Nature of Inequality and Allocation of Talents: Some Empirical Evidence

SBA Research Seminar

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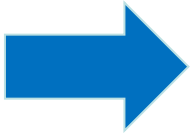
Outline

- Background / Motivation
- Stylized Facts
- Hypotheses
- Overview of the empirical model and main results
- Data and methodology
- Results and conclusion

Background / Motivation

- Natkhov and Polishchuk (2019),*Kyklos*: talent allocation explained by the quality of institutions
  - Murphy et al. (1991), *QJE*:
    - Education in sciences, an investment specific to productive activities
    - Legal education, helpful in unproductive activities such as redistribution ("legal human capital", Hadfield, 2007)
    - (Number of law students characterize the nature of an economy:
      - Laband et al. 1988, *Public Choice*)



Natkhov and Polishchuk (2019): positive relationship between the quality of institutions and the graduation in sciences, and a negative one between institutional quality and the graduation in law

Background / Motivation

- Related literature:

  - Ebeke et al. (2015): graduation of university students in law / business / social sciences; AND engineering and technical sciences, is affected by resource wealth and the quality of national institutions
    - Massive resource sector increases the attractiveness of rent-seeking activities discouraging to invest in STEM

  - Alexeev et al. (2018): enrolment of over a million Russian university students:
    - Students more responsive to the quality of regional institutions when deciding to seek education in STEM

Background / Motivation

- Effect of income inequality in talent allocation:
  - Natkhov and Polishchuk (2019):
    - Control variable, high level of inequality affect career choices in law (positive relation)
    - When institutions are included, effect of income inequality become insignificant
    - Acemoglu and Robinson (2012): “rent-seeking institutions” (“weak institutions”) benefiting privileged elites at the expense of the rest of society associated with high income inequality
    - Would that suggest that inequalities driven by rent-seeking institutions affect career choice in law ???
  - Our argument in this paper:
    - Income inequality when conditioned by institutions affect the allocation of talents in productive or unproductive field

Background / Motivation

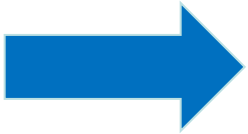
- Our objective:
  - Analyse the effects of the nature of income inequality on the allocation of talents
  - The nature of income inequality is driven by the nature of institutions:
    - Facchini et al. (2023),*EJPE*: the nature of income inequality affect the growth-inequality debate:
      - "Profit-seeking institutions" (productive inequalities) : positive relation
      - "Rent-seeking institutions" (unproductive inequalities): negative relation
  - Why the type of inequality matters ? Personal enrichment:
    - Through rent-seeking activities: need to acquire legal skills
    - Through profit-seeking activities: need to acquire scientific and entrepreneurial skills

Background / Motivation

- Rent-seeking society generate rent opportunities, fueling the demand for legal competences and skills:
  - Rent-seeking society is full of public sector jobs
  - Jobs provided by State monopolies in the area of the judiciary, higher education, diplomacy and military etc.
  - Rent-seeking society displays a high level of regulated economic activities
    - Develop skills to know the different tax exemptions offered by the law
    - Legal skills to optimize your tax level
    - Need to know all the subsidy schemes offered by the government to create your business and/or for hiring

Background / Motivation

- Free-market society with "profit-seeking" ("*good*") institutions, legal skills are useless:
  - Reward risk taking behaviors and provide a lower job protection for employees
  - Young talents decide to embrace an entrepreneurial journey since the status of employee is less protected
  - Welfare state is less developed, and the labor law does not favor employees that much



Entrepreneurship become a credible career option fueling students' enrolment in business studies, sciences and engineering (Gibb 2011; Divert 1982)

Measuring the nature income inequality?

- Capturing institutional dimension:
  - Facchini et al. (2023) recent contribution:

- The Institutions Productivity Indicator (IP):
  - Derived by Baumol (1990,2004)
  - Captures the predominance of profit-seeking institutions over rent-seeking ones

$$IP = \frac{Property\ Rights}{10 - Rigorous\ and\ Impartial\ Public\ Administration}$$

Measuring the nature income inequality?

- IP captures the institutional environment that drives the nature of inequalities
- Nature of inequalities affect allocation of talents
  - Countries with high IP score: productive inequalities favor talents allocation in Sciences and Engineering
  - Countries with low IP score: *unproductive inequalities* favors talents allocation in Law
  - Nature of inequalities is an important driver of talents allocation

Stylized Facts: Countries with Low IP Score

Difference in law graduates and science graduates

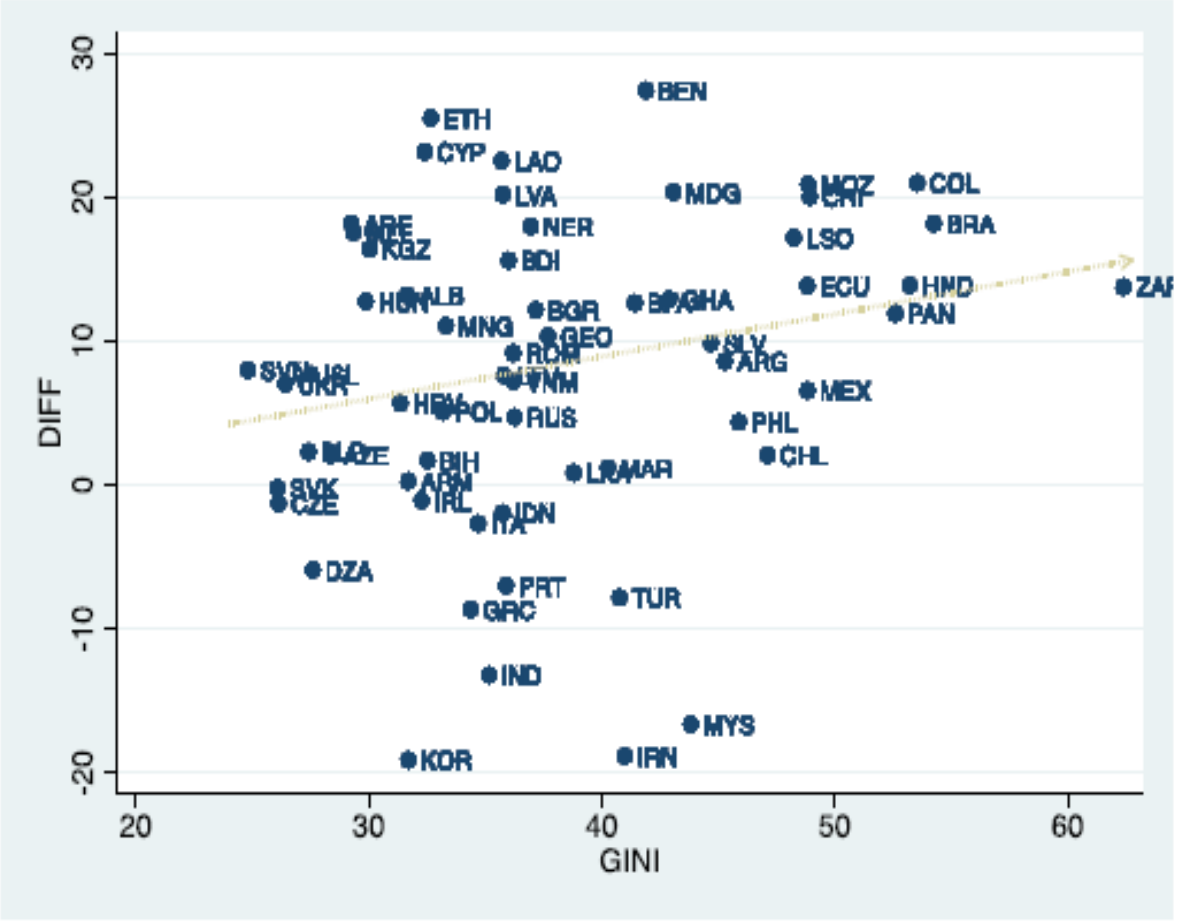


Figure 1: Income inequality and allocation of talents

Hypotheses

- ***Hypothesis 1:*** In countries in which institutions are productive, income inequality favors enrollment in sciences university degrees

- ***Hypothesis 2:*** In countries in which institutions are unproductive income inequality favors enrollment in law university degrees

Model's Overview / Main Results

- We empirically test our hypothesis using panel data covering the 2000-2020 for 81 countries with different income level

- We find a positive relationship between productive inequalities and talents allocation in productive fields (Science and Engineering)

Data and Methodology

- Two ways FE and system-GMM:

Following Natkhov and Polishchuk (2019), we estimate equation 1:

$$Productive\ activities_{it} = \alpha + \beta_1 Gini_{it} + \beta_2 IP_{it} * Gini_{it} + \beta_3 IP_{it} + \beta_4 X_{it} + \mu_i + \sigma_t + \varepsilon \quad (1)$$

- Where $Productive\ activities_{it}$ is share of those majoring in sciences

- The nature of income inequality measured by $IP_{it} * Gini_{it}$.

- X is a vector of socio-economic and demographic control variables for country i at time t

- μ_i, σ_t are country and period fixed effects and ε is the error term

Data and Methodology

- Data
  - UNESCO Institute of Statistics
    - Information on the number of graduates in tertiary education for 23 educational programs in 102 countries
  - WDI
  - World Bank

Data and Methodology

- Socio-economic and demographic control variables
  - GDP per capita (expected +)
  - School enrollment in tertiary education (expected +)
  - GDP structure (share of service in GDP):
    - (expected – for sciences and expected + for law)
  - R&D expenditures (expected +)
  - Population (market size) (expected +)

Results

Table 1
FE and GMM regressions for share in science graduates

	FE	GMM	GMM
	1	2	3
Log IP	-0.398**	-2.668***	-0.371***
	(-2.074)	(-7.734)	(-2.791)
Log Gini	-0.411***	-0.801***	-0.143**
	(-3.652)	(-5.513)	(-2.112)
Interaction IP . Gini	0.103*	0.771***	0.0932**

Results

Table 1
FE and GMM regressions for share in science graduates

	FE	GMM	GMM
Log GDP per capita growth			0.00520***
			(4.189)
Log school_enrollment tertiary			0.00323
			(0.0779)
Log service (% GDP)			-0.152*
			(-1.786)
R&D			0.131***
			(15.73)
Log population			0.0508***
			(5,836)
Constant	4.565***	5.903***	3.276***
	(11.34)	(11.48)	(8.323)
Observations	679	679	441
Number of countries	72	72	62
R-squared	0.028		
Hansen		0.143	0.307

Results

Table 2: FE and GMM regressions:
Difference between shares of law school and science graduates

	FE	GMM	GMM
	1	2	3
Log IP	0.443	21.67***	31.03***
	(0.350)	(49.59)	(19.87)
Log Gini	2.089***	5.147***	4.656***
	(3.286)	(15.61)	(10.19)
Interaction IP. Gini	-0.0228	-6.273***	-8.897***

Results

Table 2: FE and GMM regressions:
Difference between shares of law school and science graduates

	FE	GMM	GMM
	1	2	3
Log GDP per capita growth	-5.721**		0.0909***
	(-2.499)		(25.67)
Log school_enrollment tertiary			0.892***
			(5.066)
Log service (% GDP)			1.068***
			(2.733)
R&D			-1.601***
			(-22.55)
Log population			-0.0396
			(-1.138)
Constant		-16.11***	-20.66***
		(-13.46)	(-7.038)
Observations	456	456	294
Number of countries	59	59	49
R-squared	0.053		
Hansen		0.555	0.556

Results

Variable	Mean	S.D	Min	Max
Difference between the shares of law school (graduates as a proxy for the allocation of talent to redistribution) and science graduates	2.11	1.06	-3.44	3.86
Institutions' Productivity indicator	0.85	1.27	-1.13	4.83
GINI	3.55	0.21	3.14	4.17
GDP per capita growth	0.96	0.96	-4.79	3.49
Log school_enrollement tertiary	3.60	0.91	-0.25	4.96
Log service (% GDP)	4.00	0.192	3.07	4.38
R&D	1.06	0.91	0.01	4.79
Population	16.38	1.53	12.54	21.05

Conclusion

- Productive inequalities affect talents allocation in productive fields in sciences and engineering
- Our results are in line with Natkhov and Polishchuk (2019) but they go beyond
  - More than the quality of institutions:
    - The nature of income inequalities matters
    - The way to get wealthy matters

THANK YOU !