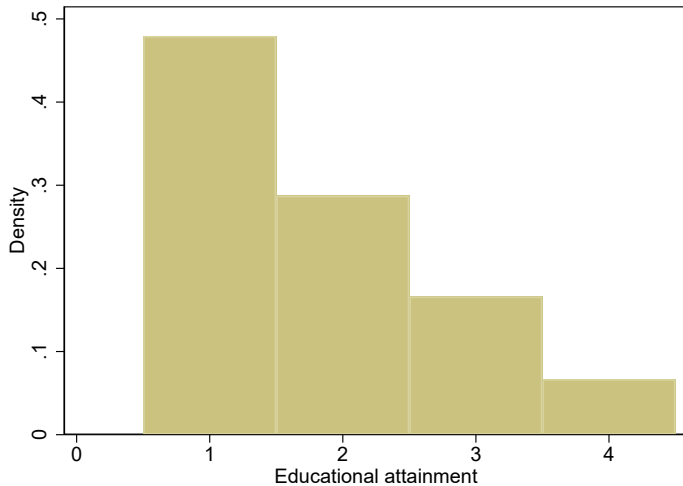


Note: Individuals older than 24.

## CDF of years of schooling by cohort



## Histogram of educational attainment

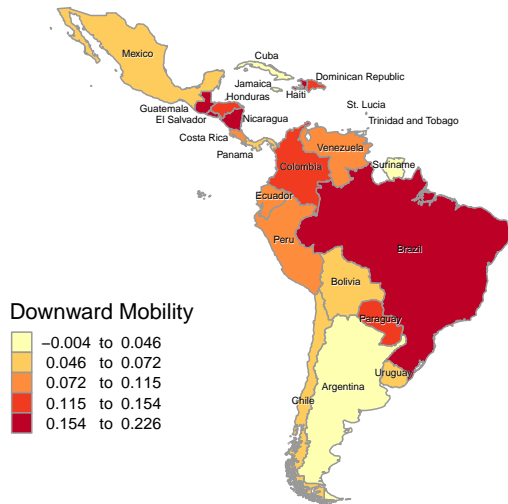
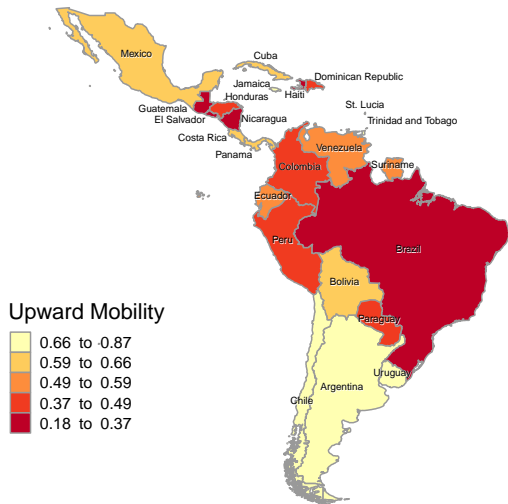


Note: Individuals older than 24.

## Classifying and linking generations

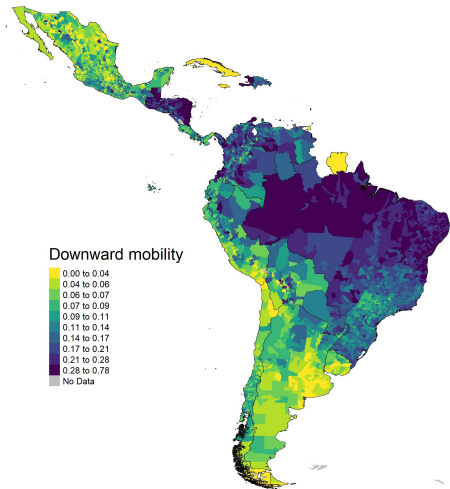
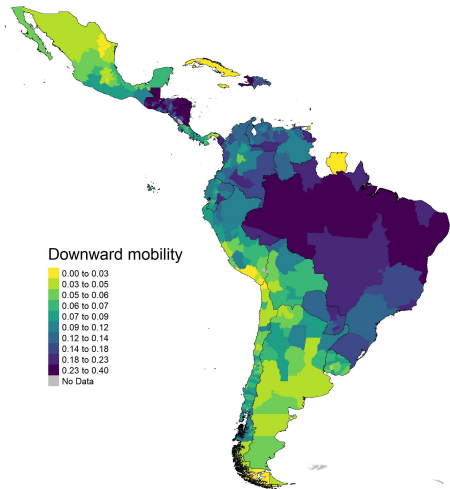
<b>Relationship to the head</b>	<b>Generation</b>	<b>Relationship to the head</b>	<b>Generation</b>
Grandparent	-2	Sibling of sibling-in-law	0
Great grandparent	-2	Ex-spouse	0
Parent/parent-in-law	-1	Child	1
Parent	-1	Biological child	1
Stepparent	-1	Adopted child	1
Parent-in-law	-1	Stepchild	1
Aunt/uncle	-1	Child-in-law	1
Head	0	Spouse/partner of child	1
Spouse/partner	0	Unmarried partner of child	1
Spouse	0	Nephew/niece	1
Unmarried partner	0	Foster child	1
Same-sex spouse/partner	0	Tutored/foster child	1
Sibling/sibling-in-law	0	Tutored child	1
Sibling	0	Grandchild	2
Stepsibling	0	Grandchild or great grandchild	2
Sibling-in-law	0	Great grandchild	2
Cousin	0	Great-great grandchild	2

# Mapping mobility at country-level

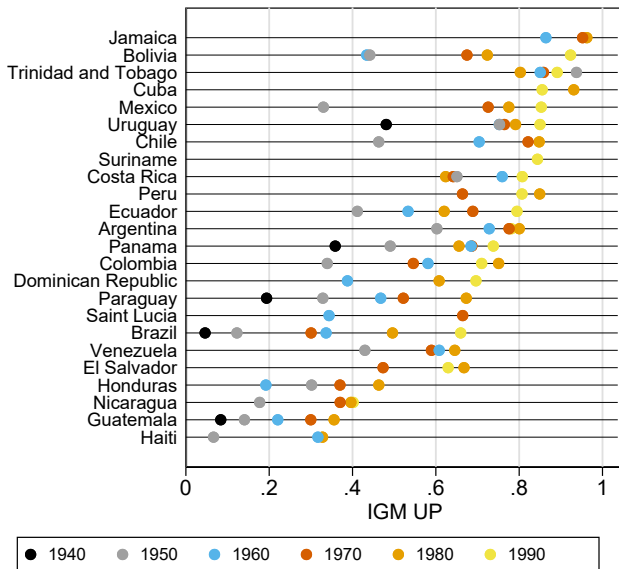




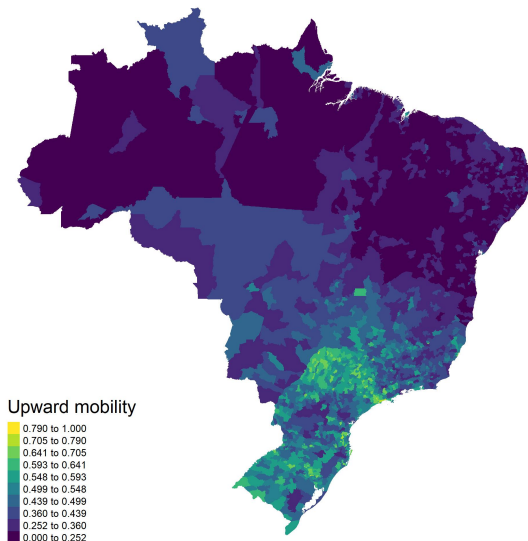
# Downward mobility within countries



# IGM across cohorts

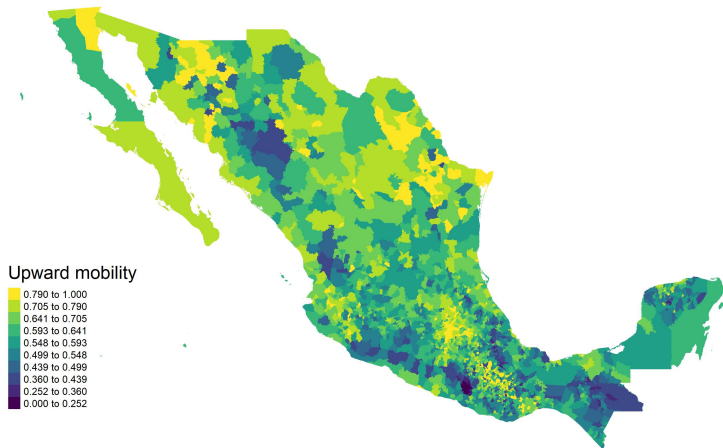


# Upward mobility in Brazil



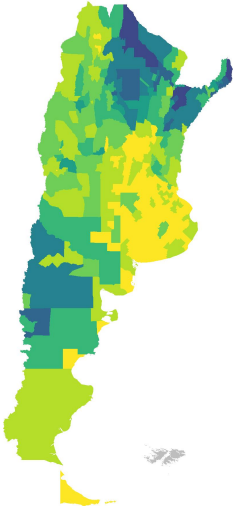
▶ [Back to upward in LAC](#)

# Upward mobility in Mexico

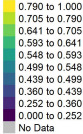


► [Back to upward in LAC](#)

# Upward mobility in Argentina



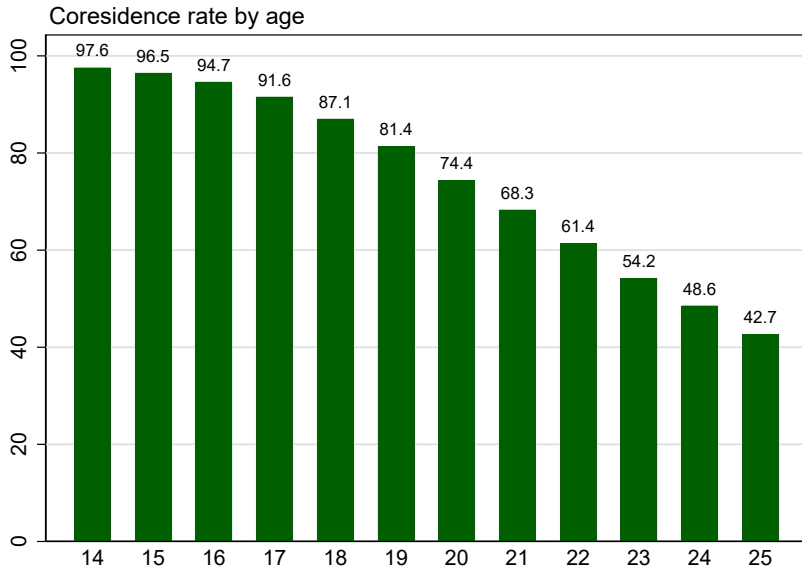
Upward mobility



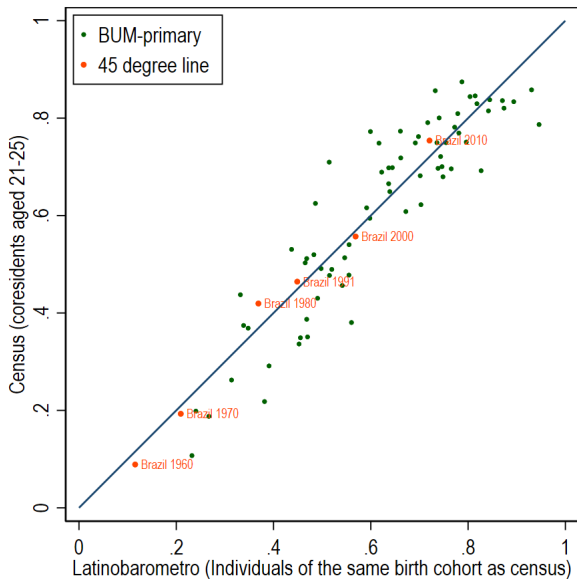
# Intergenerational mobility: Province-level estimates

country	provinces	upward							downward						
		mean	median	stdev	min	max	Nmin	Nmean	mean	median	stdev	min	max	Nmin	Nmean
Cuba	14	.917	.932	.056	.757	.972	63	146	.011	.011	.003	.006	.017	889	7104
Suriname	7	.897	.897	.095	.83	.965	56	73	.012	.013	.005	.005	.021	72	395
Jamaica	14	.888	.893	.029	.84	.936	106	322	.029	.028	.006	.018	.042	1193	2779
Trinidad and Tobago	4	.872	.871	.043	.822	.923	66	1763	.033	.034	.005	.027	.037	1272	8550
Chile	44	.773	.767	.066	.655	.915	93	1523	.064	.065	.019	.027	.113	256	4804
Peru	25	.749	.702	.115	.555	.93	298	5728	.07	.072	.028	.03	.139	699	8571
Argentina	24	.702	.691	.087	.545	.874	204	9763	.061	.058	.02	.021	.099	2329	34757
Costa Rica	7	.693	.693	.054	.623	.753	2261	4929	.083	.071	.023	.058	.112	5091	10369
Uruguay	19	.679	.677	.048	.598	.781	281	1418	.064	.065	.012	.04	.086	734	4294
Mexico	32	.674	.67	.079	.498	.899	2265	38282	.053	.052	.016	.015	.1	6269	49580
Bolivia	9	.651	.641	.097	.504	.814	534	9900	.071	.062	.025	.04	.125	968	13072
Ecuador	14	.622	.602	.057	.561	.718	1371	10618	.091	.082	.031	.06	.179	1322	16034
Panama	7	.596	.629	.108	.401	.744	802	3829	.084	.068	.051	.046	.197	481	8532
Venezuela	22	.545	.526	.079	.402	.708	801	10079	.131	.133	.025	.097	.193	707	13459
El Salvador	14	.538	.541	.062	.436	.669	1740	3346	.16	.158	.033	.098	.218	479	2754
Colombia	22	.519	.526	.094	.373	.724	164	19078	.118	.118	.033	.052	.179	897	21230
Saint Lucia	4	.474	.475	.049	.429	.516	325	446	.155	.155	.01	.148	.162	79	111
Paraguay	14	.458	.412	.118	.33	.777	1740	5381	.147	.138	.046	.04	.207	953	3701
Dominican Republic	23	.451	.469	.071	.302	.584	688	2176	.149	.149	.023	.109	.206	340	2693
Honduras	18	.381	.377	.094	.22	.575	211	4291	.219	.217	.066	.12	.397	255	1790
Nicaragua	12	.349	.366	.109	.205	.529	1211	5000	.211	.198	.063	.137	.35	246	2803
Brazil	25	.285	.249	.103	.144	.493	7290	332632	.21	.23	.052	.123	.299	5407	97580
Guatemala	22	.256	.256	.085	.099	.479	2399	8340	.229	.239	.037	.12	.282	548	2480
Haiti	4	.223	.218	.032	.191	.266	5399	20467	.341	.363	.052	.262	.375	832	5649
total	400	.587	.604	.203	.099	.972	56	29432	.112	.087	.076	.005	.397	72	17814

## Coresidence rates: High levels between 14 and 18



## Coresidence bias: small bias (2%) and high rank correlation (0.91)





## Small impact despite having an average coresidence rate of 43%

