

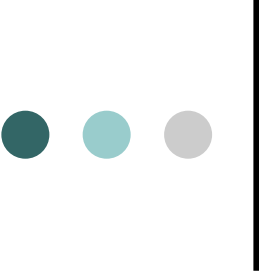
What drives innovation and growth?

Philippe Aghion



Schumpeter's insights

- Innovation is driven by entrepreneurial investments (R&D...) which are themselves motivated by the prospect of monopoly rents
- New innovations drive out old innovations (creative destruction)

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- This has led to a new growth theory where features like property right protection, market flexibility, education,... affect innovation and growth through their effects on the monopoly rents to innovators.

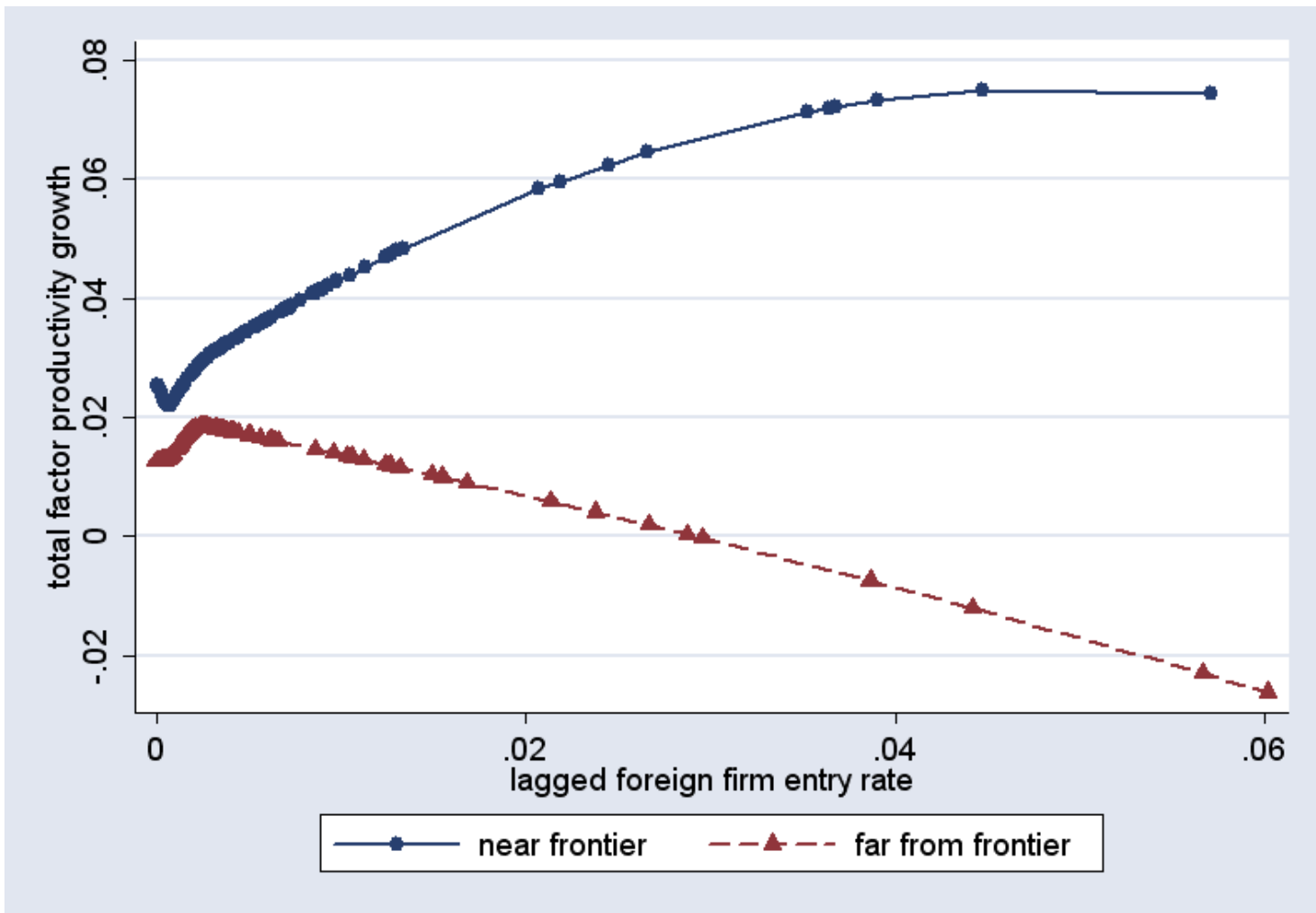


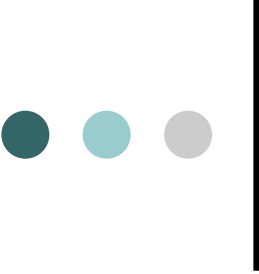
But this new growth approach
has also led to fallacies....



Fallacy 1: Washington consensus

- Innovation and growth in all countries should benefit from the same institutions and policies
- However, the growth effects of policies are heterogeneous across countries and sectors....





Other example: education and growth across US states

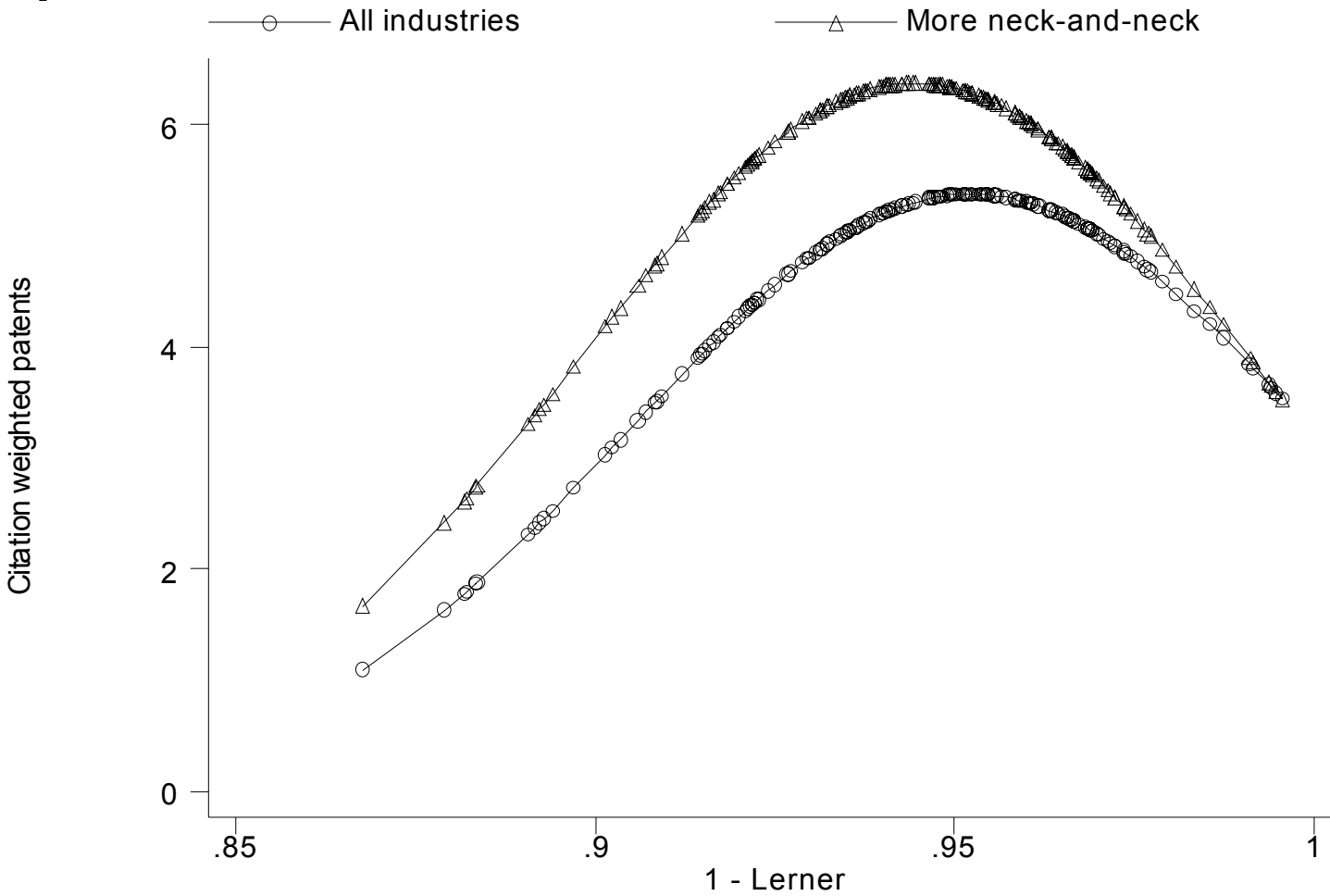
...we find that investments in high-brow education are more growth-enhancing in US states closer to technological frontier, and the effects are large

\$1000/person on research-type education in an at-the-frontier state raises the growth rate by 0.27 percentage pts, but raises it only 0.09 percentage pts for a far-from frontier state



Fallacy 2: Competition and entry are bad for innovation

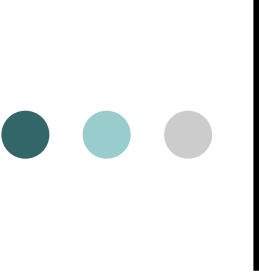
- However entry enhances innovation in more advanced sectors
- Inverted-U relationship between competition and growth





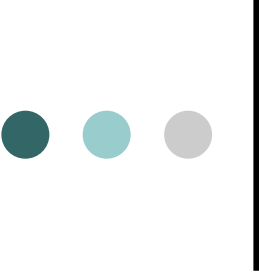
Fallacy 3: Appropriability is always good for innovation

-however, recent empirical studies (e.g Murray-Stern (2005)) point to an “anti-commons” effect of privatizing a research line too early
- ...and current work with Josh Lerner suggests that research is narrower when done in private sector



Narrowness of patents citing papers produced in low and high VC years

	School's State	
Years VC level	High VC	Low VC
High	0.062	-0.001
Low	-0.038	-0.023



Fallacy 4: Only structural policies matter, not macropolicy

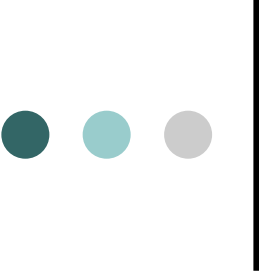
- However macroeconomic policy may help overcome obstacle in the implementation of structural reforms (e.g to compensate short-term losers)
- R&D, innovation and productivity growth react negatively to increased macroeconomic volatility



	Country f.e.		Year f.e.	Country year f.e.
	AR(1) (1)	10YRW (2)	AR(1) (3)	AR(1) (4)
lag(Procyclicality of government investment)	-0.239 (0.069)***	-0.043 (0.022)**	-0.064 (0.034)*	-0.180 (0.065)***
lag(Procyclicality of government consumption)	-0.058 (0.032)*	-0.038 (0.020)*	-0.014 (0.019)	-0.056 (0.030)*
lag(Private credit/GDP)	-0.017 (0.010)*	-0.022 (0.009)**	-0.007 (0.004)*	0.003 (0.010)
lag(Procyclicality of government investment*Private credit/GDP)	0.156 (0.043)***	0.029 (0.017)*	0.081 (0.034)**	0.164 (0.043)***
Observations	370	304	370	370
R-squared	0.30	0.26	0.43	0.53

Robust standard errors in parentheses

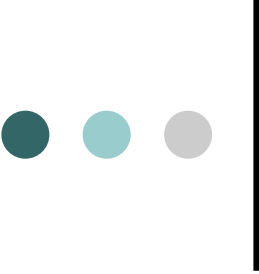
* significant at 10%; ** significant at 5%; *** significant at 1%

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- Maintaining public investment constant over the cycle in EMU zone would increase annual growth by 0.3% per year



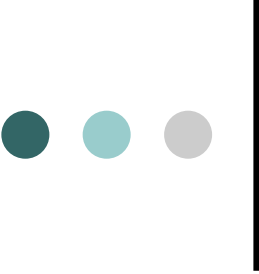
Fallacy 5: R&D subsidies are all what is needed

- Some countries believe wrongly that by just spreading R&D subsidies here and there, they will enhance growth
- But while R&D policy is important for stimulating productivity growth, in particular in Europe, getting our institutions and other policies (market liberalization, financial development, education,..) right is a precondition for success

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- Europe has always invested 0.5% less than US in R&D as percentage of its GDP, and yet ...Europe has grown faster than US during 30 years after WWII and slower than US since the mid 1990's...why??

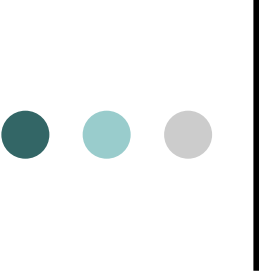


Three main lessons for innovation policy



Lesson 1: Locate the country or sector before making policy recommendations

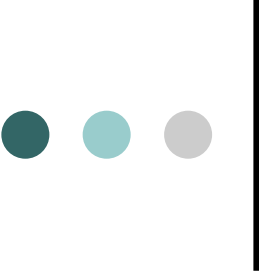
- Technological development
- Financial development
- Institutional environment



Lesson 2: For Western Europe: move to innovation-enhancing policies and institutions

- increase market flexibility
- invest more in higher education
- develop credit and capital markets

(credit constraints are the main obstacle
to entry and growth of firms)



Lesson 3: Macropolicy must be designed in order to maximize growth potential

- Importance of countercyclical budgetary policy to support innovation during recessions
- Macroeconomic support to structural reforms