SUBNATIONAL POVERTY DYNAMICS OF TWO "FORGOTTEN" LATIN AMERICAN COUNTRIES: THE CASES OF ECUADOR AND URUGUAY

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Outline

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Context

- Economic convergence implies that poorer countries or regions grow faster than richer ones and that, in the long-run the former will reach the income per capita of the latter. Club-convergence or conditional convergence imply differentiated steady states. Income is not the perfect indicator of development and well-being.

- The Millennium Development Goals (MDGs) stress that policies must focus in reducing inequality and promoting development in poor countries. For example, the UN-Habitat mentions that one third of the urban population lives in slum conditions

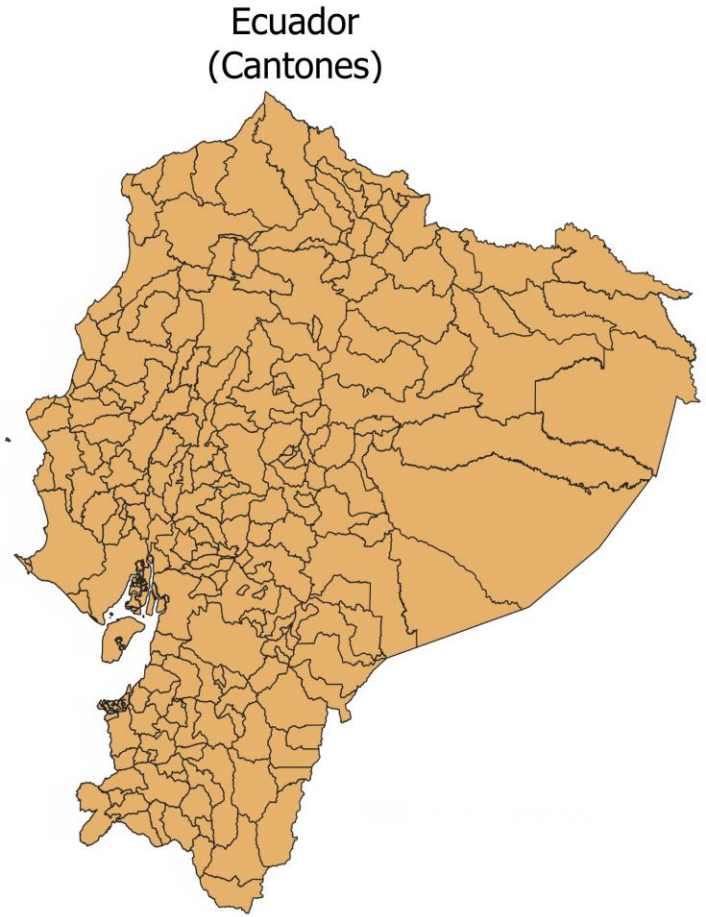
Context

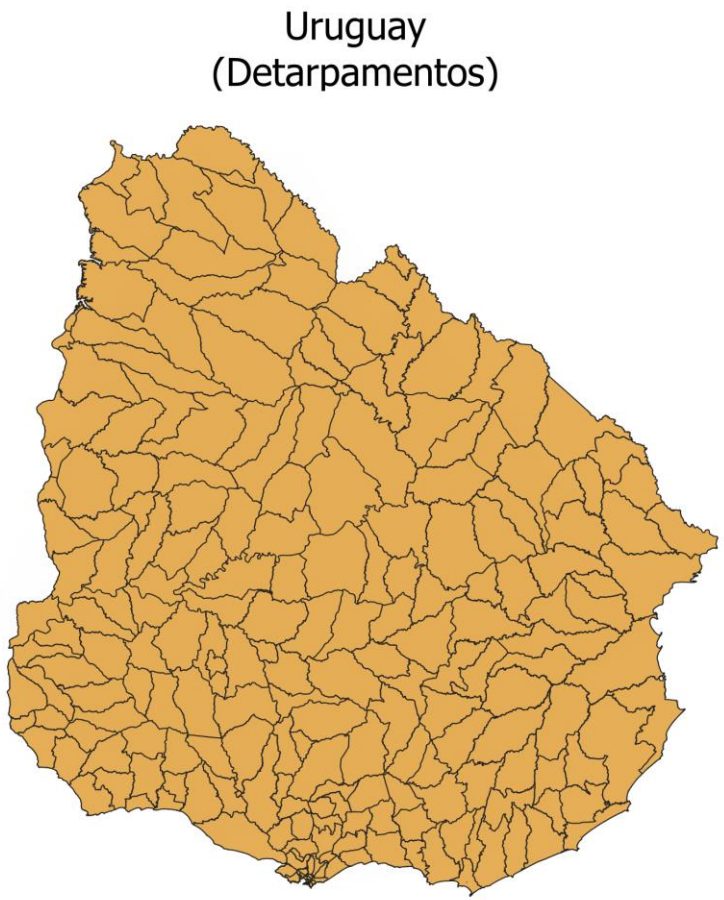
- To study convergence in quality of life allows to explore the process of time in which regions are going to reduce their differences in the quality of life. Moreover, to analyze different countries allow to observe the differences in the minimum of quality of life standards and their dynamics over time

- We focus on Ecuador and Uruguay, two small Latin American economies that share similar structural characteristics. According UN-Habitat (2015), in Ecuador, the share of population living in slum has increased from 22% in 2005 to 34% in 2015. Not so much evidence for Uruguay.

Context


America
Ecuador
Uruguay


Ecuador
(Cantones)


Uruguay
(Detarpamentos)

Research question

General objective:

Analysing subnational wellbeing through a set of variables related to the minimum basic service provision, which can be understood as guaranteeing a minimum of quality of life (OECD, 2008).

Specific objectives:

Construct a composite indicator of the QoL at small geographical scale for Ecuador and Uruguay through.

Explore the territorial patterns of the QoL indicator

Analyze the dynamics and possible convergence in of the QoL in Ecuador and Uruguay (both analysis are done independently).

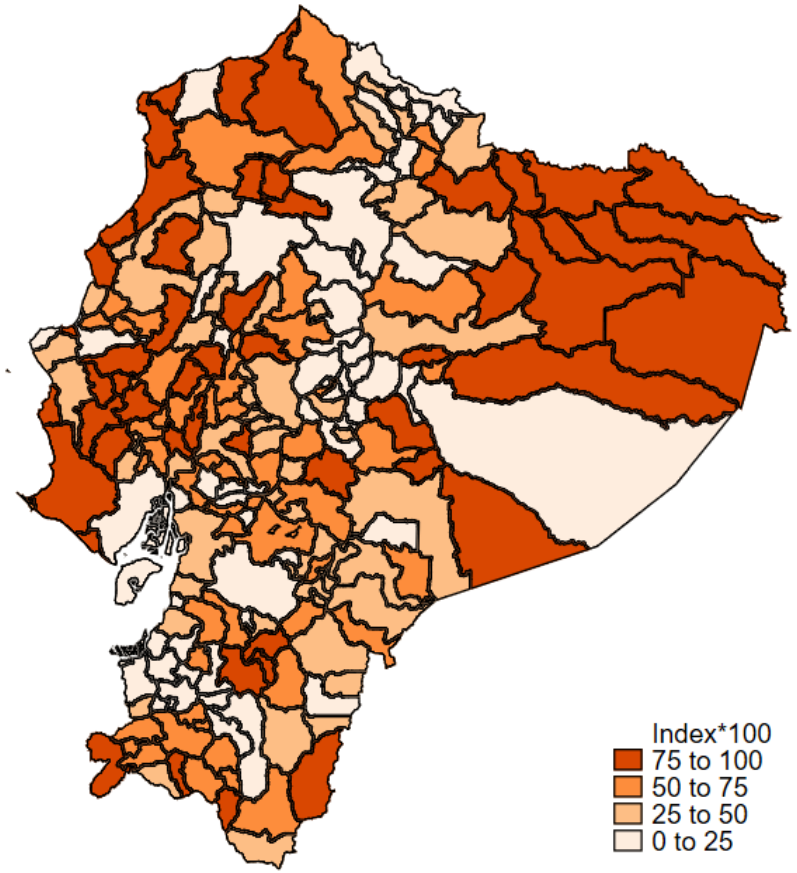
Methodology

First, build a Local Multidimensional Poverty Index (LMPI) for both countries (closer to 1 is worse and closer to 0 better). We use the national censuses of population for Ecuador (1990-2010) and Uruguay (1996 – 2011) to build the indicator at household level, then it is aggregated to levels of cantons in Ecuador and sectors in Uruguay.

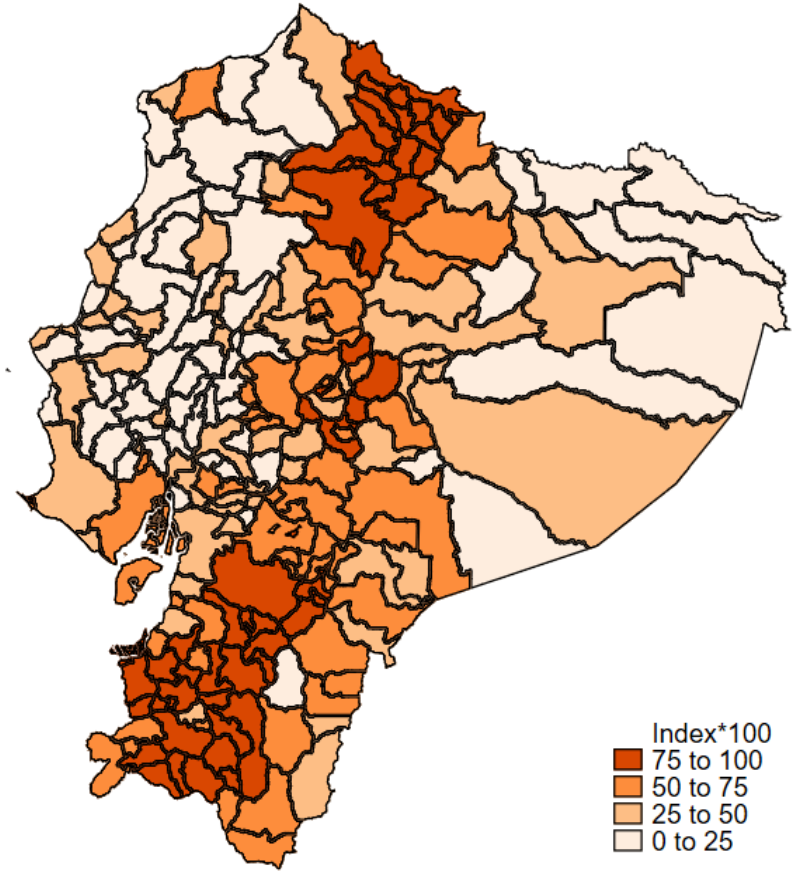
Block	Name	Variable	Weight
A	Education	1 if the head of the household has a high school education or lower, and 0 otherwise	1/3
B	Walls	1 if the walls are not made of bricks or stones, and 0 otherwise	1/9
	Roof	1 if the roof is not made of concrete, zinc, or tiles, and 0 otherwise	1/9
	Floor	1 if the floor is not made of concrete, stones, bricks, tiles, or parquet, and 0 otherwise	1/9
C	Water safe	1 if the household has no access to safe public water, and 0 otherwise	1/9
	Water pipes	1 if the water does not come from pipes at the house or close to it, and 0 otherwise	1/9
	Electricity	1 if the household does not have electricity, and 0 otherwise	1/9

Methodology: spatial distribution of LMPI for Ecuador

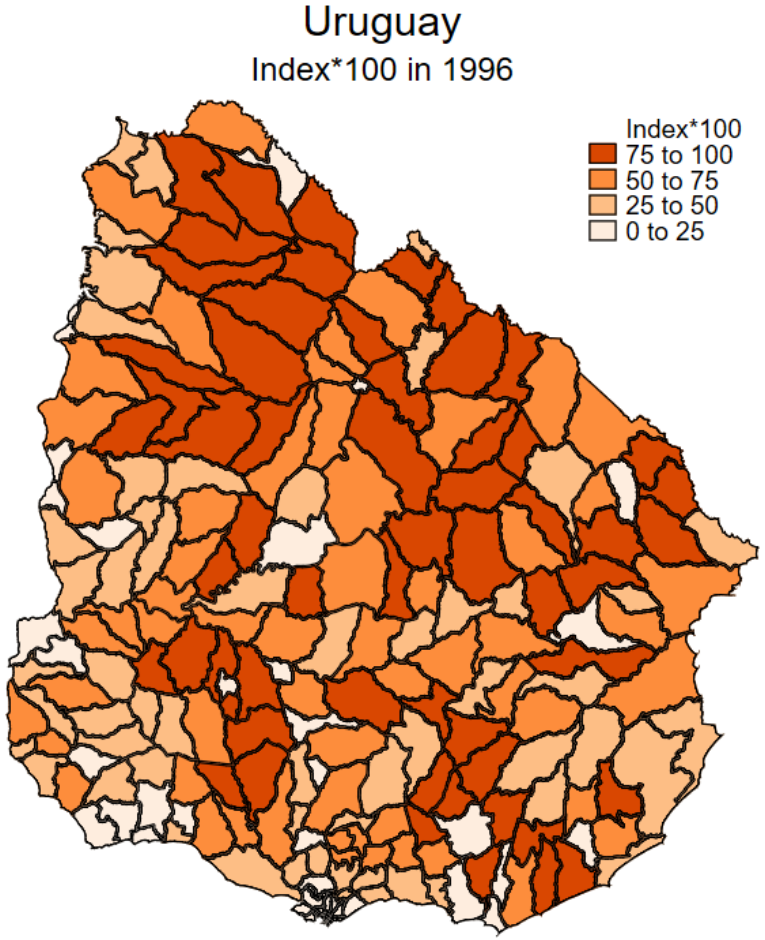
Ecuador 1990

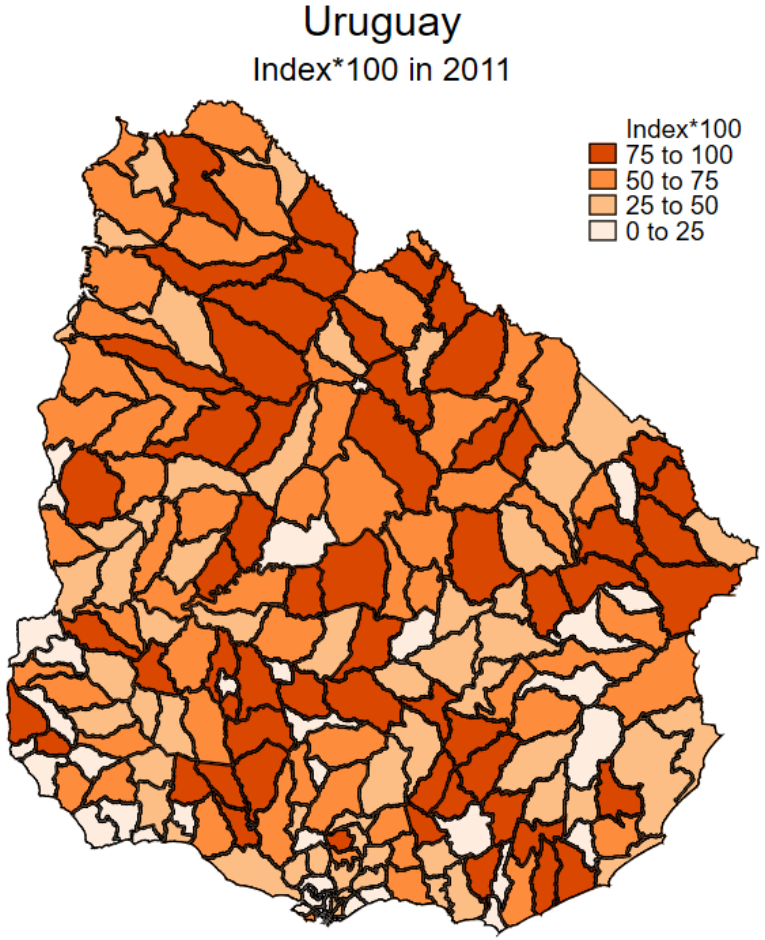


Ecuador 2010



Methodology: spatial distribution of LMPI for Uruguay



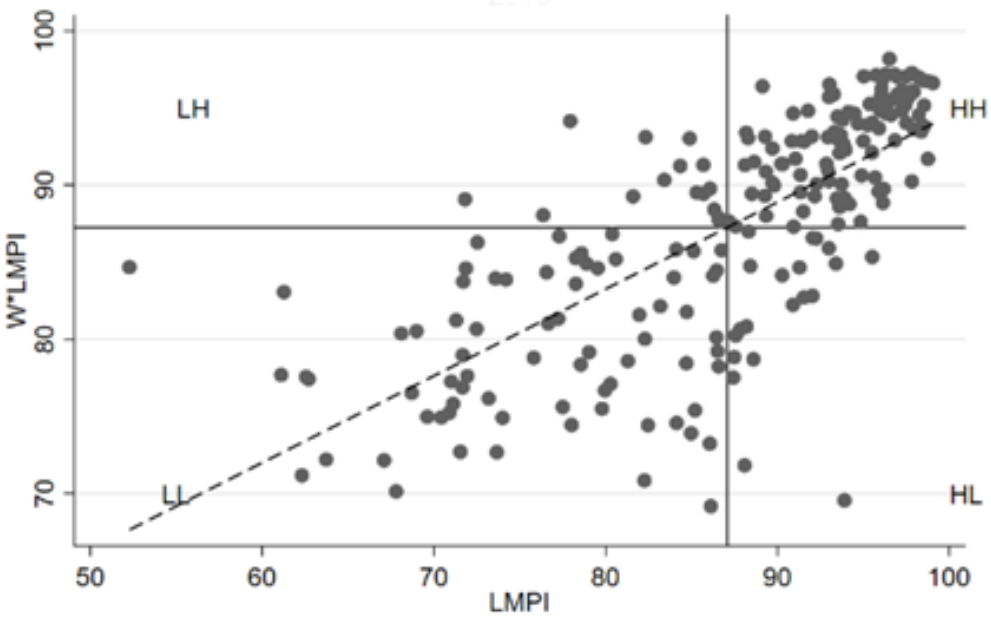


Methodology

Then, we use Moran Scatter Plot for each year, separately. Then, clusters are identified according to the quadrants to which each area belongs. Based on the clusters, we elaborate the transition matrix.

This is done for Ecuador and Uruguay for the period.

Moran Scatter Plot



Transition matrix

	LL_{t+n}	HL_{t+n}	LH_{t+n}	HH_{t+n}
LL_t	R_0	R_I	R_{II}	R_{IIIA}
HL_t	R_I	R_0	R_{IIIB}	R_{II}
LH_t	R_{II}	R_{IIIB}	R_0	R_I
HH_t	R_{IIIA}	R_{II}	R_I	R_0

Methodology

Next, we use our estimation strategy (Kholodilin et al. 2012; Ertur et al., 2006):

SAR MODEL: $\frac{1}{n}\ln\left(\frac{LMPI_{i,t+n}}{LMPI_{i,t}}\right) = \sum_{i=0}^{3} R_k\,\alpha_k + \sum_{i=0}^{3} R_k\,\beta_k \ln\left(LMPI_{i,t}\right) + \rho W\left(\frac{1}{n}\ln\left(\frac{LMPI_{i,t+n}}{LMPI_{i,t}}\right)\right) + \varepsilon_{i,t}$

SEM MODEL: $\frac{1}{n}\ln\left(\frac{LMPI_{i,t+n}}{LMPI_{i,t}}\right) = \sum_{i=0}^{3} R_k\,\alpha_k + \sum_{i=0}^{3} R_k\,\beta_k \ln\left(LMPI_{i,t}\right) + u_{i,t}\,;\qquad u_{i,t} = \lambda W u_{i,t} + \varepsilon_{i,t},$

Results: transition matrix and transition probability matrix Ecuador 1990-2010

T_{1990}\ T_{2010}	LL	HL	LH	HH	Total
LL	4	3	4	53	64
HL	10	6	6	22	44
LH	11	6	2	10	29
HH	47	5	4	24	80
Total	72	20	16	109	217

T_{1990}\ T_{2010}	LL	HL	LH	HH
LL	0.06	0.05	0.06	0.83
HL	0.23	0.14	0.14	0.50
LH	0.38	0.21	0.07	0.35
HH	0.59	0.06	0.05	0.30
Ergodic	0.35	0.057	0.35	0.482

Results: transition matrix and transition probability matrix Uruguay 1996-2011

$T_{1990}\backslash T_{2010}$	LL	HL	LH	HH	Total
LL	75	5	9	0	89
HL	1	17	0	3	21
LH	5	0	40	1	46
HH	3	7	14	50	74
Total	84	29	63	54	230

$T_{1990}\backslash T_{2010}$	LL	HL	LH	HH
LL	0.84	0.07	0.10	0
HL	0.05	0.81	0	0.14
LH	0.11	0	0.87	0.02
HH	0.04	0.10	0.19	0.68
Ergodic	0.103	0.445	0.374	0.078

Results: Ecuador

	Without spatial regimes			With spatial regimes		
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	SLM	SEM	OLS	SLM	SEM
R_0				0.0546***	0.0525***	0.0564***
				(0.0046)	(0.0045)	(0.0044)
R_I				0.0793***	0.0778***	0.0779***
				(0.0031)	(0.0031)	(0.0029)
R_{II}				0.0704***	0.0702***	0.0734***
				(0.0033)	(0.0031)	(0.0032)
R_{III}				0.0875***	0.0820***	0.0858***
				(0.0014)	(0.0024)	(0.00178)
$R_0 * y_o$				-0.0005***	-0.0006***	-0.0006***
				(6.36e-5)	(6.14e-5)	(6.09e-5)
$R_I * y_o$				-0.0009***	-0.0009***	-0.0009***
				(4.65e-5)	(4.48e-5)	(4.31e-5)
$R_{II} * y_o$				-0.0008***	-0.0008***	-0.0008***
				(4.91e-5)	(4.83e-5)	(4.71e-5)
$R_{III} * y_o$				-0.0011***	-0.0010***	-0.0011***
				(2.18e-5)	(3.02e-5)	(2.67e-5)
y_o	-0.001***	-0.0009***	-0.0009***			
	(2.01e-5)	(2.20e-5)	(2.13e-5)			
Const	0.0818***	0.0746***	0.079***			
	(0.0013)	(0.0018)	(0.0016)			
ρ		0.170***		0.0958***	0.0958***	
		(0.0311)		(0.0346)	(0.0346)	
λ			0.533***			0.364***
			(0.0742)			(0.0948)
σ^2		3.18e-5***	2.85e-5***		2.53e-5***	2.41e-5***
		(3.04e-6)	(2.79e-6)		(2.43e-6)	(2.34e-6)
Obs	217	217	217	217	217	217
R2	0.920			0.965		
Aic	-1598.539	-1622.294	-1633.493	-1656.828	-1666.059	-1665.589
Bic	-1591.779	-1608.775	-1619.973	-1629.789	-1626.535	-1631.79

Results: Ecuador

	Without spatial regimes			With spatial regimes		
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	SLM	SEM	OLS	SLM	SEM
R_0				-0.0083*	0.0011	-0.0018
				(0.0045)	(0.0026)	(0.0086)
R_I				0.0736*	0.0509**	0.0361
				(0.0407)	(0.0234)	(0.023)
R_{II}				-0.0093	-0.0099	-0.0161
				(0.0143)	(0.00825)	(0.0116)
R_{III}				0.118	0.164	0.178
				(0.781)	(0.449)	(0.397)
$R_0 * y_o$				3.17e-5	-2.33e-5	-6.34e-5
				(9.83e-5)	(5.66e-5)	(6.92e-5)
$R_I * y_o$				-0.00229**	-0.0015***	-0.00136**
				(0.0010)	(0.0005)	(0.0005)
$R_{II} * y_o$				4.75e-5	0.00019	0.00022
				(0.00031)	(0.00018)	(0.00017)
$R_{III} * y_o$				-0.00373	-0.0044	-0.0048
				(0.0195)	(0.0112)	(0.0098)
y_o	8.97e-6	-2.17e-5	-5.13e-6			
	(9.36e-5)	(5.54e-5)	(6.66e-5)			
Const	-0.0086**	-0.00040	-0.0060			
	(0.0042)	(0.0025)	(0.0084)			
lambda		0.809***			0.813***	
		(0.0377)			(0.0370)	
rho			0.809***			0.818***
			(0.0378)			(0.0365)
sigma2		0.000572***	0.000572***		0.0005***	0.0005***
		(5.53e-5)	(5.53e-5)		(5.21e-5)	(5.16e-5)
Obs	230	230	230	230	230	230
R2	0.000			0.071		
aic	-821.0995	-1013.569	-1013.421	-816.2507	-1014.792	-1016.275
bic	-814.2234	-999.8164	-999.669	-788.7461	-980.4111	-981.8941

Conclusions

In Ecuador, the LMPI increased, on average, from 0.64 in 1990 to 0.86 in 2010. For Uruguay, it has slightly reduced, 0.35 in 1996 to 0.33 in 2011. However, both countries present a high heterogeneity within its territory.

We verify the existence of movement across different quadrants in particular for Ecuador, while Uruguay shows a higher temporal persistence.

When convergence is analysed throughout the econometric framework, we find evidence of convergence in different transition regimes in Ecuador, but not in Uruguay.

We identify different convergence patterns, which are robust to the different estimation techniques.

The spatial regimes are significant for Ecuador, while not for Uruguay. In particular, we observe that in Ecuador there are differentiated convergence speeds by regime

Conclusions

Need to put in place policies that increase the provision of basic needs in Ecuador

Uruguay presents a better situation both in terms of territorial patterns and dynamics

“Place based” approach to face uneven territorial dynamics in Ecuador

Maintain the trend in Uruguay

Thank you

Gracias!

Merci!

Danke!

Grazie!