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The Structure of European Higher Education in the Wake of the Bologna Reforms

Ofer Malamud

6.1 Introduction

The United States has been the undisputed leader in higher education since World War II. According to a recent ranking of universities from around the world, seventeen of the top twenty universities are in the United States.[1] Moreover, the United States remains the predominant destination for foreign students, accounting for about 20 percent of these students in 2006 (OECD 2008). But there are growing concerns that American higher education is losing ground to other countries. Much attention is focused on the spectacular growth of higher education in India and China.[2] While these countries could be among the world's leaders in the future, at this juncture it is probably Europe that presents the main challenge to America's dominance in higher education. After trailing in college and university enrollment rates at midcentury, many countries in Europe have caught up and, in some cases, overtaken the United States.[3] Increasing numbers of foreign students are choosing to study in Europe over the United States as compared to previous

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1. This is according to ratings by Shanghai Jiao Tong University's Institute of Higher Education, which have been widely cited (http://ed.sjtu.edu.cn/rank/2007/ranking2007.htm).

2. See Freeman (2005) and the chapters on India and China in this volume. Fears about China and India surpassing the United States have been widespread in the popular media but there is some contention regarding the quality of these degrees.

3. The production of PhD equivalents in Germany, France, and the United Kingdom now combine to surpass the total number of PhDs granted in the United States, even though these

years. And a broader look at these same university rankings reveals that 33 of the top 100 are located in Europe while not a single university from India or China is currently listed. Thus, though the American system of higher education took the lead from Europe in the mid-twentieth century, Europe may be on the brink of a strong comeback.

Europe is also in the process of instituting some far-reaching reforms to the structure of higher education. In 1999, ministers of education from twenty-nine European countries issued the Bologna Declaration in order to modernize and harmonize the European system of higher education.[4] The ultimate aim of the Bologna process is the creation of a European Higher Education Area (EHEA) with academic degree and quality assurance standards comparable throughout Europe. However, the Bologna Declaration also makes explicit the "objective of increasing the international competitiveness of the European system of higher education" and introduces specific reforms "to ensure that the European higher education system acquires a worldwide degree of attraction." These reforms include the introduction of a standardized undergraduate and graduate degree structure and a system of transferable academic credits. With these reforms, Europe is set to adopt some of the central elements associated with the American system of higher education. That the United States drew early inspiration from the leading European models of higher education makes Europe's recent convergence to the modern American model of higher education especially striking.

How might these structural reforms affect higher education in Europe? The Bologna reforms may well serve to enhance the flexibility of student choices and improve competition among institutions of higher education, two aspects often lauded in the American system of higher education. In terms of providing enhanced flexibility, these reforms may reduce the costs associated with choosing a wrong course of study by allowing students to change fields and/or universities after completing a short (bachelor's) first degree. With the introduction of transferable credits, students may find it easier to switch fields and/or universities even in the midst of their degrees. Furthermore, the Bologna reforms might stimulate students to explore and combine a variety of different fields of study. In sum, these reforms should help induce a better allocation of students to fields and courses in university. The Bologna reforms also have the potential to encourage greater competition between universities in Europe. While not sufficient for generating competition, a more comparable degree structure will likely enable students to make meaningful comparisons across countries and encourage them to choose the best program available to them. Finally, the Bologna reforms will make the European system more compatible with other systems of higher

three countries have only two-thirds the fraction of the American population (National Science Board, National Science Foundation 2008).

4. At present, forty-six European nations (both EU and non-EU members) are signatories to the Bologna process.

education around the world, helping Europe compete on a global scale by attracting more foreign students.

The Bologna reforms in Europe may also have consequences for higher education in the United States. If the Bologna reforms do indeed attract more foreign students to Europe, this could lead to further declines in the share of foreign students in America. Moreover, the possibility of increased competition among European institutions of higher education could lead to greater demand for scarce resources such as highly talented faculty. Such increased competition among European institutions might also improve their research productivity and displace some American universities from the top of the world rankings. Whether any or all of these possibilities are actually realized, however, is likely to depend on the introduction of further reforms, such as increased autonomy and funding for European universities.

This chapter will explore the main characteristics associated with the Bologna reforms and consider the possible consequences of these reforms for higher education in the United States and Europe. Bringing data to bear on these important questions is exceedingly difficult. For one thing, the Bologna reforms are still ongoing, with many countries in the midst of restructuring their systems of higher education. Moreover, the most substantial effects of these reforms on higher education in Europe and America may take time to emerge. There is also a lack of comparable individual-level data sets on higher education that span both the United States and Europe, and cross-country comparisons are complicated by the enormous heterogeneity that still remains across different systems. However, with the adoption of a more comparable set of degree structures across Europe, future researchers will hopefully be able to make more progress in understanding the factors that help determine performance and success in higher education.

The chapter proceeds as follows: section 6.2 provides background on higher education in the United States and Europe, drawing on administrative data from the Organization of Economic Cooperation and Development (OECD) and graduate surveys in Europe and the United States. Section 6.3 briefly surveys the history of European reforms to higher education leading up to the Bologna reforms and describes the main features associated with the Bologna process. Section 6.4 considers the potential impacts of the Bologna reforms on flexibility, competition, and foreign student enrollments. Section 6.5 concludes with some final reflections.

6.2 Higher Education in Europe and the United States

6.2.1 Background

The development of higher education in the United States was greatly influenced by the rich tradition of European higher education. The Uni-

versity of Bologna, founded in 1088, is often regarded as the first European university. It was followed by the University of Paris (ca. 1150), the University of Oxford (1167), and the University of Cambridge (1209). The first institutions of higher learning established during America's colonial period were largely based on the English collegiate model. Harvard, Yale, and many of the other colleges founded prior to the American Revolution bore a close resemblance to Oxford and Cambridge. In the decades immediately before and after the American Revolution, France also played a role: inspiration for the University of Virginia and the University of the State of New York came largely from the contemporary French models of higher education (Paulston 1968). In the mid- to late-nineteenth century, the United States borrowed heavily from the model of the German research university. This was especially evident in the founding of Johns Hopkins University and the University of Chicago, which emphasized graduate research, introduced teaching through seminars, and began conferring doctorate degrees.[5] Thus, it is with good reason that the modern American system of higher education is often viewed as an amalgamation of the English undergraduate college and the German research university.

The American system of higher education also embodies several features that make it quite distinct from European systems of higher education. In keeping with the American tradition of limited government and freedom of expression, institutions of higher education have largely been protected from the degree of central government control present in most European nations. This tradition is reflected in a decentralized structure of higher education and a large prominent private sector. Support from federal government has generally been in the form of research grants and direct subsidies to students.[6] Indeed, a far larger proportion of funding for higher education in the United States comes from private sources as compared to Europe, where most universities are completely state-funded. Colleges and universities in the United States are also granted a great deal of autonomy in hiring, wage-setting, tuition levels, and other funding decisions. In contrast, most universities in Europe have traditionally been subject to substantial restrictions regarding faculty salaries and student tuition, as well as curriculum and enrollment decisions. However, even within Europe, there are large differences in the degree of autonomy and funding characteristics associated with institutions of higher education.[7]

5. John's Hopkins University was also the first American institution of higher education to offer an undergraduate major as opposed to a purely liberal arts curriculum. See Ulrich and Wasser (1992).

6. Prior to the mid-twentieth century, the major involvement of the federal government in higher education was through passage of the Morrill Acts, which helped establish the land-grant universities.

7. For example, Sweden and the United Kingdom have a rare degree of wage-setting autonomy, while several countries in southern Europe lack even hiring autonomy (Aghion et al. 2007).

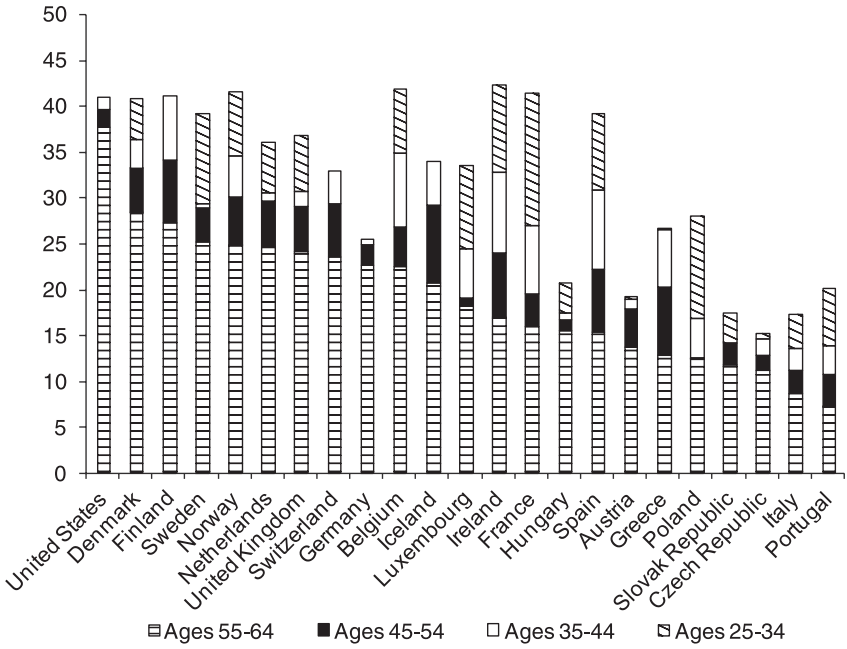

Fig. 6.1 Percent of population with tertiary education in 2006
Source: OECD (2008).

The latest statistics from the OECD help reveal some of the differences in higher education across Europe and the United States. Figure 6.1 shows the pattern of educational attainment over time by plotting the proportion of the population with tertiary education among different cohorts.[8] While the United States has the highest rates of tertiary education among individuals who were educated in the 1940s (aged fifty-five to sixty-four), most of Europe has caught up and, in some cases, surpassed the United States among those who were educated more recently (aged twenty-five to thirty-four). Figure 6.2 shows the amount of spending on tertiary education across different countries as a proportion of gross domestic product (GDP), as well as the breakdown between public and private sources. The United States spends over 3 percent of GDP on tertiary education whereas most countries in Europe spend less than 2 percent. Within Europe, the Nordic countries tend to have relatively high tertiary spending while countries in Eastern and Southern Europe tend to spend substantially less. There is also wide variation in the level of tuition: for example, Denmark, Norway, and Sweden have tended to subsidize the full cost of education for their students

8. Tertiary education consists of International Standard Classification of Education (SCED) levels 5A, 5B, 6 that include postsecondary vocational programs as well as traditional academic degrees. See Cascio, Clark, and Gordon (2008) for a discussion of these trends.

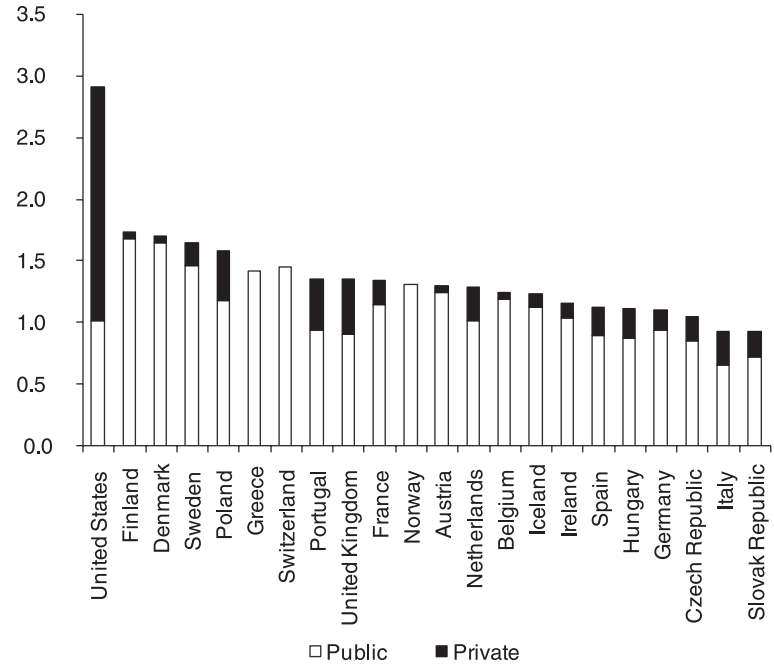

Fig. 6.2 Expenditure on tertiary education in 2005 (percent of GDP)
Source: OECD (2008).

while the United Kingdom and the Netherlands have substantially higher tuition fees (with Austria, Italy, and Spain somewhere in between). But almost all universities in Europe have low fees relative to the United States, where average tuition is much higher, especially in private institutions.

6.2.2 The Structure of Higher Education

Ahead of the reforms instituted by the Bologna process, there were also major differences in the underlying structure of higher education—that is, the manner in which courses and degrees were organized—between Europe and the United States. The United States has three main degree cycles: bachelor, master, and doctorate.[9] The bachelor's degree normally requires four years of full-time study, the master's degree one or two years of further study, and doctorates at least three years of research. This structure corresponds quite closely to the structure of higher education in the United Kingdom and other Commonwealth nations.[10] In contrast, most nations

9. Other degrees include associate's degrees, which are offered at community colleges with two years of study, and professional degrees (MD, JD, MBA, etc.), which can be earned after completing a BA.

10. Bachelor's degrees in the United Kingdom require three or four years of study. Note that, in Scotland, the first degree is sometimes referred to as an MA degree (as distinguished from MLitt or MSc, used to refer to second degrees).

in continental Europe have traditionally had a much longer first degree cycle, sometimes taking up to six or seven years to complete. The United States has also had a rather unique system for organizing courses. Since the early twentieth century, when the college credit system extended the Carnegie Unit for secondary schools, students in most American universities accumulate credits with each course taken.[11] The American credit system evolved quite naturally alongside a system of electives in which undergraduate students could choose the combination of courses that best suited their plan of study, subject to the constraints imposed by the institution.

Even within continental Europe, there has been substantial variation in the structure of higher education prior the start of the Bologna process, especially at the undergraduate level. Indeed, it was this very diversity in structures of higher education that the Bologna reforms have sought to harmonize. For example, first degree programs in Austria and Germany had a formal duration of four to five years and led to the *diplom* or *magister,* depending on the subject. First degree programs in Italy also had a formal duration of four to five years and led to a *diploma di laurea,* after which graduates could continue onto further study. France has had its own unique structure of higher education, with a broad set of degrees that span two different sectors: traditional universities and the *Grandes Écoles.* In French universities, students would first complete a two-year *diplôme* followed by a one-year *licence,* and then choose whether to complete a one-year *maîtrise.* After attaining these degrees, students could proceed to complete a *diplôme d'études approfondies* (DEA), a *diplôme d'études superieures spécialisées* (DESS), or a doctorate. The *Grandes Écoles* have had a different structure altogether, with two years of preparatory classes followed by a three year degree. In the years leading up to the Bologna reforms, some countries did introduce shorter degree cycles into their systems of higher education, often within a parallel set of institutions focusing on more applied studies. Spain has long had a dual structure where students could obtain a short three year degree (*diplomado*) or a longer five year degree (*licenciado*) depending on the subject and institution. Germany has also offered somewhat shorter degrees at Universities of Applied Sciences known as *Fachhochschulen* while Austria established their own version of the *Fachhochschulen* in 1993. The Netherlands has also offered similar degrees at *Hoger Beroeps Onderwijs* (HBOs). Of course, even this brief description is far from exhaustive and ignores many more subtleties in the systems of higher education across Europe.[12]

While differences in the formal length of degrees across Europe and the United States may not appear to be quite so stark, de facto differences have

11. See Hefferman (1973) and Shedd (2003) for a history of the credit system in American higher education.

12. This discussion has ignored intermediate postsecondary degrees corresponding to the community college level. For more details on degrees offered across Europe prior to the Bologna reforms, see EURYDICE (1999) and Murdoch (2003).

been substantially larger. Using individual-level data from the Careers after Higher Education European Research Survey (CHEERS), we can compare across European systems of higher education in more detail. This study surveyed 1994 and 1995 graduates from eleven countries in 1999, some four years after they were awarded a first degree.[13] The CHEERS study focused on first degrees, which generally required between three and six years of study at institutions of higher education as defined by national system. As a result, some countries included students enrolled in short cycle degrees (such as the German *Fachhochschulen-diploma* and Spanish *diplomado*). Although this study did not include data from the United States, the Baccalaureate and Beyond (B&B) Longitudinal Study provides somewhat comparable data on American students who received their bachelor's degree in 1992 and 1993.

Table 6.1 shows some basic descriptive statistics and detailed measures of the length of degrees for Austria, Finland, France, Germany, Italy, Netherlands, Norway, Spain, and the United Kingdom. As indicated earlier, differences in the reported formal duration of first degrees across countries do not appear to be particularly large. However, the actual length of time taken to complete the first degree, as reported by respondents, varies widely. For example, students in the United Kingdom report completing their degrees in about 3.4 years while those in France and Germany take over five years and those in Italy require almost seven years. Focusing on students enrolled in long cycle degrees reveals even larger differences. By comparison, American students who graduated in 1992 and 1993 took an average of 5.2 years from entry into postsecondary education until receipt of their bachelor degree (National Center for Education Statistics [NCES] 1996).[14] Interestingly, looking at the reported time spent on course activities reveals that students in the United Kingdom spent about four fewer hours per week on their studies as compared their counterparts in France and Germany, and almost ten hours per week less than students in Italy. Recent evidence reported by Babcock and Marks (2007) suggests that American students devote far less time to their studies than their European counterparts.[15]

The American system of using credits to measure progress through degrees has not been widely used in Europe (one notable exception is Sweden, which has had a credit system in place since the 1960s). Instead, students in

13. Sampling frames were determined by country and a weighting was undertaken so that the final sample was representative of the target population defined by type of institution, degree, field of study, and gender. For more information about the CHEERS survey and methodology, see Schomberg and Teichler (2006).

14. See Bound, Lovenheim, and Turner (2007) for a discussion of the increasing time taken for a BA degree.

15. Surveys from the Higher Education Research Institute (HERI) in 1998 and 2004 indicate that students in their fourth year of college spend approximately eleven to thirteen hours on studies and thirteen to fifteen hours of class time.

Table 6.1 **Descriptive statistics and length of degrees (CHEERS data)**

	Austria	Finland	France	Germany	Italy	Netherlands	Norway	Spain	United Kingdom
Descriptive statistics									
Gender	00.48	00.60	00.55	00.43	00.53	00.55	00.60	00.64	00.60
Age at graduation	32.2	33.4	27.9	31.5	31.3	29.7	32.5	28.5	30.1
Schooling prior entry	12.4	12.1	12.4	12.9	13.1	12.9	12.2	12.5	13.1
All degrees (years)									
Required length	4.65	4.51	4.03	4.27	4.43	4.03	4.29	4.19	3.51
Actual length	6.86	5.04	5.12	5.27	7.19	4.72	4.56	4.83	3.53
Calculated length	7.20	6.22	3.65	5.31	7.39	4.72	4.92	4.66	3.28
Long-cycle degrees									
Required length	4.65	4.51	4.46	4.65	4.43	4.15	5.55	4.86	—
Actual length	6.86	5.04	5.52	5.75	7.19	5.43	6.08	5.59	—
Calculated length	7.20	6.22	3.86	5.81	7.39	5.44	6.87	5.31	—
Short-cycle degrees									
Required length	—	—	2.98	3.54	—	3.95	3.24	3.18	3.51
Actual length	—	—	4.13	4.31	—	4.25	3.33	3.68	3.53
Calculated length	—	—	3.12	4.33	—	4.23	3.32	3.60	3.28
Hours spent on course activities									
Main subject: lectures	11.8	11.7	22.5	21.4	17.7	15.8	16.9	22.7	15.5
Main subject: studies	17.2	12.5	11.9	12.3	23.2	13.4	16.7	16.2	14.7
Other subjects	5.7	2.3	4.4	5.4	6.6	5.2	4.1	4.1	5.4
Extra-curriculars	1.6	5.3	0.7	1.2	0.0	3.5	0.2	2.3	1.2
Employment	7.5	5.7	3.8	5.6	4.8	6.9	4.9	4.6	6.2

Notes: Data are from the surveys "Higher Education and Graduate Employment in Europe" (CHEERS project). Austria, Finland, and Italy did not have short-cycle degrees at the time of graduation; United Kingdom did not have long-cycle degrees. Sample sizes are: Austria (2,304); Finland (2,675); France (3,050); Germany (3,442); Italy (3,120); Spain (2,495); Netherlands (2,884); Norway (3,329); United Kingdom (2,933). The dashed cells indicate that these types of degrees are not available in these countries.

Europe have traditionally applied to a specific field of study prior to entering college or university and followed a relatively rigid curriculum once admitted. Thus, European universities did not divide their curriculum into discrete units or award credits for completion of courses. A European Credit Transfer System (ECTS) was introduced in 1989 to facilitate the recognition of periods of study abroad through the European Region Action Scheme for the Mobility of University Students (ERASMUS) program. However, it was not widely used for credit accumulation in standard courses of study within Europe. Since the mid-1990s, some universities in England and elsewhere have begun offering degrees with modular courses. More recently, with the formation of the Scottish Credit and Qualifications Framework (SCQF) in 2001, Scotland has adopted a national credit transfer system. Nevertheless, prior to the introduction of the Bologna reforms, most countries in Europe had not instituted a system of credit transfer and accumulation in their institutions of higher education.

6.2.3 The Quality of Education

While differences in the structure of higher education across countries can be quantified relatively easily, differences in the *quality* of higher education are much more difficult to ascertain. In recent years, several independent sources have compiled rankings of the world's top universities. According to most such rankings, American universities dominate the top spots (with seventeen of the top twenty spots according to the Shanghai Jiao Tong University's ranking, or thirteen of the top twenty spots according to the London *Times* ranking).[16] British institutions also fare relatively well with several prominent universities in the top twenty rankings. On the other hand, the top universities in continental Europe lag behind their Anglo-Saxon counterparts. A broader look at the rankings reveals that Europe accounts for over 30 percent of the top 100 universities and over 40 percent of the top 500 universities. These rankings suggest that Europe may have a relatively more narrow distribution of university quality. Nevertheless, university rankings are heavily weighted toward research productivity, which may not reflect the benefits of education to the majority of university graduates who proceed directly to the labor market.[17]

An important aspect that may affect the quality of the first degrees is the chosen field of study. Table 6.2 documents the composition of field of study for first degrees in the CHEERS data.[18] For example, the United Kingdom

16. See http://ed.sjtu.edu.cn/rank/2007/ranking2007.htm and http://www.timeshighereducation.co.uk.

17. To assess the benefits of higher education in the labor market, one could calculate and compare the pecuniary returns to higher education across different countries. This approach is not pursued here.

18. Fields of study are aggregated to nine broad categories: education, humanities, social sciences, law, natural sciences, mathematics, engineering, and medical sciences.

Table 6.2 **Distribution of first degree by field (CHEERS data)**

	Austria	Finland	France	Germany	Italy	Netherlands	Norway	Spain	United Kingdom
Education	0.13	0.15	0.00	0.07	0.02	0.11	0.11	0.12	0.04
Humanities	0.09	0.17	0.15	0.11	0.17	0.09	0.08	0.12	0.23
Social sciences	0.26	0.23	0.38	0.31	0.27	0.41	0.26	0.35	0.30
Law	0.10	0.03	0.11	0.06	0.15	0.05	0.06	0.09	0.02
Natural sciences	0.04	0.08	0.18	0.09	0.08	0.02	0.07	0.07	0.13
Mathematics	0.05	0.05	0.08	0.05	0.03	0.04	0.03	0.05	0.07
Engineering	0.18	0.20	0.09	0.26	0.17	0.16	0.20	0.05	0.11
Medical sciences	0.14	0.10	0.00	0.05	0.11	0.11	0.21	0.15	0.10

Notes: Data are from the surveys "Higher Education and Graduate Employment in Europe" (CHEERS project). Sample sizes are: Austria (2,304); Finland (2,675); France (3,050); Germany (3,442); Italy (3,120); Spain (2,495); Netherlands (2,884); Norway (3,329); United Kingdom (2,933).

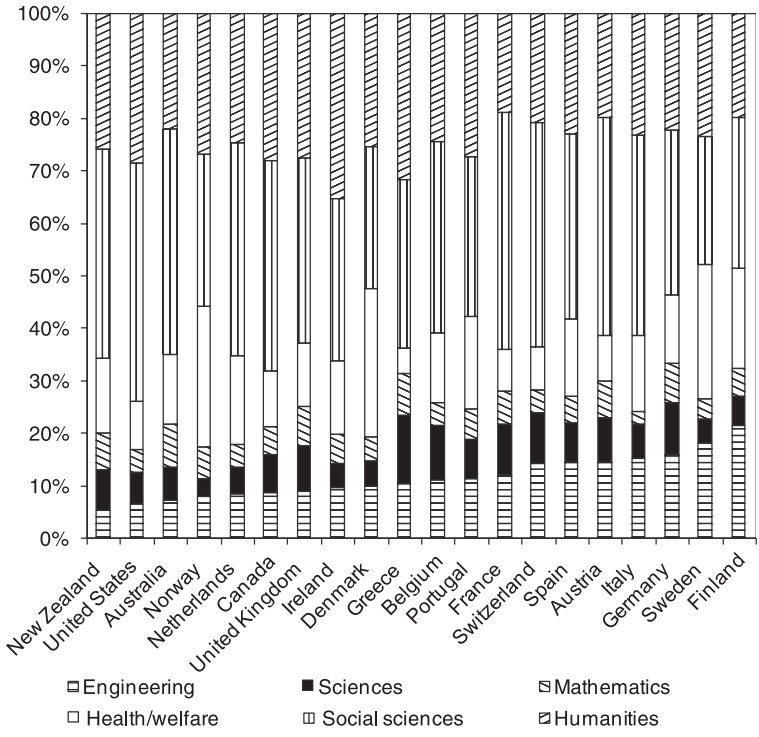

Fig. 6.3 Distribution of students across fields, 2002
Source: OECD (2005).

has a relatively high proportion of graduates in the humanities and natural sciences and Germany and the Netherlands have high fractions of engineering graduates, while Italy, Spain, and France tend to train disproportionately more lawyers. But these patterns may be affected by the differential response rates and sampling procedures, even after applying appropriate weightings. Figure 6.3 uses OECD data to provide an aggregate snapshot of the composition of fields for first and advanced degrees, including the United States. While some of the previous patterns do remain, there is substantial divergence because of different degree coverage and field categories. Most strikingly, the United States appears to have among the lowest rate of degrees awarded in engineering and the physical sciences. However, it is important to remember that the total number of slots available in each field in Europe is usually determined at the central level, not as a consequence of student demand as in the United States.

The CHEERS data also elicited retrospective views from students regarding their degrees. Specifically, students were asked how likely they were to choose certain aspects of their degree again, how they rate different aspects

of their degree course, and the extent to which their studies helped them find a satisfying job, improve their long-term career prospects, and even develop their personality. In each case, table 6.3 reports the proportion of students who expressed a high likelihood or provided a high rating to each category.[19] There are no clear patterns between the likelihood of wishing to change certain aspects of their degree (panel A) or the extent to which studies were beneficial (panel B) and the structure of higher education. Focusing on nations with particularly lengthy first degrees, students in Austria and Finland are relatively more satisfied with their choice of college and course of study, while their counterparts in Italy are less satisfied. Indeed, students in Italy score comparatively lower on most measures of satisfaction. On the other hand, the broad patterns in panel C suggest that students in the United Kingdom were more satisfied with many aspects of their degree course as compared to students in other countries.

Finally, some indication of quality may be surmised from the number of foreign students choosing to study in different countries. The proportion of foreign students in the CHEERS data depends on exactly how this is determined (see alternative measures in table 6.4). Regardless of the measure, the United Kingdom has the highest rate of foreign student enrollment while Italy has extremely low rates of foreign student enrollment. However, these are undoubtedly underestimates due to reporting bias, as foreign citizens are more likely to return to their home countries after completing their studies (or may wish to avoid interacting with bureaucratic entities if they decide to stay). The OECD also collects and standardizes information on foreign student enrollments from administrative data.[20] Figure 6.4 displays the foreign student enrollments in major destination countries in 2000 and 2006. The United States remains the leading destination, but its share of foreign enrollments has declined from 25 to 20 percent. France, Germany, and the United Kingdom account for the vast majority of foreign enrollment in Europe and their combined share has remained roughly constant at 29 percent of total foreign enrollments over the same period.[21] Obviously, these countries (together with Australia, Japan, and Canada) succeed in attracting foreign students for different reasons—related to size, proximity, language,

19. Responses were elicited on a scale of 1 to 5. These are aggregated in two broad categories, with the top ratings (1 and 2) representing high likelihoods and ratings.

20. Still, there are differences in collection strategies as well as coverage of students across different sectors of higher education. In many cases, countries report the number of students with foreign citizenship rather than the number of students who moved from another country for the purpose of completing higher education. In recent years, the OECD has begun requiring countries to compile information on international students as distinct from foreign students but it is not possible to compare changes over time with this data.

21. This is mostly due to increases in foreign undergraduate enrollment in other countries. The United States has been increasing its share of foreign graduate students over recent years (OECD 2008, table C3.3).

Table 6.3 **Retrospective views on the degree (CHEERS data)**

	Austria	Finland	France	Germany	Italy	Netherlands	Norway	Spain	United Kingdom
A If you were free to choose your degree course again, how likely is that you would choose . . .									
a. the same course of study?	0.685	0.696	0.663	0.655	0.607	0.657	0.688	0.647	0.625
b. the same college/university?	0.721	0.711	0.603	0.582	0.581	0.653	0.668	0.690	0.655
c. a higher level of higher education?	0.173	0.127	0.494	0.163	0.460	0.232	0.245	0.681	0.409
d. a lower level of higher education?	0.030	0.035	0.090	0.035	0.085	0.041	0.038	0.309	0.019
e. not to study at all?	0.067	0.005	0.027	0.068	0.050	0.019	0.018	0.087	0.024
B To what extent did your studies help you . . .									
a. find a satisfying job after graduation	0.616	0.808	0.526	0.634	0.370	0.695	0.886	0.462	0.524
b. for your long-term career prospects?	0.634	0.645	0.596	0.556	0.433	0.605	0.762	0.569	0.669
c. for the development of your personality?	0.652	0.631	0.594	0.731	0.625	0.788	0.736	0.657	0.789
C How would you rate the following aspects of your degree course?									
a. Academic advice offered in general	0.208	0.364	0.283	0.245	0.104	0.133	0.305	0.141	0.522
b. Assistance with final examinations	0.228	0.447	0.191	0.359	0.390	0.369	0.464	0.101	0.521
c. Course content of main subject(s)	0.482	0.584	0.590	0.410	0.383	0.596	0.462	0.359	0.730
d. Variety of courses offered	0.547	0.465	0.609	0.462	0.420	0.677	0.424	0.380	0.593
e. Design of your degree program	0.302	0.434	0.497	0.365	0.216	0.316	0.342	0.181	0.546
f. Assessment system	0.371	0.204	0.341	0.306	0.192	0.374	0.479	0.212	0.512
g. Opportunity to choose courses/specialization	0.461	0.397	0.419	0.436	0.382	0.454	0.323	0.219	0.538
h. Practical emphasis of teaching and learning	0.155	0.271	0.259	0.193	0.084	0.413	0.337	0.172	0.449
i. Teaching quality	0.437	0.394	0.403	0.402	0.380	0.415	0.316	0.259	0.611
j. Chances to participate in research projects	0.169	0.226	0.265	0.171	0.087	0.314	0.161	0.059	0.247
k. Research emphasis of teaching and learning	0.210	0.375	0.303	0.187	0.106	0.280	0.262	0.073	0.328
p. Library resources	0.561	0.677	0.445	0.461	0.319	0.605	0.683	0.449	0.601
q. Supply of teaching materials	0.343	0.555	0.296	0.339	0.229	0.488	0.581	0.381	0.435
r. Quality of technical equipment	0.277	0.486	0.354	0.308	0.154	0.436	0.390	0.201	0.454

Notes: Data are from the surveys "Higher Education and Graduate Employment in Europe" (CHEERS project). Individuals were asked to rate each aspect on a 1 to 5 scale, where 1 was "very likely" or "very good" and 5 was "not likely at all" or "very bad." The figures present the fraction of individuals who reported a score of 1 or 2. Sample sizes are: Austria (2,304); Finland (2,675); France (3,050); Germany (3,442); Italy (3,120); Spain (2,495); Netherlands (2,884); Norway (3,329); United Kingdom (2,933).

Table 6.4 **Foreign students and periods of study abroad during degrees (CHEERS data)**

	Austria	Finland	France	Germany	Italy	Netherlands	Norway	Spain	United Kingdom
Study/work abroad	0.283	0.269	0.211	0.196	0.201	0.302	0.191	0.131	0.236
Study/work abroad twice	0.094	0.087	0.067	0.054	0.068	0.085	0.033	0.045	0.061
1st period abroad									
Duration (months)	6.99	7.23	8.65	6.03	3.61	4.71	8.46	4.98	6.33
For study	0.417	0.510	0.587	0.540	0.786	0.325	0.809	0.775	0.517
For work/internship	0.292	0.472	0.389	0.390	0.094	0.544	0.187	0.231	0.377
For other	0.154	0.042	0.123	0.133	0.173	0.206	0.137	0.114	0.200
2nd period abroad									
Duration (months)	5.55	4.89	6.88	5.25	2.94	4.36	6.23	5.30	6.67
For study	0.386	0.500	0.435	0.410	0.732	0.716	0.757	0.681	0.464
For work/internship	0.425	0.474	0.590	0.448	0.117	0.320	0.207	0.319	0.488
For other	0.188	0.043	0.100	0.208	0.202	0.024	0.153	0.106	0.213
Foreign students (determined according to . . .)									
Citizenship at birth	0.039	0.010	0.029	0.024	0.002	0.015	0.029	0.020	0.108
Country of secondary education	0.061	0.036	0.067	0.018	0.005	0.046	0.046	0.051	0.102

Notes: Data are from the surveys "Higher Education and Graduate Employment in Europe" (CHEERS project). Austria, Finland, and Italy did not have short-cycle degrees at the time of graduation; United Kingdom did not have long-cycle degrees. Sample sizes are: Austria (2,304); Finland (2,675); France (3,050); Germany (3,442); Italy (3,120); Spain (2,495); Netherlands (2,884); Norway (3,329); United Kingdom (2,933).

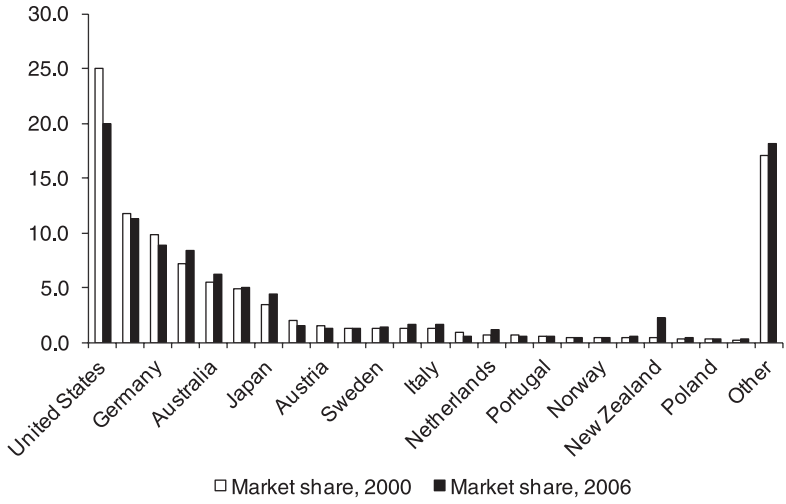

Fig. 6.4 Shares of foreign student enrollments, 2000 and 2006
Source: OECD (2008).

cost, and specific policies to encourage foreign enrollments—in addition to the quality of their higher education.

6.3 The Bologna Reforms

The Bologna reforms to European higher education came at a time of greater European integration in other social and economic spheres. The passage of the Maastricht Treaty in 1993 established the European Union (EU) and led to deeper political and economic union among many member countries. The Maastricht Treaty also dealt with education, which became an area in which the European Commission could take action, even if only as a subsidiary focus. Prior to this time, member states had limited the role of the European Community in introducing measures which could affect their own educational systems. Some successful educational initiatives were taken in the 1980s. Most notably, building on a number of earlier pilot student exchanges, the ERASMUS program was established in 1987.[22] Nevertheless, joint European action on education did not appear to be particularly high on the agenda, even after the passage of the Maastricht Treaty. Instead, the impetus for the Bologna reform came directly from the individual ministers of education acting as representatives of their national governments, outside the purview of the European Commission.

Much of the groundwork for the Bologna reforms was introduced in the

22. Participation in ERASMUS has grown from 3,244 students in 1987 to over 150,000 students in 2005. Together with other education programs, the ERASMUS program was incorporated into the SOCRATES program by the European Commission in 1994.

Sorbonne Declaration, which was signed on May 25, 1998 in Paris by ministers of education from France, Germany, Italy, and the United Kingdom.[23] The concluding document called for "the harmonization of the overall framework of degrees and cycles . . . aimed at improving external recognition and facilitating student mobility as well as employability" (http://www.bologna-berlin2003.de/pdf/Sorbonne_declaration.pdf). The need for European higher education to retain its global competitiveness was a clear motivation for the summit. According to a report of the session, "most of the major speakers referred to the fact that Europe was losing ground in the competition with the USA, and that a more 'readable' and compatible set of qualifications was needed to counteract this trend" (Knudsen, Haug, and Kirstein 1999, 29). Why did these four nations choose to introduce these reforms outside the normal channels of European action? Perhaps, as suggested by de Wit (2000), this served as a way to maintain control over the process of harmonization. The United Kingdom had already embarked on a major effort to market its higher education around the world and Germany was attempting to increase its compatibility with other systems in order to improve its attractiveness. Moreover, previous attempts in France and Italy to reform their systems of higher education had sparked major protests. A joint declaration may have enabled these countries to force some of their reluctant parties to accept reforms to higher education.

Although there was some criticism about the exclusive set of participants in the Paris summit, the general tenets of the Sorbonne Declaration were remarkably well received in other European countries. Thus, a year later, on June 19, 1999, the ministers of education from twenty-nine European countries gathered in Bologna to sign the Declaration on the European Higher Education Area. This Bologna Declaration, as it has become known, proposed a number of specific reforms to increase the "international competitiveness" and the "worldwide attraction" of the European system of higher education: (a) adoption of a system of easily readable and comparable degrees; (b) adoption of a system essentially based on two main cycles, undergraduate and graduate; (c) establishment of a system of credits; (d) promotion of mobility by overcoming obstacles for the effective exercise of free movement; (e) promotion of European cooperation in quality assurance; and (f) promotion of the European dimension of higher education. The Bologna Declaration also called for further meetings to be held every two years in order to further clarify these objectives and determine the success of individual countries in carrying out these reforms. In these subsequent meetings, several additional objectives have been proposed and a number of new signatory countries have joined the Bologna process.

Though the proposed reforms were far-reaching and multifaceted, most

23. The Sorbonne Declaration coincided with the publication of the Attali report, which offered a series of recommendations for major changes in the French system of higher education.

of the attention has focused on the changes in degree structure. The Bologna reform initially called for a two-cycle system but amendments to the original declaration added the doctoral level as a third cycle. Thus, in many ways, the proposed harmonization of the degree structure for European systems of higher education mirrors the bachelor's, master's, and doctorate degrees that underpin the structure of higher education in the United Kingdom and the United States. In particular, the Bologna reforms pushed for replacing lengthy first degrees with a three- to four-year first (bachelor's) degree followed by a one- to two-year second (master's) degree. While the Bologna Declaration did not specify the precise number of years associated with each degree cycle, most countries have adopted a model based on a three-year bachelor's degree and a two-year master's degree. As discussed earlier, a number of countries had already introduced or were in the process of introducing some type of short-cycle degree into their system of higher education. So it comes as no surprise that much progress has been made on this front. The latest 2007 Stocktaking Report, from a working group appointed by the Bologna Follow-Up Group, indicates that three-quarters of member states have a majority of students studying in a two-cycle degree system. There is some concern that these changes have been more cosmetic than substantive and that the shorter first-cycle degree is viewed by students as merely an intermediate step en route to a terminal master's degree.[24] However, it is reasonable to expect that such large structural changes require sometime before they are adopted in full.

Another important aspect of the reforms is the call to establish a system of academic credits. This feature of the Bologna reforms is similar to the modular course structure prominent in the United States where students accumulate credit for each course taken. A European Credit Transfer System (ECTS) was introduced in 1989 to facilitate the recognition of periods of study abroad through the ERASMUS program. However, with the Bologna reforms, the ECTS is set to develop into an accumulation system, which accounts for the progress that students make through their degrees. There are some important differences between the credit system proposed and elaborated by the signatories of the Bologna Declaration and the American credit system. Whereas the American credit unit is based strictly on the number of hours that faculty spent actually teaching, the European unit was intended to account for the time students spent studying, attending, and completing assignments for the course.[25] According to the 2007 Stocktaking Report, most countries are well on their way to fulfilling this aspect

24. This perception is mentioned in the European Students Union *Bologna with Student Eyes* (2007). Indeed, several countries have very high continuation rates between their newly adopted first and second degrees.

25. There was hope to include performance measures in quantifying credit units but this has generally been deemed too difficult to implement in practice. See Adelman (2008) for a detailed discussion of these issues.

of the Bologna reforms. There are twenty-seven countries in which ECTS credits are allocated in all first and second cycle programs and an additional fifteen countries in which ECTS credits are allocated in a majority of higher education programs.

In addition to these two features of the Bologna reforms that affect the structure of higher education, there are certainly other important aspects, such as the introduction of national qualification frameworks, the creation of diploma supplements to provide information to students, and the establishment and recognition of joint degrees, among others. However, in considering the consequences of the Bologna reforms, the following section will focus on the changes to the degree structure and the adoption of academic credits.

6.4 Potential Impacts of the Bologna Reforms

The changes to the structure of higher education in the wake of the Bologna reforms are likely to affect student and institutional outcomes in Europe. First, these changes in the structure of higher education may help to enhance flexibility in student choices. Second, these changes in the structure of higher education may foster increased competition among institutions of higher education. Finally, the Bologna reforms may succeed in attracting greater numbers of foreign students into Europe.

6.4.1 Flexibility

The decision to invest in higher education is usually made under considerable uncertainty. Students may be unsure about their aptitude for college or graduate school.[26] They may also be uncertain about their talents and interests in different fields of study.[27] Moreover, the labor market rewards and opportunities associated with higher levels of education and specific fields of study are never fully known. They may shift over time and differ across regions due to labor market volatility. Finally, since college or graduate school is typically a onetime investment expenditure rather than a repeated purchase, it is difficult to have complete information on the quality of the educational product being offered by institutions. Given these various sources of uncertainty, certain structures of higher education may be better suited to reveal important information and allow students the flexibility of adjusting their choices based on this information. In particular, the reforms introduced by the Bologna process—a short first-degree cycle

26. See Cunha, Heckman, and Navarro (2005) and Cunha and Heckman (2007) for attempts to separately estimate the role of this type of uncertainty (as distinguished from heterogeneity across students).

27. See Malamud (2007b) for a detailed exploration associated with this aspect of uncertainty about talents.

and a system of transferable credits—are likely to provide students with greater flexibility.

The ability to accumulate credits within an institution enables students to transfer across institutions relatively easily. Evidence from the National Longitudinal Study (NLS-72) High School and Beyond (HSB) and National Education Longitudinal Study (NELS-88) indicates that over half of American bachelor's degree recipients have attended more than one institution of higher education as undergraduates since the 1970s (Adelman 2004). Looking at bachelor's degree graduates who completed high school in 1972, over 38 percent had attended two institutions and 19 percent had attended more than two institutions. While the fraction of students attending two institutions remained roughly constant among bachelor's degree graduates who completed high school in 1982 and 1992, the fraction who attended even more than two institutions increased to almost 23 percent. In contrast, university administrative (USR) data from the United Kingdom show that the fraction of students who switched universities was less than 1 percent in both England and Wales and Scotland from 1972 to 1992.[28] Even accounting for switches across a broader set of institutions (including the former polytechnics and colleges of higher education) using the 1980 National Survey of Graduates and Diplomates, the likelihood of switching institutions is less than 5 percent. Insofar as the United Kingdom had a similar degree structure but no credit system during these years, this suggests an important role for the credit system in allowing students to switch institutions in the midst of the degree.

The ability to accumulate credits within an institution also enables students to switch their major fields of study more easily. Out of those students who completed high school in 1992 and earned a bachelor's degree, 40.5 percent changed their major during the course of their undergraduate education (Adelman 2004).[29] The likelihood that students in England switch majors during their undergraduate degree is far lower, using a very similar classification of fields of study. According to the USR undergraduate data, it appears that 7 percent of students switch their majors during university in England and Wales. The fraction of Scottish students who switch their majors during university is substantially higher at 18 percent. This corresponds to the differences in the timing of specialization between England and Scotland and indicates that it is possible to allow for flexibility within institutions without instituting a national credit system.[30] However, with a

28. The Universities Statistical Record (USR) consists of administrative data on all students in British universities undertaking courses of one academic year or longer between 1972 and 1993, amounting to almost 1.9 million undergraduates and over 1 million graduate students. Excluded are students enrolled in former polytechnics and central institutions, which only obtained university status from 1992 onwards.

29. This is based on student responses to questions asked in the 2000 survey and transcript records. Fields of study were aggregated into twelve broad categories of fields of study.

30. Malamud (2007a) explores the consequences of differences in academic specialization.

comprehensive system of credit transfer and accumulation, the degree of flexibility in higher education would probably be even greater.

A relatively short first-degree cycle should also contribute to flexibility. Students who realize that their first degrees did not provide for a good match can switch institutions and fields of study for their second and/or third degree. On the other hand, a system in which students follow a long and rigid curriculum would not provide students with the opportunity to gather information and correct their mistakes. Jacobs and van der Plaug (2006) have also argued that the Bologna reforms would encourage students to take a more demanding course of study. If the cost of switching fields or degrees is relatively high, as in traditionally long degree programs, students may avoid science and engineering degrees where the prospects of successful completion are often lower. In this case, the option value associated with a shorter degree program may lead students to experiment with more difficult majors. And starting a degree in mathematics or science may be a less daunting prospect when the expected length of study is three years rather than five or six years. On the other hand, if students tend to underestimate the difficulty of completing a degree, an inability to switch fields within a long degree program may lead to a greater rate of science and engineering degrees.

In summary, the structural reforms associated with the Bologna process are likely to enhance flexibility. A shorter first-degree cycle and a transferable credits system allows for relatively easy transfer both between institutions and within institutions across major fields of study. Students who discover that they chose the wrong institution or the wrong field of study are able to switch to a preferred alternative. Clearly, not all of these transfers and switches necessarily represent improvements ex post. Indeed, Trow (2005) discusses problems that arise when excessive flexibility leads to incoherent courses of study. But such flexibility is an important way of helping students act on new information.

6.4.2 Competition

The nature of competition in the market for higher education has been a subject of much recent research.[31] Most of this attention has focused on American higher education, with its highly decentralized institutions and large private (nonprofit) sector. Due to the hierarchical structure of institutions in the United States, not all colleges and universities necessarily compete with one another. But within certain tiers, institutions do appear to compete for students, for faculty, and for prestige. Underpinning the success of such competition is the common structure of higher education. Most American institutions award a similar set of degrees and structure their courses in a similar fashion with transferable academic credits. This

31. See Rothschild and White (1993, 1995) and Winston (1999) for insightful discussions.

no doubt helps students compare and choose among the many alternative options open to them. In other words, the market structure of higher education is likely to be influenced by the structure of degrees and courses within and across different systems of higher education.

The Bologna reforms have the potential to encourage greater competition between universities across Europe. In the absence of a comparable degree structure across countries, students may have trouble evaluating the relative benefits of different types of degrees. Employers, too, may have difficulties in assessing the value associated with a diverse set of qualifications. By introducing a more comparable degree structure, the Bologna reforms should enable students to more readily make comparisons across countries. They may also encourage institutions of higher education to improve their quality or seek certain niche markets while offering a similar set of qualifications.[32] Of course, it is also necessary to provide these institutions with autonomy and the necessary incentives to attract students (as well as faculty). In many of the state-funded and state-controlled systems of higher education in Europe today, institutional autonomy is severely lacking. Moreover, given extremely high educational subsidies, some countries may actually prefer to have their students obtain a costly education abroad (Mechtenberg and Strausz 2008). The realization of greater competition therefore depends on the introduction of further reforms, such as increased autonomy and funding for European universities.[33] Whether increased competition can result under a different institutional setting is an interesting question, but one that is beyond the scope of this chapter.

An important condition for a well-functioning market in higher education is the ability and willingness of students to relocate in order to choose among the various institutions and programs available to them. Hoxby (1997) documents the consequences of increased competition among colleges in the United States resulting from the deregulation of the airline and telecommunications industries, which lowered the cost of moving to college. The barriers to mobility for students within Europe are substantially higher due to differences in language and culture, in addition to the financial costs associated with travel and lodging.

By providing grants to subsidize travel and expenses, the ERASMUS program has led to a large increase in the number of European students studying abroad.[34] However, the length of time that students are provided with financial support has been relatively short, on the order of a six months

32. Much like Caltech and MIT have focused on particular areas of study or liberal arts colleges have focused on providing a certain type of college experience.

33. See Aghion et al. (2007) for further discussion of spending and autonomy in European higher education.

34. According to the European Commission, approximately 1.67 million students have taken part in the program since its inception in 1987.

or a year. Table 6.4 presents descriptive evidence on the pattern of student mobility prior to the Bologna reforms using the CHEERS data. A large fraction of students spend time studying or working abroad during their degrees, ranging from 13 percent in Spain to over 30 percent in the Netherlands (indeed, there are fairly large fractions of students who report spending two periods of work or study abroad). Nevertheless, the actual time spent abroad is approximately six months on average. For competition across institutions and countries to take hold, students probably need to stay abroad longer and complete their degrees there. Still, there is little doubt that a high level of student mobility is an important factor for encouraging competition in higher education.

6.5 Conclusion

The structure of higher education is an important mediating factor in determining student outcomes. Earlier empirical work on the structure of K-12 education has shown that school structure may have important consequences.[35] In higher education, structure may prove to be even more significant. A flexible course and degree structure may help allocate students more efficiently into their preferred institutions and fields of study. Moreover, having a comparable structure of higher education within and across countries may help foster competition and lead to a more efficient market in higher education. The Bologna reforms in Europe are an important development on this front. Indeed, some recent work examining the changes induced by the Bologna reforms suggest that students may respond positively to these new structures. Cappellari and Lucifora (2008) estimate a significantly higher probability of enrollment in college among high school students who graduated after the implementation of the Bologna reforms in Italy. Cardoso et al. (2008) document an increased demand for academic programs restructured under the Bologna process in Portugal. Whether these initial findings will translate into increased academic and labor market success remains to be seen.

How might these European structural reforms to higher education affect the United States? In many ways, the Bologna reforms make the European system more compatible with Anglo-Saxon systems of higher education around the world and in much of Asia and Latin America. This may help Europe to compete on the global market and attract more foreign students from around the world. Since Europe and the United States tap a common pool of foreign students, the Bologna reforms could lead to further declines

35. Bedard and Do (2005) find that shifting from a junior high school system (in which students remain in elementary school longer) to a middle school system lowers on-time high school completion.

in the share of foreign students in America. On the other hand, a common structure of higher education may facilitate the admission of European students to graduate schools in the United States. Indeed, a recent survey of US graduate admission officers indicated that most had relatively high levels of knowledge on the Bologna Process and about half reported having an official graduate admissions policy regarding first-cycle Bologna degrees.[36]

The Bologna reforms may also spur greater competition *among* European institutions of higher education, leading to increased demand for scarce resources such as highly talented faculty. Such increased competition among European institutions might serve to improve their research productivity and displace some American universities from the top of the world rankings. Whether any or all of these possibilities are actually realized, however, is likely to depend on the introduction of further reforms, such as increased autonomy and funding for European universities. And, ultimately, any benefits from the additional production of knowledge and research in Europe will be shared with the research community in the United States.

Experience with the specific reforms introduced by the Bologna process can also provide valuable lessons for higher education policy in the United States. As mentioned earlier, the new European credit unit is supposed to account for the time students actually spend studying, attending, and completing assignments for a course. This may represent an improvement over the traditional American credit unit, which simply accounts for the number of hours that faculty spend teaching a course. Other reforms such as the introduction of qualification frameworks, the creation of diploma supplements to provide information to students, and the establishment and recognition of joint degrees, may turn out to be useful innovations that make the provision of higher education more efficient.[37]

The push to harmonize the disparate European systems of higher education under the Bologna process offers another important benefit from a research perspective. As this chapter has shown, the difficulties in making cross-country comparisons in higher education are quite substantial. With a more comparable degree structure across countries, it will be possible to make even more progress in understanding the factors that help determine performance and success in higher education.

36. See IIE Briefing Paper of April 2009 (Institute of International Education 2009). Since most European nations have adopted a three-year first degree, graduate admission officers need to determine whether these are equivalent to the standard four-year BA degrees awarded in the United States. The previous survey also reveals that a third of respondents consider short Bologna degrees as equivalent and another third decide equivalency on a case-by-case basis.

37. The relevance of these reforms to the American context is explored by Adelman (2009) in greater detail. Whether American institutions will be pressured to respond to the introduction of shorter three-year European first degree remains to be seen.

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