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The Americanization of European Higher Education and Research

Lex Borghans and Frank Cörvers

7.1 Introduction

Over the past two decades there has been a substantial increase in the mobility of students in Europe, while also research has become much more internationally oriented. Student mobility has increased between European countries as well as between Europe, the United States, and the rest of the world. This seems to hold at bachelor, master, and PhD level. Compared to the past, European researchers publish more in foreign journals, and there is more international travel, more migration, and a strong increase in international cooperation in research. These trends have strong implications for international cooperation and competition in higher education and research.

The aim of this chapter is to document changes in the structure of research and higher education in Europe and to investigate potential explanations for the strong increase in its international orientation. The theoretical perspective we take is that the decision to study or to do research in either the home country market or the international market depends on cost and benefits, determined by the size of the market, communication costs, the transferability of knowledge between countries, and financial regulations. We argue that several dimensions of this trade-off have shifted in favor of

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international cooperation: cheaper travel possibilities, European integration, and the use of e-mail and Internet. A shift of the priorities in research from discussing and analyzing national policies toward measuring scientific output in international journals could also have stimulated this transition. An increase in the size of the home research market would have an opposite effect. The convergence of country-specific habits and institutions toward the global (US) standards has further facilitated the internationalization of research and higher education in Europe.

Using a variety of indicators we show the changes in the structure of higher education and research in Europe. While higher education started to grow substantially around 1960, only a few decades later, research and higher education transformed gradually to the American standard. Decreased communication costs are likely causes for this trend. This transformation is most clearly revealed in the change of language used in research from the national language / Latin to German / French to English. Smaller language areas made this transformation earlier while there are also clear timing differences between research fields. Sciences and medicine tend to switch to English first, followed by economics and social sciences, while for law and arts only the first signs of such a transformation are currently observed. This suggests that returns to scale and the transferability of research results are important influences in the decision to adopt the international standard.

To analyze the developments in European higher education and research, this chapter compares the developments in research in several European countries in different research areas using long time series. To illustrate some trends in more detail, particular attention will be paid to both the case of economics research and the case of the Netherlands. The developments in economics research and the Netherlands may serve as good examples of what has been or will be happening in other fields across different European countries.

Drèze and Esteban (2007) show that the United States outperforms Europe in economics research by a factor of the order three, and conclude that the Lisbon goal set by the European Union, to become the most dynamic and competitive economy in the world, is out of sight. Cardoso, Guimarães, and Zimmermann (2008) find that the quality of research by PhDs from US universities is better than the research of European PhDs.[1] The contribution of this chapter is that we take another perspective on the comparison between Europe and the United States. We document the transformation of European higher education and research not just as a change in quality, but in the first place as a change in the nature of the research performed in

1. Other papers on evaluating the performance of European and US economics research are, for example, Amir and Knauf (2008); Coupé (2003); Frey and Eichenberger (1993); Kirman and Dahl (1994); Neary, Mirrlees, and Tirole (2003); and Portes (1987). However, notice that economists typically analyze their own discipline and tend to generalize their results to draw conclusions on the overall position of Europe vis-à-vis the United States.

Europe. We include a theoretical exposition to explain the decision to adopt the American standard in research. This framework explains why the adoption of the superior American standard goes faster in some countries than in others. We argue that it is important to take account of the costs of adopting the American standard to explain how countries perform. Costs as well as benefits of the Americanization of European higher education and research seem to be to a large extent related to the acceptance of English as the lingua franca and to the specific content of what is taught and investigated. We argue that Drèze and Esteban (2007) as well as previous empirical studies in this area pay much attention to the benefits of publishing in the English language in American journals, and ignore or underestimate the productive value of publishing in the home language on European topics.

The remainder of this chapter is structured as follows. In section 7.2 we explain our theoretical framework. Section 7.3 provides data about the development of higher education in Europe and the United States. Section 7.4 describes the changes that have taken place in the Dutch higher education and research system during the last few decades, with a focus on economics. Section 7.5 deals with changes in the language used in research as an indicator of change of the structure of higher education and research in Europe. Section 7.6 concludes.

7.2 Theory of Internationalization

Higher education and research is not a homogeneous good. Different countries teach other things in science, economics, or law, and the aims and focus of research can be rather different across countries. One important dimension of the differences is whether a country's higher education and research system builds on national structures and traditions, or adopts and perhaps interferes with international standards. This implies that universities/researchers/students can decide to join the national research discussion or to join the international discussion. The value of each choice depends on the quality of the research, its relevance to the country concerned, and the costs of research. For nationally-oriented research this value equals:

$$V_{\text{nat}} = v_q Q(n) + v_r R - k,$$

in which $Q(n)$ is the quality of the research and n the size of the research community. The quality depends on the size of the community. Variable R represents the relevance of research and k the costs. Variables v_q and v_r are the weights attached to quality and relevance. For internationally-oriented research the value equals:

$$V_{\text{int}} = v_q Q(N) + v_r \tau R - K.$$

Variable N is the size of the international research community. If the benefits from research are subject to returns to scale, a researcher who joins

the international debate profits from a larger peer group. These benefits are counterbalanced, however, by a reduced benefit of the research findings for the situation in the home country and higher communication costs. Variable τ represents the degree of transferability of research findings to the national situation ($0 \leq \tau \leq 1$). The transferability might depend on the research area. In some fields the relevance of research will not depend on the country that is investigated, while for other fields of research this might be very country specific. Furthermore, internationally-oriented research might incur higher costs, due to higher travel and communication costs. These costs are indicated by K ($K > k$).

The trade-off between national or international research might also be influenced by the value attached to quality versus relevance. A researcher will choose to join the international research community when $V_{\text{int}} > V_{\text{nat}}$. Given the difference in quality of research but also the costs in the international versus the national context, the threshold level of transferability can be calculated for which researchers are indifferent between joining the national or the international debate:

$$\bar{\tau} = 1 - \frac{v_q}{v_r} \frac{Q(N) - Q(n)}{R} + \frac{K - k}{v_r R}.$$

If the actual transferability exceeds this threshold, the international debate will be chosen. So if the transferability of research findings increases, the costs of international research decrease or the scale effects increase, researchers participating in the national debate will switch to the international debate when this threshold is reached. Also, a change in the valuation of quality versus relevance might lead to this change. At the point of transition, the value of research will change only gradually. The move from the national to the international debate will affect quality and relevance substantially, however. In figure 7.1 we show for certain parameters of this model what would happen to the quality and relevance of research per unit of costs when transferability increases (panel A) and the costs of international research decrease (panel B). Panel A shows that the transition from the national to the international debate is associated with a decrease in relevance and an increase in quality. Once the transition is made, a further increase in transferability will not affect the research quality but will increase relevance. When costs of international research are reduced (panel B), a similar shift toward higher quality and lower relevance is observed. A further reduction of the costs of international research will benefit both quality and relevance per unit costs.

If the size of the market, communication costs, transferability, and incentives determine the choice for either nationally- or internationally-oriented research, the following predictions can be made.

Size of the market: The growth of higher education in Europe and the process of European integration will shift the attention of researchers toward

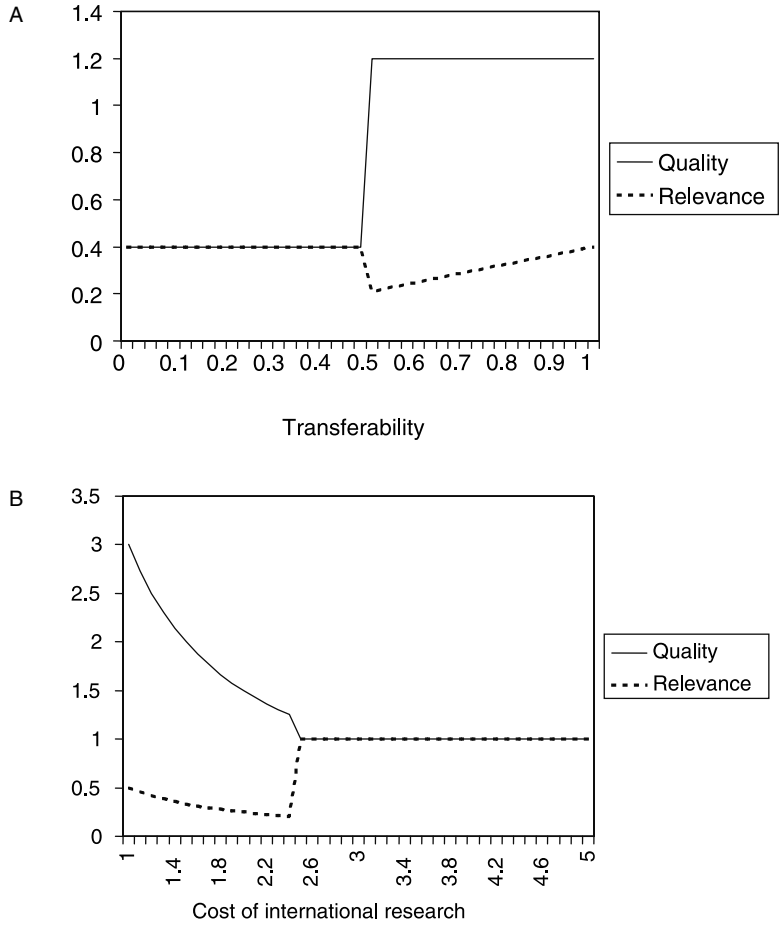

Fig. 7.1 Quality and relevance of research per unit costs as a function of transferability (panel A) and costs of international research (panel B)

Note: The figure is based on the following parameters: $v_q = v_r = 1$, $Q(n) = 1$, $Q(N) = 3$, $k = 1$, and $K = 3$ in panel A and $\tau = 0.5$ in panel B.

the European market. This will imply a decrease of the importance of research aimed at specific European countries, but would also reduce the focus on international research.

Communication cost: There are many reasons to assume that communication costs are decreasing. Travel is cheaper, and Internet and e-mail provide important tools for long distance communication between researchers, while European integration (the use of English and the introduction of the bachelor's-master's degree (BA-MA) system) has improved comparability and therefore facilitates communication.

Transferability: Differences in transferability of research in the first place might predict differences between research fields. For sciences it will be

relatively easily to join one international research discussion, while, for example, for literature and law national differences might be too large to allow for international cooperation, because of the importance of distinctive national institutions, cultural traditions, and history. Economics and social sciences will be an intermediate case. Although these disciplines apply general theories, specific circumstances and institutions within countries might affect the relevance of certain research questions and limit international comparability.

Finance: In many European countries there is a trend toward subsidies based on research output; for example, the number of publications, number of diplomas, and number of PhDs. Such financial incentives will also affect decisions with respect to research, although the direction of these influences is sometimes difficult to predict.

To facilitate cooperation between researchers in either the national or the international research discussion, it is likely that conventions will be adjusted toward a common standard. The most obvious case of this is the language, but one could also think about a standardization of other aspects to facilitate comparability. Standardization of diplomas, both in terms of names and content, is such an example. The adoption of the BA-MA structure in place of historically unique European degrees can be interpreted in this way, but also the use of terminology such as assistant professor, associate professor, and full professor and the role of a PhD thesis could be affected by changes in the values of the research community.

In this chapter we will therefore look not only at trends in the language used in research, the nationality of researchers who publish in national journals, and the country of origin of research that is cited, but also the age at which the PhD thesis is typically finished.

7.3 Developments in Higher Education

Like in the United States, many of the richer European countries faced a rapid increase of participation in higher education in the 1960s.[2] Universities were transformed from small elite schools to mass universities.[3] Figure 7.2 shows the increase in participation in higher education in Western

2. See Eurydice (2000) for the developments in higher education since the 1960s in eighteen Western European countries. For the development of the highest level of educational attainment in the United States from 1940 to 2007, see figures 3 and 4 in the *Digest of Education Statistics: 2007* of the National Center for Education Statistics (2008).

3. Windolf (1997) discusses the educational expansion in Germany, the United States, Japan, and some other European countries between 1870 and 1990. To explain the expansion of higher education he refers to human capital theory and the needs of society, and theories from educational sociology that are based on competition for status between individuals or between social groups. He also discusses the relevance of the increasing enrollment of women for educational expansion.

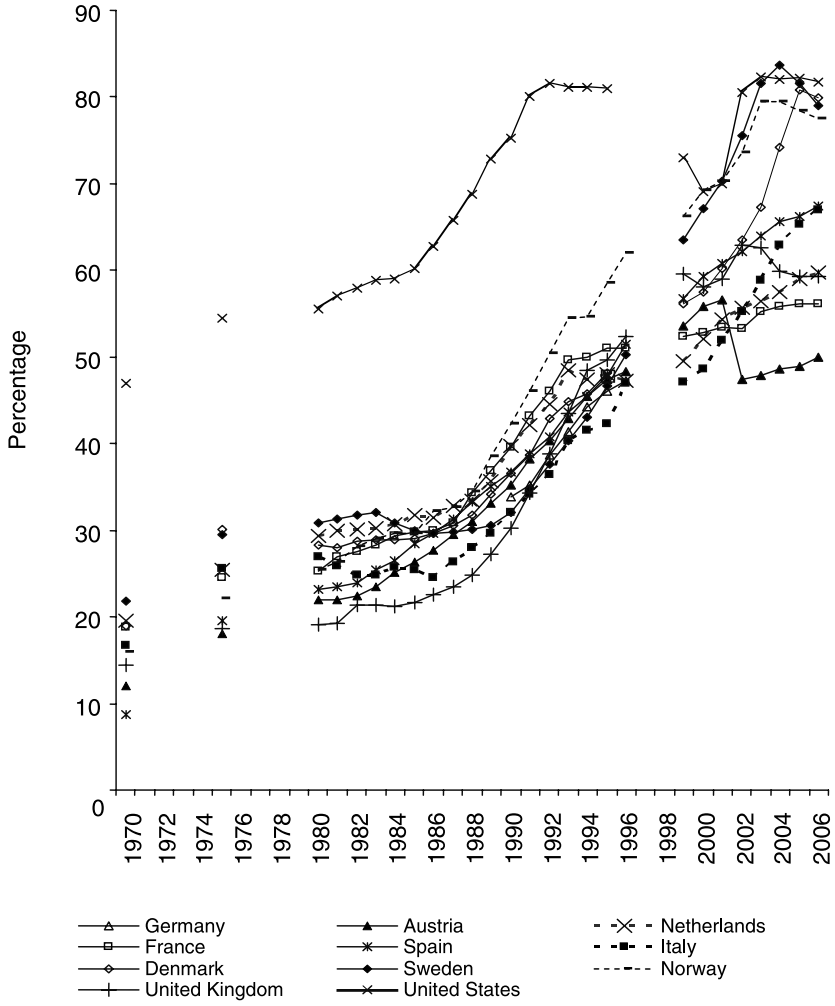

Fig. 7.2 Gross enrollment ratios in Western European countries and the United States, 1970–2006

Source: Unesco Institute for Statistics.

Notes: The gross enrollment ratio is defined as the number of students enrolled in tertiary education expressed as a percentage of the population in the theoretical age group for tertiary education. There may be changes in the measurement of the gross enrollment ratio between 1996 and 1999 for some countries, like the United States. There also seems to be a break in the series for the United States and Austria between 2001 and 2002. For Germany, data is only available from 1990 to 1996.

European countries and the United States from 1970 onwards. There is a huge difference in gross enrollment ratios between the United States and Western Europe. This does partly reflect differences in the educational system, such as a strong emphasis on a solid system of intermediate vocational education in many European countries. Between 1970 and 1975 gross enrollment in higher education in Western Europe and the United States increased by 5 to 10 percentage points. The trend in gross enrollment was almost flat between 1975 and 1985 and started to accelerate around 1985. The United States achieved a maximum of approximately 80 percent gross enrollment from 1991 onwards (with the exception of 1999 to 2001). The Scandinavian countries more or less caught up with the United States in recent years. Other countries still have gross enrollment ratios that are 15 to 30 percentage points lower than the United States.

The rising participation in higher education in Western Europe may be one of the explanations for the rising trend of European students going to the United States. This is indeed confirmed by figure 7.3. The enrollment of Western European students slowly increased between 1949 and 1970, then dropped till 1975, and accelerated from 1975 onwards. Around 1993 the growth of the number of Western European students in the United States leveled off, to stabilize at the level of about 50,000 students. After 2000 the enrollment of students coming from Western Europe to study in the United States dropped slightly, probably due to stricter regulations in the United States after 9/11. For students in the rest of Europe (including

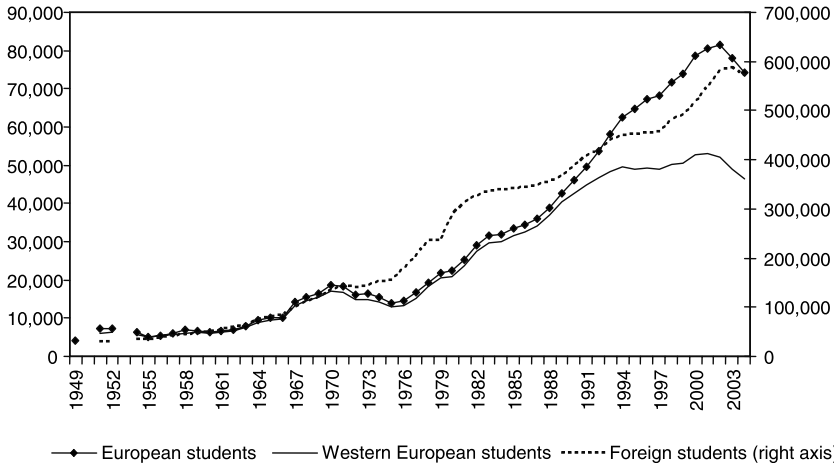

Fig. 7.3 Total number of European and foreign (non-US) students in the United States, 1949–2004

Source: Institute of International Education.

Notes: The data has been drawn from the *Open Doors* database of the Institute of International Education. For international students in the United States, *Open Doors* surveys count both enrolled degree students as well as students who are taking shorter, nondegree courses.

Central and Eastern Europe) figure 7.3 shows that outbound mobility in absolute numbers was rather low until the second half of the 1980s. After that time outbound mobility sharply increased, to reach a maximum of more than 30,000 students in 2002. During the last two years of the time series the outbound mobility from Europe as a whole to the United States decreased. For the total number of foreign students going to the United States the decrease started in 2004.

One could suppose that the rising number of European students going to the United States can be explained by rising "globalization." Figure 7.4 shows that this can only be partly true. The figure shows outbound mobility

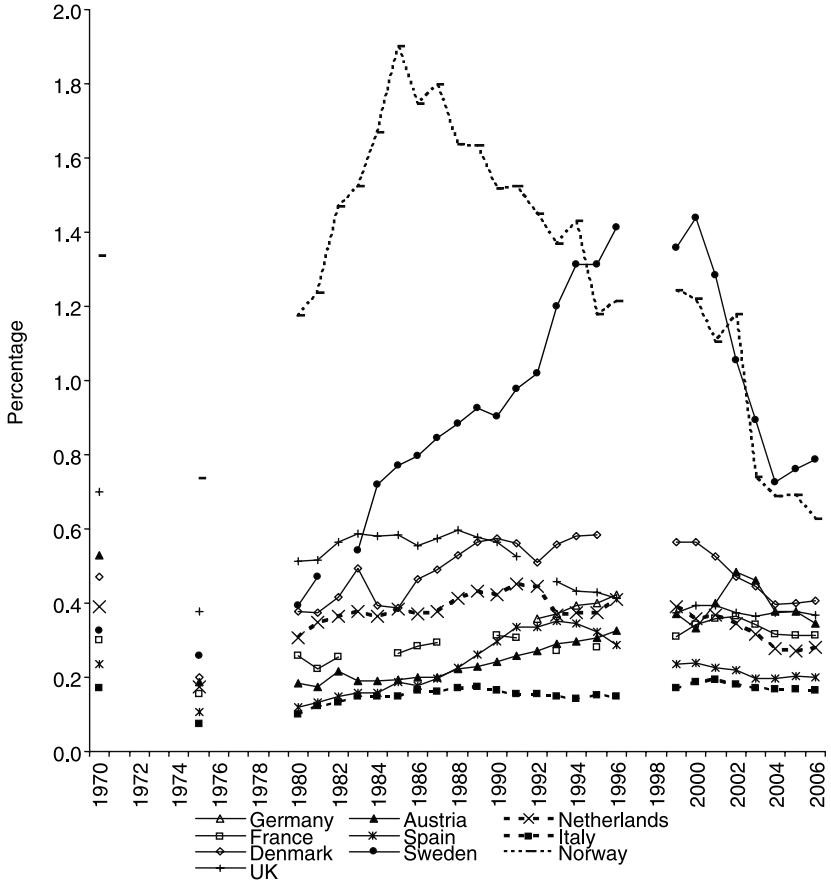

Fig. 7.4 Students of Western European countries in the United States as percentage of enrollment in home country, 1970–2006

Source: Institute of International Education and the Unesco Institute for Statistics.

Note: The percentages have been calculated by dividing the number of students of a particular country in the United States (*Open Doors* surveys, see figure 7.2) by the number of enrolled degree students in the respective home country (Unesco).

of Western European students to the United States as a percentage of the number of students enrolled in higher education in ten different Western European countries. For most countries the percentage of outbound mobility is relatively high in 1970, even higher than in 2006, the last year of the time series. With 1975 as the reference year, all countries show an upturn, but sooner or later outbound mobility starts to fall again for each country. Thus, there is no clear upward trend of outbound mobility since 1970. Almost all countries show a downward trend during the last five to ten years. For the United Kingdom the share started to fall in 1988, for Norway even in 1985. The percentages remain relatively high for the Scandinavian countries till the end of the time series. Italy, and to a lesser extent Spain, typically have low shares of outbound mobility to the United States.

It may be argued that European Union (EU) inner mobility flows compensated for the decline in outbound mobility from Western Europe to the United States. On the one hand, the inner EU programs, such as the Erasmus program, indeed seem to be expanding over time (European Commission 2008).[4] On the other hand, figure 7.5 suggests that outbound mobility as the percentage of home enrollment declined after 2002 in all countries of our sample. An explanation for this difference is that enrollment data from the Unesco Institute for Statistics does not include mobility flows of students collecting credits in another European country, nor student exchange programs within the European Union. From figure 7.5, we can conclude that Norway, Austria, and Sweden have the highest numbers of students enrolled in foreign countries relative to home enrollment.

A higher students' participation in inner EU programs fits into the ambition of the European Union of establishing a European Higher Education Area (EHEA) by 2010, which has been agreed upon in the Bologna Declaration of June 1999. This agreement was originally signed by the education ministers of twenty-nine European countries and developed into a major reform encompassing forty-five countries. It has put in motion a series of new agreements and reforms (the Bologna Process, see European Commission [2007] and Association of International Educators [2007]) to make European higher education more compatible and attractive for students in Europe and from other continents. The European Union considers these reforms as a requirement to match the performance of the best performing systems in the world, notably the United States and Asia. The objectives of the Bologna Declaration include the adoption of a system of easily readable and comparable degrees, the adoption of a system essentially based on

4. One has to notice that mobility in the European Union is typically so called "horizontal mobility." In programs like the Erasmus program, students spend a substantial time (from three to twelve months) at another European institution of higher education, having all the academic credits recognized by and transferred to the home institution. As is remarked by Spinelli (2005), students in the US practice "vertical mobility"; that is, they mainly pursue a graduate degree at a different institution from where they have received their undergraduate degree.

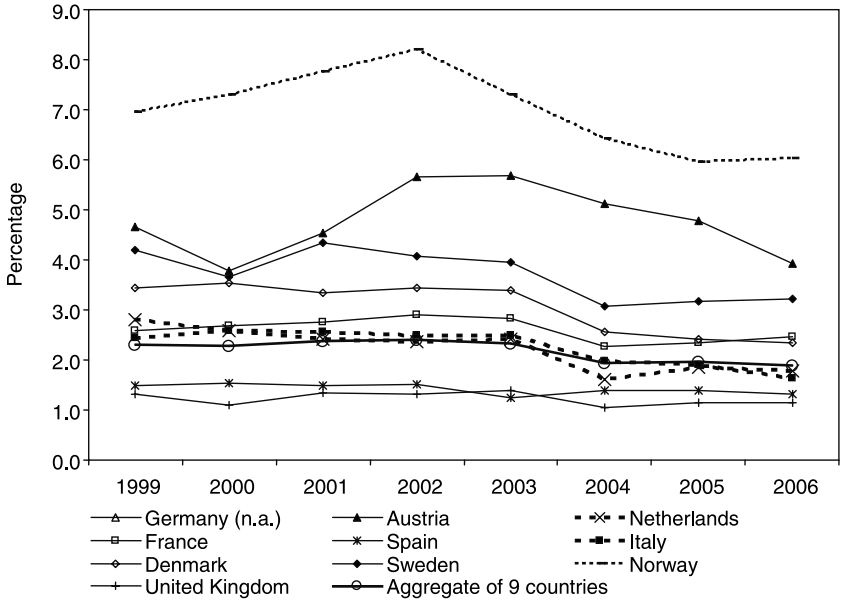

Fig. 7.5 Outbound mobile Western European students as percentage of enrollment in home country, 1999–2006

Source: Unesco Institute for Statistics.

Notes: Unesco counts the number of degree students enrolled in the home country and in foreign countries. Home enrollment data is not available for Germany.

two main cycles, the establishment of a system of credits, the promotion of mobility, the promotion of European cooperation in quality assurance, and the promotion of the European dimension in higher education.

For stimulating transatlantic mobility in particular the adoption of a system based on two main cycles, undergraduate and graduate, is important,[5] as well as the establishment of a system of credits (such as the European credit transfer system [ECTS]). Before the Bologna Process, the higher education system of continental European countries generally had one integrated tier only, leading to the title necessary for entering PhD courses. In the Bologna Declaration it has been agreed that the bachelor's degree awarded after the first cycle, lasting a minimum of three years, shall become relevant on the European labor market as an appropriate level of qualification. Access to the second cycle requires successful completion of first cycle studies. The second cycle leads to the master's degree. Initially only two cycles were men-

5. For example, Spinelli (2005) refers to difficulties for US administrators to understand the level of European students who had not completely finished their European degree in the one tier system. There were problems even for students who graduated from a five-year integrated course (i.e., master's level), to whom US administrators generally offered admission to master instead of PhD courses since they were holding one degree only.

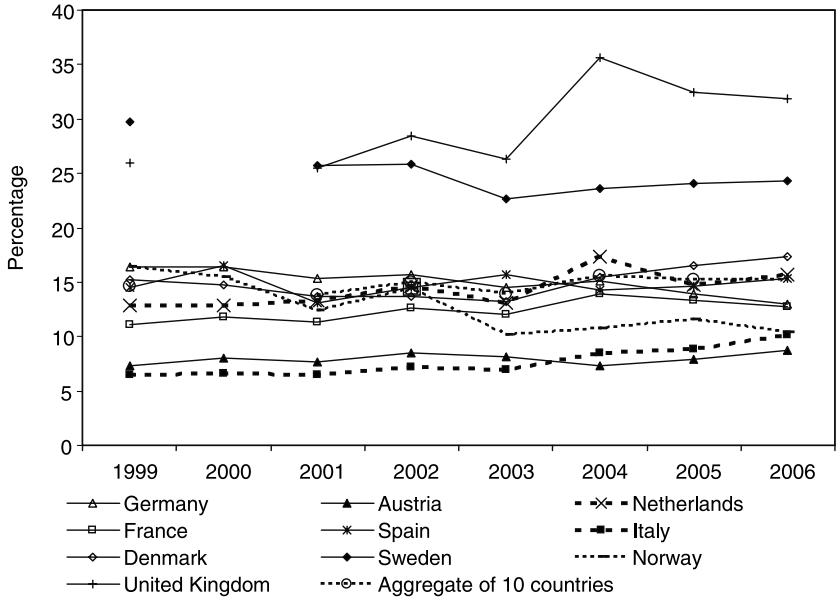

Fig. 7.6 Outbound mobile students that study in the United States as percentage of total outbound mobility per country, 1999–2006

Source: Unesco Institute for Statistics.

Note: Unesco counts the number of degree students enrolled in the home country and in foreign countries.

tioned, equivalent to undergraduate and graduate. Later the doctoral (or doctorate) degree was introduced as the third cycle.[6] Although European countries are committed to convert their existing higher education programs to a three-year bachelor's and two-year master's, in reality there is a large variation between countries in the length of the cycles and in the intermediate credentials traditionally offered (Adelman 2009).

Figure 7.6 shows the percentage of outbound students per country who are going to the United States for the period 1999 to 2006. The percentages are relatively high for the United Kingdom and Sweden, with about one-quarter to one-third of their outbound students enrolling in the United States. Italy and Austria have low shares of students enrolling in the United States. The shares dropped relatively much for students from Norway and Germany between 1999 and 2006. On average the market share of the United States in total outbound mobility of the ten Western European countries in our sample was approximately 15 percent in this period. We can conclude that the United States has not become less attractive for European students that want to study abroad, either within or outside Europe. However, since

6. See Witte (2006) for a detailed account and analysis of the evolution of the three cycles.

enrollment of Western European students outside their own country seems to have decreased during the last years or more for many countries, this also holds for the number of Western European students studying in the United States. This development may be caused by the increasing popularity of mobility programs like the Erasmus program, which stimulates European students to study in another European country, which is not counted as enrollment in the Unesco figures.

Figure 7.7 depicts the number of US students abroad between 1955 and 2003. Total study abroad of Americans increased between 1955 and 1990, then dropped slightly and started to accelerate after 1992. The share of Europe in study abroad decreased due to the rise of Asian countries. The US students hardly go to European countries outside Western Europe. Whereas the number of Western European students in the United States accelerated from 1975 onwards, the number of US students in Western Europe only started to grow strongly after 1992, thus much later.

Table 7.1 shows the number of US students relative to the number of students enrolled in the country they go to. The table does not reveal a clear

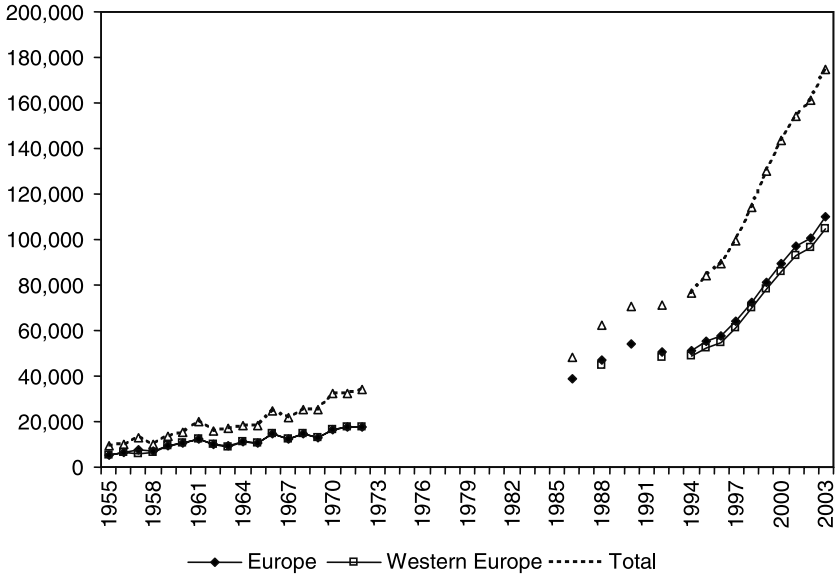

Fig. 7.7 Total number of US students abroad, 1955–2003

Source: Institute of International Education.

Notes: The data has been drawn from the *Open Doors* database of the Institute of International Education. For Americans overseas, *Open Doors* surveys count the number of students that study abroad. This consists of short-term programs of one year or less that are held in another country, but which the American student receives credit for toward their US degree. There are far more Americans participating in these types of study abroad programs than are enrolled in degree courses overseas. The Unesco measures this enrollment, which equals about 48,000 students in 2006.

Table 7.1 US students as percentage of enrollment in Western European countries, 1970–2003

	1970	1986	1992	1996	2003
Germany	—	—	0.16	0.17	—
Austria	0.42	0.95	0.69	0.51	1.22
Netherlands	0.06	0.05	0.12	0.15	0.34
France	0.94	0.51	0.53	0.38	0.62
Spain	0.64	0.44	0.52	0.48	1.02
Italy	0.24	0.33	0.33	0.42	0.99
Denmark	0.12	0.41	0.36	0.27	0.56
Sweden	0.27	—	0.14	0.13	0.20
Norway	0.31	—	0.06	0.05	0.13
United Kingdom	0.35	1.33	1.52	1.06	1.39

Sources: Institute of International Education and the Unesco Institute for Statistics.

Notes: The percentages have been calculated by dividing the number of US students that study in a particular country (*Open Doors,* see figure 7.7) by the number of enrolled degree students in that country (Unesco). The percentages in the 1992 column refer to 1990 for France and the United Kingdom. The percentages in the 1996 column refer to 1995 for France and Denmark.

general trend for all countries between 1970 and 1996. After 1996 there is an upward trend. The United Kingdom is the most attractive country for American students because of the English language. Remarkably, during recent years Austria, Spain, and Italy have become the most popular countries after the United Kingdom. Obviously these countries succeed in attracting American students by reforming their university system in line with the Bologna Process and by offering good quality courses in English. Moreover, the relatively large communities with a Spanish or Italian family background in the United States may induce American students from these communities to study in Spain or Italy. So while in the 1980s the number of European students that went to the United States increased—in line with the increased participation in higher education in Europe—only recently European universities became more open to foreign students.

7.4 Americanization: The Case of the Netherlands

To illustrate the outcomes of the theoretical model in more detail, we discuss the developments in higher education and research for the case of the Netherlands, and where useful refer to other European countries or the United States. Figures 7.8 and 7.9 summarize some basic facts about the size and growth of higher education in the Netherlands. Figure 7.8 depicts the growth in the country's two major higher education sectors, distinguishing the number of students in universities from students in professional higher education (*Hoger Beroeps Onderwijs,* or HBO). Dutch universities are always research universities, and incorporate business schools, law schools, and medical schools. The HBO institutions are typically not engaged in

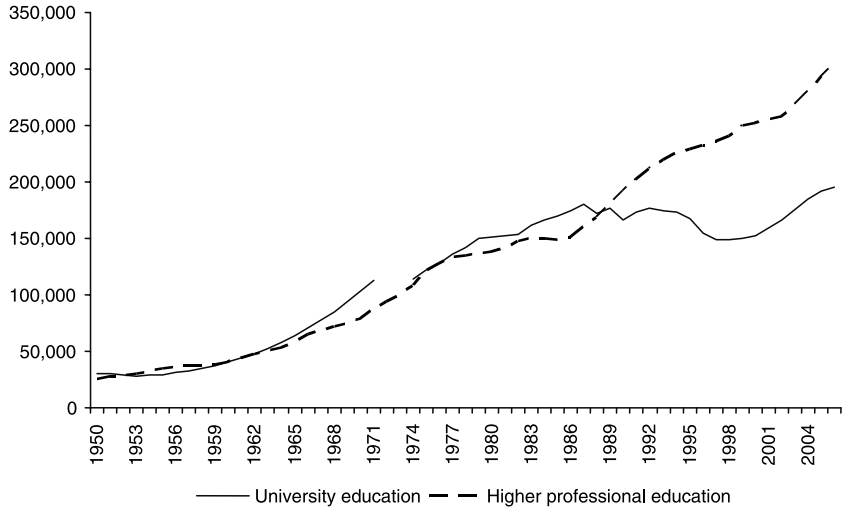

Fig. 7.8 Growth of higher education in the Netherlands, 1950–2006
Source: Statistics Netherlands.
Note: The data concerns students in full-time education.

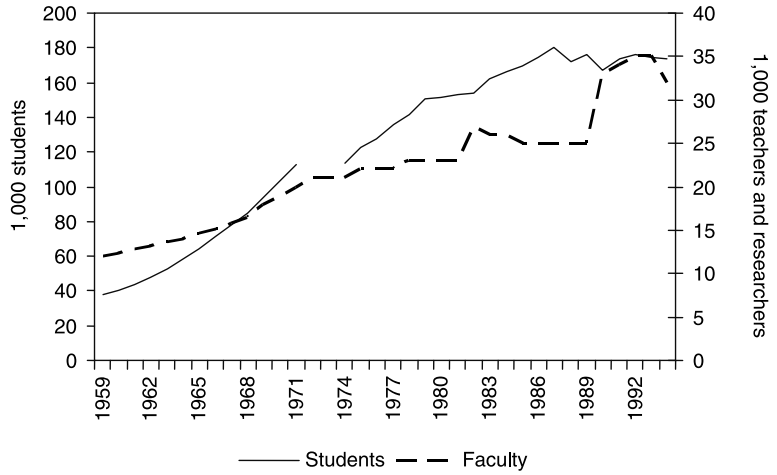

Fig. 7.9 Students versus faculty at universities in the Netherlands, 1959–1994
Source: Statistics Netherlands.
Note: See figure 7.8.

research, and teach professional skills; for example, for nurses, teachers, therapists, accountants, and practically-oriented engineers. The strongest increase in the number of students is during the 1960s, but the number keeps increasing until the early 1980s. From the 1980s on the growth in participation at the universities stagnates, while participation at the professional col-

leges continues to grow. Fluctuations in participation rates for universities from the 1980s onward mainly reflect new regulations that aim at a reduction of the years spent at university.

Figure 7.9 focuses on universities and compares the enrollments with the size of the faculty. In line with the growth of the number of students, the number of teachers and researchers also grows. The growth rate of faculty is about 50 percent of the growth rate in student population, implying an increase in the student-faculty ratio from 3 to 7 between 1960 and 1990. The break between 1990 and 1991 is due to a change in definition.

The internationalization of Dutch higher education is evident in the growing numbers of Dutch university students going to the United States to study and American students going the other way, to study in the Netherlands. Figure 7.10 shows the participation of Dutch students in American higher education. For comparison, the corresponding trend is shown for German participation, which, as shown in figure 7.3, is representative of Western Europe as a whole. For both countries the start of this growth in the early 1960s coincided with the growth of higher education in Europe. Around 1975 there was a sharp decline in the participation of Dutch and German students at US universities, but after 1975 this trend recovered. From 1975 until 1992 the participation of Dutch students in the United States grew faster than the German participation, after which Dutch enrollment fell. The same happened to German participation after 2001, as it did in many other

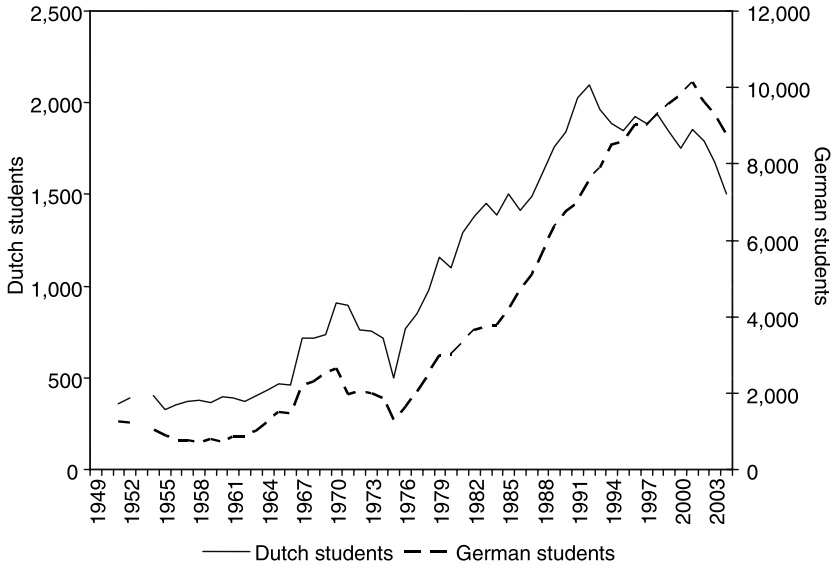

Fig. 7.10 Dutch and German students in the United States, 1949–2004

Source: Institute of International Education.

Notes: See figure 7.3.

Western European countries during the last decade, as has been revealed in the discussion of figures 7.3 and 7.4.

Initially only a very small fraction of foreign students in the Netherlands came from the United States, but this changed in the 1990s when some universities started to provide courses in English in some fields. Figure 7.11 shows the increase of US students in the Netherlands in those years. Between 1995 and 1998 the participation of US students more than doubled and has continued to increase since then. Participation of Dutch students in the United States increased much earlier, and was related to the rise of higher education in the Netherlands. Similar trends can be seen for other Western European countries (compare figure 7.4 and table 7.1 of the previous section). Significantly, the magnitudes of these mobility flows differ by discipline, with disciplines such as law being more nationally-oriented than others. This fact is clearly demonstrated in figure 7.12, which shows that the percentages of foreign students are lowest in fields like health care, law, education, and language and culture. The more science-oriented studies and economics display a much higher influx of foreign students. Finally, note that the total number of foreign students enrolled in Dutch higher education has been increasing since 2004, as has the percentage of US students (see table 7.1).

"Americanization" of Dutch higher education is more starkly evident in the transformation that has taken place in the very degrees, titles, and objectives that define academic institutions. Table 7.2 describes several key characteristics of Dutch universities in 1980 and 2008. The focus is on eco-

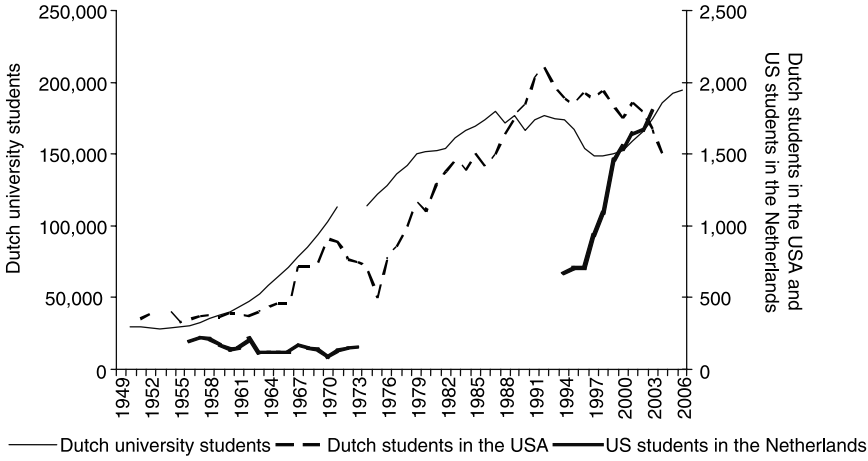

Fig. 7.11 Dutch university students and mobility flows between the Netherlands and the United States, 1949–2006

Sources: Statistics Netherlands and Institute of International Education.

Notes: See figures 7.3, 7.7, and 7.8.

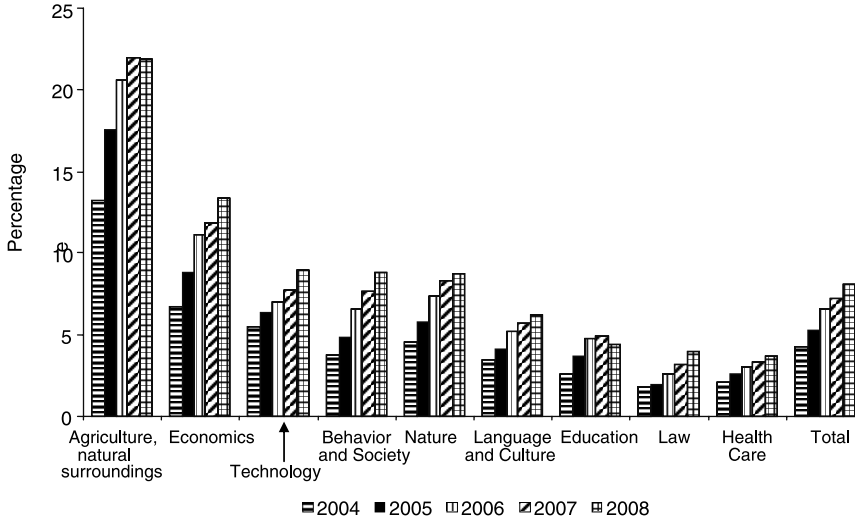

Fig. 7.12 Foreign students as percentage of Dutch enrollment per discipline, 2004–2008

Source: Nuffic (2008).

Note: Data concerns foreign students enrolled at publicly-funded Dutch universities.

Table 7.2 Characteristics of education and research in economics at Dutch universities in 1980 and 2008

1980	2008
Drs-diploma, 5–8 years of study	BA and MA, 3 + 1 years of study
A drs could become member of the faculty	Then "AIO" = employee who writes a thesis
Some wrote a thesis	Gradual shift:
Often as a magnus opus	From employee to student
	Introduction of course work
	Use of term PhD rather than AIO
Aim: Participation in national discussion	Aim: Publish in international (American) journals
Some researchers have an international focus	Most researchers have an international focus

nomics. In 1980 a degree program in economics nominally required five years, but in fact most students spent as much as six to ten years to complete their study. The diploma was called "drs." and was regarded as equivalent to a MA diploma. In 1982 the nominal duration was reduced to four years, although the diploma remained officially unchanged. Furthermore, measures were taken to reduce the time spent at university to a maximum of six years. Later, further measures were taken to reduce the length of the stay. In 2002—following the Bologna Declaration of 1999—the structure was

changed into a BA-MA-structure, with three years of bachelor's and one (sometimes two) years of master's.

In the 1980s it was very common for members of the faculty not to have a PhD. Some wrote a "proefschrift" (PhD thesis) as a member of the faculty. Some of them used this thesis as an opportunity to bring together all their research at the end of their career as a magnus opus. Others never wrote a PhD thesis, but could nevertheless become full professor. Famous professors in economics at that time were often involved in the national political discussion about economics. Many were affiliated with a political party and joined national committees advising the Dutch government about economic policy. Gradually this situation shifted. Obtaining a PhD became a prerequisite to become assistant professor, and an official PhD program was implemented (*Assistant in Opleiding,* or AIO). Initially, AIOs just had to write their thesis, but gradually course work was introduced in these programs. Joining the national debate and publishing in national journals became less important while success in international publications gradually became the measure of success.

Initially there was not one European system for higher education. Like the Netherlands, most countries in Europe had their own specific characteristics. Germany had and still has a "habilitation", a kind of second thesis after PhD, which is required to become full professor. France distinguishes many different diplomas for different levels obtained in higher education, and has a distinction between universities that focus mainly on teaching, and *écoles superieure.* In international comparisons such differences are not always acknowledged, for several reasons. First, international communication about higher education is clearly affected by selection bias: those who go to international conferences prefer the international system and therefore behave most of the time in accordance with the American standard and tend to describe their home situation by using the American terminology. Second, for international statistics, degrees are translated to facilitate comparison, hiding the obvious differences between degrees in different countries. Third, when norms change about what constitutes good research, there is a tendency to judge research in the past using these new norms. Consequently, researchers who do not publish in international journals are easily considered to be lazy; differences in the system are therefore regarded as a lack of appropriate incentives.

To show how the PhD has changed in the Netherlands, we constructed a time series on doctoral dissertations defended at Dutch universities before 1995 using information from the library of Maastricht University that holds all these titles. Figure 7.13 compares the number of PhDs awarded with total university enrollment. The figure makes clear that these two indicators follow very different patterns. Initially, writing a PhD thesis was not a requisite for faculty, as shown in table 7.2. There were many full professors who did not obtain a PhD and some wrote their PhD later in their career

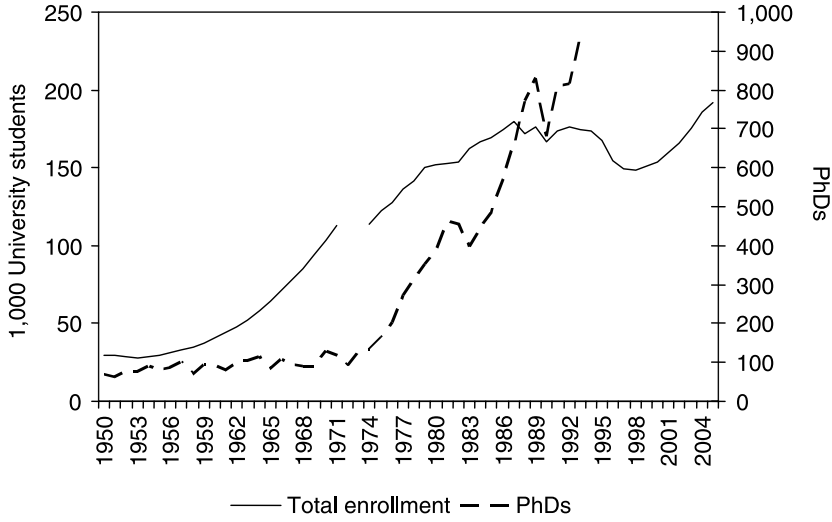

Fig. 7.13 Number of PhDs and total enrollment at universities in the Netherlands, 1950–2005

Sources: Statistics Netherlands and Library of Maastricht University.

as a summary of all their main research. Only in the mid-seventies did this start to change and nowadays a PhD is required for most positions as an assistant professor.

Figure 7.14 shows the average age of PhDs by discipline for the doctoral dissertations in our library sample from 1970 till 1995. As has been argued before, we expected that the age at which candidates received their PhDs would fall over time due to the transition of the Dutch to the Anglo-American system. After 1980 the average age did indeed fall for all disciplines except arts. The decrease was most prominent for science and economics. In these disciplines the transition to the Anglo-American system may have been most prominent.

7.5 Importance of Language for Research

One way to illustrate the increasing dominance of Anglo-American academic research is to look at the language in which Continental European researchers are publishing. Nowadays it is common in many research fields and countries to publish in English. However, for some fields, like law and national history, this seems to be less relevant due to a lack of international academic audience that is interested in country-oriented research. In contrast, for areas like physics, chemistry, and medicine the international academic community is more or less dealing with the same questions everywhere. Therefore, in these areas the interest to understand each other and

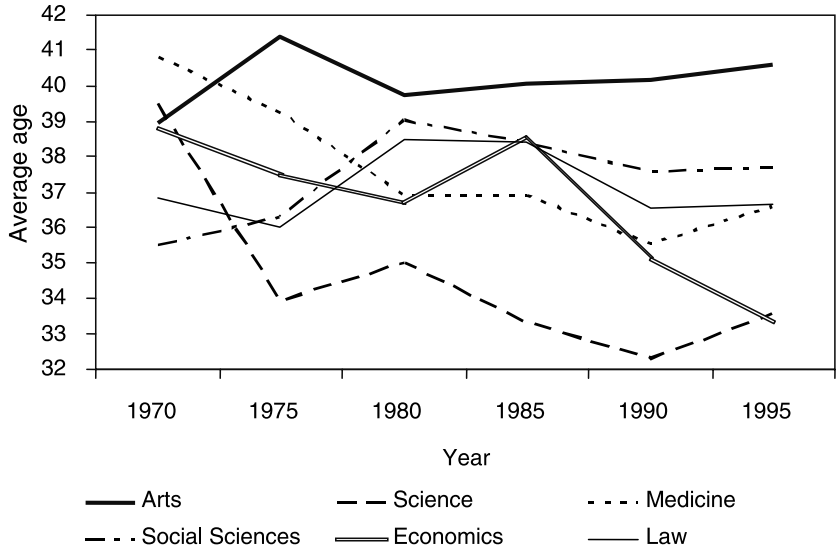

Fig. 7.14 Average age of graduating PhDs by discipline in the Netherlands, 1970–1995

Source: Library of Maastricht University.

to communicate in the same language is much bigger. Moreover, due to globalization and converging institutions—think of financial markets, international law, the end of communism in many countries, but also the higher education system—societies may have become more similar over time. Therefore the interest in sharing the knowledge that emerges from research is probably increasing. Communicating in one instead of different languages makes it easier to ensure that research output gets feedback from others all over the world, and that new knowledge will be generalized and used for practice.

7.5.1 Doctoral Dissertations

International

To illustrate the growing dominance of the English language in academic research on the European continent we use data of the foreign doctoral dissertation database of the Center for Research Libraries (CRL) in Chicago.[7]

7. The Center for Research Libraries (CRL) is a consortium of North American universities, colleges, and independent research libraries. The consortium acquires and preserves newspapers, journals, documents, archives, and other traditional and digital resources for research and teaching. These resources are then made available to member institutions cooperatively, through interlibrary loan and electronic delivery. The CRL website for foreign dissertations is: http://catalog.crl.edu.

For nine Continental European countries in the database we analyzed to what extent the doctoral dissertations have been written either in the home language or in English, and how the share of dissertations in the home language has evolved over the last hundred years. The CRL collection includes doctoral dissertations submitted to institutions outside the United States and Canada. A list of these institutions is available at the CRL website. The subjects of the dissertations are very mixed, but the database contains no variables to categorize the dissertations by discipline. We did some provisional analyses on recent years of databases from French, Danish, German, and Austrian national libraries to check our results. We found that the CRL data are reasonably well in line with those in other national data sources.

Figure 7.15 presents by country the percentages of home language dissertations in the total of home and English language dissertations. The percentages are averages for ten-year periods between 1908 and 2007 (see the appendix). The figure shows that in many Continental European countries the development of increasingly writing dissertations in English started as far back as the beginning of the previous century. This holds in particular for the Scandinavian countries. The Netherlands had a somewhat slower start, but caught up with these countries. Italy seems to follow the Netherlands till the 1960s, but then remained more or less constant. During the last ten

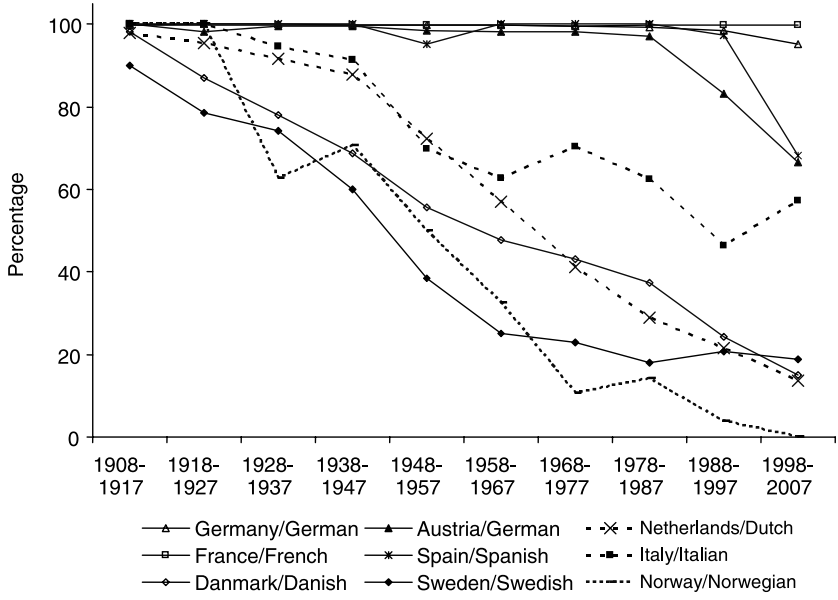

Fig. 7.15 Percentage of doctoral dissertations in the home language, 1908–2007
Source: Center for Research Libraries.

to twenty years, PhDs in Spain and Austria increasingly wrote their thesis in English. In Germany this process seems to have started up only recently. Based upon the CRL database, 5 percent of the doctoral dissertations in Germany were written in English by 1998 to 2007.

In France there is only the barest indication of movement toward English.[8] It seems that countries that are part of big language areas (i.e., French, German, and Spanish) have small incentives to switch to publishing in English. Moreover, France is known for its language policies in many different areas of life.[9] As has been argued in section 7.2 of this chapter, the costs of switching to publishing in English are the largest for countries that are part of big language areas due to economies of scale. However, Drèze and Estevan (2007) conclude that the big four Continental countries (France, Germany, Italy, and Spain) should accept English as the lingua franca to catch up in performance in economics research with the United Kingdom and the small countries in Western Europe. Although their paper is measuring the performance in economics research only, their conclusion may hold for other fields as well.

The Netherlands

Figure 7.16 shows the language that was used in the doctoral dissertations in our sample of dissertations in the Maastricht University library system. We distinguished among the five languages that appear to have a substantial frequency: Latin, Dutch, German, French, and English. The figure shows the cumulative shares of these languages. Until about the 1850s Latin was the main language in doctoral dissertations at Dutch universities. After the 1850s this changed very rapidly, and Dutch became the main language. Also the importance of German and (later on) French increased. The share of English dissertations began to increase only after World War I. This share started to increase very rapidly in the 1960s. Latin was still used in a number of Dutch doctoral dissertations till the 1960s.

The use of English in doctoral dissertations differs very much between disciplines, as figure 7.17 reveals. Science and medicine have the largest share of doctoral dissertations in English, followed by economics and social sciences. In law, the use of English is even smaller than in arts. The figure also reveals that the share of dissertations in English increased very much in medicine. Substantial increases are also evident for science, economics, and social sciences. The increase for arts and law was only moderate.

8. From the extensive "'Système universitaire de documentation'" of French academic libraries, we found that until 1997 almost all doctoral dissertations in France had been written in French. In 2002, 1 percent of the dissertations were written in French, and in 2007 this percentage increased to 3 percent.

9. For example, the use of French is required by law in commercial and workplace communications (Toubon Law). However, we do not know exactly how French governmental language policies can affect the use of language in academic publications.

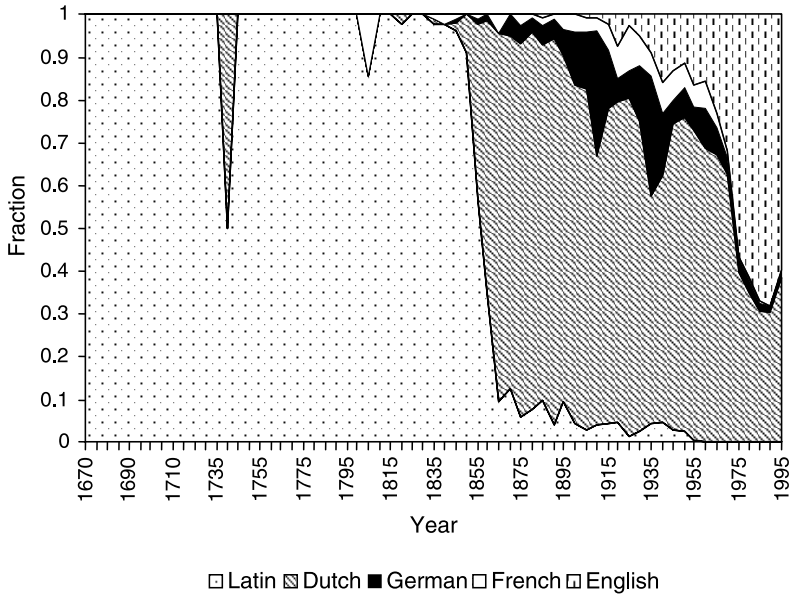

Fig. 7.16 Shares of languages of doctoral dissertations in the Netherlands, 1674–1995

Source: Library of Maastricht University.

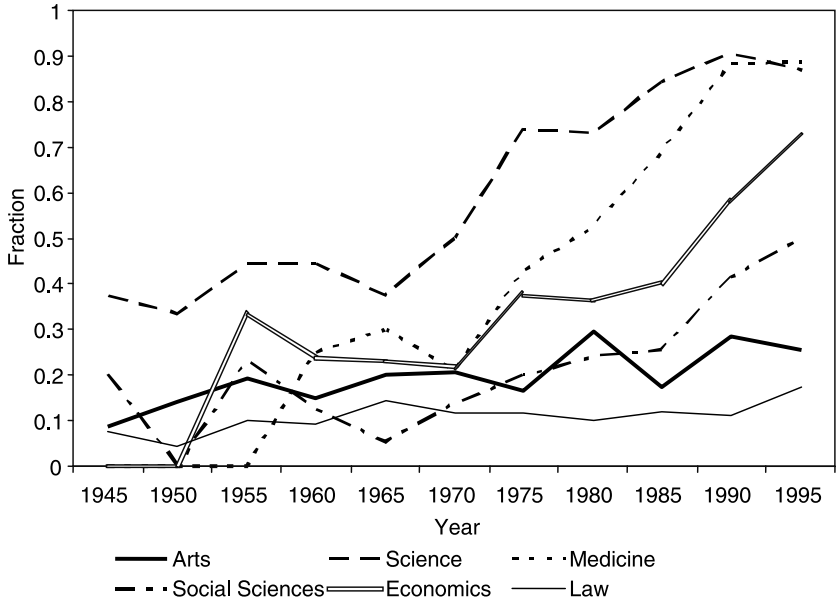

Fig. 7.17 The fraction of doctoral dissertations published in English by discipline in the Netherlands, 1945–1995

Source: Library of Maastricht University.

7.5.2 Economics Journals

International

The switch to the use of the English language can also be analyzed for academic journals. We looked at the publishing language of many Continental European and Anglo-American economics journals since the emergence of the first academic journals in economics around 1850. We follow these journals from the year of foundation, and noted when they switched from their home language to English. The selection of economics journals in different Continental European and Anglo-American countries is based on the overview by Gonçalo L. Fonseca. The list of selected journals has been published on the website "Economics Journals: A Chronological Account."[10] Only journals founded before 1990 were included on this website. We checked the year of foundation and the year when the journal stopped publishing with other data sources.

For none of the twelve Continental European countries in our data set is English a native language. Countries can have more than one national language (like German and French in Switzerland), and obviously the same language can be spoken in different countries. Journals may start in English from the foundation year (like an Italian and two Soviet journals), or switch to English at a later stage (see the appendix for detailed data). Information on the year of switching to English was drawn from data sources such as home pages of journals, national libraries, and EconLit. Journals need to publish all regular articles (i.e., excluding book reviews, etc.) in English to be considered as an English language journal. The first year in which this happens is noted as the transition year (this can also be after 1990).

In figure 7.18 the emergence of Continental European economics journals and their language use is presented. The total number of journals has gradually increased since 1844. Only after World War II did the number of journals suddenly increase, and the first English language journal on the continent was published (the Italian *Banca nazionale del lavoro quarterly review*). This journal was a new journal, as were also two Soviet journals founded in 1958 and 1964. The first old economics journal that switched to English was the Swedish *Ekonomisk Tidskrift* in 1964. In the same year it also changed its name to *Scandinavian Journal of Economics*. Starting from the first half of the 1990s the use of German (in journals from Germany, Austria, and Switzerland) and other languages (Italian, Spanish) seriously declined. By 2001 only four German and two other language journals were left. Many economics journals in these languages switched to English or disappeared. On the contrary, all French language journals from France,

10. See http://www.newschool.edu/nssr/het/essays/journal.htm. We selected the period from 1850 onwards, when the first academic economics journals emerged. We excluded the light and news-oriented journals, or journals not principally dedicated to economics, which are all marked as such on the website.

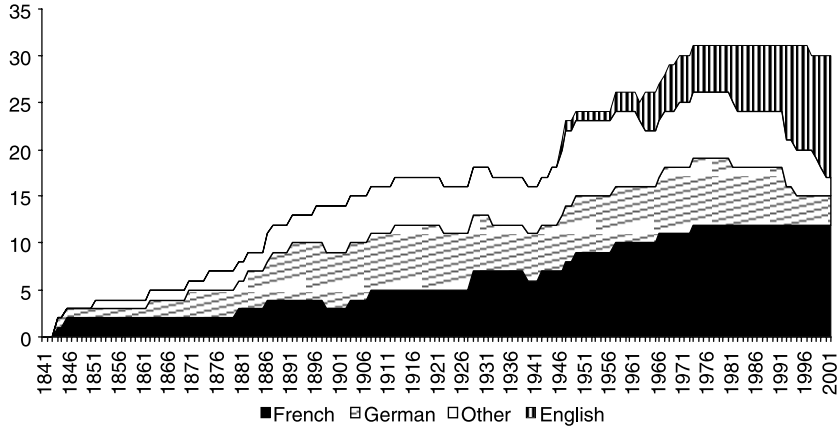

Fig. 7.18 Language of Continental European journals in economics, 1844–2001
Sources: Fonseca; Periodicals Service Company & Schmidt Periodicals GmbH, and some additional sources (see table 7A.2 in appendix).

as well as from Belgium and Switzerland, kept publishing in French. It has to be noticed that some French journals are bilingual, publishing French as well as English articles. These journals are not counted as English language journals in our data set. Even taking this strict definition, the English language journals on the European continent outnumber the French language journals during the last few years (thirteen versus twelve in the year 2001).

Figure 7.19 shows the development of the number of English language economics journals in Anglo-American countries from 1859 until 1990. For some years there was only one serious academic economics journal, according to our source (the British *Macmillan's Magazine,* 1859 to 1907; see the appendix). In 1886 the first US journal was founded (*Quarterly Journal of Economics*), and in 1891 the first well-known British economics journal emerged (*Economic Journal*). Only after World War II did the US journals begin to outnumber the journals in the United Kingdom and other English-speaking countries (Australia, Canada, South Africa). The first international journal (i.e., without a real home country) was published in 1921. Around 1970 the number of international journals suddenly increased. In 1990 there were twenty-six international journals, twenty-eight US journals, and fourteen English journals in the United Kingdom and other English-speaking countries.

The Netherlands, Austria, and Italy

To show the development in international orientation of economics journals in more detail, we analyzed three general interest journals. These journals are *De Economist,* founded in 1852 in the Netherlands; the *Journal of Economics,* founded in 1892 in Austria as the *Zeitschrift für Nationalökonomie;* and *Research in Economics,* founded in 1947 in Italy as *Ricerche*

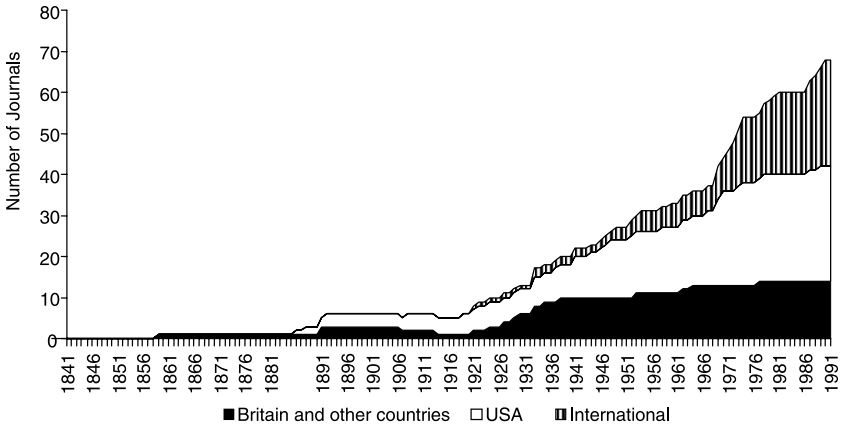

Fig. 7.19 Country of origin of English language economics journals in Anglo-American countries, 1859–1990

Sources: Fonseca; Periodicals Service Company & Schmidt Periodicals GmbH, and some additional sources (see table 7A.3 in appendix).

Economiche. For these journals we drew information from databases on the Internet with respect to the language of articles, the nationality of the authors, and the language of the references to other publications.[11]

Figure 7.20 shows the decline of the use of the home language in the Netherlands, Austria, and Italy. For the Netherlands the decline went rather fast after the beginning of the 1970s. Within less than a decade the language switched from Dutch to English. From 1983 onwards no regular articles have been published in Dutch anymore. For Austria, figure 7.20 shows that the switch from German to English in the Austrian *Journal of Economics* started about a decade earlier compared to *De Economist.* However, it took about two decades to transform the journal from German to English. From 1982 onwards no regular articles have been published in German. In Italy, as in the Netherlands, the switch from Italian to English was accomplished in about a decade. Figure 7.20 shows that the switch for Research in Economics took place later than for *De Economist* in the Netherlands and the *Journal of Economics* in Austria. From 1993 onwards no regular articles in this journal have been published in Italian anymore.

The language change in *De Economist* certainly coincided with the nationality of the authors. The decline of the fraction of Dutch authors, however, developed more gradually than the decline of the fraction of articles in Dutch, as is shown in figure 7.21. Moreover, the fraction of articles by German or Austrian authors in the *Journal of Economics* declined rapidly after

11. For *De Economist* and the *Journal of Economics,* we used the website http://springer.com; for *Research in Economics* we used http://www.Elsevier.com for the years after 1996; and the following website for the period from 1960 to 1996: http://www.biblio.liuc.it/essper/schedper/p78.htm.

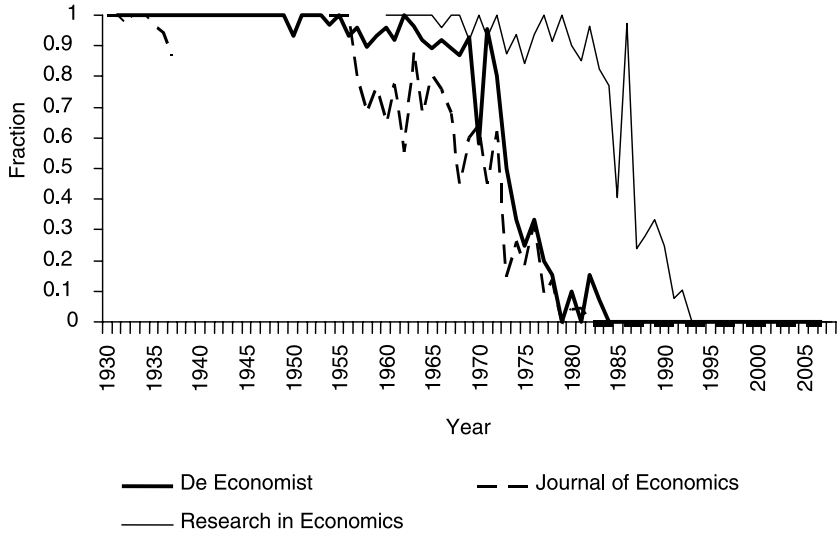

Fig. 7.20 The fraction of articles written in home language in *De Economist* (Netherlands), *Journal of Economics* (Austria/Germany), and *Research in Economics* (Italy), 1930–2007

Sources: Springer, Elsevier, and website of *Research in Economics* for 1960–1996 (http://www.biblio.liuc.it/essper/schedper/p78.htm).

World War II. The fraction reaches a level below 20 percent in the late 1980s and the early 1990s. In recent years, however, the fraction of German and Austrian authors increased again. Figure 7.21 also provides information about the nationality of the authors in *Research in Economics.* Since the 1980s the fraction of Italian authors gradually decreased, reaching a level of about 20 percent in recent years.

Figure 7.22 shows the developments in the language of the references in English-written papers published in *De Economist* and the *Journal of Economics.* The change in international orientation of *De Economist* had a clear impact on the language of the publications, which was referred to in the articles. In the 1960s, between 40 and 50 percent of the references were in the Dutch language. During the last decades this share was less than 10 percent for most years. Also, for the *Journal of Economics* the change in international orientation had a clear impact on the fraction of references to publications in the home language. The fraction decreased over years. In particular after 2000 this fraction is very low.

7.6 Conclusions

In this chapter we document the shift of the European research and higher education system from a national to an international—and American—orientation. This gradual process did not start immediately after the expan-

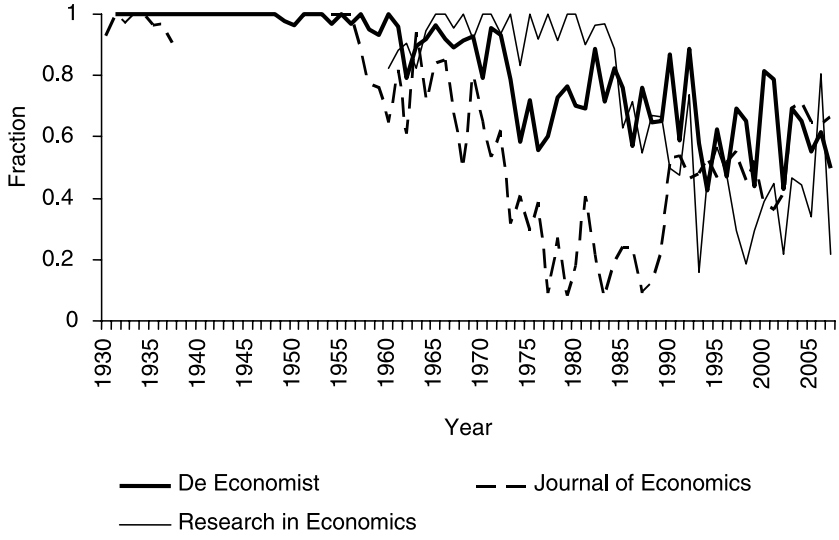

Fig. 7.21 The fraction of articles written by native authors in *De Economist* (Netherlands), *Journal of Economics* (Austria/Germany), and *Research in Economics* (Italy), 1930–2007

Sources: Springer, Elsevier and website of *Research in Economics* for 1960–1996 (http://www.biblio.liuc.it/essper/schedper/p78.htm).

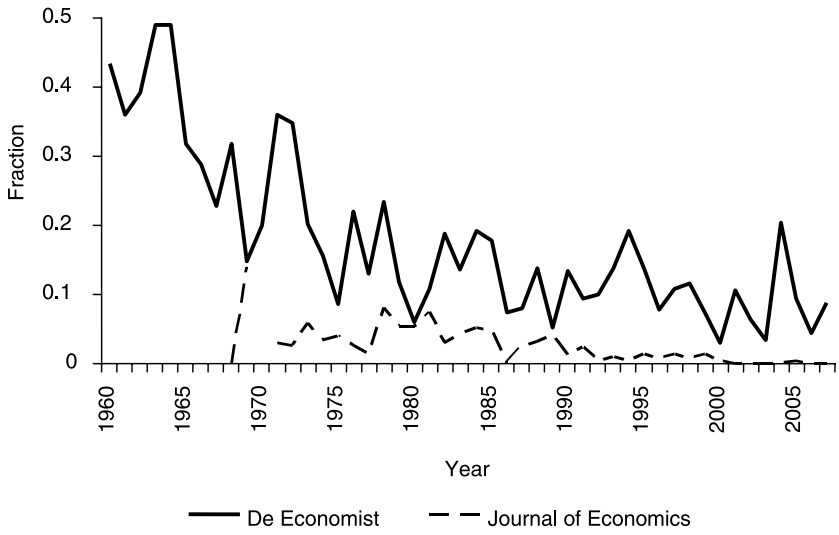

Fig. 7.22 The fraction of references in English articles to publications in home language for *De Economist* (Netherlands) and *Journal of Economics* (Germany), 1960–2007

Source: Springer.

sion of higher education, but developed over time. Smaller countries with smaller language areas were the first to adopt English as a research language and to adjust their system to American standards, suggesting that returns to scale are an important factor in the decision to join the international research society. Comparing between fields of study, sciences and medicine turn out to make this change earlier than economics and social sciences, while in arts and law the majority of the work still is focused on the home country. Differences in the transferability of research outcomes may account for these differences.

These trends might imply that mobility of students and researchers in Europe will increase substantially in the years to come. The standards used, the use of English, and a focus on American research go hand in hand. So once these changes start, it becomes increasingly beneficial to continue this process. At the same time, when more researchers join the international society, the scale of the national research communities shrinks, which further stimulates internationalization. When research in Europe becomes more harmonized and more focused on American research, the need for European students to study in the United States might be reduced, while at the same time the system will become more attractive for students and researchers from outside Europe. Until now the inflow of students from outside Europe is still relatively small, so we can only speculate about the potential size of these developments. Another remaining question is whether law and arts will follow other disciplines in their shift toward the American/international standard.

Further progress in the establishment of a European Higher Education Area (EHEA), which is part of the Bologna Process, can create an American-like competitive European standard for higher education, in particular when the European Union succeeds in the full adoption of a system based on two main cycles for undergraduates and graduates with a transparent system of credits. As is noticed by Drèze and Estevan (2007), the introduction of English as the lingua franca of universities, particularly in the big four continental countries, is a prerequisite to increase European competitiveness. Other conditions for increasing its competitiveness (see also Mas-Colell [2003]) are better governance at European universities and concentrating PhD programs at fewer universities.

In our analysis of student mobility flows between Europe and the United States we found the first indications of a declining enrollment of European students in the United States, whereas studying abroad in Europe by US students seems to be on the rise. In the long term, similar developments could occur for the number of PhD students and researchers going to the United States. Only if international/American standards are adopted in European higher education and research can Europe as a whole become more attractive for students and researchers all over the world, and challenge the United States as the number one.

Appendix

Table 7A.1 **Numbers of dissertations by country and language, ten-year periods 1908–2007**

	Year									
	1908–1917	1918–1927	1928–1937	1938–1947	1948–1957	1958–1967	1968–1977	1978–1987	1988–1997	1998–2007
Austria										
German	86	112	245	191	375	302	336	205	79	22
English	0	2	1	1	6	6	6	6	16	11
% German	100	98	100	99	98	98	98	97	83	67
Germany, West										
German	35,326	34,764	60,550	11,833	11,020	42,177	63,229	63,253	70,751	24,594
English	56	10	23	13	21	80	269	514	1,042	1,222
% German	100	100	100	100	100	100	100	99	99	95
Netherlands										
Dutch	622	1,207	1,978	1,448	1,643	1,648	1,796	1,360	1,169	435
English	13	57	183	201	630	1,243	2,551	3,342	4,287	2,771
% Dutch	98	95	92	88	72	57	41	29	21	14
France										
French	7,148	10,187	8,733	6,808	4,861	10,331	18,213	6,993	18,120	7,591
English	6	5	17	9	4	22	87	17	24	21
% French	100	100	100	100	100	100	100	100	100	100
Spain										
Spanish	4	28	41	11	20	188	436	59	234	32
English	0	0	0	0	1	0	0	0	6	15
% Spanish	100	100	100	100	95	100	100	100	98	68

(*continued*)

Table 7A.1 (continued)

	Year									
	1908–1917	1918–1927	1928–1937	1938–1947	1948–1957	1958–1967	1968–1977	1978–1987	1988–1997	1998–2007
Italy										
Italian	8	5	18	21	23	49	31	60	56	8
English	0	0	1	2	10	29	13	36	65	6
% Italian	100	100	95	91	70	63	70	63	46	57
Denmark										
Danish	112	133	213	247	249	256	260	260	222	66
English	2	20	60	113	198	280	342	438	696	377
% Danish	98	87	78	69	56	48	43	37	24	15
Sweden										
Swedish	240	249	243	267	294	288	622	842	1,411	1,084
English	27	68	84	177	469	864	2,102	3,854	5,440	4,695
% Swedish	90	79	74	60	39	25	23	18	21	19
Norway										
Norwegian	5	7	22	12	9	13	15	34	6	0
English	0	0	13	5	9	27	127	206	153	51
% Norwegian	100	100	63	71	50	33	11	14	4	0

Source: Center for Research Libraries (CRL).

Table 7A.2 Language of Continental European academic journals in economics

Country	Original language	National journal name	English journal name	Publishing years	Year of publishing solely English articles
Austria	German	Zeitschrift für Nationalökonomie	Journal of Economics	1892–	1982
Belgium	French	Revue Économique Internationale	n.a.	1904–1940	n.a.
Belgium	French	Recherches Economiques de Louvain	Louvain Economic Review	1929–	Still partly in French
Belgium	French	Cahiers Économiques de Bruxelles	Brussels Economic Review	1958–	Still mix of French and English language
Europe	English	European Economic Review	n.a.	1969–	1969
France	French	Annuaire de l'Économie Politique et de la Statistique	n.a.	1844–1899	n.a.
France	French	Annales d'Économie Politique	n.a.	1846–	Still in French
France	French	Revue d'Économie Politique	n.a.	1887–	Still mainly in French
France	French	Les Etudes Social	n.a.	1881–	Still in French
France	French	Histoire, Économie et Société	n.a.	1908–	Still in French
France	French	Annales d'Histoire Économique et Sociale	n.a.	1929–	Still in French
France	French	Économie Appliquée	n.a.	1948–	Still mainly in French
France	French	Revue Économique	n.a.	1950–	Still mainly in French
France	French	Economies et Sociétés	n.a.	1967–	Still in French
France	French	Cahiers d'Économie Politique	n.a.	1974–	Still mix of French and English language
Germany	German	Zeitschrift für die gesamte Staatswissenschaft	Journal of Institutional and Theoretical Economics JITE	1844–	1993
Germany	German	Jahrbücher für Nationalökonomie und Statistik	n.a.	1863–	Still in German
Germany	German	Schmollers Jahrbuch	Journal of Applied Social Science Studies	1871	Still partly in German
Germany	German	Die Neue Zeit: Revue des geistigen und öffentlichen Lebens	n.a.	1883–1923	n.a.
Germany	German	Archiv fur Sozialwissenschaft und Sozialpolitik	n.a.	1888–1933	n.a.
Germany	German	Weltwirtschaftliches Archiv	Review of World Economics	1913–	1995
Germany	German	Kredit und Kapital	n.a.	1968–	Still in German

(*continued*)

Table 7A.2 (continued)

Country	Original language	National journal name	English journal name	Publishing years	Year of publishing solely English articles
Italy	Italian	Giornale degli Economisti e Annali di Economia	n.a.	1875	2000
Italy	English	Banca nazionale del lavoro quarterly review	Previously: Quarterly review. Banca nazionale del lavoro; Nowadays: BNL Quarterly Review	1947–	1947
Italy	Italian	Ricerche Economiche	Research in Economics	1947–	1993
Italy	Italian	Economia internazionale	n.a.	1948–	2001
Netherlands	Dutch	De Economist	De Economist Netherlands Economic Review	1852–	1983
Norway	Norwegian	Norsk Økonomisk Tidsskrift	n.a.	1887–	Still in Norwegian
Soviet Union	English translations	Problems of Economic Transition	n.a.	1958–	1958
Soviet Union	English translations	Matekon	n.a.	1964–1998	1964
Spain	Spanish	Revista Española de Economia	Spanish Economic Review	1971–	1999
Spain	Spanish	Revista de Historia Económica	Journal of Iberian and Latin American Economic History	1945–	Submissions in English, Spanish, or Portuguese
Sweden	Swedish	Statsvetenskaplig tidskrift för politik-statistik-ekonomi	n.a.	1897–1963	n.a.
Sweden	Swedish	Ekonomisk Tidskrift	Scandinavian Journal of Economics	1899–	1964
Switzerland	German	Kyklos	Kyklos International Review for Social Sciences	1947–	1993
Switzerland	French	Revue Économique et Sociale	n.a.	1943–	Still in French

Sources: Fonseca; Periodicals Service Company & Schmidt Periodicals GmbH, home pages of journals, national libraries, EconLit, and so forth.

Notes: Continental European Journals selected from 1850 onwards (emergence of academic economics journals, excl. light and news-oriented journals, or journals not principally dedicated to economics). Only journals that were founded until 1990 have been included.

n.a. = not applicable.

Table 7A.3 English language journals (only English-speaking countries)

Country	National journal name	Publishing years
Australia	Economic Record	1924–
Australia	Australian Economic Papers	1962–
Britain	Macmillan's Magazine	1859–1907
Britain	Economic Journal	1891
Britain	Economic Review	1891–1914
Britain	Economica	1921–
Britain	Economic History Review	1927–
Britain	The Manchester School of Economic and Social Studies	1929–
Britain	Lloyds Bank Review	1930–
Britain	Review of Economic Studies	1933–
Britain	Oxford Economic Papers	1938–
Britain	Scottish Journal of Political Economy	1953–
Britain	Journal of Development Studies	1964–
Britain	Cambridge Journal of Economics	1977–
Canada	Canadian Journal of Economics[a]	1935–
International	International Labour Review	1921–
International	Econometrica	1933–
International	Metroeconomica	1949–
International	Journal of Industrial Economics	1952–
International	IMF Staff Papers	1954–
International	International Economic Review	1960–
International	Journal of Economic Theory	1969–
International	History of Political Economy	1969–
International	Journal of International Economics	1971–
International	International Journal of Game Theory	1971–
International	Journal of Public Economics	1972–
International	Journal of Monetary Economics	1972–
International	Journal of Econometrics	1973–
International	Atlantic Economic Journal	1973–
International	Journal of Mathematical Economics	1974–
International	Journal of Development Economics	1974–
International	Economics Letters	1978–
International	Journal of Economic Dynamics and Control	1979–
International	Journal of Economic Behavior and Organization	1980–
International	Mathematical Social Sciences	1981–
International	The New Palgrave: A dictionary of economics	1987–
International	Review of Austrian Economics	1987–
International	Economic Systems Research	1988–
International	Games and Economic Behavior	1989–
International	Structural Change and Economic Dynamics	1990–
International	Journal of Evolutionary Economics	1990–
South Africa	South African Journal of Economics	1933–
US	Quarterly Journal of Economics	1886–
US	Journal of American Statistical Association	1888–
US	Journal of Political Economy	1892–
US	Bulletin of the American Economic Association[b]	1908–1910
US	American Economic Review	1911–
US	Review of Economics and Statistics	1919–

(*continued*)

Table 7A.3 (continued)

Country	National journal name	Publishing years
US	Journal of Business	1922–
US	Southern Economic Journal	1933–
US	Encyclopedia of the Social Sciences	1937–
US	Journal of Economic History	1941–
US	American Journal of Economics and Sociology	1941–
US	Review of Social Economy	1944–
US	Journal of Finance	1946–
US	International Organization	1947–
US	Monthly Review	1948–
US	Economic Development and Cultural Change	1952–
US	Journal of Law and Economics	1958–
US	Western Economic Journal	1962–
US	Journal of Economic Issues	1967–
US	Journal of Economic Literature	1969–
US	Review of Radical Political Economy	1969–
US	Journal of Money, Credit and Banking	1969–
US	Brookings Papers on Economic Activity	1970–
US	Bell Journal of Economics[c]	1970–1973
US	Carnegie-Rochester Conference Series on Public Policy	1973–
US	RAND Journal of Economics	1974–
US	Eastern Economic Journal	1974–
US	Journal of Post Keynesian Economics	1978–
US	Journal of Economic Perspectives	1987–
US	Review of Political Economy	1989–

Sources: Fonseca; Periodicals Service Company & Schmidt Periodicals GmbH, home pages of journals, national libraries, EconLit, and so forth.

Notes: Continental European Journals selected from 1850 onwards (emergence of academic economics journals, excl. light and news-oriented journals, or journals not principally dedicated to economics). Only journals that were founded until 1990 have been included.

[a]Formerly published as *Canadian Journal of Economics and Political Science.*

[b]Predecessor of *American Economic Review.*

[c]Predecessor of *RAND Journal of Economics.*

References

Adelman, C. 2009. *The Bologna Process for US eyes: Re-learning higher education in the age of convergence.* Washington, DC: Institute for Higher Education Policy.

Association of International Educators. 2007. The Bologna Process. International Educator Bologna 2007. Supplement. http://www.nafsa.org./_/Document/_/bolognaprocess_ie_supp.pdf.

Amir, R., and M. Knauff. 2008. Ranking economics departments worldwide on the basis of PhD placement. *Review of Economics and Statistics* 90 (1): 185–90.

Cardoso, A. R., P. Guimarães, and K. F. Zimmermann. 2008. Comparing the early research performance of PhD graduates in labor economics in Europe and the

USA. Institute for the Study of Labor, Bonn., Germany. IZA Discussion Paper no. 3898.
Center for Research Libraries. *Catalog of foreign doctoral dissertations database.* Available at: http://catalog.crl.edu.
Coupé, T. 2003. Revealed performances: Worldwide rankings of economists and economics departments, 1990–2000. *Journal of the European Economic Association* 1 (6): 1309–45.
Drèze, J. H., and F. Estevan. 2007. Research and higher education in economics: Can we deliver the Lisbon Objectives? *Journal of the European Economic Association* 5 (2–3): 271–304.
European Commission. 2007. *The Bologna Process: Towards the European Higher Education Area.* Available at: http://ec.europa.eu/education/policies/educ/bologna/bologna_en.html.
———. 2008. *Erasmus—statistics, Erasmus student and teacher mobility.* Available at: http://ec.europa.eu/education/programmes/llp/erasmus/statisti/table1.pdf.
Eurydice. 2000. Two decades of reform in higher education in Europe: 1980 onwards. Education and Culture Directorate General, European Commission. Brussels, Belgium.
Fonseca, G. L. *Economics journals: A chronological account.* Available at: http://newschool.edu/nssr/het/essays/journal.htm (accessed October 23, 2009).
Frey, B., and R. Eichenberger. 1993. American and European economics and economists. *Journal of Economic Perspectives* 7 (4): 185–93.
Institute of International Education. *Open Doors 1948–2004: Report on international educational exchange.* CD-ROM. Sewickley, PA.
Kirman, A., and M. Dahl. 1994. Economic research in Europe. *European Economic Review.* 38 (34): 505–22.
Mas-Colell, A. 2003. The European space of higher education: Incentive and governance issues. *Rivista di Politica Economica* 93 (11–12): 9–27.
National Center for Education Statistics. 2008. *Digest of education statistics: 2007,* March. Washington, DC. Available at: http://nces.ed.gov/programs/digest/d07/index.asp (accessed October 23, 2009).
Netherlands organization for international cooperation in higher education (nuffic). 2008. *Internationalization in education in the Netherlands 2007.* The Hague.
Neary, P. J., J. A. Mirrlees, and J. Tirole. 2003. Evaluating economics research in Europe: An introduction. *Journal of the European Economic Association* 1 (6): 1239–49.
Periodicals Service Company & Schmidt Periodicals GmbH. Available at: http://www.periodicals.com/download.html.
Portes, R. 1987. Economics in Europe. *European Economic Review* 31 (6): 1329–40.
Spinelli, G. 2005. Mobility and admission of graduate students across the Atlantic: New challenges with the Bologna Process. *IIENetworker Magazine* (Spring). Available at: http://www.iienetwork.org/?p=Spinelli (accessed October 23, 2009).
Unesco Institute for Statistics. Data for 1970–1996. Available at: http://www.uis.unesco.org/pagesen/ed.htm.
———. Data for 1999–2006. Available at: http://stats.uis.unesco.org/unesco/tableviewer/document.aspx?ReportId=143.
Windolf, P. 1997. *Expansion and structural change: Higher education in Germany, United States, and Japan, 1870–1990*. Boulder: Westview Press.
Witte, J. K. 2006. Change of degrees and degrees of change: Comparing adaptations of European higher education systems in the context of the Bologna Process. PhD diss., University of Twente, Netherlands.