Long-run inequality in the U.S., 1870 - 2019

Carlos Gayán-Navarro (España)
carlosgayannavarro@gmail.com

Programa de Doctorado en Economía
DIRECTORES: Marcos Sanso-Navarro, Fernando Sanz-Gracia

MOTIVATION

Capital in the Twenty-first Century (Piketty, 2014) **+** Increasing long-run data availability **+** Growing social and political concern (the reduction of inequalities is one of the Sustainable Development Goals)

= Upsurge of interest in the study of inequality

This paper deals with the existence of persistence changes in both income (top 10% income share and Gini index) and wealth (wealth-to-income ratio) inequality during 1870-2019, and studies their determinants.

TIME SERIES ANALYSIS

Unit roots and structural breaks:

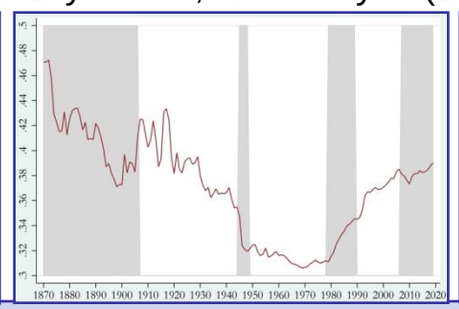
Time series with structural breaks: Unit root tests fail.
Circular problem
Time series with unit roots: Structural break tests fail.

Solution:

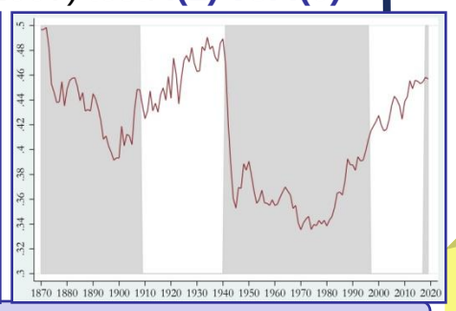
1. Perron & Yabu (2009) structural break test valid both for I(1) and I(0) series: The three time series have structural breaks.
2. Carrion-i-Silvestre, Kim & Perron (2009) tests for unit roots accounting for breaks: Do not reject the null of a unit root in any of the three time series.

Persistence changes: Leybourne, Kim & Taylor (2007) test: I(1) vs. I(0)

Wealth-to-income ratio



Gini coefficient



Top 10% income share

GREY AREAS DISPLAY I(1) REGIMES

DETERMINANTS OF PERSISTENCE CHANGES

Bayesian model averaging in a generalized linear model context is applied to a large set of potential determinants -grouped in 6 categories- to check their ability to explain the changes of regime detected in income inequality.

	Gini coefficient		Top 10% income share	
	PIP	Coef. (S.D.)	PIP	Coef. (S.D.)
1. Globalization				
Foreign investment	0.9466	7.88 (6.93)	0.9197	16.07 (23.09)
Trade volume	0.9187	0.35 (0.29)	0.4775	0.01 (0.32)
Foreign patents	0.9998	-5.09 (2.83)	0.5352	0.71 (3.53)
2. Technological change				
Patent stock	0.9036	-4.84 (4.72)	0.9770	-10.64 (15.64)
R&D expenditure	0.9988	10.31 (6.38)	0.5934	2.05 (7.45)
3. Financial Development				
Savings	0.9955	0.45 (0.27)	0.9997	0.87 (1.2)
Credit	0.6390	0.02 (0.03)	0.9867	-0.16 (0.19)
Interest rate	0.8846	-0.39 (0.38)	0.9189	-1.22 (2.01)
4. Fiscal and monetary policies				
Inflation	0.5276	0.07 (0.21)	0.5202	-0.04 (0.34)
Tax revenue	0.4912	0.07 (0.29)	0.4919	-0.08 (0.67)
Gov. expenditure	0.5875	0.07 (0.18)	0.7890	-0.36 (0.8)
5. Demographics and societal structure				
Enrollment	1	-0.52 (0.28)	0.6463	-0.13 (0.42)
Life expectancy	0.9940	1.15 (0.77)	0.9995	2.26 (2.98)
6. Labor institutions and regulations				
Unemployment	0.9996	-0.63 (0.37)	1	-1.23 (1.52)
Union membership	1	-0.97 (0.51)	0.5165	-0.05 (0.68)

Uniform prior is used for model size and hyper-g/n prior is used for parameters.

MAIN REFERENCES

Carrion-i-Silvestre, Josep Lluís, Dukpa Kim, and Pierre Perron. 2009. GLS-based unit root tests with multiple structural breaks under both the null and the alternative hypotheses. Econometric Theory 25 (6): 1754-1792.

Leybourne, Stephen, Tae-Hwan Kim, and A. M. Robert Taylor. 2007. Detecting multiple changes in persistence. Studies in Nonlinear Dynamics and Econometrics 11 (3).

Perron, Pierre, and Tomoyoshi Yabu. 2009. Testing for shifts in trend with an integrated or stationary noise component. Journal of Business & Economic Statistics 27 (3): 369-396.

Piketty, Thomas. 2014. Capital in the twenty-rst century. Cambridge, MA: Harvard University Press. Isbn: 9780674430006.

IV Jornada de Posters de Doctorado de la Facultad de Economía y Empresa
II Congreso IEDIS en Empleo, Sociedad Digital y Sostenibilidad