

# **THE POWER OF CREATIVE DESTRUCTION**

**PHILIPPE AGHION  
CELINE ANTONIN  
SIMON BUNEL**

# THIS BOOK

- Five years of lectures at College de France
- Allow public access to the research produced collectively over the past 34 years to « operationalize » Schumpeter's notion of creative destruction



# CREATIVE DESTRUCTION ...

- Process whereby new innovations displace old technologies
  - Joseph Schumpeter in *Capitalism, Socialism et Democracy* (1942)

# **BASIC “SCHUMPETERIAN GROWTH” PARADIGM**

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

# CREATIVE DESTRUCTION ...

- Contradiction :
  - The innovator is motivated by prospect of monopoly rents
  - But those rents can be used ex post to prevent future innovations and to block new entry
- Schumpeter was deeply pessimistic about the future of capitalism
- This book is about why Schumpeter's pessimistic prophecy did not come true
- It advocates an « optimism of the will »

# THIS BOOK USES THE LENS OF CREATIVE DESTRUCTION TO...

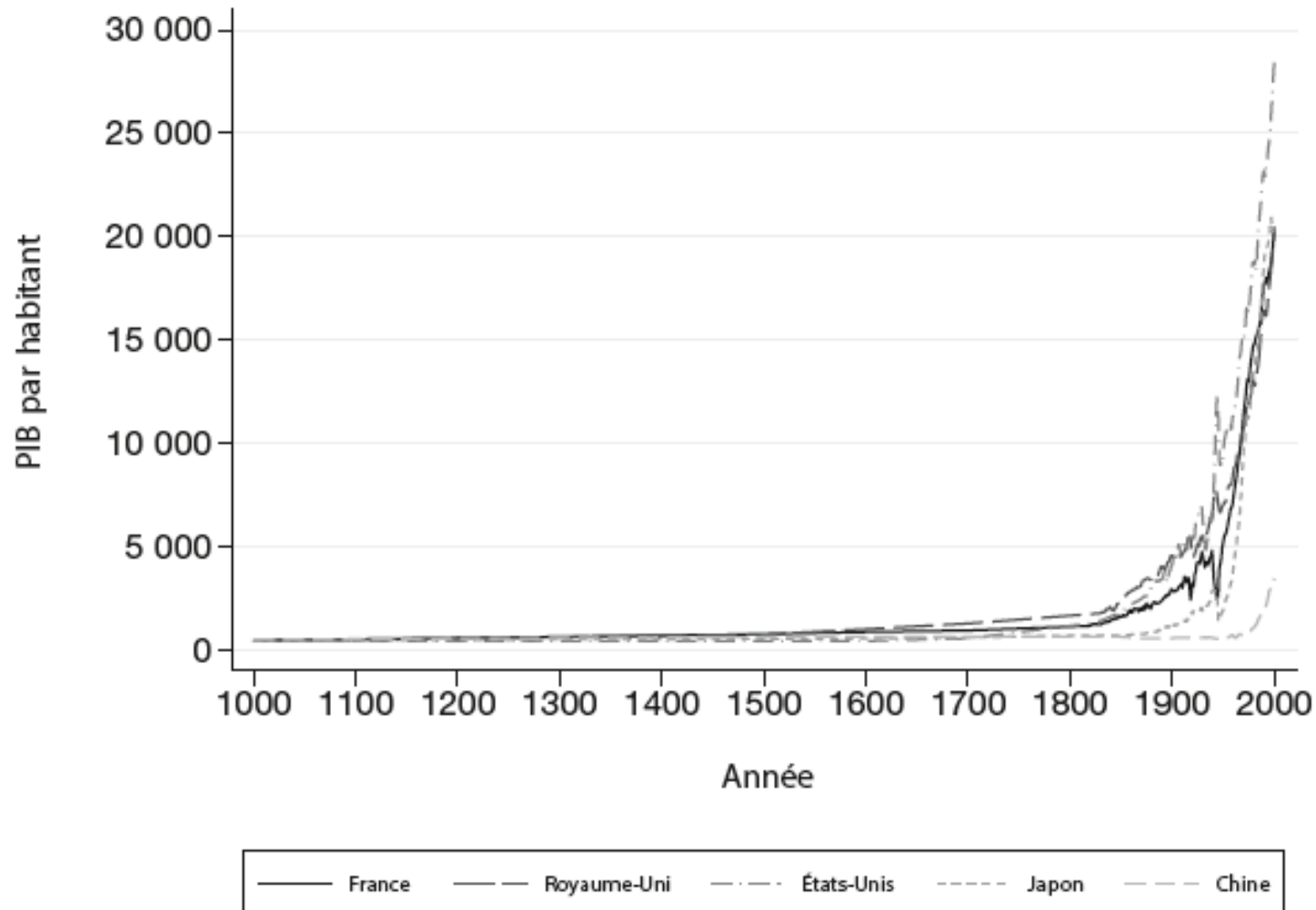
- Revisit some main *enigmas in economic history*
- Question some *common wisdoms*
- Rethink *the future of capitalism*

# **SOME HISTORICAL ENIGMA**

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- **Industrial take off**
- Secular stagnation
- Middle income traps
- Sources and dynamics of inequality

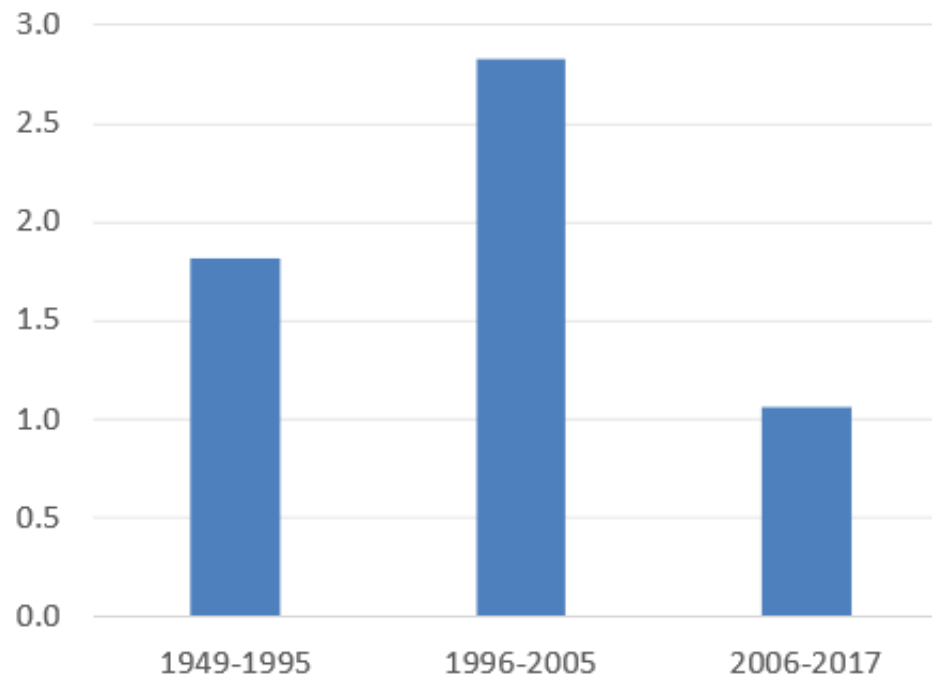
# INDUSTRIAL TAKE OFF



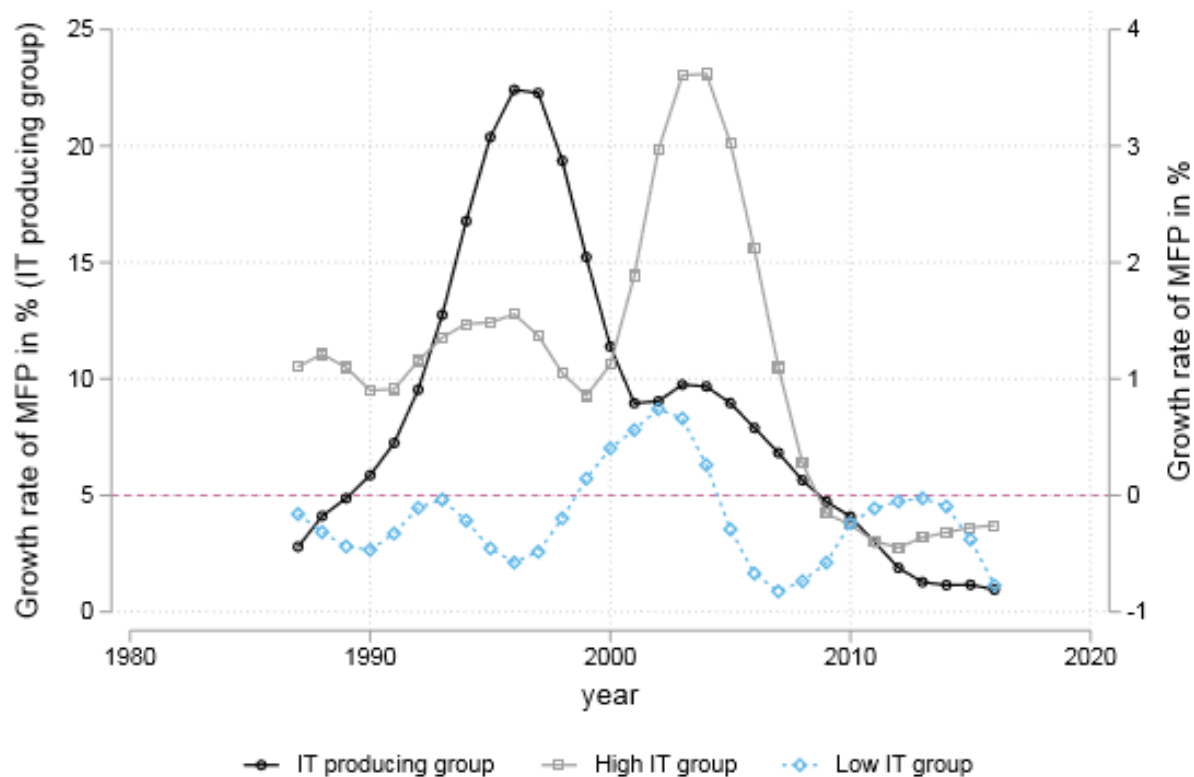
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## RISE AND DECLINE IN TFP GROWTH

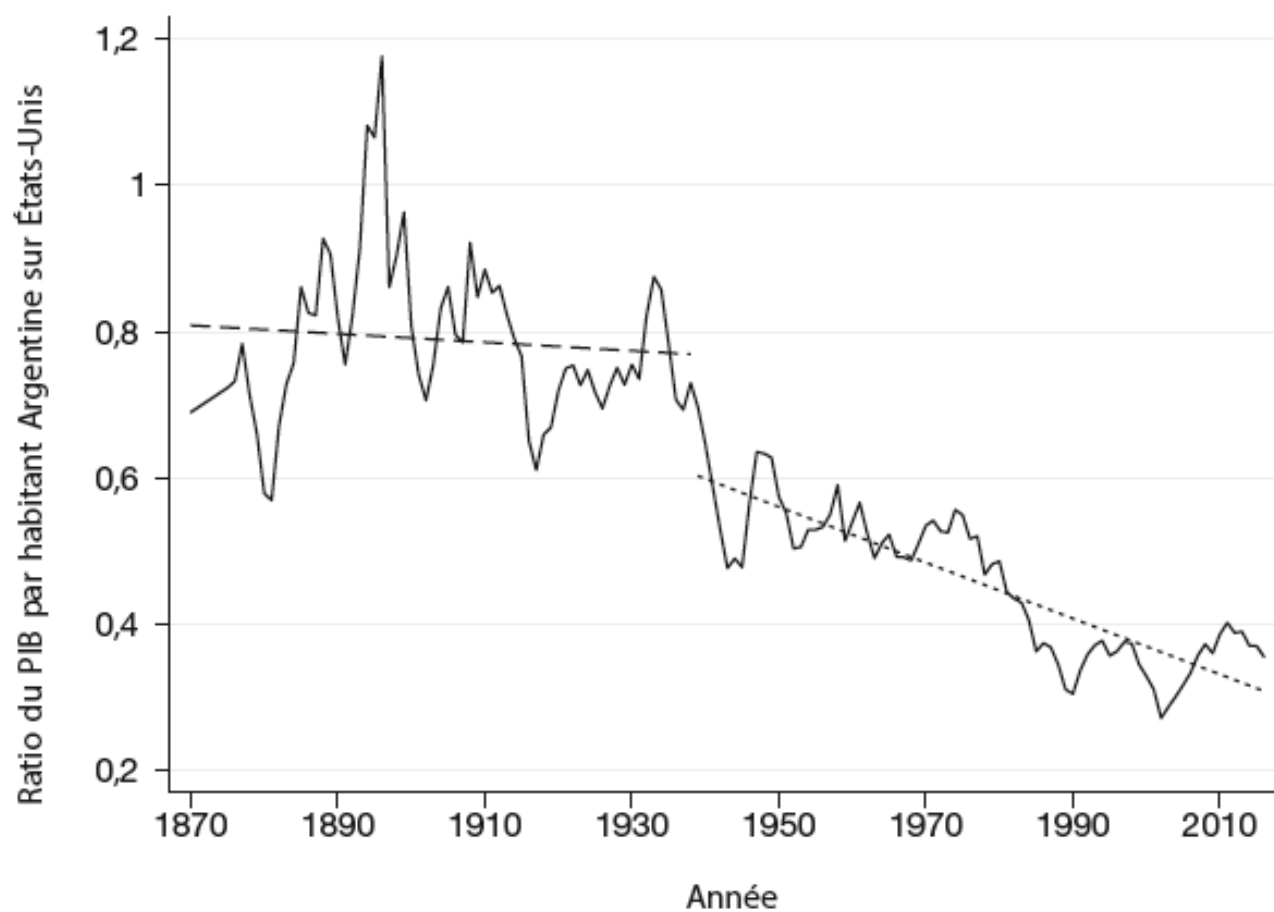


# TFP GROWTH BY IT INTENSITY



# SOME HISTORICAL ENIGMA

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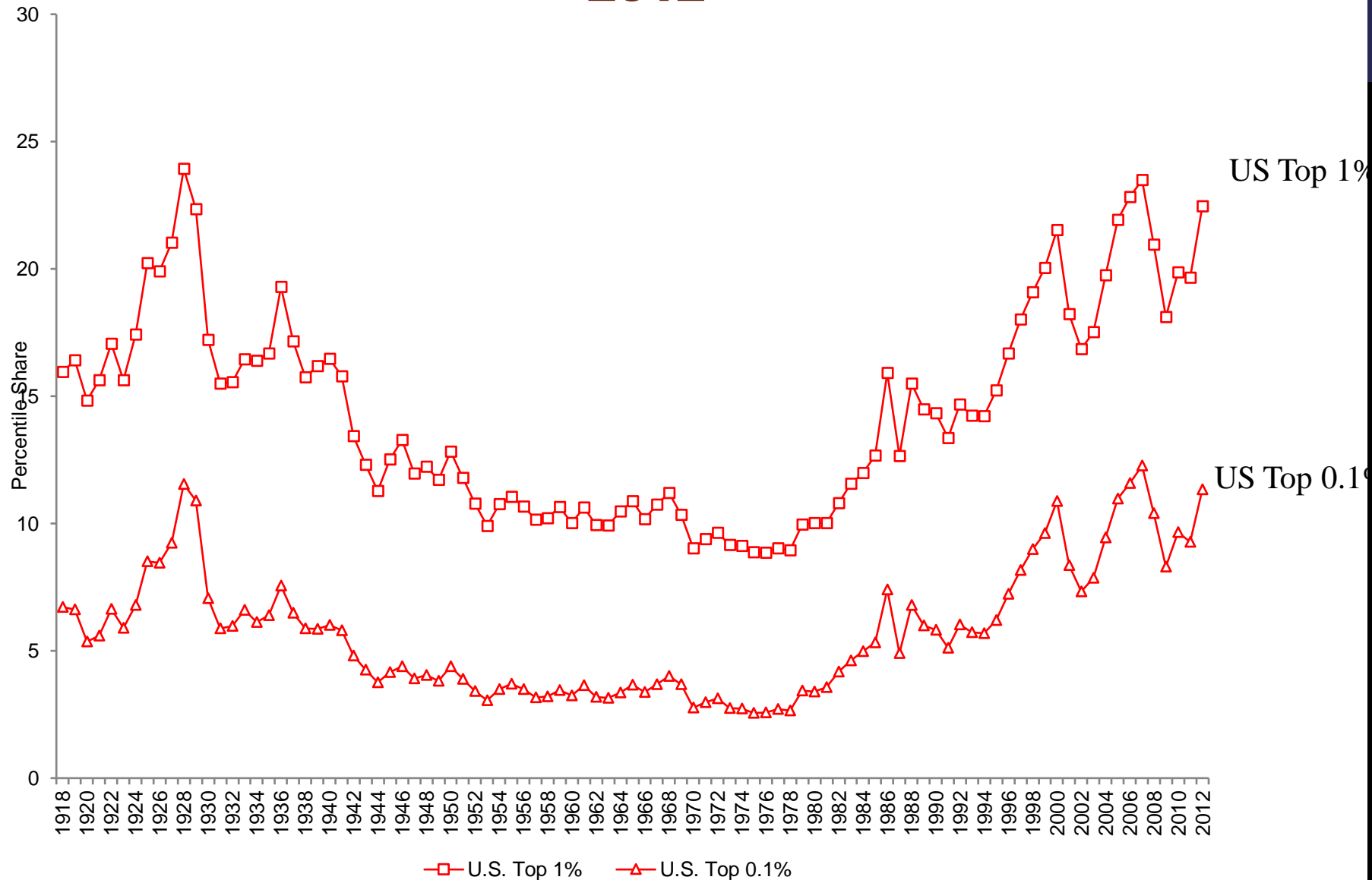


**Figure 7.1.** PIB par habitant en Argentine par rapport au niveau américain.  
*Source : Aghion (2016).*

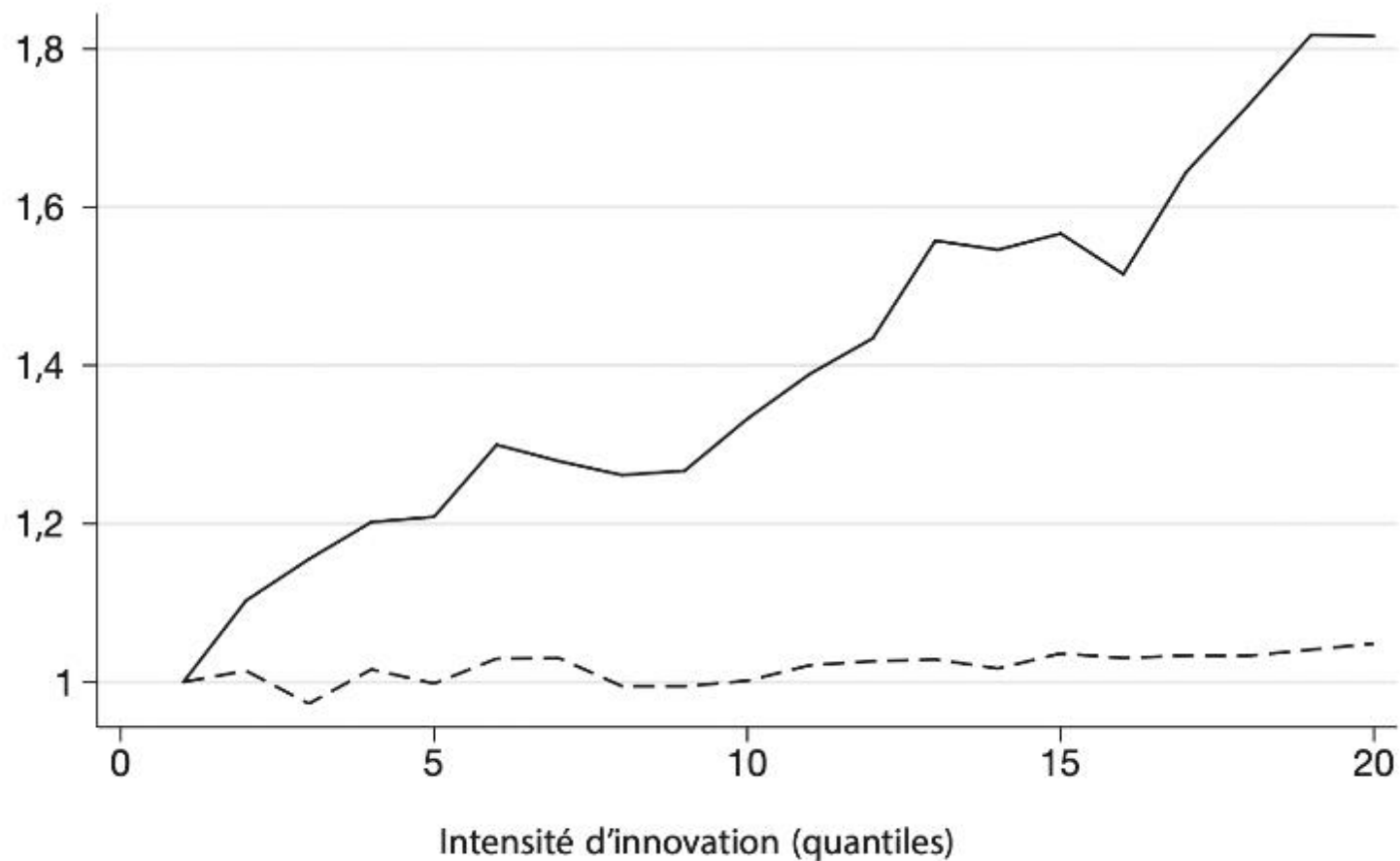
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# Income shares at the very top over last 100 years: US top 1% increases from 9% in 1978 to 22% in 2012



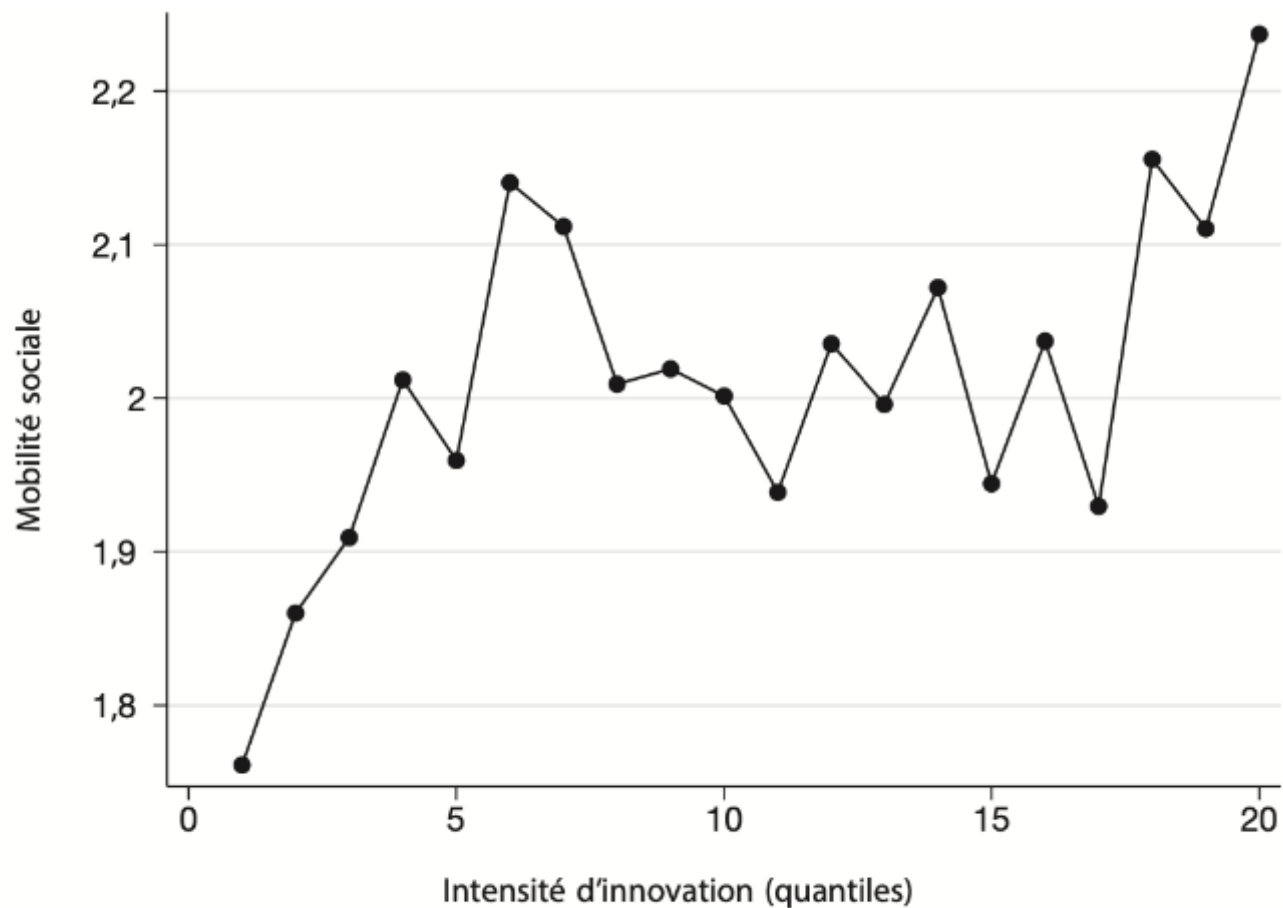
Source: Atkinson, Piketty & Saez; High Income Database



— Part des revenus du « top 1 % »    - - - Coefficient de Gini hors « top 1 % »

Innovation, part des revenus du top 1 % et coefficient de Gini.

Source : Aghion, Akcigit, Bergeaud, Blundell, Hemous (2018)



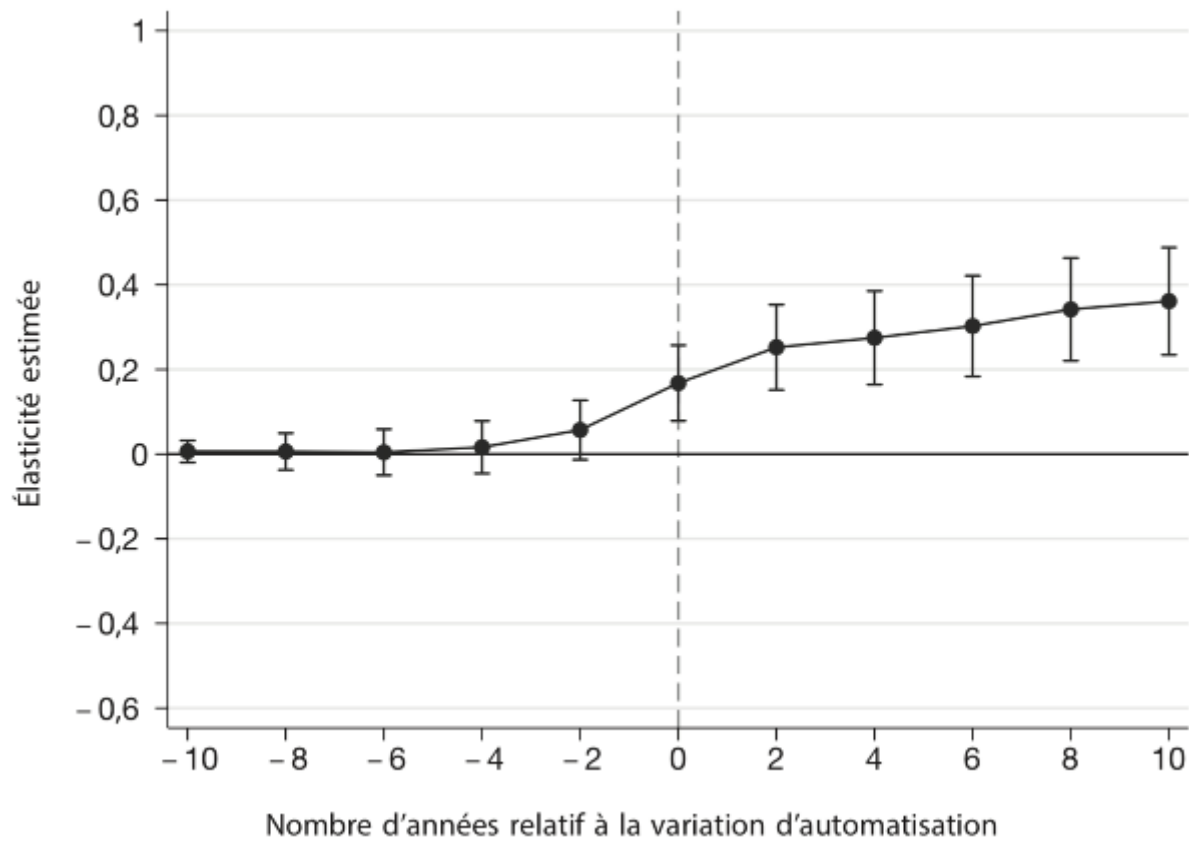
**Figure 5.6.** Innovation et mobilité sociale.

*Source :* Aghion, Akcigit, Bergeaud, Blundell et Hémous (2019).

# **QUESTIONING COMMON WISDOMS**

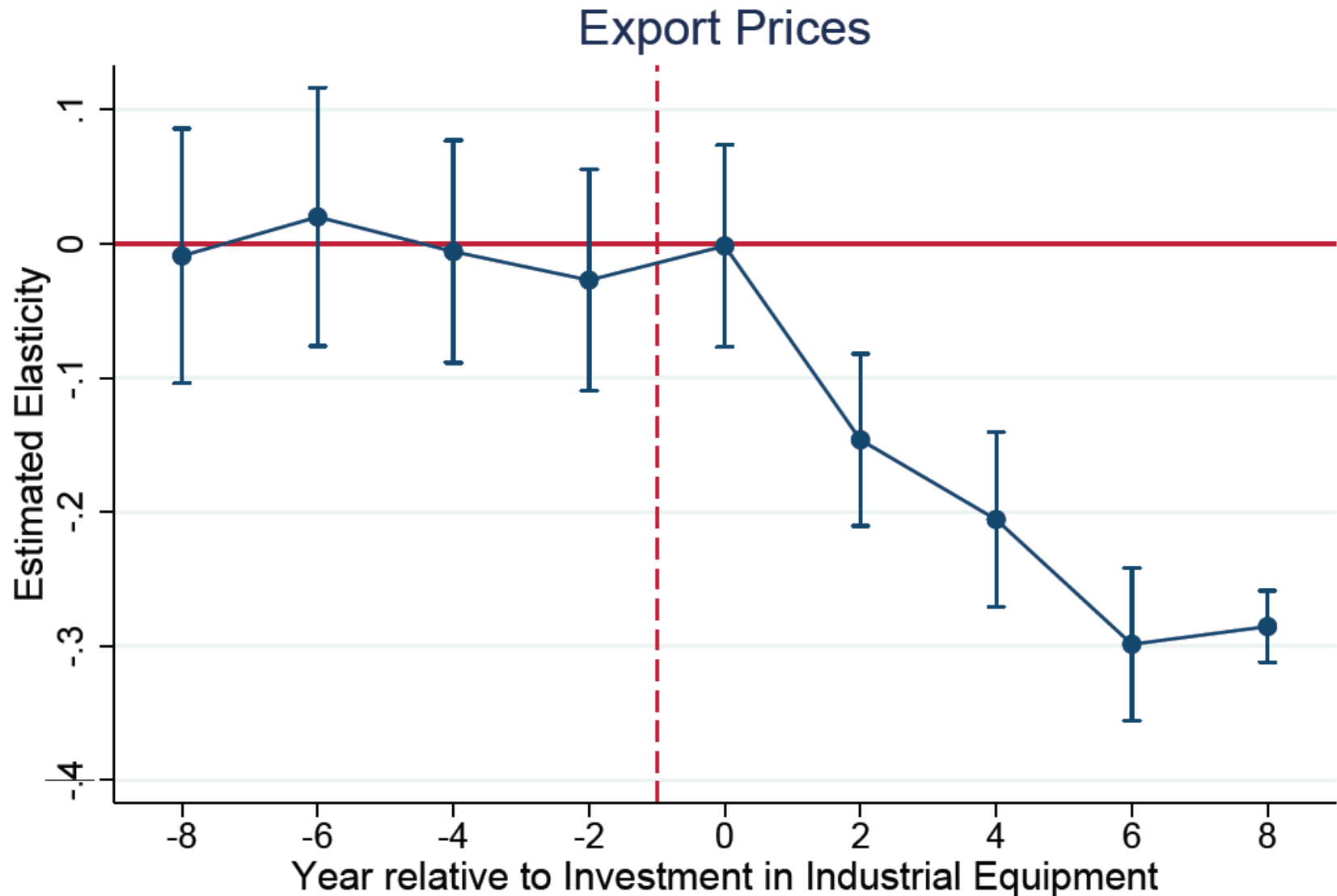
# QUESTIONING COMMON WISDOMS

- **Taxing robots protects employment**
- Taxation is the only instrument to make growth more inclusive
- Protectionnism is the way to regain control of value chains
- Zero or negative growth is the best response to the climate challenge



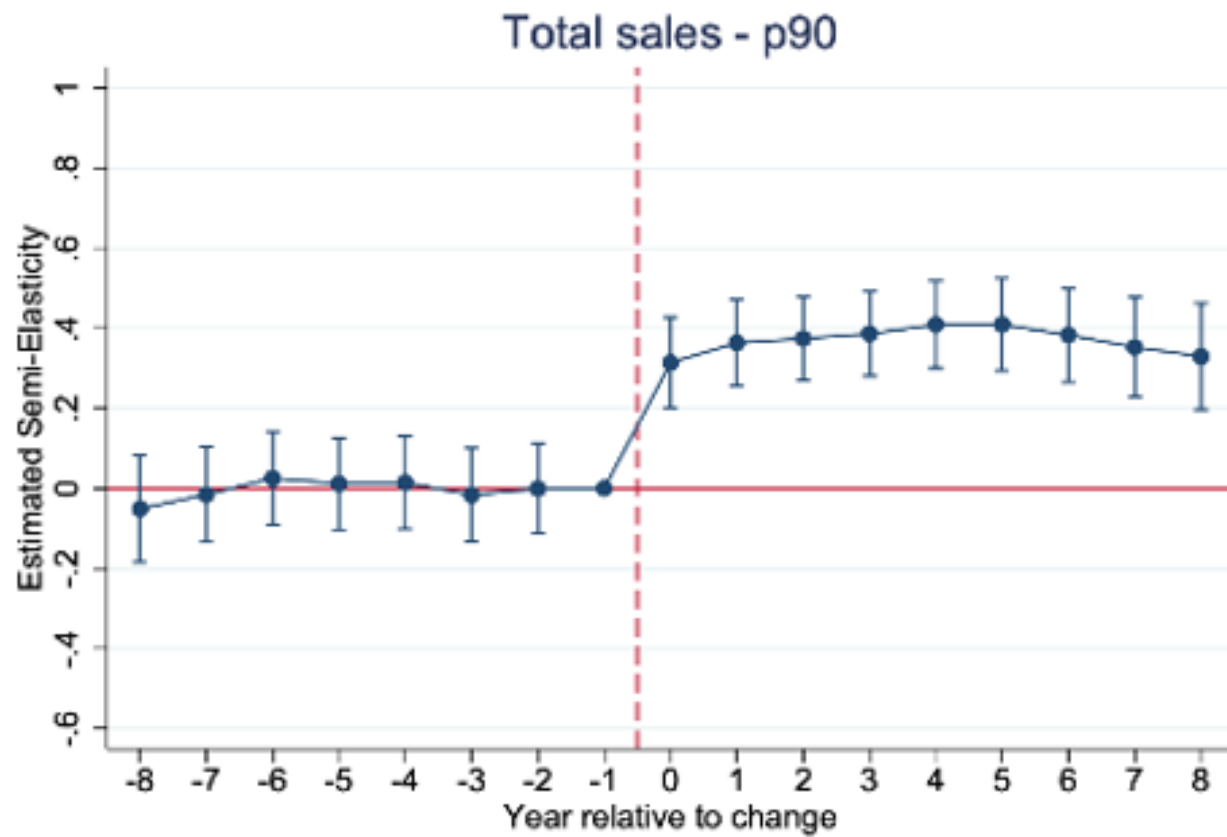
Impact de la variation de l'automatisation sur la variation de l'emploi au niveau de l'usine.

# Price Dynamics



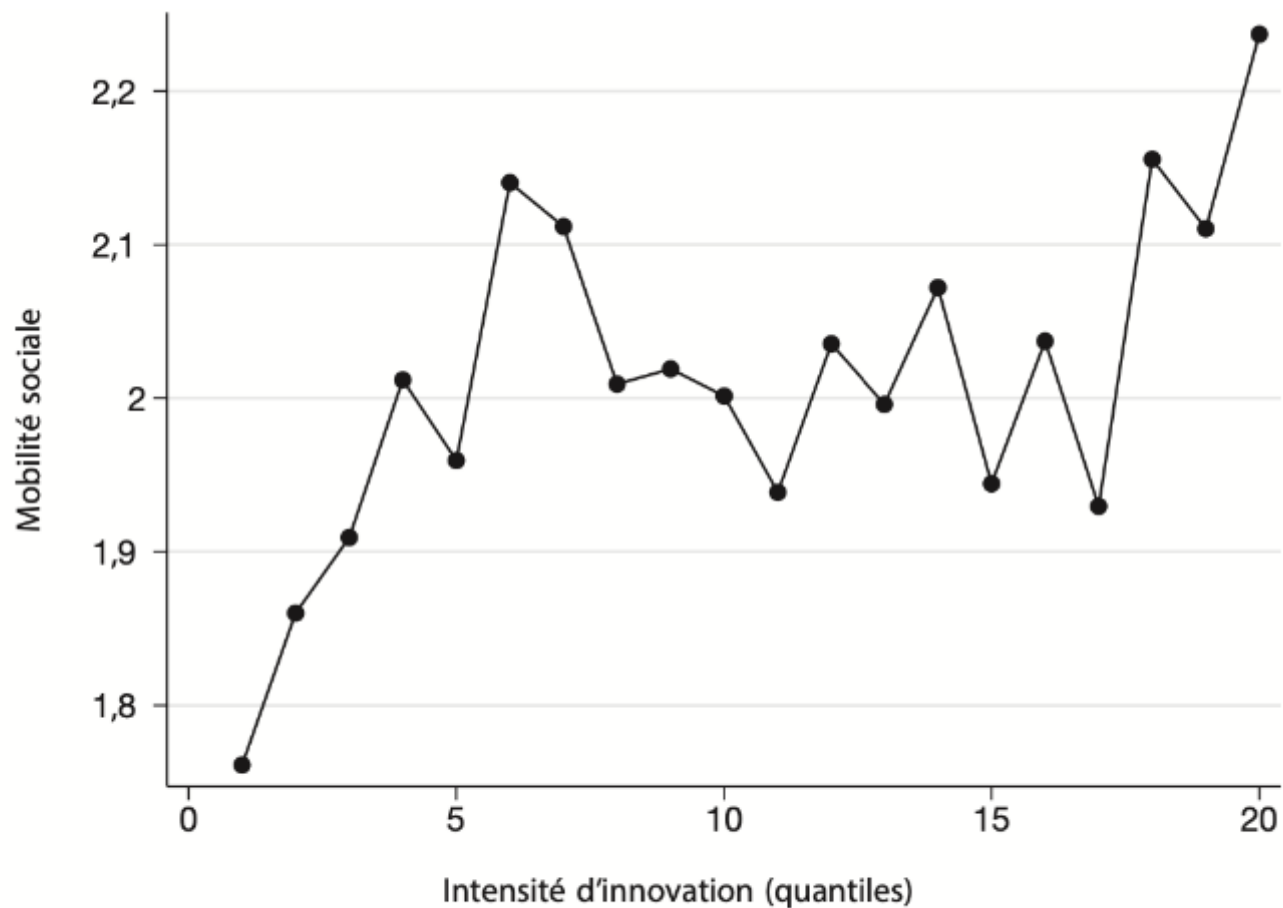
Controlling for 4-digit industry by year F.E. and HS6 product F.E.

# SALES



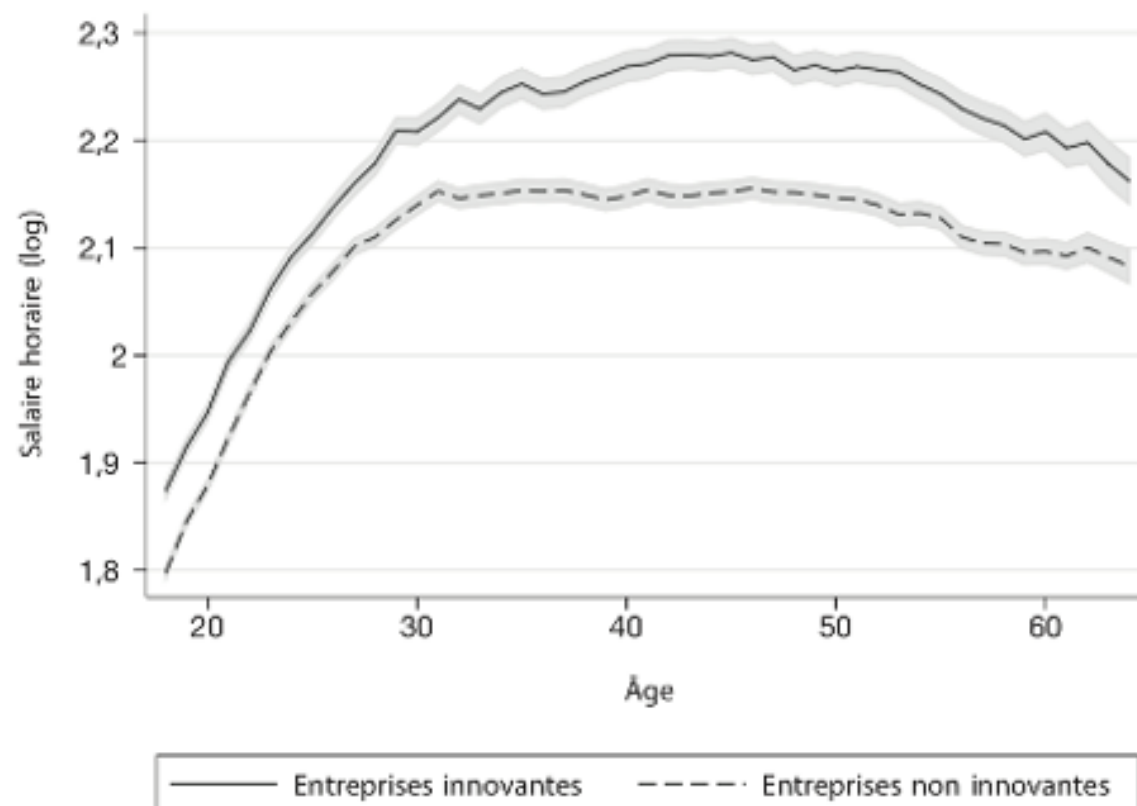
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**Figure 5.6.** Innovation et mobilité sociale.

*Source :* Aghion, Akcigit, Bergeaud, Blundell et Hémous (2019).

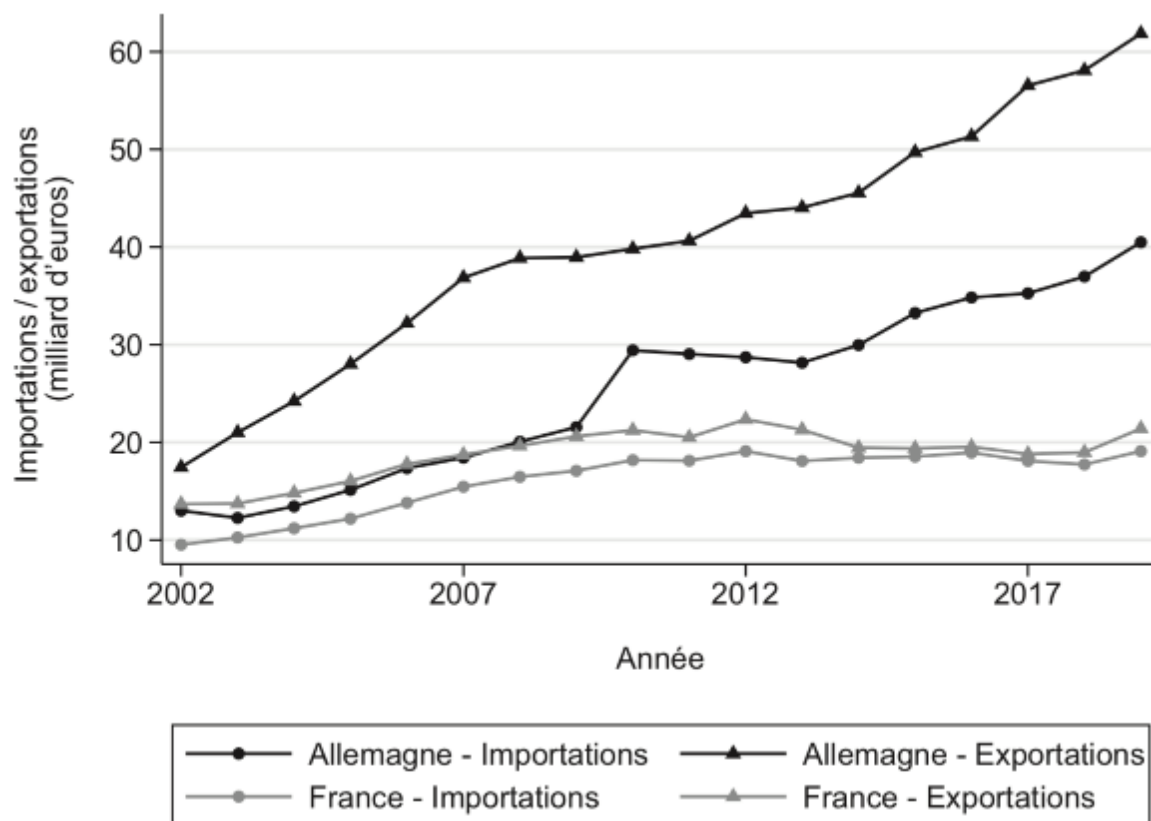


**Figure 5.7.** Salaire moyen des travailleurs peu qualifiés.

Source : Aghion, Bergeaud, Blundell et Griffith (2019).

# QUESTIONING COMMON WISDOMS

- Taxing robots protects employment
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- **Protectionnism is the way to regain control of value chains**
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Evolution des importations et exportations de produits destinés à la lutte contre le Covid-19

## Technologies Médicales et Pharmaceutiques



Note: Distance de la France au leader en terme de brevets triadiques par habitant.

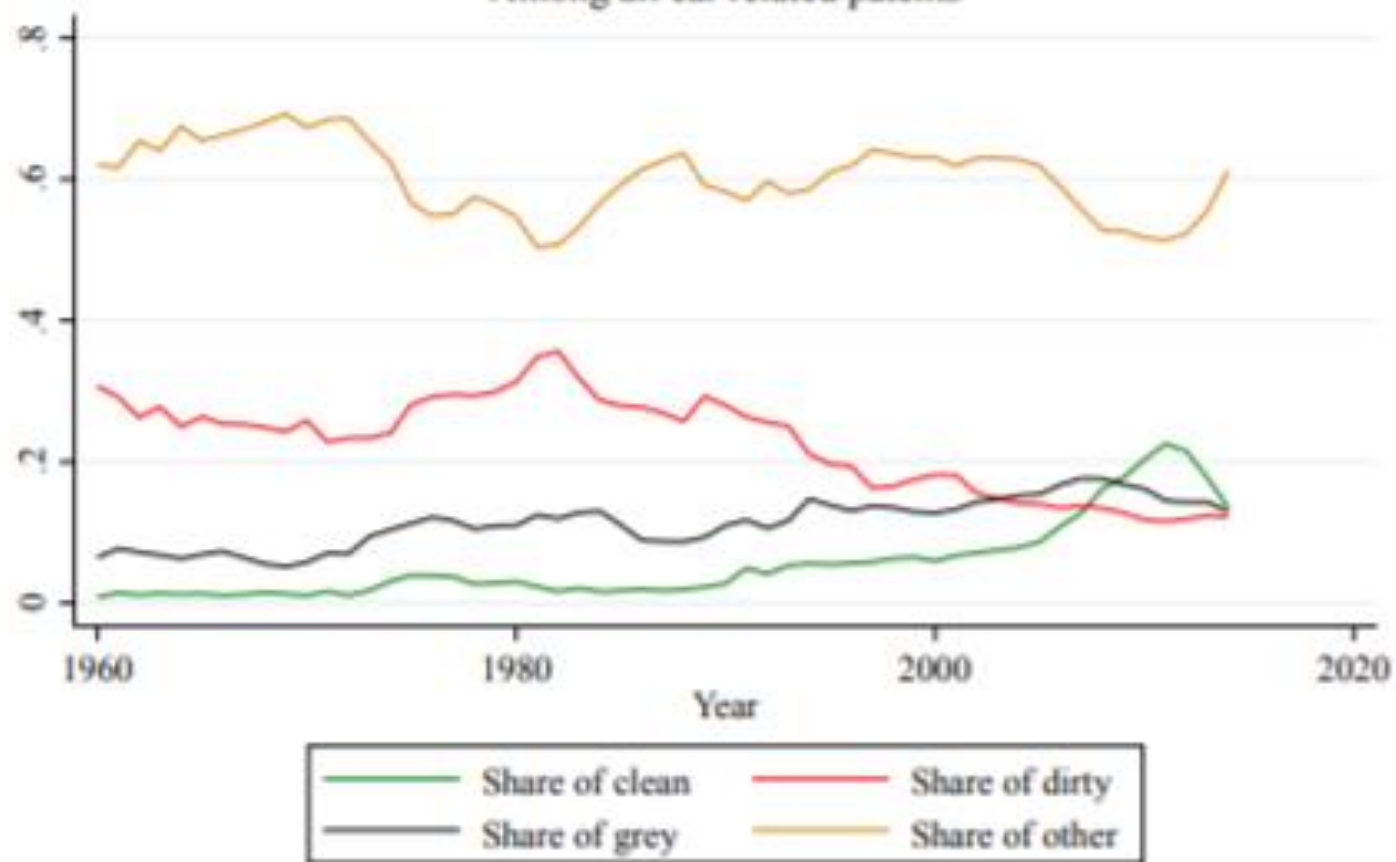
Diagnosis/Surgery (A61B), Drugs for medical/dental purposes (A61C), sterilization (A61L)

Medical Devices (A61M) Radiation Therapy and others (A61N), Chemical Therapy (A61P)

# QUESTIONING COMMON WISDOMS

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- **Zero or negative growth is the best response to the climate challenge**

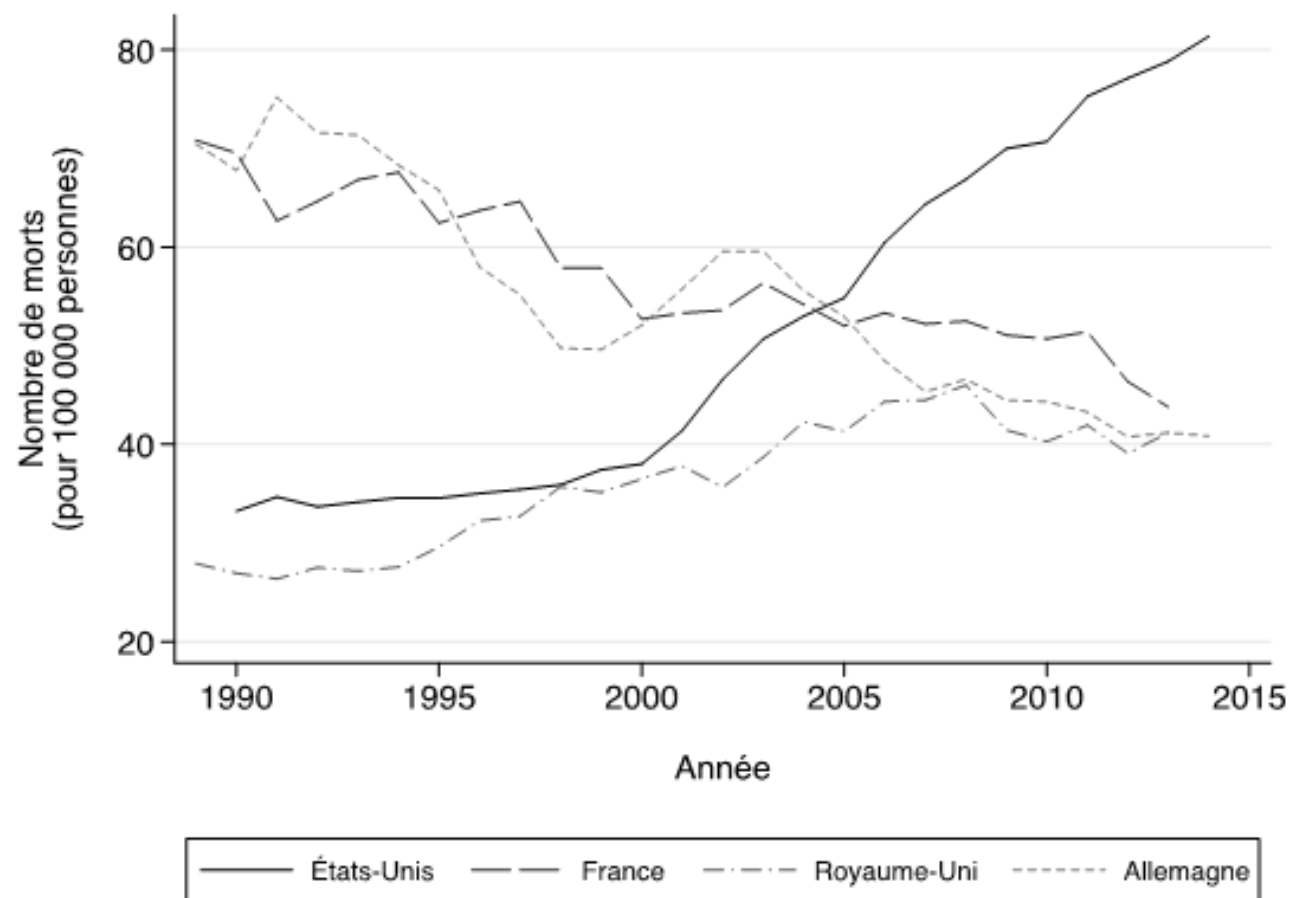
Share of clean, dirty, grey and other patents  
Among all car related patents



# RETHINK CAPITALISM

# **RETHINK CAPITALISM : COVID AS A REVELATOR**

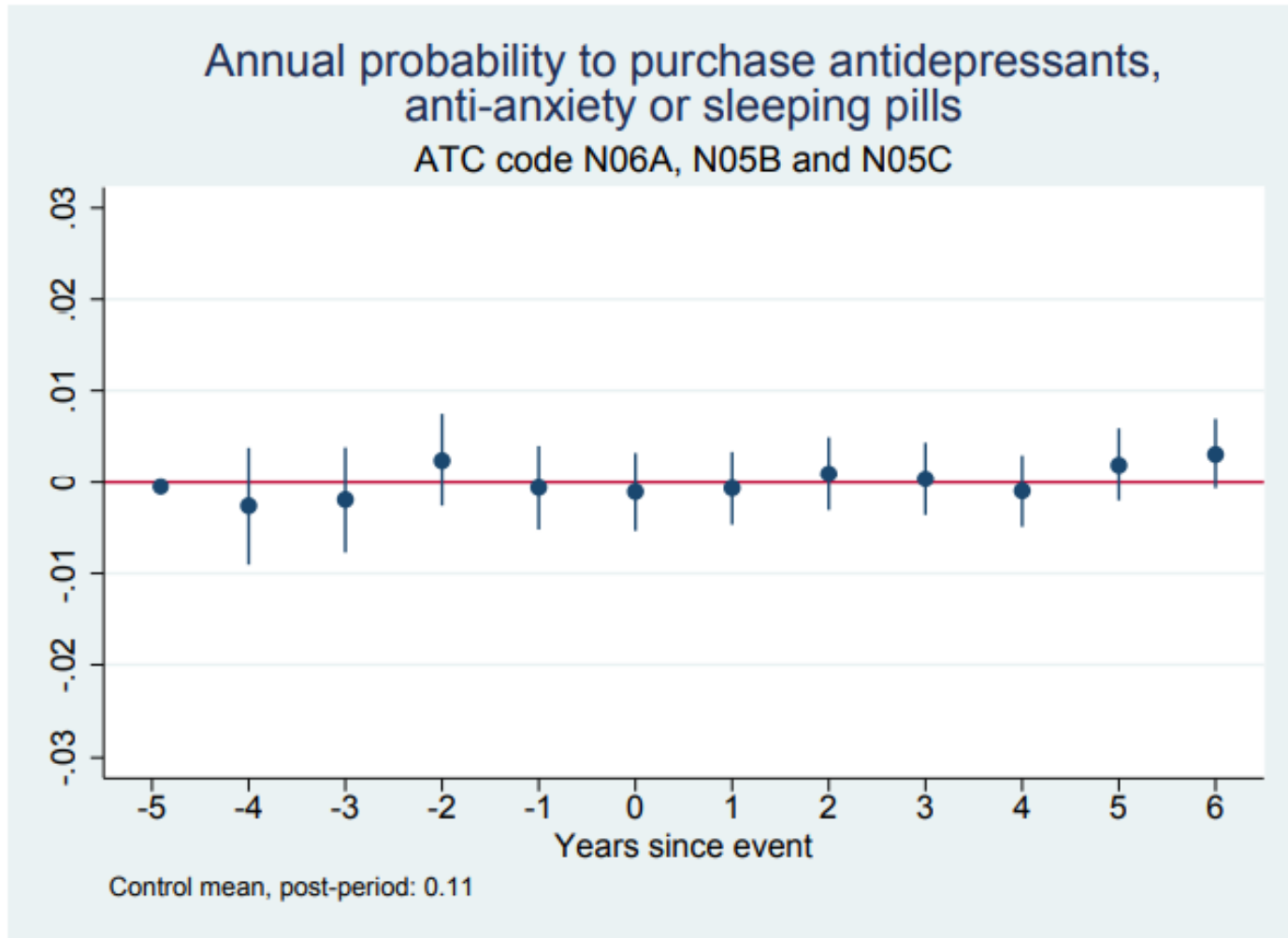
- Broken social model in the US
- European ecosystem does not favor innovation



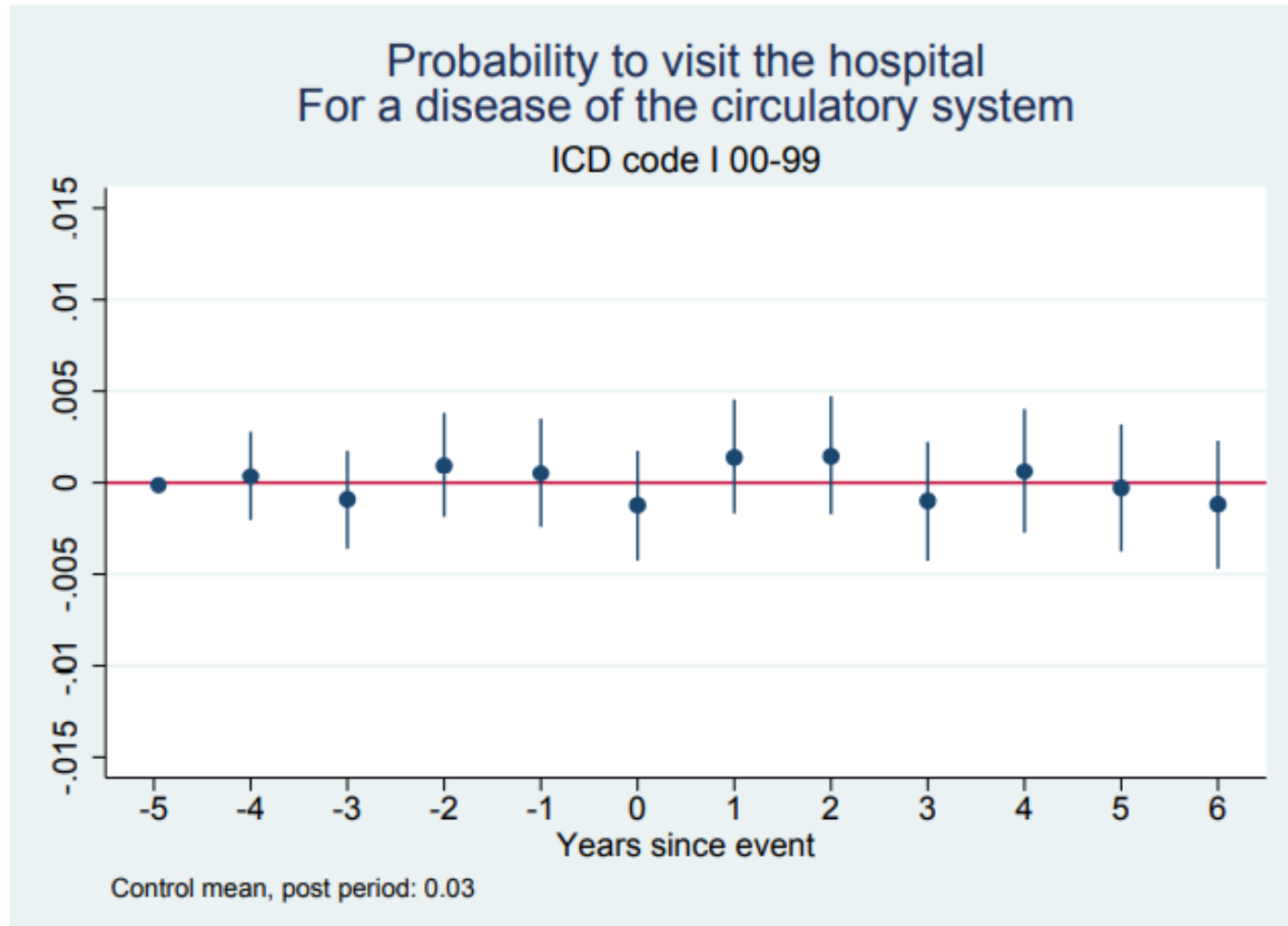
Source : D'après Case et Deaton (2017).

# **ALEXANDRA ROULET ON DENMARK**

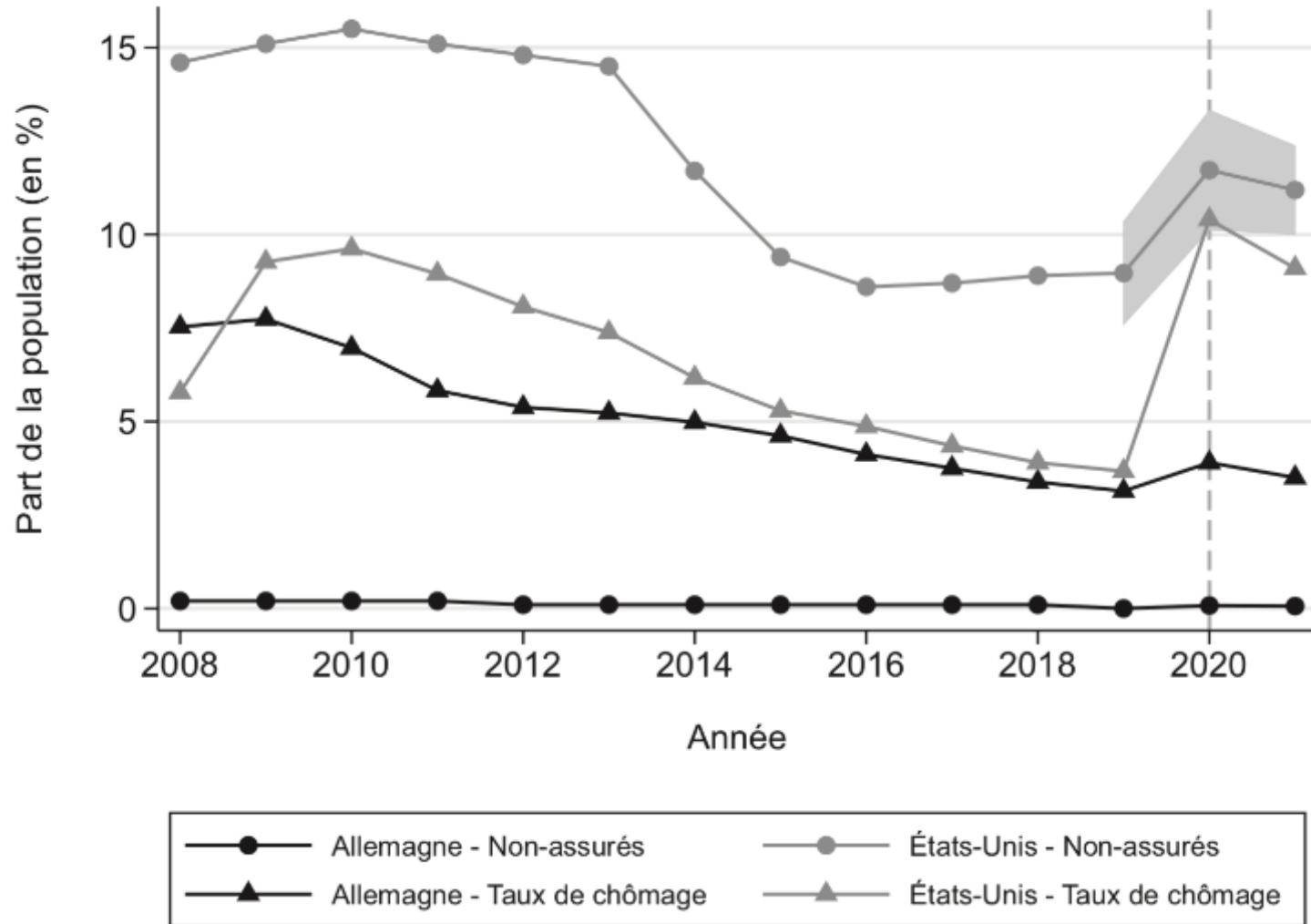
## Moving to health: Antidepressants and related drugs



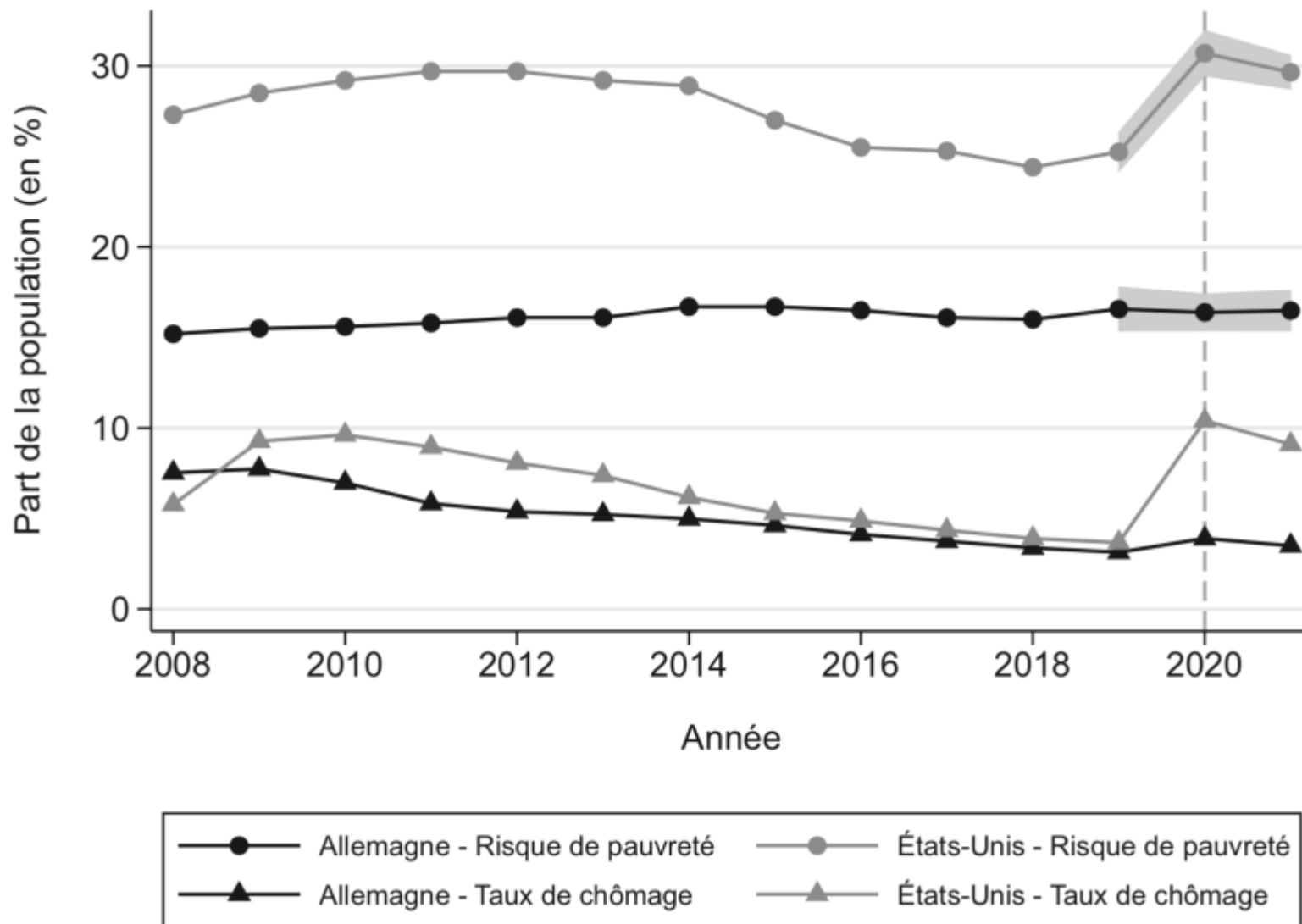
## Heart attacks



# COVID AS REVELATOR



# COVID AS REVELATOR



# COVID AS REVELATOR

Brevets en biotechnologies (pour 1 million d'habitants)

	2010	2011	2012	2013	2014	2015	2016
US	10.37	10.56	10.84	12.25	11.74	12.71	12.77
EU27	5.12	5.19	5.02	4.87	5.13	5.02	4.67
OECD - Total	6.69	6.75	6.69	7.11	7.17	7.47	7.48
China	0.23	0.25	0.25	0.31	0.34	0.42	0.49

*Source:* Authors' calculations using OECD data.

*Notes:* Reference country: Inventor's country of residence. Reference date: priority date.

# COVID AS REVELATOR

Mesures de la BARDA pour lutter contre le COVID-19

Type of Product	Total Award Amount (\$)	Total number of funded companies	Total number of funded products
Vaccines	10,799,025,489	7	7
Diagnostic	44,996,752	22	28
Therapeutics	991,702,154	9	9
Rapidly Deployable Capabilities	10,432,068	9	9
Other	37,333,253	4	4
<b>Total</b>	<b>11,883,489,716</b>		

# COVID AS REVELATOR

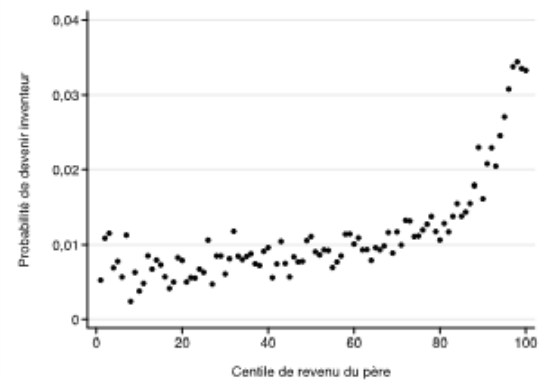
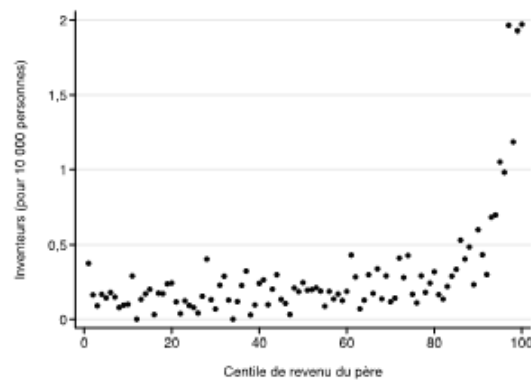
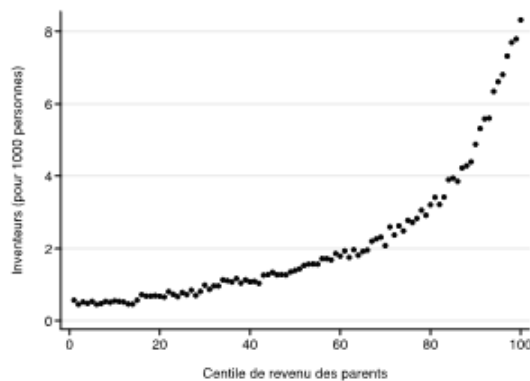
Financement de la Commission européenne et de la Banque européenne d'investissement

<b>Funding Purpose</b>	<b>Amount (USD)</b>
<b>European Commission</b>	
R&D	1,081,600,000
Preparedness and emergency response	217,107,249
Unallocated	436,667,248
Vaccine development	109,166,812
<b>Total EC</b>	<b>1,844,541,309</b>
<b>European Investment Bank</b>	
Manufacturing and delivery of therapeutics	63,316,751
Manufacturing and delivery of vaccines	91,700,122
Preparedness and emergency response	2,025,044,367
<b>Total EIC</b>	<b>2,180,061,240</b>

Source: Authors' calculations using data from the COVID-19 Health Funding Tracker, from The Economist.

# RETHINK CAPITALISM

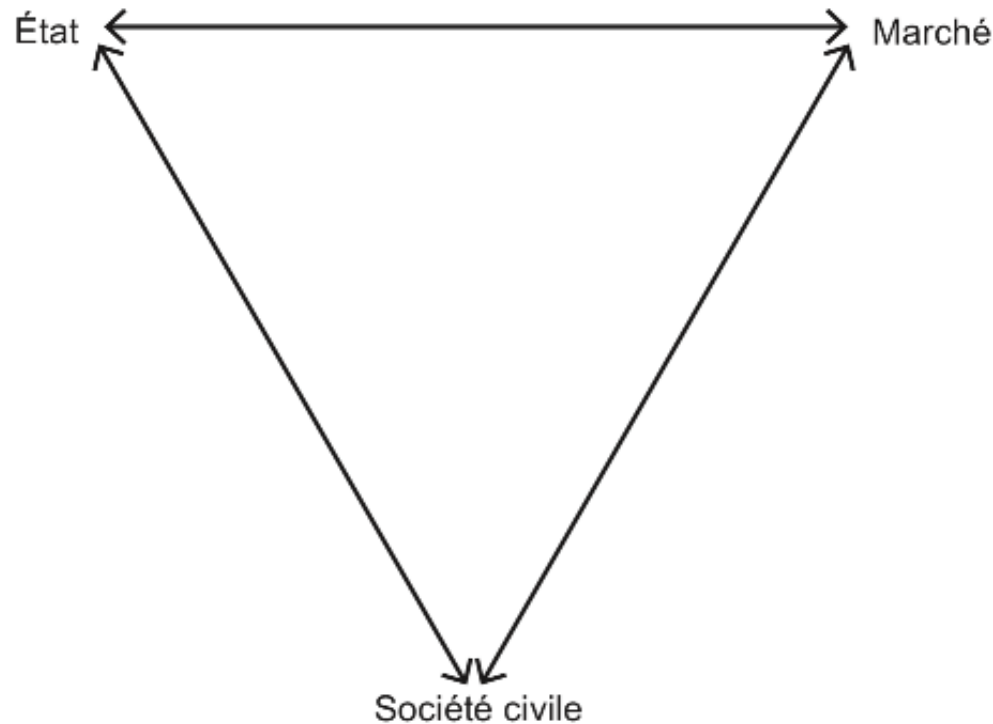
- Combine good side of American model (innovation) with good side of European model (protection)
- No trade off, rather, complementarity!!
  - Flexsecurity
  - Education and lost Einsteins



Sources : Bell, Chetty, Jaravel, Petkova et Van Reenen (2019) ; Akcigit, Grigsby et Nicholas (2017) ; Aghion, Akcigit, Hyytinen et Toivanen (2017).

# RETHINK CAPITALISM

- Magic triangle: Firms/Market – State – Civil Society (Bowles and Carlin):



# RETHINK CAPITALISM

- Constitutions are incomplete contracts (Aghion-Bolton, 2003; Aghion-Alesina-Trebbi, 2004)
- Civil society plays a crucial role as a means of ensuring the effective implementation of constitutional contracts
- The Fight for Civil Rights in the US

# OUTLINE

1. Paradigm
  2. Take off
  3. Technological waves
  4. Competition
  5. Inequality
  6. Secular stagnation
  7. Middle income trap
  8. Structural change
  9. Green innovation
  10. Behind the scene
  11. Creative destruction, health and happiness
  12. Financing creative destruction
  13. Globalization
  14. Emergence of Investor-State and Insurer-State
  15. The magic triangle between firms, the state, and civil society
- Conclusion: the future of capitalism

**Thank you !**