

The role of R&D and knowledge spillovers in innovation and productivity

Article

Accepted Version

Creative Commons: Attribution-Noncommercial-No Derivative Works 4.0

Audretsch, David B. and Belitski, Maksim (2020) The role of R&D and knowledge spillovers in innovation and productivity. *European Economic Review*, 123. 103391. ISSN 0014-2921
doi: <https://doi.org/10.1016/j.euroecorev.2020.103391>
Available at <https://centaur.reading.ac.uk/88863/>

It is advisable to refer to the publisher's version if you intend to cite from the work. See [Guidance on citing](#).

To link to this article DOI: <http://dx.doi.org/10.1016/j.euroecorev.2020.103391>

Publisher: Elsevier

All outputs in CentAUR are protected by Intellectual Property Rights law, including copyright law. Copyright and IPR is retained by the creators or other copyright holders. Terms and conditions for use of this material are defined in the [End User Agreement](#).

www.reading.ac.uk/centaur

CentAUR

Central Archive at the University of Reading

Reading's research outputs online

The Role of R&D and Knowledge Spillovers in Innovation and Productivity

David B. Audretsch

School of Public and Environmental Affairs, Indiana University Bloomington
1315 E. 10th Avenue SPEA Bloomington, IN 47405, USA

Email: daudrets@indiana.edu

Maksim Belitski¹

Henley Business School, University of Reading
Whiteknights campus, Reading, RG6 6UD, UK

Email: m.belitski@reading.ac.uk

Abstract

The use of both research and development (R&D) and knowledge spillovers has been identified as the source of relative innovation underperformance in Europe vis-à-vis the United States. In this paper, we investigate R&D and knowledge spillovers at the firm level to evaluate the extent to which they complement innovation and firm productivity. We use data on a large unbalanced panel of 9,213 UK firms constructed from six consecutive waves of a community innovation survey, an annual business registry survey and a business enterprise research and development survey during 2002-2014. We estimate the knowledge spillover-augmented version of the CDM model of R&D, innovation, and productivity to find that complementarities between R&D and knowledge spillovers are strongly associated with firm productivity rather than firm innovation. R&D is important for both innovation and productivity, while knowledge spillovers are more important than R&D for firm productivity. We also explore the differences between returns to R&D and knowledge spillovers across three distinctive innovation strategies.

Keywords: R&D; innovation; productivity; knowledge collaboration, knowledge spillover
JEL Classification: D24; O31; O33

Acknowledgement:

We are thankful to two anonymous reviewers and two editors Virginia Batte Phillips Distinguished Professor Al Link, UNC Greensboro and Professor Robert M. Sauer, Royal Holloway, University of London for valuable advice and suggestions throughout the revision process. We appreciate financial support by the British Academy on the project “Knowledge frontiers and boundaries for the New UK” Award Reference: IC160084

¹ Corresponding author