

# Chapter 7

## On the Meaning of Markets in Higher Education

William E. Becker and Robert K. Toutkoushian

### Introduction

There is significant and growing interest around the globe in understanding and evaluating the way in which institutions of higher education (henceforth, IHE) are organized and compete with each other. Governments at national and state levels focus attention on encouraging citizens to acquire postsecondary degrees as a means to increase both the private benefits to individuals and the positive externalities that spill over to citizens within their domains (McMahon, 2009). Education is also seen by some nations as a means to foster economic growth and thus better enable them to compete with each other (Arimoto, 1997; Dill, 1997a; Marginson, 1997).

There are many different approaches that governments use for providing higher education services to consumers. Some nations (and states) have mature higher education systems that offer a substantial range of choices for students, whereas other nations/states have fewer options for students and force many of them to look outside their geographic boundaries for postsecondary education. In addition to differences in the number of suppliers in the industry, nations vary in terms of the types of institutions available to students. The United States in particular is known for its relatively wide breadth of postsecondary options for consumers, which include 2-year community colleges; 4-year baccalaureate institutions that range in size from several hundred to more than 50,000 students; institutions that focus significant

---

Please address all correspondence regarding this manuscript to Robert K. Toutkoushian.

W.E. Becker, Ph.D.

Department of Economics, Indiana University, Wylie Hall 105,

Bloomington, IN 47405, USA

e-mail: beckerw@indiana.edu

R.K. Toutkoushian, Ph.D. (✉)

Institute of Higher Education, University of Georgia, Meigs Hall 114,

Athens, GA 30602, USA

e-mail: rtoutkou@uga.edu

attention not only on instruction but also research; and institutions that specialize in engineering, liberal arts, and so on. In other nations, however, postsecondary industries tend to be more uniform but are quickly becoming more diverse as well.

Different philosophies have also been taken with regard to how a nation manages its higher education system. It was common in the past for nations to rely on a centralized management model in which the government made decisions regarding which students could receive a postsecondary education, how students were distributed among institutions, and which colleges and universities were permitted to operate (Jongbloed, 2003). However, increasingly, nations have moved toward decentralized management models where students are free to select whether and where to go for postsecondary education and training, and institutions are permitted to compete directly for students and other resources (Teixeira, Jongbloed, Amaral, & Dill, 2004; Williams, 1997). The hope is that through decentralization, the higher education sector will become more efficient in the production of higher education services and lead to subsequent gains in the standard of living.

In academic circles and higher education policy discussions, it is common to hear the word “market” used in conjunction with “higher education,” in varying and sometimes even negative contexts. Whereas some nations have encouraged institutions to more actively compete with each other in the hopes of the benefits that would accompany this shift, some academics have raised concerns with this movement. The notions of “commercialization” and “academic capitalism” (Bok, 2003; Leslie & Slaughter, 1997), for example, hold that due to reductions in relative government support for higher education, colleges and universities in the United States have been forced to deliberately engage in more activities that have the potential to raise revenues and that this shift is altering the nature of academe. Will pursuing profitable partnerships with corporations change the type of research and perhaps teaching that occurs on college campuses? Winston (1999, 2000, 2003) has further argued that there is an increasing stratification among postsecondary institutions as they seek to maximize their prestige through donative resources, leading to a “positional arms race” in academe. As institutions compete for the best students and the gap between the elite and other institutions increases, what will this mean for educational opportunities for students?

Confusion also exists in discussions on this topic due to the fact that, as noted by Leslie and Johnson (1974, p. 5), “...the term ‘market’ is not only complex but is also subject to varying interpretations and definitions.” A number of studies use “market” to represent the privatization of a nation’s higher education system and increased reliance on competition among suppliers to set prices and allocate students. To illustrate, Brunner (1997) uses the terms “market” and “system” interchangeably to refer to the lack of central direction of higher education by the Chilean national government. Similarly, Robert Reich, now a professor of social and economic policy at the University of California Berkeley and previously a labor secretary in President Clinton’s administration in the United States, opined that “Higher education in the United States is coming to resemble any other kind of personal service industry ... higher education products ... are sold on the market, there is a kind of marketisation that has set in” (Reich, 2004).

Although many economists have pointed to the potential efficiency gains that are thought to accompany increased reliance on the free market to make pricing and allocation decisions in product and labor markets, not all academics and policy-makers view this shift as a positive development. Dill and Soo (2004), for example, argue that “The worldwide adoption of market-based policies for higher education such as common degree frameworks...could foster an international ‘arms race’ among universities...” (p. 67). As another example, Massy (2004) wrote of the higher education market in the United States as an allocation system in which the government was not in charge and decentralized decision making on both the demand and supply side results in less than satisfactory results because markets cannot discipline price without information on quality. Implicit in this statement is that there is a well-defined national market for higher education goods and services.

The phrase “market for higher education” has also been used at times to describe the broad collection of postsecondary providers within a nation or region. Studies in this area may focus attention on the number and types of colleges and universities that exist within a nation. The source of confusion here is that the set of higher education providers within a nation more properly represent the higher education industry or sector for a country, as opposed to a specific higher education market where a group of buyers (students) and sellers (institutions) come together to set prices and allocate services and where colleges compete with each other for customers. Due to reasons we will explain, it is likely the case that a nation’s higher education industry is comprised of a number of separate markets as opposed to only a single market.

There is considerable confusion as to whether, and how, colleges and universities compete in a market or markets. Which institutions, divisions within an institution, or individuals are included in a market? If there is not a single market in the higher education industry, then are there well-defined submarkets, and if so how should they be identified? The approach used by economists to examine the market for any good or service relies on specific attributes of the potential suppliers of the good/service and their customers. A higher education market represents a group of institutions for which the breaks in the chain of substitution are relatively clear between the institutions, but where the product or service is still sufficiently similar (in terms of function, appearance, quality, and the like) to not require classifying these providers into different markets. In antitrust hearings and legal proceedings, as well as in individual institution’s advertising and promotion efforts, the definition of a market and who participates in that market (either as rivals, potential rivals, input suppliers or buyers) is critical (see, e.g., Scheffman & Spiller, 1987).

In contrast to antitrust issues that require well-defined markets, consider the comments made by Charles Miller, the chairman of the US Commission on the Future of Higher Education, in “Colloquy,” *The Chronicle of Higher Education’s* online forum (Selingo, 2006). Miller was interviewed about his Commission’s final report, which urged that the US higher education system be overhauled, including making universities more innovative and more accountable to the public. In this interview, Miller was reminded that he had said “we do not actually have a market system in higher education” and was asked what he would call the competition between different universities for students. He acknowledged the existence of this

competition but continued to say, “however I think competition does not automatically make a market system.” Although competition between amateur tennis players does not make a market, competition between like universities (suppliers of similar products and services, for a price) for students (demanders of the products and services, at a price) does. Whether students pay the full cost of production or have some portion of cost paid for by others is irrelevant to the existence of a market. Competition between the sellers of close substitute goods or services takes place in a market. A market may thus be thought of as a group of firms that are in close competition with each other. The two concepts are, in fact, inextricably linked when it comes to exchange.

It has also been suggested that there is too little competition in higher education markets due to the high market power held by a small number of prestigious institutions (Epple, Romano, & Sieg, 2006; Leslie & Johnson, 1974). Perhaps the best illustration of this view is the 1991 antitrust case that was brought against Massachusetts Institute of Technology (MIT) and the eight Ivy League institutions in the United States for collusive behavior. The US Justice Department accused MIT and the Ivy League institutions of price fixing in the allocation of financial aid and setting of tuition. The schools argued that their cooperative behavior was aimed at helping needy students with financial aid and did not affect price. Nevertheless, all but MIT signed a consent decree agreeing to stop the cooperative behavior. In the 1992 trial, *USA v. Brown University, et al.*, 805 F. Sup. 288 (E.D.Pa. 1992), MIT was found guilty of price fixing. Following this conviction, the US Congress passed the Higher Education Act of 1992 that enabled schools to cooperate in the assignment of need-based aid. In 1993, the Third Circuit overturned the MIT guilty verdict, *USA v. Brown University, et al.*, 9 F.3d 658 (3rd Cir. 1993), and the government dropped all inquiries into the matter of cooperation among “the overlap” schools in assigning need-based aid. As reported in Bamberger and Carlton (1999) and Carlton, Bamberger and Epstein (1995), Carlton gave expert testimony that the schools’ cooperation did not raise prices, concluding that there were no grounds for the application of antitrust against these nonprofits in the absence of adverse price and output effects. Subsequently, Netz (1999) “found that a need-only financial aid policy significantly increases the price paid (tuition) by non-needy students; increases the average price paid by students who receive financial aid; and substantially increases earnings from tuition.” Readers are also referred to Salop and White (1991) and Carlson and Shepherd (1992) for more discussion of this case.

Concerns about collusive behavior in academic markets still persist nearly twenty years after the MIT case. Miller went on to say that it was “possible to argue that among certain sets of institutions we have the equivalent of an oligopoly, where there may be competition within a group of institutions, but that set of institutions has powerful advantages over other sets of institutions”(Selingo, 2006). Miller acknowledged in his comments, perhaps unwittingly, that many distinct markets do exist in higher education and that it is entirely feasible that different groups of institutions can be delineated into economically meaningful and separate markets. But he then argued that higher education is heavily subsidized and regulated, lacks transparency, and that no penalties are incurred for poor performance; therefore,

“it would be difficult to describe this as a market system.” Miller’s range of comments demonstrates the perils of failure to understand the characteristics of markets as used by economists. Informed public policy debate is not enhanced, for example, by confusing the term “market system,” which describes the way a nation’s economy is organized (capitalist, socialist, etc.), with the term “market,” which describes a much narrower grouping of institutions into clusters of close competitors.

If antitrust legislation and the efforts of public policymakers to regulate or influence higher education institutions were not sufficient reasons to look at markets, the possibility of a connection between pricing and competition could provide a compelling reason for campus policymakers to refine their understandings of the extent to which markets exist among colleges and universities. Hoxby (1997), for example, found that increased competition between IHE from 1940 to 1991 explained real tuition increases of approximately 50% for selective private colleges in the United States. Outside of the USA, the British government has significantly cut funding to universities, with yet another new fee structure scheduled for the 2012 class, further shifting the funding burden from the state to the student, with increased competition for those students not just in the United Kingdom but within the European Union and the rest of the world. As Great Britain and the rest of Europe move more and more toward a market-driven postsecondary system through the Bologna Process, institutional managers and politicians alike will learn that competition for students (being both consumers of and part of the education process) will drive up cost and perhaps quality as well, if Hoxby’s results can be generalized.

At the same time, there is debate within the literature whether it is appropriate to even apply the notion of markets from the private sector to postsecondary institutions in the first place (Breneman, 1981; Leslie & Johnson, 1974; Winston, 1997). On the one hand, a number of researchers (Astin, 1993; Borden & Bottrill, 1994; Cave, Hanney, & Kogan, 1991; Toutkoushian & Danielson, 2002) have used the production analogy of firms to describe the operations of colleges and universities. It may also be argued, however, that colleges are so different from firms that the concept of markets is irrelevant for higher education.

It is important to properly define what is meant by “markets and higher education” in order to better inform policy analysis. If the intent of higher education policy is to alter the behavior of students and institutions in a specific market, then it is crucial that policymakers begin by defining which market they are trying to affect. There are instances where a policy, such as not allowing for-profit colleges to receive federal student aid, would clearly have effects on for-profit institutions and their students but have little or no effect on major research universities given that they compete in different markets for students. Or, if the State of Georgia changed the parameters of its HOPE Scholarship program, it is important for policymakers to know which institutions, in addition to the four-year public institutions in the state, would possibly be affected by the change. Would it also include out-of-state public institutions and private institutions within the State of Georgia? And if so, would it affect all private institutions or only certain private institutions?

In this chapter, we provide a review of the ways in which the concept of markets has been – and could be – applied to higher education.<sup>1</sup> We first summarize the ways

in which markets and higher education have been described by academics and policymakers in the sizable literature on this topic. Following this section, we provide an overview of the economist's textbook definition and perspective on markets as they apply to firms in the for-profit world. These ideas are then used to consider how economists would conceptualize the different markets that exist in higher education. We focus on the attributes of markets in higher education (specifically, how higher education services are priced and bundled for consumers) and then turn to a more detailed exploration of the various markets that exist within the higher education industry in the United States. We further examine how to identify the specific markets within higher education and the resulting implications for policymakers. Through this discussion, we will argue that a nation's higher education system should rightfully be thought of not as a single market, but rather a series of separate markets for students and resources, with segmented markets within these groups. Although much of our discussion will focus on the higher education industry in the United States, we also provide illustrations of how these concepts play out in the higher education industries in other nations as well.

## Literature Review on Markets and Higher Education

Even a cursory perusal of the literature will reveal that there have been many books, journal articles, and commentaries published on the general topic of markets and higher education. Books such as *Universities in the Marketplace: The Commercialization of Higher Education* (Bok, 2003), *Markets in Higher Education: Rhetoric or Reality?* (Teixeira, Jongbloed, Dill, & Amaral, 2004), *Higher Education as Competitive Enterprise: When Markets Matter* (Zemsky, Shaman, & Schapiro, 2001), and *The Global Market for Higher Education* (Mazzarol & Soutar, 2001), combined with numerous articles in peer-reviewed journals on markets and higher education, give the impression that the topic of markets in higher education is well understood by academic education specialists and policymakers alike. As we argue in the Introduction, however, we believe that this is not the case.

The phenomenon of competition between colleges and universities in the United States can be traced back to the nineteenth century, when the nation began to seriously challenge the notion that higher education should be reserved for the elite in society and/or the religious indoctrination of citizens. With the passage of the Morrill Act of 1862, the United States greatly expanded the supply of publicly supported institutions that would alter the shape of the higher education industry by providing direct competition with private colleges and universities for students and resources. Nations around the world would later embrace the same concept through what is often referred to as the "massification of higher education" (Guri-Rosenblit, Šebková, & Teichler, 2007; Teichler, 1998; Yorke, 2003). The higher education industry in the United States would later experience additional increases in demand in the twentieth century due to the Servicemen's Readjustment Act of 1944 (commonly referred to as the G. I. Bill) and population shifts due to the baby boomer

generation. As the number of higher education suppliers increased, it led to more pressure for all institutions to attract students in sufficient numbers to fulfill their respective missions.

Academic discussions of the role of markets in higher education industries can be traced back at least to 1918, when the economist Thorstein Veblen produced a compelling critique on higher education in the United States in the early twentieth century in his book *The higher learning in America: A memorandum on the conduct of universities by business men*. Veblen (1918) observed that even at the turn of the twentieth century, colleges and universities were acting in ways similar to that of firms in competitive markets:

The fact that the universities are assumed to be irreconcilable competitors, both in the popular apprehension as evidenced by the maneuvers of their several directors, is too notorious to be denied... (1918, p. 89)

Even though Veblen acknowledged that IHE at the time competed for students and resources, he struggled to explain why competition in higher education was necessary. He attributed the competition to the “habits of thought” of businessmen, which he saw as an encroachment on the traditional domain of IHE. Interestingly, Veblen (1918) made a careful distinction between the “modern university” (where scholarly inquiry occurred) and “lower and professional schools” (where training of students occurred), which is similar to later descriptions of the bifurcation of our current sectors of the higher education industry into 2- and 4-year institutions.

Since the publication of Veblen’s book, a number of academics have agreed with his observation that to some degree, colleges and universities do, in fact, compete with each other. Outside of the United States, there have also been studies that have examined the presence of competition between colleges and universities in many nations including Australia (Marginson, 1997; Meek & Wood, 1997), Great Britain (Gibbs, 2001; Glennerster, 1991; Williams, 1997), Spain (Mora, 1997), Japan (Arimoto, 1997; Yonezawa, 1998), Korea (Kim & Lee, 2006), the Netherlands (van Vught, 1997), Chile (Brunner, 1993), and Argentina (Rozada & Menendez, 2002). Glennerster (1991, p. 1273), for example, noted that “Selective institutions become the norm and competition between institutions to provide the best or most appropriate courses has always been a feature of higher and further education...Such is the case for treating post school education as any market commodity.”

Academics have observed that colleges and universities compete with each other in a number of ways. Not only do postsecondary institutions try to obtain the best and brightest students, but they also must compete for other resources, including faculty, research funding, state support, and private donations. The prestige of an institution is affected not only by the academic quality of the students enrolled but also the faculty members employed (Dill, 1997b; Jongbloed, 2003; Leslie & Slaughter, 1997). Brewer, Gates and Goldman (2002) argued that IHE compete in four different revenue markets: student enrollments, research funding, public fiscal support (i.e., state and federal appropriations), and private giving. Depending on the market structure, it could be the case that an institution competes with one set of institutions in the market for students and with another set of institutions in the market for faculty.

The notion of competitive markets and colleges adopting businesslike behavior has not been embraced by all as a positive development for higher education. Some have argued that postsecondary institutions enjoy considerable market power and use this power to affect how they set prices for students (Carlton et al., 1995; Epple et al., 2006; Geiger, 2004; Leslie & Johnson, 1974; Leslie & Slaughter, 1997). Massy's (1989) model of higher education, for example, implicitly assumes that each institution is a separate monopoly that can raise prices at will to cover costs without ramifications. Even if higher education markets could be construed as having some degree of competition, concern would exist that if there is not a sufficient amount of competition, colleges may be able to collude to set prices as evidenced in the MIT case previously discussed.

Others have argued that the notion of truly free markets does not apply to higher education in that even in higher education markets that are competitive, governments usually provide some level of intervention and oversight (Dill, 1997b; Glennerster, 1991; Jongbloed, 2003). Jongbloed (p. 111), for example, observed that "...in reality a true market for higher education does not exist in many countries. This is because government policies effectively prevent such a market from forming." This description certainly applies to the higher education industry in the United States, where individual states often explicitly control the number of public institutions in the market, the degrees they can offer, and the prices they can charge. Some have used the phrase "quasi-markets" to describe a higher education industry when there is some freedom among suppliers, but governments are not totally divorced from the operations of the market (Glennerster, 1991; Marginson, 1997; Massy, 2004; Teixeira, Jongbloed, et al., 2004; Williams, 1997).

The shift toward applying free market principles to higher education has raised concerns that there could be negative ramifications for the nature of higher education services. Gibbs (2001), for example, argues that market mechanisms may be problematic in higher education if they lead IHE to emphasize degree production over encouraging critical thinking and other skills that are more difficult to quantify. Similarly, the work of Slaughter and Leslie (1997), Rhoades and Slaughter (1997, 2004), Slaughter and Rhoades (2009), Bok (2003), Glenna, Lacy, Welsh and Biscotti (2007), and others holds that as colleges and universities increasingly pursue extramural funding and partnerships with industry in the name of competition, it may divert attention away from more traditional academic inquiry. Pugsley (2004) has opined that the adoption of free market principles by higher education has led to discrimination against various groups of students, and others have gone so far as to decry the "McDonaldization of higher education" (Hayes & Wynyard, 2002; Ritzer, 1998). Even most critics, however, would certainly acknowledge that some degree of competition exists between colleges and universities across the globe.

The concept of the market has been used in a variety of ways throughout the literature. The ambiguity in how the term "market" is defined and used in these studies contributes to the confusion surrounding this topic. Based on our review, it appears as though these studies of markets and higher education can be generally grouped into one of three categories: (1) studies that examine the trend toward deregulation of higher education industries by nations, (2) studies that seek to describe the structure

of higher education industry within a specific region (typically a nation), and (3) studies that analyze the ways in which institutions compete with each other. We will examine each of these in turn.

### ***Deregulation of Higher Education Industries***

The largest segment of the literature on markets and higher education focuses on the global trend toward reducing the role of government in making decisions about who should go to college, where they should go to college, and how decisions about college pricing and supply are made. Studies in this line of inquiry include Glennerster (1991), Jongbloed (2003), Dill (1997a, 1997b), Brunner (1997), Meek and Wood (1997), Williams (1997), and many others. To these authors, the term “market” refers to the notion of allowing the free (competitive) market to set prices and output and allocate the supply of students across institutions.

The introduction of competitive markets into higher education has been driven by a number of factors. Going back to Adam Smith’s seminar book *The Wealth of Nations* (1776), and more contemporary economists including F. A. Hayek’s *The Road to Serfdom* (1944), *The Fatal Conceit: The Errors of Socialism* (1988), Milton Friedman’s *Capitalism and Freedom* (1962), and many others, the field of economics has a long tradition of advocating in favor of competitive markets as a means to achieve the efficient allocation of resources. The fact that the United States, with its capitalist economic system and competitive higher education industry, saw substantial economic growth in the twenty-first century certainly provided an incentive for other nations to try and replicate its approach to reap similar benefits.

Milton Friedman (1955, 1962) in particular has had a profound influence on the use of competitive markets, rather than governments, to organize and operate markets within education in the United States. The deregulation movement in higher education outside of the United States has coincided with the political changes that occurred in much of eastern Europe in the early 1990s (Williams, 1997; Friedman, 2005). Thomas Friedman in *The World Is Flat: A Brief History of the Twenty-First Century* (2005) observed that world economic systems have become more interconnected in recent years, which has led to increased competition among nations. As nations across the globe adopted capitalistic economic systems, it was natural to conclude that their educational systems could likewise benefit from becoming more competitive.

The decentralization of higher education and decline in the share of costs covered by state governments have led to greater competition among IHE for other sources of revenue. The concepts of “academic capitalism” (Rhoades & Slaughter, 1997, 2004; Slaughter & Leslie, 1997; Slaughter & Rhoades, 2009) and “commercialization of higher education” (Bok, 2003) refer to how colleges have increasingly sought out new partnerships with industry and opportunities to secure revenues from students and state governments. The concern expressed with this phenomenon is that by focusing more attention on revenue generation, IHE may be changing the nature

of what they do in ways that go against the pure pursuit of knowledge. Slaughter and Leslie (1997) argued that between 1970 and 1995, national policy in Australia, Canada, the United Kingdom, and the United States promoted a shift in higher education from basic curiosity-driven inquiry to the formation of academic capitalism, in which the pursuit of external moneys was the driving force. The emergence of academic capitalism is traced to “the growth of global markets, the development of national policies that target faculty-applied research, the decline of the block grant as a vehicle for state support for higher education, and the accompanying increase in faculty engagement with the market” (p. 11). Slaughter and Leslie, and more recently Rhoades and Slaughter (2004), do not differentiate between capitalism (which is usually associated with private ownership of resources and entrepreneurship) and markets as defined by Marshall (1920) nearly 100 years ago.

### *Descriptions of Higher Education Industries*

Other studies have attempted to explain how institutions within a nation’s higher education system can be categorized. It is recognized in these works that not all colleges are the same with regard to ownership (public versus private), profit status, level of educational degree offered, and involvement in producing research. It is important to note, however, that groupings of institutions by these types of characteristics do not coincide with what economists would describe as a market where a set of institutions directly compete with each other for students and resources.

Among the earliest efforts to develop meaningful groupings of institutions within the higher education industry in the United States was the classification scheme created by The Carnegie Commission on Higher Education [CCHE] (1973). The Carnegie Commission developed its first set of categories based on the level of highest degree offered, amount of federal funding received for sponsored research, and the number of degrees awarded by level. This resulted in groupings of institutions such as “Research I,” “Research II,” “Doctoral I,” and so on. Of particular concern to the Carnegie Commission is that some institutions began to view the categories as having normative value with more research-oriented categories considered more prestigious than teaching-oriented categories. Some colleges increasingly sought ways to move up in the Carnegie classifications from, say, a Doctoral I institution to a Research II institution, as part of the research drift occurring within the higher education industry (Dill & Soo, 2004; Massy, 2004). To reduce this strategic behavior by institutions, as well as provide a richer description of the types of institutions within the higher education industry, the Carnegie Commission has made several modifications to their classification scheme over the years. The 2010 classification scheme groups institutions according to their instructional programs, enrollment profiles, size, and settings.

There seems to be no shortage in the number of organizations that have developed their own categorizations of institutions of higher education in the United States. The American Association of University Professors (AAUP), for example,

groups institutions into categories based on highest degree offered and the number of degrees conferred. The College and University Personnel Association (CUPA) likewise has produced their own groups of colleges and universities based on public/private status, research intensity, and selected other criteria. *US News and World Report* ranks colleges and universities within a number of groupings, including whether an institution primarily competes for students on a national or regional basis. It is important to note that many of the institutions within the categories developed by these organizations do not directly compete with each other for the majority of students they enroll, and thus the groupings should not be viewed as markets within the higher education industry.

Finally, Zemsky et al. (2001) offered a different type of classification scheme that begins to connect categories of institutions to the concept of markets. They created a “seven segment market taxonomy” (also see Zemsky, Shaman, & Ianozzi, 1997) where institutions were grouped according to their selectivity, graduation rates, and enrollment patterns of students (national, regional, within state, and local). Although the taxonomy did not identify specific markets, it represented an important step toward recognizing how institutions compete with each other.

### *Competition in Higher Education Markets*

One limitation with the aforementioned categorization schemes developed by various organizations is that they are largely atheoretical in that little justification is often given for the choice of criteria for grouping institutions. In contrast, some academics have focused on the reasons why institutions may differ from each other. Most notable in this strand of literature is the work by Gordon Winston. Winston (1999, 2000, 2003) argued that the uneven level of donative resources (subsidies) received by institutions has created a hierarchical stratification of colleges and universities. Institutions with high levels of donative resources are better able to compete for top students, which in turn enables them to raise their prestige. Despite the importance of Winston’s work for helping to better understand the nature of differences across institutions, the resulting hierarchy does not necessarily correspond with distinct markets for students and resources. For example, institutions within the same decile group of donative resources may have similar financial and pricing structures but may rarely compete for the same students if they are located in different geographic regions.

There have been several efforts to apply economic-like concepts of markets to higher education. The article “The market model and higher education” by Leslie and Johnson (1974) is one of the first in this strand of literature. Leslie and Johnson suggested that the higher education industry consists of a number of markets and that for a number of reasons, the perfectly competitive market structure does not apply to higher education markets. They further discussed economic concepts of markets such as the homogeneity of higher education services and barriers to entry and exit. Jongbloed (2003) described eight conditions for a market which in some

ways overlap the traditional criteria examined by economists. He also observed that "...there is not a single higher education market but rather a multitude of markets" (2003, p. 111) and argued that government involvement in higher education markets was an important constraint on the competitive actions of institutions. Other studies that have examined the structure of higher education markets include Breneman (1981), Dill and Sporn (1995), Dill (1997a), Rothschild and White (1993, 1995), and Epple et al. (2006).

Brewer et al. (2002) provide perhaps the most thorough examination to date of the ways in which postsecondary institutions in the United States compete with each other. The authors developed their own typology of postsecondary institutions based on the extent to which institutions can be grouped according to their primary strategy in higher education markets. In their framework, reputation and prestige are "assets that allow institutions of higher education to convey nonprice information to customers" (2001, p. 27). Unlike other writers who often use these terms interchangeably, Brewer et al. asserted that there is an important distinction between an institution's reputation and prestige that affects how it competes for students and resources. The authors used the term "reputation" to refer to whether an IHE is known for delivering high-quality services to their customers, such as the success of students in earning a degree or finding a job in their field of study. Graduation and job placement rates would be considered indicators of whether an institution has been successful in improving its reputation. In contrast, prestige is meant to capture whether an institution has acquired assets that are consistent with the perception of providing a high-quality education. Prestige is a more intangible construct than reputation and may include the quality of students who enroll, the production process used for education, and even the look and feel of a campus. Possible indicators of prestige might include institutional rankings in *US News and World Report* and average SAT scores of incoming freshmen.

Using this distinction, Brewer et al. (2002) placed institutions into the following strategic categories: prestigious, prestige-seeking, and reputation-based. Prestigious institutions are those that have already achieved a high level of prestige. Prestige-seeking institutions are those that have made investments to raise their prestige, but they are not yet viewed as prestigious relative to the leading institutions. Those institutions that are neither prestigious nor actively trying to acquire prestige are described as reputation-based institutions.

Finally, there have been a few attempts to model the ways in which colleges interact and compete with each other. Early work by James (1978, 1986) and James and Neuberger (1981) attempted to describe university behavior by assuming that institutions functioned as price takers, whereas Leslie and Johnson (1974), Massy (2004), Epple et al. (2006) and others countered that colleges exerted considerable market power and influence over prices. Rothschild and White (1993, 1995) outlined a theoretical model to explain how colleges and universities compete for students using price and nonprice means. An important feature of their model was the recognition that in education, students are both inputs and outputs from production. Rothschild and White (1993) dichotomize postsecondary education into "graduate education and research" and "undergraduate education," wrongfully implying that research is not associated

with undergraduate education and teaching is not associated with graduate education. They then go on to dismiss the idea that undergraduate education subsidizes graduate education and research with the argument that an industry with joint undergraduate and graduate production at some institutions and single undergraduate production at others would not be sustainable; that we observe this industry implies that there are no subsidies. Despite the validity of their argument (if A, then B; thus, not B implies not A), Rothschild and White's premise (A) is a compound event: if institutions of higher education faced the same regulations, and if they all produced the same undergraduate product, and if students and their parents had accurate information, and if firms were free to enter, and if undergraduate education subsidizes graduate education, then undergraduate institutions and joint graduate and undergraduate institutions would not coexist. Existence of the different types of producers implies only that at least one of the many premises is wrong. Curiously, in discussing the issue of subsidies, Rothschild and White never address the issues and evidence advanced by critics such as Anderson (1992) as to which one of the many premises is wrong.

## **Economic Concept of Markets**

What, exactly, is a market? Economists have adopted a fairly consistent approach to answering this question dating back at least to Marshall (1920), although as noted by Leslie and Johnson (1974, p. 5), "...while it is a relatively simple matter to describe a potential market it is considerably more difficult and often impossible to specify exactly who is and who is not a part of that market." Virtually, every introductory-level microeconomics textbook devotes multiple chapters to defining the relevant market for goods and services, market participants and how they interact, and the structure of the market. Despite having general agreement about the purpose of a market and the main characteristics of a market, even economics textbooks can gloss over some of the finer details about defining a market that can have important implications for how to conceptualize markets in higher education.

Defining a market is a purposive exercise – it is done not for its own sake, but to serve the broader purpose of providing the analytical basis on which the behavior of one or more suppliers can be analyzed. In other words, the act of defining a market is a focusing device that seeks to identify the key players and their interactive strategies that determine the environment we seek to assess and, presumably, improve through the development of appropriate policies. The institutions that make up a market will exercise some meaningful constraint on each other, whereas those not assigned to this market will have no tangible immediate competitive impact on these institutions. Competitive processes within markets can be studied to assess whether institutions and markets are achieving true economic efficiency (reflecting an allocation of goods and services that provides the greatest benefits at the least cost), and if they are not, what market incentives or government regulatory intervention initiatives could be used to encourage more competitive behavior that will lead to greater benefits from society's scarce resources.

## *Characteristics of Markets*

Economists begin by describing a market as the place where buyers and sellers come together to exchange a particular good or service.<sup>2</sup> The market may be a specific physical location (such as the Mall of America in Bloomington, Minnesota) or a geographic region (such as a 60-mile radius around Athens, Georgia). The different goods or services produced by suppliers in the market must be viewed by consumers as being reasonable substitutes for each other. For example, a single market would not be said to exist for cameras and pizza because consumers would not typically view these as even imperfect substitutes for each other. In contrast, one could define the fast-food market for a geographic area as consisting of restaurants that supply a variety of foods such as hamburgers and tacos, which may not be exactly the same, but are still substitute goods for many consumers who are looking to purchase dinner within a specific price range.

Markets are also separated by economists into either markets for goods and services made by organizations (“product markets”) or markets for resources such as labor that are used to produce goods and services (“resource markets”). Ford Motor Company is a supplier in the product market for automobiles, a demander in the labor market for engineers and technicians, and a demander in markets for steel, rubber, glass, and other resources needed to produce automobiles. This distinction is particularly important for identifying markets in the higher education industry due to the multiproduct nature of colleges and universities and their need to compete for resources from multiple groups including state and federal governments and donors.

An important feature of markets is the geographic span over which the market exists. The geographic span relates to how far customers will travel to purchase the good or service. Does the behavior of hotels in one city directly affect the conduct of those in another? If not, then there is no competition between them so they cannot be said to operate in the same analytical market. For example, are hotels in New York City in the same market as hotels in Sydney, Australia? Do travelers see them as close substitutes? Clearly not business travelers, who may not have a choice of where to conduct their work. Leisure travelers who have already chosen their destination will likewise define the geographic scope of their market in terms of only hotels that are in the vicinity of their destination. In contrast, for a world convention, large five-star hotels in these two cities could well be competing with each other in the same international market for an association’s business for the “customer” is not as place bound as in the prior two examples. To illustrate, in the United States, there are only a few cities with the five-star hotel capacity to cater to very large conferences such as the annual meeting of the American Economic Association, which in 2005 and 2006 attracted well over 8,000 registrations each year and used 5,122 and 5,688 hotel rooms, respectively, on the peak conference night. Only a few cities have sufficient hotel space to host such a large conference, so the market for conferences with this number of people would only include a small number of cities over a rather large geographic span.

The geographic span of a market is also influenced by the size of the purchase and the frequency with which consumers purchase the product. The geographic

market would be determined by how far buyers would be prepared to travel in order to think that they had found the best deal – a benefit-cost trade-off for them. The span for large and infrequent purchases (such as an automobile) is probably larger than the span for the market for groceries, where purchases are done more frequently and each purchase is a smaller portion of the consumer's budget. Supermarkets will generally compete in a narrow geographical span, the boundaries of which will usually be determined by the location of major roads, the presence of shopping malls, and the travel time preferences of consumers. For new car sellers located in a specific area, and who for whatever reason are the subject of a search that needs to be conducted within the confines of a defined market, it would be necessary to discover what other dealers in which other locations constrained the activities of the sellers in question and which dealers were seen by buyers as offering a substitute product, after allowing for search costs. Similarly, postsecondary education can be viewed as a relatively large and infrequent purchase, which helps explain why students are often willing to travel hundreds if not thousands of miles in order to use the service.

### *Industry Versus Market*

As may be apparent in our use throughout this chapter, an important distinction should be made between an industry and a market. An industry, as used by economists, refers to the collection of all organizations that supply a specific good or service. For higher education, the broadest definition of the higher education industry would consist of all postsecondary institutions around the globe. It is also common to speak of an industry within a nation, such as the higher education industry in the United States. Within an industry, there may be a number of organizations that make the same product and yet do not directly compete with each other in the product or resource markets in question. As a simple illustration, the hotel industry can be thought of as consisting of all suppliers of hotel rooms within the United States. However, the Holiday Inn in Indianapolis would likely not view itself as competing with the Marriott in San Diego for most customers on any given evening. In this way, the two hotels are in the same industry but compete in different product markets.

A second distinction between an industry and a market is that a market consists of both buyers and sellers, whereas an industry is defined in terms of sellers producing similar products using similar inputs, technology, and production processes. That is, the term “industry” focuses only on the supply side, whereas Leslie and Johnson (1974, p. 5) note that “...there are two distinct parts or sides to any market: the producer's side and the consumer's side. Thus, in discussing a market for a particular commodity both sides of the market must be discussed.” We could talk about the US bread industry in an economically meaningful way if we wanted to analyze bread-making technology, the optimum size of baking ovens, the types of bread and yeast products, and the best types of flour to use. But it would not be correct to talk about

the US bread market in the same way, because all American bread manufacturers do not compete with each other for the same groups of buyers. Perishability, transport costs, and local taste preferences all mean that there will exist a large number of quite small geographic markets for bread, each of which may exhibit quite different patterns of competitive interaction and require different analytical assessments of their behavior. Unfortunately, even economists do not always distinguish between these two concepts. For example, in the principles-level microeconomics textbook by McEachern (1994), the author explicitly states that the terms “industry” and “market” will be used interchangeably. It is therefore not surprising that noneconomists have also struggled to understand the difference between these two terms as well.

On the demand side, customers help to define a market in a variety of ways. First, customers differ in their abilities to pay for a good or service. Generally, wealthier consumers will have a wider range of suppliers from which to choose within an industry, whereas less well-to-do consumers would have more limited choices. It is common for consumers with different income levels to participate in different product markets for goods and services such as restaurants, automobiles, housing, wine, sailboats, and even higher education. Second, the personal characteristics of consumers may affect the markets in which they choose to participate. For example, within the music industry, younger consumers may have different tastes than older consumers in the sets of music groups that they would consider close substitutes for each other. Other personal characteristics of consumers, such as their gender and race/ethnicity, can also influence the specific product markets within an industry in which they choose to participate.

### *Market Structures*

Economic textbooks devote significant attention to the concept of market structure, which can be thought of as “...all of the characteristics of a market that influence the behavior of buyers and sellers when they come together to trade” (Lieberman & Hall, 2000, p. 172). These characteristics include the number of buyers and sellers in the market, the barriers to entry and exit from the market, and the homogeneity of the good or service being produced. All of these characteristics are helpful when thinking about the various markets that exist in higher education.

The number of sellers in a market is affected by the presence of barriers to entry or exit. These barriers represent how difficult it is for new suppliers to enter a market when conditions are favorable or how easy it is for suppliers to leave a market in less lucrative times. Barriers to entry in a market may be due to the presence of large fixed costs to enter the market. For example, a supplier wishing to enter the market for electricity provision would have to spend a large amount of money to create a power plant and accompanying infrastructure to deliver electricity to consumers. Governments can also be another barrier to entry if they impose laws or regulations on markets that make it more difficult – or even impossible – for new suppliers to enter the market. Similarly, in some markets, it is not easy for suppliers to leave due

to government regulations or high expenses that would be incurred from closing. Not surprisingly, markets where there are low barriers to entry or exit tend to have more suppliers, and vice versa.

The number of suppliers in a market is important in that as the number increases, holding all else constant, each supplier would normally have less market power, or ability to impact the prices charged for the good or service through their actions. At the extreme, if there was only one supplier in the market (a monopolist), then the supplier (monopolist) would not have to worry about losing customers to another supplier if they were to increase the price for the good or service, and the price they charge becomes the going price in the market. In contrast, if the market consists of many suppliers and each has a very small share of the total market output, then the pricing decisions of one supplier may have a negligible or no effect on the overall price set in the market.

The homogeneity of a product relates to the similarity of the goods or services produced by suppliers, and hence the degree of substitutability across suppliers. If the goods or services in a market are exactly the same (homogeneous), then consumers know that they can obtain the same exact product from any supplier in the market. Thus, the goods and services produced by suppliers are said to be perfect substitutes for each other. In contrast, a market with heterogeneous goods or services is one where the goods/services are similar, but not identical, across suppliers. It is important to note that the homogeneity of goods or services is defined by how similar they are in the minds of consumers and not necessarily whether there are real or tangible differences between products. If supplier A can convince consumers that their product is different from that made by supplier B, then the products in the market are heterogeneous even though in reality they may be exactly the same.

In most cases, markets consist of products that have some degree of perceived heterogeneity. The 2001 Nobel Memorial Prize in Economics recipient and former senior vice president and chief economist of the World Bank, Joseph Stiglitz (1987), wrote:

Markets in which commodities are completely homogeneous – with respect to location and the date as well as other characteristics – are almost inherently sufficiently thin so that the postulate of perfect competition is inapplicable. Markets that are sufficiently ‘thick’ to be competitive are almost always nonhomogeneous. (p. 25)

What Stiglitz is saying, in the former case, is that in order to have perfectly homogeneous products, the market may well be very narrowly characterized, as with a single product or single seller. In the latter case, he is acknowledging that competition can take place in terms of many variables, including product quality, ingredients, and style, so that in a competitive market (speaking in the real world sense of the term “competitive”), the products of rival sellers are unlikely to be homogeneous.

If products can be different from each other and yet be considered part of the same market, then at what point would two goods/services be so different that they are actually in separate markets? Where to draw this product boundary between markets is often difficult to determine and can be controversial. The product boundary of a market, in fact, indicates which products of rival institutions are seen as

substitutes in the minds of buyers. These substitutes do not have to be perfect. To illustrate, do the five-star hotels close to Central Park in New York City compete for guests with the two-star hotels on the outskirts? If the Holiday Inn at LaGuardia Airport lowers its nightly rate by a few dollars, will the Plaza on Central Park be forced to lower its rate? Highly doubtful! Thus, they operate in different markets. But where does one draw the line? The key is that ideally, those hotels classified within the same market will constrain each other (in terms of price, services, and amenities), whereas those that are not included in the market will not be regarded by travelers as offering a substitute product at going market prices, either now or within the planning horizon of the firm in question.

Taken together, economists have used these concepts to define several market structures that serve as standards by which existing markets may be compared and contrasted. At one extreme of the range of market structures is the notion of a perfectly competitive market, in which there are no barriers to entry/exit, there are a large number of buyers and sellers each with a small share of the market's output, and each seller produces a homogeneous product. In this market structure, suppliers have no ability to raise the market price through their actions given that consumers can find the same exact good or service at other suppliers for a lower price. The perfectly competitive market structure is admittedly a theoretical construct that is difficult, if not impossible, to find parallels to in existing markets.

At the other extreme of the spectrum of market structures is a monopolistic market. In this market structure, there is only one seller of the good or service and (obviously) significant barriers to entry. The good or service provided by the firm in a monopolistic market is very heterogeneous in that there are no close substitutes for it. Accordingly, the firm in a monopolistic market has significant influence over the market price for the good/service and the quantity of the good/service that is available to consumers. This market structure is also a theoretical construct in that it is hard to find many examples in the real world where pure monopolies exist. However, there have been instances where governments have established a monopoly for a specific good or service, such as the government-imposed monopoly that existed for years for local telephone services provided by AT&T. It may also be the case that local monopolies exist for goods/services that are narrow in geographic span, such as for water and electricity in a given town. These firms may function as if they were monopolists for they are the only supplier in the relevant geographic span, even though their respective industries may consist of many firms. Despite the fact that K-12 public schools are sometimes described by critics as being local monopolies, it is important to note that there are other competitors within the region including private schools, charter schools, magnet schools, and even homeschooling.

Between these two extremes are market structures known as monopolistic competition and oligopoly. In a monopolistically competitive market, there are low barriers to entry (and hence a large number of suppliers), but the goods or services are not identical across suppliers. In this market, firms attempt to differentiate their product from those of their rivals and may compete on both price and nonprice features (such as the quality of service). A fast-food market is typically used as an example of a monopolistically competitive market because there are many suppliers

within a geographic span, it is relatively easy to enter and exit the market, and the products are substitutable, but not identical across suppliers.

In contrast, an oligopolistic market consists of a small number of firms that typically produce a relatively homogeneous product. These markets have high barriers to entry due to either large start-up costs or government regulations. Firms can be tempted to engage in collusive behavior to minimize price competition, as was seen during the 1970s with the cartel of oil-producing nations in the Middle East. As discussed earlier in this chapter, allegations were raised in the 1990s that MIT and the Ivy League institutions in the United States were operating as if they were an oligopoly and colluding to fix prices by making similar financial aid offers to students. Other examples of oligopolistic markets outside of academe may include television services (cable and satellite providers) and air transportation.

### ***Product Differentiation***

As can be seen from this discussion, product differentiation is an important dimension in defining the market for a good or service. Suppliers can differentiate their product in a number of ways, the most obvious of which is to make physical changes to the good or service that make it different from, and yet substitutable for, those produced by other suppliers in a market. Advertising is often viewed as a way for firms to convince consumers that their product is different from, and better than, the products made by rivals in the market. Regardless of how it is achieved, the supplier's hope is that through differentiating its product, it may be able to increase its market power and charge a higher price for their particular good or service. In the extreme, if the level of product differentiation becomes large enough, the market may become segmented into several submarkets with suppliers of higher-quality goods/services competing in a separate product market from suppliers of lower-quality (but similar) goods/services. For example, the market for automobiles in a given geographic region may be thought of as a series of submarkets, in that consumers who are looking to purchase a higher-quality (and more expensive) automobile will primarily consider suppliers such as Lexus, BMW, and Mercedes-Benz, whereas other consumers who are looking for more affordable automobiles will participate in a separate submarket of firms such as Ford and Chevrolet. If all automobiles were perceived by consumers to be perfect substitutes for each other, then such market segmentation would not exist.

Product differentiation is related to the ease at which consumers can acquire information about the quality of the goods and services produced by suppliers. The model of a perfectly competitive market assumes that consumers have access to complete information about the products being sold by suppliers in the market. However, if consumers have difficulty in determining how comparable goods and services are within a market, then it creates opportunities for suppliers to convince consumers that their products are in fact different and thus deserving of a higher price. The requirement of consumers having perfect information about products

within a given market is very difficult, if not impossible, to realize in practice due to the time and cost that is needed to obtain this information. As a result, consumers often form impressions of products based on indicators of quality such as ratings by other entities such as *Consumer Reports*.

In the absence of good information, consumers may also rely on the price charged by the supplier as an indicator of quality, with a higher price suggesting to them that more/better resources went into its production and thus the resulting good or service is also better. In part, elite liberal arts colleges differentiate themselves from perceived lesser institutions by their higher tuition (price). To lower their price would give the wrong signal to those seeking an elite higher education. Note that this pricing signal would not exist if students and their parents (consumers) had perfect information about the products sold by colleges (suppliers).

Markets can be affected by how easy it is for consumers to learn what prices suppliers are charging for the good or service. The model of a perfectly competitive market assumes that consumers have full knowledge of the prices being charged by all firms. As the products in this market structure are perfect substitutes for each other, a supplier cannot get away with charging a higher price than others because consumers can get the same exact product at any number of other suppliers in the market and they know what prices other suppliers are charging.

The assumption that consumers have full knowledge of all prices within a market can be difficult to achieve in practice. It is typically the case that acquiring information about prices is a time-intensive and thus costly activity. The expansion of the Internet has certainly made it easier for consumers in many product markets to compare prices and products across suppliers. Searching and comparing prices and products still requires time and effort, however, and the comparison may be incomplete if it does not include all suppliers in a specific market.

Pricing information can be more difficult for customers to obtain in markets where firms engage in frequent price discounting. Even though consumers can find information on the manufacturer suggested retail price for virtually any brand of automobile across dealerships within a designated geographic area, the actual net price that they would pay depends on the extent to which a specific dealership (and perhaps salesperson within a dealership) is willing to negotiate with buyers for a lower price. Such information is not readily available to consumers. A similar process of price discounting occurs in higher education product markets, where students can observe the same posted tuition and fee rates for an institution but may end up paying different prices due to the fact that they are given varying amounts of financial aid for criteria such as their ability to pay and their academic performance.

Another important feature of some markets is that consumers actually purchase a bundle of (complementary) goods or services as opposed to a single product. To illustrate, when a person buys a house, the person is not only paying for the physical attributes of the house, such as its square footage, number of bathrooms, and acreage, but also access to attributes of the neighborhood where the house is located. These attributes might include the quality of the public school to which residents are assigned, the availability of parks and playgrounds, the safety of the neighborhood,

and even the perceived beauty of the view from the house. Accordingly, these attributes (complementary goods) can affect the price that consumers would be willing to pay for the house. Or as the old adage goes in real estate, the three most important factors in the price of a house are location, location, and location. Similarly, when a person goes to a restaurant, he or she is not only paying for the food consumed but also for the amenities that go along with the dining experience, such as the ambiance of the dining room, the quality of service, and other attributes. This notion of bundling certainly applies to higher education markets, where students are not only purchasing instructional services but also access to features of the campus and town that provide utility to the student.

Finally, products may differ depending on whether the consumer derives short-term (“consumptive”) or long-term (“investment”) benefits from purchasing them (Brewer et al., 2002). The majority of goods and services are primarily consumptive in nature, in that the purchaser obtains benefits near the time of consumption from the good or service in question. In other situations, however, the consumer does not receive the benefits until some point in the future. For example, individuals who purchase an exercise plan may not receive any benefits at the time that they use the plan, but still purchase the plan in the hope they will derive benefits in the future due to improvements in their health and fitness. Viewed in this way, the consumer is purchasing the good or service as an investment in much the same way that an individual purchases a mutual fund in the hope that it will be worth more in the future. As we explain in the next section, this applies to higher education product markets because higher education services provide both consumptive and investment benefits to students.

## **Attributes of Higher Education Markets**

We now apply the economic framework from the previous section to discuss how economists would conceptualize markets within the higher education industry in the United States. In short, we assert that (1) IHE compete in a variety of product and resource markets, (2) the higher education industry consists of a series of different product markets within degree levels and fields of study, and (3) the product markets share characteristics with both an oligopolistic and monopolistically competitive market structures.

Before delving into the details of product markets in higher education, we need to consider the claim that markets are meaningless in higher education in that colleges and universities are not the same as firms in the for-profit world. The argument goes that due to the fact that most traditional colleges and universities are not-for-profit, are highly subsidized, and have a low risk of failure, they do not have to compete with each other in the same way as do firms in the for-profit sector.

A free market starts with the notion that there are many identical and independent firms, each with the objective of maximizing profits subject to constraints and many independent potential buyers who are seeking to maximize utility subject to

income and wealth constraints. However, the majority of degree-granting postsecondary institutions are not set up as profit-maximizing entities to benefit the equity capital shareholders. Gordon Winston (1999, 2000, 2003), possibly more than any other economist, has articulated how IHE differ from the textbook idea of profit-motivated firms operating in a competitive free market.

What is the main objective of postsecondary institutions, then, if it is not profit maximization? Winston asserts that a primary objective of IHE is to build prestige and attempt to advance up the hierarchy. But which hierarchy? From unknown to known? On what scale? From a local student body to an international mix? From the bottom of the sports world to the final four? From a liberal arts college to a university with multiple colleges including professional medicine and law schools? From undergraduate teaching institutions to well-recognized graduate schools producing Nobel Laureate-level research? Postsecondary institutions have different objectives at different times in their history. The only thing that appears safe to say is that profit maximization for the benefit of equity shareholders is not typically one of them, but yet this is a cornerstone of analysis in the typical market setting.

Unlike most firms in the for-profit world, colleges and universities are highly subsidized organizations. IHE receive subsidies from a number of different entities, including governments (federal, state, local), private donors, philanthropic groups, and others. Winston (1999) and Toutkoushian (2001a) have shown that a sizable fraction of the cost of providing higher education services is subsidized by various entities. This remains true in the twenty-first century even though increasingly larger portions of the cost of higher education services are being paid by consumers. Grants and state appropriations make it possible for both private and public institutions of higher education to sell their products for less than cost, which is a highly unique attribute not seen in most other markets.

Another way in which colleges and universities differ from traditional for-profit firms is that there is a very low risk of failure. Data from IPEDS show that in 2010–2011, for example, only twenty (20) degree-granting postsecondary institutions closed their doors and all of these institutions were private (National Center for Education Statistics [NCES], 2011). Public institutions enjoy some degree of protection from failure by state governments or coordinating and governing boards. The fact that there have been few college closings even in years when there has been significant economic downturns in the United States that have led to cuts in appropriations for many institutions shows that the risk of failure is low relative to what firms in many other industries face. If this is true, then the argument goes that colleges do not have to worry about competing for customers as they most likely will be able to survive regardless of their success in attracting students and securing resources.

The way in which colleges and universities provide higher education services is likewise different from the traditional industrial process in which labor and raw material inputs are turned into finished good (outputs). Students are consumers of educational services provided, inputs into that process, and they are also one dimension of output. As a result, the supply side and demand side of higher education markets are not “distinct” as asserted by Leslie and Johnson (1974) because (as will

be discussed in more detail) students are both consumers and inputs to the educational process. Demand and supply curves cannot be identified as distinct functions. In comparison to an automobile factory, the steel in a car does not care how it is handled but as inputs and outputs, students do. The car producers have to cover their costs with sales revenue but universities and colleges have endowments and state funds on which they can draw to subsidize the educational process. As inputs, the attributes of the student are important to production so institutions buy or subsidize desired students. Grants and state appropriations make it possible for both private and public institutions of higher education to sell their products for less than cost, which is a highly unique attribute not seen in other markets.

It is the case that producers of luxury items want the availability of their wares to appear limited and to be seen with the beautiful people. These producers are willing to provide incentives (subsidies) to encourage use by opinion and fashion makers. Similarly, but to a larger extent, prestigious colleges and universities do the same thing. For example, Harvard, Princeton, Stanford, and other highly selective universities could greatly increase their respective tuition and fees and likely still have students clamoring to get in (at least in the short run). They do not do this for they want to select what each considers the most appropriate attributes for the activities and images they each wish to project. At the same time, they cannot lower their prices too much because price is an indication of quality.

As we will discuss in what follows, highly selective private colleges in the United States are notorious for maintaining high sticker or list prices and then providing discounts in the form of grants, scholarships, merit aid, and the like to attract desirable students. In economics this is known as the “efficiency wage hypothesis,” which states that wages can be determined by more than simply supply and demand. To get the best workers (students), firms (colleges) pay their employees (enrolling students) more than the market-clearing wage (market-clearing financial aid). Because workers are paid more than the equilibrium wage, there will be lines of applicants looking to get these jobs. Thus, the existence of “efficiency wages” is a sign of market failure.

The importance or role of multidimensionality in higher education appears lost on many critics. In a *Wall Street Journal* review of Andrew Rosen’s book *Change.edu: Rebooting for the New Talent Economy* (2011), for example, Rifey (2012) argues that research universities and even liberal arts colleges are attempting to please too many constituents, which Rosen and Rifey call customers in a market place: students, parents, taxpayers, alumni, sports fans, and the list goes on.<sup>3</sup> According to Rifey, “this mix of financial imperatives can lead colleges to focus too little on what students are learning in the classroom. Money and effort, instead, go to moving up the prestige ladder, often by enhancing ‘selectivity.’” Rifey then cites Rosen’s claim (in a chapter titled “Harvard Envy”) that under “the existing rules of higher education, a college is defined as ‘better’ by turning away more potential students – no different than a nightclub that’s ‘hot’ in that its system of bouncers and velvet ropes leaves a critical mass of people on the outside, noses pressed to the glass.”

How diverse constituents operating in many different markets result in a single measure of quality (entering-class selectivity) is never made clear by Rifey or Rosen;

it is only asserted. Their solution to confusion over the many purposes of higher education, however, is the single-purpose profit motive driven by student tuition. According to them, for-profit institutions have largely opted out of the prestige game. These schools are not looking to turn away students. Their professors are engaged exclusively in teaching, not research. No one has tenure, so incompetence means dismissal. Teaching is quality-controlled and student performance strictly measured.

Although Rosen meant his comments to be derogatory, in some respects, highly selective institutions of higher education share much in common with the idea of hot nightclubs, which Rosen does not recognize in his emphasis on selection as a negative attribute. Student groupings (peer effects) are important in education: bright and highly motivated students want to be with other bright and highly motivated students just as socially adept and attractive dancers in a nightclub want to be with similar club goers. Also keep in mind that students are an input and output of the educational process and dancers are an input and output of the nightclub scene. In any given evening, the hot night club might be able to earn higher profits by letting more dancers, in but in the longer run, profits might fall as the quality of the experience is deteriorated. Similarly, highly select colleges and universities may be able to make greater profits by admitting more students but in the longer term the quality of education may be deteriorated. College admission committees provide a screening function just as bouncers do but based on different criteria.

We acknowledge and accept that these are important differences between post-secondary institutions and traditional firms in the for-profit world, but also believe that it is appropriate to characterize IHE as competing with each other in markets. Postsecondary institutions must generate sufficient revenues to meet expenditures and run their operations, and tuition revenue remains an important source of funding for virtually all institutions. Even not-for-profit institutions must generate sufficient revenues to cover their operational costs, and thus competing for students (and the revenue they bring) is necessary for colleges and universities. IHE must likewise compete with other state agencies for appropriations and compete with other organizations for donations from individuals. In addition, based on the hierarchical nature of markets where enrolling high-quality students lead to institutional prestige, many colleges compete with each other not only for the number of customers but also for the best customers in the market.

We assert as have others before us (Brewer et al., 2002; Jongbloed, 2003; Leslie & Johnson, 1974; Meek & Wood, 1997; Rothschild & White, 1993) that colleges and universities participate in separate markets for students and resources. Though we focus here on competition among IHE for students, there is also competition between IHE for state funding, private funding, faculty, and so on. The markets for full-time, tenure-eligible faculty are usually national in geographic scope for most 4-year institutions. Within the labor supply of faculty, individuals who are more oriented toward research will more often choose to supply their services in the labor markets at Doctor- and Master-degree-granting institutions, whereas other individuals will gravitate toward the labor market at Bachelor-granting institutions. In contrast, the faculty labor market for 2-year institutions tends to be more regional/local in geographic span, as is true for the nontenure track labor markets for

4-year institutions. The market for sponsored research is best described as national in geographic span, with Doctor- and Master-degree-granting institutions across the country competing for research funding from the federal government and private agencies.

Postsecondary institutions offer a number of different services that may be useful for grouping them into product markets. First, colleges provide a mix of services in the general areas of instruction, research, and public service. The mission of a college or university will dictate the extent to which it chooses to provide services in each of these areas. The vast majority of institutions of higher education provide some form of instructional services; however, there are exceptions where an institution may be established solely for the purpose of producing research. Likewise, although many institutions engage in some level of public service activities that are aimed at benefitting the institution's local, state, or national communities, these activities tend to be a small portion of an IHE's overall activity. There is, however, significant variability across institutions with regard to their involvement in research, with many institutions doing little if any research, whereas other institutions devote significant attention to this activity.

The variation in research activity is often tied to the types of academic degrees offered to students. It is usually the case that institutions that have chosen to offer higher-level (graduate) degrees are also more involved in producing research due to the need to integrate research with teaching in the preparation of graduate students (Becker & Kennedy, 2006). Universities that focus on research are more expensive to maintain than are teaching-oriented institutions, but it has been asserted that they are critical to economic growth. Romer (1990) defines innovation as an improvement in the instructions for mixing raw materials. He argues that advances in technology are the primary source of economic growth in that the creation of new instructions can occur without bound and these instructions can be used over and over again at next to no additional cost. They are nonrival, meaning one person's use of the instructions does not rival or preclude its use by another. Although improvements in the instructions by which resources are mixed can occur by chance, Romer argues that innovation is the result of intentional actions taken by people who respond to market incentives. For an innovation to be profitable, the owner must be able to exclude or prevent others from using it freely. Growth requires the input of an excludable but nonrival good.

To Romer, the basic skills (reading, writing, and arithmetic), machine skills (keyboard entry, monitoring instruments, filling out forms), and the like that are associated with rote or repetitive education are tied to the individual. Such human capital is a rival input because the person who possesses this ability cannot be in more than one place at the same time nor can this person solve many problems at once. This ability is also bounded by the population; it is embedded in physical objects. It cannot account for unbounded growth in per capita output for its accumulation must involve diminishing returns. In contrast, a new design, piece of software, or mathematical model is nonrival; once the design, software, and model have been created, they can be used as often as desired by as many people as would like at little to no cost. They are not closely tied to any physical object. Education that

contributes to the creation of these new ways of mixing raw materials can lead to unbounded growth. But the rivalrous skills associated with teachers who are not also engaged in creating knowledge are not sufficient for unbounded growth.

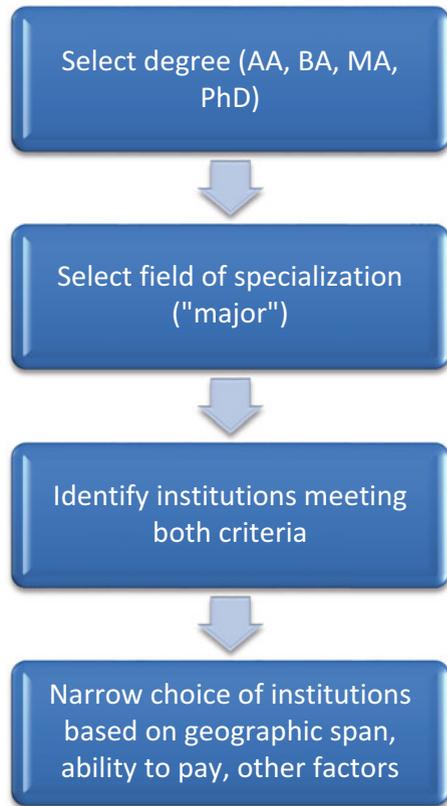
For the remainder of this chapter, we focus on the product markets for instruction. For illustrative purposes, we begin by assuming that product markets in higher education are first bounded by field of study within each degree level, such as the market for a Master's degree in economics, as depicted in Fig. 7.1. This categorization is drawn from how customers (students) identify the suppliers (institutions) they would consider for higher education services. In academe, students begin by selecting the type of degree they will pursue, either an Associate's, Bachelor's, Master's, or Doctor's degree. Students then or concurrently identify institutions that award the desired degree in the field of study (or major) in which they would like to specialize. From this subset of institutions, students might then choose the specific market of institutions after taking into account other considerations such as their desired geographic span, academic skills, ability to pay for college, and personal characteristics.

The connection between markets, degrees, and fields of study is very important at the graduate degree levels due to the fact that these degree programs primarily require students to take courses in their chosen field of study. Institutions that have chosen to offer Master's and Doctor's degrees may opt to only offer them in specific subject areas, and thus not all institutions that award Doctor's degrees will, for example, award a Doctor's degree in sociology. At the Associate's and Bachelor's degree levels, however, it is not always clear whether the appropriate definition of markets should include the field of study. From the perspective of students seeking an Associate's or Bachelor's degree, many of them either do not know what major they will choose when they decide to enroll in college or they may change majors during college. In this case, they may be more interested in the services at an institution as a whole rather than the services within a specific major. Institutions also compete with each other to some extent at the aggregate (institutional) level as well as the field level. Many institutions do not set specific enrollment targets by field of study and instead make strategic decisions to influence the size and quality of all incoming students regardless of major. Nonetheless, the aggregate level is ultimately affected by the institution's ability to compete for students with other institutions that offer the same major and degree within a designated geographic span.

On the supply side of product markets, an IHE has to decide which degrees to offer and in which fields to do so. These decisions are influenced by the mission of the institution, the markets in which they would like to compete, and any rules or regulations at the state level that might restrict their ability to move into specific markets. In some states, a public IHE would have to get approval from a state board or commission before being allowed to start a new degree program.

Table 7.1 shows the distribution of colleges and universities in the United States in 2010–2011 by highest degree offered, broken down by control and profit status from the Integrated Postsecondary Education Data System (IPEDS). As shown, there are almost 4,600 degree-granting institutions in the higher education industry in the United States. Of these institutions, approximately one-third focus mainly on Associate's degrees and thus are said to be in the 2-year sector, and the remaining

**Fig. 7.1** Depiction of process for students to identify higher education market



**Table 7.1** Breakdown of institutions of higher education in the United States by highest degree awarded, 2010–2011

Highest degree awarded	Institutional control			Total
	Public	Private not-for-profit	Private for-profit	
Associate's degree	978	87	664	1,729
Bachelor's degree	132	381	373	886
Master's degree	226	595	225	1,046
Doctor's Degree	320	567	51	938
Grand total (2- and 4-year)	1,656	1,630	1,313	4,599
Subtotals:				
Bachelor's and higher	678	1,543	649	2,870
Master's and higher	546	1,162	276	1,984

Source: Table 4 from NCES Tables Library. US Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Fall 2010, Institutional Characteristics component

Notes: Only includes institutions that qualify for Title IV and grant degrees

institutions concentrate on degrees at higher levels and are considered to be part of the 4-year sector. The distribution becomes much more complex when IHE are further broken down by both degree level and field of study. For example, out of almost 1,000 institutions that award a Doctor's degree, only 139 of them offer a Doctor's degree in economics (<http://www.aeaweb.org/gradstudents/Schools.php>).

It is important to note how the industry is divided by institutional control. The total number of suppliers is fairly evenly split between public, private not-for-profit, and private for-profit institutions. As public institutions are on average much larger than private institutions, they award most of the degrees in the product market for instruction. Public institutions comprise a large share of institutions in Associate's degree markets, whereas private not-for-profit institutions are more likely to be found in the 4-year sectors. Private, for-profit institutions are highly concentrated in the Associate's and Bachelor's degree markets, with little (but growing) involvement in the markets for graduate degrees.

There are three complications that must be addressed to determine the number of suppliers in the industry at each degree level. The first complication is that some institutions in the 4-year sector also offer Associate's degrees. Therefore, a number of institutions in the 4-year sector compete with institutions in the 2-year sector for students seeking an Associate's degree. The second complication is that most institutions that offer Master's degrees also offer Bachelor's degrees, and most Doctor-granting institutions award both Bachelor's and Master's degrees. According to our calculations using IPEDS data for Title IV degree-granting institutions, in the fall of 2010, there were 3,162 institutions that award Associate's degrees, 2,609 institutions that award Bachelor's degrees, and 1,968 institutions that award Master's degrees. As noted earlier, the relevant markets within each degree level are much smaller than this once institutions are broken down by field of study and geographic span and other factors are also taken into account.

Table 7.2 provides an overview of some of the key attributes of the segments of the higher education industry by degree levels. As noted in Table 7.1, the number of suppliers in the segments of the higher education industry declines by level of degree. The number of customers, as represented by degrees conferred, also varies by degree level, with the largest number of students receiving Bachelor's degrees followed by Associate's, Master's, and then Doctor's degrees. With regard to ownership, the suppliers are a mix of public and private institutions, with Associate markets consisting of mostly public (and increasingly private for-profit) institutions and graduate markets consisting of private and public not-for-profit institutions. The degree levels of the higher education industry vary in terms of whether there are hierarchies of suppliers based on their prestige. At the Associate level, there is very little hierarchy based on prestige, whereas prestige is a significant factor at the Bachelor's and graduate degree levels. Finally, only a small minority of students seeking an Associate's degree will live on campus and attend college full-time. In contrast, the majority of traditional students pursuing a Bachelor's degree will live on or in close proximity to campus. Graduate students also tend to live on or near campus, but they may be more likely than Bachelor's degree-seeking students to attend college part-time due to outside commitments such as work.

**Table 7.2** General characteristics of suppliers in US higher education industry by degree level

Characteristic	Associate's degree	Bachelor's degree	Master's degree	Doctor's degree
Number of providers	Many (~3,200)	Many (~2,600)	Many (~2,000)	Some (~1,000)
Number of degrees awarded in 2009–2010	849,000	1,650,000	693,000	159,000
Ownership	Public and private	Public and private	Public and private	Public and private
Profit status	Majority are not-for-profit, but many for-profit	Majority are not-for-profit	Majority are not-for-profit	Almost all are not-for-profit
Hierarchical nature of industry	Very little hierarchy based on prestige	Substantial hierarchy based on prestige	Some hierarchy based on prestige	Some hierarchy based on prestige
Residential status of customers	Few students are in residence; many attend part-time	Most students are in residence; many attend full-time	Most students (but fewer than Bachelor's degree) are in residence; many attend full-time	Most students (but fewer than Bachelor's degree) are in residence; many attend full-time

The hierarchical nature of the markets for Bachelor's degrees by institutional prestige is not unique to the higher education industry in the United States. In Australia, the long-established so-called "sandstone" universities (the original universities in each capital city) belong to what is referred to as the "Group of Eight." Another group of five relatively new universities (one in each of the five mainland states) that have grown from business-, technology-, and engineering-based origins is known as the ATN Group (Australian Technology Network). The two groups differ in reputation, history, and course offerings but compete with each other for research grants and, to a limited (but increasing) extent, for students willing to move interstate for tertiary studies. However, the competition for students is largely confined within the borders of the home state, among the different tertiary institutions located therein. A discussion of the changing picture of higher education in Australia is provided by Harman (2006). As with the United Kingdom, national policy is aimed at rewarding institutions for specific measured outcomes. This action can be seen as an attempt to solve a principal-agent problem (difficulties that arise under conditions of incomplete and asymmetric information), but it has nothing to do with what markets might produce if universities were left to their own devices.

### *Pricing in Higher Education Markets*

The manner in which colleges and universities set prices for instructional services has puzzled many academics, policymakers, and students and their families. The price for attending college in the United States in 2012 (including tuition, fees, and room and board) can exceed \$60,000/year at private not-for-profit institutions and \$30,000/year at public institutions. Accordingly, it is not surprising that many stakeholders are concerned that the high price of going to college is severely restricting the postsecondary choices of many students.

Winston (1999) describes the price of higher education services as being the difference between the cost of providing the service and the level of subsidies (or donative resources) that the institution has been able to secure. This framework is important for it shows that the price charged to customers is only a fraction of the cost of providing the service. Institutions that are more successful at obtaining subsidies (through private donations, state appropriations, research funding, and so on) are thus able to charge lower net prices and build excess demand for their services. It is the excess demand that enables colleges and universities to then become more selective in which customers they choose to serve, which in turn raises their prestige within the higher education industry.

In addition to the connection between subsidies and pricing, there are several other important facets with regard to how prices are set in postsecondary education, as detailed in Table 7.3. Recall that one of the conditions of perfectly competitive markets is that consumers have full knowledge of the prices set by all suppliers within the market. This condition certainly does not apply to higher education

**Table 7.3** Pricing characteristics in US markets for students by degree level

Characteristic	Associate's degree	Bachelor's degree	Master's degree	Doctor's degree
Variations in posted tuition	Lower than for B.A., M.A., Ph.D. markets	Large variations by public/private status, prestige of institution, level of subsidies	Some variations by public/private status, level of subsidies	Some variations by public/private status, level of subsidies
Price discounting	Some discounts for financial need	Substantial discounts for financial need, student ability (merit), and special student attributes	Substantial discounts for financial need, some discounts for student ability (merit); some discounts for graduate assistantships	Substantial discounts for financial need, student ability (merit); more discounts for graduate assistantships
Consumer information on prices	Easy to find posted prices, some difficulty finding net prices	Easy to find posted prices, more difficulty than AA finding net prices	Easy to find posted prices, some difficulty finding net prices	Easy to find posted prices, some difficulty finding net prices
Segmented pricing	Most students pay same posted price	Two-tiered pricing in public institutions for resident and nonresident students	Two-tiered pricing in public institutions for resident and nonresident students	Two-tiered pricing in public institutions for resident and nonresident students

markets for several reasons. Despite the fact that posted tuition and fees for each institution can be readily obtained from the Internet and various publications and college guidebooks, a substantial portion of students seeking a Bachelor's, Master's, or Doctor's degree pay different net prices due to financial aid (McPherson & Schapiro, 1998). Institutions may reduce the price charged to some students seeking a Bachelor's degree by giving them grants or scholarships due to financial need, academic merit, or special characteristics (such as a basketball scholarship). It is also common for graduate students to receive financial aid for need and merit, as well as assistantships for providing teaching or research services to the institution. In contrast, Associate level institutions focus primarily on price discounts for financial need. According to the College Board, in 2011–2012, a full-time undergraduate student received, on average, \$5,750 in grant aid and federal tax benefits at public 4-year institutions; \$15,530 at private 4-year institutions; and \$3,770 at 2-year institutions (College Board [CB], 2011). Even though the practice of price discounting is common across private and public institutions, consumers rarely know the exact amount of discounts they can expect at the time that they are making postsecondary choices; they must first apply to the institution and then be offered admission before they can see the true price that they would be charged.

The pricing of higher education services is affected by two additional factors. First, with a few exceptions, institutions set the same price for all fields of study even though they compete in separate markets. A student who wants to receive a Bachelor's degree in a high-paying field such as finance would pay the same tuition rate as another student who is seeking a Bachelor's degree in a lower-paying field such as history. In another industry, the firm would be able to set different prices for each market in response to supply and demand conditions. Second, prices are usually set for the entire year, even if market conditions change in the interim. This is due to the fact that consumers purchase higher education services at one or two points in time during the year. In contrast, in a local market for gasoline where consumers make frequent purchases, if a gasoline station were to lower its price to help attract more customers, other gasoline stations would be able to quickly match or exceed the price drop to help maintain their market shares.

### ***Bundling of Higher Education Services***

As noted earlier, students are purchasing a bundle of services when they enroll in a postsecondary institution. Universities do not produce a single output and students do not buy a single product from them. In addition to instructional services at the undergraduate or graduate level, institutions provide a range of noninstructional services and benefits. Students pay for the entire bundle of goods and services when they shell out tuition money. We break down the bundle of services into five categories as summarized in Table 7.4. The first category (“instructional services”) relates to the quality of education that students receive at the institution. This quality will be influenced by the structure of the degree program, the content of courses, the quality of teaching, and

**Table 7.4** Description of bundle of services students receive from higher education

Category	Description
Instructional services	Services that are directly connected to the quality of student instruction and learning. Includes classes taken, curriculum and pedagogy, research opportunities, quality of teaching, and quality of peers
Academic support services	Services that complement or enhance the instructional services received by students. Includes the library facilities and computing infrastructure at the institution
Student services	Services that help students become acclimated and succeed in college. Includes tutoring, counseling, academic advising, and job placement services
Extracurricular opportunities	Services that relate to opportunities for students to participate in on-campus activities from which they derive consumptive value. Includes intramural athletics, formal and informal socializing, and clubs
Locational attributes	Services that relate to the attractiveness of the institution's location (both campus and town) for students. Includes the quality of food and housing, the aesthetic beauty of the campus and town, and access to entertainment from athletic and cultural events

any effects that peers have on student learning. The second category for academic support includes all services provided by the institution that are meant to support the teaching mission of the institution. Although wireless Internet service and library materials are not part of an institution's instructional services, they can certainly facilitate student learning. Student services represent those services that institutions provide to improve a student's emotional and physical development outside of the classroom and in turn help them succeed academically. These services might include access to tutoring, counseling, and assistance with academic and career planning. By and large, these three types of services are all provided by institutions in varying quantities and are focused on the investment benefits from higher education.

The last two categories – extracurricular opportunities and locational attributes – are more difficult to define and clearly delineate from each other. They are unique in that they focus on the consumptive benefits of higher education because students value these services due to the immediate utility gained from them as opposed to the future benefits they may derive from them. We use the term “extracurricular opportunities” to refer to services in which students may be active participants, such as joining an intramural team, a club, the marching band, a fraternity or sorority, or even informal opportunities to form friendships with other students. The final category (“locational attributes”) is intended to capture benefits to students that are connected with the location of the institution and the town/city where the college resides. These attributes would not only include the scenic beauty of the campus and town but also the availability of entertainment and the quality of food and housing in the immediate area for students.

The breakdown of the bundle of higher education services is helpful as it enables us to better understand the range of attributes that students consider when making decisions in higher education markets. The tendency of many academics and policymakers is to focus on the instructional services portion of the bundle when thinking about what colleges should do. They fail to consider that the customers in the market also value the consumptive benefits from college when making enrollment decisions, and thus colleges must provide complementary services in order to compete with other institutions for students. In short, the reason colleges and universities spend considerable sums of money in activities such as developing athletic facilities, improving the landscaping on campus, expanding the menu of food options for students, and adding wireless Internet and other features to dormitories is that these services provide consumptive value to students which in turn may increase their demand.

The bundle of services that students are buying in higher education product markets differs by the type of degree they are pursuing. The noninstructional aspects of higher education services are arguably most important in Bachelor's degree markets where students may focus considerable attention on the amenities that go along with their instructional experiences. Students seeking a Bachelor's degree will often live on or near campus and are at an age where social benefits tend to be very important to them. In contrast, graduate students tend to be older and less interested in the noninstructional services that go along with their education. Students seeking an Associate's degree are likewise on average more focused on the instructional services in part because the majority of them do not reside on campus and thus do not look to the institution to provide as many supplemental benefits. Accordingly, 2-year institutions have opted to specialize primarily in delivering instructional services and do not spend considerable resources on amenities and noninstructional services such as creating football teams. As outlined in Becker and Andrews (2004), public community colleges with no research mission have thrived under the belief that a faculty devoted to research is not essential to performing the less-expensive teaching function. In the Master's and Doctor's degree markets, students will likely place less weight than Bachelor-seeking students on the consumptive value from going to college. However, as the majority of institutions that award Master's and Doctor's degrees also award Bachelor's degrees, graduate students usually find that suppliers offer them the same kinds of noninstructional services as they would to students seeking a Bachelor's degree.

## Higher Education Markets by Degree Level

We are now in a position to provide a more complete description of the types of product markets for instruction that exist within the four main degree levels. For each degree level, we discuss the geographic span of markets; the focus, breadth, bundling, and homogeneity of services; the barriers to entry and exit; and the characteristics of students. These points are summarized in Table 7.5. Together, these

**Table 7.5** Characteristics of US markets for instructional services by degree level

Characteristic	Associate's degree	Bachelor's degree	Master's degree	Doctor's degree
Geographic scope of markets	Within commuting distance of a student's home	National for high-ability students; regional for other students; separate markets in public IHE for in-state and out-of-state students	National for high-ability students; regional for nontraditional students	National for the majority of traditional students; regional for nontraditional students
Focus of service	Instruction	Instruction	Instruction and some research	Instruction and substantial research
Breadth of Service	Take courses in a range of subjects plus major	Take courses in a range of subjects plus major	Take courses in one field of study	Take courses in one field of study
Bundling of service	Instruction, academic and support services; some extracurricular and locational	Substantial bundling of instruction, academic and support services, many extracurricular and locational	Some bundling of instruction, academic services; some extra curriculars and locational	Some bundling of instruction, academic and support services; some extracurriculars and locational
Homogeneity of service	Some heterogeneity: service varies by courses in program, quality of courses	Considerable heterogeneity: service varies by program content, course quality, nonclassroom attributes, prestige of degree from supplier	Some heterogeneity: less variation in degree content, still have variations in prestige from supplier	Some heterogeneity: less variation in degree content, still have variations in prestige from supplier
Barriers to entry	Fixed costs and government regulation, lower barriers than for B.A., M.A., Ph.D.	Fixed costs and government regulation; higher barriers than AA due to costs of nonclassroom attributes	Fixed costs and government regulation; lower barriers than B.A. Incur fixed and variable costs for research	Some barriers from fixed costs and government regulation. Incur added fixed and variable costs for research
Student characteristics	Lower academic ability; looking for career preparation and skills	Substantial variation in student academic ability; looking for general knowledge as well as career preparation	Above-average academic ability; looking for general knowledge as well as career preparation	High academic ability; looking for general knowledge as well as career preparation

attributes provide a fuller picture of how economists would conceptualize markets within the higher education industry. The reader should keep in mind that each of the degree levels contains separate markets defined by field of study and then the type of student within each combination of degree and field.

### *Geographic Span of Markets by Degree Level*

The geographic span will tend to be smallest for Associate's degree markets and largest for Doctor's degree markets. Given that students seeking Associate's degrees usually do not reside at the institution, the Associate's degree markets are more properly defined by institutions that are within commuting distance of students. Students who participate in Master's and Doctor's degree markets, on the other hand, normally move to and live on or near campus and thus would consider institutions in a much larger geographic span (national or perhaps regional). There are thus fewer markets for graduate degrees than there are for Associate's degrees.

The geographic spans of Bachelor's degree markets fall in between these two cases. There are prestigious and highly selective universities who draw interest from academically talented students from around the nation (and the world) and do not have any particular regional appeal to students. Institutions in this market, such as Harvard, Princeton, Dartmouth, and Stanford, compete with each other in national markets for high-ability students. Other institutions offering Bachelor's degrees in specific fields primarily compete with other suppliers in the same geographic region. This occurs even though they enroll students from outside their primary region, provided that they tend to get the majority of student demand from within their immediate geographic area.

Public institutions often have a high degree of competition with other public institutions in the same state, even when they have substantial differences in prestige and mission. The competition is driven in part by proximity to consumers as well as the fact that they enjoy substantial price advantages for state residents due to appropriations from the state government. It is often the case that the state's most prestigious, research-oriented public institution will share significant numbers of resident applicants at the Bachelor's degree level with their teaching-focused institutions. Public institutions also operate in separate markets for resident and nonresident students at the Bachelor's degree level. This bifurcation is due to the importance given to enrolling sufficient numbers of in-state students and the additional revenue that can be gained from charging higher prices to out-of-state students. In fact, some public institutions set separate enrollment targets for in-state and out-of-state students.

Getz and Siegfried (1991, p. 12) called readers' attention to the fact that in the United States, higher education is relatively decentralized, with 50 separate state regimes and hundreds of private institutions run by self-perpetuating boards of trustees. Following Bok (1986), they argued that this decentralization has encouraged competition that is not associated with government-imposed fixed prices and quality mix. At the highest level, public and private institutions compete for the

same students at different prices and turn out students that are equally demanded by employers. Decentralization and competition have resulted in the United States having a less monolithic higher education establishment as reflected in Fallows (1990, pp. 17–18) observation that only two (Kennedy and Bush) of the then seven American presidents since 1960 graduated from elite private institutions, whereas all Japanese leaders graduated from a single college, the University of Tokyo, which also accounts for a third of all presidents of large corporations, 60% of senior government officials, and all postwar prime ministers but enrolls only 1% of the population (Rohlen, 1983, pp. 88–91).

In contrast to this view that the education and imprimatur from the elite colleges and universities differ little from the others, Bound, Hershbein and Long (2009) claim that increasing demand for admission to these highly selective schools is likely related to the notion that the institution a student attends has become increasingly important, citing the findings of Hoxby and Long (1999) that nearly half of the explained growth in the widening income distribution among college-educated workers is associated with the increasing concentration of peer and financial resources at more selective colleges and universities relative to other institutions. As emphasized by Hoxby (2009), Bachelor's degree markets have shifted from regional in focus to national. Also, as more workers become college educated, employers may view the average college-educated worker as less productive than in the past. Under this signaling type of framework, a degree from an elite college is alleged to become even more valuable in the future.

### ***Focus and Breadth of Markets by Degree Level***

With regard to the focus of service, the markets for Master's and Doctor's degrees combine aspects of research and instruction, in that an important part of a graduate student's education involves learning how to conduct research within a specific field of study. In contrast, at the Associate's degree level (and largely the Bachelor's degree level), the focus of the service is on instruction and not research.

The breadth of instructional services varies by degree level as well. Students seeking an Associate's or Bachelor's degree are paying for not only instruction in their primary subject of choice but also for instruction in other subjects that are needed as part of their general education requirements for the degree. In contrast, instruction at the graduate levels is focused almost exclusively on the student's main field of study.

### ***Bundling of Services in Markets by Degree Level***

The bundling of services occurs in different ways across the markets by degree levels. There is arguably the largest amount of bundling in Bachelor's degree markets, where students are not only purchasing instruction across a wide range of

subjects but also academic and student services to help them succeed, as well as consumptive benefits from extracurricular opportunities and locational attributes. Students in Associate's degree markets also purchase bundles of instructional and noninstructional services. However, given that students in these markets do not usually reside on or near campus, there is less emphasis placed on extracurricular opportunities and locational attributes that generate consumptive benefits. Similarly, on average, the consumptive benefits derived from extracurricular opportunities and locational attributes in graduate markets are likely to be lower than in Bachelor's degree markets.

### *Homogeneity of Service in Markets by Degree Level*

Within the product markets for Bachelor's degrees, it is safe to say that there is a fair amount of product differentiation – both real and perceived – among suppliers. First, the courses required for students to obtain a Bachelor's degree within a specific major can vary across institutions. A student who earned a Bachelor's degree in sociology from College A likely received a different service from another student who received a Bachelor's degree in sociology from College B. Note that different course requirements across institutions apply not only to courses within the student's major but also for the general education and elective requirements needed for completing a Bachelor's degree. Viewed in this way, it is very difficult to envision two colleges providing the same exact set of courses for students who want to earn a Bachelor's degree in a given major. In graduate degree markets, the instructional services are also heterogeneous but arguably less than in Bachelor's degree markets for students who only take courses within their field of study.

Product differentiation across colleges and universities expands as one also considers other ways in which the services are delivered by colleges. The quality of each class can be affected by a number of factors, including the curriculum used for the course, the spillover benefits from interactions with peers, and the faculty member's ability to help students learn the material. For example, even though almost every college offers a course in introductory statistics, the specific content of the course can differ from institution to institution, and even from section to section within the same institution.

Higher education services can be perceived by customers to differ in ways beyond tangible differences in programs of study and course content. Prospective college students learn quickly in the college search process that it is difficult to obtain information about the factors discussed above, which makes it challenging to compare the quality of services offered by providers. As in other industries where this occurs, students often turn to indicators to estimate the likely quality of the service they would receive at different institutions. The growth of college rankings such as those produced by *US News and World Report* reflects the interest among students in finding information about the relative quality of suppliers within the higher education industry. Students also rely on the decisions of other consumers to provide

information about the likely quality of services at various institutions, with the notion being that the quality of education is “better” at College A than at College B if more high-ability students have chosen to attend College A.

### ***Barriers to Entry in Markets by Degree Level***

The barriers to entry and exit from higher education markets depend on the type of services rendered by the institution. The barriers to entry are highest for those providers who offer more traditional postsecondary education services for consumers (students) living on or near campus and pursuing a Bachelor’s, Master’s, or Doctor’s degree. For these providers, there can be substantial fixed costs for starting a 4-year, comprehensive college or university that would make it difficult for new potential institutions to enter the market. In addition, the number and scope of public (state supported) institutions that may operate within a state’s boundaries can be controlled by either the state government, higher education coordinating board, or public university system. At a minimum, such constraints would make it very difficult for new publicly supported institutions to enter the postsecondary markets in many states. As the fixed costs are likely to be smaller for 2-year colleges and/or colleges that provide services online to students, the barriers to entry and exit would be lower in markets comprised of these types of institutions. Barriers to entry also exist in graduate markets due to government regulations and expenditures needed to develop the research infrastructure to provide graduate degrees in selected fields. However, due to the fact that graduate programs are usually added by institutions that already offer Bachelor’s degrees, many of the fixed costs associated with starting an institution would not apply to graduate degree programs.

### ***Characteristics of Students in Markets by Degree Level***

There are a number of differences in the types of students participating in markets within the four degree levels. Students in Associate’s degree markets will likely be lower in ability and more homogeneous than are students who opt for Bachelor’s degree markets. When combined with the lack of hierarchy of Associate institutions by prestige and their use of open admissions policies, there is little sorting of students across institutions in Associate’s degree markets by academic ability. Students within graduate degree markets tend to be more homogeneous than students in Bachelor’s degree markets as they are typically drawn from the upper portion of the student ability distribution. There will be some sorting of students across institutions in graduate markets due to the hierarchy of graduate programs by prestige. In contrast, Bachelor’s degree markets in the USA consist of a wide range of students by academic ability, and higher-ability students seek to enroll in more-prestigious institutions.

## *Structures of Markets by Degree Levels*

It is worth considering which of the four market structures discussed earlier (perfect competition, monopolistic competition, oligopoly, monopoly) apply best to the product markets for instructional services in higher education. In short, higher education markets are not exactly the same as any of the four structures, but they do have some similarities with these structures that are helpful for understanding how colleges behave in their respective markets.

First, it is clear that higher education markets are not perfectly competitive. This stems from the fact that higher education services are not homogeneous, there are substantial barriers to entry and exit, and consumers do not have perfect information about the prices charged by colleges and the quality of their respective services. Likewise, higher education markets cannot be characterized as monopolistic as there is certainly some degree of substitutability across IHE within every market. Even a highly prestigious institution such as Harvard, for example, has competitors such as Princeton and Stanford that are viewed by many consumers as fairly close substitutes within relevant markets.

An argument can be made, however, that the most prestigious and highly selective institutions in the United States operate in oligopolistic markets for Bachelor's degrees by field. These institutions are relatively few in number, compete at the national level for the best students, and have similar profiles of students, finances, and so forth. The institutions within a market can be thought of as the ideal collusive group (or the hypothetical monopolist test, as it is often now called in legal work); that is, in the minds of buyers, they are all essentially substitutable for each other, but products outside the group are seen to offer no relevant substitution possibilities. In other words, acting as a group, the institutions in a market could raise prices in small but nevertheless significant and nontransitory ways and not lose buyers to a rival's product. To the extent that Harvard, Yale, and like Ivy League institutions could jointly raise tuition and fees without altering their attractiveness to both domestic and foreign students, they would constitute a unique market. The oligopoly market structure may also be a fitting model for the best students at the Master's and Doctor's degree levels within specific fields, in that there are relatively few suppliers with high prestige that offer degrees within fields of study.

Perhaps the best description of market structures in higher education is that they are mixtures of monopolistic competition and oligopoly. Some higher education markets are similar to monopolistic competition in that the service offered by suppliers is very heterogeneous, and for those students who have large geographic spans to consider, there may be many suppliers offering Bachelor's degrees within their field of study. At the same time, markets may resemble oligopolies for there are notable barriers to entry and exit in higher education, and markets defined at the regional level (such as the market for Bachelor's degrees in history in the State of Indiana or the market for an Associate's degree in nursing within 60 miles of Ames, Iowa) may have relatively few suppliers.

## Issues in Identifying Markets in Higher Education

The prior discussion laid out in general terms how economists would characterize the various markets that exist within higher education. However, it leaves open the question as to how to determine which institutions are in which markets. Identifying specific markets usually involves either obtaining information on which suppliers react to price and product changes by other firms or using decisions of consumers to see which suppliers they consider.

The traditional approach used in economics for identifying markets is to determine how potential competitors react to changes in price and services of another supplier. For example, consider the following three institutions: Ivy Tech Community College (Bloomington, IN), Indiana University (Bloomington, IN), and Harvard University (Cambridge, MA). Ivy Tech is a 2-year public institution with open enrollment, offering many remedial courses that do not count toward a degree and a range of Associate's degrees in fields such as nursing and business administration. Indiana University is a 4-year public institution offering a full range of Bachelor's, Master's, and Doctor's degree programs. It is relatively selective and draws students from Indiana and around the world. Harvard University is a highly selective, 4-year private institution that also offers a wide range of degree programs and competes on a national level for the very top students. Changes in the tuition rate charged at Ivy Tech will likely not cause Harvard to also change its tuition, and it is easy to see that they are in different product markets.

More interesting from an analytical policy perspective, however, would be to ask under what conditions would Ivy Tech and Indiana University (both located in Bloomington, Indiana) be considered to compete in the same market, and what are the consequences of viewing them as such? For example, Indiana University offers a Bachelor of Science in Nursing degree, which may be viewed by some students as a substitute for Ivy Tech's Associate of Science in Nursing degree in that both degrees are viable options for many entry-level nursing positions. Or would an introductory statistics class taught at Ivy Tech in the summer be a substitute for the same class taught at Indiana University for those students living near Bloomington who want to take an introductory statistics course in the summer? Ultimately, it may be a matter of subjective judgment and not an absolute as to where to draw the appropriate product-market boundary. Nevertheless, the task must be carried out, even if done with reservations.

The discussion above highlights the fact that the extent to which institutions compete with each other in markets cannot be neatly drawn along traditional categories of institutions. In the United States, we often find public institutions competing with private institutions and institutions of different prestige levels competing with each other for students. In fact, the work of Dale and Krueger (2002) suggests students who are accepted by the elite privates but who elect to attend a major state institution do better in later life. That is, the big major state university like Indiana University may, indeed, be part of the same market in which the high sticker-priced private institutions are alleged to form a relatively tight oligopoly. An interesting

market-related policy question is whether the major state universities can continue to compete with the private universities as state legislatures decree that credits from local community colleges, regional universities, and the like be accepted by their state-subsidized research universities. Or at the very least for some students, they may be considered as acceptable substitutes.

One way to conceptualize this issue draws on our earlier explanation of the bundling of instructional services. Recall that when students select an institution, they are taking into account the expected benefits from instruction, academic support, student services, extracurricular opportunities, and locational attributes. To put it another way, the expected utility for a student from choosing a given institution depends on the expected utility from the anticipated investment benefits (gross benefits minus costs) and consumptive benefits. Holding all else constant, students would expect higher utility from attending institutions with either greater gross benefits, lower costs of attendance, or more consumptive benefits.

The bundling of services presents opportunities for institutions of varying prestige levels to compete with each other. If more-prestigious institutions on average have higher expected gross benefits (e.g., a Bachelor's degree from Harvard will result in higher salaries than a Bachelor's degree from Valdosta State), then this provides an obvious advantage for prestigious institutions in competing for students. This does not, however, mean that less-prestigious institutions cannot successfully compete with more-prestigious ones. If less-prestigious institutions charge lower prices than more-prestigious ones, for example, then this may offset some of the lower utility students would receive from choosing the less-prestigious institution. Or less-prestigious institutions may offer students better extracurricular opportunities and/or locational attributes that enable them to provide more utility to students and therefore become more competitive with more-prestigious institutions.

Competition between different types of institutions is also facilitated by two additional factors. First, given that students often do not know the true price that they would have to pay at different institutions, they may end up applying to some colleges that are ultimately out of their price range. In particular, the fact that private institutions have long engaged in substantial price discounting through merit- and need-based scholarships may lead some prospective students to apply for admission in the hope of receiving enough financial aid to make attendance possible. Second, students usually apply to a range of institutions as there is no guarantee that they will be accepted by their top choice. This is different from most product markets where consumers know that they can acquire the good/service as long as they have the ability to pay for it. In contrast, higher education markets are more similar to markets for spouses, where both parties have to accept the other in order for a transaction to occur. As a result, students will normally apply to several institutions that differ in terms of prestige and selectivity. The University of Georgia, for example, may be both an "aspirational" choice for lower-ability students and a "safety school" for higher-ability students.

Universities in the same analytical market will compete with each other for inputs on the demand side – for intake students, resources (including faculty,

government funding, endowments, and other funding sources), capacity, and political influence – as well as on the supply side, for available classroom seats, graduating students, research output, athletic programs, and other services. Under such conditions of interdependence, what one institution does can result in a competitive reaction from another if they operate in the same market. If no such response occurs within a meaningful time period (which may be long in higher education markets), then the nonresponding institution must feel that it is not constrained by the institution that initiated the new strategy and thus feels it will not lose buyers. So, if the University of South Australia lowers its fees or makes its product (whatever that might be) more readily available, we would expect Indiana University to respond in kind only if the two universities were in the same market. Although institutions do compete with each other over geographical space, the extent of the competitive constraints will diminish with distance, if for no other reason than the fact that a student's search and transaction costs will increase with distance. Thus, even in Australia, it is likely that the University of South Australia, located in Adelaide, would not operate in the same market for the intake of undergraduate students as the University of Sydney, located some 1,500 km (950 miles) away. It would, however, compete for entering students with the two other universities in Adelaide.

With more than 4,000 degree-granting institutions from which to choose in the United States, as well as institutions in other nations, how can students begin to isolate the set of institutions that fall within their desired market? Students now have a range of tools that they can use to help identify institutions that fall within the market of which they are interested. The College Navigator (<http://nces.ed.gov/collegenavigator/>) is an online search engine created by the National Center for Education Statistics. Students can use the search engine to not only identify institutions that offer degrees in specific subject areas but also restrict their search to institutions within specific geographic spans, price ranges, and other criteria. Table 7.6 provides an illustration of how the College Navigator can help students identify the relevant market. In this example, the student lives in Athens, GA, and would like to pursue a Bachelor's degree in business. According to College Navigator, there are more than 500 institutions that offer a Bachelor's degree in business across the United States. If the student narrowed the search down to only institutions within 200 miles of Athens, the number of institutions in the market fell to 148. The student could continue to narrow down the scope of the market by restricting the search to institutions where the tuition was below \$25,000/year ( $n=123$ ) and where the acceptance rate was also below 70% ( $n=62$ ).

The growth of for-profit and distance education providers of higher education services introduces more complexity into the topic of markets. To illustrate, the University of Phoenix may move into a new geographic area and award degrees in the same subjects as regional private or public institutions. However, it is unlikely that the degrees from the University of Phoenix would be viewed as substitutable for degrees from Stanford or from a highly selective public university such as the University of Michigan by the students who are considering attending these prestigious resident campus institutions. At the same time, nontraditional students in the region may well consider the services to be substitutes. Thus, in this case, it would

**Table 7.6** Example of market search results using College Navigator

Search	Criteria	Number of institutions meeting criteria
(A)	All institutions offering Bachelor's degree in business	$n = 500+$
(B)	Same as (A), but within 200 miles of Athens, GA	$n = 148$
(C)	Same as (B), but with tuition below \$25,000/year	$n = 123$
(D)	Same as (C), but with acceptance rate below 70%	$n = 62$

Notes: Data obtained from the College Navigator search engine (<http://nces.ed.gov/collegenavigator/>)

be a mistake for the regional public college to ignore the entry of the University of Phoenix into the market, but it would be a mistake of equal magnitude for the likes of Stanford to respond to the moves of the University of Phoenix. Clearly, given the purposive nature of market definition – where a market is defined by the nature of the reasons for examining it– there will rarely be one consistent or “right” definition of the relevant market for any one policy, antitrust, regulation, or commercial issue. The criteria to be used are arguable, and the empirical measurement techniques are debatable, such that it is rare, certainly in a contested legal situation, to reach agreement as to what the precise boundaries of the relevant market are for the issue in question (Church & Ware, 2000; Keyte & Stoll, 2004). But this does not refute the need to be aware that markets do exist and that their boundaries must be considered prior to creating or assessing policy or analyzing the behavior of buyers, sellers, or input suppliers in the relevant market.

It could be argued that this formal process of market definition is extremely difficult and unnecessary and is likely to lead to artificially or inaccurately defined markets that do not correctly reveal the true or relevant area of constraints. This leads to the proposition that markets be allowed to reveal themselves through the actions of suppliers and demanders. The analyst or observer should not seek to impose an artificial market construct that does not coincide with commercial or regulatory reality. Rather, the observations should be made of what institutions and consumers actually do – which other institutions are targeted by their conduct, which other institutions (both current as well as potential rivals) they respond to, and which customers they particularly seek to attract (by way of, e.g., advertising, sponsorships, trade fairs, product endorsements). This is a more commercially realistic way in which to identify the true area of close competition, rather than the more academic process of formally identifying the various market boundaries through economic measurements or through abstract thought processes relating to the measurement of demand-side and supply-side substitution possibilities.

The mere fact that a market has been defined through the use of objective economic processes (though reasonable economists, using the same objective evaluators, may still emerge with different market boundaries, depending on how they weight or interpret the results) does not mean that each institution and product assigned into the market is homogeneous. Far from it! Institutions in the same market could be big or small, use different technologies or marketing techniques, be

differently organized, or have different corporate goals. Within a market, there could be distinct hierarchies or groups of institutions defined by different organizational, operational, or size factors, yet all of which compete to sell products that are seen by buyers as either actually or potentially highly substitutable. Restaurants in a city provide a good example of this situation. Differences in cooking styles, seating capacities, ambiances, wine lists, price ranges, locations, and so on all mean that the restaurant market, if it exists in this broad characterization, might consist of many different strategic groups or submarkets, but they all seek to appeal to a wide range of diners and do compete, at least at the margin, especially within a given price bracket or food type or geographic span. To repeat an earlier point, if a state legislature decrees that credits earned at in-state community colleges are to be fully transferable to the state's research universities, then at least, for these courses and the students who take them, both types of institutions could be viewed as belonging to the same market.

Similarly, it can be difficult to use changes in prices in higher education to identify which colleges compete with each other. Institutions typically change their prices only once each year, and price changes can be affected by changes in state appropriations and other factors in addition to responses to competitors. Institutions have become much more sophisticated over time in using data on potential students as a way to identify who they compete with in their markets. Many colleges in the United States now have offices of "enrollment management" that are set up to find potential markets of students and analyze how to recruit them in light of competition from other institutions. Institutions may also exploit information from the Census Bureau using geocoding software to identify neighborhoods where the socioeconomic characteristics of families are consistent with the types of students that the institution seeks to attract.

Students can reveal the markets they are considering through their early indicators of demand for higher education. If a student applies to a group of five institutions, for example, then it suggests that these are the institutions that the student considers to be competitors for the service she is seeking. Similarly, given that students are usually required to submit standardized test scores when applying for admission to Bachelor's degree programs, they can reveal their initial choice set of institutions through the colleges to which they send their standardized test scores from either the Scholastic Aptitude Test (SAT) or the American College Testing (ACT) exam (Toutkoushian, 2001b). Institutions that share a large number of applicants or SAT score senders might therefore be thought of as competitors for students. It is now common for institutions to obtain such data and track information on those institutions with whom they compete most heavily for students.

To illustrate, Table 7.7 provides data on the overlap of SAT score submissions by high school seniors in the State of New Hampshire to a set of designated institutions in a particular year (1996). These high school seniors were at the point where they were considering pursuing either an Associate's degree or a Bachelor's degree; however, the majority of students were most likely interested in a Bachelor's degree given that they have taken the SAT and that the test is only required for Bachelor's degree programs in the region. The four columns correspond to the four public

**Table 7.7** Overlap of SAT senders for New Hampshire students, 1996

Category	Institution	UNH-D	KSC	PSU	UNH-M
		(%)	(%)	(%)	(%)
New Hampshire public institutions	University of New Hampshire (Durham campus) – UNH-D	–	65	67	43
	Keene State College (KSC)	24	–	54	31
	Plymouth State University (PSU)	22	49	–	29
	University of New Hampshire (Manchester campus) – UNH-M	4	8	8	–
New Hampshire private institutions	Franklin Pierce College	2	6	5	6
	Dartmouth College	9	5	4	6
New England private institutions	Boston University	12	5	5	6
	Boston College	9	3	3	4
New England public institutions	Northeastern University	11	6	7	7
	University of Vermont	12	6	6	4
	University of Massachusetts	8	6	5	5

Data were obtained from the College Board

*Note:* Values represent the percentage of students who submitted their SAT scores to both institutions in 1996

institutions in the state with residential campuses: the University of New Hampshire's main campus at Durham (UNH-D), Keene State College (KSC), Plymouth State University (PSU), and the University of New Hampshire's branch campus at Manchester (UNH-M). Among these four institutions, UNH-D offers the fullest range of graduate degrees and is the most research intensive and prestigious. KSC and PSU focus on Bachelor's degree programs and a limited number of Master's degree programs. Finally, UNH-M specializes in Associate's and some Bachelor's degree programs.

For each of these institutions, we calculated the percentage of New Hampshire seniors who submitted their SAT scores to each institution as well a group of seven other institutions that are in close proximity to the four public institutions in New Hampshire. These other institutions are broken down into three groups: (1) private institutions in New Hampshire, (2) private institutions in New England, and (3) public flagship institutions in New England. The figure 65% in the first row of the column for KSC shows, for example, that 65% of the students who submitted their SAT scores to Keene State College also submitted their SAT scores to UNH-D.

Several interesting findings regarding competition among the institutions emerge from these data on SAT overlaps. Note first that despite the significant differences among the four public institutions in New Hampshire, they experience a high degree of overlap in SAT submissions, with approximately two-thirds of the SAT senders to the state colleges (KSC and PSU) also sending their test scores to the state's public flagship research institution (UNH-D). Similarly, there is a high degree of overlap between the two UNH campuses, even though UNH-M has a more limited range of degree programs as compared to the main campus in Durham. Even though UNH-D is considered to be a research-oriented institution, it shares more SAT senders

with the teaching-oriented public institutions in the state than it does with other research-oriented public institutions in the region such as the University of Vermont and the University of Massachusetts at Amherst. At the same time, UNH-D has more SAT overlap with the research-focused institutions in the region that is true for KSC, PSU, and UNH-M, as would be expected.

## **Policy Analysis and Markets in Higher Education**

Finally, we end with some thoughts on the connection between properly defining markets in higher education and policy analysis. Higher education policies come in many forms, from state and federal laws and regulations to institution-specific initiatives. Because higher education markets by definition consist of IHE that directly compete with each other and are thus interconnected, policies that target one or more institutions in a market will likely have an influence on all of the other institutions within the same market.

Before embarking on any form of economic or policy analysis of market failure, behavior, incentives, inefficiencies, innovation, or restructuring, it is crucial to first ensure that all of the participants in the market have been correctly identified, including not only the rival sellers but also buyers, suppliers, and current or potential rivals to the incumbents. This involves problematic empirical issues such as identifying potential entrants, when they are likely to enter and at what scale, and identifying goods that are close enough substitutes in either demand or supply to constrain the operations of the institution in question and at what prices.

Markets can be defined too narrowly, in which case some competing institutions will be excluded from consideration, and the institutions assigned to a market will be thought to have more market power and fewer constraints on their behavior than is actually the case. If, on the other hand, markets are defined too broadly, then it is likely that they will be found to be more competitive than they really are and that policy action may be misdirected in the form of failing to act to remedy a deficiency in the market's performance. This problem of getting the breadth of market definition right applies to all three market dimensions.

Although, conceptually, a market is a simple economic construct – a collection of buyers and sellers of close substitute products – in practice, it can be difficult to define its boundaries with any great precision and without great controversy. But it is within markets that economic activity takes place, and it is this activity we want to be conducted to ensure the optimum allocation of resources, both private and public. Therefore, it is important that all those who seek to influence resource allocation in higher education – government policymakers, academics, university decision-makers – realize that a one-size-fits-all policy perspective might not produce the best results throughout the variety of distinct markets that constitute the higher education sector. For example, markets can only be shown to be “efficient” (reflecting an allocation of goods and services that provide the greatest benefits at the least cost) if potential like sellers and like buyers can be defined and the influences on them can be accurately identified.

In an overview such as this, we cannot hope to cover all of the issues that could arise in any empirical or policy situation that calls for market definition. We put forward the following checklist as illustrative of the kinds of practical problems that will confront researchers who need to define markets for postsecondary education:

- Start with the program, institution, or group that is the subject of the inquiry, keeping in mind the purpose of the inquiry.
- Seek to identify the closest substitute from the perspective of the relevant buyers or sellers and assess whether and by how much this constrains the actions of the original party. Keep adding rival institutions until no further substitution appears to be acceptable, such that a group of institutions has been identified that faces no effective constraints from those outside the group. In this process, it is essential to identify the nature and extent of the constraints that are being assessed.
- As part of this process, consider geographic substitution, taking into account the extra costs that might be involved.
- Take care to include in the assessment any constraints offered by potential entrants into the market, as long as this entry is currently a real enough threat to constrain the institution(s) in question.
- Consider also the influence of suppliers to the institution.

Market delineation is far from an exact science. It is frequently a matter of great contention in antitrust cases. But this does not obviate the need to provide the definition that best informs those who must make policy judgments about how best to shape the operation of the market through appropriate policy instruments and changes.

## Concluding Thoughts

The concept of markets and competition between colleges and universities within markets is now a global phenomenon. As institutions struggle to acquire financial resources to compete in these markets, they will surely look to innovative ways of extending their market power and reaching new customers. This framework can be used to consider how higher education markets are likely to change in the future. For example, what will the role of research be in the future of higher education? We have seen a gradual ratcheting up of research activities at many postsecondary institutions in the United States as they search for ways to increase their prestige and ranking within the industry. A similar shift has occurred in higher education industries around the globe, as evidenced by the growth of international rankings schemes that focus on bibliometric measures of research output (Shin, Toutkoushian, & Teichler, 2011).

The fact that graduate markets have substantial fixed costs and high variable costs has served to limit the size of these markets. Nonetheless, research is a necessary component of educational services at the graduate degree levels and is likely to have benefits at the undergraduate level as well. Becker and Andrews (2004)

provided examples to show that higher education involves much more than the teaching of traditional doctrine. It is the academic inquiry that elevates higher education above mere training. They argued that at a research university, instruction has the potential to be enhanced as it can be made a part of an integrated and aggressive campaign of inquiry. Active researchers can engage students in the challenging ideas, questions, and methods of inquiry at the forefront of their disciplines, whereas docents can be expected only to teach that which they have been taught or learned from textbooks. They called attention to the fact that research is expensive and that public community colleges with no research mission have thrived under the belief that a faculty devoted to research is not essential to performing the less-expensive teaching function. A contextual updating of Gresham's law (inferior currency drives out superior currency) might suggest that the less-expensive educational practices of community colleges will force out the more expensive, full-time, tenured faculty members teaching at the research universities. As Becker and Andrews demonstrated, there is evidence of this happening with both public research and doctoral institutions increasing the proportions of both part-time and full-time faculty members with nontenure track appointments. Following the community college model, universities are increasingly looking to part-time and nontenure track docent-type appointments to teach in undergraduate baccalaureate programs. Unfortunately, Gresham's law in this context is just as deficient in assessing effects as it is for monetary policy.

What types of institutions appear to be best positioned to compete in higher education markets in the future? Clearly, those that have been successful at attaining prestige have been able to use this to generate excess demand for their services and in turn become even more prestigious and successful in higher education markets. Some less-prestigious institutions (mainly public) have achieved success through a combination of lower prices and better extracurricular opportunities and locational attributes. It is not hard to see, however, why the less-prestigious private institutions have had the most difficulty competing in markets in recent years. They cannot rely on the same level of donative resources as prestigious private institutions or state-supported public institutions. As a result, their prices tend to be high and the investment return lower than for many other suppliers in the market. At the same time, they still have to compete with other institutions for faculty.

Finally, the growth of the for-profit sector and accompanying distance education providers has raised questions with regard to how this will affect the markets for higher education. By allowing students to consume higher education services from many different locations, distance education providers can alter the geographic span of existing higher education markets. Berret (2012) reported on a Harvard University conference on teaching where Clayton M. Christensen, a professor of business administration at the Harvard Business School, described how new businesses often enter the bottom of a market and claim untapped customers whom they reach through some new technological advance. Eventually, they move up in their market and overtake the dominant player. He said that higher education once was immune to market forces until the spread of online learning, "which will allow lower-cost providers to extend into the higher reaches of the marketplace."

Given our understanding of markets, however, it is extremely difficult to envision how a provider such as the University of Phoenix with its open enrollment and for-profit mentality could ever move up in prestige to threaten highly selective institutions such as Harvard University. Despite the fact that online institutions may enjoy cost advantages over their more-prestigious counterparts and offer degree programs in similar subject areas, they will likely always compete in separate markets for the vast majority of customers. In particular, the hierarchical nature of Bachelor's degree markets and corresponding differences in investment returns have a strong effect on the specific markets where high-ability students choose to participate. Distance education services will also provide fewer academic support and student services than residential institutions and place less emphasis on consumptive benefits, which will limit their attractiveness to students in higher education markets.

It is our hope that this chapter is helpful in distinguishing between the many ways in which academics, policymakers, and stakeholders have applied the term "market" to higher education. Debate is certain to continue as to whether the application of business practices is beneficial or harmful to higher education. Nonetheless, it is crucial for all involved to understand that there are many different markets within the higher education industry and that it can be extremely challenging to identify precisely which institutions are in which markets.

## Endnotes

1. The ideas presented in this chapter are extensions of some of the ideas presented in Becker and Round (2009).
2. As economists, we do not attempt to address the idea that there is "market space" for the various things produced by institutions of higher education as one might find in marketing courses offered by business schools but rather focus on the general concept of a market as the interaction of buyers and sellers as treated in an economics course.
3. Andrew S. Rosen is chief executive of Kaplan Inc., which is one of if not the largest for-profit postsecondary education providers in the world. Naomi Schaefer Rifey is the author of *The Faculty Lounges: And Other Reasons Why You Won't Get the College Education You Pay For* (2011).

## References

- Anderson, M. (1992). *Impostors in the temple*. New York: Simon and Schuster.
- Arimoto, A. (1997). Market and higher education in Japan. *Higher Education Policy*, 10, 199–210.
- Astin, A. (1993). *What matters in college: Four critical years revisited*. San Francisco: Jossey-Bass.
- Bamberger, G., & Carlton, D. (1999). Antitrust and higher education: MIT financial aid. In J. Kwoka Jr. & L. White (Eds.), *The antitrust revolution: Economics, competition, and policy*. New York: Oxford University Press.
- Becker, W., & Andrews, M. (Eds.). (2004). *The scholarship of teaching and learning in higher education: Contributions of research universities*. Bloomington, IN: Indiana University Press.

- Becker, W., & Kennedy, P. (2006, January). The influence of teaching on research in economics. *Southern Economic Journal*, 72(3), 747–759.
- Becker, W., & Round, D. (2009). 'The' market for higher education: Does it really exist? (IZA Discussion Paper No. 4092). Available at SSRN: <http://ssrn.com/abstract=1373326>
- Berret, D. (2012, February 5). Harvard conference seeks to Jolt University Teaching, *The Chronicle of Higher Education*, <http://online.wsj.com/article/SB10001424052970204879004577110970031199712.html?KEYWORDS=The+University+of+Adam+Smith#printMode>
- Bok, D. (1986). *Higher learning*. Cambridge, MA: Harvard University Press.
- Bok, D. (2003). *Universities in the marketplace: The commercialization of higher education*. Princeton, NJ: Princeton University Press.
- Borden, V., & Bottrill, K. (1994). Performance indicators: History, definitions, and methods. *New Directions for Institutional Research*, 82, 5–22.
- Bound, J., Hershbein, B., & Long, B. (2009). Playing the admissions game: Student reactions to increasing college competition. *Journal of Economic Perspectives*, 23, 119–146.
- Breneman, D. (1981). Strategies for the 1980s. In J. Mingle (Ed.), *Challenges of retrenchment*. San Francisco: Jossey-Bass.
- Brewer, D., Gates, S., & Goldman, C. (2002). *In pursuit of prestige: Strategy and competition in U.S. higher education*. New Brunswick, NJ: Transaction Publishers.
- Brunner, J. (1993). Chile's higher education – Between market and state. *Higher Education*, 25, 35–43.
- Brunner, J. (1997). From state to market coordination: The Chilean case. *Higher Education Policy*, 10, 225–237.
- Carlson, D., & Shepherd, G. (1992). Cartel on campus: The economics and law of academic institutions' financial aid price-fixing. *Oregon Law Review*, 71, 563–629.
- Carlton, D., Bamberger, G., & Epstein, R. (1995). Antitrust and higher education: Was there a conspiracy to restrict financial aid? *The Rand Journal of Economics*, 26, 131–147.
- Cave, M., Hanney, S., & Kogan, M. (1991). *The use of performance indicators in higher education: A critical analysis of developing practice* (2nd ed.). London: Jessica Kingsley.
- Church, J., & Ware, R. (2000). *Industrial organization: A strategic approach*. Boston, MA: Irwin McGraw Hill.
- College Board. (2011). *Trends in college pricing 2011*. New York: The College Board. Paper downloaded on June 18, 2012, from [http://trends.collegeboard.org/downloads/College\\_Pricing\\_2011.pdf](http://trends.collegeboard.org/downloads/College_Pricing_2011.pdf)
- Dale, S., & Krueger, A. (2002). Estimating the payoff to attending a more selective college: An application of selection on observables and unobservables. *Quarterly Journal of Economics*, 117, 1491–1527.
- Dill, D. (1997a). Markets and higher education: An introduction. *Higher Education Policy*, 10, 163–166.
- Dill, D. (1997b). Higher education markets and public policy. *Higher Education Policy*, 10, 167–185.
- Dill, D., & Soo, M. (2004). Transparency and quality in higher education markets. In P. Teixeira, B. Jongbloed, D. Dill, & A. Amaral (Eds.), *Markets in higher education: Rhetoric or reality* (pp. 61–85). Dordrecht, The Netherlands: Kluwer.
- Dill, D., & Sporn, B. (1995). The implications of a postindustrial environment for the university: An introduction. In D. Dill & B. Sporn (Eds.), *Emerging patterns of social demand and university reform: Through a glass darkly* (pp. 1–19). Oxford: Pergamon Press.
- Epple, D., Romano, R., & Sieg, H. (2006). Admission, tuition, and financial aid policies in the market for higher education. *Econometrica*, 74, 885–928.
- Fallows, J. (1990, March 1). Wake Up, America! *New York Review of Books*, 17–18.
- Friedman, M. (1955). The role of government in education. *Economics and the Public Interest*, 2, 85–107.
- Friedman, M. (1962). *Capitalism and freedom*. Chicago: University of Chicago Press.
- Friedman, T. (2005). *The world is flat: A brief history of the twenty-first century*. New York: Farrar, Strauss and Giroux.

- Geiger, R. (2004). Market coordination of higher education: The United States. In P. Teixeira, B. Jongbloed, D. Dill, & A. Amaral (Eds.), *Markets in higher education: Rhetoric or reality?* (pp. 161–183). Dordrecht, The Netherlands: Kluwer.
- Getz, M., & Siegfried, J. (1991). Costs and productivity in American colleges and universities. In C. Clotfelter, R. Ehrenberg, M. Getz, & J. Siegfried (Eds.), *Economic challenges in higher education, Part III* (pp. 259–392). Chicago: The University of Chicago Press.
- Gibbs, P. (2001). Higher education as a market: A problem or solution? *Studies in Higher Education*, 26, 85–94.
- Glenna, L., Lacy, W., Welsh, R., & Biscotti, D. (2007). University administrators, agricultural biotechnology, and academic capitalism: Defining the public good to promote university-industry relationships. *The Sociological Quarterly*, 48, 141–163.
- Glennerster, H. (1991). Quasi-markets for education? *The Economic Journal*, 101, 1268–1276.
- Guri-Rosenblit, S., Šebková, H., & Teichler, U. (2007). Massification and diversity of higher education systems: Interplay of complex dimensions. *Higher Education Policy*, 20, 373–389.
- Harman, G. (2006). Adjustment of Australian academics to the new commercial university environment. *Higher Education Policy*, 19, 153–172.
- Hayek, F. (1944). *The road to serfdom*. Chicago: The University of Chicago Press.
- Hayek, F. (1988). *The fatal conceit: The errors of socialism*. Chicago: The University of Chicago Press.
- Hayes, D., & Wynyard, R. (Eds.). (2002). *The McDonalidization of higher education*. Westport, CT: Bergin & Garvey.
- Hoxby, C. (1997, December). *How the changing market structure of U.S. higher education explains college tuition* (NBER Working Paper No. 6323). Cambridge, MA: National Bureau of Economic Research.
- Hoxby, C. (2009). The changing selectivity of American colleges. *Journal of Economic Perspectives*, 23, 95–118.
- Hoxby, C., & Long, B. (1999). *Explaining rising income and wage inequality among the college-educated* (NBER Working Paper No. 6873). Cambridge, MA: National Bureau of Economic Research.
- James, E. (1978). Product mix and cost disaggregation: A reinterpretation of the economics of higher education. *Journal of Human Resources*, 12, 157–186.
- James, E. (1986). Cross-subsidization in higher education: Does it prevent private choice and public policy? In D. Levy (Ed.), *Private education: Studies in choice and public policy* (pp. 237–257). New York: Oxford University Press.
- James, E., & Neuberger, E. (1981). The university department as a nonprofit labor cooperative. *Public Choice*, 36, 585–612.
- Jongbloed, B. (2003). Marketisation in higher education, Clark's triangle and the essential ingredients of markets. *Higher Education Quarterly*, 57, 110–135.
- Keyte, J., & Stoll, N. (2004). Markets? We don't need no stinking markets! The FTC and market definition. *The Antitrust Bulletin*, 49, 593–632.
- Kim, S., & Lee, J. (2006). Changing facets of Korean higher education: Market competition and the role of the state. *Higher Education*, 52, 557–587.
- Leslie, L., & Johnson, G. (1974). The market model and higher education. *Journal of Higher Education*, 45, 1–20.
- Leslie, L., & Slaughter, S. (1997). The development and current status of market mechanisms in United States postsecondary education. *Higher Education Policy*, 10, 239–252.
- Lieberman, M., & Hall, R. (2000). *Introduction to economics*. Cincinnati, OH: South-Western Publishing Company.
- Marginson, S. (1997). Competition and contestability in Australian higher education, 1987–1997. *Australian Universities Review*, 40, 5–14.
- Marshall, A. (1920). *Principles of economics* (8th ed.). New York: Macmillan.
- Massy, W. (1989). *A strategy for productivity improvements in college and university academic departments*. Stanford, CA: Stanford University.

- Massy, W. (2004). Markets in higher education: Do they promote internal efficiency? In P. Teixeira, B. Jongbloed, D. Dill, & A. Amaral (Eds.), *Markets in Higher Education: Rhetoric or Reality?* Dordrecht, The Netherlands: Kluwer Publishers.
- Mazzarol, T., & Soutar, G. (2001). *The global market for higher education: Sustainable competitive strategies for the new millennium*. Cheltenham, UK: Edward Elgar.
- McEachern, W. (1994). *Microeconomics: A contemporary introduction* (3rd ed.). Cincinnati, OH: South-Western Publishing Company.
- McMahon, W. (2009). *Higher learning, greater good: The private and social benefits of higher education*. Baltimore: Johns Hopkins University Press.
- McPherson, M., & Schapiro, M. (1998). *The student aid game: Meeting need and rewarding talent in American higher education*. Princeton, NJ: Princeton University Press.
- Meek, L., & Wood, F. (1997). The market as a new steering strategy for Australian higher education. *Higher Education Policy*, 10, 253–274.
- Mora, J. (1997). Market trends in Spanish higher education. *Higher Education Policy*, 10, 187–198.
- National Center for Education Statistics. (2011). *Digest of education statistics 2011*. Washington, DC: Institute of Education Sciences.
- Netz, J. (1999, March). *Non-profits and Price-fixing: The case of the Ivy League*. Retrieved March 3, 2008, from the Applied Economics Consulting Web site: <http://www.applecon.com/publications/ivy.pdf>
- Pugsley, L. (2004). *The university challenge: Higher education markets and social stratification*. Burlington, VT: Ashgate Publishing Company.
- Reich, R. (2004, March 24). Higher Education ‘Market’ Warning. *The Higher Education Policy Institute Lecture*. Retrieved March 3, 2008, from BBC News at <http://news.bbc.co.uk/1/hi/education/3564531.stm#transcript>
- Rhoades, G., & Slaughter, S. (1997). Academic capitalism, managed professionals, and supply-side higher education. *Social Text*, 51, 9–38.
- Rhoades, G., & Slaughter, S. (2004). *Academic capitalism and the new economy*. Baltimore: John Hopkins University Press.
- Rifey, N. (2011). *The faculty lounges: And other reasons why you won't get the college education you pay for*. Chicago: Ivan R. Dee.
- Rifey, N. (2012, February 6). The University of Adam Smith. *Wall Street Journal*. <http://online.wsj.com/article/SB10001424052970204879004577110970031199712.html?KEYWORDS=The+University+of+Adam+Smith>
- Ritzer, G. (1998). *The McDonaldization thesis: Explorations and extensions*. London/Thousand Oaks, CA: Sage.
- Rohlen, T. (1983). *Japan's high schools*. Berkeley, CA: University of California Press.
- Romer, P. (1990). Endogenous technological growth. *Journal of Political Economy*, 99, S71–S102.
- Rosen, A. (2011). *Change.edu: Rebooting for the new talent economy*. New York: Kaplan Publishing.
- Rothschild, M., & White, L. (1993). The university in the marketplace: Some insights and some puzzles. In C. Clotfelter & M. Rothschild (Eds.), *Studies of supply and demand in higher education* (pp. 11–42). Chicago: The University of Chicago Press.
- Rothschild, M., & White, L. (1995). The analytics of the pricing of higher education and other services in which the customers and inputs. *Journal of Political Economy*, 103, 573–586.
- Rozada, M., & Menendez, A. (2002). Public university in Argentina: Subsidizing the rich? *Economics of Education Review*, 21, 341–351.
- Salop, S., & White, L. (1991). Antitrust goes to college. *Journal of Economic Perspectives*, 5, 193–202.
- Scheffman, D., & Spiller, P. (1987). Geographic market definitions under the U.S. Department of Justice merger guidelines. *Journal of Law and Economics*, 30, 123–147.
- Seligo, J. (2006, August 30). The Commission's Report: Landmark or Footnote Charles Miller (Guest). *The Chronicle of Higher Education's online Live Discussion*. <http://web.archive.org/web/20090210073258/http://chronicle.com/colloquy/2006/09/spellings/>

- Shin, J., Toutkoushian, R., & Teichler, U. (Eds.). (2011). *University rankings: Theoretical basis, methodology and impacts on global higher education*. Dordrecht, The Netherlands: Springer.
- Slaughter, S., & Leslie, L. (1997). *Academic capitalism: Politics, policies and the entrepreneurial university*. Baltimore: John Hopkins University Press.
- Slaughter, S., & Rhoades, G. (2009). *Academic capitalism and the new economy: Markets, state, and higher education*. Baltimore: Johns Hopkins University Press.
- Smith, A. (1776). *The wealth of nations*. New York: Barnes & Noble Books.
- Stiglitz, J. (1987). The cause and consequences of the dependence of quality and price. *Journal of Economic Literature*, 25, 1–48.
- Teichler, U. (1998). Massification: A challenge for institutions of higher education. *Tertiary Education and Management*, 4, 17–27.
- Teixeira, P., Jongboed, B., Amaral, A., & Dill, D. (2004). Introduction. In P. Teixeira, B. Jongboed, D. Dill, & A. Amaral (Eds.), *Markets in higher education: Rhetoric or reality?* Dordrecht, The Netherlands: Kluwer.
- Teixeira, P., Jongboed, B., Dill, D., & Amaral, A. (Eds.). (2004). *Markets in higher education: Rhetoric or reality?* Dordrecht, The Netherlands: Kluwer.
- The Carnegie Commission on Higher Education. (1973). *The purposes and performance of higher education in the United States: Approaching the year 2000*. New York: McGraw-Hill.
- Toutkoushian, R. (2001a). Trends in revenues and expenditures in public and private higher education. In M. Paulsen & J. Smart (Eds.), *The finance of higher education: Theory, research, policy & practice* (pp. 11–38). New York: Agathon Press.
- Toutkoushian, R. (2001b). Do parental income and educational attainment affect the initial choices of New Hampshire's college-bound students? *Economics of Education Review*, 20, 245–262.
- Toutkoushian, R., & Danielson, C. (2002). Using performance indicators to evaluate decentralized budgeting systems and institutional performance. In D. Priest, W. Becker, D. Hossler, & E. St. John (Eds.), *Incentive-based budgeting systems in public universities* (pp. 205–226). Northampton, MA: Edward Elgar Publishing.
- van Vught, F. (1997). Combining planning and the market: An analysis of the government strategy towards higher education in the Netherlands. *Higher Education Policy*, 10, 211–224.
- Veblen, T. (1918). *The higher learning in America: A memorandum on the conduct of universities by business men*. New York: B. W. Huebsch.
- Williams, G. (1997). The market route to mass higher education: British experience 1979–1996. *Higher Education Policy*, 10, 275–289.
- Winston, G. (1997). Why can't a college be more like a firm? *Change*, 29(5), 32–38.
- Winston, G. (1999). Subsidies, hierarchy and peers: The awkward economics of higher education. *Journal of Economic Perspectives*, 13, 13–36.
- Winston, G. (2000). *Economic stratification and hierarchy among US colleges and universities* (Discussion Paper 58, Williams Project on the Economics of Higher Education). Williamstown, MA; Williams College.
- Winston, G. (2003). *Toward a theory of tuition: Prices, peer wages, and competition in higher education* (Discussion Paper No. 65). Williamstown, MA: Williams Project on the Economics of Williams College. <http://sites.williams.edu/wpehe/files/2011/06/DP-65.pdf>
- Yonezawa, A. (1998). Further privatization in Japanese higher education? *International Higher Education*, 13, 20–22.
- Yorke, M. (2003). Formative assessment in higher education: Moves towards theory and the enhancement of pedagogic practice. *Higher Education*, 45, 477–501.
- Zemsky, R., Shaman, S., & Ianozzi, M. (1997, November/December). In search of strategic perspective: A tool for mapping the market in postsecondary education. *Change*, 29, 23–38.
- Zemsky, R., Shaman, S., & Schapiro, D. (Eds.) (2001). *Higher education as competitive enterprise: When markets matter* (New Directions for Institutional Research, Number 111). San Francisco: Jossey-Bass, Inc.