

# Summary Report: The threshold effect of institutional quality on sovereign debt and economic stability

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## 1 Summary

The paper "Threshold Effects of Inequality on Economic Growth in the US States:"[1] look to find the effects of inequality on the economic growth of the US states. Key points:

- At first physical capital is higher relative to that on human capital, but in later stages this is flipped
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## 2 Data sources

## 3 Methodology

- They use a theoretical frame work of Galor and Moav [2]
- The study make use of 48 states from 1948 to 2014.
- The dependent variable of Growth is the annual growth rate of real per capita state income. (BEA)
- They deflated the data using the CPI from the FRED database.
- From FRED they also obtained the GINI
- Their model que be summarize ice in the following formula:

$$y_{it} = \mu_i + \beta_2 x_{it} I(q_{it} \leq \gamma) + \beta x_{it} I(q_{it} > \gamma) + \theta' z_{it} + e_{it} \quad (1)$$

- $I(\cdot)$  is an indicator function
- $q_{it}$  is the threshold variable (HKC or HKH),
- $\gamma$  is the threshold parameter that divides the equation into different regimes
- $z_{it}$  is the set of growth determinants (LY0, POPG, HKH or HKC)

- $x_{it}$  is the measure of income inequality (GINI).
- $e_{it}$  is the error term  $e_{it} \sim N(0, \sigma^2)$

- Their Hypothesis is threshold effects

$$H_0 : \beta_i = \beta_2$$

$$H_1 : \beta_1 \neq \beta_2$$

- the least square estimator of parameter  $\gamma$  is obtained by:

$$\hat{\gamma} = \operatorname{argmin} S_1(\gamma) \quad (2)$$

item their F-statistic is constructed as:

$$F_1 = \frac{S_0 - S_1(\gamma)}{\hat{\sigma}^2} \quad (3)$$

## 4 Results

**Table 1:** Threshold model estimates using *HKH* and *HKC* measures

Threshold Estimation	Model 1 ( <i>HKH</i> )		Model 2 ( <i>HKC</i> )	
$\hat{\gamma}$	-6.724		-8.399	
<i>LM</i> stat.	32.32		35.17	
<i>p</i> -value	0.001		0.001	
Growth Equation	$HKH \leq \hat{\gamma}$	$HKH > \hat{\gamma}$	$HKC \leq \hat{\gamma}$	$HKC > \hat{\gamma}$
$\widehat{GINI}_{it}$	0.0682** (0.031)	-0.0249* (0.014)	0.0855** (0.034)	-0.0291** (0.012)
$HKH_{it-1}$	0.0121*** (0.004)	0.0265*** (0.007)	0.0149*** (0.005)	0.0155*** (0.003)
$POPG_{it-1}$	0.0277 (0.084)	0.0395 (0.073)	0.0599 (0.081)	-0.0443 (0.056)
$LYO_{it-1}$	-0.0254*** (0.004)	-0.0124*** (0.002)	-0.0248*** (0.004)	-0.0201*** (0.004)
Constant	0.1880*** (0.031)	0.2640*** (0.051)	0.2235*** (0.046)	0.2551*** (0.037)
Observations	1419	1749	1223	1945

**Note:** The dependent variable is *GROWTH*,” i.e., the annual growth rate of real per capita state income, and  $\widehat{GINI}$  is the instrumented measure of inequality. The robust standard errors reported in parentheses. \*\*\*, \*\*, \* indicates significant at 1%, 5% and 10% level, respectively.

Figure 1: Caption for Table 1

## 5 Conclusions

The conclusions are as follow:

1. This model tend to suggest that while the effect is positive below a certain threshold of the ratio of human to physical capital, the effect turns negative thereafter
2. analysis shows that while the effect of inequality on growth is significantly positive at lower levels of development, this effect turns significantly negative at higher levels of development

[1]

## References

- [1] Oğuzhan Çepni, Rangan Gupta, and Zhihui Lv. “Threshold effects of inequality on economic growth in the US states: the role of human capital to physical capital ratio”. In: *Applied Economics Letters* 27.19 (2020), pp. 1546–1551.
- [2] Oded Galor and Omer Moav. “From Physical to Human Capital Accumulation: Inequality and the Process of Development”. In: *The Review of Economic Studies* 71.4 (Oct. 2004), pp. 1001–1026. ISSN: 0034-6527. DOI: 10.1111/0034-6527.00312. eprint: <https://academic.oup.com/restud/article-pdf/71/4/1001/18328304/71-4-1001.pdf>. URL: <https://doi.org/10.1111/0034-6527.00312>.