

# Redistribution and barriers to entry in the Schumpeterian model with heterogenous agents

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# Motivation

- ▶ Low pace of growth in modern societies is usually a political outcome.
- ▶ According to Parente, Prescott (1999,2003) "poor countries are poor, because some groups are benefiting by the status quo". Those groups block the entry of new more productive firms or agents.
- ▶ Barriers to free entry are simply the costs of creating a new firm (Djankov, 2002,2009), but also could include licensing, access to credit and infrastructure, private property rights protection of entrants etc.
- ▶ Elimination of barriers to entry leads to static gains in terms of lower prices and higher quality of goods (Blanchar, 2003) but could also lead to dynamic gains in the form of faster growth (f.e. India case, Aghion (2005))
- ▶ Under which conditions barriers to entry do not exist?

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# Literature review

- ▶ Acemoglu (2006,2008) argue that if a power is in the hands of an autocrat or major producers (oligarchy), the elite have incentives to impose barriers to entry
- ▶ Does it mean that democratisation leads to the decline of entry barriers?
- ▶ Yes. it does (Alesina, Aghion, 2008). In average, democratic countries have less entry barriers.
- ▶ At the same time the differences are huge: a simple example, both Argentina and S.Korea are democratic since 1989 (Polity 4 index). However, 2013 Doing Business Rank for Argentina is 124, and for S.Korea is 8 (Starting a business, 154 and 8)
- ▶ In the same time empirical studies do not find a straightforward links between the level of democracy and economic performance (f.e. Barro, 1996), Moreover, democratisation can even slower growth (Poltirovitch, Popov, 2005).

Redistribution  
and barriers to  
entry in  
Schumpeterian  
model of  
growth

Dmitry Veselov

Introduction

Economic  
environnement

Political  
environnement

Results

Conclusion

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Redistribution  
and barriers to  
entry in  
Schumpeterian  
model of  
growth

Dmitry Veselov

Introduction

Economic  
environnement

Political  
environnement

Results

Conclusion

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## The main question

What are the conditions under which liberal, free-entry policy is a political outcome in democratic regime?

- ▶ Barriers to entry could be explained as "institutional sclerosis" (Olson, 1982) or in general interest models as a majority voting outcome (Krussell, Riosrull, 1995)
- ▶ Most politico-economic models consider separately redistribution motives (Alesina, Rodrik, 1994, Person, Tabellini 1992) and barriers to entry policy (Krussell, Riosrull, 1995, Lancia, Prarolo, 2012)

- ▶ I propose a model of schumpeterian growth in which both redistribution and political barriers for entry are policy variables.
- ▶ Agents are heterogenous in welfare and innate abilities
- ▶ I consider the majority voting equilibria on 2-dimensional policy set and analyse conditions under which each outcome occurs
- ▶ High redistribution, no-entry policy could be a stable political outcome



# BASIC FRAMEWORK

## Production side

- ▶ The basic structure is similar to Howitt, Mayer-Foulke (2005), Aghion, Alesina (2008) models
- ▶ There is one final good and N intermediate goods
- ▶ A final good production function is
$$Y = (H/N)^{1-\alpha} \sum_0^N A(i)^{1-\alpha} x(i)^\alpha$$
  - ▶ Y - final good
  - ▶ N - number of intermediate inputs
  - ▶ A(i) - quality level of i-type input
  - ▶ x(i) - quantity of i-type input
  - ▶ H - human capital level
- ▶ The final good can be used interchangeably as consumption or an input in intermediate goods production or R&D input
- ▶ Each variety of intermediate input is produced by monopolistic firm with a simple one for one production function

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## Intermediate inputs market

- ▶ Monopolistic power is limited by competitive fringe such that the price of  $i$ -type intermediate input
$$p_x(i) = \chi$$
- ▶ The supply of input by a monopolistic firm equals
$$x(i) = (A(i)H/N)(\alpha/\chi)^{1/1-\alpha}$$
- ▶ In equilibrium the output of final good is strictly determined by the level of technology and human capital  $Y = (\alpha/\chi)^{\alpha/1-\alpha} \bar{A}H$ 
  - ▶  $\bar{A}$  is an average level of  $A(i)$
- ▶ All value added are distributed between wages and profits  $Y - \sum_0^N x(i) = \sum_0^N \pi(i) + wH$
- ▶ The shares of intermediate inputs, wages and profits in total output are constant

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# Agents' types

- ▶ All agents are divided into capitalists and workers (W). Capitalists are divided into two-subgroups: incumbents (stakeholders) (M) and potential entrants (entrepreneurs) (E)
- ▶ Each incumbent firm is a sole proprietorship  $M = N$ , each stockholder gets a profit  $\pi$
- ▶ Workers are heterogenous according to their human capital level  $h(j)$  and get a wage  $wh(j)$
- ▶ Each entrepreneur has a possibility to invest in risky project
  - ▶ new entrants invest in the beginning of the period, and with a probability of  $\lambda$  each of them increases quality of a particular input by  $\gamma$  and becomes a monopolist in the end of the period
  - ▶ Expected profit of new entrants equals  $\pi_e = \lambda\gamma\pi - cA$  where  $c$  - is exogenous measure of costs of technological adoption
  - ▶ If  $\lambda(\gamma - 1)\pi < cA < \lambda\gamma\pi$  only a potential entrant has incentives to undertake an innovation

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- ▶ There are two policy parameters in this economy
  - ▶ Tax on profits  $\tau$
  - ▶ Policy that prohibits or encourage technological adoption is modelled as a Boolean variable [Block, No Block]
- ▶ Tax on profits is a form of simple redistribution from capitalists to workers.
- ▶ Policy that prohibits technological adoption includes barriers to free entry, licensing, access to credit and infrastructure, private property rights protection of entrants, corruption etc.
- ▶ Majority voting equilibria (Downsian model)

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# Workers' preferences

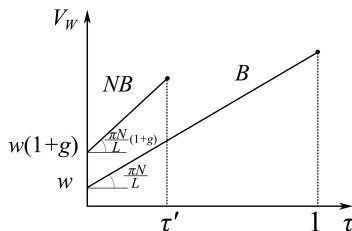
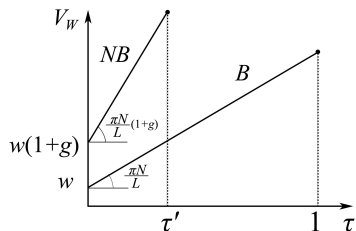
Workers' payoffs functions

▶  $v(w, B) = wh(j) + \tau_B \pi N/L,$

▶  $v(w, NB) = (wh(j) + \tau_{NB} \pi N/L)(1 + \lambda\theta(\gamma - 1))$

7.jpg

8.jpg



Proposition 1 "Low skilled" workers ( $h < h'$ ) preferable policy is  $(B, 1)$ , "high skilled" workers ( $h > h'$ ) preferable policy is  $(NB, \bar{\tau})$ , where  $h' = \bar{h}\xi((1 - \bar{\tau})/g - 1)$  and  $g = \lambda\theta(\gamma - 1)$

- ▶ For sufficiently high  $g$  or low  $\bar{\tau}$  all workers prefers  $(NB, \bar{\tau})$

Introduction

Economic  
environment

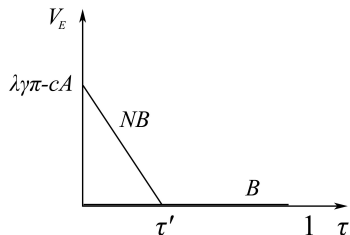
Political  
environment

Results

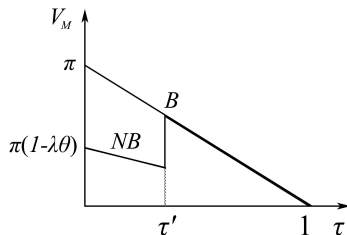
Conclusion

# Entrepreneurs and stakeholders preferences

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## Proposition 1

Participation constraint. A potential entrant invests in risky project only if  $\tau_{NB} \leq \bar{\tau}$  where  $\bar{\tau} = 1 - c\bar{A}/\gamma\pi\lambda$

- ▶ The bliss point for entrepreneurs is  $(NB, 0)$ , for stakeholders  $(B, 0)$

# Three homogenous groups, no simple majority

Redistribution  
and barriers to  
entry in  
Schumpeterian  
model of  
growth

Dmitry Veselov

Introduction

Economic  
environment

Political  
environment

Results

Conclusion

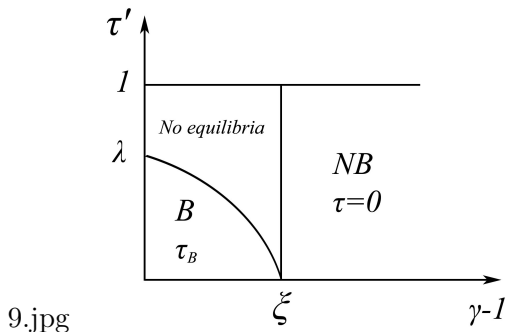


Рис. : Political equilibrium in a "no simple majority" case

- ▶  $\xi$  is the ratio of total profits to total wages
- ▶ "Liberal" order (NB,0) is political equilibria if expected size of innovations are sufficiently high, the gains from redistribution are low ( $\gamma - 1 > \xi$ )

# Majority of heterogenous labor force

- ▶ Full redistribution equilibrium, majority consisting of workers votes for full redistribution
  - ▶ Expected gains from technological adoption are very small
  - ▶ The skills level of decisive voter are small
- ▶  $(NB, \bar{\tau})$  if a median voter (worker) votes for free-entry policy with redistribution
- ▶ No simple majority: either  $(NB, \bar{\tau})$  or no equilibria
- ▶ The relative human capital level of a decisive worker matters

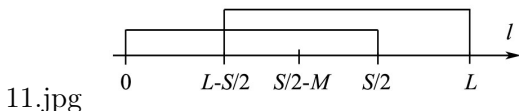


Рис. : Decisive voters

# No entry equilibria - Targeted transfer case

Under which conditions  $(B, \tau_B)$  equilibria is political outcome?

- ▶ In homogenous workers case, the expected size of innovations must be sufficiently low, as well as the ratio of profits to wages is high. But also the probability of innovations and costs of innovations matters.
- ▶ In heterogenous workers case, this equilibrium is not possible
- ▶ Suppose that stakeholders propose to some group of population the targeted transfer, on the second step elections occur.
- ▶ In this case  $(B, \bar{\tau})$  equilibria is one of the political outcome, the full redistribution is not possible
- ▶ The main determinants as previously are the expected size of innovations, the ratio of profits to wages and the human capital level of decisive voter

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# Discussion: Alternative political mechanisms

Redistribution  
and barriers to  
entry in  
Schumpeterian  
model of  
growth

Dmitry Veselov

- ▶ In some cases a Condorcet winner does not exist
- ▶ The probable solutions
  - ▶ Sequential voting models
  - ▶ Probabilistic voting models (Bernasconi, Profeta, 2012), (Lindbeck, Weibull, 1987)
    - ▶ There is no dictate of a majority.
    - ▶ If there are no ideological preferences the outcome maximizes the utilitarian welfare function
  - ▶ Endogenous party formation (Levy, 2004, 2005)
    - ▶ Could be applied only for a finite (not too large) number of identical groups

Introduction

Economic  
environment

Political  
environment

Results

Conclusion

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Redistribution  
and barriers to  
entry in  
Schumpeterian  
model of  
growth

Dmitry Veselov

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Introduction

Economic  
environment

Political  
environment

Results

Conclusion



# Discussion: Robustness check

- ▶ In the basic framework workers and capitalists are separated
- ▶ The alternative is to suppose that all agents are employed as workers.
- ▶ They get two different level of wages  $wh_L$  or  $wh_H$  according to their innate abilities
- ▶ Agents are also either stakeholders or not
- ▶ High talented workers have a potential to perform a risky project
- ▶  $\tau$  - income tax rate

## Result

$(B, \tau)$  is stable equilibria only for high level of within workers inequality and middle level of between workers and capitalists inequality

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### Result

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- ▶ The transition to democracy is not necessarily associated with an elimination of entry barriers or introducing a distortionary taxation.
- ▶ The key factors which determine a political outcome under the democracy are
  - ▶ expected gains from the economic growth
  - ▶ pre-tax income inequality between workers and capitalists
  - ▶ the skewness of human capital distribution
- ▶ The democratisation in two hypothetical countries could lead to the elimination of entry barriers in one country, but to the persistence of entry barriers in another.

# Concluding remarks

- ▶ Dynamic implications could be studied
  - ▶ The path of democratisation. If entry barriers is persistent through democratisation process, then elites are probably would be less hostile to democratisation
  - ▶ The dynamic evolution of inequality and policy outcomes