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ETACE
Economic Theory and Computational Economics

The Role of (De-)Centralized Wage Setting for Industry Dynamics and Economic Growth: Agent-Based Analysis with the Eurace@Unibi Model

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GROWINPRO
Growth Welfare Innovation Productivity

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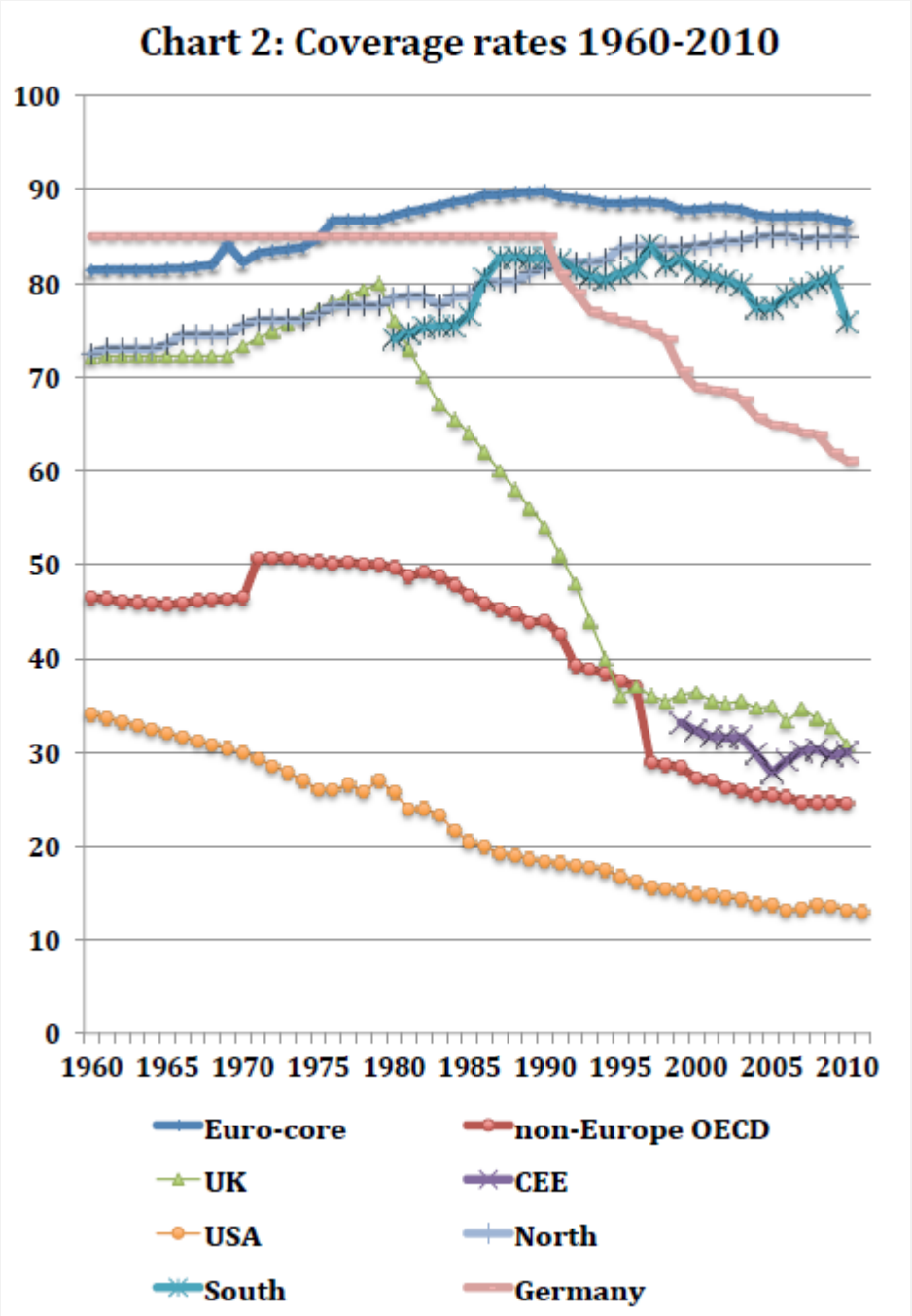
Motivation

- Decline in the degree of unionization and institutional changes towards more decentralized wage setting in many industrialized countries (e.g. **Visser 2013**)
- Heterogeneity across firms main driver for increasing wage dispersion (Barth et al. 2018)
- Through which channels does wage decentralization affect the dynamics of firm heterogeneity and technological change?
- Tradeoff between wage dispersion and growth?



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This Paper…

- studies the effect of wage decentralization on economic growth, industry concentration and the evolution of wage inequality,
- in a dynamic framework capturing the interplay between product market and labor market competition,
- and endogenous technology choice of firms.

- analyzes the role of heterogeneity of (observable) skills for the effect of wage decentralization.

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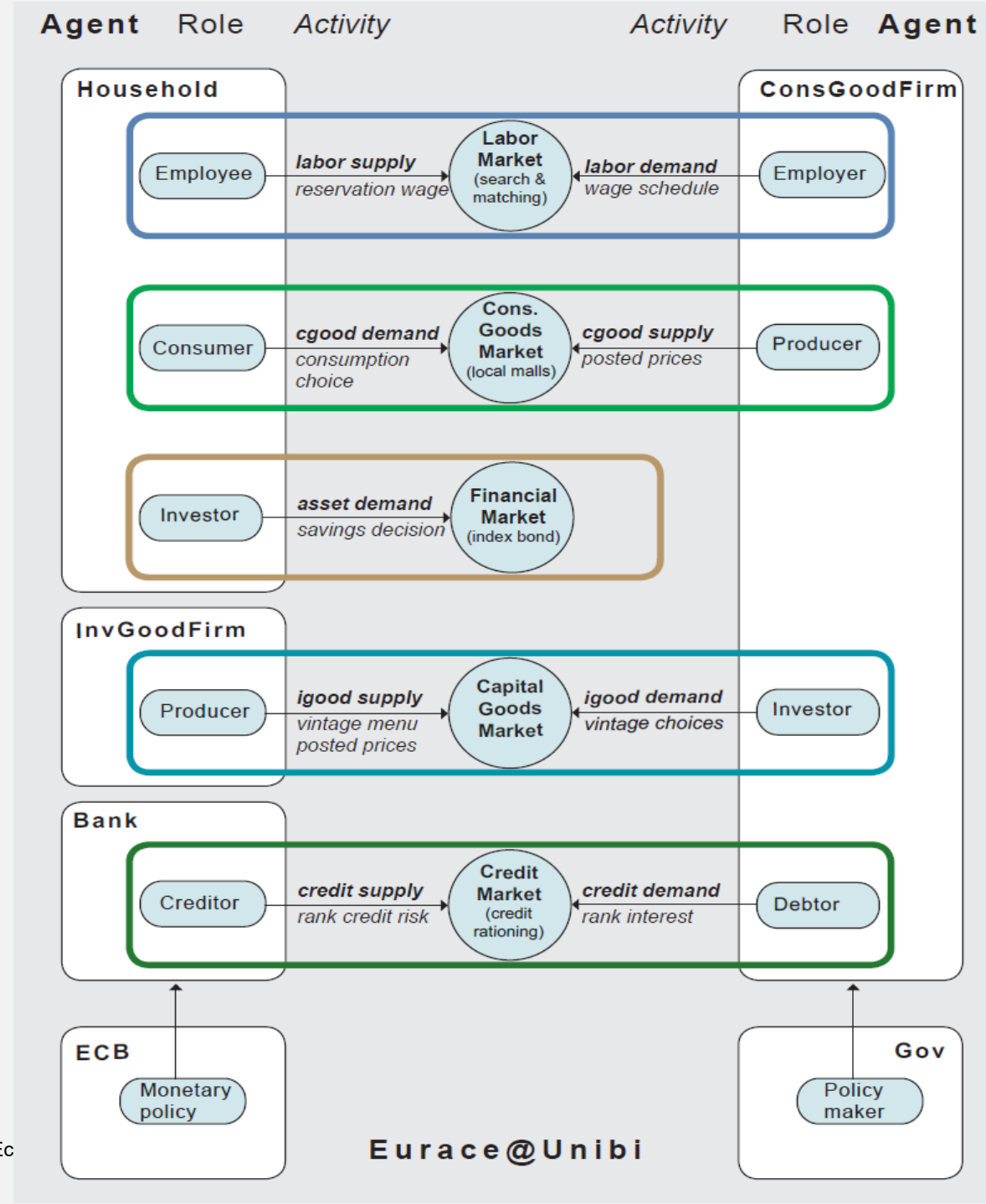
The Eurace@Unibi model



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Key Model Properties

- Horizontally differentiated consumption goods are produced using (vintage structured) capital and labor
- Productivity of a firm depends on quality of used vintages and specific skill level of workers
- Workers acquire specific skills on the job when working in a firm with high quality (physical) capital
- Workers might differ wrt to their speed of on the job learning (general skills)
- When investing, consumption goods producers (CGPs) choose among different capital vintages offered at different prices -> opt. choice depends on the skill level in its workforce
- Competing consumption goods producers (CGP) offer goods at posted prices

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Wage Setting

- Firms post job vacancies based on planned output.
- Searching workers apply to random set of firms.
- Wage offered by firm i at t to worker with general skills g: $w^{O}_{i,t,g} = \lambda^{D} \widetilde{w}^{O}_{i,t,g} + (1 - \lambda^{D}) w^{U}_{t,g}$
  - $\widetilde{w}^{O}_{i,t,g} = w^{base}_{i,t} \cdot \min\left[A_{i,t}, \bar{B}_{i,t-1,g}\right]$: firm specific wage offer
  - $w^{base}_{i,t}$: base wage offer (adjusted upwards if firm is rationed on the labor market)
  - $w^{U}_{t,g}$: centralized wage, grows with av. productivity growth + inflation
- Workers accept best offer, if above reservation wage.
- Degree of wage de-centralization: λ^{D}

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Decentralization of Wage Setting

- Experimental Setup:
  - Default setting: λ^D=0.3 -> always used throughout the ‘burn-in phase’ (1000 months)
  - Afterwards degree of wage decentralization adjusts during a short transient period toward a target level $\bar{\lambda}^D$
  - Consider target levels $\bar{\lambda}^D \in \{0,0.1,..,1\}$
  - 2 general skill scenarios
    - homogeneous: all workers have identical general skills (specific skills still evolve heterogeneously)
    - heterogeneous: two general skill groups of equal size

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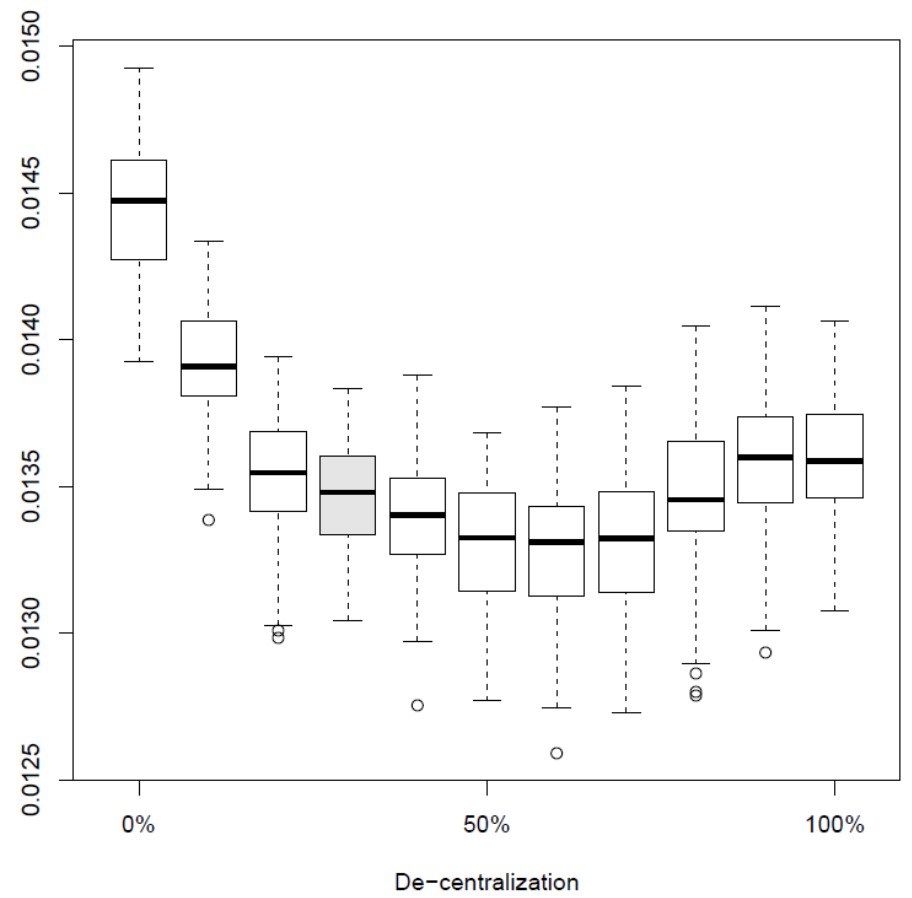
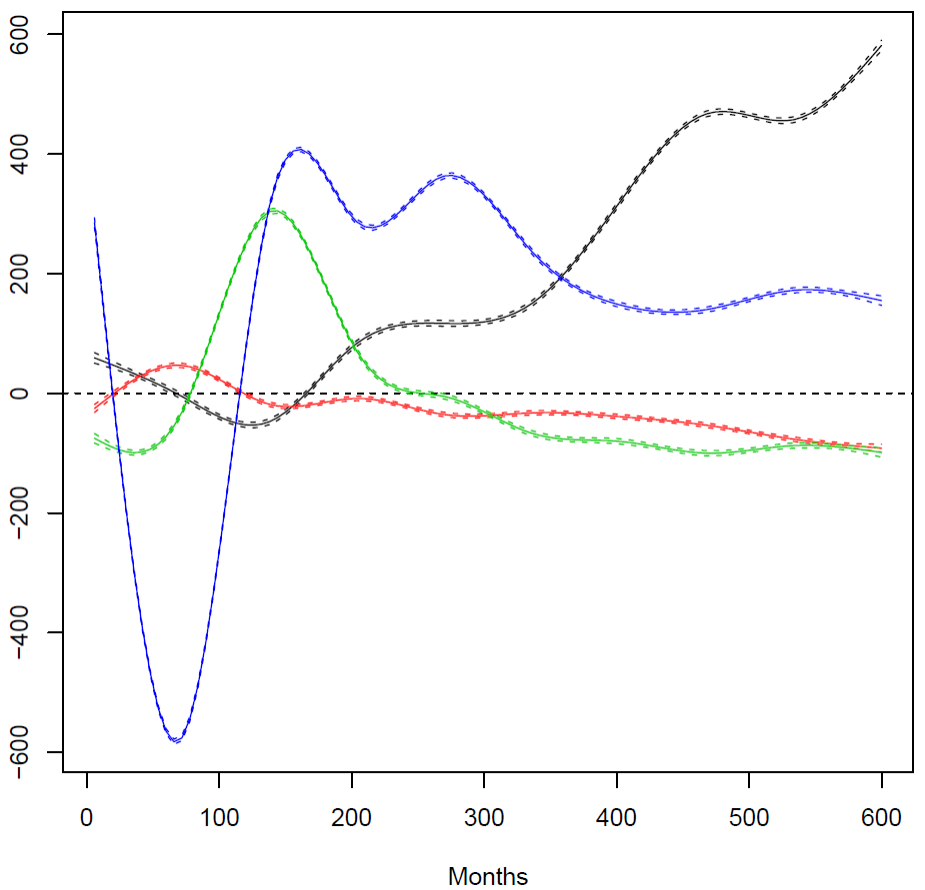
Homogeneous General Skills

Effect of degree of decentralization on output (growth rate and dynamics)





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λ^D=0: black, λ^D= 0.5: red, λ^D= 0.7: green, λ^D=1: blue

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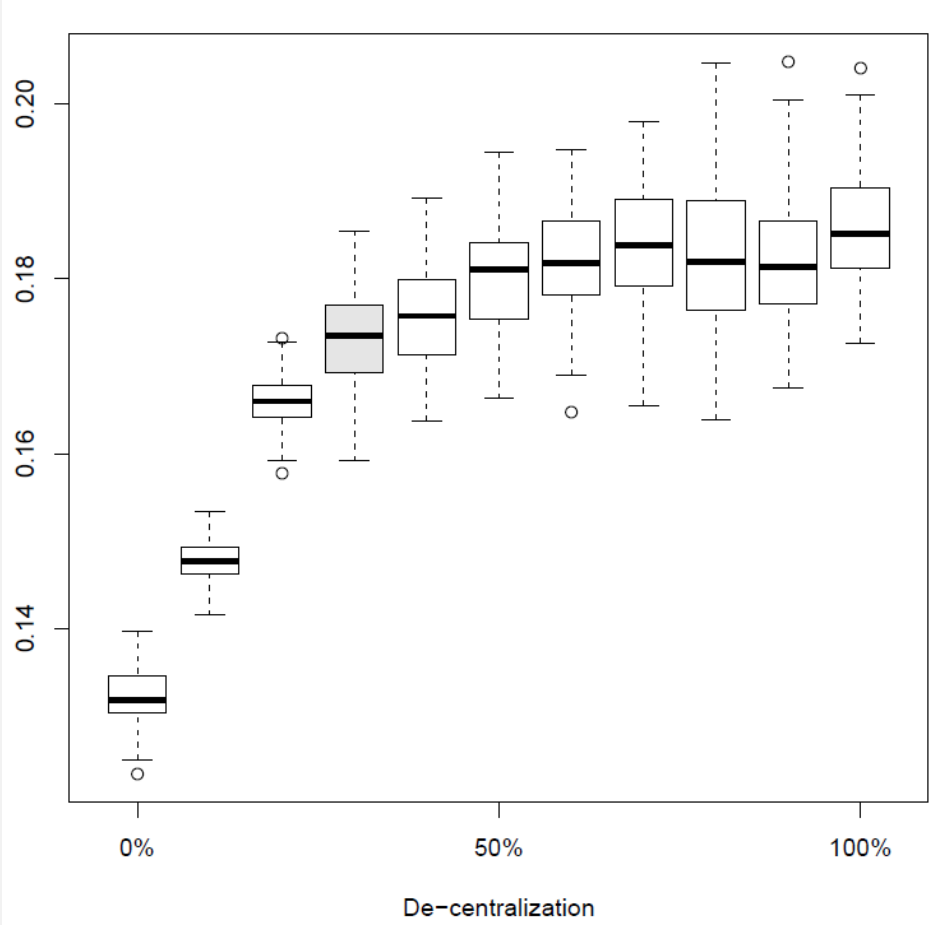
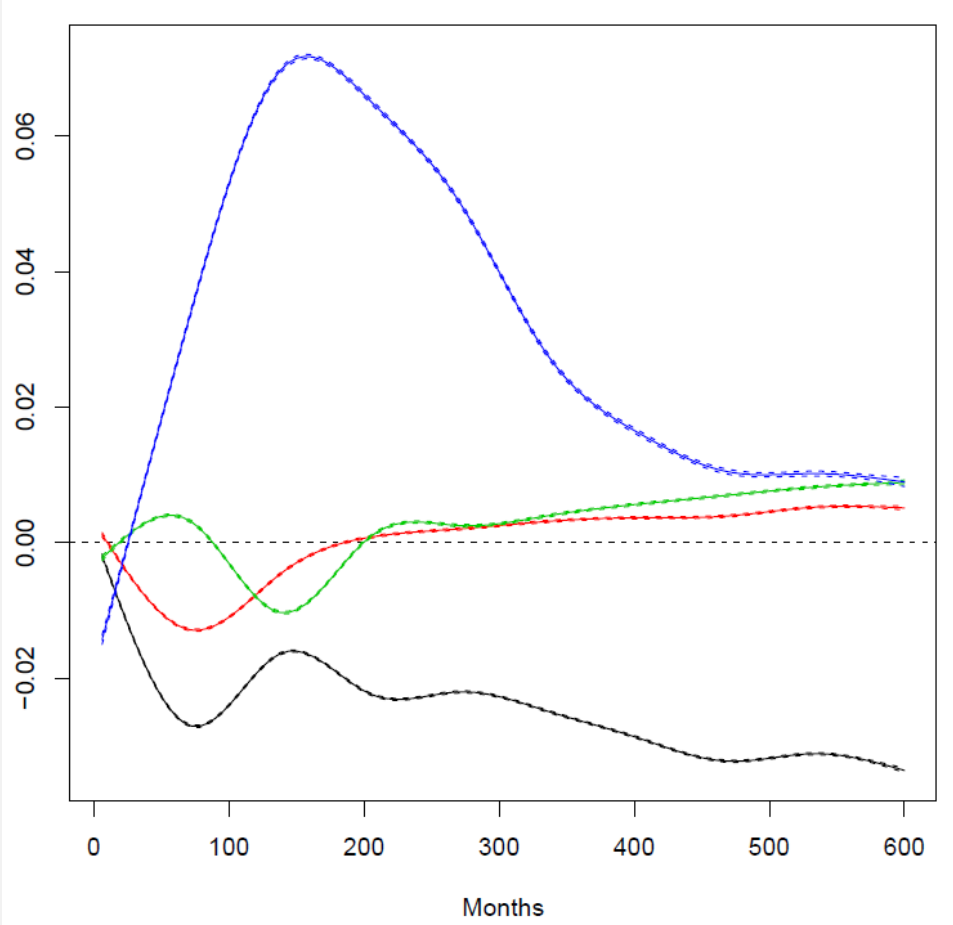
Homogeneous General Skills

Effect of degree of decentralization on income inequality (STD of income)





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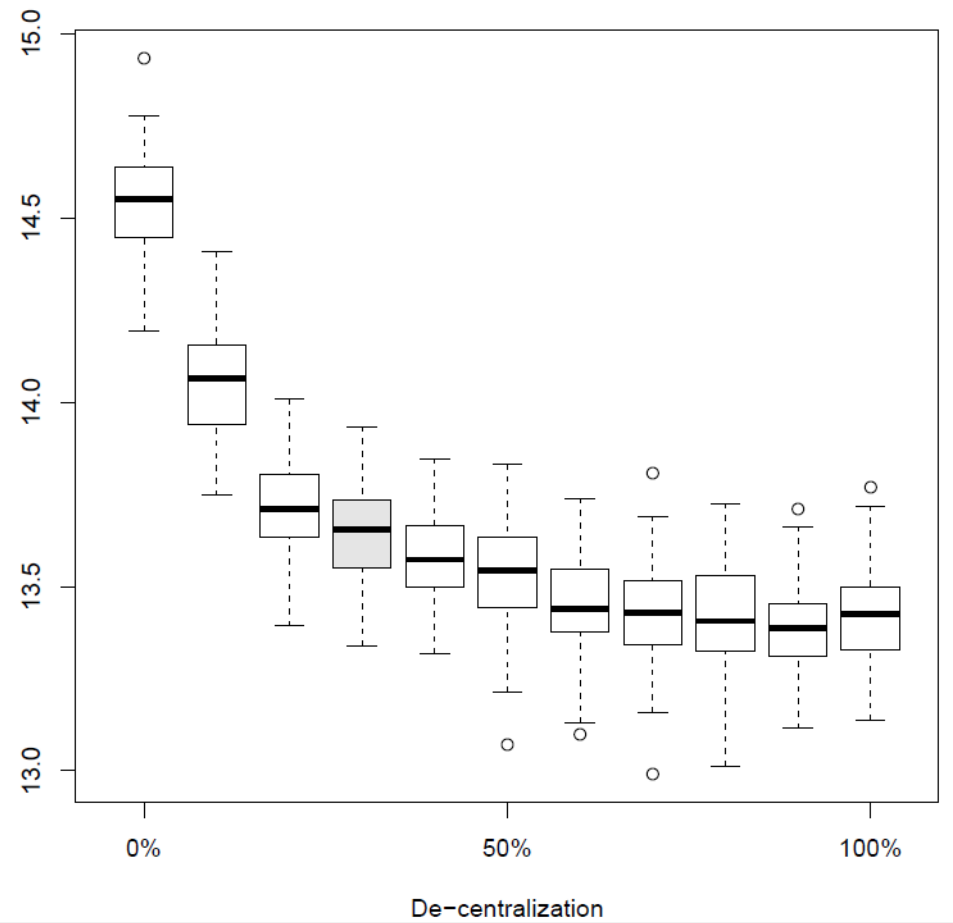
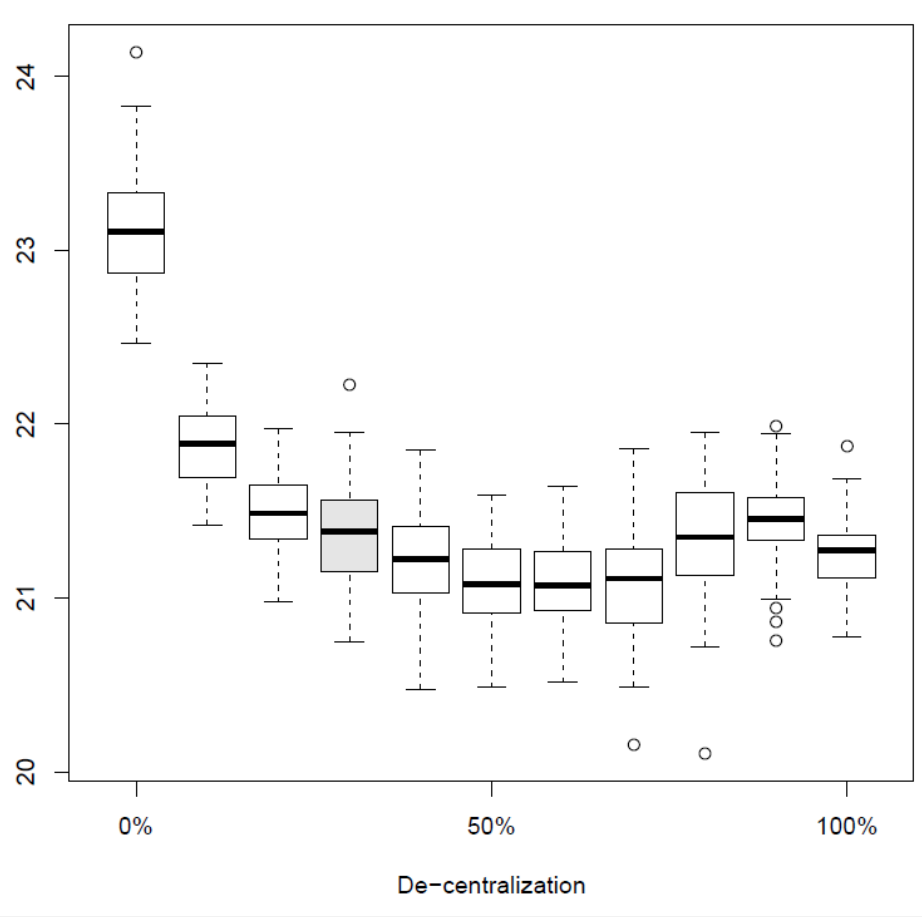
Homogeneous General Skills

Technology



Capital Stock



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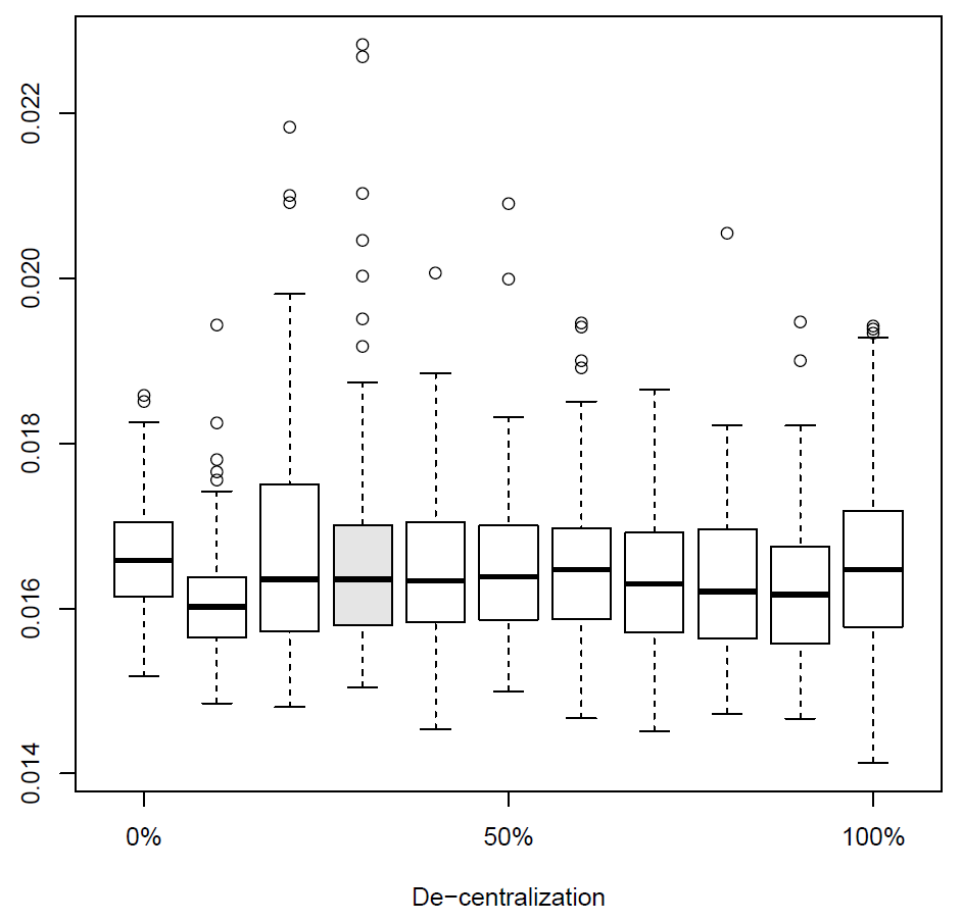
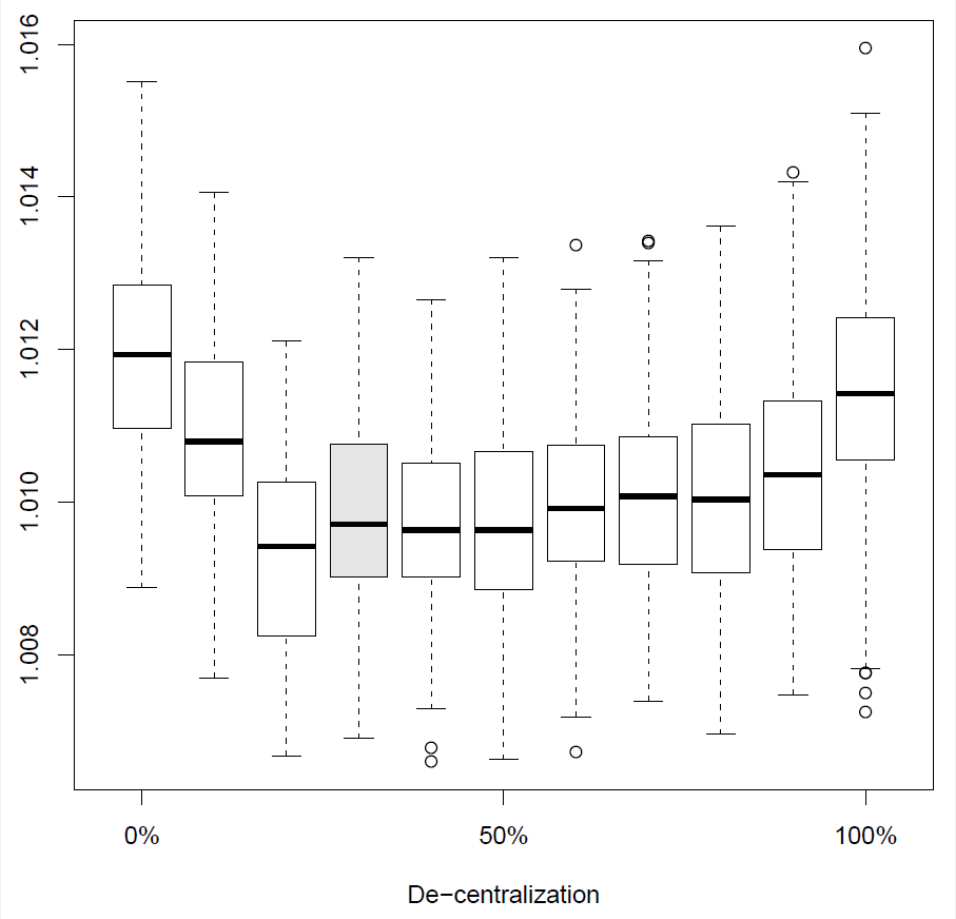
Homogeneous General Skills

Herfindahl Index



Ratio of Specific Skills High/Low Tech Firms



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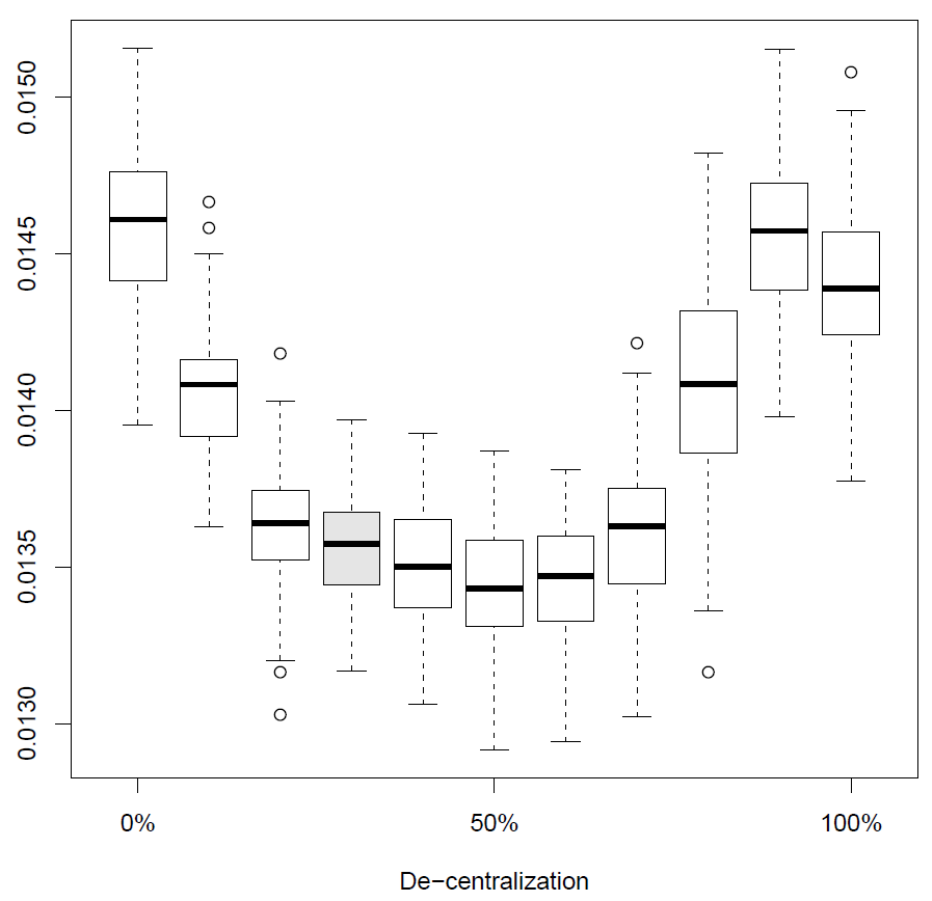
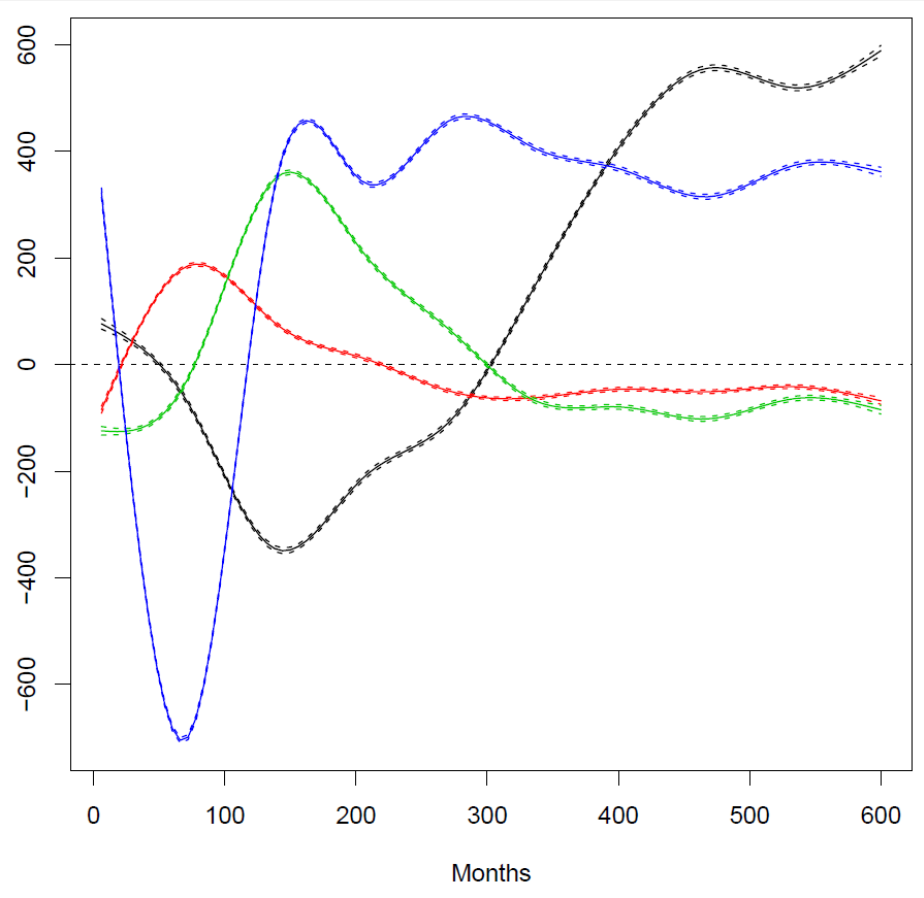
Heterogeneous General Skills

Effect of degree of decentralization on output





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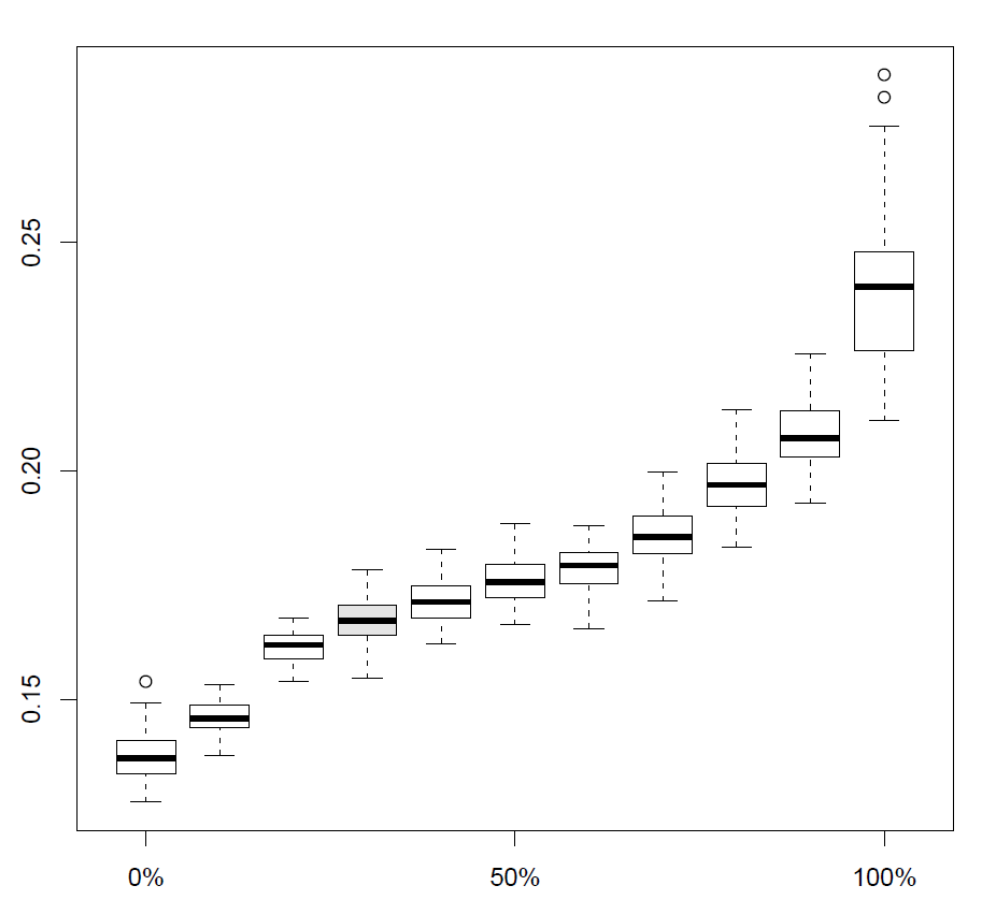

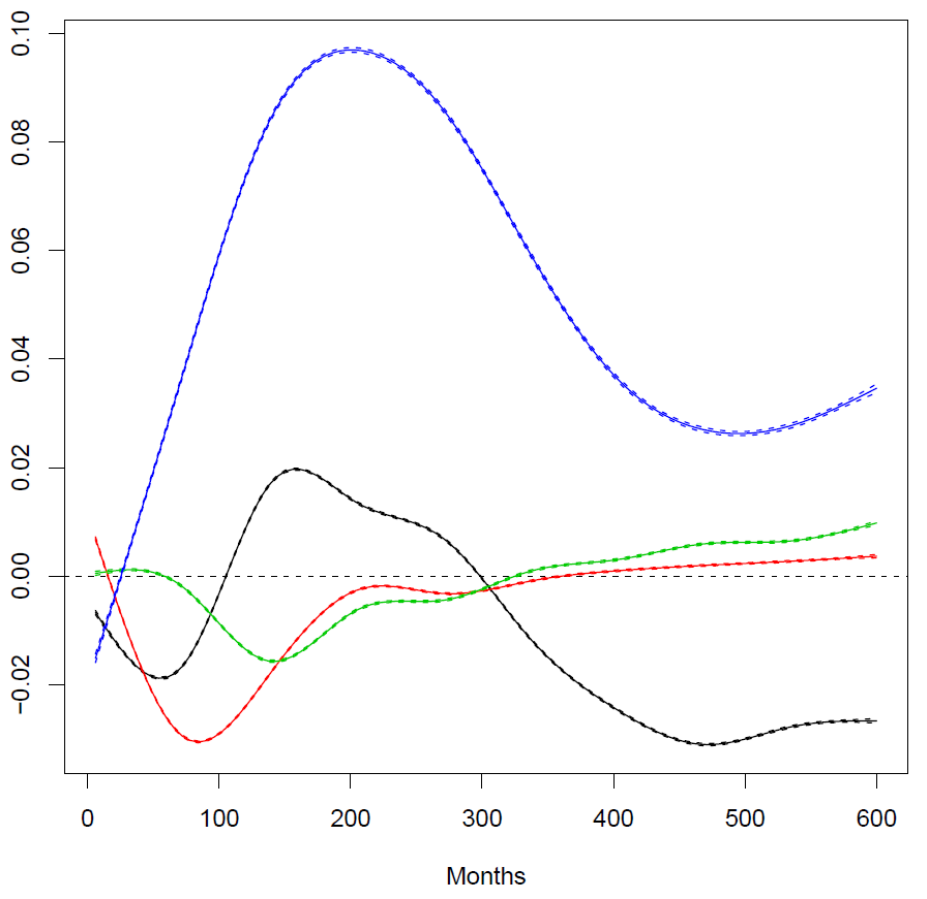

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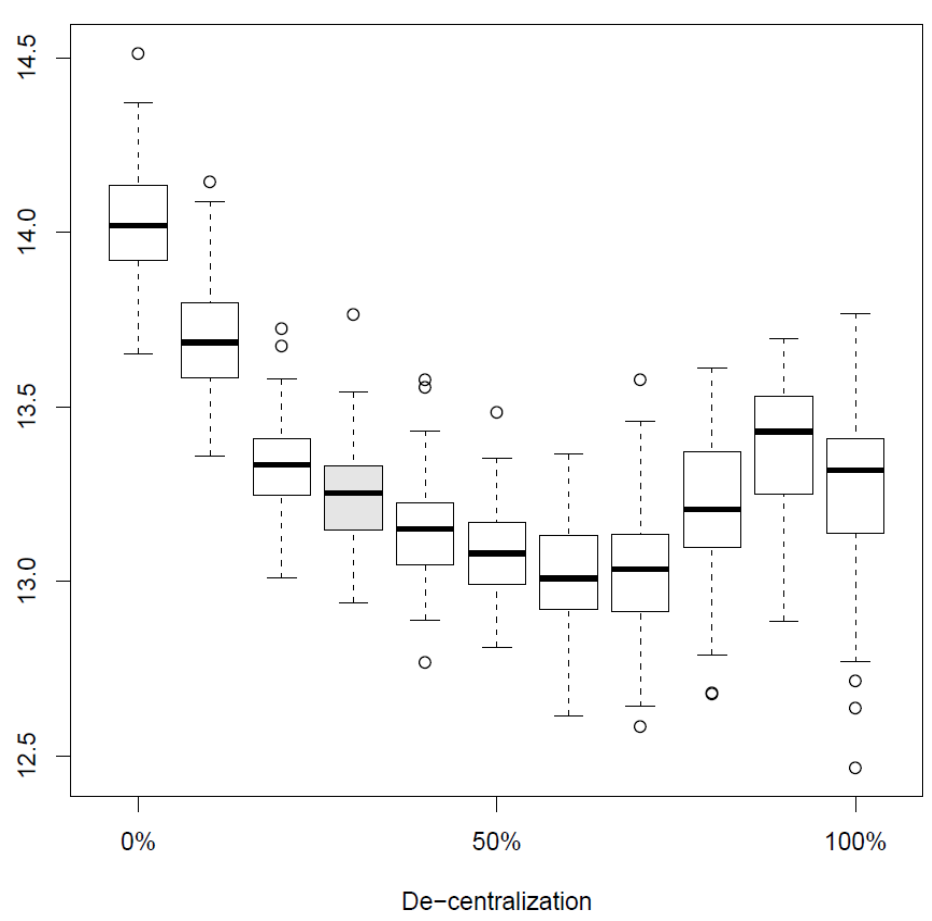
Heterogeneous General Skills

Technology



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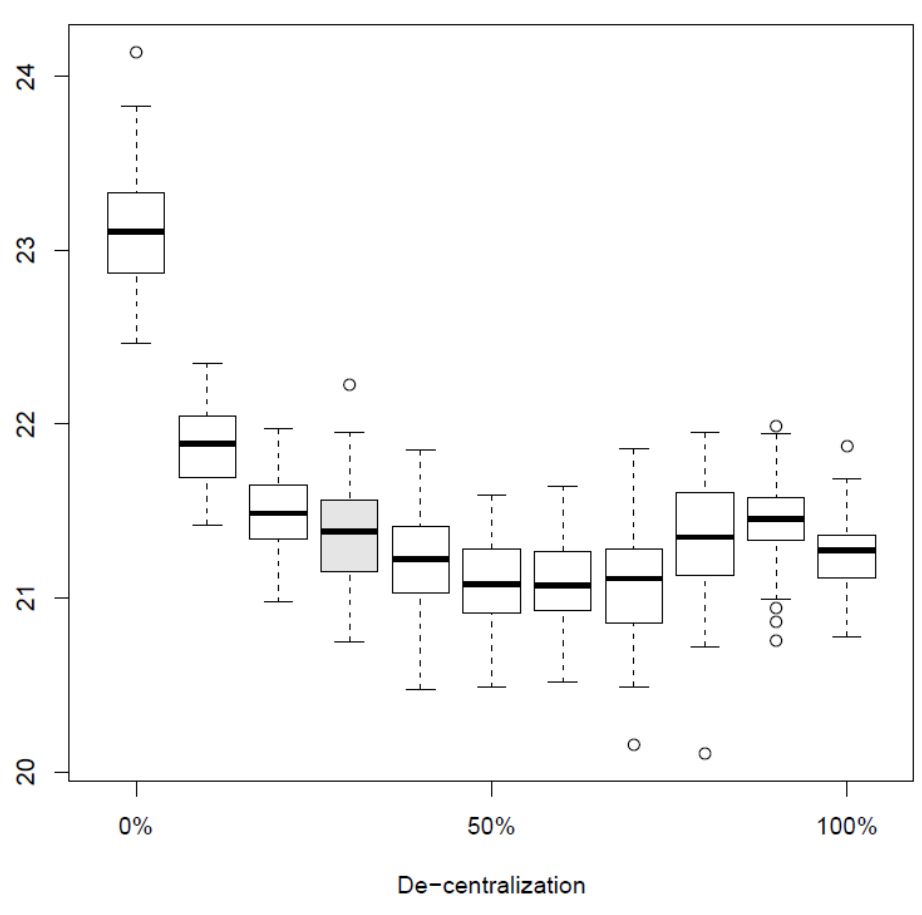

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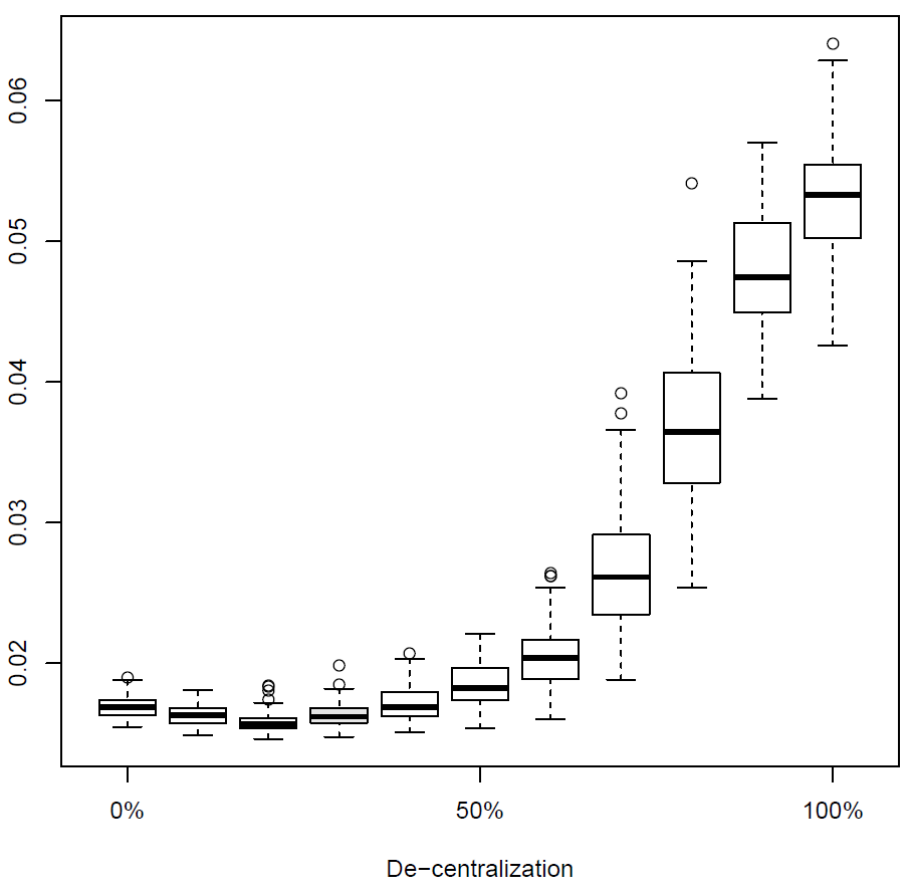
Heterogeneous General Skills

Herfindahl Index



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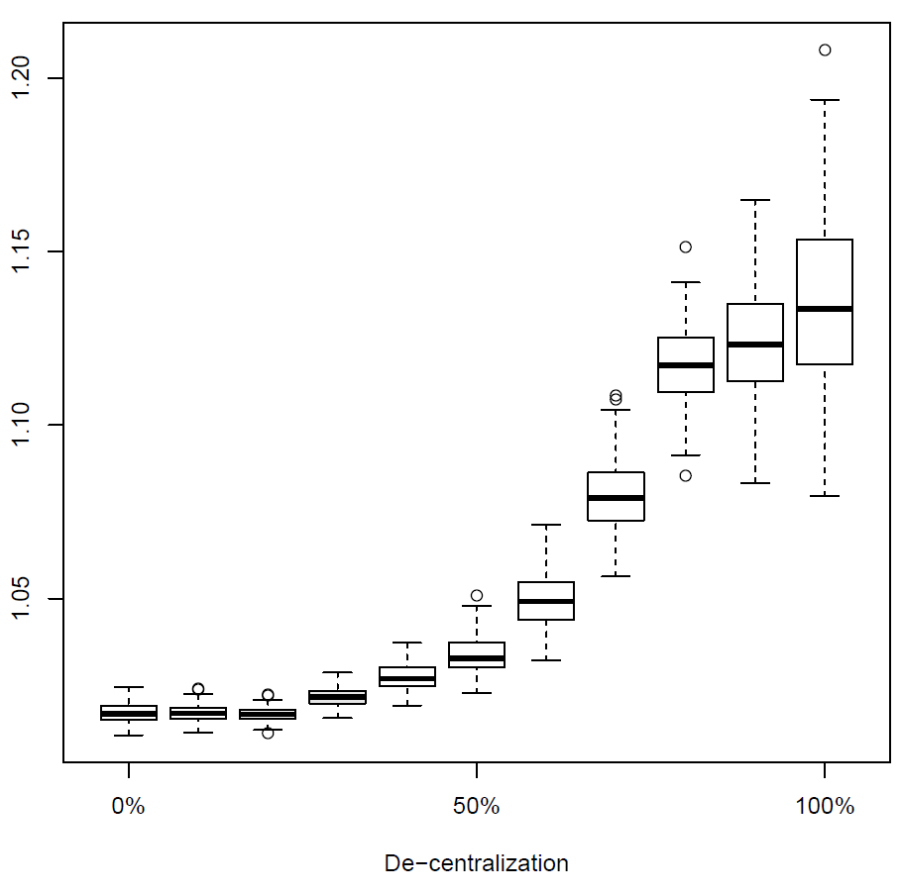

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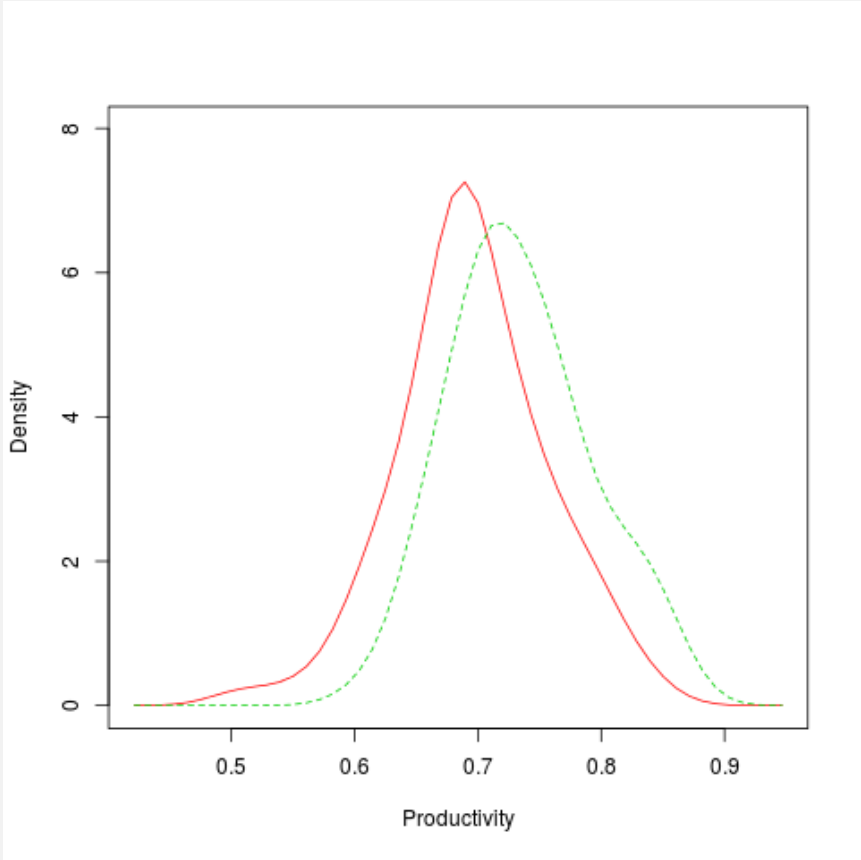
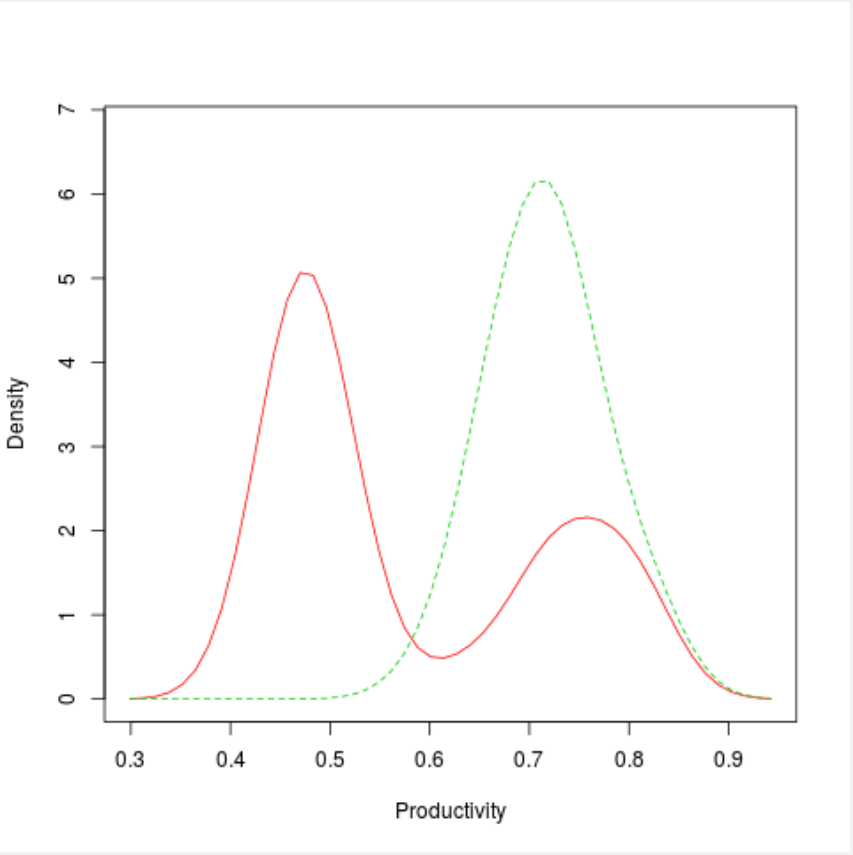
Homogeneous vs Heterogeneous General Skills

Productivity Distribution across Firms (green: centralized, red: decentralized)



Hom. General Skills



Het. General Skills

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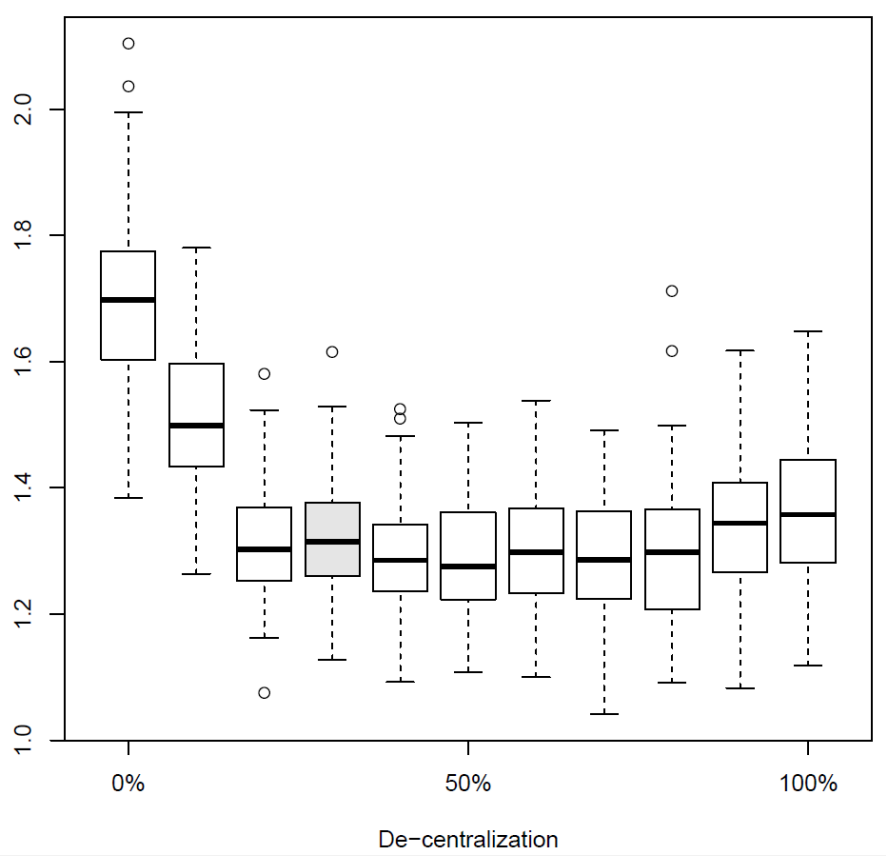
Homogeneous vs Heterogeneous General Skills

Ratio of Profit High/Low Tech Firms



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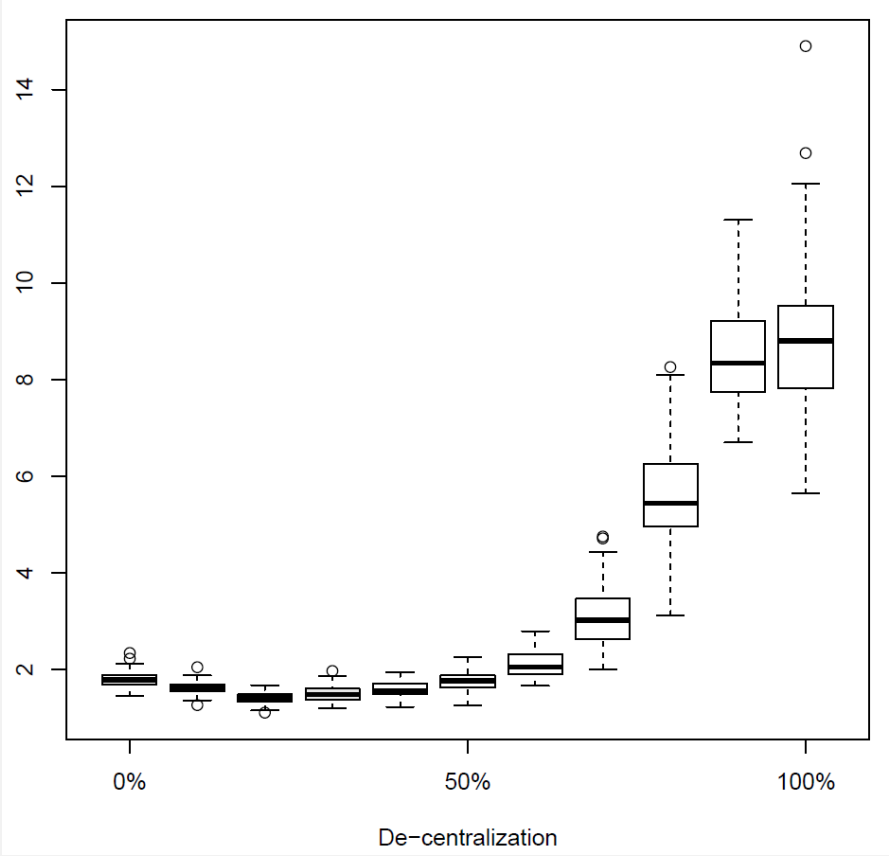

Het. General Skills

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Conclusions

- We study the effect of wage centralization on the interplay of competition on the labor and product market and technology choice.
- Higher degree of centralization of wage setting induces not only lower income inequality but in many cases higher output growth rates.
  - -> higher aggregate investments under centralized wage setting as main driver
- Degree of heterogeneity of general skills is key for the implications of wage de-centralization:
  - Heterogeneous GS -> strong industry concentration, techn. heterogeneity across firms, labor market segregation

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Thank you for your attention!