

Trvalá udržitelnost v pojetí letošního nositele Nobelovy ceny Williama Nordhause

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- Profesor ekonomie na Yale University, nositel Nobelovy ceny z roku 2018
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Designing a friendly space for technological change to slow global warming

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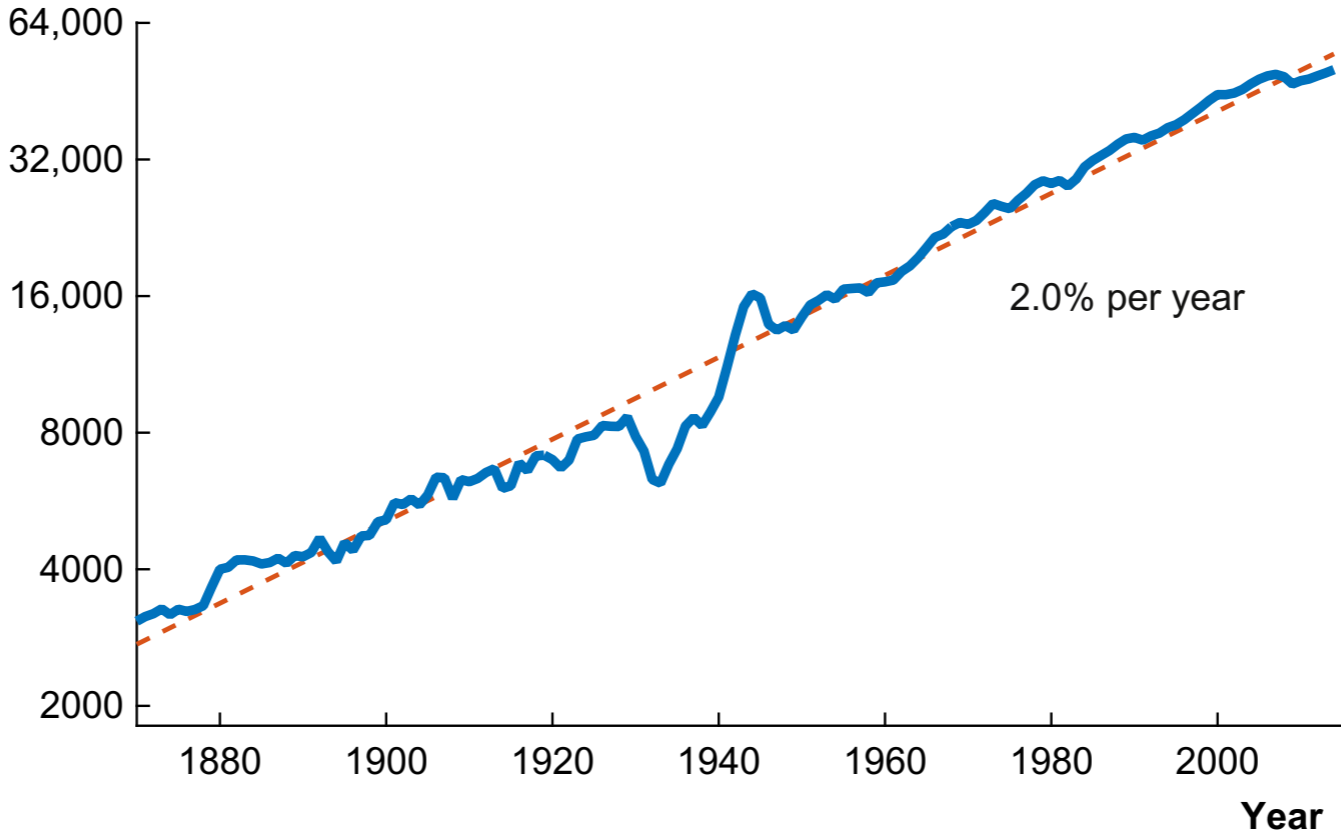
ABSTRACT

What is the best strategy to encourage research and development on new energy technologies in a market economy? What steps can ensure a rapid and efficient transition to an economy that has much lower net carbon emissions? This paper shows that, under limited conditions, a necessary and sufficient condition for an appropriate innovational environment is a universal, credible, and durable price on carbon emissions. Such a price would balance the marginal damages from carbon emissions against the marginal costs of abating emissions; it should not contain a correction factor for inducing technological change. This result, which the paper calls “price fundamentalism,” applies principally to the market-oriented part of research and innovation. It is subject to qualifications regarding the efficacy of intellectual property protection and the proper level of carbon prices, and it applies primarily to market sectors. The role of appropriate prices on emissions is a central part of public policies to encourage technologies to combat global warming.

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Economic Growth – U.S.A.

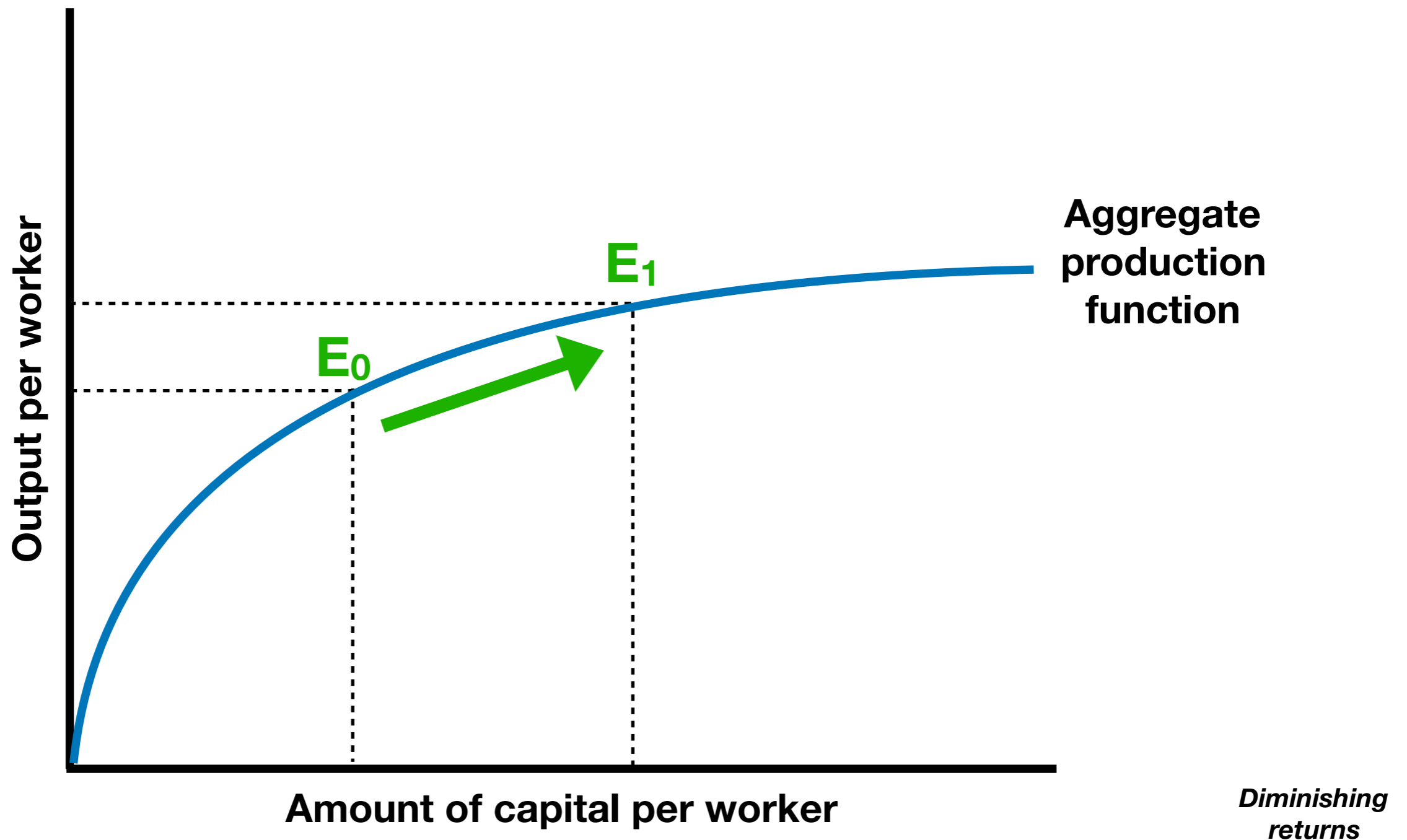
Log scale, chained 2009 dollars



Year	GDP per person	Growth rate	Population (millions)	Growth rate
1	590	—	19	—
1000	420	-0.03	21	0.01
1500	780	0.12	50	0.17
1820	1240	0.15	125	0.28
1900	3350	1.24	280	1.01
2006	26,200	1.94	627	0.76

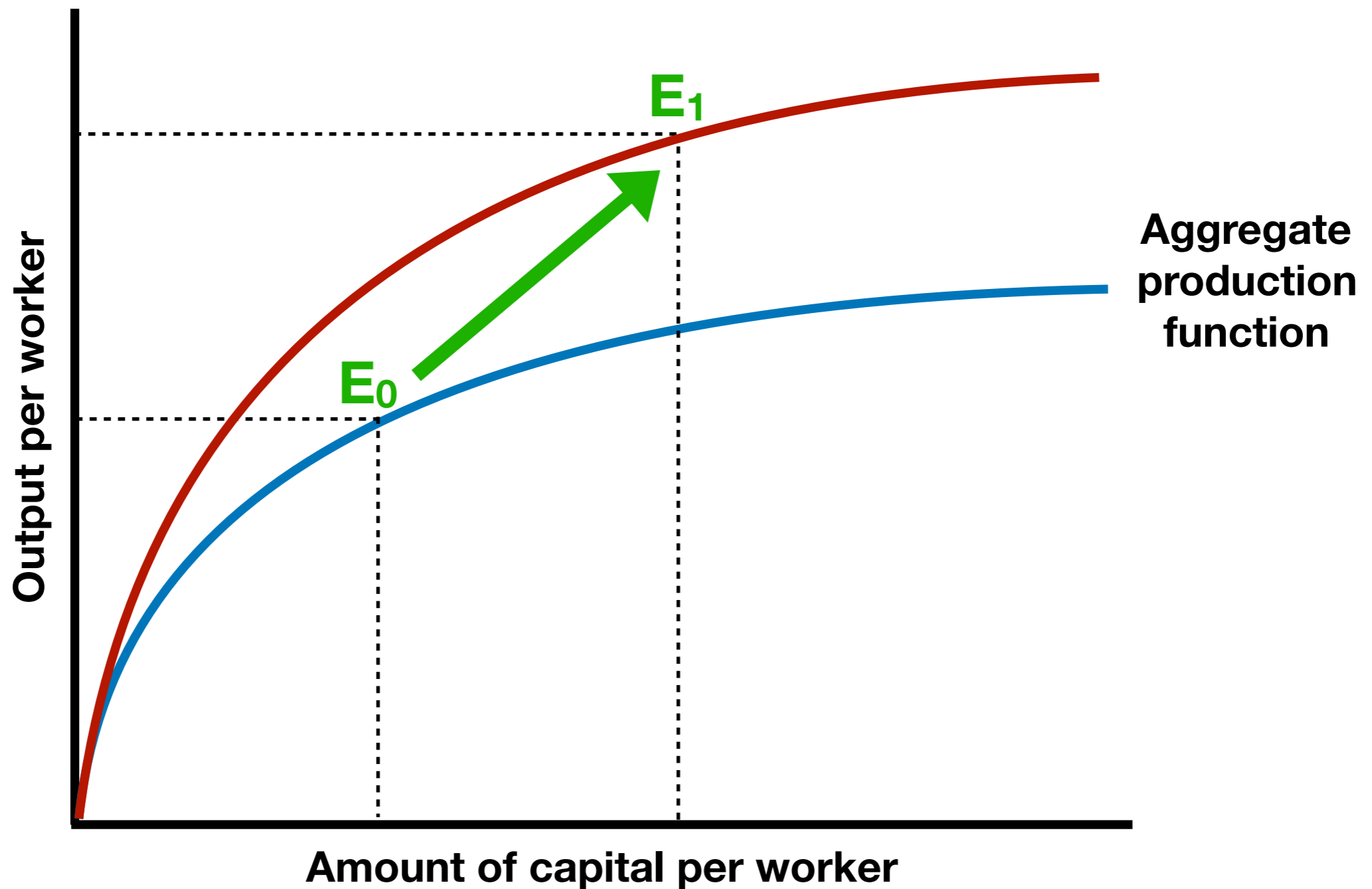
Four wheels of growth:

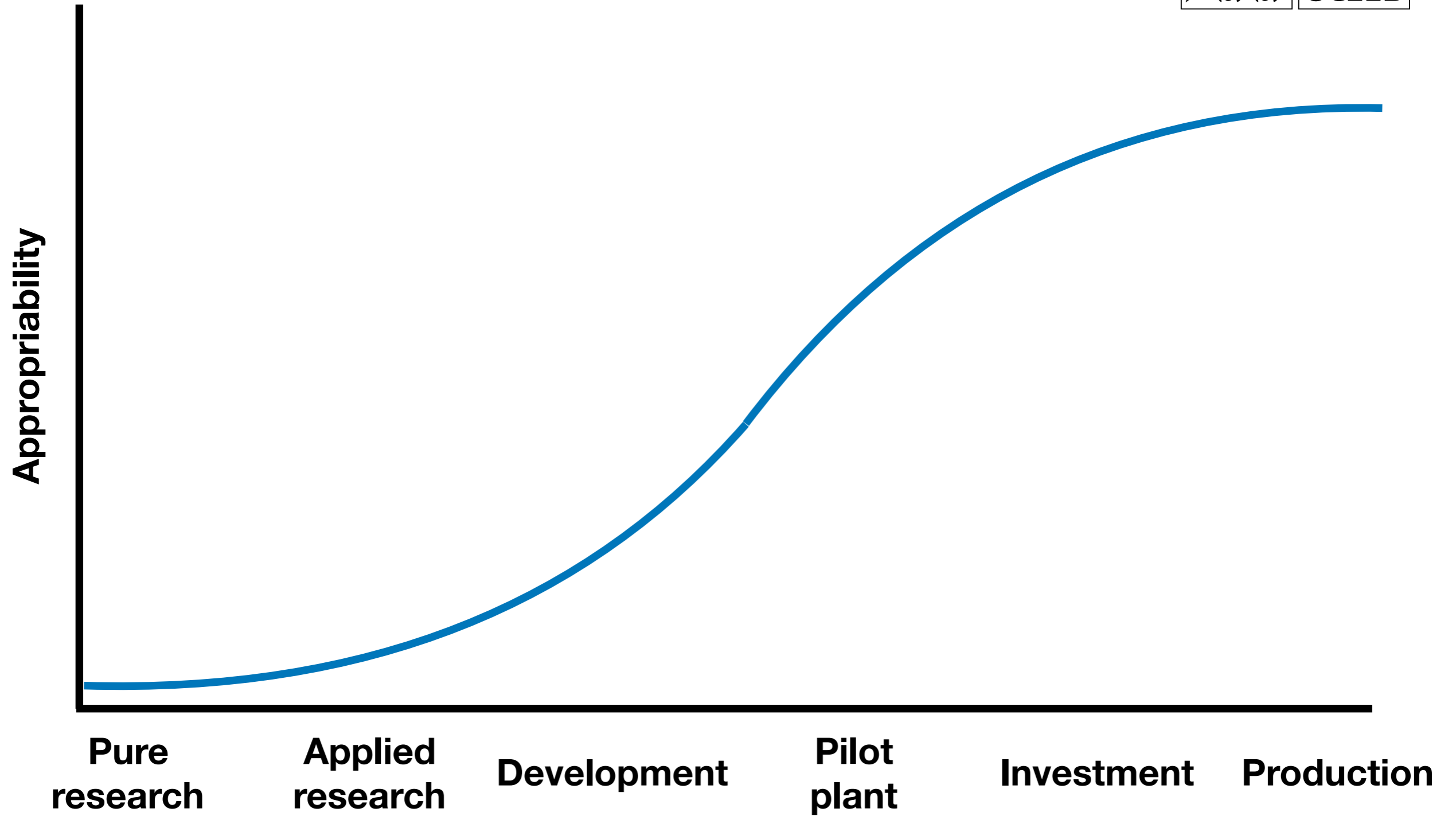
- 1) Human resources
- 2) Natural resources
- 3) Capital generation
- 4) Technological change and innovation

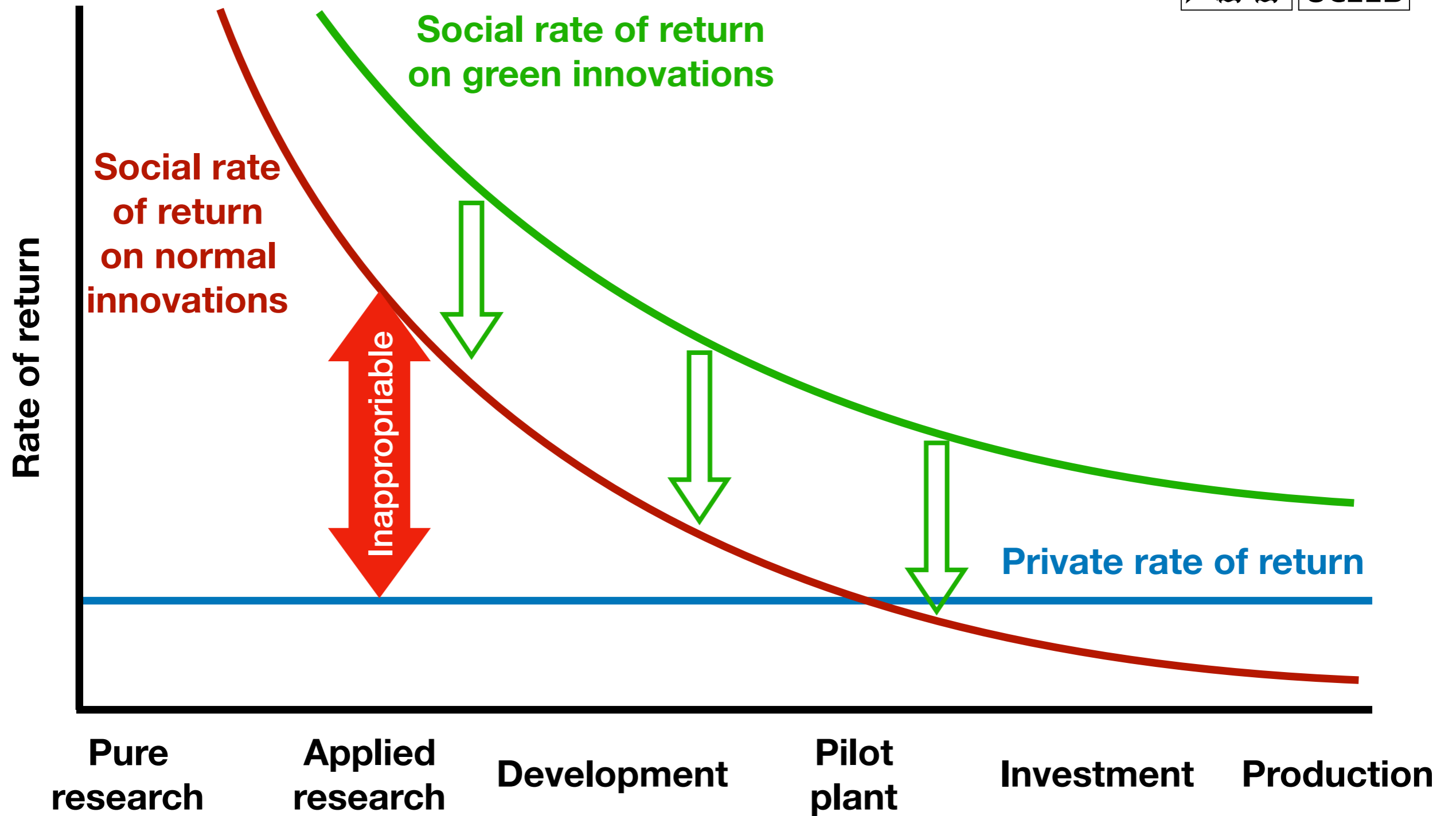


Four wheels of growth:

- 1) Human resources
- 2) Natural resources
- 3) Capital generation
- 4) **Technological change and innovation**



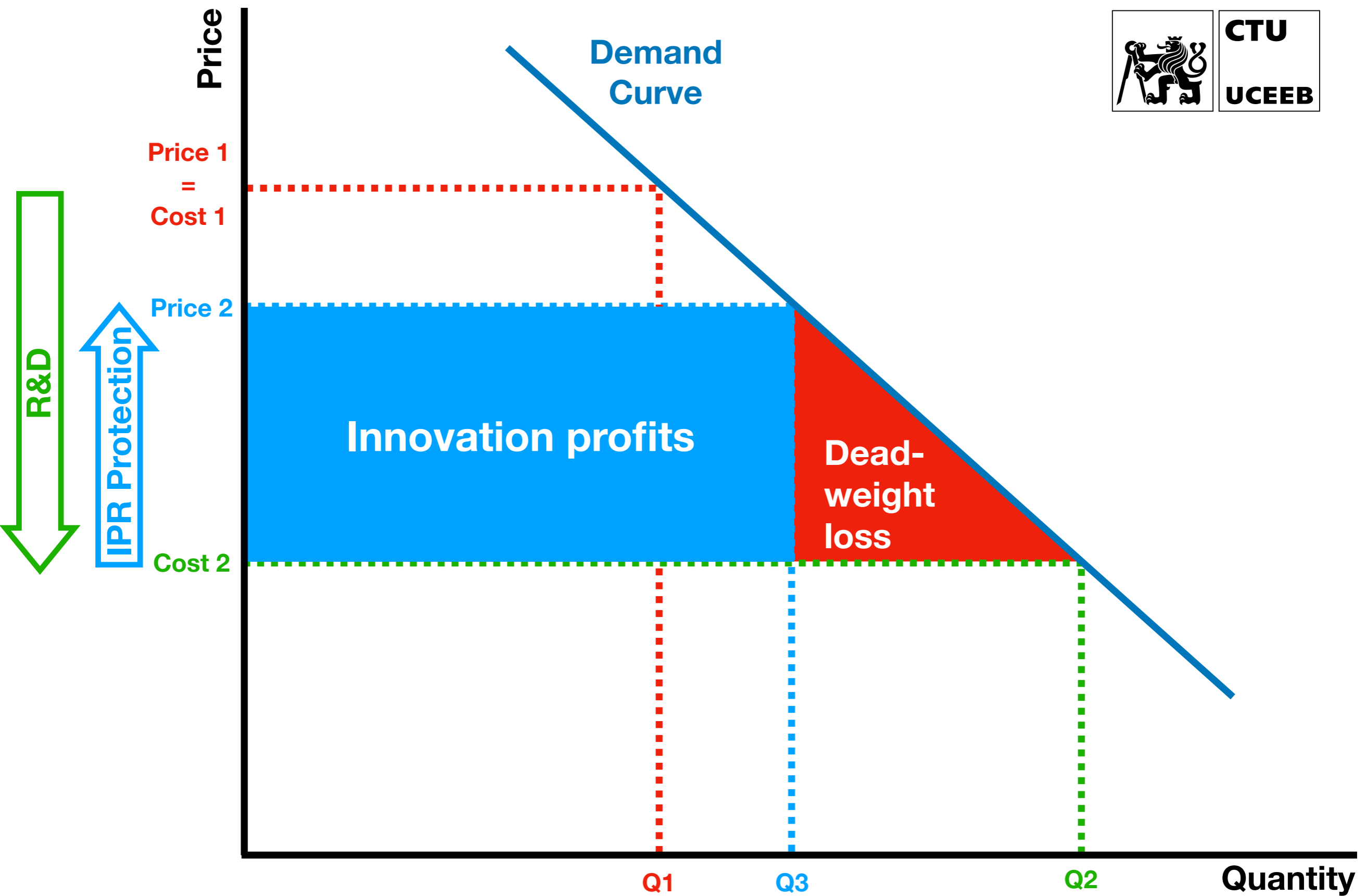


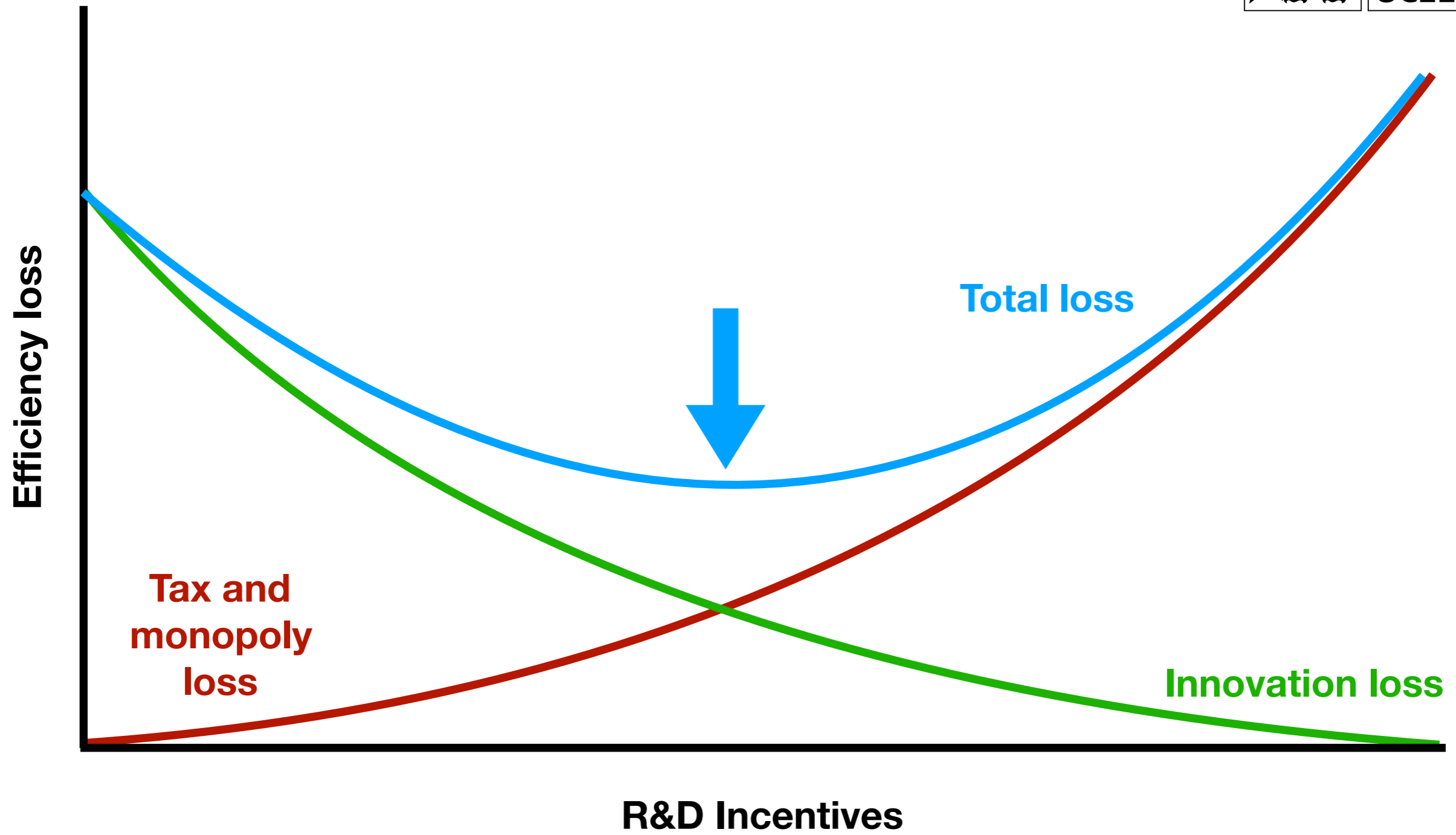


Price fundamentalism



Internalizing the pollution externality suffices to put the environmental activity on a level playing field with all other economic activity and with R&D on all other activities. There would (subject to the qualifications discussed below) be no grounds for further special treatment for the green R&D activity, whether it be for global warming, or sulfur abatement, or energy conservation.





Conclusions



- Getting the prices of externalities right is crucial for mitigation of climate change
 - Product subsidies ruin the concept
- There will always be a general innovation spill-over, and the society must reward the inventors.
- There is no technological advance against the climate change without economic growth.

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