

# Inherited Inequality in Latin America\*

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*\*Joint work with Paolo Brunori, Francisco H. G. Ferreira, Guido Neidhöfer and Louis Sirugue. This is a preliminary version of a chapter commissioned for the Elsevier Handbook of the Economics of Intergenerational Mobility (eds: Durlauf and Mazumder)*

# Let's open with an anecdote:

According to Stone (1976), no fewer than 31 presidents of Costa Rica, and 285 members of its parliament are direct descendants of Juan Vázquez de Coronado y Anaya (Spain, 1523).

Advantages and disadvantages are, indeed, transmitted through generations. In this presentation we summarized what we have learned in the literature for LAC.



# Intergenerational persistence is typically measured as

- **Intergenerational mobility (IGM)**: measure of the association in  $F(y_c, y_p)$ .
- **Inequality of opportunity (IOp)**: amount of inequality in  $y_c$  predicted by “circumstances”  $Circ$ .

The concept of “inherited inequality” theoretically encompasses both measuring deviations from  $y_c \perp H$ , where  $H$  is a selected set of inherited personal characteristics.

If  $y_c \not\perp H$ , then  $\exists f \in \mathcal{F}$  such that  $y_c = f(H, \varepsilon)$  outperforms the mean in predicting  $y_c$ .

# Relative inherited inequality

$$I_n = \frac{I(\hat{y}_c)}{I(y_c)}$$

For example, in the IGM literature:

$$y_c = f(H, \varepsilon) = \alpha + \beta y_p + \varepsilon$$

Note that:

$$\hat{\rho} = \hat{\beta} \frac{\sigma_p}{\sigma_c}$$

Alternatively:

$$y_c = f(H, \varepsilon) = \alpha + \beta Circ + \varepsilon$$

Relative IOp (ex-ante):

$$Rel.IOp = \frac{I(\hat{y}_{Circ})}{I(y_c)}$$

# In short:

$H \rightarrow y_p$ , inherited inequality converges to IGM.

- We focus on regression-based measures  $(\hat{\beta}, \hat{\rho})$ .

$H \rightarrow C$ , inherited inequality converges to IOp.

- We focus on ex ante IOp (van de Gaer, 1993; Ferreira and Gignoux, 2011).
- Absolute IOp obtained from  $y_c = f(\text{Circ}, \varepsilon)$ , and then  $I(\hat{y}_c)$ .

As target outcomes, we focus on income and education.

# Education Intergenerational Mobility in LAC

The literature goes back 25 years or so, including Behrman et al. (1999, 2001); Hertz et al. (2008); Torche (2014); Neidhöfer et al. (2018); Van der Weide et al. (2024), among many others.

Main take out: lower mobility than in developed countries (European  $\beta$  is around 0.3-0.35). In older cohorts,  $\beta$  in LAC reaches 0.5-0.6! But encouraging: IGM goes down.

**Warning:** Estimates from different studies, samples, data origin and so on.

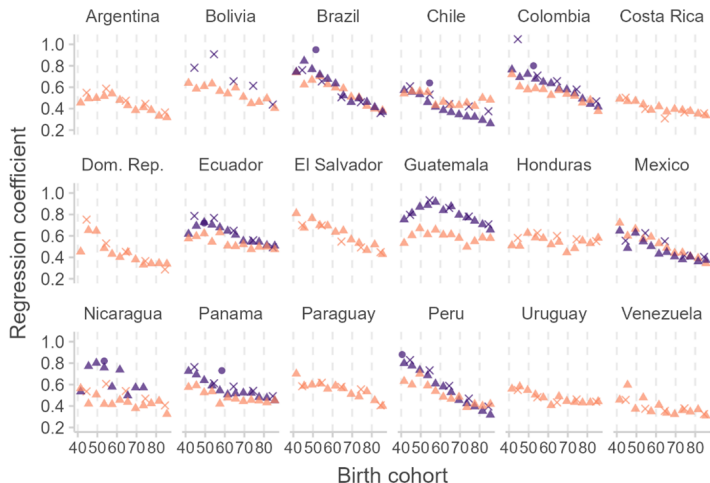
# Education average IGM levels

Table 1 – Educational mobility in Latin America: Average estimates of intergenerational regression coefficients.

	Van der Weide et al. (2024)	Neidhöfer et al. (2018)	Hertz et al. (2008)	Ciaschi et al. (2023)	Celhay and Gallegos (2023)
ARG	0.484	0.437			
BOL	0.679	0.540			
BRA	0.548	0.578	0.950	0.763	
CHL	0.476	0.444	0.640	0.489	0.453
COL	0.692	0.572	0.800		0.521
CRI	0.386	0.408			
DOM	0.477	0.438			
ECU	0.651	0.574	0.720	0.768	
GTM	0.815	0.696			
HND	0.585	0.538			
HTI	0.585				
MEX	0.510	0.492		0.648	0.672
NIC	0.511	0.525	0.820		
PAN	0.598	0.521	0.730	0.728	
PER	0.603	0.532	0.880		
PRY	0.548	0.549			0.459
SLV	0.577	0.620			0.553
URY	0.473	0.480			0.351
VEN	0.378	0.392			
Cohorts	1940-1989	1940-1987	1916-1983*	1940-1989	1940-1990**
Parental education	Maximum	Maximum	Average	Both (Lubotsky-Wittenberg estimate)	Either father or mother***

Notes: \*BRA 1927-76, CHL 1930-79, COL 1928-77, ECU 1925-74, NIC 1929-78, PAN 1934-83, PER 1916-65; \*\* While the youngest children in data are indicated to be born in 1990, we could not find any information on the oldest ones. 1940 is an approximation based on the parents' cohorts, which are 1920-1970; \*\*\*Estimates are obtained from census data where respondents are asked about their children's education. Depending on whether the respondent is male or female the estimate refers to father's or mother's education.

# Education IGM Trends



Reference study:

- Hertz et al. (2008)
- ▲ Neidhöfer et al. (2018)
- × Van der Weide et al. (2024)

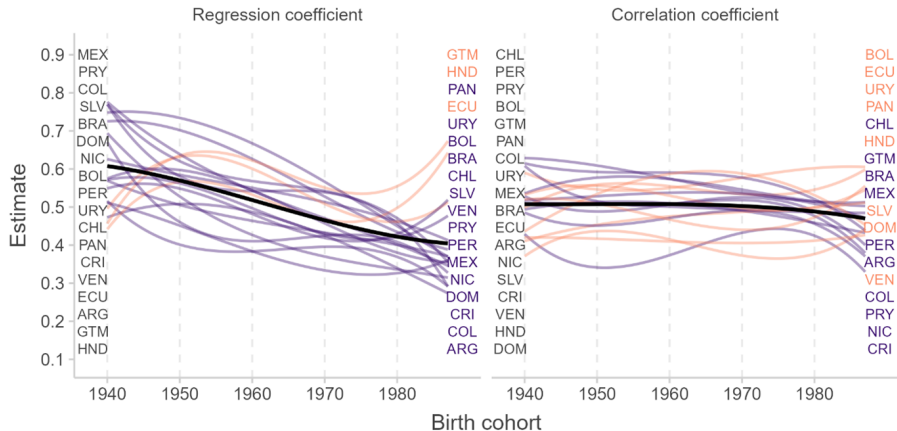
Data source:

- Country-specific
- Latinobarometro

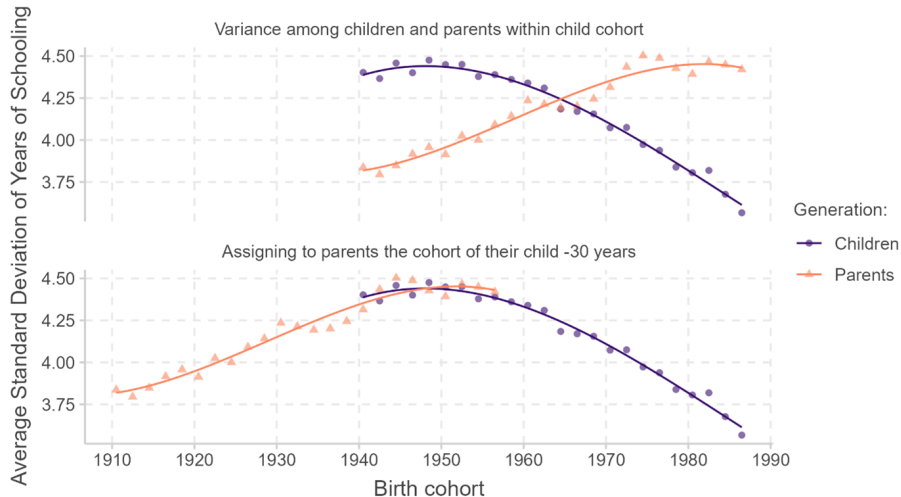


# Education $\beta$ vs $\rho$

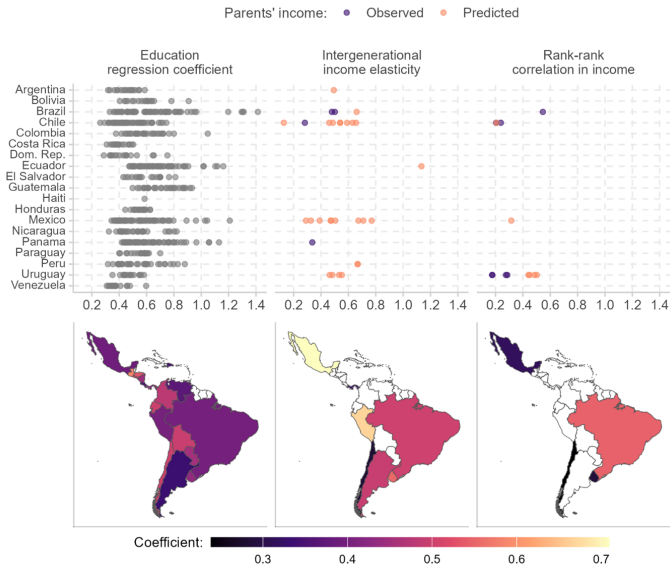
Change over the period: — Decrease — Increase



# Education Inequality across Cohorts

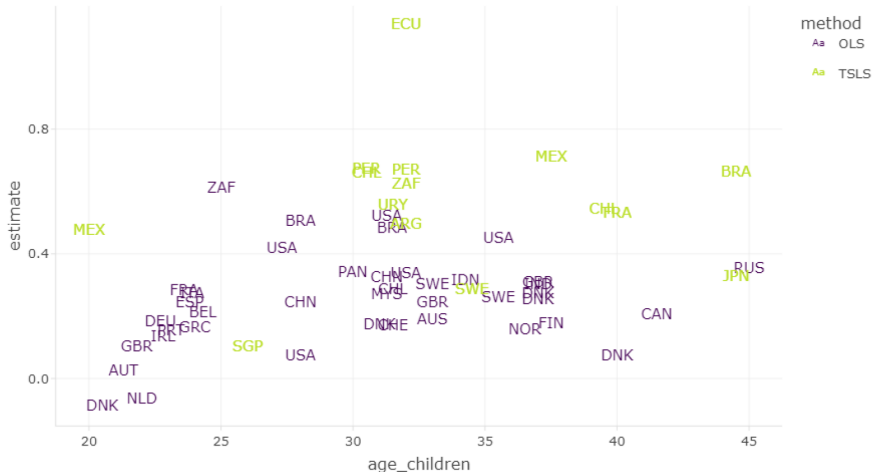


# Income $\beta$ vs $\rho$



# Inverted U-shaped pattern when compared with age?

Intergenerational elasticity estimates by average child age



We rely on the estimates produced by the Global Estimates of Opportunity and Mobility (GEOM). Other sources: are Brunori et al. (2024, 2025).

Estimates produced with random forests (Brunori et al., 2023).

Parameters and technical details can be found in the GEOM website.

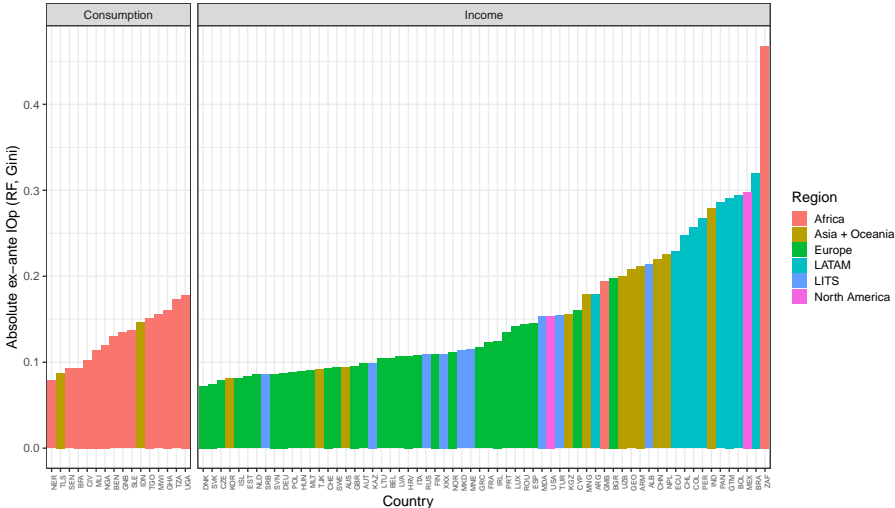
Random Forests estimate  $y_c = f(Circ, \varepsilon)$  with a machine learning setting that accounts for interactions and non-linearities avoiding overfitting. See more in Brunori et al. (2019).

Circumstances used: Birth Area, Ethnicity, Father Education and Occupation, Mother Education and Occupation, Sex.

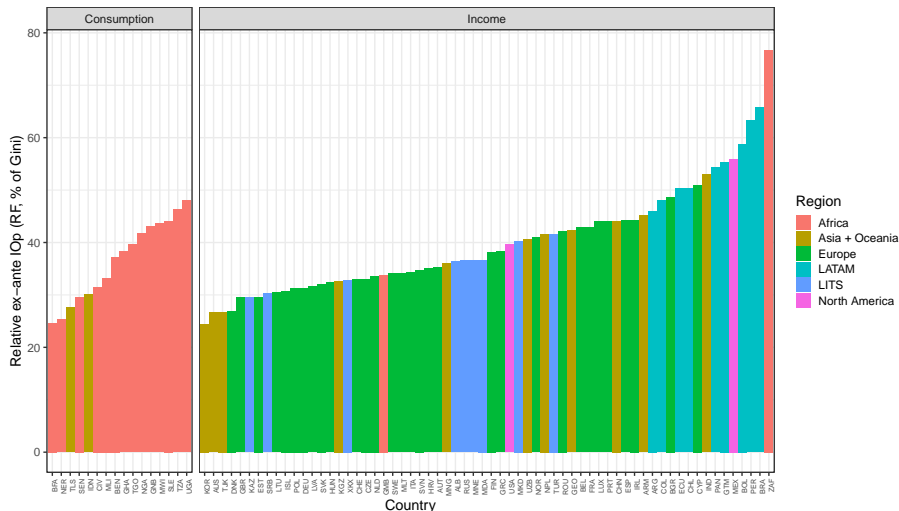
**Table 1: Household surveys used in our analysis**

<b>Country</b>	<b>Survey Name</b>	<b>Acronym</b>
Argentina	Encuesta Nacional sobre la Estructura Social	ENES
Bolivia	Encuesta de Hogares	EH
Brazil	Pesquisa Nacional por Amostra de Domicílios	PNAD
Chile	Encuesta de Caracterización Socioeconómica Nacional	CASEN
Colombia	Encuesta Nacional de Condiciones de Vida	ECV
Ecuador	Encuesta de Condiciones de Vida	ECV
Guatemala	Encuesta Nacional sobre Condiciones de Vida	ENCOVI
Mexico	Encuesta ESRU de Movilidad Social en México	EMOVI
Panama	Encuesta de Niveles de Vida	ENV
Peru	Encuesta Nacional de Hogares	ENAHO

## Most recent income IOp in LAC vs rest of the World

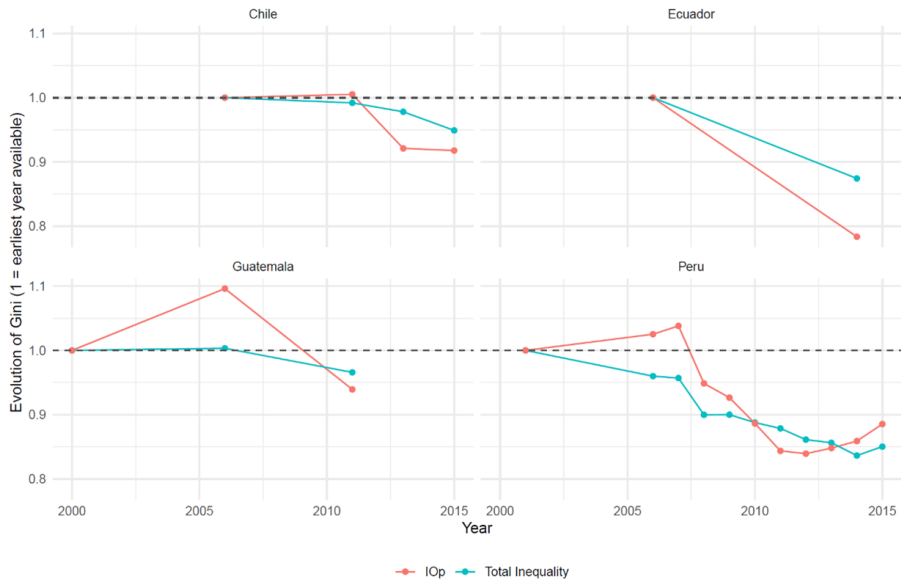


# Relative IOp in LAC is also huge (0.44-0.66)





# Income IOp Trends in four LAC countries



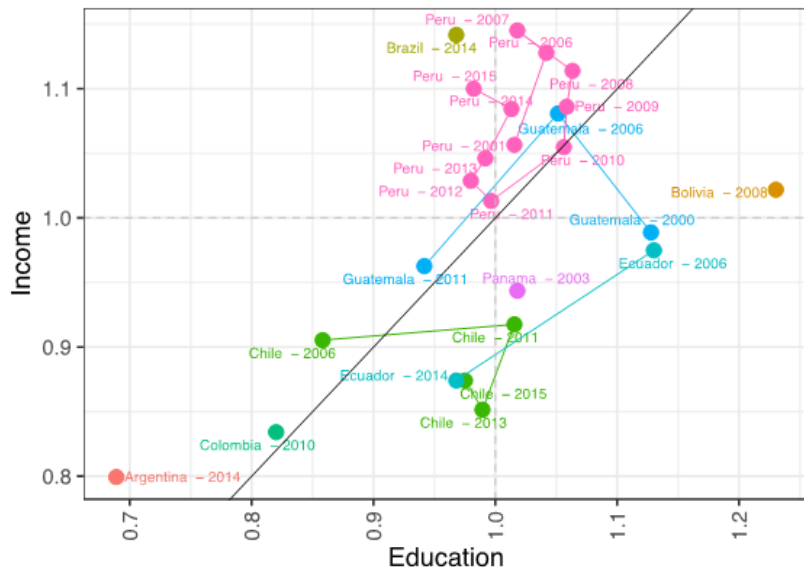
# Contribution of Circumstances to Income IOp

**Table 4: Ex-ante Shapley value decompositions**

Circumstances	ARG (2014)	BOL (2008)	BRA (2014)	CHL (2015)	COL (2010)	ECU (2014)	GTM (2011)	MEX (2017)	PAN (2003)	PER (2015)
Birth Area	33.74	15.01	12.81	14.58	26.56	.	27.95	15.04	21.98	23.1
Ethnicity	0.10	15.82	9.48	2.44	3.39	7.17	.	4.39	2.77	11.69
Father Education	23.08	16.00	22.09	37.87	29.45	27.41	28.83	20.92	36.23	31.57
Father Occupation	18.82	17.09	19.23	.	.	19.85	.	18.23	.	.
Mother Education	21.72	16.65	21.14	37.14	37.28	27.53	27.8	18.03	37.52	31.69
Mother Occupation	.	17.53	14.06	.	.	13.81	.	8.63	.	.
Sex	2.53	1.90	1.18	7.98	3.33	2.34	3.01	14.76	1.51	1.94

*Source: Data from ENES, EH, PNAD, CASEN, ECV, ENCOVI, EMOVI, ENV, ENAHO. See more details in Table 1 and Table 2. All values are relative (%) contributions to random forest IOp, see Table 3.*

# Education and Income IOp Trends



# Take-home ideas

Two sets of inherited inequalities results:

- $IOp, \frac{I(\hat{y}_c)}{I(y_c)}$ , between 0.44-0.66.
- IGM,  $\rho$ , between 0.20-0.60;  $\beta$ , between 0.20-0.80.
- Declining trend in education inherited inequalities. To some extent, also in income.
- $\rho$  of education seem stable, declining  $\beta$  associated with declining inequality.
- Larger shares of inherited inequality than most other regions of the world.\*

*\*Comparisons with Africa are difficult to make (Consumption vs. Income)*

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