Rethinking competition policy and industrial policy

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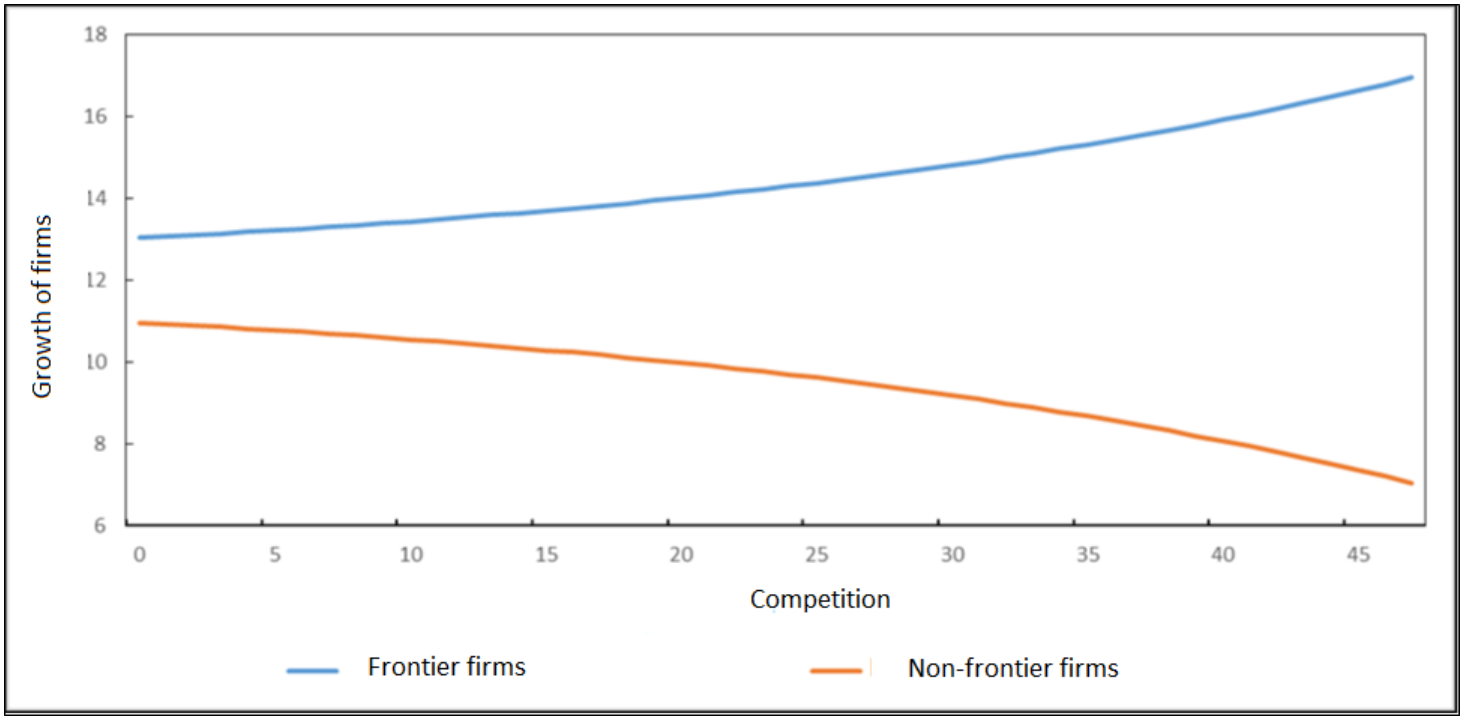
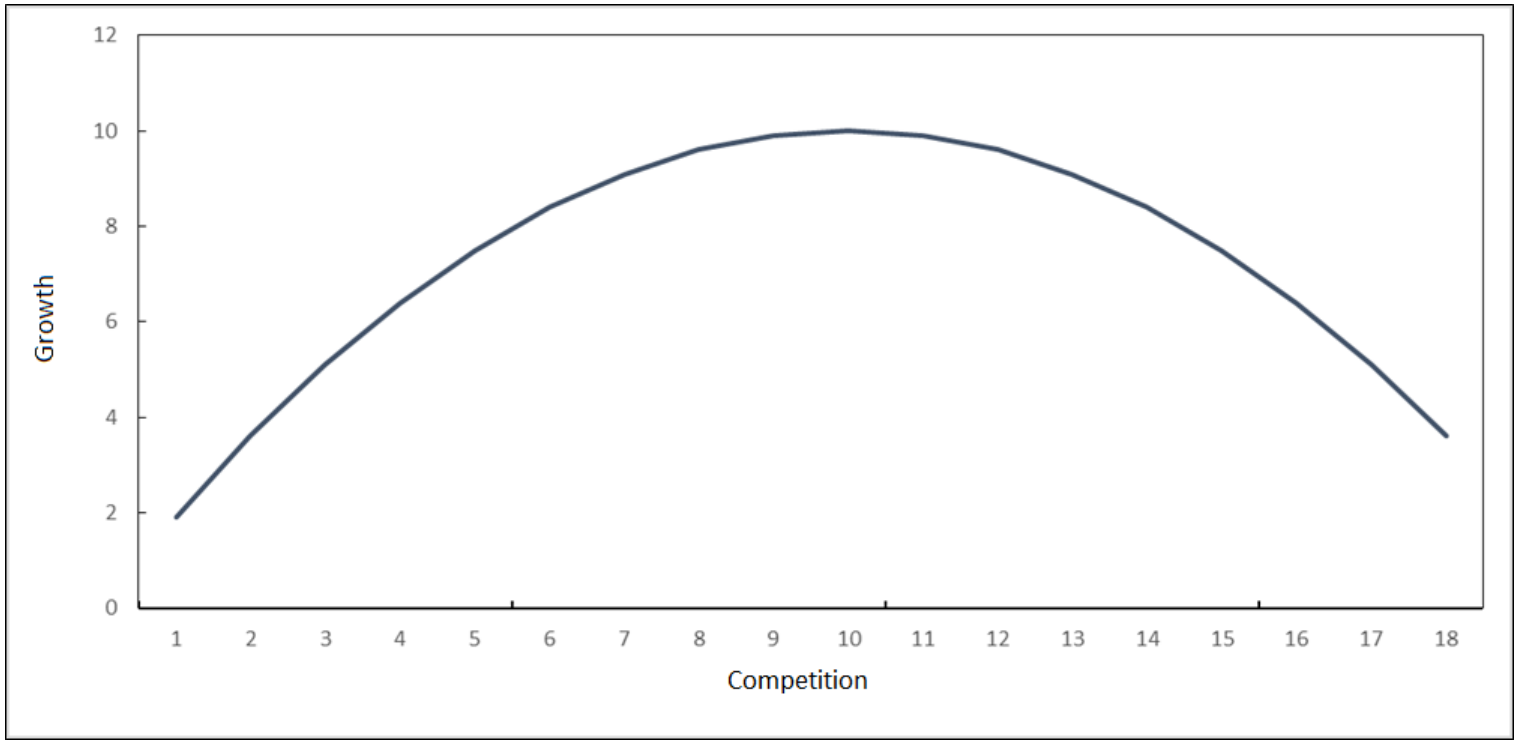
Schumpeterian growth theory

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

Competition, growth and distance to frontier



Competition and growth: the inverted-U relationship



Questions

- Why and how should we reform competition policy?
- Why and how do we need industrial policy?

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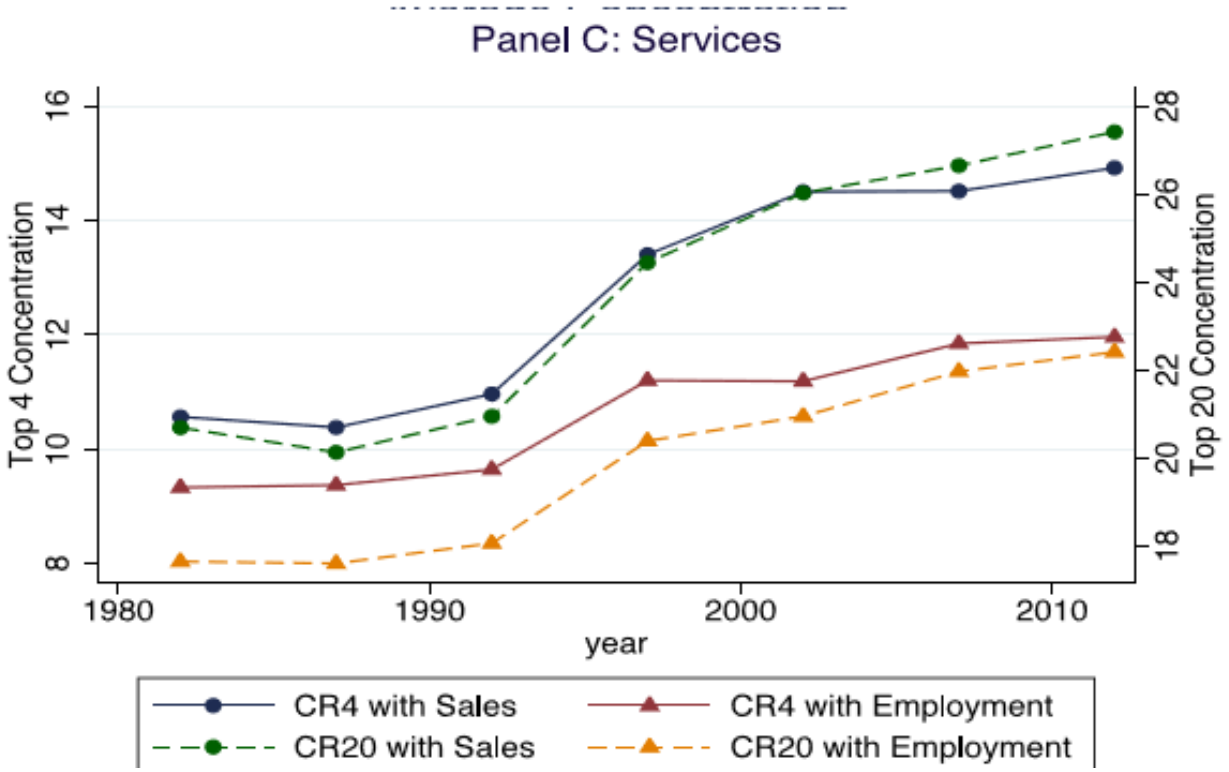
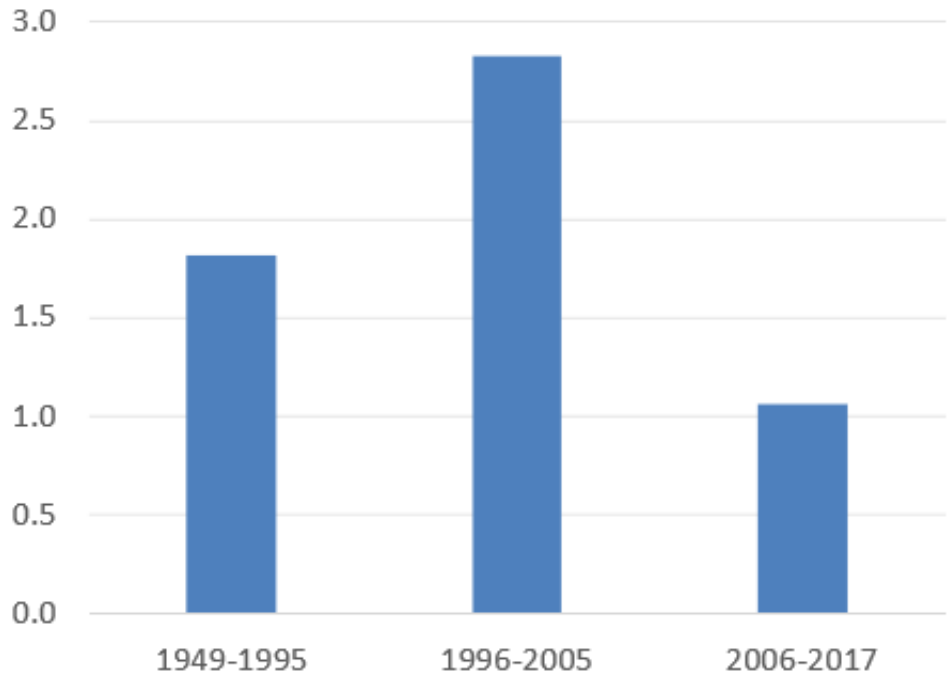
- Why and how do need industrial policy?

Rising Concentration in Services



Rise and Decline in TFP Growth



Candidate explanations

- Deterioration of competition policy (Philippon)
- Competition policy did not properly adapt to IT digital revolution

Problems with Philippon's explanation

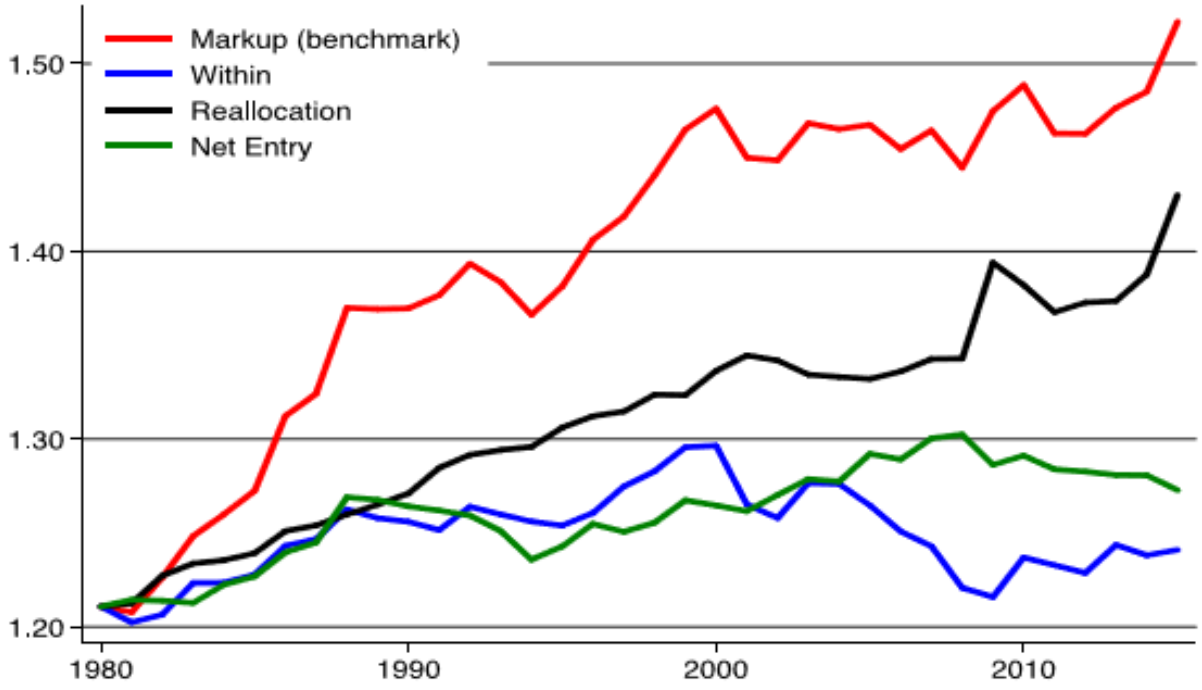
- Does not explain the growth upsurge in 1995-2005 at a time where concentration was already increasing at accelerated rate
- Cannot explain why fall in labor share and rise in markups is not so much within firms but rather between firms

Declining Labor Share (mostly due to composition)

Cumulative change over specified period (ppt)

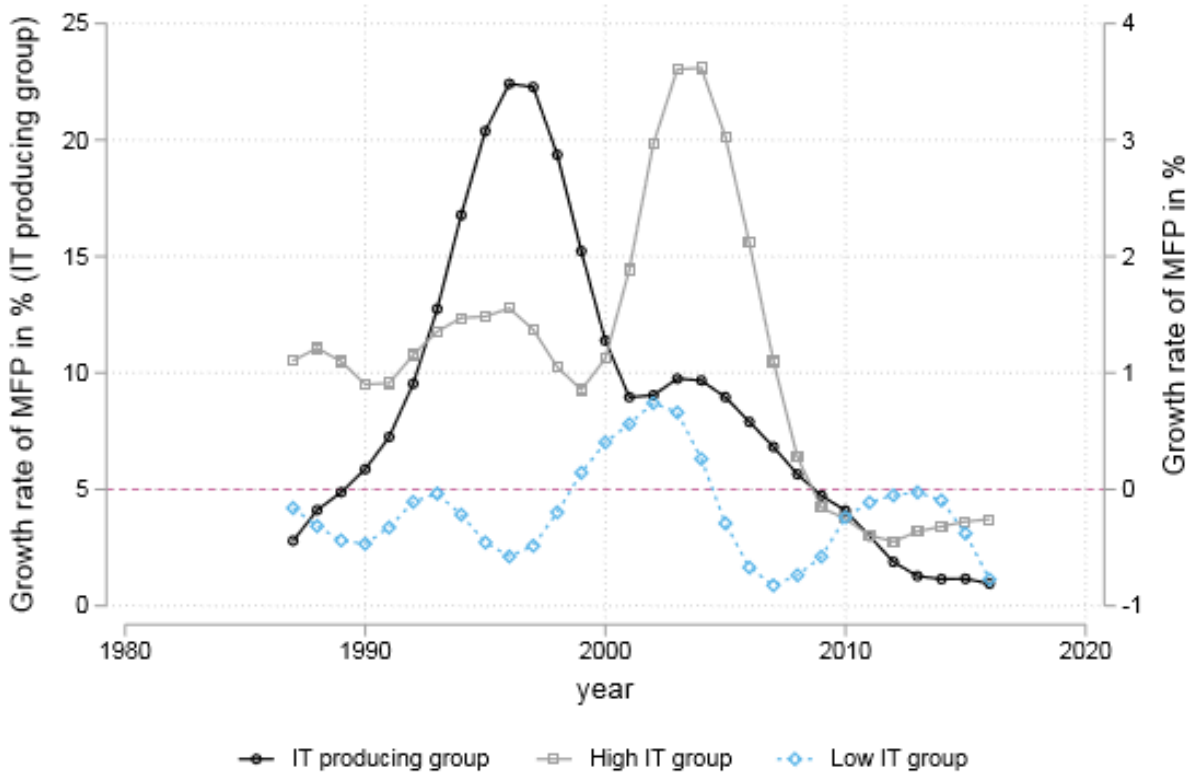
	1982–2012				92–12	92–07
	MFG	RET	WHO	SRV	FIN	UTL
$\Delta \frac{\text{Payroll}}{\text{Sales}}$	-7.01	-0.79	0.19	-0.19	3.25	-1.89
within	-1.19	3.74	4.01	2.43	6.29	0.58
between	-4.97	-4.03	-4.38	-0.44	-3.62	-2.39

Within firm markups

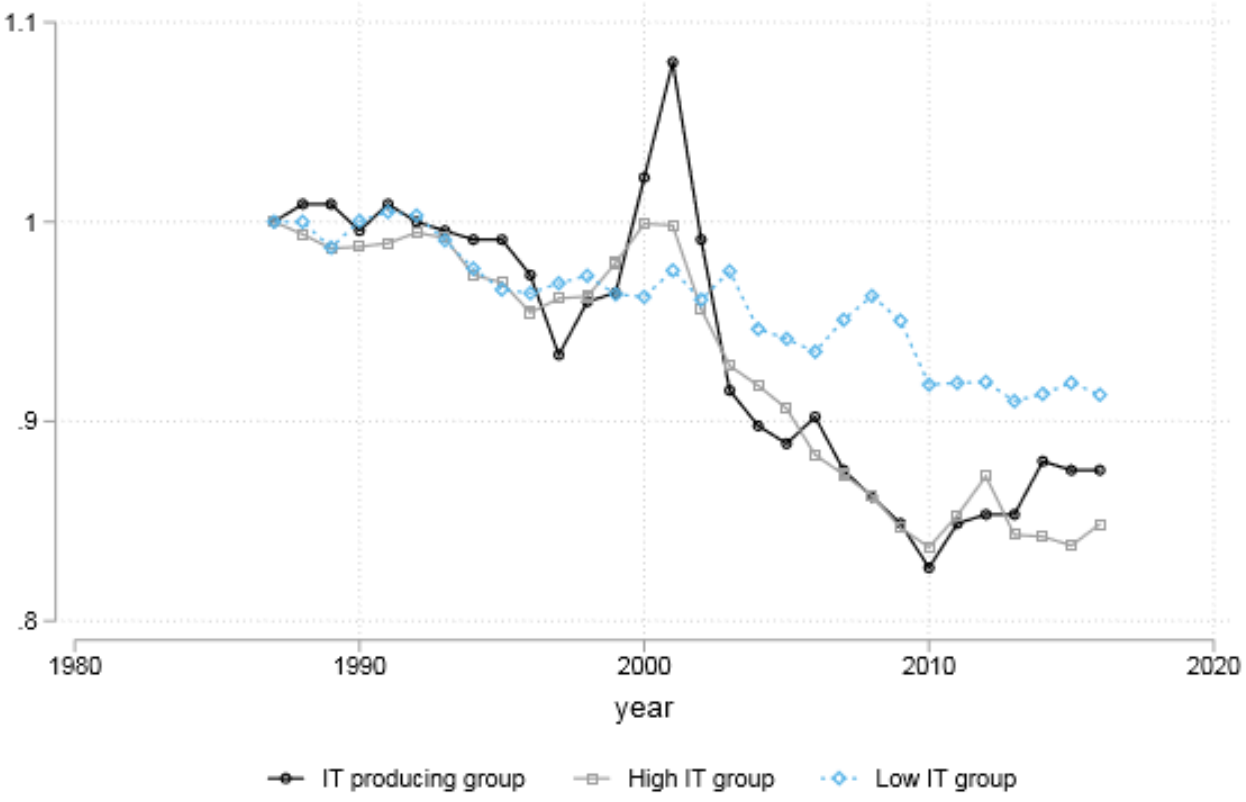


Source: De Loecker, Eeckhout and Unger (2018).

TFP Growth by IT intensity



Labor share by IT intensity



Hence

- Adapt competition policy to IT and digital revolutions
- « Competition Policy for the High-Technology economy », Richard Gilbert, MIT Press, 2020
- Take a more dynamic approach to competition policy, taking entry and innovation, and market contestability or the lack of it, better into account;

Questions

- Why and how should we reform competition policy?
- **Why and how do we need industrial policy?**

Introduction

- Particularly since the 1980s, economists have come to dislike industrial policy
- It focuses on big incumbents (‘national champions), thereby stifling competition
  - Anne Krueger
  - Acemoglu et al
- Governments are not great at ‘picking winners’.
  - Veolia - Suez

Introduction

- How to govern industrial policy and make it more competition-friendly?
  - Nunn-Trefler
  - Aghion et al
  - DARPA

DARPA

- In some areas (clean energy, défense), hard to move from fundamental research stage to implementation and commercialization…..
- ….due to coordination problems!
- …*S-curve* dilemma: the basic technology exists but remains embryonary

DARPABLE projects

- Research can be organized around a mission
- Mid-way between lab and application (nascent S-curve)
- Frictions prevent financing and large-scale experimentation of the technology

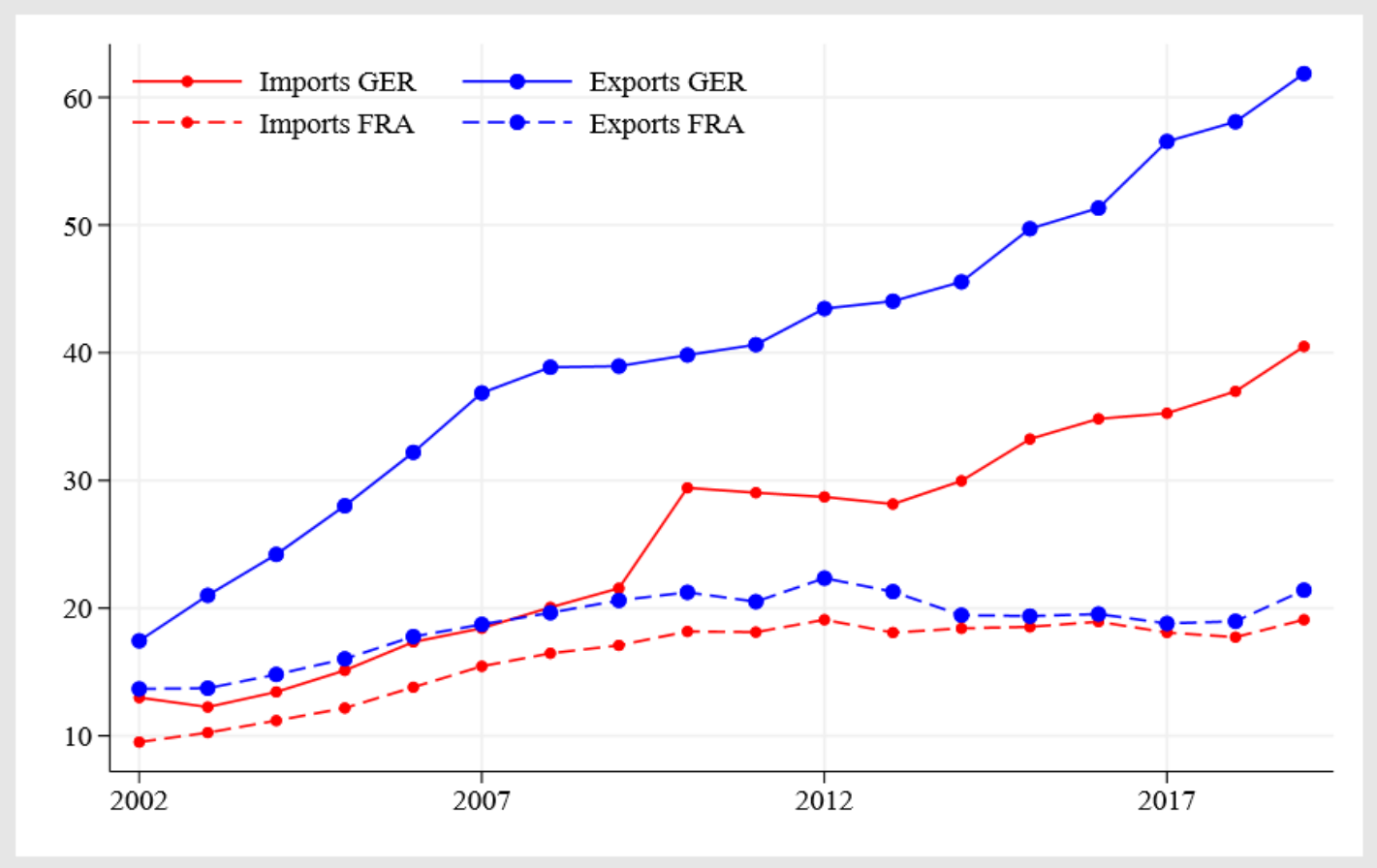
Governance of DARPA

- Mixture of top down and bottom up
- Missions operated by autonomous program heads hiered for a 3 to 5 year period
- The heads can freely team up start-ups, university labs, and large industrial firms

DARPA in the US

- Annual budget of around 3 billion dollars spread over ~ 100 projects
- DARPA played a key role to help develop high risk/high fixed cost projects such as:
  - GPS
  - Internet
  - Navigation autonome
  - Laser
  - Personal computers
  - Energy transition

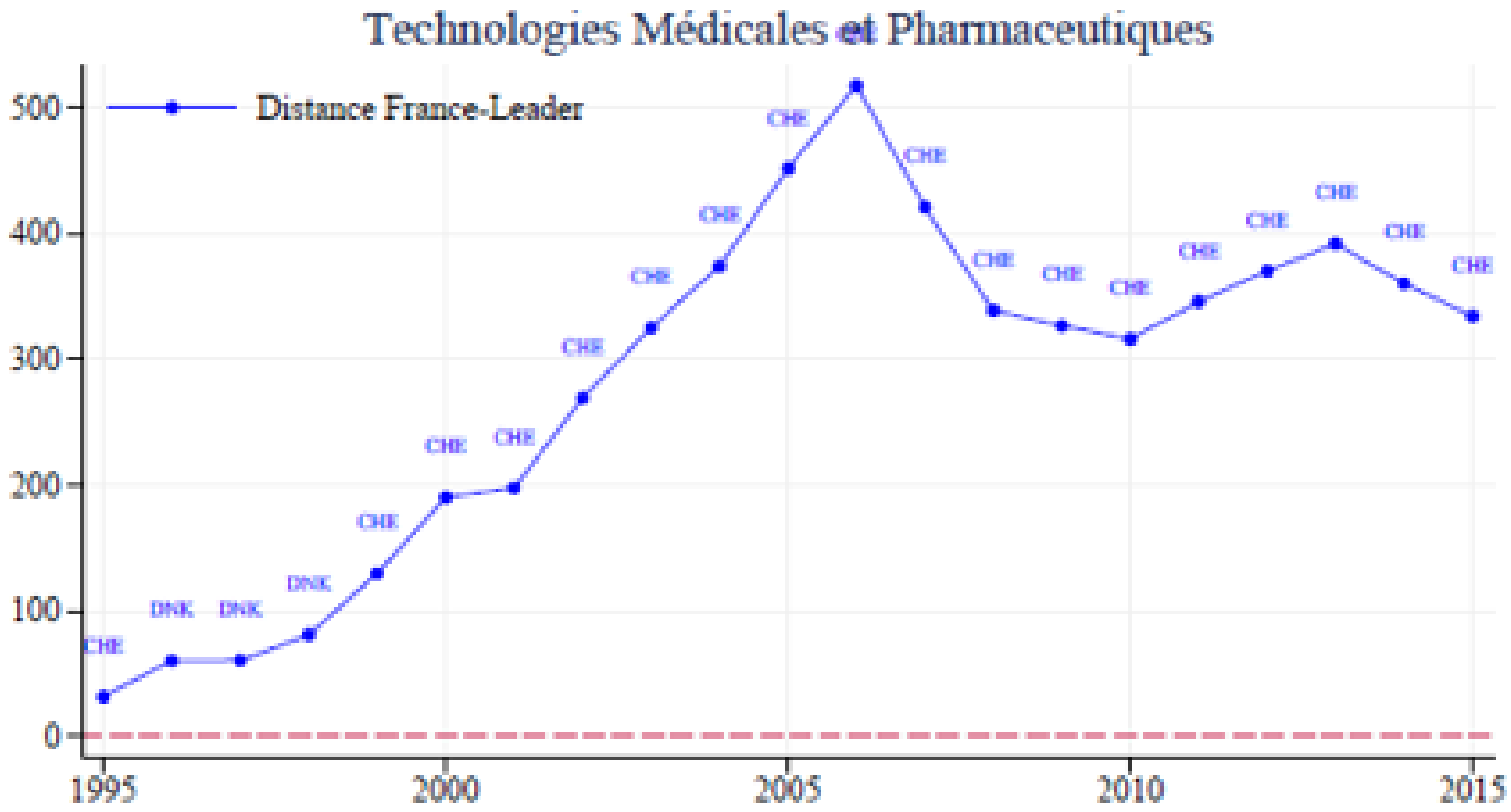
Example 1: COVID

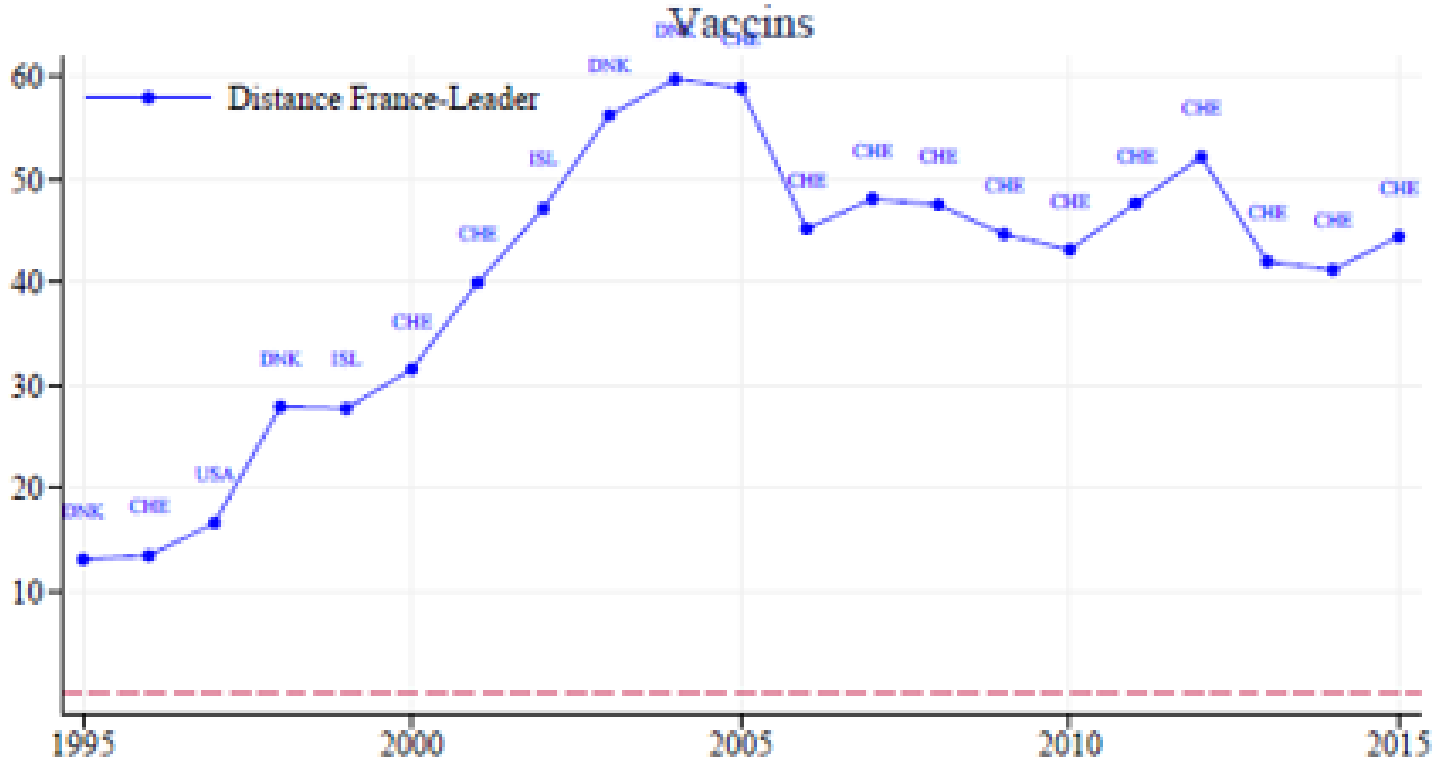

Imports GER
Exports GER
Imports FRA
Exports FRA
60
50
40
30
20
10
2002
2007
2012
2017


No Data
0%
~0%
10%
20%

Table 1: Descriptive Statistics:

Country	Cum Cases per 100k	Cum Deaths per 100k	Cum Tests per 100k	Net exports (2019, euro/pop)	CTScans (Total)	CTScans in Hosp	Curative Beds	Pop over 60 (%)
Austria	175.8	6.8	3460.9	84	2.86	1.75	544.7	29
Belgium	453.8	74	2337	128		2.30	500.45	28
Croatia	53	2.1	1077.2	21	1.79	1.33	350.5	32
Czechia	75.6	2.6	2788.8	-58	1.58	1.43	410.89	29
Denmark	181.6	9.1	5334.7	-45	3.97	3.95	253.62	29
France	270.8	40.3	1110	-35	1.74	1.23	309.01	29
Germany	204.5	9	3289.1	132	3.51	1.92	601.5	33
Greece	26	1.4	863.9		3.42	1.44	360.28	32
Hungary	33.3	4.2	1068.9	18	0.92		427.09	30
Italy	361	50.3	4158.4	-5.3	3.47	2.52	262.47	33
Lithuania	53	1.8	6625	72	2.33	1.84	547.2	30
Netherlands	248.5	31.8	1223.9	138	1.35	1.30	292.14	29
Poland	41.4	2.1	1217.2	-16	1.69	1.36	485.14	27
Portugal	268.8	11	5076.6	-36		2.38	324.72	32
Romania	78.7	4.9	1289.4	-29	1.40	0.78	525.33	29
Spain	478.2	56.6	4063.7	-45	1.86	1.64	242.61	28
Sweden	256.7	31.9	1470.4	48		1.85	203.6	29
UK	319	46.6	2546.1	-9.5			211.4	27


Technologies Médicales et Pharmaceutiques
Distance France-Leader
500
400
300
200
100
0
1995
2000
2005
2010
2015
CHE
DNK
Note: Distance de la France au leader en terme de brevets triadiques par habitant.
Diagnosis/Surgery (A61B), Drugs for medical/dental purposes (A61K), sterilization (A61L)
Medical Devices (A61M) Radiation Therapy and others (A61N), Chemical Therapy (A61P)



Note: Distance de la France au leader en terme de brevets triadiques par habitant.
A61K038 A61K039 A61K048 A61P031/16 A61P037 C12N015 C12N007 C12Q001/70
C12N005/10 C07K014/11 C07K014/005 C07H021 C07K019 G01N033/569

Table 1: Biotechnology patents by 1m inhabitants

	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: Own calculations using OECD data. Reference country: Inventor's country of residence. Reference date: priority date.

Table 2: BARDA's COVID-19 Medical Countermeasure Portfolio

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
Total	**11,883,489,716**		

Source: Our calculations based on https://medicalcountermeasures.gov/app/barda/coronavirus/COVID19.aspx.

Table 4: Funding from the European Commission and the European Investment Bank

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

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

Example 2: Climate

Climate

- Three main levers:
  - Carbon price
  - Industrial policy
  - Competition

VARIABLES	(1) log (1+ #clean) - log (1+ #dirty)	(2) log (1+ #clean)	(3) log (1+ #dirty)
Values	0.148***	0.0387	-0.109***
	(0.0286)	(0.0243)	(0.0239)
Competition	0.173	0.431***	0.258**
	(0.171)	(0.147)	(0.132)
ValuesXCompetition	0.0316**	0.0284**	-0.00314
	(0.0145)	(0.0124)	(0.0118)
Log fuel price	0.597***	0.454***	-0.143
	(0.171)	(0.149)	(0.154)
Observations	17,124	17,124	17,124
R-squared	0.123	0.180	0.026
Number of firms	8,562	8,562	8,562

Conclusion

- Need both, competition policy and industrial policy for enhancing innovation based growth
- Competition policy needs to be adapted to IT and IA revolutions: more dynamic approach to competition policy
- Industrial policy is also needed, but has to be better governed and reconciled with competition