

Markets for Innovation: Market Failures and Public Policies

There is a broad consensus that innovation is key to long-run productivity growth, yet we lack a solid basis of empirical evidence on many innovation policy questions. In this short course, we aim to provide an introduction to the economics of innovation that summarizes the state of the literature in this area, and highlights key open policy-relevant questions. We first discuss theory and evidence on the key market failures used to justify government intervention in markets for innovation. Second, we describe two parallel sets of incentives which shape innovation – market-provided incentives (e.g. expected profits), and scientific norms/institutions. Third, building on this description of the relevant incentives, we summarize theory and evidence on the efficiency of public policy interventions designed to address the key market failures in this space: taxes, public funding of research, intellectual property rights, competition policy, and immigration. Fourth, we summarize theory and evidence on the key linkages among innovation, diffusion, and economic growth. Finally, we highlight some recent work exploring links between innovation and inequality.

Recommended readings:

- Arrow, Kenneth (1962) "Economic welfare and the allocation of resources for invention," in *The Rate and Direction of Inventive Activity: Economic and Social Factors*, pages 609-626.
- Azoulay, Pierre, Joshua S. Graff Zivin, Danielle Li, and Bhaven N. Sampat (2019) "Public R&D investments and private-sector patenting: Evidence from NIH funding rules," *Review of Economic Studies* 86(1): 117–52.
- Bell, Alex, Raj Chetty, Xavier Jaravel, Neviana Petkova, and John Van Reenen (2019) "Who becomes an inventor in America? The importance of exposure to innovation," *Quarterly Journal of Economics* 134(2): 647–713.
- Bloom, Nicholas, Mark Schankerman, and John Van Reenen (2013) "Identifying technology spillovers and product market rivalry," *Econometrica* 81(4): 1347-1393.
- Bloom, Nicholas, John Van Reenen, and Heidi Williams (2019) "A toolkit of policies to promote innovation," *Journal of Economic Perspectives* 33 (3): 163-84.
- Bryan, Kevin and Yasin Ozcan (forthcoming) "The impact of open access mandates on invention," *Review of Economics and Statistics*.
- Griliches, Zvi (1979) "Issues in assessing the contribution of research and development to productivity growth," *Bell Journal of Economics* 10(1): 92-116.
- Jones, Benjamin and Lawrence Summers (forthcoming) "A calculation of the social returns to innovation," in *Innovation and Public Policy* (Austan Goolsbee and Benjamin Jones, editors), University of Chicago Press.

Books not formally recommended as background for this course but potentially of interest:

- Jaffe, Adam and Manuel Trajtenberg (2002) *Patents, Citations, and Innovations*, MIT Press.
- Scotchmer, Suzanne (2006) *Innovation and Incentives*, MIT Press.
- Stephan, Paula (2012) *How Economics Shapes Science*, Harvard University Press.
- *R&D, Patents, and Productivity*, <https://www.nber.org/books/gril84-1> (Zvi Griliches, editor)
- *The Rate and Direction of Inventive Activity*, <https://www.nber.org/books/univ62-1>
- *The Rate and Direction of Inventive Activity, Revisited*, <https://www.nber.org/books/lern11-1> (Joshua Lerner and Scott Stern, editors)