

*Academic Capitalism in the  
Age of Globalization*

---

*Edited by*  
BRENDAN CANTWELL  
and ILKKA KAUPPINEN

*Foreword by* Sheila Slaughter

Johns Hopkins University Press  
*Baltimore*

© 2014 Johns Hopkins University Press  
 All rights reserved. Published 2014  
 Printed in the United States of America on acid-free paper

2 4 6 8 9 7 5 3 1

Johns Hopkins University Press  
 2715 North Charles Street  
 Baltimore, Maryland 21218-4363  
 www.press.jhu.edu

Library of Congress Cataloging-in-Publication Data

Academic capitalism in the age of globalization / Brendan Cantwell and  
 Ilkka Kauppinen, editors; foreword by Sheila Slaughter.

pages cm

Includes bibliographical references and index.

ISBN 978-1-4214-1537-6 (hardcover : alk. paper)—ISBN 978-1-4214-1538-3  
 (pbk. : alk. paper)—ISBN 978-1-4214-1539-0 (electronic)—ISBN 1-4214-1537-2  
 (hardcover : alk. paper)—ISBN 1-4214-1538-0 (pbk. : alk. paper)—ISBN  
 1-4214-1539-9 (electronic) 1. Education, Higher—Economic aspects. 2. Business  
 and education. 3. Capitalism and education. 4. Knowledge economy.

I. Cantwell, Brendan, 1980— II. Kauppinen, Ilkka.

LC67.6.A26 2014

338.43378—dc23 2014004989

A catalog record for this book is available from the British Library.

*Special discounts are available for bulk purchases of this book.*  
 For more information, please contact Special Sales at 410-516-6936 or  
 specialsales@press.jhu.edu.

Johns Hopkins University Press uses environmentally friendly book materials,  
 including recycled text paper that is composed of at least 30 percent post-  
 consumer waste, whenever possible.

*Foreword, by Sheila Slaughter* vii

*Acknowledgments* xi

PART I ACADEMIC CAPITALISM REVISITED

- 1 Academic Capitalism in Theory and Research 3  
 BRENDAN CANTWELL AND ILKKA KAUPPINEN
- 2 Rethorizing Academic Capitalism: *Actors,  
 Mechanisms, Fields, and Networks* 10  
 SHEILA SLAUGHTER
- 3 University Revolutions and Academic Capitalism:  
*A Historical Perspective* 33  
 JUSSI VÄLIMAA
- 4 Exploring the Academic Capitalist Time Regime 55  
 JUDITH WALKER
- 5 Learning to Litigate: *University Patents in the  
 Knowledge Economy* 74  
 JACOB H. ROOKSBY AND BRIAN PUSSEY
- 6 Academic Capitalism and Practical Activity:  
*Extending the Research Program* 94  
 KEIJO RÄSÄNEN
- 7 Extending Academic Capitalism by Foregrounding  
 Academic Labor 113  
 GARY RHOADES

PART II ACADEMIC CAPITALISM AND GLOBALIZATION	
8 The Global Enterprise of Higher Education	137
ILKKA KAUPPINEN AND BRENDAN CANTWELL	
9 Transnationalization of Academic Capitalism through Global Production Networks	147
ILKKA KAUPPINEN AND BRENDAN CANTWELL	
10 How to Explain Academic Capitalism: <i>A Mechanism-Based Approach</i>	166
TUUKKA KAIDESOJA AND ILKKA KAUPPINEN	
11 Peripheral Knowledge-Driven Economies: <i>What Does Academic Capitalism Have to Say?</i>	187
ALMA MALDONADO-MALDONADO	
12 Academic Capitalism in Greater China: <i>Theme and Variations</i>	208
HEI-HANG HAYES TANG	
13 Risky Business: <i>Academic Capitalism, Globalization, and the Risk University</i>	228
ROGER P. KING	
14 Developing a Conceptual Model to Study the International Student Market	246
ILKKA KAUPPINEN, CHARLES MATHIES, AND LEASA WEIMER	
<i>List of Contributors</i>	265
<i>Index</i>	269

*Academic Capitalism: Politics, Policies and the Entrepreneurial University* (1997) was written as an attempt to describe the politics and policies shaping the beginnings of a period of intense marketization for universities in four English-speaking countries. *Academic Capitalism: Markets, State, and Higher Education* (2004) was an effort to theorize this phenomenon more fully, concentrating on the United States, where we believed dissection of the belly of the beast would offer the richest understanding of its etiology.\* We understood the academic swivel toward the market as being framed by opportunities created by the rise of the neoliberal state, the knowledge economy, globalization, and the growth of transnational capitalism. We tried to work out mechanisms that connected academics to the market possibilities opening up and focused on organizational processes—new circuits of knowledge, interstitial organizational emergence, intermediating organizations, expanded managerial capacity—and also narratives, discourses, social technologies, resources, rewards, and incentives that moved actors within the university from the public good knowledge/learning regime to the academic capitalist knowledge/learning regime. We always understood, however, that colleges and universities were not corporations, that whatever markets in which these organizations participated were heavily state subsidized, whether by the federal government (through federal student

\*Although I have been asked to write the foreword to this volume, I do not regard myself as the sole or even coauthor of the several volumes on academic capitalism. Rather, I see exploration of the academic capitalist knowledge/learning regime as a joint project, enabled by the many people who worked together on it: first and foremost, Larry Leslie and Gary Rhoades, also Cynthia Archerd, Sondra Barringer, Teresa Campbell, Jen Croissant, Rachel Hendrickson, Margaret Holleman, David R. Johnson, Samantha King, Christine Maitland, Matt Mars, Charles Mathies, Amy Metcalfe, Jennifer Olson, Brian Pusser, Kelly Ochs Rossinger, Barbara Sporn, Barrett J. Taylor, Scott Thomas, Leasa Weimer, Liang Zhang, and of course the editors of this volume, Brendan Cantwell and Ilkka Kauppinen, among many others.

- Science and Technology." *Science, Technology and Human Values* 21, no. 3: 303–39. doi:10.1177/016224399602100303.
- . 2004. *Academic Capitalism and the New Economy: Markets, State, and Higher Education*. Baltimore: Johns Hopkins University Press.
- Tilly, Charles. 2001. "Mechanisms in Political Processes." *Annual Review of Political Science* 4, no. 1: 21–41. doi:10.1146/annurev.polisci.4.1.21.
- van Apeldoorn, Bastiaan. 2000. "Transnational Class Agency and European Governance: The Case of the European Round Table of Industrialists." *New Political Economy* 5, no. 2: 157–81.
- . 2002. *Transnational Capitalism and the Struggle over European Integration*. London: Routledge.
- Wan, Poe Yu-ze, 2011. *Reframing the Social: Emergentist Systemism and Social Theory*. Burlington, VT: Ashgate.
- Ylijoki, Oili-Helena. 2003. "Entangled in Academic Capitalism? A Case-Study on Changing Ideals and Practices of University." *Higher Education* 45, no. 3: 307–35. doi:10.1023/A:1022667923715.

## Peripheral Knowledge-Driven Economies

### What Does Academic Capitalism Have to Say?

ALMA MALDONADO-MALDONADO

A book that does not contain its counter-book is considered incomplete.

—Jorge Luis Borges, 1940

Seventeen years have passed since the publication of the first book on academic capitalism, *Academic Capitalism: Politics, Policies, and the Entrepreneurial University* by Slaughter and Leslie (1997), and ten since Slaughter and Rhoades (2004) published *Academic Capitalism and the New Economy: Markets, State, and Higher Education*. This chapter reflects on the influence of the two books and discusses the particular contributions of academic capitalism in understanding developing countries and emerging economies in particular. In his fictional account "Tlön, Uqbar, Orbis Tertius," Borges (2011) describes an invented world in which all works of "a philosophical nature invariably contain both the thesis and the antithesis, the rigorous pro and contra of every argument" (29). Although this chapter is far from becoming that with respect to academic capitalism, it at least attempts to establish a dialogue between the theory and the context of these countries, taking into consideration that neither book included direct references to developing countries. The first book deals with the cases of Australia, Canada, the United Kingdom, and the United States, while the second refers only to the United States. It therefore seems pertinent to include in this volume the debate on what the academic capitalism theory has to say about developing countries.

There have been important changes since the publication of the first book on academic capitalism and between the first and the second. One development has been a general expansion in higher education enrollments. In 1997 there was an impasse in the worldwide enrollment in higher education. But by 2004

there was increased enrollment in some countries, with high rates of participation including the United States and Russia, modest growth in the United Kingdom, and substantial growth in enrollments in large developing countries, including Brazil, China, India, and Mexico. With the exception of France and Japan, most other countries registered some increase in enrollment. Current data show that the increase in enrollment will probably continue, which is something to take into consideration given the demographic situation in most countries where the expansion of higher education enrollment will continue for at least a couple of decades (Lincoln 2013).

Another relevant situation has to do with the worldwide economic crisis from 2007, which has been an element shaping public policies in most countries, affecting the educational sector as a consequence. In fact, the way the crisis has affected educational policies has not been sufficiently explored. In addition to the way the crisis has affected national and local education policies, there have also been reductions in international aid provided to developing countries that may affect some education programs. This is one of the most pertinent aspects where academic capitalism maintains its relevance: a context with economic constraints along with the increasing social and economic relevance of higher education.

### Theoretical Context

For over a decade the most popular “religion” in higher education might be referred to as the “Triple Helixists” (e.g., Etzkowitz and Leydesdorff 2000) or some derivative. One of the main ideas of the Triple Helix is that there is “a more prominent role for the University in innovation, on a par with Industry and Government in the Knowledge Society” (Triple Helix Research Group 2013). So many scholars, practitioners, and governments talk about the importance of higher education because it affects economic development and, more importantly, because it promotes innovation. A recent book published by Lane and Johnstone (2012) analyzes some of the most common assumptions and suggests the necessity of being more careful with them: “In light of this obstacle, the common practice used to capture outcome often takes the form of anecdotes and individual case studies that highlight the impact of a certain scientific discovery” (Mchenry, Sanderson, and Siegfried 2012, 115, cited in Lane and Johnstone 2012). In this sense, academic capitalism is relevant because it refers to economic constraints, while the situation has become worse in most countries. Among the different reasons why developing countries are not within the radar of the development of the theory of academic capitalism, one has to do with their diminished circuits and infrastructure of knowledge.

In 2011, Japan reported having 5,180 researchers per million inhabitants, the United States had 4,673, the United Kingdom had 3,947, and the European Union had on average 3,059. This was not the situation with the so-called BRICS (Brazil, Russia, India, China, and South Africa), except for Russia, which had numbers close to the countries named above (3,091). China reported 863, Brazil 668, South Africa 393, and India 136 (UNESCO Institute for Statistics 2011). The Organisation for Economic Co-operation and Development (OECD) found that countries like Brazil, China, India, or Mexico are mostly “users” of the knowledge that is produced in other countries (the producers; see OECD 2006). The rest of the countries are basically less equipped to participate in the global knowledge economy.

Countries defined as knowledge consumers are at a clear disadvantage with respect to countries such as the United States, with the largest percentage of gross domestic product (GDP) spent on higher education and research and development (R&D) and about 70% of Nobel Prize winners working there or having three-quarters of their universities sitting in the top ranks (United Kingdom/United States of America Study Group 2009). The United States also leads the world regarding other knowledge economy indicators, such as proportions of academic knowledge produced, publishers, citations, Internet penetration, and so on (Flick and Convoco Foundation 2011). Given this context, this chapter discusses the extent to which academic capitalism theory is useful in understanding and analyzing higher education in developing countries.

This chapter will not describe or summarize the main aspects of academic capitalism, which are included in chapter 1 in this volume. Here I stress that both books on academic capitalism explain similar transitions experienced by higher education institutions. According to academic capitalism, universities and their faculty increasingly struggle to secure resources. As a result, one of the main changes they are experiencing is to modify their behaviors with respect to what they do, and they must look for ways to obtain more revenue. That is the basic storyline. The differences have to do with the context: their pressures but also their margins to maneuver are different depending on whether we are discussing developing or developed countries, more prestigious or less prestigious institutions or fields of study. Slaughter and Rhodes (2004) also mention: “We track and explain how the change from one regime to another occurs . . . we point to the active, sometimes leading role that the academy plays in marketizing higher education, rather than portraying it as the victim of external, encroaching commercial interests” (305).

The economic constraints and the agency embodied by academics in changing attitudes and behaviors are two contributions made by academic capitalism

that apply to most higher education reforms, but perhaps the blurred piece lies in the role of knowledge production. The reduction in public spending has produced and will continue to produce important changes in universities. Institutions that in the past refused to change may not have any alternative now. But to what extent are countries and institutions able to participate in the “new game” called the “knowledge-based economy,” “brain race,” “knowledge race,” “knowledge society,” or similar concepts?

### Academic Capitalism and the Role of Knowledge Production: A Breakdown Point?

The link between education and industry in the United States registered its first antecedent at MIT in 1888, when the “Massachusetts Institute of Technology initiated the first four-year bachelor program in chemical engineering to meet the emerging demands of local industry” (Schultz 2012, 131). Since that time, the United States has been a key example in establishing relations between education and industry or, in other words, between knowledge and economic development. Slaughter and Leslie (1997) point out that “clear distinctions between basic and applied research emerged in the United States after World War II. The success of physicists and nuclear engineers with nuclear weaponry was presented to government and industry as a triumph of basic research” (180). According to Berman (2012), the most important element was a change that occurred in the public policies in the United States:

Universities had already been experimenting with market–logic practices, but until the late 1970s those experiments remained limited in scope because the cultural, resource, and regulatory environment was unfavorable to them. In the late 1970s and early 1980s however, policy decisions—driven by the idea that innovation spurs economic growth—changed that environment in ways that removed regulatory barriers to such practices and provided new resources for them. In this new environment, market logic became stronger throughout the field. (12)

Naturally, many things have been written about the link between knowledge production, innovation, and development, and there are also many assumptions about this relationship. Among several possibilities, one can summarize in three main points a way to understand the economic impact of higher education:

First, as already noted many studies have sought to define the effects of university economic activity as the rippling flow of university revenues and spending within a geographic region. . . . A second approach views the economic consequence of

higher education in terms of the value of attaining a higher education credential. . . . A third approach perceives university economic impact in terms of quantifiable indicators of commercialization activity—as a summing up of patents, licenses, and royalties earned through university research. (Gais and Wright 2012, 50)

If there are doubts about the hegemonic position of the United States, the clearest examples of the three aspects mentioned above belong to this country. Perhaps not because these situations do not occur in other nations, but most research published and circulated on knowledge and economic growth still comes from the United States, perhaps because, in part, more than institutions in other countries, US universities regularly have to describe their social impact in terms of economic return. Consider an example from Montana: “Based on 2008–09 figures, the \$109.5 million in annual spending and the equivalent of approximately 730 high-paying jobs in [Montana State University] research would be lost to the state if the University did not exist.” And a report from New York highlights the economic value of university credentials: “As of 2008–2009, 1.6 million alumni [from SUNY] still lived in New York and made up a large part of the state’s highly educated workforce” (Gais and Wright 2012, 36). And, finally, on the relevance of patents and research capabilities: “About 3,000 U.S. patents are issued to universities each year—eight times the number in 1980 and more than thirty times that in the 1960s—and universities now bring in more than 2 billion in licensing revenue annually” (Berman 2012, 2).

Slaughter and Rhoades (2004) take the discussion further. They mention that there is a shift from what they call a “public good knowledge/learning regime” to an “academic capitalist knowledge/learning regime.” As they explain, “The academic capitalism knowledge regime values knowledge privatization and profit taking in which institutions, inventor faculty, and corporations have claims that come before those of the public. . . . Knowledge is construed as a private good, valued for creating streams of high-technology products that generate profit as they flow through global markets” (29).

There is a small contradiction here, or perhaps not. According to economists, knowledge is defined as a public good, but education is considered a service within economic discourse. Contrary to what some international organizations consider—such as UNESCO, some of whose members have looked to define higher education as a public service (Maldonado-Maldonado and Verger 2010)—the use of a piece of knowledge for one purpose does not preclude its use for others, say classic economists (Mas-Colell, Whinston, and Green 1995, 359). As time passes, however, there is a progressive development of advantage mechanisms to

appropriate knowledge, which private publishers and patents have provoked. They enforce excludability with the purpose of generating revenues. For example, the *Economist* (2013) reports that Elsevier, a Dutch firm that is the world's biggest journal publisher, had a margin last year of 38% on revenues of £2.1 billion (\$3.2 billion). Springer, a German firm that is the second-biggest journal publisher, made 36% on sales of €875 million (\$1.1 billion) in 2011. According to Yanagisawa and Guellec (2009), the boom of receipts from international licensing in major OECD regions began in 1986, and by 1997, when *Academic Capitalism* was published, it was important, but by 2004, when *Academic Capitalism and the New Economy* was released, the increase was impressive. Meanwhile, part of the debate at universities surrounds the fact that most of these publishers do not pay for the contributions made by scholars in activities such as editing, reviewing, or authoring articles. However, universities pay high prices for publishers' publications and subscriptions. Even more, most of the published research results have been sponsored by public financing. The contradictions are evident, but the reality is how appropriation of knowledge has increased dramatically, at least in the context of developed countries, but remains concentrated in a few universities:

More than 2,700 patents were issued to the United States' eighty-nine most research-intensive universities in 2000. The four more prolific patentors were granted more than 28 percent of those patents and the top ten accounted for nearly 45 percent . . . The top ten revenue earners garner more than 65 percent of the more than \$1 billion intellectual property licenses returned to universities. The ten most successful institutions on several other measures (licenses that include equity in start-up firms, number of new start-ups, licenses executed, and licenses generating income) account for between 35 and 50 percent of all commercial action. (Association of University Technology Managers 2000, cited in Owen-Smith 2012, 243)

These data raise a few questions: What does it mean to privatize knowledge today? How does it contradict the traditional idea, in economics, that knowledge is a public good? Is it an anomaly within the classic economics model, or simply the result of capitalism advancing within higher education? The many geopolitical interests in knowledge production today might help to answer "yes" to all three questions. Are there limits in the privatization of knowledge? What is the situation of indigenous knowledge from developing countries?

The debate on indigenous knowledge is not pointless with respect to developing countries because there are many examples of the ways entities such as

Monsanto or the Millis Corporation have privatized indigenous knowledge and are taking advantage of it. Nixtamalization is a process developed in Mesoamerica that prepares corn by soaking the grain and cooling it with an alkaline mix. Today there are hundreds of patents associated with this process held not only by corporations from Latin America but also by important actors in the United States. The J. R. Short Milling Company (2000) patented a "Process for producing nixtamal and masa flour," and the Board of Trustees of the University of Illinois (2010) patented the "Nixtamalization process and products produced therefrom." Patenting an ancient invention seems to be a key symptom of the appropriation of knowledge; more people—particularly governments and international organizations—might need to give the matter more attention. One paradox in this case is that indigenous knowledge normally does not count in the knowledge economy except when this knowledge has been appropriated by a transnational or domestic industry. This type of phenomenon is something that academic capitalism does not discuss, although it does include the role and agency of academics in developing countries in such situations.

Another way to discuss where different nations stand in the global knowledge economy is to find out about their "knowledge stock" (a concept used by Schultz 2012). Several authors have attempted to offer some indicators, and some prestigious institutions have created their own indexes. Such is the case of Archibugi and Coco (2005), who made an important contribution when they compared three of the most important indexes to measure technological capabilities. They compared the World Economic Forum (WEF), the United Nations Development Programme (UNDP), the United Nations Industrial Development Organization, and the RAND Corporation's index. Archibugi and Coco (2005) also suggested their own index. In addition to analyzing each methodology and some of their assumptions, they presented a rank correlation among the four of them. Table 11.1 presents the four cases used in *Academic Capitalism*: Australia, Canada, the United Kingdom, and the United States. Also included are countries considered to have emerging economies, including the BRICS plus Chile, Mexico, South Korea, and Turkey (which are included because they are members of the OECD).

As table 11.1 indicates, the United States ranks number one in a group of forty-seven countries; Canada is second (ranked fourth overall), followed by Australia (fifth) and the United Kingdom (eighth). The case of South Korea, taken in this chapter as one of the countries defined as having an emerging economy, is distinct from the other developing nations in almost every category.

TABLE 11.1  
A comparison between the four countries in Academic Capitalism and nine emerging economies

Country	Technological capabilities ranking (out of 47 countries)	Current population	Public expenditure on higher education (% of GDP)	Private expenditure on higher education (% of GDP)	Tertiary educational attainment (% of total population in that age group)	Youth aged 15–19 who are not in education or employment (%)	Youth aged 20–24 who are not in education nor employment (%)	Gross domestic expenditure on R&D (\$ million)	Gross domestic expenditure on R&D (% of GDP)	Researchers per thousand employees, full-time equivalent	Triadic patent families	Households with Internet access (%)	WEF	UNDP	Archibugi and Coco (2005)	RAND	Rank mean
Australia	5	23,091,091	0.7	0.9	38	8	11		2.2		284	79	4	10	8	8	7.5
Canada	4	35,141,542	1.5	0.9	51	8	15	21,708	1.74	8.6	638	78	2	9	5	2	4.5
United Kingdom	8	63,181,775	0.6	0.7	38	10	19	35,615	1.77	7.6	1,598	83	8	7	11	9	8.8
United States	1	316,285,000	1	1.6	41	8	19	365,994	2.77		13,837	71	1	2	4	1	2
Brazil	37	193,946,886	0.8			14	23				60	38	37	37	38	35	36.8
Chile	31	16,634,603	0.8	1.6	27				0.42		9		33	34	30	30	31.8
China	39	1,354,040,000						161,552		1.6	875	31	39	39	41	33	38
India	44	1,210,569,573	1.3								201	6					
Mexico	34	118,419,000	1	0.4	17	19	27		0.44		12	23	29	30	35	36	32.5
Russia		143,400,000	1.2	0.6				23,394		6.3	73	46					
South Africa	35	52,981,991	0.6								26	10	34	35	32	32	33.3
South Korea	11	50,219,669	0.7	1.9	40	8	24	49,394	3.74	11.1	2,184	97	7	5	15	16	10.8
Turkey		75,627,384			13	26	44	7,664	0.84	2.9		42					

Sources: Archibugi and Coco (2005) and OECD (2013a–2013h).

Note: The values have been calculated by the author and then adjusted to eliminate decimals in most cases. Empty spaces indicate that information was not available.

It is clear that South Korea is closer to being a developed nation than any other developing country. There are at least twenty rank spaces between South Korea and Chile (the highest-ranking country in the emerging economies group, followed by Mexico, South Africa, Brazil, China, and India). Unfortunately, Turkey and Russia do not appear in these rankings. Next to the column for technological capabilities is one for current population. Of course, it is important to consider a country's size when discussing each case. In table 11.1 it is clear that, except for the United States, the most populated countries struggle much more to have a better position in such indexes. That size matters makes sense, yet it is sometimes forgotten.

In order to define the stock of knowledge in these countries, I suggest combining several indicators, such as expenditure on higher education, R&D expenditures, researchers per thousand employees, and triadic patents. The result of such an analysis confirms the hegemony of the United States in most aspects. In other words, the United States leads most measures of the knowledge economy, and most developing countries are far behind.

While it is clear that the first group in table 11.1, plus Korea, seems similar in many aspects and ranks in the top eleven countries, what is challenging is to define the second group of countries. In terms of volume, China and Russia seem distinct from the group in some indicators. China is the second country after the United States in terms of R&D expenditures, for example, but China lags in triadic patent registration, not to mention the percentage of researchers and households with access to the Internet, which is attributed to the country's massive population.

The percentage of youth who are neither educated nor employed is a worldwide preoccupation and may eventually affect the knowledge stock since it is also based on the number of educated people residing in a country. The countries with the highest numbers of youth who do not have jobs or participate in education are Turkey, Mexico, and Brazil, in that order. This number is closely related to higher education enrollment, as Australia, Canada, South Korea, the United Kingdom, and the United States report over 38% of their population achieving that level. Regarding the second group of countries, only Chile reports



having 27% of the population with tertiary education, followed by Mexico and Turkey with 17% (the other countries did not have available data). The economic crisis seems to be affecting this particular area in most countries, and the perspectives do not look too promising, unfortunately. This indicator is especially important if one follows what Lane and Owens (2012) mention: "In the knowledge-based economy, human capital is the most critical resource. Companies require a skilled workforce to compete in national and global markets, while hospitals, schools and other institutions need skilled workers to provide high quality services" (212).

Some countries that are "knowledge consumers" are trying to reduce the gap that exists between them and producing countries. But such efforts prompt a dilemma. On the one hand is pressure to change patterns and higher education policies (this is where the adaptation of the academic capitalism theory might help), and on the other are the poor system, infrastructure, and human capital that complicate the fulfillment of this goal. "[Gibbons] contends that it is in knowledge production per se rather than in teaching that globalization has the most effects but observes that, whereas knowledge production can take place anywhere, the use of that knowledge in innovation tends to take place locally. Hence universities already in established networks can use those to exploit distributed knowledge systems, not necessarily globally but regionally" (Deem 2001, 18).

### **The Private Sector: The Missing Piece?**

The most problematic aspect of emerging countries in the theory of academic capitalism might be the role of the private sector. Besides the role of government and universities, the third partner, according to the Triple Helix model, is industry, or the private sector. Slaughter and Rhoades (2004) say, "Corporations worked with universities to support Bayh-Dole (1980), which privatized federal research, but are unhappy with universities' aggressive claims to intellectual property and litigate regularly against them about ownership of broad patents that underlie a variety of pharmaceutical products. The 'firewall' that once separated public and private sectors has become increasingly permeable" (27). This is perhaps one of the most important differences between the situations of emerging economies versus developed countries. In fact, most developing countries assign up to 70% of governmental funding to R&D (OECD 2012). Even a country like the United Kingdom has struggled with this situation: "In Britain, which had scientific leadership but much less venture capital, the bio-

tech sector remained stunted in comparison to the one that developed in the United States" (Berman 2012, 165). The biotechnology industry is one of the most important in terms of innovation development. Berman (2012) points out that "biotech entrepreneurship was first initiated by venture capitalists looking for faculty partners and then, once the practice had become more familiar, by faculty themselves" (162–63). In a list of 127 venture capital firms, ninety-eight are located in the United States even though some share locations in other countries, and only twenty-nine do not have any presence there (Wikipedia 2013).

When regarding some successful examples of spaces that combine academe, industry, and university, most eyes look to the United States, such as the "College of Nanoscale Science and Engineering (CNSE) in Albany, New York and Research Triangle Park (RTP) founded by North Carolina State and University of North Carolina at Chapel Hill" (Gais and Wright 2012). Also known as university-industry-government, these groups "come together to share the costs and risks associated with research and development" (Schultz 2012, 130). One of the key elements in these cases is the active role of the private sector. When considering other countries, however, particularly in developing countries, it is clear that the private sector plays a small role. The impulse of the private sector, particularly economically, has been decisive in building innovative spaces in developed nations, and it seems a necessary condition to develop these types of advances in research and development.

Despite what is believed—that the imperative role of the private sector lies in promoting innovation and so on—Berman's (2012) contribution is essential in emphasizing the role of government in the promotion of these tendencies. So perhaps this is a lesson these emerging economies must learn before indiscriminately repeating the homogenous speech on the Triple Helix. Without the intervention of the state, there would be no innovation platform. Are governments listening?

Berman argued that government decisions were the most important driver of this change, and that those decisions were made because a new way of thinking became politically important. In the late 1970s, the idea that technological innovation drives economic growth became increasingly influential among policymakers, giving a boost to policy proposals that could be framed as strengthening innovation. First, the policies that moved academic science toward the market were not uniformly free-market in orientation. Most of them—the capital gains tax cut, the strengthening of intellectual property rights, the relaxation of

investment rules for pension funds—were. But state support for university research centers, as well as government subsidies for research parks, encouraged a market orientation but were clearly interventionist (Berman 2012, 158, 173).

Although some of the cases explored in the books on academic capitalism are more concerned with the ways academics adapt the ideology of market-like behaviors, other examples—because they belong to the US context or to Australia, Canada, and the United Kingdom—stress the role of the private sector. It must be taken into consideration how advanced some of these situations are in developing countries, mostly because their private sector is not strong enough or does not see the importance of investment in knowledge production and innovation, or both.

### A Better Fit in the Understanding of Emerging Economies

One clear aspect is that *Academic Capitalism* fits perfectly with the emerging economy countries in terms of financing struggles. These countries are experiencing difficult economic situations and, in some cases, drastic reductions of their financing. The pressure to obtain alternative sources of financing cannot be harder than the one experienced in 1997, when the first book on academic capitalism was published. In many cases, along with the economic constraints, evaluation policies were implemented in order to compete for additional resources.

Regarding the second book, *Academic Capitalism and the New Economy*, some of the changes observed in 2004 are more present and perhaps more valid in emerging economies than when the book was released. When we talk about restructuring of higher education, we mean substantive organizational change associated with changes in internal resource allocations (reduction or closure of departments, expansion or creation of other departments, establishment of interdisciplinary units); substantive change in the division of academic labor with regard to research and teaching; the establishment of new organizational forms (such as arm's-length companies and research parks); and the organization of new administrative structures or streamlining or redesign of old ones (Slaughter and Leslie 1997, 11).

Most developed and developing countries have experienced, since the 1980s, several reforms in their higher education systems. Latin America has faced many economic difficulties and strict economic policies, even before the Washington Consensus. In short, over the last thirty years, seeking additional revenue in the face of fiscal constraint and increased demand has been a constant theme in higher education worldwide.

There are several important pieces written on the way academic capitalism has affected higher education systems in Australia, Canada, the United Kingdom, and the United States as well as in emerging countries. This chapter only lists a few examples. Three Canadian reforms are explained under the academic capitalism framework (Chan and Fisher 2009; Metcalfe 2010; Tudiver 1999). Work has also been done on the United Kingdom (Dickson 1999; Williams 2004) and on Australia (Marginson 2004; Marginson and Considine 2000). Some papers refer to changes related to academic capitalism in South Korea (Piller and Cho 2013; Seol 2012). There are additionally several examples about Latin America (Bernasconi 2008; Borón 2006; Brunner 2005), Mexico (Bensimon and Ordorika 2006; Rhoades, Maldonado-Maldonado, Ordorika, and Velásquez 2004), Brazil (Martins 2008), Turkey (Kurul Tural 2007), and South Africa (Mouton, Louw, and Strydom 2013; Stewart 2007; Subotzky 1999), or there are other revisions or general applications of academic capitalism as a framework (Lotter 2008; Mendoza 2007; Renault 2006). Even though this chapter does not attempt to discuss the content of each paper, it does acknowledge the debate that the theory of academic capitalism has generated among scholars around the world, particularly in the countries discussed here.

The amount of research that academic capitalism has inspired only reinforces the validation and pertinence this solid framework has. One basic aspect is that, despite the fact that the notion of knowledge stock must be improved, the positive externalities on that stock are more important. Economically and socially speaking, there are so many assumptions about the effect produced by knowledge that research is needed on this topic.

Still, when the pieces do not come together, knowledge must be discussed in emerging economies given their insufficient knowledge stock. Academic capitalism is embedded as a theory in the US context and can be applied comfortably in developed countries. So the challenge is how to continue working, theoretically and empirically, in the process in which emerging countries are living with respect to knowledge production and their worldwide position. The BRICS are closing some gaps here (the best example of a country with similar characteristics decades ago is South Korea), so between developing and developed countries gap there are bridges, which are being built and still many cracks to fix.

### Conclusion

One might say that in the field of higher education there are few theoretical contributions. A number of observers have offered reasons why. Teichler (1996)

explained that “higher education as a field of research is certainly too small today to be characterized as a discipline” (433). Although most authors consider that one of the main reasons this field seems small or weak is because it is young, this cannot be the only explanation. Kaneko (2000), for example, points out that “research in higher education is a body of knowledge and discourses without clear boundary or logical connection with one another. It is not necessarily because the field is relatively young” (49). This author suggests a conceptual model consisting of three layers: empirical studies, policy discourses, and paradigm in core.

Higher education has been defined as a “theme-focused area of research, primarily characterized by themes investigated” (Teichler 2000, 15). An important aspect of this field is its multidisciplinary character. The combination of the different disciplines and the diverse number of theme-focused areas of research multiply the number of themes in the field. Some of the main disciplines are philosophy, sociology, economics, psychology, law, and history; theme-focused areas could be on academics, students, financing, evaluation and accountability, quality, government and management, diversification, gender, access, technology, religions, and the private sector, among many others. It is possible to study the structure of higher education systems, but also their different processes and relationships with actors in society. In addition, the field is considered to have many theoretical inconsistencies. Higher education research “is not viewed as a very flourishing theme for scholarly investigation . . . It is often described as being new, not greatly consolidated, lacking of a coherent theoretical and methodological framework and fragmented in the knowledge base thus laid down” (Teichler 2000, 3–4).

Some criticisms are more moderate. Altbach (2001) says that the study of higher education “has been both strength and a weakness” (3). Szczepanski (1997) suggests that it is mainly because the field is recent that it “has taken quite a long time for the scholarly community to develop appropriate terminology and moderately precise methods of analysis for these problems” (351). Two main reasons for this situation could be its recent development and its interdisciplinarity; with no established methodologies, “it borrows from other fields” (Altbach 2001, 3). The critiques are not only related to methods, but, as Teichler has mentioned, they are related to the absence of theoretical developments. Kogan (1996) considers that the absence of sufficient hypotheses and theories in this field is clear.

In this context, the contributions made by Slaughter, Leslie, and Rhoades represent an important influence on the field. The authors built academic capi-

talism from thinkers such as Foucault to Marx, in addition to almost all of the most relevant higher education researchers. The effort made in the books on academic capitalism in putting together a group of theoretical assumptions to explain the transformations that higher education institutions have experienced is important, particularly because it breaks the simplistic idea that universities are changing because of external forces, and because most terms do not problematize internal contradictions. Examples of other concepts include the “McDonaldization of higher education” (Hartley 1995), as well as “neoliberal reforms” or “neo-managerialism” and the “entrepreneurial university.” But these concepts are primarily descriptive.

Academic capitalism offers the possibility to link four elements: (1) the phenomenon of the economic constraints and crisis (experienced in every nation these days); (2) the relevance of knowledge production and innovation (understanding the tremendous disparities among countries and also the reproduction of dynamics and players); (3) the agency of the State, governments, private sector, and universities; and (4) the complexity of positions of academic departments, units, scholars, university managers, and even students. Therefore the main contribution of academic capitalism is having a framework that speaks to the developed and developing world on these issues. Or, if it is preferred, it speaks to nations that are dealing with definitions such as “knowledge producers,” “knowledge consumers,” “knowledge disconnected,” or “consolidated economies” versus “emerging economies.” No matter what terms or classification are used, academic capitalism seems to be a valid contribution, pertinent and necessary in the same way it was seventeen years ago, with the caveat that more still needs to be developed precisely for the so-called developing countries.

There are a number of questions that should be answered in order to better the theory of academic capitalism in the context of developing countries. For example, how different is agency in these contexts? This is important because faculty in developing countries may play different roles than in developed countries. How does power work in institutions with an entirely different structure and governance than those in developed countries? For example, there are important differences in terms of the concept of autonomy or accountability. Even more complex is to think that one main challenge for the first book on academic capitalism was to organize the discussion among the cases of Australia, Canada, the United Kingdom, and the United States. It was clear then that Canada was the most different case among the four. Now, when discussing emerging economies, the differences among them are by far deeper and more

complex. Finding similarities between Brazil, Chile, China, India, Mexico, and South Africa—or, even worse, Russia and South Korea—seems to be an incredibly challenging task. Perhaps the lesson from *Academic Capitalism* has to do with how to start building “localized theories” and then moving toward more general ones. Finally, two other aspects that should be explored in emerging economies involve the role of academics in these countries—how different or similar their situations are—and also the appropriation of knowledge as mentioned above.

The influence of the market in higher education is now ubiquitous, so it seems improbable that knowledge production will remain isolated. Given the market exposure experienced by many domains, including contemporary art, one cannot help but wonder whether education and science will face the same issues. The British artist Damien Hirst attempted to modify the market of contemporary art simply by creating a piece of skeleton made of diamonds—a work titled *For the Love of God*—and it is believed that at the end he had to buy it for himself given its high price. Villoro (2013), one of the most famous Mexican writers alive, wonders whether it is possible that high prices of contemporary art are able to paralyze its own market. It seems likely that the market economy will continue to be the dominant social force for the foreseeable future, so what should we expect regarding knowledge production and commercialization in higher education? How will new ways of knowledge production and education consumption modify current markets, and how sustainable will this be? Just by looking at the hype and fog produced by MOOCs (McClure 2013), it is hard not to question the instability of the market of knowledge and education as well as how expensive it can become. One must also wonder whether it will be possible for higher education to reach the same ridiculous situation of Damien Hirst when he had to consume his own piece of art because it was simply inaccessible for the rest of the people. Two examples show that this idea may not be too extreme. First, increasing tuition costs in the United States, as well as in other countries such as the United Kingdom. In the American case, “College costs [have surged] 500% in the U.S. since 1985” (Jamrisko and Kolet 2013). How much higher can tuition prices go? Second, consider new strategies employed by major academic publishers such as Elsevier to charge publication fees ranging from \$500 to \$5,000 to publish articles in their so-called “open journals” (Elsevier 2014). What will happen to the authors unable to cover that fee? Such examples demonstrate that academic capitalism will likely prove to be theoretical device useful for explaining the relationship between higher education and

the knowledge economy in Mexico and other emerging economy contexts. Certainly, the dialogue with academic capitalism will continue for at least another seventeen years.

## REFERENCES

- Altbach, Philip G. 2001. “Research and Training in Higher Education: The State of Art.” In *Higher Education: A Worldwide Inventory of Centers and Programs*, edited by Philip G. Altbach and David Endberg, 1–24. Phoenix: Oryx Press.
- Archibugi, Daniele, and Alberto Coco. 2005. “Measuring Technological Capabilities at the Country Level: A Survey and a Menu for Choice.” *Research Policy* 34, no. 2: 175–94. doi:10.1016/j.respol.2004.12.002.
- Bensimon, Estella M., and Imanol Ordorika. 2006. “Mexico’s Estímulos: Faculty Compensation Based on Piecework.” In *The University, State, and Market: The Political Economy of Globalization in the Americas*, edited by Robert A. Rhoads and Carlos Alberto Torres, 250–74. Stanford, CA: Stanford University Press.
- Berman, Elizabeth Popp. 2012. *Creating the Market University: How Academic Science Became an Economic Engine*. Princeton, NJ: Princeton University Press.
- Bernasconi, Andrés. 2008. “Is There a Latin American Model of the University?” *Comparative Education Review* 52, no. 1: 27–52.
- Board of Trustees of the University of Illinois. 2010. “Nixtamalization Process and Products Produced Therefrom.” US patent 7,740,895, filed February 28, 2005, and issued June 22, 2010.
- Borges, Jorge Luis. 2011. *Ficciones*. Buenos Aires: Random House Mondadori.
- Borón, Atilio. 2006. “Reforming the Reforms: Transformation and Crisis in Latin American and Caribbean Universities.” In *The University, State, and Market: The Political Economy of Globalization in the Americas*, edited by Robert A. Rhoads and Carlos Alberto Torres, 141–63. Stanford, CA: Stanford University Press.
- Brunner, José Joaquín. 2005. “Transformaciones de la Universidad Pública.” *Revista de Sociología* 19: 31–49.
- C. H. 2013. “The Supreme Court Rules That Genes May Not Be Patented. Patently False.” *Economist*, June 13. www.economist.com/blogs/babbage/2013/06/supreme-court-rules-genes-may-not-be-patented.
- Chan, Adrienne S., and Donald Fisher, eds. 2009. *The Exchange University: Corporatization of Academic Culture*. Vancouver: University of British Columbia Press.
- Deem, Rosemary. 2001. “Globalisation, New Managerialism, Academic Capitalism and Entrepreneurialism in Universities: Is the Local Dimension Still Important?” *Comparative Education* 37, no. 1: 7–20. doi:10.1080/03050060020020408.
- Dickson, David. 1999. “Britain Excels in Academic Capitalism.” *Nature Medicine* 5, no. 2: 131–32. doi:10.1038/5484.
- Economist*. 2013. “Academic Publishing: Free-for-All.” *Economist*, May 4.
- Elsevier. 2014. “Open-Access Journals.” www.elsevier.com/about/open-access/open-access-journals.

- Etzkowitz, Henry, and Loet Leydesdorff. 2000. "The Dynamics of Innovation: From National Systems and 'Mode 2' to a Triple Helix of University-Industry-Government Relations." *Research Policy* 29, no. 2: 109–23. doi:10.1016/S0048-7333(99)00055-4.
- Flick, Corrine M., and Convoco Foundation. 2011. *Geographies of the World's Knowledge*. Oxford: Oxford Internet Institute, University of Oxford.
- Gais, Thomas, and David Wright. 2012. "The Diversity of University Economic Development Activities and Issues of Impact Measurement." In *Universities and Colleges as Economic Drivers: Measuring Higher Education's Role in Economic Development*, edited by Jason E. Lane and D. Bruce Johnstone, 31–60. Albany: State University of New York.
- Hartley, D. 1995. "The 'McDonaldization' of Higher Education: Food for Thought?" *Oxford Review of Education* 21, no. 4: 409–23. doi:10.1080/0305498950210403.
- Jamrisko, Michelle, and Ilan Kolet. 2013. "College Costs Surge 500% in U.S. Since 1985: Chart of the Day." *Bloomberg News*, August 26. www.bloomberg.com/news/2013-08-26/college-costs-surge-500-in-u-s-since-1985-chart-of-the-day.html.
- Johnston, Ane Turner, and Joan B. Hirt. 2011. "Reshaping Academic Capitalism to Meet Development Priorities: The Case of Public Universities in Kenya." *Higher Education* 61, no. 4: 483–99. doi:10.1007/s10734-010-9342-6.
- J. R. Short Milling Company. 2000. "Process for Producing Nixtamal and Masa Flour." US Patent 6,025,011, filed June 9, 1997, and issued February 15, 2000.
- Kaneko, Motohisa. 2000. "Higher Education Research Policy and Practice: Contexts, Conflicts and the New Horizon." In *Higher Education Research: Its Relationship to Policy and Practice*, edited by Ulrich Teichler and Jan Sadlak, 47–58. Oxford: IAU Press.
- Kogan, Maurice. 1996. "Comparing Higher Education Systems." *Higher Education* 32, no. 4: 395–402. doi:10.1007/BF00133254.
- Kurul Tural, Nejla. 2007. "Universities and Academic Life in Turkey: Changes and Challenges." *International Journal of Educational Policies* 1, no. 1: 63–78.
- Lane, Jason E., and D. Bruce Johnstone, eds. 2012. *Universities and Colleges as Economic Drivers: Measuring Higher Education's Role in Economic Development*. Albany: State University of New York.
- Lane, Jason E., and Taya L. Owens. 2012. "International Dimensions of Higher Education's Contributions to Economic Development." In *Universities and Colleges as Economic Drivers: Measuring Higher Education's Role in Economic Development*, edited by Jason E. Lane and D. Bruce Johnstone, 205–38. Albany: State University of New York.
- Lincoln, Daniel. 2013. "Research Universities: Networking the Knowledge Economy." Paper presented at the IHERD-OECD Expert Meeting, Marseille, France, July 1–2.
- Lotter, Don. 2008. "The Genetic Engineering of Food and the Failure of Science, Part 2: Academic Capitalism and the Loss of Scientific Integrity." *International Journal of Sociology of Agriculture and Food* 16, no. 1: 50–68.
- Maldonado-Maldonado, Alma, and Antoni Verger. 2010. "Politics, UNESCO and Higher Education." *International Higher Education* 58: 8–9.
- Marginson, Simon. 2004. "Australian Higher Education: National and Global Markets." In *Markets in Higher Education: Rhetoric or Reality?*, edited by Pedro Teixeira, Ben Jongbloed, David Dill, and Alberto Amaral, 207–40. Dordrecht: Kluwer Academic.
- Marginson, Simon, and Mark Considine. 2000. *The Enterprise University: Power, Governance and Reinvention in Australia*. Cambridge: Cambridge University Press.
- Martins, André Luiz de Miranda. 2008. "The March of 'Academic Capitalism' in Brazil during the 1990s." *Avaliação (Campinas)* 13, no. 3: 733–43. http://dx.doi.org/10.1590/S1414-40772008000300006.
- Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green. 1995. *Microeconomic Theory*. New York: Oxford University Press.
- McClure, M. W. 2013. "Hope and Hype in Viral Technologies and Policies." *Excellence in Higher Education* 4, no. 1: 7–18.
- Mendoza, P. 2007. "Academic Capitalism and Doctoral Student Socialization: A Case Study." *Journal of Higher Education* 78, no. 1: 71–96.
- Metcalf, Amy Scott. 2010. "Revisiting Academic Capitalism in Canada: No Longer the Exception." *Journal of Higher Education* 81, no. 4: 489–514. doi:10.1353/jhe.o.0098.
- Mouton, N., G. P. Louw, and G. L. Strydom. 2013. "Present-Day Dilemmas and Challenges of the South African Tertiary System." *International Business and Economics Research Journal* 12, no. 3: 285–300.
- OECD (Organisation for Economic Co-operation and Development). 2006. "The Knowledge-Based Economy." OECD/GD(06)102. Paris: OECD.
- . 2012. "Modes of Public Funding of R&D: Towards Internationally Comparable Indicators." Science, Technology and Industry Working Paper 2012/4. Paris: OECD.
- . 2013a. "Education Expenditure." In *OECD Factbook 2013: Economic, Environmental and Social Statistics*. Paris: OECD. doi:10.1787/factbook-2013-80-en.
- . 2013b. "Educational Attainment." In *OECD Factbook 2013: Economic, Environmental and Social Statistics*. Paris: OECD. doi:10.1787/factbook-2013-77-en.
- . 2013c. "Youth Inactivity." In *OECD Factbook 2013: Economic, Environmental and Social Statistics*. Paris: OECD. doi:10.1787/factbook-2013-75-en.
- . 2013d. "Expenditure on R&D." In *OECD Factbook 2013: Economic, Environmental and Social Statistics*. Paris: OECD. doi:10.1787/factbook-2013-60-en.
- . 2013e. "Gross Domestic Expenditure on R&D as Percentage of GDP." In *Main Science and Technology Indicators, OECD, Science, Technology and R&D Statistics*. Paris: OECD. doi:10.1787/rdxp-table-2013-1-en.
- . 2013f. "Researchers." In *OECD Factbook 2013: Economic, Environmental and Social Statistics*. Paris: OECD. doi:10.1787/factbook-2013-1-en.
- . 2013g. "Patents." In *OECD Factbook 2013: Economic, Environmental and Social Statistics*. Paris: OECD. doi:10.1787/factbook-2013-62-en.
- . 2013h. "Computer, Internet and Telecommunication." In *OECD Factbook 2013: Economic, Environmental and Social Statistics*. Paris: OECD. doi:10.1787/factbook-2013-67-en.
- Owen-Smith, Jason. 2012. "Unanticipated Consequences of University Intellectual Property Policies." In *Universities and Colleges as Economic Drivers: Measuring Higher Education's Role in Economic Development*, edited by Jason E. Lane and D. Bruce Johnstone, 239–78. Albany: State University of New York.
- Piller, Ingrid, and Jinhyun Cho. 2013. "Neoliberalism as Language Policy." *Language in Society* 42, no. 1: 23–44. doi:10.1017/S0047404512000887.
- Renault, Catherine Searle. 2006. "Academic Capitalism and University Incentives for Faculty Entrepreneurship." *Journal of Technology Transfer* 31, no. 2: 227–39. doi:10.1007/s10961-005-6108-x.

- Rhoades, Gary, Alma Maldonado-Maldonado, Imanol Ordorika, and Martín Velásquez. 2004. "Imagining Alternatives to Global, Corporate, New Economic Academic Capitalism." *Policy Futures in Education* 2, no. 2: 316–29.
- Schultz, Laura I. 2012. "University Industry Government Collaboration for Economic Growth." In *Universities and Colleges as Economic Drivers: Measuring Higher Education's Role in Economic Development*, edited by Jason E. Lane and D. Bruce Johnstone, 129–62. Albany: State University of New York.
- Seol, Sung-Soo. 2012. "A Model of University Reform in a Developing Country: The Brain Korea 21 Program." *Asian Journal of Innovation and Policy* 1, no. 2: 31–49. doi:10.7545/ajip.2012.1.1.031.
- Slaughter, Shelia, and Larry L. Leslie. 1997. *Academic Capitalism: Politics, Policies, and the Entrepreneurial University*. Baltimore: Johns Hopkins University Press.
- Slaughter, Shelia, and Gary Rhoades. 2004. *Academic Capitalism and the New Economy: Markets, State, and Higher Education*. Baltimore: Johns Hopkins University Press.
- Stewart, Peter. 2007. "Re-Envisioning the Academic Profession in the Shadow of Corporate Managerialism." *Journal of Higher Education in Africa* 5, no. 1: 131–47.
- Subotzky, George. 1999. "Beyond the Entrepreneurial University: The Potential Role of South Africa's Historically Disadvantaged Institutions in Reconstruction and Development." *International Review of Education* 45, no. 5–6, 507–27. doi:10.1007/978-94-011-4076-8\_9.
- Szczepanski, Jan. 1997. "Higher Education as an Object of Research: A Reflection." In *Higher Education Research at the Turn of the New Century: Structures, Issues and Trends*, edited by Jan Sadlak and Philip G. Altbach, 349–57. Paris: UNESCO.
- Teichler, Ulrich. 1996. "Comparative Higher Education: Potentials and Limits." *Higher Education* 32, no. 4: 431–65. doi:10.1007/BF00133257.
- . 2000. "The Relationships between Higher Education Research and Higher Education Policy and Practice: The Researchers' Perspective." In *Higher Education Research: Its Relationship to Policy and Practice*, edited by Ulrich Teichler and Jan Sadlak, 3–36. Oxford: IAU Press.
- Triple Helix Research Group. 2013. "Official Website, University of Stanford." <http://triplehelix.stanford.edu/node/63>.
- Tudiver, Neil. 1999. *Universities for Sale: Resisting Corporate Control over Canadian Higher Education*. Toronto: Canadian Association of University Teachers and James Lorimer.
- UNESCO Institute for Statistics. 2012. "Human Resources in R&D." *UIS Fact Sheet* December, no. 21. [www.uis.unesco.org/ScienceTechnology/Documents/sti-hr-rd-en.pdf](http://www.uis.unesco.org/ScienceTechnology/Documents/sti-hr-rd-en.pdf).
- United Kingdom/United States of America Study Group. 2009. *Higher Education and Collaboration in Global Context: Building a Global Civil Society. A Private Report to Prime Minister Gordon Brown*. London: United Kingdom/United States of America Study Group. [http://globalhighered.files.wordpress.com/2009/07/final-report\\_28\\_7\\_09.pdf](http://globalhighered.files.wordpress.com/2009/07/final-report_28_7_09.pdf).
- Villoro, Juan. 2013. "Damián Ortega: Cómo desarmar el mundo." *Gatopardo*. [www.gatopardo.com/ReportajesGP.php?R=201](http://www.gatopardo.com/ReportajesGP.php?R=201).
- Wikipedia. 2013. "List of Venture Capital Firms." [http://en.wikipedia.org/wiki/List\\_of\\_venture\\_capital\\_firms](http://en.wikipedia.org/wiki/List_of_venture_capital_firms).
- Williams, Gareth. 2004. "The Higher Education Market in the United Kingdom." In *Markets in Higher Education: Rhetoric or Reality?*, edited by Pedro Teixeira, Ben

- Jongbloed, David Dill, and Alberto Amaral, 241–69. Dordrecht: Kluwer. doi:10.1007/1-4020-835-0\_11.
- Wyness, Gill. 2013. "Higher Education in 2013: The Year of Marketisation—But to What Extent?" *Guardian*, December 23. [www.theguardian.com/higher-education-network/blog/2013/dec/23/higher-education-policy-2013-marketisation](http://www.theguardian.com/higher-education-network/blog/2013/dec/23/higher-education-policy-2013-marketisation).
- Yanagisawa, Tomoyo, and Dominique Guellec. 2009. "The Emerging Patent Market-place." Science, Technology and Industry Working Paper 2009/9. Paris: OECD.