

Philippe Aghion:
Rethinking Growth
after Janos Kornai

February 22, 2018

Introduction

- So close to Janos...
 - Common research interests
 - Why we chose to become economic researchers
 - Similarities in our intellectual evolutions

Introduction

- Understanding on Janos' footsteps....
 - Long run prosperity requires innovation
 - Innovation requires:
 - Openness
 - Freedom
 - Competition
 - These in turn require democracy and market economy

Focusing on three themes

- Innovation requires *democracy*
- Transition traps
- Innovation into inequality debate

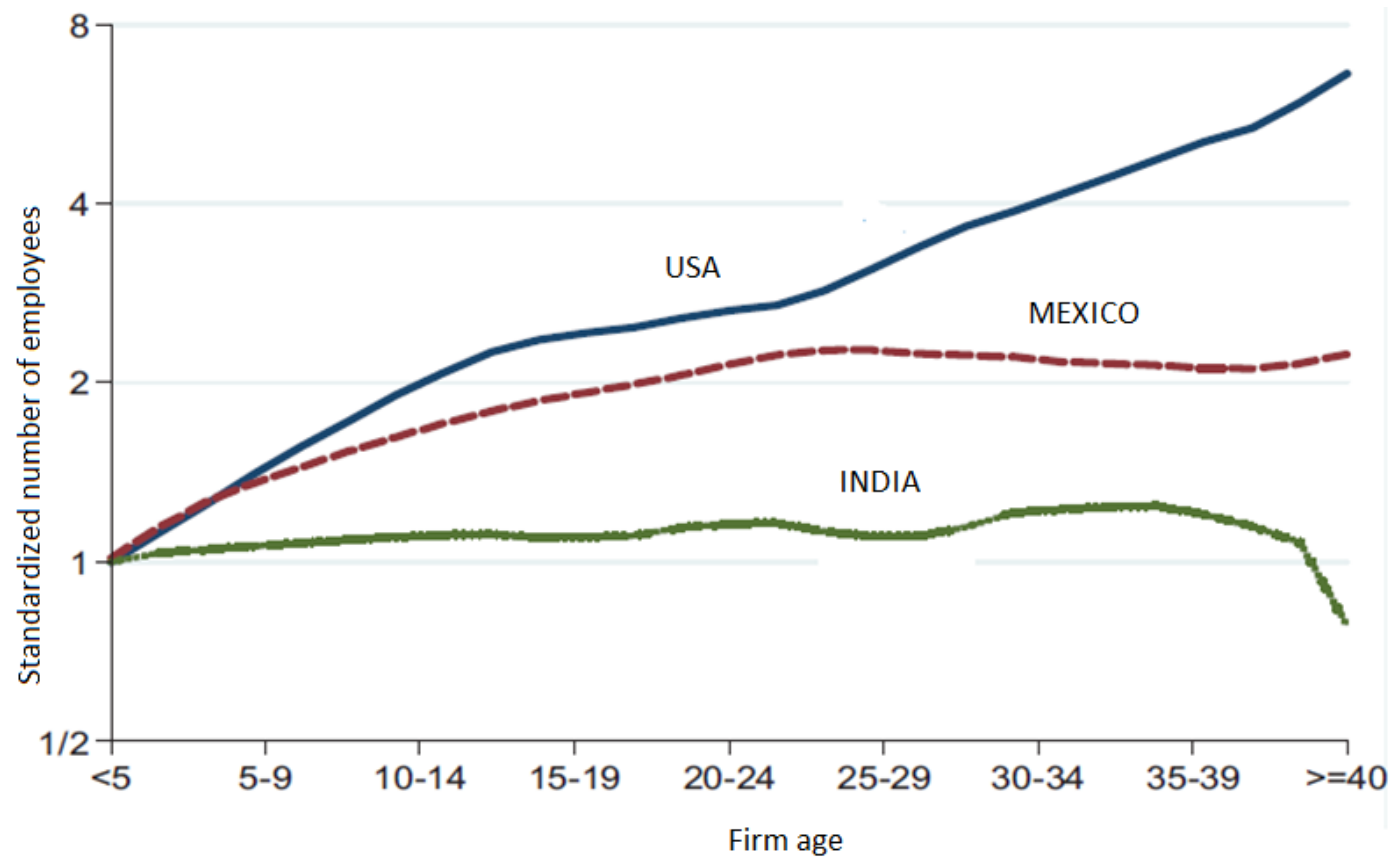
My own lenses: Schumpeterian growth theory

- Long-run growth driven by innovations
- Innovations result from entrepreneurial activities motivated by prospect of innovation rents
- Creative destruction: new innovations displace old technologies

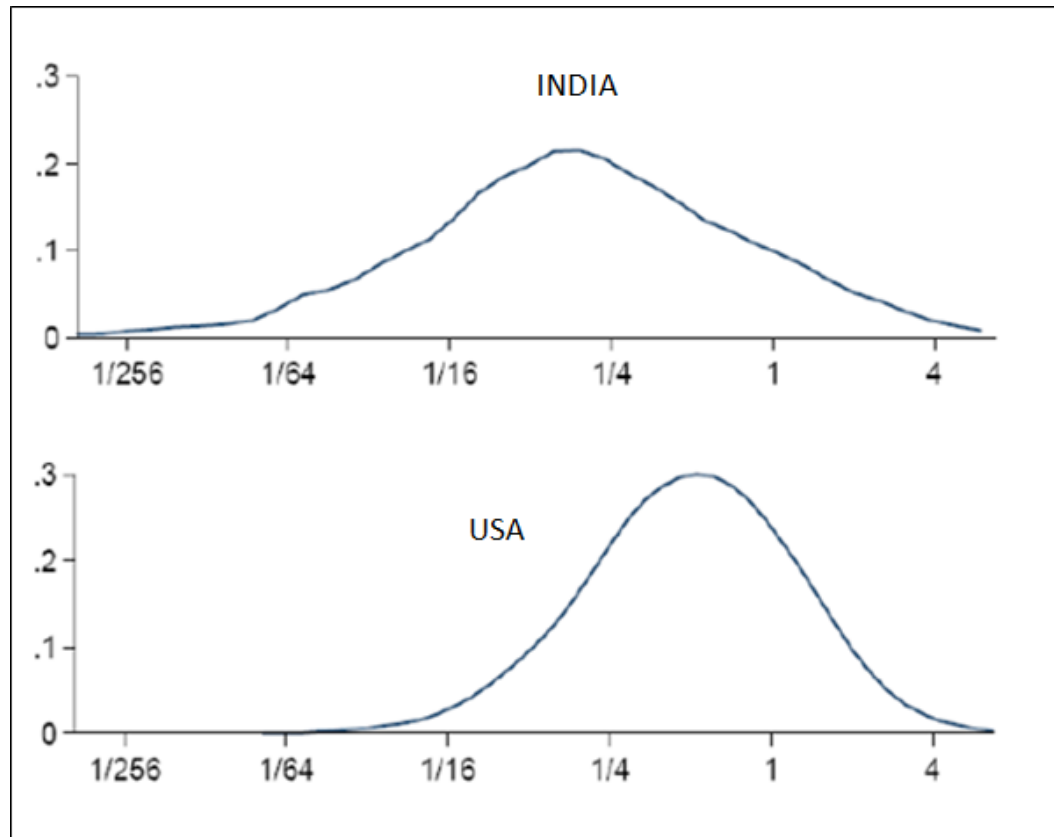
Two more ideas

- Imitation versus Innovation (Acemoglu-Aghion-Zilibotti)
 - Growth relies more on frontier innovation as country move closer to the technological frontier
 - Innovation and imitation require different policies/institutions
- Growth and Reallocation
 - Helping incumbent firms may deter *good* potential entrants and thereby reduce overall productivity growth (Klette-Kortum; Acemoglu et al)

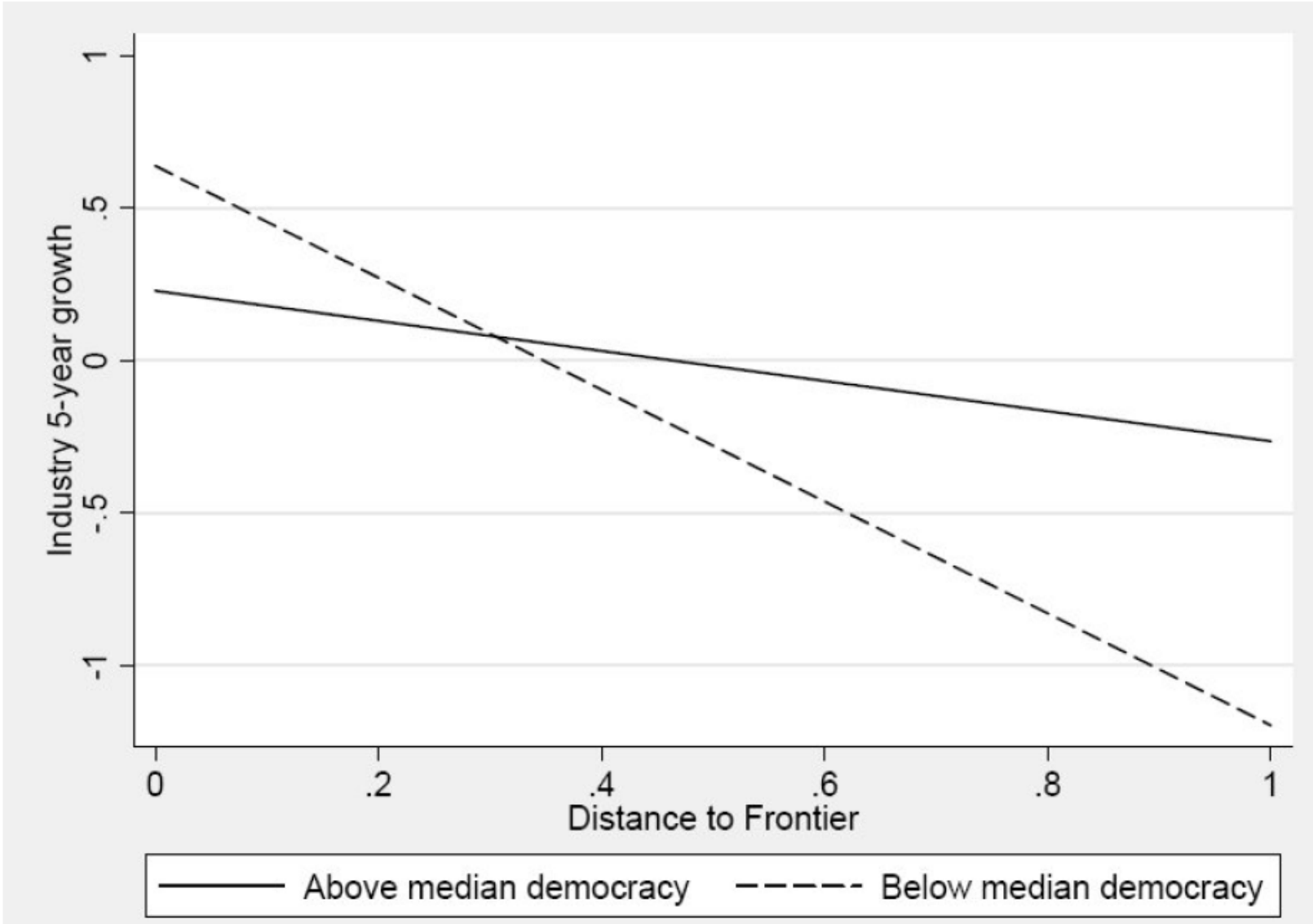
Link between the age and the size of firms



Distribution of firms productivity



Innovation requires *democracy*



Innovation requires *democracy*

- Openness and freedom in basic science
- Decentralization enhances productivity in more frontier firms
- Competition enhances frontier innovation and democracy enhances competition

Innovation requires competition

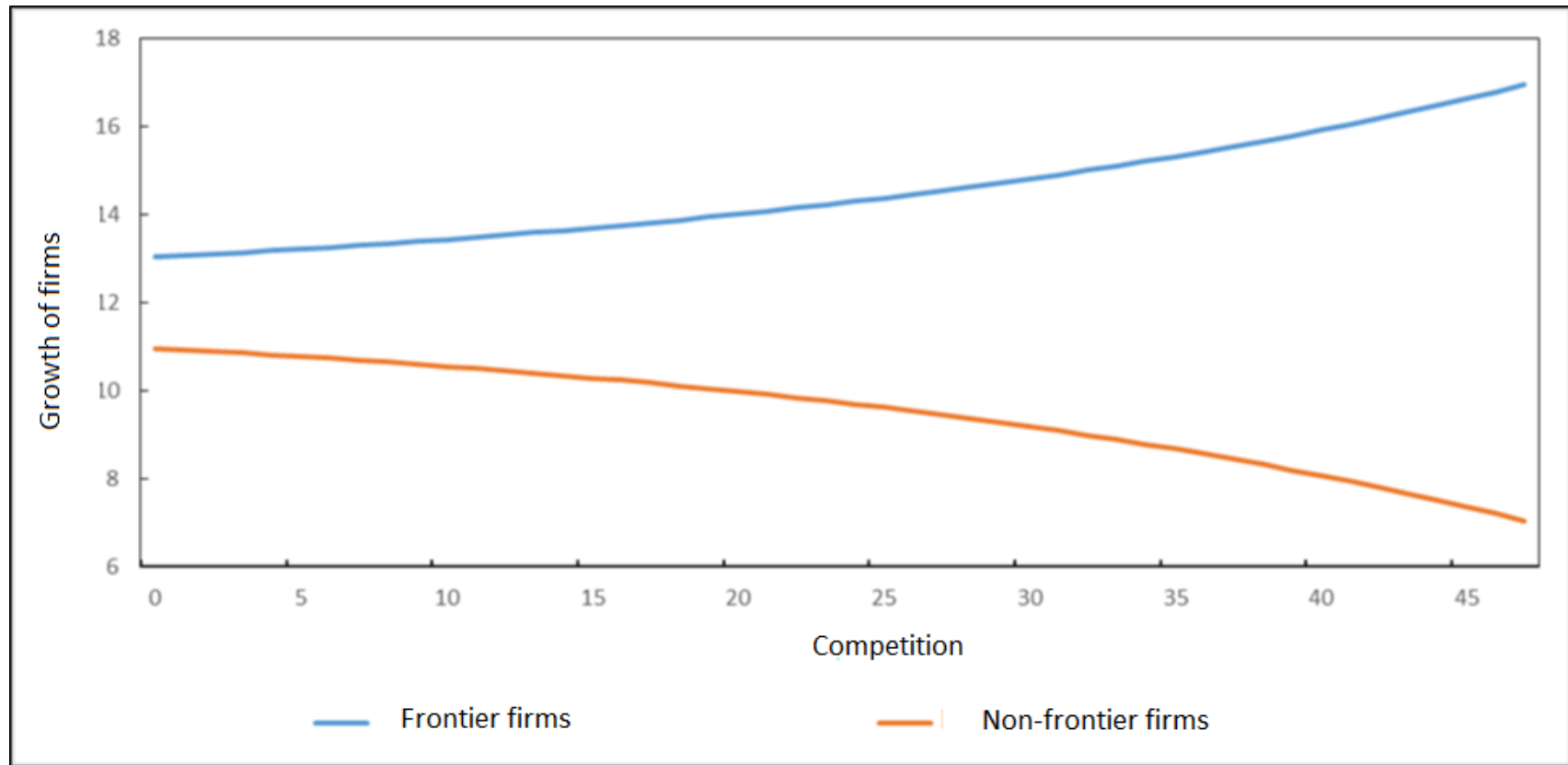


Fig 11.2a: HIGH BARRIERS

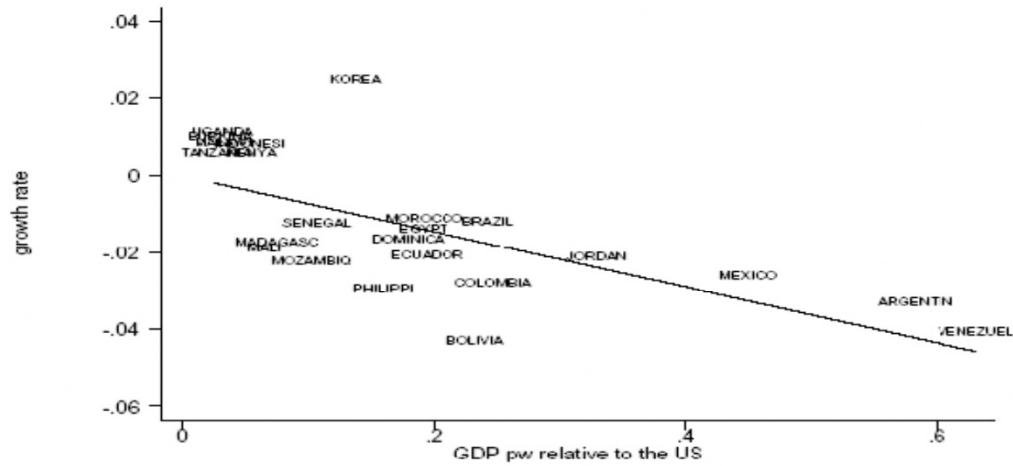


Fig 11.2b: LOW BARRIERS

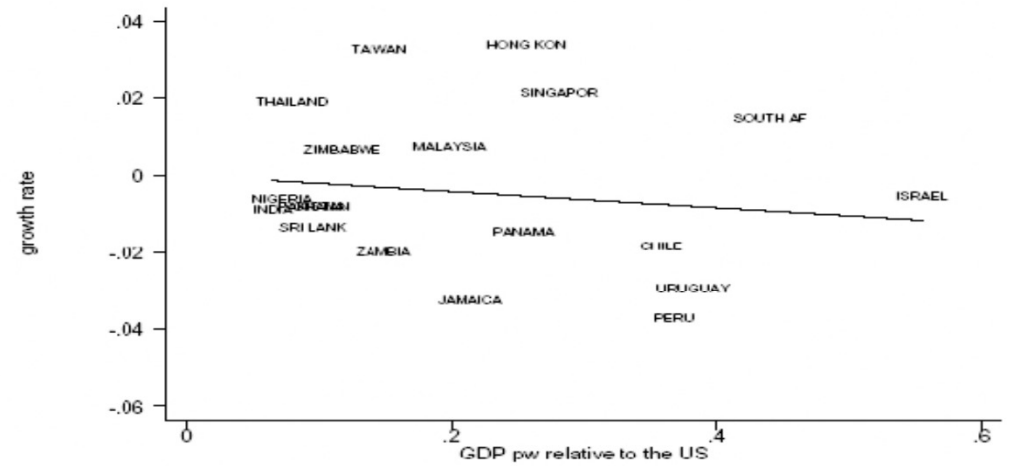


Fig 11.2c: HIGH BARRIERS (FE)

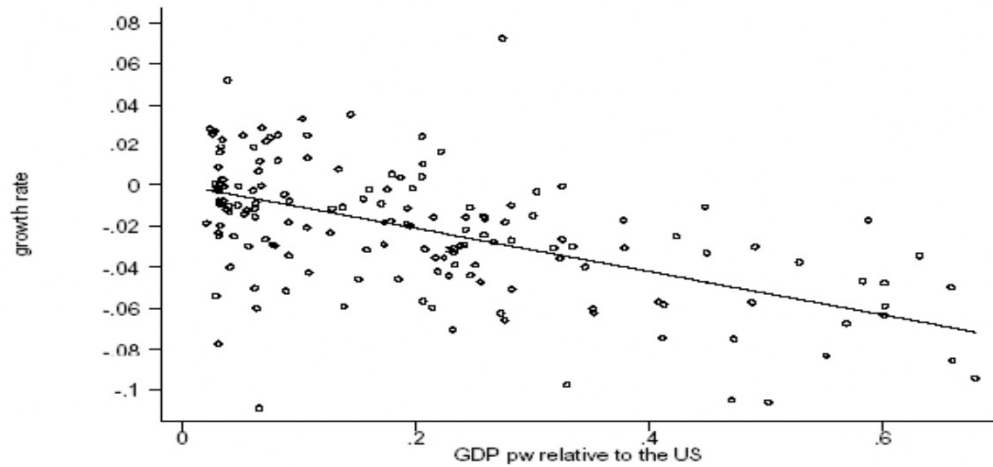
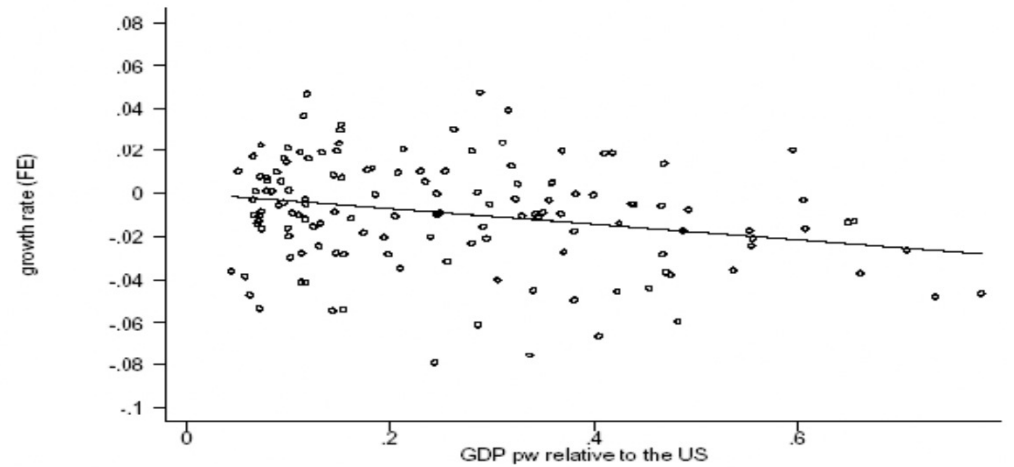
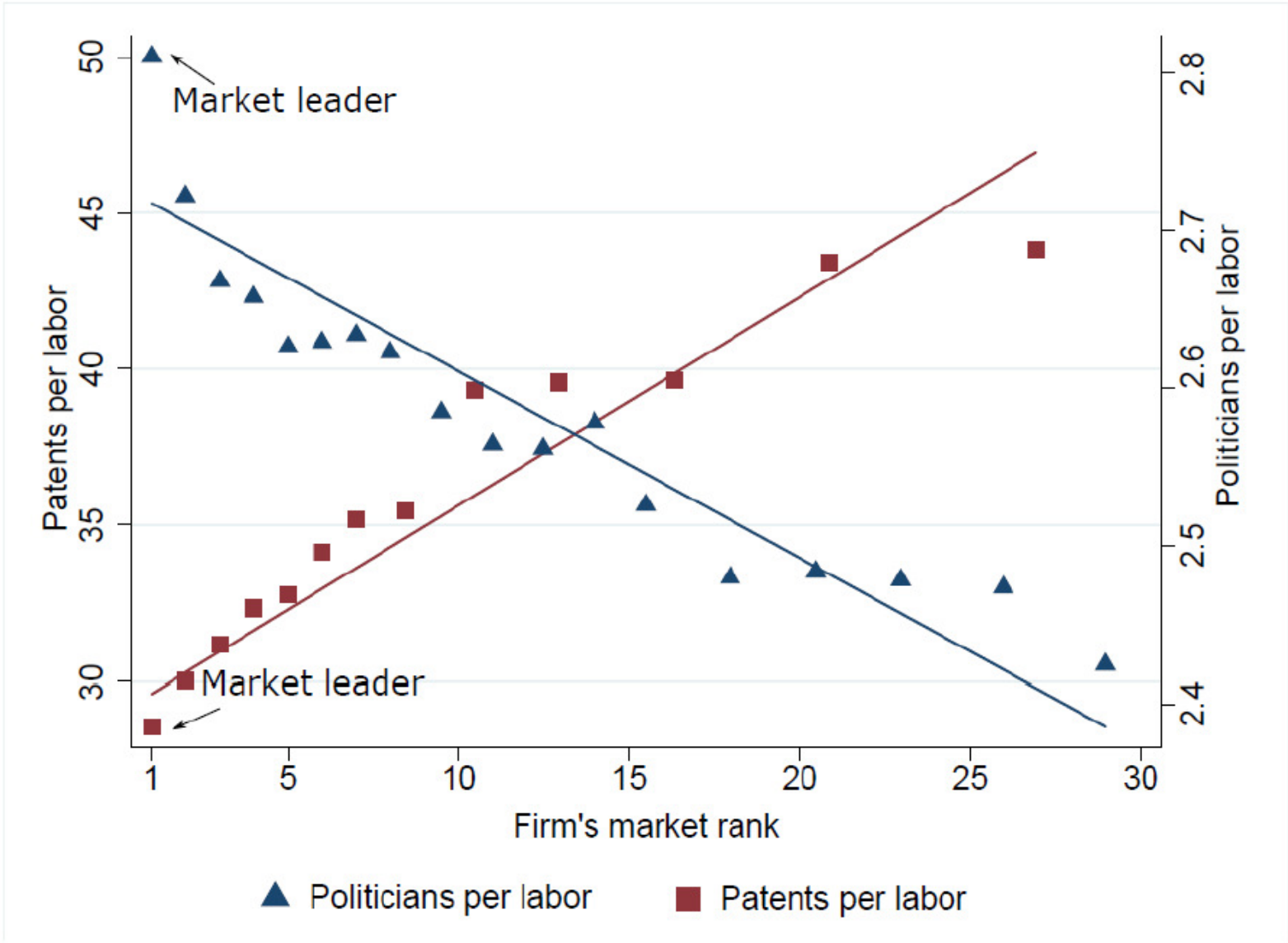


Fig 11.2d: LOW BARRIERS (FE)



Political connections and corruption

- Akcigit et al (2018)
- Zilibotti (EEA Presidential Address)



Corruption

Fig. 1a: High Corruption

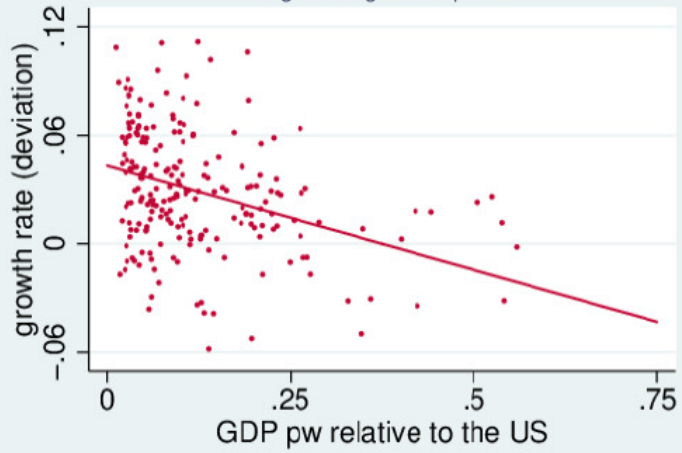


Fig. 1b: Low Corruption

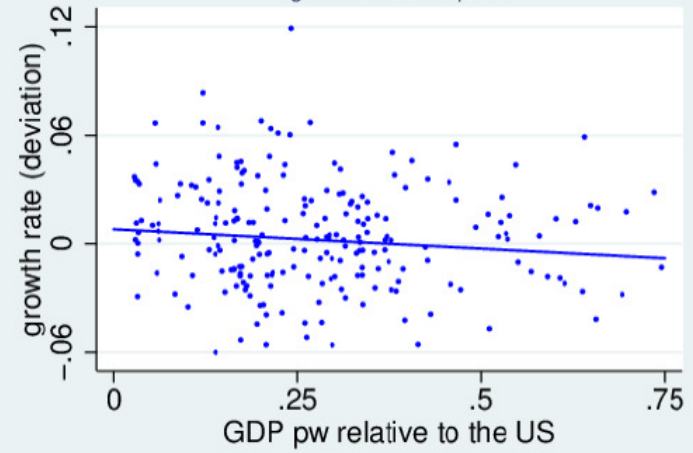


Fig. 1c: High Corruption(FE)

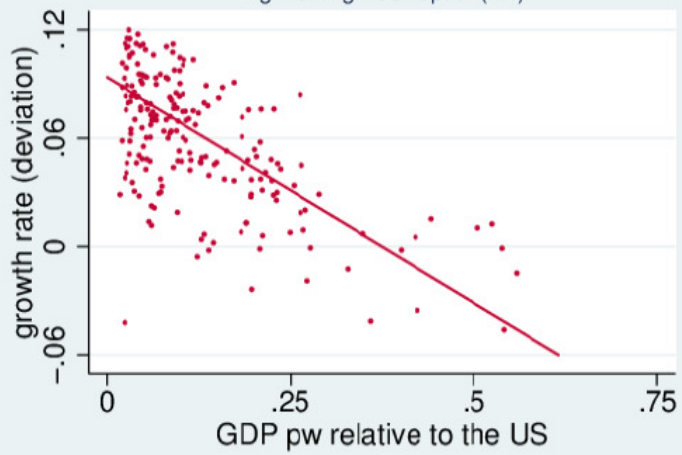
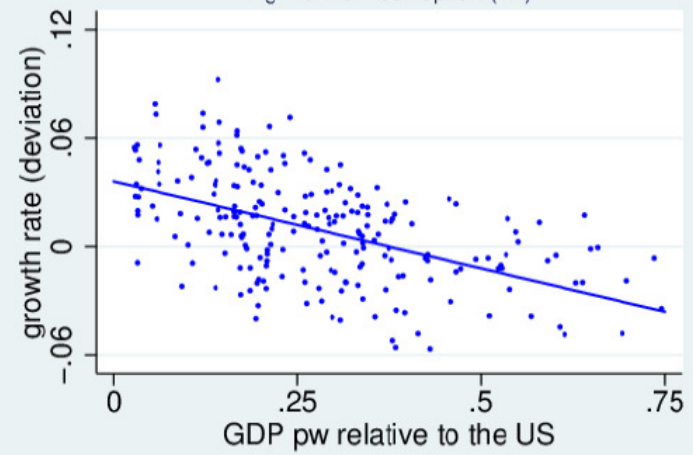


Fig. 1d: Low Corruption (FE)



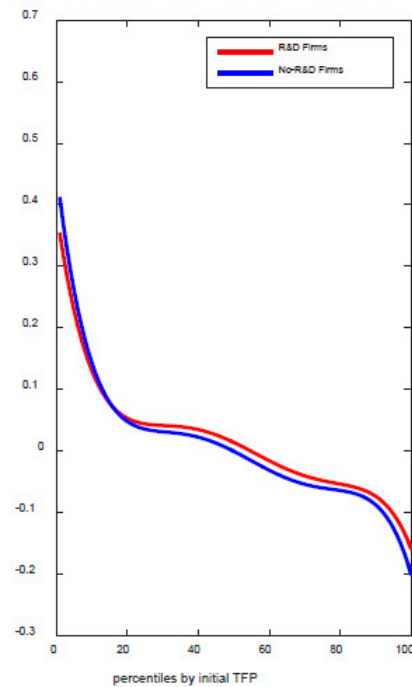
China 2001-07 vs. Taiwan 1988-93



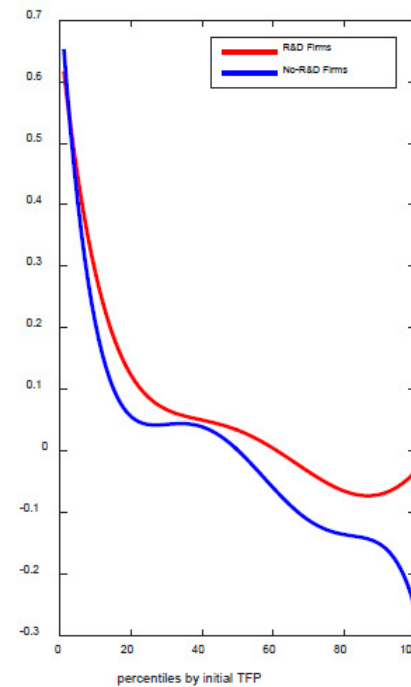
TFP growth is less innovation-driven in China than in Taiwan

... more R&D misallocation in China?

Annual
TFP growth



China 2001-07

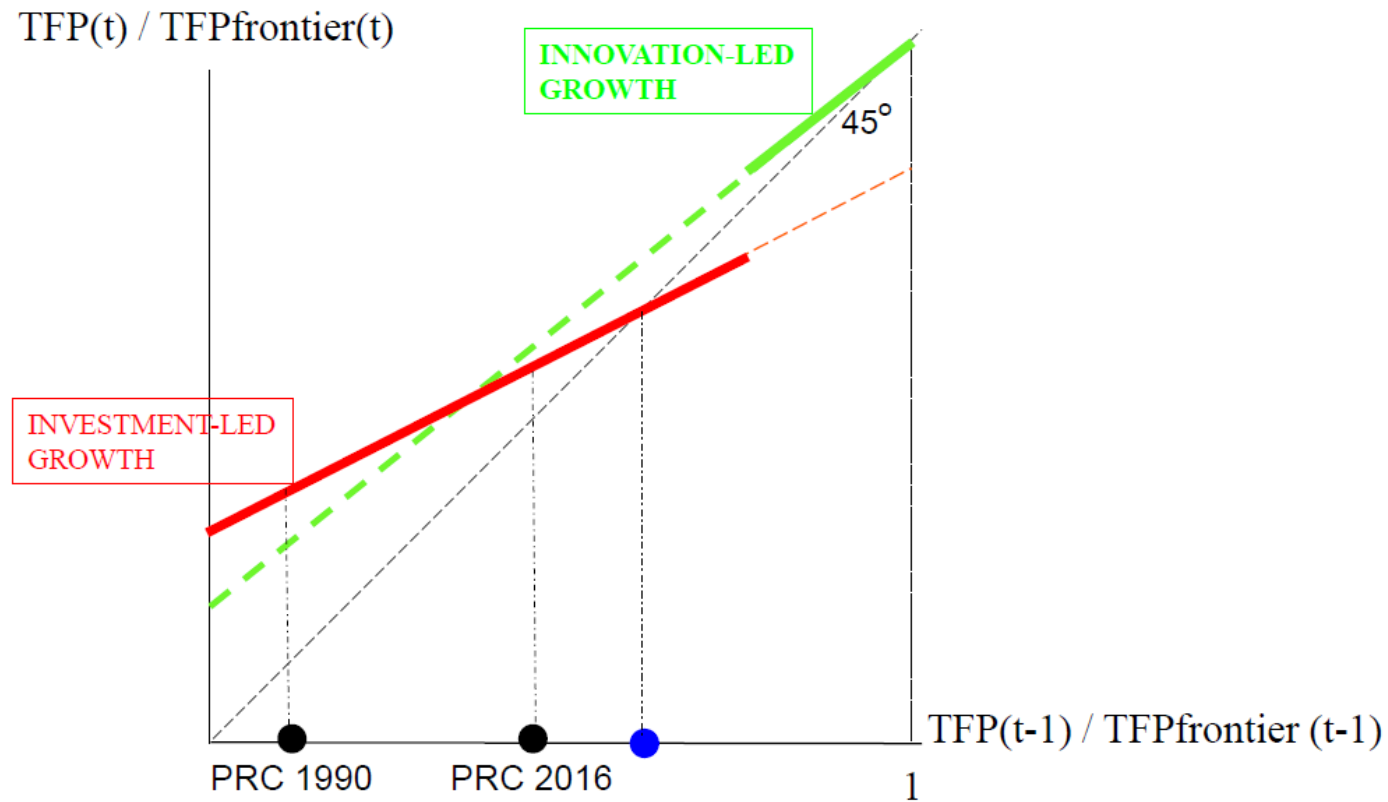


Taiwan 1988-93

Effect of R&D for
top 10% TFP:
China +2.5%
Taiwan + 1.3%

Transition traps

Distance to Frontier and Economic Growth



Getting out of the trap?

Chaebols and Firm Dynamics in Korea
with Sergei Guriev and
and Kangchul Jo

- Korean growth before the 1997-98 Asian crisis relied on the Chaebol model. Chaebols supported each other and thus effectively restricted entry of non-chaebol firms.
- Chaebol-based model did manage to deliver in terms of industrialization, investment and export growth
- However Chaebols should not favor the transition to innovation-based growth as they act as barriers to entry

- The Asian crisis undermined the legitimacy of chaebol model and provided a window of opportunity for reform (which was already being discussed in Korea but was at that point supported by the IMF).
- The restructuring of under-performing chaebols and removal of entry barriers and implicit financial support for chaebol members opened up Korean economy for competition. This helped to shift to the post-industrial model based on innovation.

- We use firm-level and industry-level data to analyze the effect of the Asian crisis and of the resulting 1998 reforms on the entry and productivity growth of non-chaebols in industries that used to be dominated by chaebols.

- We find that after the crisis the industries previously dominated by chaebols witness higher entry and faster productivity growth of non-chaebol firms.
- This productivity growth is mostly driven by efficiency improvements rather than by capital investment. These firms have also been less likely to exit.

Data (1)

- Mining and Manufacturing Survey (1992-2003) provided by Statistics Korea
- The Survey is implemented at plant level, and covers all plants that employ more than 5 workers.
- We use the data at 5 digit industry level, which is the finest level in Korean Standard Industrial Classification.

Data (2)

- LHS: Labor productivity and TFP
- RHS:
 - Post crisis dummy: 0 for 1992-1997, 1 for 1999-2003
 - Interaction term: Post crisis dummy * Average share of Chaebol firms before the crisis
 - Financial development: Credit/GRDP (Gross Real Domestic Product), differs by regional level, available from 1995

All plants

	Market share of entering plants	Market share of exiting plants	Growth of continuing plants	log (Avg LP)	log (Avg TFP)
PostCrisis _t	0.0838***	0.114***	0.281**	0.381***	0.219***
Interaction term	-0.0736**	-0.089***	-2.080	0.316***	0.202
# of Observations	4,713	4,715	3,728	5,181	5,184
# of Industries	473	473	473	473	473

Note: 1) Industry fixed effects are included in the regressions.

2) ***, **, and * represent that coefficients are statistically significant at 1%, 5%, and 10 % level, respectively.

3) Standard errors are clustered in each industry level.

Chaebol plants

	Growth of continuing plants	log (Avg LP)	log (Avg TFP)	Market share of entering plants	Market share of exiting plants
PostCrisis _t	1.566	0.557***	0.373***	0.0183***	0.0127***
Interaction term	-6.487	0.284*	-0.196	-0.0309*	0.0145
# of Observations	926	1,493	1,492	2,268	2,267
# of Industries	170	226	226	227	227

Note: 1) Industry fixed effects are included in the regressions.

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Non-Chaebol plants

	Growth of continuing plants	log (Avg LP)	log (Avg TFP)	Market share of entering plants	Market share of exiting plants
PostCrisis _t	-2.350	0.349***	0.125***	0.0625***	0.0750***
Interaction term	10.87	0.428***	0.738***	-0.0369	-0.0531**
# of Observations	923	2,492	2,491	2,268	2,267
# of Industries	170	227	227	227	227

Note: 1) Industry fixed effects are included in the regressions.

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Financial development

	Market share of entrants	log(Avg TFP) of entrants	Growth of continuing plants	log(Investment) of continuing plants	log(Avg LP) of continuing plants	Log(Avg TFP) of continuing plants
Financial development	0.142***	-0.360***	-11.09	0.112***	-0.279***	-0.331***
# of Observations	44,356	29,587	32,891	34,438	34,520	34,509
# of Industry* Region	5,958	5,674	5,032	5,288	5,291	5,290

Note: 1) Industry, region, and year fixed effects are included in the regressions.

2) ***, **, and * represent that coefficients are statistically significant at 1%, 5%, and 10 % level, respectively.

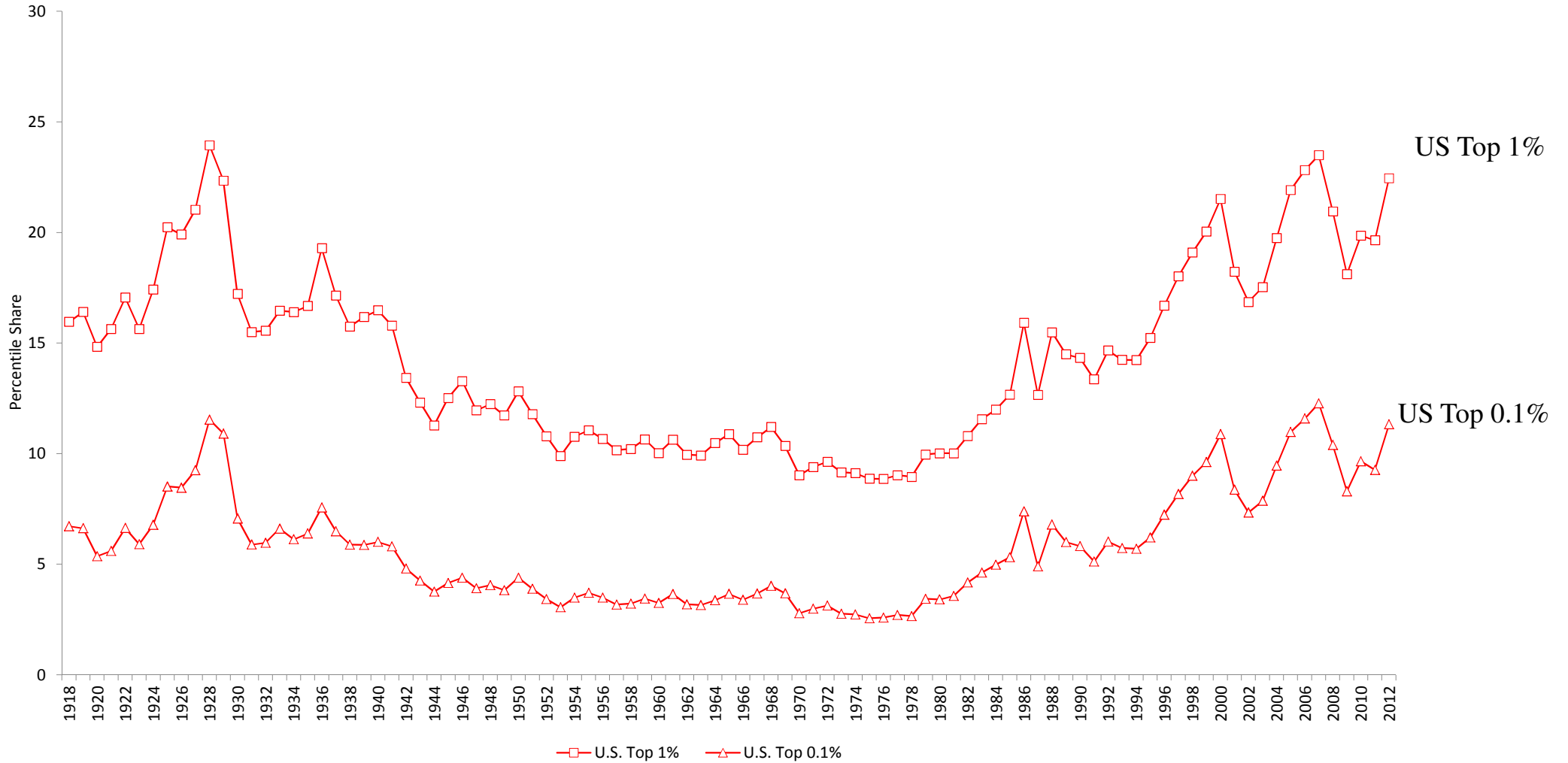
3) Standard errors are clustered in each (industry*region) level.

Innovation and inequality

Introduction

- Recent work by Atkinson, Piketty and Saez, has documented a sharp increase in top income inequality in developed countries since the 1980s

Income shares at the very top over last 100 years: US top 1% increases from 9% in 1978 to 22% in 2012



Source: Atkinson, Piketty & Saez; High Income Database

Outstanding questions

- Why should we focus on top income inequality more than on other measures of inequality?
- What are the various sources of top income inequality: should we treat them all the same?

Three main ideas

- Different measures of inequality which must be looked at differently
 - Top income inequality, “Gini”, social mobility
- Innovation is a source of top income inequality which differs from other sources (entry barriers,..)
 - *Steve Jobs* versus *Carlos Slim* (only joking)?

Different measures of inequality

- Global measures (Gini, skill premium, 90/10 ratio,...)
- Top 1% income share
- Social mobility (Chetty et al,..)

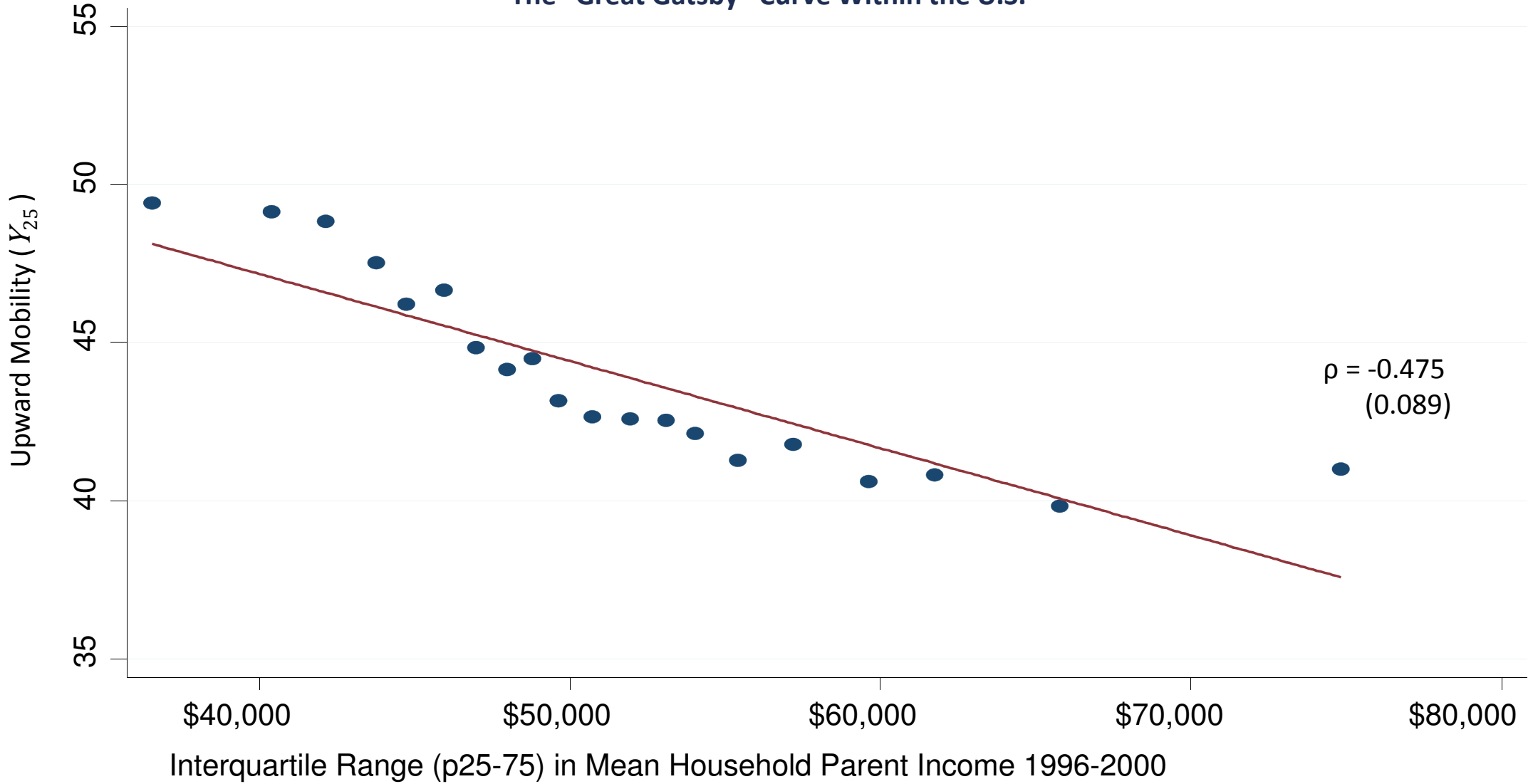
Cross-Sectional Income Inequality and Inter-generational mobility

The Great Gatsby Curve: More Inequality is Associated with Less Mobility across the Generations

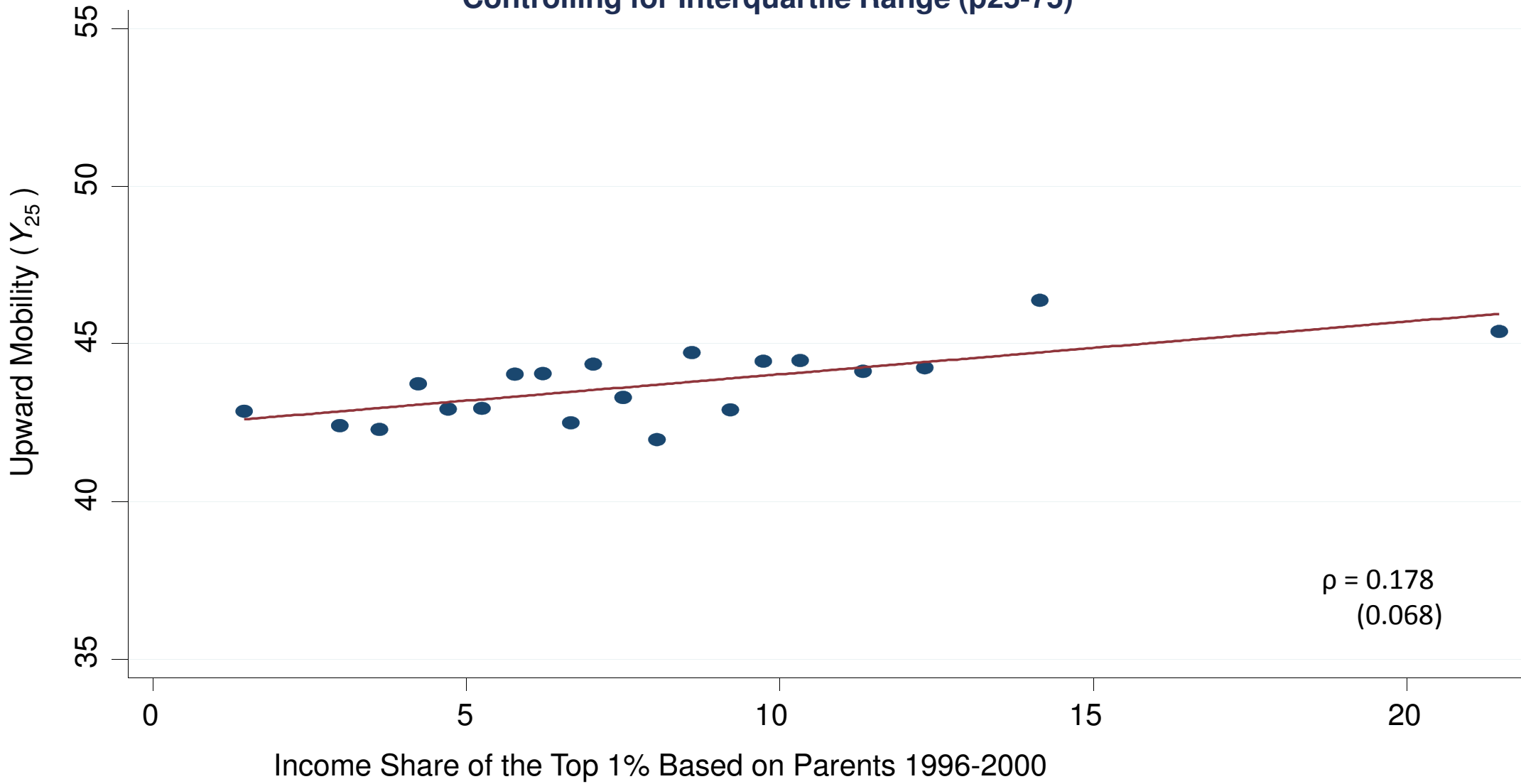


Source: Corak (2013) and OECD.

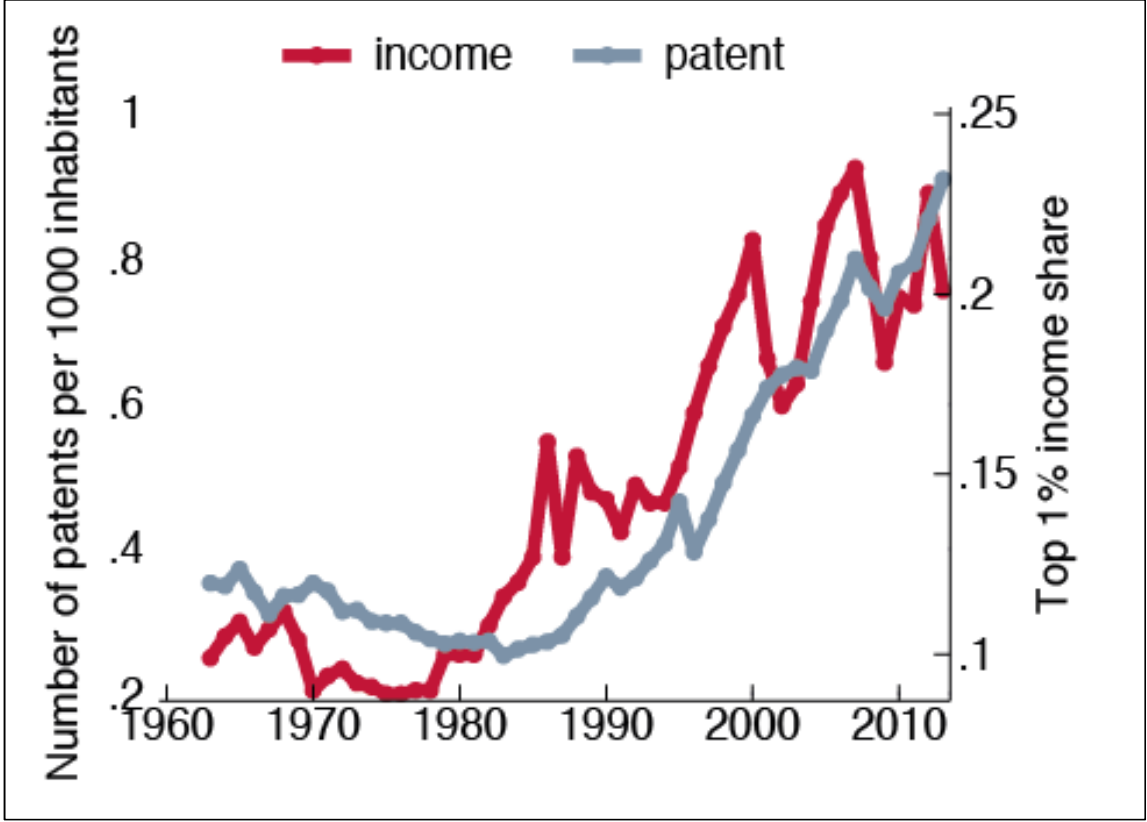
Upward Mobility vs. Inequality in CZ
The "Great Gatsby" Curve Within the U.S.



Upward Mobility vs. Top 1% Income Share in CZ Controlling for Interquartile Range (p25-75)



Innovation as a source of top income inequality



Why should we expect innovation to increase top income inequality

- Schumpeterian approach to growth and inequality
- Growth is driven by innovations, and innovations generate rents from new products or processes...it is the prospect of such rents which motivates innovation investments
- Mr Skype is currently the richest man in Sweden...he did not exist 20 years ago...

Returns to Innovation

Table: RETURNS TO INNOVATIONS

<i>FIXED EFFECT REGRESSION</i>					
time	inventor	coworker	senior manager	senior w-c	entrepreneur
t=0	0.0187***	0.0089***	-0.0037*	-0.0019*	0.0763
t=1	0.0116***	0.0080***	0.0077***	0.0030***	0.1695***
t=2	0.0071***	0.0027***	-0.0011	0.0015	0.0630**
t=3	0.0063***	0.0008*	0.0012	0.0020**	-0.0276
t=4	0.0059**	-0.0023***	0.0037**	0.0030***	0.0438
t=5	0.0099***	-0.0012***	0.0051***	0.0022**	0.0256
t=6	0.0072***	-0.0012***	0.0076***	0.0042***	0.0535***
t=7	0.0089***	-0.0004	0.0137***	0.0023**	0.0395**
t=8	0.0073***	-0.0014***	0.0093***	0.0053***	0.0639***
t=9	0.0049	0.0057***	0.0002	0.0007	0.0562***
t=10	0.0060**	0.0010**	-0.0056**	0.0019*	0.0404***
Observations	7,285,011				

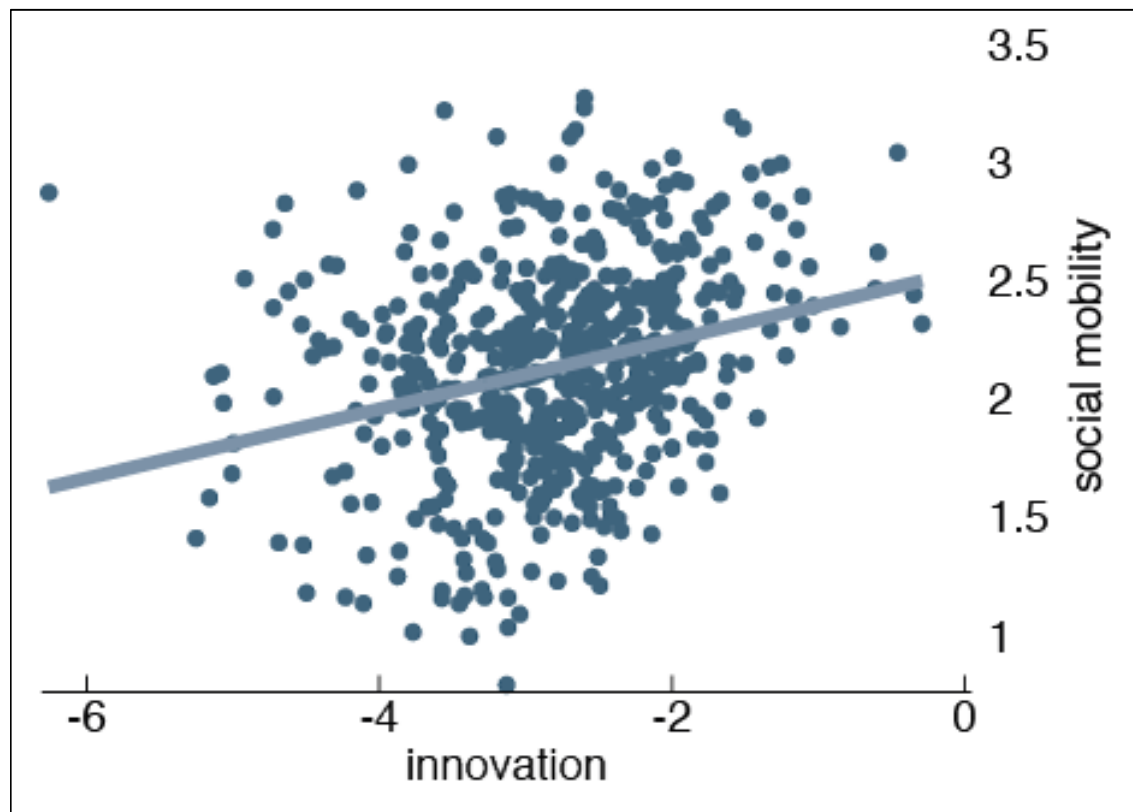
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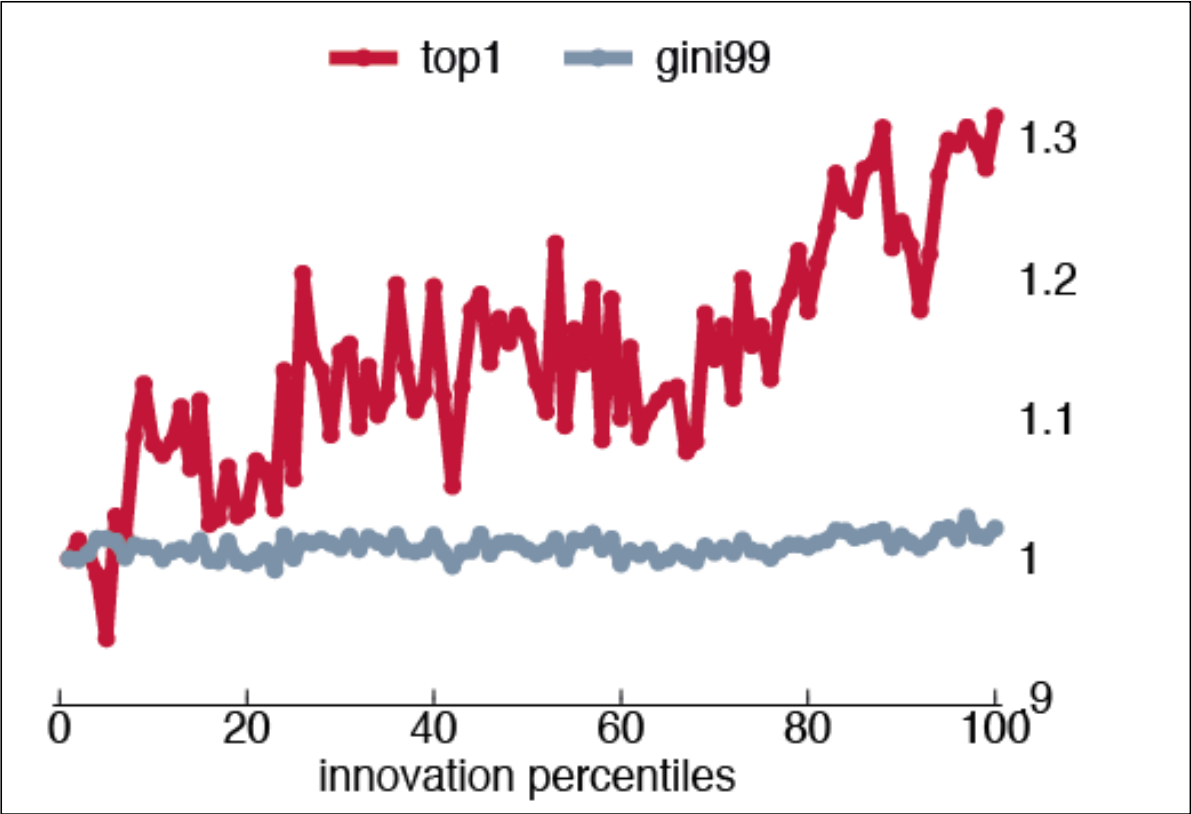
Why innovation differs from other sources of top 1% increase?

- Generates growth (we know)
- But in addition, we will show that:
 - Innovation generates temporary rents (imitation and creative destruction)
 - Innovation enhances social mobility (creative destruction)
 - Innovation does not increase broad inequality



OLS regressions – CZ – Innovation on Mobility

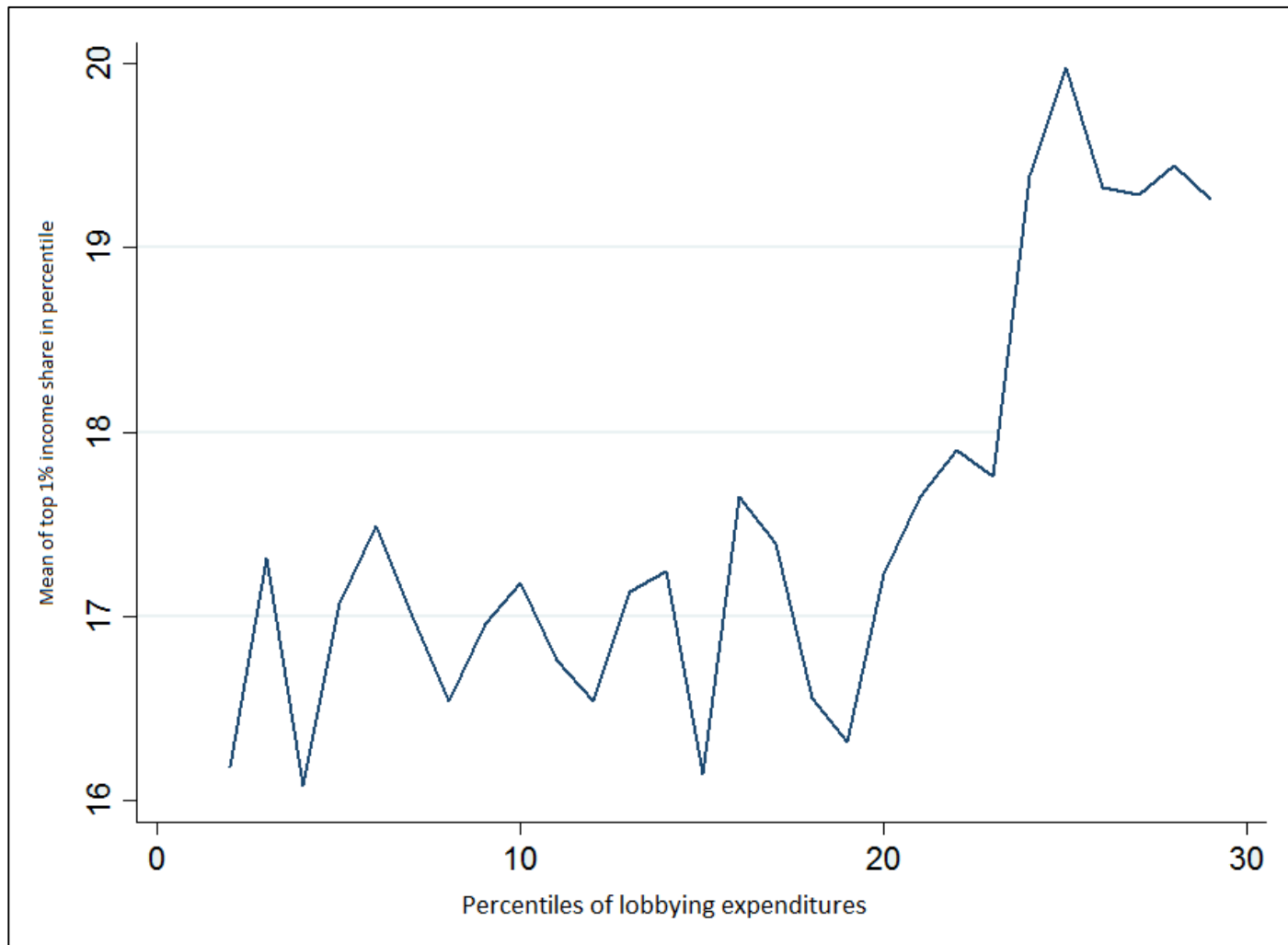
Measure of Mobility Innovation	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	AM25 Patents	P1-5 Patents	P2-5 Patents	AM25 Patents	P1-5 Patents	P2-5 Patents	P5 Patents
Innovation	0.024*** (3.07)	0.108*** (3.13)	0.063*** (2.70)	0.019** (2.40)	0.073** (2.10)	0.046* (1.76)	0.022 (1.17)
Gdppc	-0.094* (-1.81)	-0.225 (-1.09)	-0.204 (-1.48)	-0.139*** (-3.33)	-0.384* (-1.84)	-0.356** (-2.39)	-0.271** (-2.31)
Popgrowth	0.177 (0.61)	0.603 (0.55)	0.711 (0.87)	0.236 (0.76)	0.588 (0.48)	0.731 (0.84)	0.611 (0.89)
Gvtsize	0.000 (1.43)	0.002 (1.30)	0.001 (0.84)	0.000 (0.06)	-0.000 (-0.19)	-0.001 (-0.77)	-0.000 (-0.37)
Participation Rate	0.600*** (3.76)	1.356** (2.19)	1.274** (2.45)	0.726*** (4.50)	2.067*** (3.22)	1.692*** (3.14)	1.087** (2.55)
School Expenditure	0.116** (2.07)	0.550** (2.65)	0.349** (2.20)	0.096* (1.81)	0.417** (2.05)	0.298* (1.91)	0.153 (1.36)
College per capita				0.081 (1.52)	0.075 (0.35)	0.081 (0.49)	0.119 (0.98)
Employment Manuf				-0.333*** (-3.43)	-1.566*** (-4.27)	-1.273*** (-4.18)	-0.677*** (-2.86)
R ²	0.201	0.182	0.163	0.243	0.215	0.211	0.160
N	637	645	645	546	546	546	546



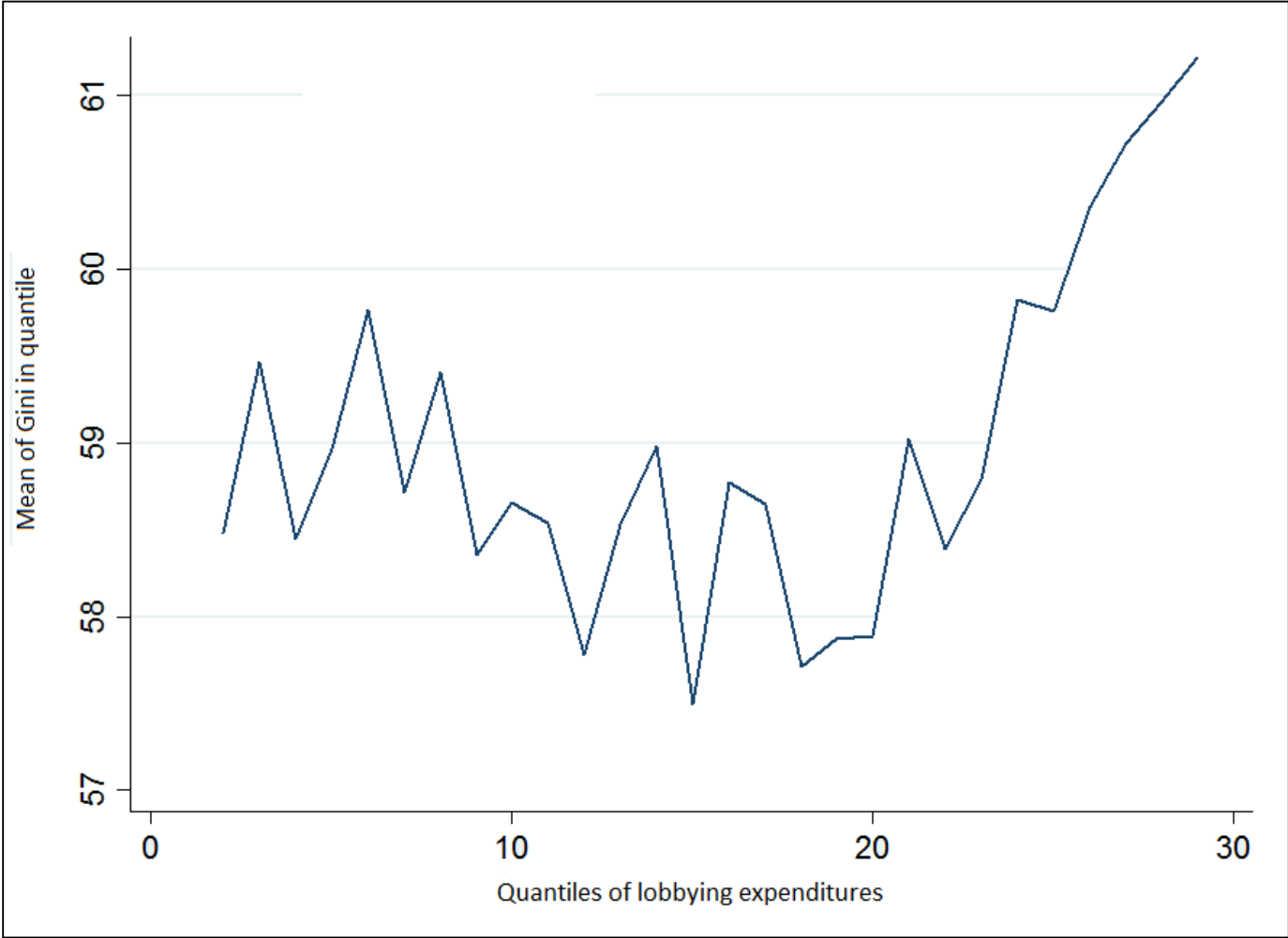
By contrast, lobbying...

- Increases top income inequality
- Increases inequality at large
- Reduces social mobility
- Does not enhance growth

Lobbying VS Top1% (USA)



Lobbying VS GINI (USA)



Conclusion

- Janos' influence on my own research and own thinking on economic and political transformation
- Why I remain optimistic for the future