New Business
Formation and Regional
Development: A Survey
and Assessment of the
Evidence

New Business Formation and Regional Development: A Survey and Assessment of the Evidence

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Abstract

This monograph reviews the current state of knowledge about the effects of new business formation on regional development. These effects are diverse and include the creation and destruction of employment, introduction of innovations, structural change, and increasing productivity, among others. Theory particularly emphasizes the role that some new businesses play in the diffusion of knowledge and innovation as drivers of economic growth. I provide an explanatory approach that highlights the competitive challenge that start-ups pose to incumbent firms and discuss important implications. The overview of empirical research particularly deals with the development of start-up cohorts, identification of different types of indirect effects and their magnitude, differences based on characteristics of entry, and regional variation. A general conclusion is that the diverse indirect effects of new business formation on development are much more important than the growth effects created by newcomers. The diverse indirect effects of entry on

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development are currently less than fully understood. Finally, I draw conclusions for policy and put forward a number of important questions for further research.

Keywords: Entrepreneurship, new business formation, employment, regional development

JEL Codes: L26, M13, O1, O18, R11

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1

The Link Between New Business Formation and Growth

The belief that new business formation is a source of economic growth has been a strong motivation for a great deal of research in entrepreneurship. It has also motivated politicians in many countries to devise strategies aimed at stimulating the formation of new firms. However, the theoretical and the empirical foundation for this belief are remarkably weak. Empirical research on the issue started late and only recently have researchers begun to assess the effects of new businesses on economic development in detail. The effect of new business formation on regional development is an important field of research. This type of research can provide insight into the relationship between business dynamics and the different aspects of development, such as the growth and decline of employment, structural change, innovation, productivity increases, well-being, and the like. A proper understanding of these relationships may provide important input for policies aimed at stimulating growth.

 $^{^1}$ See, for example, Wennekers and Thurik (1999), OECD (2003), Commission of the European Communities (2003, 2010), Reynolds et al. (2005), and the contributions in Audretsch et al. (2007) and Leitao and Baptista (2009).

2 The Link Between New Business Formation and Growth

This monograph provides an overview on the current state of knowledge about the effects that new businesses have on regional development. The focus is on regions because geographical units of observation are much better suited for such an analysis than are industries (see Section 4.1). The reasoning behind this statement is that if industries follow a life cycle (Klepper, 1997), then the number of entries and the start-up rate will be relatively high in the early stages of the life cycle when the industry is growing, and comparatively low in later stages when the industry is in decline. In such a setting, the positive correlation between the start-up rate and the development of the industry in subsequent periods can hardly be regarded as evidence for a positive causal effect of entry on growth but it may be appropriate to view entry as a symptom of industry development. Accordingly, the results of empirical analyses at the regional level can be considerably different from those found in an analysis at the industry level (see Fritsch, 1996).

Regional growth is a complex process that involves large numbers of start-ups in diverse industries, firm exit, and growing and declining incumbent firms. The determinants of the effects that new business formation has in this complex process may be rather different from those factors that make individual start-ups either a success or a failure. Hence, this survey does not concern itself with the determinants of individual firms' success or failure. It begins with a brief sketch of the extant research on this topic (Section 2). Section 3 reviews the main theoretical approaches that may provide insights and explanations and combines them "more eclectically" in an attempt to explain the effects of start-ups on development. This eclectic approach particularly highlights the competitive challenge that start-ups pose to incumbent firms and the important role played by the regional environment. Section 4 reports the available empirical evidence on the different effects that new business formation might have on regional development. Policy implications are discussed in Sections 5 and 6 outlines important questions for further research. Section 7 concludes.

- Acemoglu, D., P. Aghion, and F. Zilibotti (2006), 'Distance to frontier, selection, and economic growth'. *Journal of the European Economic Association* 4, 37–74.
- Acs, Z. J. (1984), The Changing Structure of the U.S. Economy: Lessons from the Steel Industry. New York: Praeger.
- Acs, Z. J. (2011), 'High-impact firms: Gazelles revisited'. In: M. Fritsch (ed.): Handbook of Research on Entrepreneurship and Regional Development. Cheltenham: Elgar, pp. 133–174.
- Acs, Z. J. and C. Armington (2002), 'The determinants of regional variation in new firm formation'. *Regional Studies* **36**, 33–45.
- Acs, Z. J. and D. B. Audretsch (1990), Innovation and Small Firms. Cambridge, MA: MIT Press.
- Acs, Z. J. and D. B. Audretsch (eds.) (1993), Small Firms and Entrepreneurship: An East-West Perspective. Cambridge (UK): Cambridge University Press.
- Acs, Z. J., N. Bosma, and R. Sternberg (2011), 'Entrepreneurship in world cities'. In: M. Minniti (ed.): The Dynamics of Entrepreneurship: Evidence from the Global Entrepreneurship Monitor Data. Oxford: Oxford University Press, pp. 125–151.

- Acs, Z. J., P. Braunerhjelm, D. B. Audretsch, and B. Carlsson (2009), 'The knowledge spillover theory of entrepreneurship'. *Small Business Economics* **32**, 15–30.
- Acs, Z. J. and P. Mueller (2008), 'Employment effects of business dynamics: Mice, gazelles and elephants'. *Small Business Economics* **30**, 85–100.
- Acs, Z. J. and N. Virgill (2010), 'Entrepreneurship in developing countries'. Foundations and Trends in Entrepreneurship 6, 1–68.
- Aghion, P., R. W. Blundell, R. Griffith, P. Howitt, and S. Prantl (2009), 'The effects of entry on incumbent innovation and productivity'. Review of Economics and Statistics 91, 20–32.
- Aghion, P. and P. Howitt (1992), 'A model of growth through creative destruction'. *Econometrica* **60**, 323–351.
- Andersson, M., P. Braunerhjelm, and P. Thulin (2012), 'Creative destruction and productivity entrepreneurship by type, sector and sequence'. *Journal of Entrepreneurship and Public Policy* 1. (forthcoming).
- Andersson, M. and S. Koster (2011), 'Sources of persistence in regional start-up rates—Evidence from Sweden'. *Journal of Economic Geography* 11, 179–201.
- Andersson, M. and F. Noseleit (2011), 'Start-ups and employment dynamics within and across sectors'. *Small Business Economics* **36**, 461–483.
- Anyadike-Danes, M., M. Hart, and H. Lenihan (2011), 'New business formation in a rapidly growing economy: the Irish experience'. *Small Business Economics* **36**, 503–516.
- Arabsheibani, G., D. de Meza, J. Maloney, and B. Pearson (2000), 'And a vision appeared unto them of a great profit: Evidence of self-deception among the self-employed'. *Economic Letters* **67**, 35–41.
- Arauzo-Carod, J.-P., D. Liviano-Solis, and M. Martin-Bofarull (2008), 'New business formation and employment growth: Some evidence for the Spanish manufacturing industry'. *Small Business Economics* **30**, 73–84.
- Ashcroft, B. and J. H. Love (1996), 'Firm births and employment change in the British Counties: 1981–1989'. *Papers in Regional Science* **25**, 483–500.

- Asheim, B. T. and M. S. Gertler (2005), 'The geography of innovation: Regional innovation systems'. In: J. Fagerberg, D. C. Mowery, and R. R. Nelson (eds.): *The Oxford Handbook of Innovation*. Oxford: Oxford University Press, pp. 291–317.
- Astebro, T. and N. Bazzazian (2011), 'Universities, entrepreneurship and local economic development'. In: M. Fritsch (ed.): *Handbook of Research on Entrepreneurship and Regional Development*. Cheltenham: Edward Elgar, pp. 252–333.
- Audretsch, D. B. (1995), Innovation and Industry Evolution. Cambridge, MA: MIT Press.
- Audretsch, D. B., M. Carree, A. van Stel, and R. Thurik (2002), 'Impeded industrial restructuring: The growth penalty'. *Kyklos* **55**, 81–98.
- Audretsch, D. B. and M. Fritsch (1994), 'On the measurement of entry rates'. *Empirica* **21**, 105–113.
- Audretsch, D. B. and M. Fritsch (1996), 'Creative destruction: Turbulence and economic growth'. In: E. Helmstädter and M. Perlman (eds.): Behavioral Norms, Technological Progress, and Economic Dynamics: Studies in Schumpeterian Economics. Ann Arbor: University of Michigan Press, pp. 137—150.
- Audretsch, D. B. and M. Fritsch (2002), 'Growth regimes over time and space'. *Regional Studies* **36**, 113–124.
- Audretsch, D. B., I. Grilo, and R. Thurik (eds.) (2007), *Handbook of Research on Entrepreneurship Policy*. Cheltenham: Edward Elgar.
- Audretsch, D. B., P. Houweling, and R. Thurik (2000), 'Firm Survival in the Netherlands'. *Review of Industrial Organization* **16**, 1–11.
- Audretsch, D. B. and M. Keilbach (2004), 'Entrepreneurship capital and economic performance'. *Regional Studies* **38**, 949–959.
- Audretsch, D. B. and M. Keilbach (2007), 'The localisation of entrepreneurship capital: Evidence from Germany'. *Papers in Regional Science* **86**, 351–365.
- Audretsch, D. B., M. Keilbach, and E. Lehmann (2006), *Entrepreneur-ship and Economic Growth*. Oxford: Oxford University Press.
- Audretsch, D. B., L. Klomp, E. Santarelli, and R. Thurik (2004), 'Gibrat's law: Are the services different'. Review of Industrial Organization 24, 301–324.

- Audretsch, D. B. and A. R. Thurik (2001), 'What is new about the new economy: Sources of growth in the managed and entrepreneurial economies'. *Industrial and Corporate Change* **10**, 267–315.
- Bade, F.-J. and E. Nerlinger (2000), 'The spatial distribution of new technology based firms: Empirical results for West-Germany'. *Papers in Regional Science* **79**, 155–176.
- Baldwin, J. (1995), *The Dynamics of Industrial Competition*. Cambridge (UK): Cambridge University Press.
- Baptista, R., V. Escária, and P. Madruga (2008), 'Entrepreneurship, regional development and job creation: The case of Portugal'. *Small Business Economics* **30**, 49–58.
- Baptista, R. and J. Mendonça (2010), 'Proximity to knowledge sources and the location of knowledge-based start-ups'. *Annals of Regional Science* **45**, 5–29.
- Baptista, R. and M. T. Preto (2010), 'Longterm effects of new firm formation by type of startup'. *International Journal of Entrepreneurship and Small Business* 11, 382–402.
- Baptista, R. and M. T. Preto (2011), 'New firm formation and employment growth: Regional and business dynamics'. *Small Business Economics* **36**, 419–442.
- Barro, R. J. and X. Sala-I-Martin (1995), *Economic Growth*. New York: McGraw-Hill.
- Bartelsman, E., J. Haltiwanger, and S. Scarpetta (2009), 'Measuring and analyzing cross-country differences in firm dynamics'. In: J. B. J. Timothy Dunne and M. J. Roberts (eds.): *Producer Dynamics*—

 New Evidence from Micro Data. Chicago: University of Chicago

 Press, pp. 15–76.
- Baumol, W. J. (1990), 'Entrepreneurship: Productive, unproductive and destructive'. *Journal of Political Economy* **98**, 893–921.
- Baumol, W. J. (2004), 'Entrepreneurial enterprises, large established firms and other components of the free-market growth-machine'. Small Business Economics 23, 9–21.
- Baumol, W. J., J. C. Panzar, and R. D. Willig (1988), Contestable Markets and the Theory of Industry Structure. San Diego: Harcourt Brace Jovanovich, revised edition.

- Berkowitz, D. and D. N. DeJong (2005), 'Entrepreneurship and post-socialist growth'. Oxford Bulletin of Economics and Statistics 67, 25–46.
- Bernard, A. B. and J. B. Jensen (1999), 'Exceptional exporter performance: Cause, effect, or both?'. *Journal of International Economics* 47, 1–25.
- Bernard, A. B. and J. Wagner (1997), 'Exports and success in german manufacturing'. Weltwirtschaftliches Archiv/Review of World Economics 133, 134–157.
- Beugelsdijk, S. (2007), 'Entrepreneurial culture, regional innovativeness and economic growth'. *Journal of Evolutionary Economics* **17**, 187–210.
- Beugelsdijk, S. and R. Maseland (2011), Culture in Economics: History, Methodological Reflections, and Contemporary Applications. Cambridge (UK): Cambridge University Press.
- Beugelsdijk, S. and N. Noorderhaven (2004), 'Entrepreneurial attitude and economic growth: A cross-section of 54 regions'. *Annals of Regional Science* **38**, 199–218.
- Birch, D. L. (1979), *The Job Generation Process*. Cambridge, MA: MIT Program on Neighborhood and Regional Change (mimeo).
- Birch, D. L. (1981), 'Who creates jobs?'. The Public Interest 65(Fall), 3–14.
- Birch, D. L. (1987), Job Creation in America: How Our Smallest Companies Put the Most People to Work. New York: Free Press.
- Boettke, P. J. and C. J. Coyne (2009), 'Context matters: Institutions and entrepreneurship'. Foundations and Trends in Entrepreneurship 5, 135–209.
- Bos, J. W. B. and E. Stam (2011), 'Gazelles, industry growth and structural change'. Working Paper RM/11/018, Maastricht: Maastricht University School of business and Economics.
- Boschma, R. (2004), 'Competitiveness of regions from an evolutionary perspective'. *Regional Studies* **38**, 1001–1014.
- Boschma, R. (2005), 'Proximity and innovation: A critical assessment'. *Regional Studies* **39**, 61–74.
- Boschma, R. and K. Frenken (2011), 'The emerging empirics of evolutionary economic geography'. *Journal of Economic Geography* 11, 295–307.

- Bosma, N. (2011), 'Entrepreneurship, Urbanisation Economies and Productivity of European Regions'. In: M. Fritsch (ed.): *Handbook of Research on Entrepreneurship and Regional Development*. Cheltenham: Elgar, pp. 107–132.
- Bosma, N., E. Stam, and V. Schutjens (2011), 'Creative destruction and regional productivity growth: Evidence from the Dutch manufacturing and services industries'. *Small Business Economics* **36**, 401–418.
- Bosma et al., N. (2012), 'Entrepreneurship and role models'. *Journal of Economic Psychology* **33**, 410–424.
- Braunerhjelm, P. (2008), 'Entrepreneurship, knowledge, and economic growth'. Foundations and Trends in Entrepreneurship 4, 451–533.
- Brezinski, H. and M. Fritsch (eds.) (1996), The Economic Impact of New Firms in Post-Socialist Countries — Bottom Up Transformation in Eastern Europe. Cheltenham: Edward Elgar Publishers.
- Brixy, U. (1999), Die Rolle von Betriebsgründungen für die Arbeitsplatzdynamik. Nuremberg: Bundesanstalt für Arbeit.
- Brock, W. A. and D. S. Evans (1986), The Economics of Small Businesses: Their Role and Regulation in the U.S. Economy. New York: Holmes and Meier.
- Brüderl, J., P. Preisendörfer, and R. Ziegler (1992), 'Survival chances of newly founded business organizations'. *American Sociological Review* 57, 227–242.
- Buenstorf, G. and S. Klepper (2009), 'Heritage and agglomeration: The Akron tyre cluster revisited'. *Economic Journal* **119**, 705–733.
- Callejon, M. and A. Segarra (1999), 'Business dynamics and efficiency in industries and regions: The case of Spain'. Small Business Economics 13, 253–271.
- Carlton, D. W. and J. M. Perloff (2005), *Modern Industrial Organization*. Boston: Pearson/Addison Wesley, 4th edition.
- Carree, M., A. Stel, R. Thurik, and S. Wennekers (2007), 'The relationship between economic development and business ownership revisited'. *Entrepreneurship & Regional Development* 19, 281–291.
- Carree, M. and R. Thurik (1999), 'The carrying capacity and entry and exit flows in retailing'. *International Journal of Industrial Organiza*tion 17, 985–1007.

- Carree, M. and R. Thurik (2008), 'The lag structure of the impact of business ownership on economic performance in OECD countries'. Small Business Economics 30, 101–110.
- Carree, M. and R. Thurik (2010), 'The impact of entrepreneurship on economic growth'. In: Z. J. Acs and D. B. Audretsch (eds.): *Handbook of Entrepreneurship Research: An Interdisciplinary Survey and Introduction*. New York: Springer, 2nd edition, pp. 557–594.
- Carreira, C. and P. Teixeira (2011), 'The shadow of death: analysing the pre-exit productivity of Portuguese manufacturing firms'. *Small Business Economics* **36**, 337–351.
- Caves, R. E. (1998), 'Industrial organization and new findings on the turnover and mobility of firms'. *Journal of Economic Literature* **36**, 1947–1982.
- Cefis, E. and O. Marsili (2005), 'A matter of life and death'. *Industrial and Corporate Change* 14, 1167–1192.
- Chinitz, B. (1961), 'Contrasts in Agglomeration: New York and Pittsburgh'. *American Economic Review Papers and Proceedings* **51**, 279–289.
- Commission of the European Communities (2003), Green Paper Entrepreneurship in Europe. Brussels, COM(2003) 27 final.
- Commission of the European Communities (2010), EUROPE 2020 A Strategy for Smart, Sustainable and Inclusive Growth. Brussels, COM(2010) 2020.
- Dahl, M. S. and O. Sorenson (2009), 'The embedded entrepreneur'. European Management Review 6, 172–181.
- Davidsson, P. (1995), 'Culture, structure and regional levels of entrepreneurship'. *Entrepreneurship and Regional Development* 7, 41–62.
- Davis, S. J., J. C. Haltiwanger, and S. Schuh (1996), Job Creation and Destruction. Cambridge, MA: MIT Press.
- Dejardin, M. (2011), 'Linking net entry to regional economic growth'. Small Business Economics **36**, 443–460.
- Disney, R., J. Haskell, and Y. Heden (2003), 'Restructuring and productivity growth in UK manufacturing'. *Economic Journal* 113, 666–694.

- Eckhardt, J. T. and S. Shane (2011), 'An update to the individual-opportunity nexus'. In: Z. J. Acs and D. B. Audretsch (eds.): *Handbook of Entrepreneurship Research: An Interdisciplinary Survey and Introduction*. New York: Springer, 2nd edition, pp. 47–76.
- EIM (1994), Kleinschalig ondernemen 1994, deel II: Regionaleconomische dynamiek en werkgelegenheidscreatie. Zoetermeer, EIM Small Business Research and Consultancy.
- Engel, D. and G. Metzger (2006), 'Direct employment effects of new firms further empirical insights concerning the regional and the technological dimension'. In: M. Fritsch and J. Schmude (eds.): Entrepreneurship in the Region. New York: Springer, pp. 75–93.
- Evans, D. S. (1987), 'The relationship between firm growth, size, and age: Estimates for 100 manufacturing industries'. *Journal of Industrial Economics* **35**, 567–581.
- Fagerberg, J. E. (2003), 'Schumpeter and the revival of evolutionary economics: an appraisal of the literature'. *Journal of Evolutionary Economics* 13, 125–159.
- Falck, O. (2007), 'Mayflies and long-distance runners: The effects of new business formation on industry growth'. *Applied Economic Letters* **14**, 1919–1922.
- Falck, O. (2009), 'New business formation, growth, and the industry lifecycle'. In: U. Cantner, J.-L. Gaffard, and L. Nesta (eds.): Schumpeterian Perspectives on Innovation, Competition and Growth. Heidelberg: Springer, pp. 299–311.
- Feldman, M. P. (2001), 'The entrepreneurial event revisited: Firm formation in a regional context'. *Industrial and Corporate Change* 10, 861–891.
- Figueiredo, O., P. Guimaraes, and D. Woodward (2002), 'Home-field advantage: Location decisions of portuguese entrepreneurs'. *Journal of Urban Economics* **52**, 341–361.
- Florida, R. (2004), *The Rise of the Creative Class*. New York: Basic Books, revised paperback edition.
- Foster, L., J. Haltiwanger, and C. Syverson (2001), 'Aggregate productivity growth: Lessons from microeconomic evidence'. In: C. R. Hulton, E. R. Dean, and M. J. Harper (eds.): New Developments in Productivity Analysis. Chicago: University of Chicago Press, pp. 303–363.

- Foster, L., J. C. Haltiwanger, and C. J. Krizian (2006), 'Market selection, reallocation, and restructuring in the U.S. retail trade sector in the 1990s'. *Review of Economics and Statistics* 88, 748–758.
- Frenken, K., E. Cefis, and E. Stam (2011), 'Industrial dynamics and economic geography: A survey'. Centre for Innovation Studies (ECIS) Working Paper 11.07, Eindhoven: Eindhoven University of Technology.
- Frenken, K., F. van Oort, and T. Verburg (2007), 'Related variety, unrelated variety and regional economic growth'. *Regional Studies* 41, 685–697.
- Freytag, A. and R. Thurik (2007), 'Entrepreneurship and its determinants in a cross-country setting'. *Journal of Evolutionary Economics* 17, 117–131.
- Fritsch, M. (1996), 'Turbulence and growth in West-Germany: A comparison of evidence by regions and industries'. *Review of Industrial Organization* 11, 231–251.
- Fritsch, M. (1997), 'New firms and regional employment change'. *Small Business Economics* **9**, 437–448.
- Fritsch, M. (2004), 'Entrepreneurship, entry and performance of new businesses compared in two growth regimes: East and West Germany'. *Journal of Evolutionary Economics* **14**, 525–542.
- Fritsch, M. (2011), 'Start-ups in innovative industries causes and effects'. In: D. B. Audretsch, O. Falck, S. Heblich, and A. Lederer (eds.): *Handbook of Innovation and Entrepreneurship*. Cheltenham: Elgar, pp. 365–381.
- Fritsch, M., U. Brixy, and O. Falck (2006), 'The effect of industry, region and time on new business survival A multi-dimensional analysis'. *Review of Industrial Organization* **28**, 285–306.
- Fritsch, M. and O. Falck (2007), 'New business formation by industry over space and time: A multi-dimensional analysis'. *Regional Studies* 41, 157–172.
- Fritsch, M. and P. Mueller (2004), 'The effects of new business formation on regional development over time'. *Regional Studies* **38**, 961–975.
- Fritsch, M. and P. Mueller (2006), 'The evolution of regional entrepreneurship and growth regimes'. In: M. Fritsch and J. Schmude (eds.): *Entrepreneurship in the Region*. New York: Springer, pp. 225–244.

- Fritsch, M. and P. Mueller (2007), 'The persistence of regional new business formation-activity over time assessing the potential of policy promotion programs'. *Journal of Evolutionary Economics* 17, 299–315.
- Fritsch, M. and P. Mueller (2008), 'The effect of new business formation in regional development over time: The case of Germany'. *Small Business Economics* **30**, 15–29.
- Fritsch, M. and F. Noseleit (2012a), 'Investigating the anatomy of the employment effects of new business formation'. *Cambridge Journal of Economics*, doi:10.1093/cje/bes030.
- Fritsch, M. and F. Noseleit (2012b), 'Start-ups, long- and short-term survivors, and their contribution to employment growth'. *Journal of Evolutionary Economics*, doi 10.1007/s00191-012-0301-5.
- Fritsch, M. and F. Noseleit (2013), 'Indirect employment effects of new business formation across regions: The role of local market conditions'. *Papers in Regional Science*, doi:10.1111/j.1435-5957. 2012.00475.x.
- Fritsch, M., F. Noseleit, and Y. Schindele (2010), 'The direct and indirect effects of new businesses on regional employment: An empirical analysis'. *International Journal of Entrepreneurship and Small Business* 10, 49–64.
- Fritsch, M., F. Noseleit, and Y. Schindele (2013), Surviving Against the Tide: The Role of Region and Industry Performance for New Business Survival. Mimeo, Jena: Friedrich Schiller University.
- Fritsch, M. and Y. Schindele (2011), 'The contribution of new businesses to regional employment an empirical analysis'. *Economic Geography* 87, 153–180.
- Fritsch, M. and A. Schroeter (2011a), 'Does quality make a difference? Employment effects of high- and low-quality start-ups'. Jena Economic Research Papers # 001–2011, Friedrich Schiller University and Max Planck Institute of Economics Jena.
- Fritsch, M. and A. Schroeter (2011b), 'Why does the effect of new business formation differ across regions?'. *Small Business Economics* **36**, 383–400.
- Fritsch, M. and A. Weyh (2006), 'How large are the direct employment effects of new businesses? An empirical investigation'. *Small Business Economics* **27**, 245–260.

- Fritsch, M. and M. Wyrwich (2012), 'The long persistence of regional entrepreneurship culture: Germany 1925–2005'. Jena Economic Research Papers # 036–2012, Friedrich Schiller University and Max Planck Institute of Economics Jena.
- Glaeser, E. L., S. P. Kerr, and W. R. Kerr (2012), 'Entrepreneurship and urban growth: An empirical assessment with historical mines'. Boston: Harvard Business School, Working Paper 13-015.
- Glaeser, E. L. and W. R. Kerr (2009), 'Local Industrial Conditions and Entrepreneurship: How Much of the Spatial Distribution Can We Explain?'. *Journal of Economics & Management Strategy* **18**, 623–663.
- Gonzalez-Pernía, J. L. and I. Peña-Legazkue (2011), The Impact of Export-oriented Entrepreneurship on Regional Economic Growth. San Sebastian: Basque Institute of Competitiveness (mimeo).
- Grabher, G. (1993), 'The weakness of strong ties'. In: G. Grabher (ed.): *The Embedded Firm.* London: Routledge, pp. 255–277.
- Greene, W. (2008), *Econometric Analysis*. Upper Saddle River: Pearson Prentice Hall, 6th edition.
- Gujarati, D. N. (2009), *Basic Econometrics*. Boston: MacGraw-Hill, 5th edition.
- Haltiwanger, J., R. S. Jarmin, and J. Miranda (2010), Who Creates Jobs? Small vs. Large vs. Young. Washington D.C.: U.S. Census Bureau, Center for Economic Studies (CES 10–17).
- Hannan, M. T. and J. Freeman (1977), 'The population ecology of organizations'. *American Journal of Sociology* 82, 929–964.
- Hartog, C., S. Parker, A. van Stel, and R. Thurik (2010), 'The two-way relationship between entrepreneurship and economic performance'. Scales report H200822, Zoetemer: EIM.
- Helfat, C. E. and M. B. Lieberman (2002), 'The birth of capabilities: Market entry and the importance of pre-history'. *Industrial and Corporate Change* 11, 725–760.
- Helsley, R. W. and W. C. Strange (2011), 'Entrepreneurs and cities: Complexity, thickness and balance'. Regional Science and Urban Economics 41, 550–559.
- Henrekson, M. (2007), 'Entrepreneurship and Institutions'. Comparative Labor Law and Policy Journal 28, 717–742.

- Henrekson, M. and D. Johansson (2010), 'Gazelles as job creators: A survey and interpretation of the evidence'. *Small Business Economics* **35**, 227–244.
- Henrekson, M. and D. Johansson (2011), 'Firm growth, institutions and structural transformation'. In: M. Fritsch (ed.): *Handbook of Research on Entrepreneurship and Regional Development*. Cheltenham: Elgar, pp. 175–215.
- Hoetker, G. and R. Agarwal (2007), 'Death hurts, but it isn't fatal: The postexit diffusion of knowledge created by innovative companies'. *Academy of Management Journal* **50**, 446–467.
- Horrell, M. and R. Litan (2010), After Inception: How Enduringis Job Creation by Startups? Kansan City: Kauffman Foundation.
- Jacobs, J. (1969), The Economy of Cities. New York: Random House.
- Jorgenson, D. W. (2001), 'Information technology and the US economy'. American Economic Review 91, 1–32.
- Kirzner, I. (1997), 'Entrepreneurial discovery and the competitive market process: An Austrian approach'. *Journal of Economic Literature* **35**, 60–85.
- Kirzner, I. (2009), 'The alert and creative entrepreneur: A clarification'. Small Business Economics 32, 145–152.
- Klepper, S. (1997), 'Industry life cycles'. *Industrial and Corporate Change* **6**, 145–181.
- Klepper, S. (2009), 'Spinoffs: A review and synthesis'. European Management Review 6, 159–171.
- Klepper, S. (2010), 'The origin and growth of industry clusters: The making of silicon valley and detroit'. *Journal of Urban Economics* **67**, 15–32.
- Klepper, S. and K. L. Simons (2005), 'Industry shakeouts and technological change'. *International Journal of Industrial Organization* **23**, 23–43.
- Klepper, S. and S. Sleeper (2005), 'Entry by spin-offs'. *Management Science* **51**, 1291–1306.
- Koellinger, P., M. Minniti, and C. Schade (2007), "I Think I Can, I Think I Can": Overconfidence and entrepreneurial behavior'. *Journal* of Economic Psychology 28, 502–527.

- Koster, S. (2011), 'Individual foundings and organizational foundings: Their effect on employment growth in the Netherlands'. Small Business Economics 36, 485–501.
- Koster, S. and A. van Stel (2011), 'The relationship between start-ups, market mobility and employment growth: An empirical analysis for Dutch regions'. Zootemeer: EIM, SCALES Research Report.
- Koster, S., A. van Stel, and M. Folkeringa (2012), 'Start-ups as drivers of market mobility: An analysis at the region-sector level for the Netherlands'. *Small Business Economics* **39**, 575–585.
- Lazear, E. P. (2004), 'Balanced skills and entrepreneurship'. American Economic Review 94, 208–211.
- Lazear, E. P. (2005), 'Entrepreneurship'. *Journal of Labor Economics* **23**, 649–680.
- Leibenstein, H. (1968), 'Entrepreneurship and development'. American Economic Review (Papers and Proceedings) 58, 72–83.
- Leitao, J. and R. Baptista (eds.) (2009), Public Policies for Fostering Entrepreneurship — A European Perspective. Dordrecht: Springer.
- Malecki, E. J. (1994), 'Entrepreneurship in regional and local development'. *International Regional Science Review* **16**, 119–153.
- Marshall, A. (1920), *Principles of Economics*. London: MacMillan, 8th edition.
- Marsili, O. (2002), 'Technological Regimes and Sources of Entrepreneurship'. Small Business Economics 19, 217–215.
- Martin, R. and P. Sunley (2003), 'Deconstructing clusters: Chaotic concept or policy panacea?'. *Journal of Economic Geography* 3, 5–35.
- McCraw, T. (2007), Prophet of Innovation: Joseph Schumpeter and Creative Destruction. Cambridge, MA: Harvard University Press.
- Metzger, G. and C. Rammer (2009), Unternehmensdynamik in forschungs- und wissensintensiven Wirtschaftszweigen in Deutschland (Firm dynamics in research- and knowledge-intensive industries in Germany). Mannheim: ZEW (Studien zum deutschen Innovationssystem Nr. 05–2009).
- Minniti, M. and M. Lévesque (2010), 'Entrepreneurial types and economic growth'. *Journal of Business Venturing* **25**, 305–314.

- Morse, R. S. (1976), The Role of New Technical Enterprises in the U.S. Economy A Report of the Commerce Technical Advisory Board to the Secretary of Commerce. Washington D.C.: Secretary of Commerce.
- Mueller, P. (2006), 'Exploring the knowledge filter: How entrepreneurship and university-industry relationships drive economic growth'. *Research Policy* **35**, 1499–1508.
- Mueller, P. (2007), 'Exploiting entrepreneurial opportunities: The impactof entrepreneurship on growth'. *Small Business Economics* **28**, 355–362.
- Mueller, P., A. van Stel, and D. J. Storey (2008), 'The effect of new firm formation on regional development over time: The case of Great Britain'. *Small Business Economics* **30**, 59–71.
- Naudé, W. (ed.) (2011), Entrepreneurship and Economic Development. Houndmills: Palgrave MacMillan.
- Neffke, F., M. Henning, and R. Boschma (2011), 'How do regions diversify over time? industry relatedness and the development of new growth paths in regions'. *Economic Geography* 87, 237–265.
- Neffke, F. and H. M. Svensson (2008), 'Revealed relatedness: Mapping industry space'. Papers in Evolutionary Economic Geography # 08.19, University of Utrecht.
- Neumark, D., J. Zhang, and S. Ciccarella (2008), 'The effects of Wal-Mart on local labor markets'. *Journal of Urban Economics* **63**, 405–430.
- Neumark, D., J. Zhang, and B. Wall (2006), 'Where the jobs are: Business dynamics and employment growth'. *Academy of Management Perspectives* **20**, 79–94.
- Noseleit, F. (2012), 'Entrepreneurship, structural change, and economic growth'. *Journal of Evolutionary Economics*. DOI 10.1007/s00191-012-0291-3.
- Organisation for Economic Co-operation and Development (OECD) (2005), OECD Handbook on Economic Globalisation Indicators. Paris: OECD.
- Organisation for Economic Co-operation and Development (OECD) (2003), The Sources of Economic Growth in OECD Countries. Paris: OECD.

- Pfirrmann, O. and G. H. Walter (2002), Small Firms and Entrepreneurship in Central and Eastern Europe A Socio-economic Perspective. Heidelberg: Physica.
- Piergiovanni, R., M. A. Carree, and E. Santarelli (2012), 'Creative industries, new business formation, and regional economic growth'. Small Business Economics 39, 539–560.
- Piore, M. J. and C. F. Sabel (1984), *The Second Industrial Divide*. New York: Basic Books.
- Renski, H. (2009), 'New firm entry, survival, and growth in the United States A comparison of urban, suburban, and rural areas'. *Journal of the American Planning Association* **75**, 60–77.
- Reynolds, P. D. (1994), 'Autonomous firm dynamics and economic growth in the United States, 1986–90'. Regional Studies 27, 429–442.
- Reynolds, P. D. (1999), 'Creative destruction: Source or symptom of economic growth?'. In: Z. J. Acs, B. Carlsson, and C. Karlsson (eds.): Entrepreneurship, Small and Medium-Sized Enterprises and the Macroeconomy. Cambridge (UK): Cambridge University Press, pp. 97–136.
- Reynolds, P. D., D. J. Storey, and P. Westhead (1994), 'Cross-national comparisons of the variation in new firm formation rates'. *Regional Studies* 28, 443–456.
- Reynolds et al., P. D. (2005), 'Global entrepreneurship monitor: Data collection design and implementation 1998–2003'. *Small Business Economics* **24**, 205–231.
- Roberts, E. B. (1969), 'Entrepreneurship and technology'. In: W. H. Gruber and D. G. Marquis (eds.): Factors in the Transfer of Technology. Cambridge, MA: MIT Press, pp. 219–237.
- Romer, P. (1986), 'Increasing returns and economic growth'. *American Economic Review* **94**, 1002–1037.
- Romer, P. (1990), 'Endogenous technological change'. *Journal of Political Economy* **98**, 71–102.
- Sautet, F. (2011), 'Local and systemic entrepreneurship: Solving the puzzle of entrepreneurship and economic development'. Entrepreneurship in Theory and Practice. online first DOI: 10.1111/j. 1540-6520.2011.00469.x.

- Saviotti, P. P. and A. Pyka (2004), 'Economic development, variety and employment'. Revue Économique 55, 1023–1049.
- Schindele, Y. and A. Weyh (2011), 'The direct employment effects of new businesses in Germany revisited an empirical investigation for 1976–2004'. Small Business Economics 36, 353–363.
- Schumpeter, J. A. (1911/1934), Theorie der wirtschaftlichen Entwicklung, Leipzig 1911: Duncker & Humblot; revised English edition: The Theory of Economic Development. Cambridge, MA: Cambridge University Press.
- Schumpeter, J. A. (1939), Business Cycles: A Theoretical, Historical, and Statistical Analysis of the Capitalist Process. New York: McGraw-Hill.
- Schumpeter, J. A. (1942), Capitalism, Socialism and Democracy. New York: Harper & Row.
- Sengenberger, W., G. Loveman, and M. Piore (1990), The Re-Emergence of Small Enterprises: Industrial Restructuring in Industrialized Countries. Geneva: International Labor Organization.
- Shane, S. (2003), A General Theory of Entrepreneurship The Individual-Opportunity Nexus. Cheltenham: Elgar.
- Spengler, A. (2008), 'The establishment history panel'. Schmollers Jahrbuch/Journal of Applied Social Science Studies 128, 501–509.
- Spletzer, J. R. (2000), 'The contribution of establishment births and deaths to employment growth'. *Journal of Business and Economic Statistics* **18**, 113–126.
- Stam, E. (2007), 'Why butterflies don't leave: Locational behaviour of entrepreneurial firms'. *Economic Geography* 83, 27–50.
- Stam, E., D. B. Audretsch, and J. Meijaard (2008), 'Renascent entrepreneurship'. *Journal of Evolutionary Economics* **18**, 493–507.
- Stam, E., C. Hartog, A. van Stel, and R. Thurik (2011), 'Ambitious entrepreneurship, high-growth firms and macroeconomic growth'. In: M. Minniti (ed.): The Dynamics of Entrepreneurship: Evidence from the Global Entrepreneurship Monitor Data. Oxford: Oxford University Press, pp. 231–249.
- Stam, E. and A. van Stel (2009), 'Types of entrepreneurship and economic growth'. Maastricht: UNU-WIDER Working Paper 2009/47.

- Stam et al., E. (2012), Ambitious Entrepreneurship A Review of the Academic Literature and New Directions for Public Policy. The Hague: Advisory Council for Science and Technology Policy (AWT).
- Stangler, D. and P. Kedrosky (2010), Neutralism and Entrepreneurship: The Structural Dynamics of Startups, Young Firms, and Job Creation. Kansas City: Kauffman Foundation.
- Sternberg, R. (2009), 'Regional Dimensions of Entrepreneurship'. Foundations and Trends in Entrepreneurship 5, 211–340.
- Storey, D. J. (1994), *Understanding the Small Business Sector*. London: Routledge.
- Storey, D. J. and S. Johnson (1987), *Job Generation and Labour Market Change*. Basingstoke: MacMillan.
- Sutaria, V. and D. A. Hicks (2004), 'New firm formation: Dynamics and determinants'. *Annals of Regional Science* **38**, 241–262.
- Sutton, J. (1997), 'Gibrat's Legacy'. *Journal of Economic Literature* **35**, 40–59.
- Tübke, A. (2004), Success Factors of Corporate Spin-offs. Boston: Kluwer Academic Publishers.
- Unger et al., J. M. (2011), 'Human capital and entrepreneurial success: A meta-analytical review'. *Journal of Business Venturing* **26**, 341–358.
- Utterback, J. M. and W. J. Abernathy (1975), 'A dynamic model of product and process innovation'. *Omega* 3, 639–656.
- van Praag, C. M. and P. H. Versloot (2007), 'What is the value of entrepreneurship? A review of recent research'. *Small Business Economics* **29**, 351–382.
- van Stel, A., M. Carree, and R. Thurik (2005), 'The effect of entrepreneurial activity on national economic growth'. *Small Business Economics* **24**, 311–321.
- van Stel, A. and D. J. Storey (2004), 'The link between firm birthsand job creation: Is there a Up as tree effect?'. *Regional Studies* **38**, 893–909.
- van Stel, A. and K. Suddle (2008), 'The impact of new firm formation on regional development in the Netherlands'. *Small Business Economics* **30**, 31–47.

- Vernon, R. (1966), 'International investment and international trade in the product cycle'. *Quarterly Journal of Economics* **80**, 190–207.
- Vivarelli, M. (2012), 'Entrepreneurship in Advanced and Developing-Countries: A Microeconomic Perspective'. Bonn: Institute for the Study of Labor (IZA Discussion Paper No. 6513).
- von Graevenitz, G., D. Harhoff, and R. Weber (2010), 'The effects of entrepreneurship education'. *Journal of Economic Behavior and Organization* **76**, 90–112.
- Wagner, J. (2009), 'Entry, exit and productivity: Empirical results for German Manufacturing Industries'. German Economic Review 11, 78–85.
- Wagner, J. and R. Sternberg (2004), 'Start-up activities, individual characteristics, and the regional milieu: Lessons for entrepreneurship support policies from German micro data'. Annals of Regional Science 38, 219–240.
- Wennberg, K. and G. Lindqvist (2010), 'The effect of clusters on the survival and performance of new firms'. *Small Business Economics* **34**, 221–241.
- Wennekers, S. and R. Thurik (1999), 'Linking entrepreneurship and economic growth'. Small Business Economics 13, 27–55.
- Weyh, A. (2006), 'What characterizes successful start-up cohorts?'. In:
 M. Fritsch and J. Schmude (eds.): Entrepreneurship in the Region.
 New York: Springer, pp. 61–74.
- Winter, S. G. (1984), 'Schumpeterian competition in alternative technological regimes'. *Journal of Economic Behavior and Organization* 5, 287–320.
- Wong, P. K., Y. P. Ho, and E. Autio (2005), 'Entrepreneurship, innovation and economic growth: Evidence from GEM data'. Small Business Economics 24, 335–350.
- Wyrwich, M. (2012), 'Regional entrepreneurial heritage in a socialist and a post-socialist economy'. *Economic Geography* 88, 423–445.
- Zucker, L. G., M. R. Darby, and M. B. Brewer (1998), 'Intellectual human capital and the birth of US biotechnology enterprises'. American Economic Review 88, 290–306.