# *Inequality … of Opportunity and Economic Performance*

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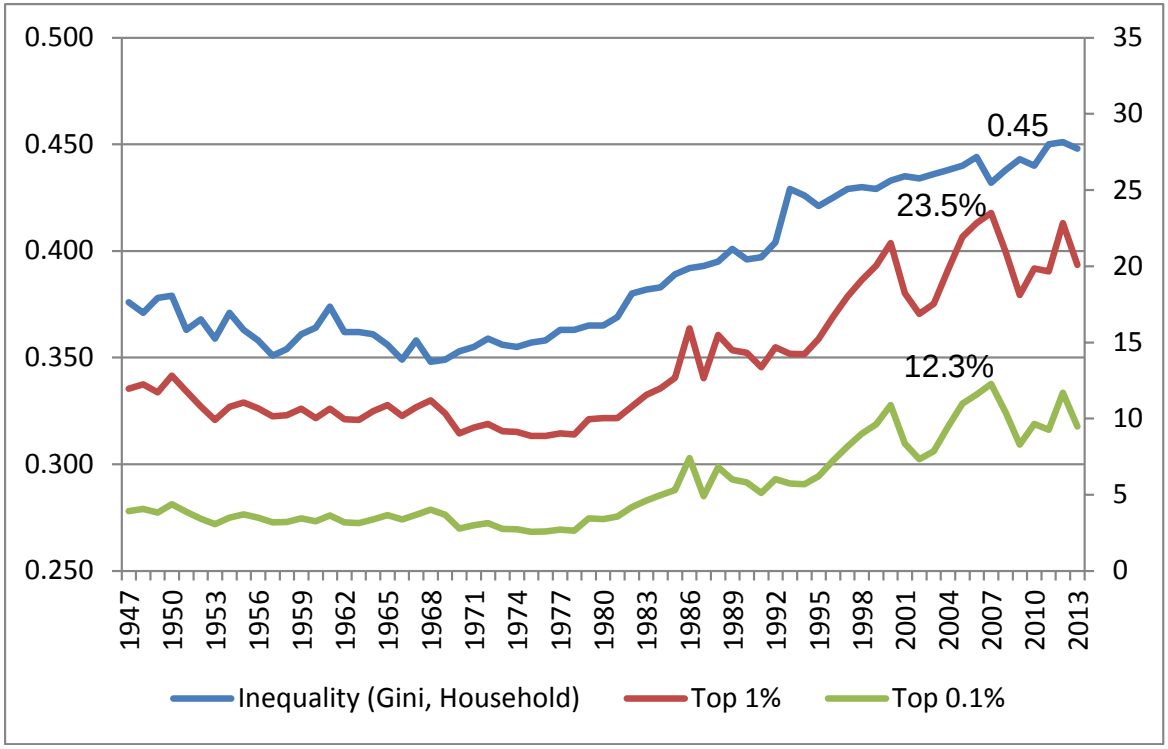
## Stable increase of inequality in the US (and others) since the 70's




1. **Race between education and technology** (Goldin and Katz, 2010): the **raise of inequality is not a concern for growth** (Mankiw, 2013).

2. **Institutions are taken by top incomes** so rent-seeking is pervasive (Stiglitz, 2012): the implied **increase in inequality is harmful for growth** (Piketty et al., 2011).

***Inequality is important not only for equity (social justice) but also for efficiency (growth, employment, allocation) so***

## *Is* inequality good or bad for economic performance?

- Until 80-90's: **inequality is good** (Kaldor's **savings** and Mirrlees's **unobserved effort** arguments).
- After, **inequality is bad** because:
  - **Political instability** [Gupta, 90; Keefer-Knack, 02]
  - Worse quality of **institutions** [Acemoglu-Robinson, 09; Stiglitz, 12]
  - **Credit market channel: misallocation** of human capital and entrepreneurship [Galor-Zeira, 93; Banerjee-Newman, 93]
  - Higher **distortionary redistribution** [Alesina-Rodrick, 94]
  - **Fertility** [Kremer-Chen, 02]

What about the **empirical literature? Inconclusiveness** (Banerjee and Duflo, 2003)

Voitchovsky (05): inequality has **offsetting** avenues affecting growth in **opposite ways**

- **<u>The Inequality of Opportunity literature</u>** (Roemer, 93, 98; Fleurbaey, 08): Overall inequality is a **composite measure** of different types of inequality …

- **Inequality of opportunity** (**IO**): due to factors beyond individuals control (*circumstances)*
  - **Parental background** (intergenerational mobility is a particular case of IO)
  - **Gender, race**, initial health endowments, etc.
  - **Macroeconomic and social conditions** of the place of birth

- **Inequality of effort** (**IE**): ***free-will*** actions under (at least partial) own responsibility.

- Other components: inherent **talent** or ability and (brute) luck.

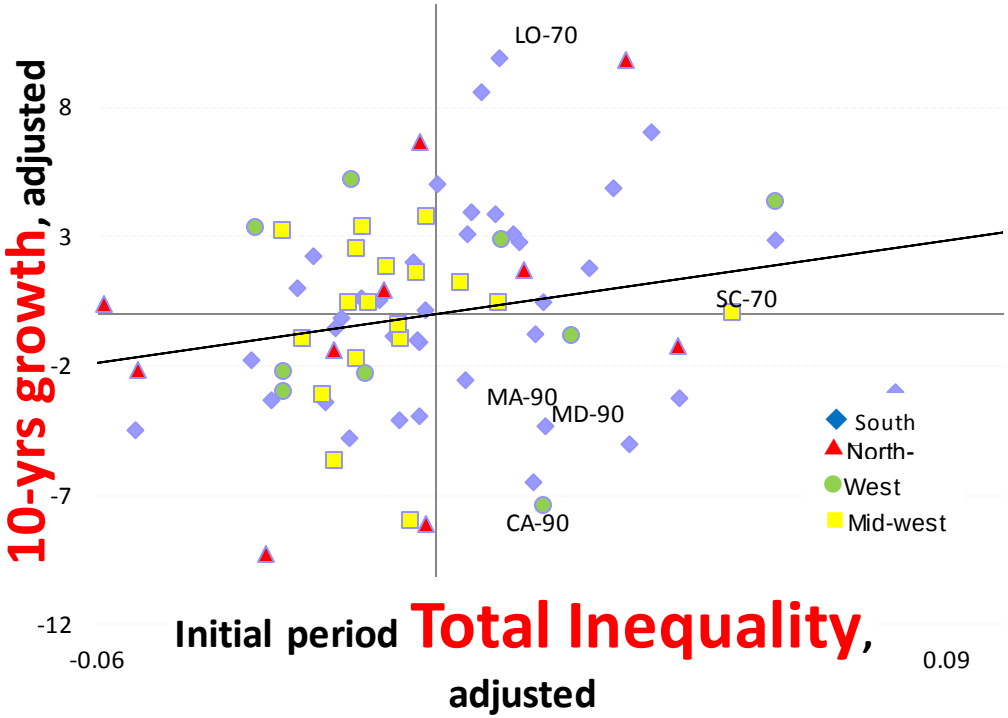
- **Message for fairness**: society must avoid IO ('***level the playing field***') and leave "pure" effort untouched.

## <u>Hypothesis</u>

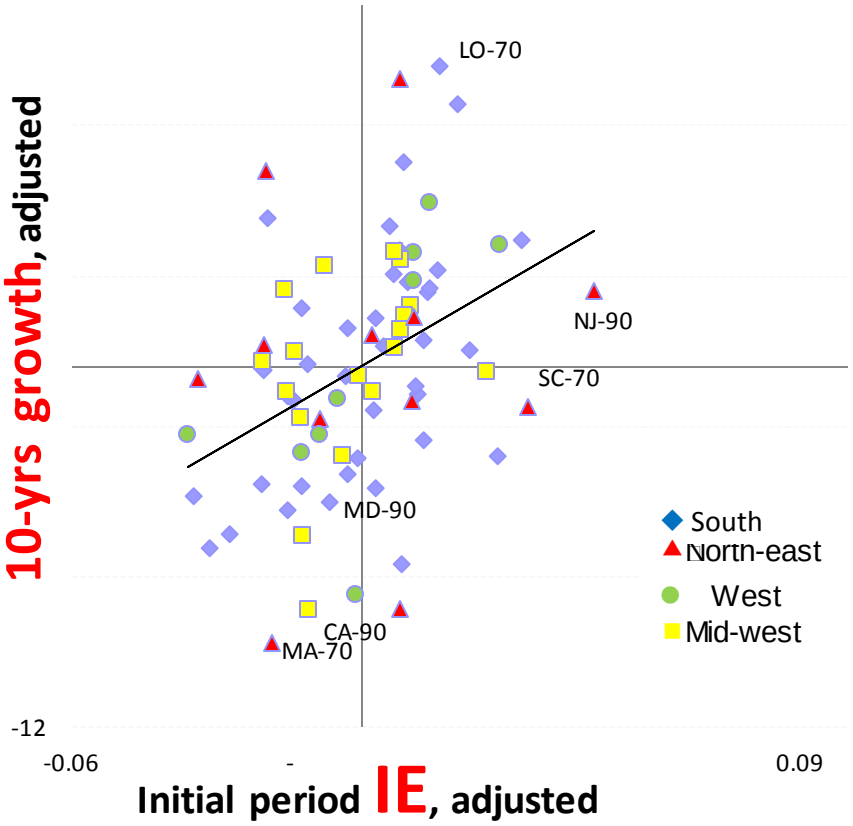
*The impact of overall inequality on economic performance is* ***ambiguous*** *because the two main components of inequality* ***may have opposite effects on growth****:* ***IO negative and IE positive.***

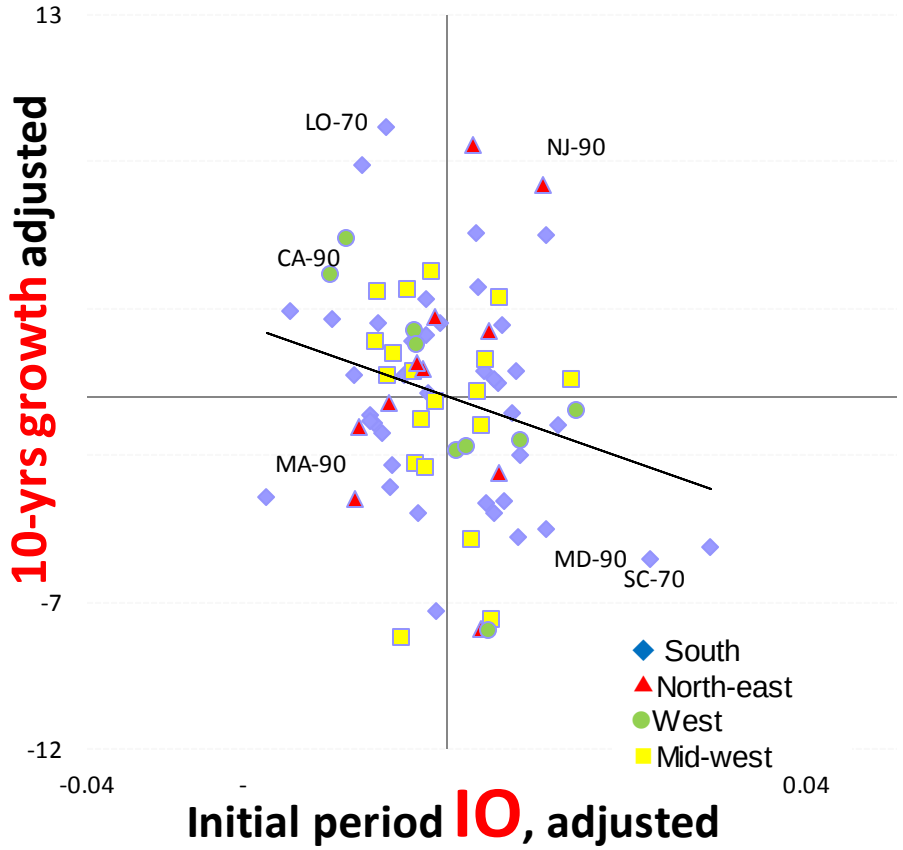
**Marrero & Rodríguez** ("IO and growth", J.Dev.Ec, 13) [panel of 26 U.S. states from the PSID and 3 decades (70-00)] finds robust evidence of this hypothesis.

For (adjusted) total inequality: positive [but little significance]




**Decomposing overall inequality** into IO (lower bound) and IE …




- **Increasing IE** by 1std raises 10-yrs growth in 2.3-4.1 p.p. (average was 20.2% per decade in 70-00), and 209-834 real US$/person (average was 14,363 US$/person in 70-00).

- **Decreasing (lower-bound) IO** by 1std raises 10-yrs growth in 1.1-1.7 p.p. and 124-229 real US$/person.

These results are theoretically grounded in **Marrero and Rodríguez** (2014): overlapping generation economy with ***human capital as the engine of growth***.

From this model, we obtain the following **reduced income growth equation**:

$$GY_{it} = \alpha_i + \phi T_t - \beta \ln y_{it-s} - \varphi_{IO} MLD(a) + \varphi_{IE} MLD(\gamma)$$

IO IE

***GY***: growth of real GDP per capita
***T***: year
***y***: real GDP per capita

- **IO has a negative effect on growth** because *marginal returns to human capital* are higher for those individuals with less favorable **circumstances**.

- **IE has a positive effect on growth** because marginal returns to human capital are larger for those individuals with a lower aversion to effort (higher ***free-will***).

## Reinterpretation of results

1. **Birsdall et al. (1995)**: If controls are related with IE, total inequality should reflect IO and vice versa (see below)

2. **Barro (2000)**: the IO ratio is higher for less developed countries

3. **Acemoglu et al. (2014)** & **Acemoglu et al. (2015) …** :"Democracy may be bringing new opportunities and economic change, which may increase inequality [i.e. increase of IE], while simultaneously lowering barriers to entry and investing in public goods [i.e. reduction of IO], which may reduce ineq."

## Any other empirical evidence?

**For the U.S.:**

- **Hsieh et al.** (2013): reducing occupational barriers in race and gender explains 15-20% of growth in 60-08.
- **Bradbury-Triest** (2014): strong negative effect of absolute immobility on growth
- **Marrero, Rodríguez and van de Weide** (2015): avoiding potential sampling errors in M&R-13, using alternative measures of IO and **estimating growth by quantiles** find a robust result:

**The negative impact of IO on growth is concentrated at the bottom-mid of the distribution**

(this effect explains the negative impact of total inequality on these quantiles found in van de Weide and Milanovic, 14)

**For Brazil (**focusing on municípios): **Geoffrey** (2015) finds that IO harms growth.

## Any cross-country evidence?

1. **Molina et al.** (2013): inequality of educational opportunity affects negatively growth, institutional quality and infant mortality.
2. **Ferreira et al.** (2014): there is no evidence that IO is responsible for the negative impact of inequality (I&E-sample); the negative impact of IO on growth is not robust (DHS-sample). A possible explanation:

"*The impossibility of observing all circumstances could bias the estimates by contaminating the residual component (IE) and diminishing the significance of IO*"

To deal with the problem of scarcity and quality of household survey databases we propose an **alternative empirical approach:**

- **Step 1: collect Ginis** (from UN-WIID2 & Povcal-Net [López-Servén, 2012] [also SWIID (Solt, 2009)]) and **macro-factors** (fertility rate, corruption, military in power, democracy, ethnic-linguistic tensions and religious tensions) from the Political Risk Module (ICRD, 1984-2010) and WB-database.

- **Step 2:** "*isolate*" a **"lower bound"** of the IO component:

$$Gini_{jt} = \alpha + \gamma X_{jt} + v_{jt} \Rightarrow OLS \Rightarrow \begin{array}{l} \text{Fitted Gini: } IO_{jt} = \hat{\alpha} + \hat{\gamma} X_{jt} \\ \text{Residual Gini: } IE_{jt} = \hat{v}_{jt} \end{array}$$

$$\begin{aligned} \hat{Gini} = {} & 0.292*** + 0.0248*** Fertility + 0.0149*** Corruption + 0.0079** Military \\ & + 0.0008 Democracy - 0.0018 Ethnic - 0.0219*** \text{Religion} \\ & N = 474\ Obs;\ adj.R^2 = 0.30 \end{aligned}$$

- **Step 3: run** a sequence of **regressions** and check **tests** (focus on IO)

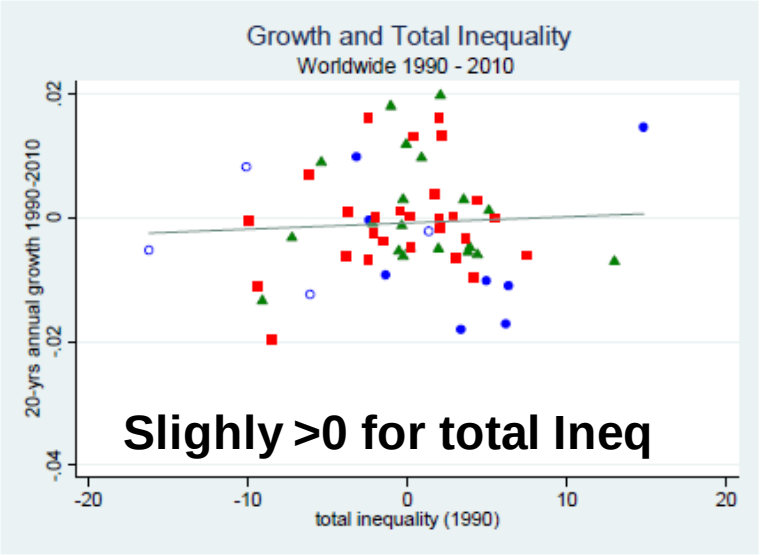
$$Growth_{it} = \alpha_i + \varphi T_t - \beta \ln y_{it-s} + \delta_0 Gini_{it-s} + \varepsilon_{it} \qquad \delta_0 = 0?$$

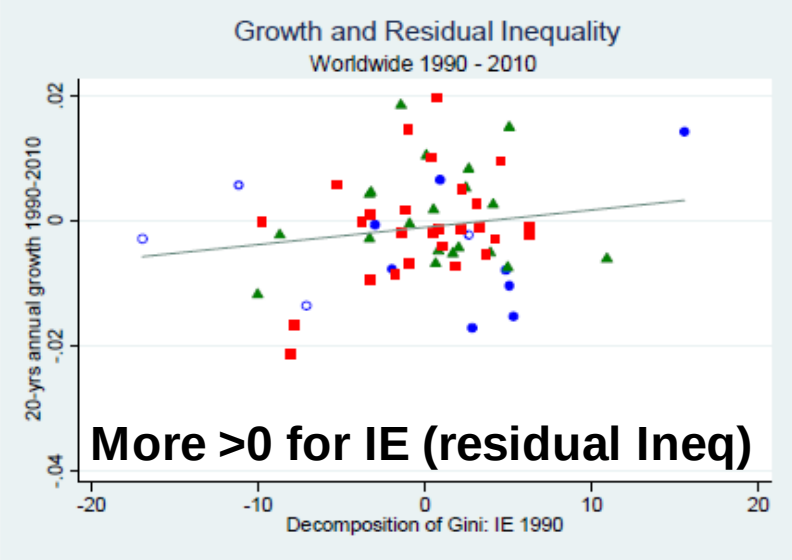
$$Growth_{it} = \alpha_i + \varphi T_t - \beta \ln y_{it-s} + \delta_{01} Gini_{it-s} + \delta_{10} IO_{it-s} + \varepsilon_{it} \qquad \delta_{10} < 0?$$

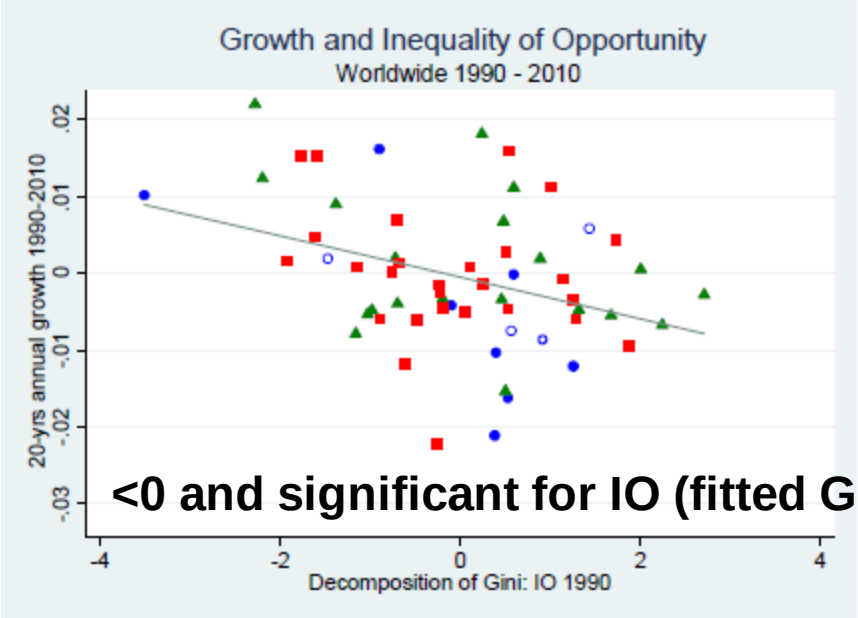
$$Growth_{it} = \alpha_i + \varphi T_t - \beta \ln y_{it-s} + \delta_{02} Gini_{it-s} + \delta_{20} IE_{it-s} + \varepsilon_{it} \qquad \delta_{02} < 0?$$

$$Growth_{it} = \alpha_i + \varphi T_t - \beta \ln y_{it-s} + \delta_{11} IO_{it-s} + \delta_{21} IE_{it-s} + \varepsilon_{it} \qquad \delta_{11} < 0?$$

Taking 20-year intervals to measure long-run growth (1990-2010, 69 countries):



Results are robust to:

- The set of **macro variables included in the Gini decomposition** (Appendix)

- The **set of controls** included in the growth regression (including the lagged of human capital, investment prices, government size and degree of openness).

**The effect of inequality of outcomes and opportunity on growth (20 years: 1990-2010)**

(OLS; decomposition (b) of the Gini coefficient)

| | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Simple model (with reg. dummies) | | | | Forbes model (with reg. dummies) | | | | Ext. Forbes model (with reg. dummies) | | | |
| L4.Gini | -0.0299 | -0.0248 | -0.131** | | -0.0109 | -0.00423 | -0.122** | | -0.0156 | -0.00872 | -0.116** | |
| | (-1.04) | (-0.85) | (-2.49) | | (-0.43) | (-0.18) | (-2.28) | | (-0.63) | (-0.37) | (-2.26) | |
| L4.IO | | -0.107** | | -0.131** | | -0.118** | | -0.122** | | -0.107** | | -0.116** |
| | | (-2.12) | | (-2.49) | | (-2.60) | | (-2.28) | | (-2.48) | | (-2.26) |
| L4.Resid | | | 0.107** | -0.0248 | | | 0.118** | -0.00423 | | | 0.107** | -0.00872 |
| | | | (2.12) | (-0.85) | | | (2.60) | (-0.18) | | | (2.48) | (-0.37) |
| N | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 |
| adj. R-sq | 0.211 | 0.251 | 0.251 | 0.251 | 0.314 | 0.365 | 0.365 | 0.365 | 0.363 | 0.404 | 0.404 | 0.404 |

- The **temporal period of growth**: having panel data we use not only Pool-OLS but also FE and IV for 10-year growth and System-GMM for 5-year growth (Appendix).

## Concluding remarks: Policy

- Be aware of redistribution: it might affect total inequality without knowing which type of inequality is being affected
  - **Ostry et al. (2014):** some redistribution can reduce IO (and increase growth), but too much redistribution might also reduce IE (deterring growth)

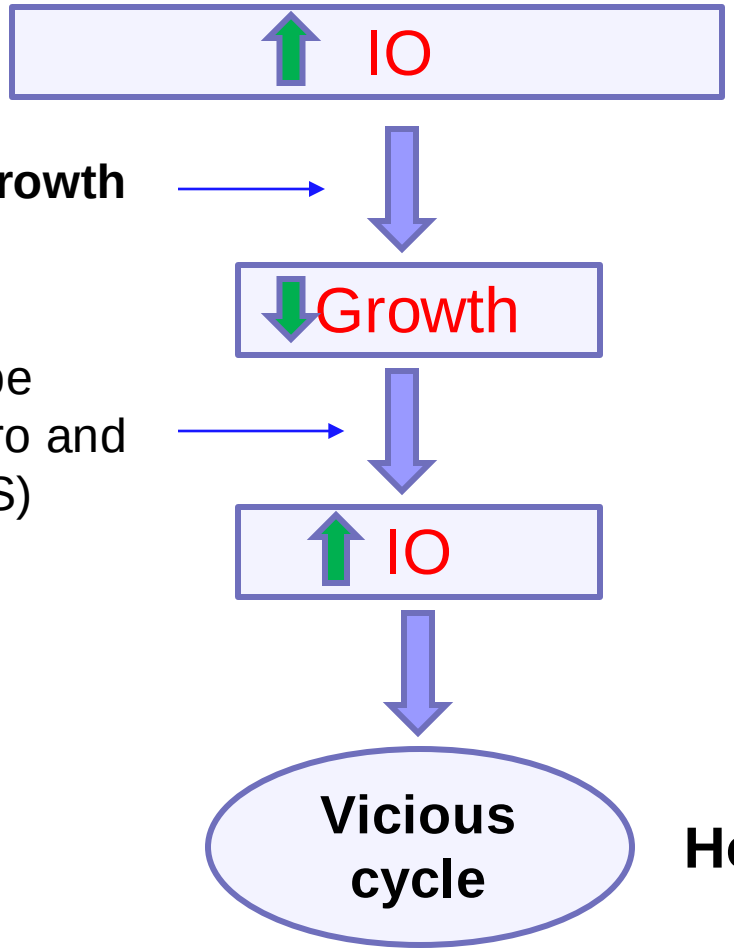
- Policy should **focus on reducing IO** (promotes equality & growth):
  - Affirmative-action policies applied to people with bad circumstances
  - Lower constraints in credit markets to good students and entrepreneurs with bad circumstances
  - Improve the provision/quality of public health and public education
  - Reduce corruption, unnecessary bureaucracy, guarantee property rights, access to insurance against risk

**Policies should focus on reducing IO (it promotes equity and growth) while improving incentives to effort!**

# Concluding Remarks: a warning!

**H1. IO is harmful for Growth**

**H2. Growth** seems to be **negative for IO** (Marrero and Rodríguez, 2012, for US)




**How to break this?**

# *THANKS!*

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