

Chapter 1

Geographies of the University: An Introduction



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This volume analyzes the history and character of the modern university from a variety of disciplinary perspectives, with particular emphasis on the constitutive significance of geography as a factor shaping the internal and external dynamics of universities and the national and international systems of higher education in which they have operated. In considering the geographies of the university, the essays in this volume deploy two interlinked conceptual approaches derived from Manuel Castells's (1996) formulations of the spatial logics that he claims constitute the essential characteristics of past and present societies: the *space of places* and the *space of flows*. The first approach adopts a place-based perspective and focuses on the spatial organization of the settings, practices, and ideologies that constitute the key functions of contemporary universities at different geographical scales, including their research, teaching, and learning, as well as their administration, enterprise, and public engagement. The second, flow-based approach addresses the wider networks that constitute universities as seats of research, learning, and expertise. It encompasses, for example, their recruitment of students, academic staff, and other employees; their outgoing and incoming mobilities of people, resources, and knowledges; their conferment of degrees and awards; their formal and informal collaboration in research, teaching, management, enterprise, and public engagement; and their local, regional, national, and international impacts.

Research on universities has a long tradition in several disciplines. Geographical research about universities came to prominence in the 1950s and 1960s as higher

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education rapidly began to expand across the globe. In developed countries university expansion was motivated by a desire to increase the number of graduates in the workforce, especially in the sciences, and to enhance access to higher education for students from disadvantaged backgrounds (Anderson, 2006, pp. 131–133). In developing countries of South America and newly independent former colonies in Africa and Asia, an expanded system of higher education was usually a major priority for economic development and nation-state building (Jöns, 2016, pp. 322–324). Early explicitly geographical investigations of this process of university expansion during the 1950s and 1960s include James W. Harvey's study on the economic relationships between the University of California and the city of Berkeley in the United States (Harvey, 1958); William Balchin's work on the actual and potential university locations in the United Kingdom (Balchin, 1959); Serge Vassal's research on the impact of new university campuses on the integration and fragmentation of urban space in France (Vassal, 1969); and Alois Mayr's comparative investigations of old and new universities in Germany (Mayr, 1979; see chapter by Heffernan & Jöns in this volume, pp. 247–248).

During the 1970s, a wave of geographical research on higher education emerged, notably in Germany, where Robert Geipel, Professor of Applied Geography at the Technical University in Munich, was especially influential. This innovative work examined the locations of universities within cities, regions, and nation states; catchment areas for student recruitment; the economic impacts of universities on local and regional communities; the academic performance of universities, measured by a range of variables now widely deployed as part of the governance of higher education; and the mobility and career trajectories of students and academics (Geipel, 1968, 1971; Giese, 1987; Meusbürger, 1976, 1990; for an overview, see Meusbürger, 1998, pp. 438–460).

Over the subsequent decades, studies on the geographies of the university have proliferated thematically and in terms of geographical scales to include the regional and social origin of university students (e.g., Giese, 1982; Hoare, 1991; Holdsworth, 2009a; Nutz, 1991) and professors (e.g., Meusbürger, 1986, 1990; Meusbürger & Schuch, 2010; Weick, 1995); the nature and outcomes of international student mobility (e.g., Brooks & Waters, 2011; Findlay, King, Smith, Geddes, & Skeldon, 2012; Li, Findlay, Jowett, & Skeldon, 1996) and academic travel (e.g., Heffernan & Jöns, 2013; Jöns, 2003, 2008, 2015); the transformation of towns and cities through students (e.g., Chatterton, 2000; Holdsworth, 2009b; Smith, 2008); the development of university-business-government relations and wider regional impacts of universities (e.g., Harrison & Turok, 2017; Lawton Smith, 2007; Lawton Smith, Glasson, Romeo, Waters, & Chadwick, 2013; Lawton Smith, Keeble, Lawson, Morre, & Wilkinson, 2001); the emergence of ethnic inequalities in higher education through different degrees of cultural conformity (Freytag, 2003, 2016); the role of geography in the new plateglass universities of the 1960s (Johnston, 2004); the politics of honorary degree conferment (Heffernan & Jöns, 2007); the internationalization of higher education through the development of knowledge and education hubs (Knight, 2013; Olds, 2007) and branch campuses (Geddie, 2012); the international mobility of degree programs (Waters & Leung, 2013); and critical perspectives on world university rankings (Jöns & Hoyler, 2013;

see also the relevant contributions in Mayr & Nutz, 2002, and the recent review by Freytag, Jahnke, and Kramer, 2015, pp. 20–26).

The most ambitious historical geography of a single university is probably the interdisciplinary *Wissenschaftsatlas* of Heidelberg University, which affords a long-term historical and geographical analysis of the wider spatial relations of this globally important center of higher learning and research (Heffernan, 2013; Meusburger & Schuch, 2012). The *Wissenschaftsatlas* exemplifies how the four key processes that Jöns (2016) identified as pivotal for the development of modern schools and universities from about 1450 to 1970 unfolded in one institution—Heidelberg University—because this university was profoundly affected by “cycles of expansion and contraction”; the emergence of a “core set of common practices,” such as doctoral and scientific laboratory research; the “professionalization of learning, teaching, and research”; and a “complex transition from a humanistic to a scientific paradigm” of knowledge production and exchange (p. 310).

This introduction aims to contextualize the 20 peer-reviewed chapters of this book within existing academic literature on five main themes that reflect the book’s structure—historical perspectives; the university, knowledge, and governance; the university and the city; the university and the region; and the international university.

Historical Perspectives

Traditions of higher learning were well developed in the ancient civilizations of China, India, and the Islamic world. Some Medieval Islamic universities, such as al-Qarawiyyin in the Moroccan city of Fez (founded 859) and al Azhar in the Egyptian capital of Cairo (970), survive to the present day. The first European universities emerged from informal gatherings of students and scholars in Bologna, Paris, and Oxford from the eleventh century onward. Three distinctive features characterized the medieval European foundations: first, their corporate organization as *universitates magistrorum et scholarium*, involving rights and privileges as well as rules and obligations; second, the award of academic degrees; and third, the organization into the four medieval faculties of philosophy, law, medicine, and theology (Rüegg, 1992a, pp. xix–xx; 1992b, pp. 3–8; Shils & Roberts, 2004).

Universities were founded by Europeans in colonized territories since the early modern period, early examples including the foundations in the Caribbean city of Santo Domingo (1538), Lima (1571), and Mexico City (1595) on the mainland of South America, and in Cambridge, Massachusetts, in North America (Harvard College, 1636; see Roberts, Rodriguez Cruz, & Herbst, 1996). Out of about 1,500 universities in operation globally by 1970, only 131 (9%) were founded before the nineteenth century. Subsequently, the global expansion of higher education increased with relatively equal shares of new universities being founded at ever shorter intervals: 1801–1900: 25%; 1901–1945: 21%; 1946–1960: 25%; and 1961–1970: 20% (Jöns, 2016, p. 324). Since the 1970s, higher education has expanded by approximately 18,500 universities worldwide (92% of those existing

in 2012; Krull, 2012, p. 120), growth that has raised participation rates of young people in higher education considerably, albeit very unevenly on a global scale. In the United Kingdom, age-cohort specific participation rates increased from 14% in 1970 to 49% in 2015, whereas participation rates of all postsecondary students varied between different world regions—in 2007—from only 4% in sub-Saharan Africa and 35% in Latin America and the Caribbean to over 70% in North America and Western Europe (Altbach, Reisberg, & Rumbley, 2009, p. vii; Department for Education, 2017, p. 3; Robertson, 2010, p. 19).

The contributors of the first five chapters of this book discuss historical geographies of the European university from the Middle Ages up to the twentieth century, including methodological considerations about the historiographic mapping of landscapes of higher education; the analysis of international academic mobility of students and academics; and facets of the politics of university expansion through the founding of new universities. Rainer Christoph Schwinges presents the Repertorium Academicum Germanicum (RAG), a database that facilitates intensive research on the geographies and social influence of universities. The RAG research project aims to create a digital database containing the biographical data of all graduate scholars who worked within the Holy Roman Empire between 1250 and 1550. Furthermore, the RAG implements the *Gelehrtenatlas* (Atlas of Scholars), a web-based geographic information system that allows for the analysis and visualization of academic mobility, a university's catchment area, and subsequent career trajectories. Beyond the tracking of individuals, the database also assists in the tracking of cohorts, such as scholars from specific areas, in order to compare the catchment areas of different universities. Schwinges demonstrates the capacities and research opportunities of the RAG by using the example of the influential German scholar Winand von Steeg and several depictions of the catchment areas of universities such as Prague and Erfurt.

Peter Meusburger and Ferenc Probáld analyze the scientific and cultural relations between Heidelberg University and Hungary. For various reasons, Hungarian students have been among the most mobile in Europe since the Middle Ages. Reviewing five centuries, the authors focus on the historical periods of 1595 to 1621 and 1789 to 1919, when the relations between Heidelberg University and the Carpathian Basin were especially close. The chapter elucidates to what extent international universities such as Heidelberg are influenced by national and international political developments, power relations, and interests, and how these lead to results ranging from outstanding scientific achievements to academic mediocracy and even irrelevance. The share of Hungarian students attending Heidelberg University was influenced by political, social, religious, intellectual, and economic developments and varied widely over time. The authors examine the causes of fluctuating student mobility from Hungary and Transylvania to Heidelberg in the context of a wider discussion of the relationship between Hungary and Germany. Their analysis yields insights into the regional and social backgrounds of Hungarian students as well as the faculties they visited, their later professions, and the influence of Heidelberg professors on the cultural, academic, and political

development in Hungary. The chapter also provides details on biographies and networks of selected outstanding individuals.

Howard Hotson illustrates the value of digital, highly granular data for intellectual histories of Europe. Drawing on matriculation registers from universities in the Holy Roman Empire during the Thirty Years' War, he shows how student migration functioned as a form of intellectual exchange and how the war transformed the academic geography of the Empire and surrounding regions in ways that reflected and sustained existing denominational differences. Methodologically, Hotson points the way toward an intriguing intellectual historical geography of seventeenth-century Europe and calls for more coherent, instantly navigable data sets that would allow further analysis and visualization.

Hanne Kirstine Adriansen and Inge Adriansen adopt a geohistorical perspective to explore the political geography and discourses related to four university foundings in the Danish monarchy from the fourteenth to the twentieth century. They show how the founding of universities was a means for manifesting political independence and supporting the creation of a nation-state. In addition, they reflect more generally on universities as national symbols and institutions, arguing that universities play important roles in the preservation of national language and unofficial national symbols, and may even serve as national symbols, granting countries control over education and knowledge production. The authors conclude that a geographical approach to university history is very valuable and explore the role of internationalization for universities in relation to local and national interests because international exchanges might contribute to the decolonization of knowledge.

Michael Heffernan and Heike Jöns reconstruct the decision-making processes that led to the founding of a new Scottish university in the county town of Stirling. Their analysis of the practices and deliberations of the University Grants Committee (UGC) is set within the historical context of the postwar expansion of British higher education during the late 1950s and early 1960s. Clearly marked by the publication of the Robbins Report on Higher Education in 1963, the Robbins committee recommended that the existing higher education system be extended by a number of new university institutions, including the establishment of a fifth new university in Scotland. The authors turn to previously unexamined documents from the UK National Archives to analyze the debates and decisions on the question of which of the seven competing locations the government was to choose as the location for the new Scottish university. Heffernan and Jöns argue that the absence of geographers in the decision-making contributed to the UGC members' lack of discussion about the long-term economic, social, and cultural consequences of a new university in each of the seven competing places. This absence paved the way for intense lobbying and counterlobbying practices involving different alumni networks that favored Stirling and reflected wider policy cultures in the United Kingdom at the time.

The University, Knowledge, and Governance

Universities have been studied in a range of disciplines because they are important creative environments that generate research and innovation across the sciences and the humanities and fuel economic growth through technological and cultural innovation. Universities educate knowledge workers and future decision-makers in economy and society, and contribute to local, regional, national, and supranational economic and sociocultural development (e.g., Cochrane & Williams, 2013; Goddard & Vallance, 2013; Lawton Smith, 2007; Saxenian, 1994, 2006). Considering this multiscalar nature of universities and their wider impacts as well as the historical origin of universities as institutions chartered initially by both the pope and the king and later also by other agents such as municipal councils, national governments, industrial philanthropists, and other wealthy people (Anderson, 2004, 2006; Rüegg, 1992b, 2004), university governance is situated, as conceptualized by Clark (1983), within the interplay of academic oligarchy, the state, and the market. This raises the key question about the strategies that can be pursued in relation to each of these three spheres in order to enhance creativity and innovation.

In the late nineteenth century a key competitive advantage of the hegemonic German research universities was the government support they received. From 1870 to 1914, affluent states such as Baden invested up to 4.7% of their budgets in universities and other scientific institutions. This support resulted in more generous professorial salaries and better equipped laboratories than was possible at universities that relied on endowments (Meusburger & Schuch, 2010, p. 62). Technological innovation in the industrial society was often dominated by dyadic collaborative relationships between industry and government (Etzkowitz & Leydesdorff, 2000). However, initiatives such as those of Vannevar Bush, Professor of Electrical Engineering at the Massachusetts Institute of Technology (M.I.T.), to develop the well-known vacuum tube firm Raytheon in Cambridge, Massachusetts, in the 1920s, and his subsequent role as the director of the Office of Scientific Research and Development (OSRD) from 1941 to 1947, increasingly entangled university research in both industry and government (Saxenian, 1994, pp. 13–14). The subsequent development of flourishing high-tech regions around M.I.T. (Route 128) and Stanford University (Silicon Valley) inspired the triple-helix model of university-industry-government relations that Etzkowitz (1993) and Etzkowitz and Leydesdorff (1995, 1997) identified not only as the cornerstone of the technoscientific complex underpinning American hegemony in the twentieth century, or what Senator J. William Fulbright famously called the “military-industrial-academic complex” in a Senate speech of 1967 (Shapin, 2012, p. 16), but, more generally, as the basis of productive technological innovation in the knowledge society.

The authors in the second section of this book discuss different aspects of university governance that contribute to innovation, creativity, and quality standards, yet they also reflect on the opposite phenomena of ignorance and absence, which also need to be regarded as a constituent part of settings in which knowledge is produced and debated. Peter Meusburger delineates theoretical and methodological issues of knowledge environments in universities. Until the early 1980s, most

research on scientific creativity centered on personal attributes of scholars. Few authors found it necessary to take the social, cultural, and scientific environment into account. Yet, creativity is never the result of individual action alone. A stimulating environment and a talented individual must come together and interact before a creative process can occur. Several milieu factors can promote or hinder scientific creativity and academic careers as well. This chapter addresses the following questions: What is meant by the term *knowledge environment*? Which components make up a local knowledge environment? In what way can a local knowledge environment affect goals, decisions, learning, research processes, and careers of academics? How can one verify the consequences of a knowledge environment?

Henry Etzkowitz reflects on the role of the government in university-based innovation. He discusses the development of a triple-helix system of innovation as a basis of innovation policy under laissez-faire conditions in the United States, which he compares to the development of more statist regimes elsewhere. He describes how, during World War II, direct links were established between government, industry, and the university in the United States. These relations led to a shift in attitude among the scientists involved, whose prewar opposition to government funding was reversed. Universities increasingly sought government funding for research, and a new organizational model transferred large part of decision-making on innovative processes and products to scientists. After World War II, initially linear models of innovation were adopted, relying on the government to supply funding for research in expectance of outcomes such as innovation, technical solutions, and new ideas. Evaluations in the 1960s, however, showed that little research had been turned into innovation, a realization that led to a more structured approach and an enhanced role of government. The changing role that government in the United States and other countries has in innovation is normatively and analytically conceptualized through the triple helix of industry, science, and government, which Etzkowitz describes as the key relationship for innovation in a knowledge-based society.

Christine Sattler and Karl-Heinz Sonntag present the theoretical background and selected evidence from the project “heiQUALITY Cultures.” The main objective of this project is to create an empirically based instrument to operationalize quality cultures within higher education institutions. The project has led to the development of the “Quality Culture Inventory (QCI),” which enables organizations to evaluate their current quality-culture empirically and to analyze quality-oriented leadership and strength as well as weaknesses of the organization’s quality culture profile. The authors highlight that this process depends on the acceptance and openness of the participants to reflect on the organization’s quality culture. The use of both an organizational-psychological survey and a structural-formal questionnaire generates results that enable reflection on quality cultures in higher education institutions and on ways to improve these through targeted-oriented intervention measures.

Jennifer L. Croissant contributes to the emerging debate on ignorance as an “ethnographic object.” She adds to the development of theory and lays the foundation for cross-case comparisons in studies on ignorance by identifying points at which the study of ignorance and the study of absence as a broader concept intersect

and diverge. She first explores the properties of ignorance and analyzes agnotology and other concepts of ignorance for their different disciplinary origins, discussing the term *ignorance* in relation to synonyms and contrasting terms and proposing five attributes that can be applied to case studies of ignorance and nonknowledge: ontology and epistemology, chronicity, granularity, scale, and intentionality. In a second step, she relates studies of agnotology to general concepts of absences, such as privatives, silences and invisibilities, and symmetry and stupidity.

The University and the City

According to the cultural historian Peter Burke (2000), “the rise of cities and the rise of universities occurred together in Europe from the twelfth century onwards” (p. 33). This great importance of both the local environment for the flourishing of universities and of universities for the economic and sociocultural prosperity of towns and cities has been analyzed for some of the most renowned universities in Europe and the United States from a long-term historical perspective (Bender, 1986). In 1252, for example, King Konrad IV (1228–1254) promoted his newly founded university in Salerno by referring to the beautiful location of the city. Similarly, the founding of other medieval universities, such as Prague, Erfurt, Heidelberg, Regensburg, Ingolstadt, and Tübingen, were justified by geographical arguments, including population size, the healthy location of the city, the beauty of the city, and the security of the food supply (Lorenz, 1999, p. 9).

The important role of universities for the economic prosperity of towns and cities was confirmed in a study of English cities by Parkinson et al. (2006), who argued that universities are “the key to innovation in the city” if they “successfully recruit and retain university graduates” and “encourage sustainable links between the city, the university and local businesses” (p. 104). According to Huber (2012), this twofold strategy of attracting and retaining firms and R&D workers can be effectively supported by cluster policies focusing on labor market initiatives and brand management rather than merely local networking strategies. Goddard and Vallance’s (2013) book *The University and the City* explicitly aims to widen research “from the previously dominant focus in this field on universities as agents of knowledge-based development in the economic and political spaces of regions” (p. 1). They seek to do so by discussing research on student life and processes of studentification in combination with studies on the role that university campuses have played in urban development, as well as other impacts of the university on diverse social, cultural, economic, and sustainable features of the city (e.g., Armstrong, Darrall, & Grove-White, 1997; Benneworth, Charles, & Madanipour, 2010; Chatterton 1999, 2000; Gumprecht, 2008; Smith, 2008; Smith & Hubbard, 2014).

Such multidimensional interrelations between universities and cities are discussed in the third section of this book. John Goddard explores the changing nature of links between the university and the city from both a theoretical and practice-oriented perspective. He claims that universities are “key institutions in

society” (p. 356), for which a relationship with the surrounding actors of market, government, and civil society is inevitable. He regards civic universities as “urban anchor institutions” (p. 356) that represent possible sources of stability in local economies because of their low susceptibility to economic downturns. Goddard also inquires into the active contributions of universities to place-making, innovation, and social and economic development and develops the approach of a quadruple helix. This latter concept extends the triple-helix model (see chapter by Etzkowitz in this volume) by including civil society and social innovation in the conceptualization of external collaborations of universities. With universities facing growing expectations to contribute to social challenges, as expressed in the European Commission’s concept of responsible research and innovation, he argues that the performance of civic roles implies tensions between the university, its local surroundings, and internal structures. Based on the examples of universities working with their four English host cities—Newcastle, Manchester, Sheffield, and Bristol—Goddard’s proposed model of the civic university “integrates teaching, research, and engagement with the outside world such that each enhances the other” (p. 362).

Helmut Bott illustrates the change in architectural concepts of university buildings and in the spatial relationship between university, city, and landscape from a long-term historical perspective. He gives an overview on the early European universities, which were similar to urban monasteries and were integrated into the power structures and interests of feudal clerical and secular powers. He shows how the establishment of applied and experimental sciences and the turn toward research universities since the Renaissance has led to new architectural requirements, such as laboratories, observatories, and botanical gardens, and how the invention of letterpress printing created a demand for large libraries as a new building typology. Bott describes how, beginning in the eighteenth century, triple-wing palace universities became a new paradigm that opened them to public space. In the nineteenth century radical reform and liberalization of universities created new faculties and modern research universities such as the University of Berlin. European universities became integrated into urban patterns, a change that combined internal, semipublic, and public space. Bott regards the development of the Anglo-American universities since the seventeenth century as a different type of design because they often consist of ensembles of detached buildings within rural landscapes outside cities, a characteristic that has led to many of today’s picturesque university campuses. A current trend he identifies in university design is reurbanization through a growing reintegration of campuses into urban development and structures.

Alexandra C. den Heijer and Flavia T. J. Curvelo Magdaniel probe the relation between universities and cities for the physical setting and functional mix of campuses in the past, present, and future. They argue that universities and the cities they are located in have the same goal of attracting talent and stimulating innovation, the attainment of which depends greatly on the local environment. The authors present empirical evidence from a comparative exploratory study of an international sample of 39 campuses. With regard to physical campus-city relations and functions, they find an “enduring shift in campus development from peripheral to inner-city locations” and a “shift from monofunctional to multifunctional campuses” (p. 451).

Den Heijer and Curvelo Magdaniel conclude that contemporary universities increasingly become part of the city, with which they share ever more physical and functional resources. They argue that this integration holds growing potential for closer campus-city cooperation and increasing awareness among diverse interest groups about how the multiple physical and functional campus-city relations could improve decision-making in both spheres.

Carl Zillich provides insights into the International Building Exhibition (IBA) in Heidelberg. Reviewing the history of IBAs in Germany, he states that the strategies of the IBA were transformed according to the societal system, change that ushered in the rather soft criteria of IBAs today to allow the IBA to adapt to locality and context. IBAs emphasize not only architecture but also societal evolution and the “urban realm and its underlying governance” (p. 464). The IBA in Heidelberg started in late 2012 and will function as an urban laboratory until 2022, aiming to create spatial potentials for innovation. As a platform, network, and development agency, the IBA brings together actors from the fields of education, science and research, and other realms related to the knowledge-based society, including actors from the private, public, and other sectors of society. The IBA in Heidelberg thus integrates a variety of public and private interests in a combination of top-down and bottom-up strategies. Although not funding construction itself, the event helps to create ideas for new practices of urban development that will address future challenges of Heidelberg City as a so-called “knowledge pearl.”

The University and the Region

Since the mid-twentieth century, leading American research universities, including M.I.T. and Stanford University, have had enormous impact on their regional economies by generating a number of start-up and spin-off companies in knowledge-intensive industries such as personal computers and semiconductors—and, more recently, biotechnology—in Silicon Valley and along Route 128. However, research on the most visible British high-tech clusters in Cambridgeshire and Oxfordshire has raised questions about the value of spatial proximity for high-tech innovation, for their firms’ most important sources of innovation have been clients and customers located on the national and international scales (Lawton Smith, 2007; Lawton Smith et al., 2001). In order to evaluate the role of physical proximity in a cluster for innovation, it seems to be important to consider variations between high-tech sectors (e.g., information technology [IT] or biotech), the stage of the industry cycle, and the job roles of research participants. In Cambridgeshire, close university-business interactions were important for creating the cluster in the 1970s, but they have decreased with the maturity of the IT industry cycle and the related shift from a product-based to a producer-service-based high-tech system with technical consultancies (Lawton Smith et al., 2001, 2013). Moreover, Huber’s (2012) research on the Cambridge IT cluster has demonstrated that the perceived benefits from local knowledge spillovers and networks vary between R&D managers, who value the

access to *business knowledge* through local personal networks, and engineers, who see less need to interact locally for accessing new *technological knowledge*.

Based on a decentralized but cooperative industrial system, informal business culture, and support of entrepreneurial risk-taking, Silicon Valley has become a model for regional clusters of high-tech innovation around the world (Saxenian, 1994, 2006). Cook and Joseph (2001) have argued that the global transfer of Silicon Valley's business culture has been difficult because of the historical and geographical specificity in which this leading cluster of technological innovation emerged. Yet, Saxenian (2006) has demonstrated that U.S.-educated engineers who had immigrated from India, China, and Taiwan, and who had returned there after working in Silicon Valley for some time, eventually founded their own companies in their home countries, thereby contributing to the emergence of cross-regional transnational communities of high-tech innovation. This brain circulation, combining return migration with transnationalism, has fostered the emergence of successful high-tech regions in Asia and has thus proven successful at transferring Silicon Valley's business culture internationally through embodied personal experience and face-to-face interactions (Saxenian, 2006).

Drawing on the insight that "a cluster's economic prospect depends on its internal interactions and its ability to identify and access external knowledge sources located far away" (Maskell, Bathelt, & Malmberg, 2006, p. 998), the essays in this third section of the book contribute to a wider research agenda by diversifying the existing research focus on Anglo-American high-tech regions geographically and thematically in two ways. First, they highlight the economic and labor-market impacts of universities in Africa and China as well as Europe; second, they call attention to effects that universities have on local communities and sociocultural relationships. Johannes Glückler, Robert Panitz, and Christian Wuttke examine the impact of universities on the economy of the German federal state of Baden-Württemberg. They argue that universities have qualitative and complex regional impacts that are impossible to quantify fully in monetary terms over long periods and from geographical perspectives. They therefore look closely at short-term, periodic monetary effects by calculating the regional expenditures of the university and its members for goods and services, which increase autonomous demand and lever production and employment within a region and beyond. The authors analyze the gross expenditures of the universities and their members as a direct effect on the regional economy and compute the corresponding rise in production and associated supplies in related sectors of the economy as an indirect effect. This rise triggers increased employment in the upstream sectors, which leads to additional income that the authors compute as induced effect. According to their results, the attraction of students and external funding has a stronger influence on the regional impact than public expenditures do.

In a case study of three universities in Cameroon, Eike W. Schamp argues that regional knowledge spillovers in Africa, especially in the nonmetropolitan context, differ from those on other continents in that there is an absence of spillovers through codified, formalized communication, such as licenses, contract research, and collaborative publication. He attributes this lack to the "particular historical, societal,

economic, and political context” (p. 533) because the nonmetropolitan type of university is peripheral in terms of academic performance, resources, and political influence, which he considers typical for many young public African universities. The author argues that regional engagement and spillovers of knowledge to local societies still occur through several forms of less visible, possibly even “invisible” communications. These are relevant for knowledge spillovers between the universities and their region and are crucial for communicating tacit knowledge to local informal and nonprofit stakeholders as relevant agents of development in peripheral regions.

Julia Boger analyzes the reintegration of academics into regional labor markets in sub-Saharan Africa. Specifically, she studies the experience of graduate students who pursued their education abroad and who have been employed in academia since returning to Ghana and Cameroon, two countries intensely affected by outmigration. Boger points out that sub-Saharan universities lack financial resources, infrastructure, and qualified personnel, and often cannot meet the demand for higher education. Highly educated return migrants are expected to function as agents of change that will spark development through the transfer of knowledge. On the basis of empirical data on the labor market entries of the returning graduates and their professional reintegration, she describes their entry into the labor market as long and difficult. She concludes that the work of returned graduates in the higher education sector can stimulate or cultivate development processes, for example, through capacity building, community services, and innovation at the institutional level. She states, though, that the universities do not fully realize the potential expertise of the returning academics.

Anthony Welch then critically examines conventional views on global regionalism through his mapping of connectivity and cross-border-relations between China’s southern borderlands and ASEAN member states in higher education. He gives an overview of relations between China and ASEAN countries and discusses the character, qualities, and limits of China-ASEAN regionalism. He states that ASEAN regionalism is arguably at a very low level because of national resistance to supranational regional initiatives and because of gaps between aspirations and their actual implementations. He then examines regional relations in higher education networks and includes examples from the case of the “Borderland” university from China’s southern borderlands, which plays an important role in higher education relations in the ASEAN region. Welch argues that cross-border flows are very intense, though irregular and often illegal, which he considers challenging for the conceptualization of global regions and regionalism, especially because he expects further intensification of these relations in the future.

The International University

Universities are sites of cultural encounter and exchange through diverse international linkages among their students, researchers, and academics (e.g., Gunter & Raghuram, 2017; Jöns, 2015; Madge, Raghuram, & Noxolo, 2015; Meusbürger & Schuch, 2012; Tournès & Scott-Smith, 2017). They have been key knowledge hubs in recent globalization processes “shaped by an increasingly integrated world economy, new information and communications technology (ICT), the emergence of an international knowledge network, the role of the English language, and other forces beyond the control of academic institutions” (Altbach et al., 2009, p. iv). The internationalization of higher education—defined by Knight (2003) as “the process of integrating an international, intercultural or global dimension into the purpose, functions, and delivery of postsecondary education” (p. 2)—has ranked highly on policy agendas of governments and universities in order “to respond to the many demands placed upon them by globalization and as a way for higher education to prepare individuals for engagement in a globalized world” (Altbach et al., 2009, pp. 23–24). After an initial focus on mobility of students, researchers, and academics (Altbach, 1989; Tournès & Scott-Smith, 2017) and curriculum development (OECD, 1996), internationalization strategies have proliferated since the 1990s. They include interinstitutional partnerships, such as joint and mobile degree programs, and the creation of international branch campuses (Knight, 2003; Olds, 2007).

Contemporary global geographies of higher education are highly uneven. This asymmetry is largely the result of long-term historical path dependencies linked to shifts in economic growth that either preceded or coincided with changing academic mobilities and knowledge centers (Taylor, Hoyler, & Evans, 2008). Uneven global power relations were also reinforced through academic travels, collaborations, and appointment practices in the context of European imperialism (Ellis, 2017; Jöns, 2017; Pietsch, 2017). With these historical experiences in mind, Jöns (2015, pp. 385–386) has argued that increasing flows of students, scientists, and scholars from and to China since the mid-1990s indicate an ongoing global shift of knowledge centers that will most likely redirect emphasis from transatlantic to transpacific scientific interactions and knowledge networks. These wider geographical changes are shaped by both a growing commercialization of higher education and the proliferation of neoliberal Anglophone audit cultures in the form of university rankings, which have reinforced the development of different tiers of global higher education (Findlay et al., 2012; Jöns & Hoyler, 2013; Marginson, 2016).

Whereas transnational education programs contribute to epistemological globalization in some ways, Waters and Leung (2017) have shown that these programs can produce highly ambiguous results for the immobile international students because they lack authentic experiences and language skills acquired in the country that exports its degree programs. By comparison, the increasing importance of technologies, especially virtual communication, in university research, teaching, and

learning has quite different impacts on the geographies of the university. Rye's (2014) research, for example, shows that global online education can offer access to more cost effective and democratic forms of education for students from developing countries. By contrast, Storme, Faulconbridge, Beaverstock, Derudder, and Witlox (2016) have shown that virtual mobility cannot substitute for physical mobility of researchers and academics, for face-to-face contacts remain important for the exchange of tacit knowledge and the creation of social network ties.

By asking how globalization has affected universities and how universities have contributed to globalization, the authors of the final three chapters of this book investigate ways in which universities are integrated into international networks and developments (Robertson Olds, Dale, & Dang, 2016). Allan Cochrane explores the relationship between universities as place-based institutions and wider globalization processes. His central argument is that even though universities are in many ways connected and active at a global level, they are still locally fixed and embedded within their regions, on which they have significant impacts. He considers the changing conceptualizations of the geographies of higher education and explores the concept of globally integrated, but regionalized, universities that are "placed as development nodes and transmission belts and as active partners in communities" (p. 606). Cochrane examines universities for their institutional and discursive practices, presenting four case studies on different relations between universities and their regions, which are all linked to geographical reimaginings of the universities in their specific places and wider networks. He stresses that the strategic place-based operations and business practices of universities (as employers) have significant local impacts, including local partnerships, property development, and unplanned or unintended consequences, such as changing demographics or a change in the reputation of the city or area.

Jane Kenway examines the geography of the contemporary university with regard to international student mobility and associated university practices. She proposes an understanding of universities as being not only territorially rooted, national, and subnational institutions but also places of regional and transnational routes. She argues that universities have become unbound and examines how "roots and routes" of students and universities conflict and intersect. Kenway discusses student mobility at the global level and highlights the asymmetrical distribution of international student enrollment. By studying mobile Asian students, she illustrates how flows of people, knowledge, and emotion were shaped by responses to Kuan-Hsing Chen's (2010) *Asia as a Method: Toward Deimperialization*, which partly conflicted with the dominant roots of the grounded university.

Jane Knight analyzes international education hubs framed as a new development and a third generation of cross-border higher education, which builds on and includes student mobility as well as the mobility of degree programs and education providers. She defines international education hubs as "a planned effort to build a critical mass of local and international actors strategically engaged in cross-border education, training, knowledge-production and innovation initiatives" (p. 644). Knight offers a typology consisting of three major types: student hubs, which are mainly engaged in education and training; talent hubs, which are geared primarily to generating a skilled workforce; and knowledge-innovation hubs, which produce and

distribute knowledge and innovation. She then applies this typology to those six international education hubs that exist at the international level. Lastly, she analyzes international education hubs in their relation to the previous generations of cross-border higher education with regard to geographic outreach and impact.

In conclusion, the chapters in this volume present empirically grounded and theoretically informed research perspectives on the multiscalar geographies of the university as they are practiced in different disciplinary and linguistic epistemic communities. The authors illuminate the great value of both historical and contemporary research perspectives on place-based and flow-based aspects of university life in order to improve understanding of the nature of the university and to inform policies that help shape its multiple and, one hopes, sustainable futures. In that sense this book relaunches an interdisciplinary research agenda on geographies of the university that engages with the spatial dimensions of all the functions of the university and the practices of its members from both historical and contemporary perspectives. Additional inquiry is needed on the topics addressed in this book—and on the many topics that were not addressed—both to diversify research perspectives geographically and thematically and to produce new comparative insights.

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