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THE THEORY OF ACADEMIC CAPITALISM

At the turn of the twenty-first century, the rise of the "new," global knowledge or information society calls for a fresh account of the relations between higher education institutions and society.[1] Our analysis of these relations has led us to develop a theory of academic capitalism which explains the process of college and university integration into the new economy. The theory does not see the process as inexorable; it could be resisted, or, more likely, alternative processes of integration could be developed. Nor does the theory see the university as being "corporatized" or subverted by external actors. Instead, the theory of academic capitalism sees groups of actors—faculty, students, administrators, and academic professionals—as using a variety of state resources to create new circuits of knowledge that link higher education institutions to the new economy. These actors also use state resources to enable interstitial organizations to emerge that bring the corporate sector inside the university, to develop new networks that intermediate between private and public sector, and to expand managerial capacity to supervise new flows of external resources, investment in research infrastructure for the new economy, and investment in infrastructure to market institutions, products, and services to students. Expanded managerial capacity is also directed toward restructuring faculty work to lower instructional costs (although not costs generally).

The theory of academic capitalism moves beyond thinking of the student as consumer to considering the institution as marketer. When students choose colleges, institutions advertise education as a service and a life style. Colleges and universities compete vigorously to market their institutions to high-ability students able to assume high debt loads. Student consumers choose (frequently private) colleges and universities that they calculate are likely to bring a return on educational investment and increasingly choose majors linked to the new

1. We use the terms *knowledge society, information society,* and *new economy* interchangeably throughout this volume.

economy, such as business, communications, media arts. Once students have enrolled, their status shifts from consumers to captive markets, and colleges and universities offer them goods bearing the institutions' trademarked symbols, images, and names at university profit centers such as unions and malls. College and universities also regard their student bodies as negotiable, to be traded with corporations for external resources through all-sports contracts, test bed contracts, single product contracts, and direct marketing contracts. When students graduate, colleges and universities present them to employers as output/product, a contribution to the new economy, and simultaneously define students as alumni and potential donors. Student identities are flexible, defined and redefined by institutional market behaviors.

We open this book with an account of a research effort at Texas A&M University called the Missyplicty project. It was funded by John Sperling, who founded the University of Phoenix and is currently president of the Apollo Group, of which Phoenix is a part. Although we do not analyze for-profit higher education institutions in our book, we think the example of the University of Phoenix is useful because public and nonprofit private colleges and universities engage markets in ways that are very similar to the approach Phoenix takes. Sperling used his profits from for-profit education to clone his dog, Missy. The Missyplicity project captures many of the promises, pitfalls, ironies, and contradictions that characterize the changing relations of colleges and universities to the new economy. The project was made possible by profits from for-profit higher education for adults, which depends on treating education as an alienable service rather than as a public good, and relies on mechanisms such as copyrighting and commercialization of instruction via part-time faculty and on-line education. The Missyplicity project illustrates non-profit universities' involvement with private patrons, intellectual property, and new economy start-up companies, dramatically revealing a number of the themes of an academic capitalist knowledge/learning regime.

> Welcome to the home page for the Missyplicity Project, which aims to clone a dog for the first time in history—a specific dog named Missy. Missy is a beloved pet, getting on in years, whose wealthy owners wish to reproduce her—or at least create a genetic duplicate (which we all know is not the same thing).
>
> The Missyplicity Project is funded and managed by Genetic Savings & Clone, a gene bank and cloning company with offices in College Station Texas and Sausalito, California . . . The Missyplicity Project is being executed by a team of world-class scientists and technicians headquartered at Texas A&M University [TAMU], in College Station, Texas. Several senior scientists from other major universities and institutions have also been recruited . . . the senior team members [are]:

> Dr. Mark Westhusin, TAMU—Principal Investigator, Nuclear Transfer Specialist
> Dr. Duane Kraemer, TAMU—Embryo Transfer
> Dr. Robert Burghardt, TAMU—Tissue Culturing, Analysis, and Cryopreservation
> Dr. Lisa Howe, TAMU—Animal Tissue Collection.
>
> GSC's [Genetic Service and Clone] service is gene banking: Cellular DNA is first extracted from your animal by your own veterinarian using materials supplied by GSC, then the samples are shipped to GSC via BioBox™, grown in culture in GSC's laboratories for up to one month, then finally cryopreserved in liquid nitrogen.
>
> Anyone can order GSC services, either online or by calling 866–9CLONES . . . Standard service is for live, healthy animals . . . The price for Standard service orders is $895 each, plus shipping . . . Emergency service is for terminal or recently deceased animals (up to one week post-mortem depending on storage conditions, though the sooner the better) . . . The price for Emergency service orders is $1395 each, plus shipping . . . The annual maintenance fee for Standard jobs is $100 per year, versus $150 for Emergency jobs (which involve twice as much tissue). The first year's maintenance is included in the initial service fee for both grades. (Genetic Savings and Clone 2003)
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> The company [Genetic Savings and Clone] has also tried to shield the identity of its main financial donor, the source of $5.5 million in cash and credit for the young company and $3.5 million to its Texas A&M research effort. But documents point to billionaire John Sperling . . . founder of the University of Phoenix, the nation's largest for-profit university . . . A privately held company, GS&C's equity is held by its anonymous investor [later identified as Sperling], Hawthorne [the CEO], researcher Dr. Mark Westhusin of Texas A&M and three other Missyplicity scientists . . . According to Texas A&M, the money and Missy's cell samples were donated with the explicit purpose of cloning Missy. (Krieger 2001)
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> Texas A&M began a white-tail deer cloning project last fall . . . The information gathered from the cloning project could be used to produce larger bucks with bigger antlers that would appeal to Texas hunters. "We want to know how much the antler growth is dependent on genetics," Westhusin (associate professor of the Veterinary Medicine Department) said . . . Dr. Billy Higginbotham, professor and extension wildlife and fisheries specialist for A&M [said] . . . "Hunting as an industry in Texas provides 31,711 jobs, salaries and wages of over $864 million, and generates $93 million in state sales tax revenue." (Baker 2003)

Billionaire John Sperling provided the impetus for the Missyplicity project. Sperling made his money through the University of Phoenix, a for-profit higher education system. University of Phoenix, Inc., became a subsidiary of a larger enterprise run by Sperling, the Apollo Group, which also included the Institute for Professional Development, The College for Financial Planning Institutes Corporation, and Western International University, Inc. (Apollo Group 2002). The Apollo Group is an example of the trade in services characteristic of the new

economy. In the new economy, knowledge is a critical raw material to be mined and extracted from any unprotected site; patented, copyrighted, trademarked, or held as a trade secret; then sold in the marketplace for a profit. The University of Phoenix uses all these mechanisms to protect its intellectual property.

Sperling makes the case that public and nonprofit private universities receive about "60 percent of their operating expenses from direct and indirect public subsidy [while] the University of Phoenix has managed to secure market share and make a profit wherever it operates—and has done so with no public subsidy" (Sperling and Tucker 1997, p. x). Sperling states that public and nonprofit universities have "capital-intensive input standards and operationally inefficient structures" and are protected by "extensive regulation by federal and state agencies and by the federally authorized private accrediting associations" (p. 52). Although Sperling claims that his operation has been able to make a profit without public subsidy, his businesses, like many in the new economy, depend upon government shifting resources from public welfare functions to production functions, sometimes directly, often indirectly. For example, the University of Phoenix receives substantial indirect federal subsidy. As the Apollo Group's annual report notes, "Many of our students participate in government sponsored financial aid programs under Title IV of the Higher Education Act of 1965, as amended. These financial programs generally consist of guaranteed student loans and direct grants to the student" (p. 15). Federal financial aid is available to students at for-profit institutions because their leaders were active lobbyists for the deregulation and reregulation of aid programs. Phoenix has no libraries of its own, instead relying on students' use of public libraries and publicly subsidized college and university libraries to cut costs. In the new economy, market and market-like activities are foregrounded, while the state and the many subsidies it provides are backgrounded.

Public and nonprofit or private institutions of higher education use the same mechanisms as Phoenix—extended managerial capacity, part-time faculty, copyright, and information technology—to create profit centers. These profit centers do not accrue revenue for stockholders, but they do generate (nontaxed) external monies that are used to cross-subsidize other institutional activities, which often involve investment in infrastructure to integrate colleges and universities with the new economy. Like Phoenix, public and nonprofit private higher education institutions rely heavily on public funding, expending taxpayer dollars in pursuit of external revenues from corporations. Again like Phoenix, such institutions are increasingly targeting applicants who will pay full tuition or differential tuition, rather than seeking out underserved, often minority eighteen year olds. Public and nonprofit institutions increasingly engage in market and marketlike activities.

Sperling, drawing on his profits from the Apollo Group, provided Texas A&M University (TAMU) with private grants ($3.5 million) for cloning Missy, but he also conceived of cloning his beloved pet as a business opportunity. Simultaneously, Sperling put up venture capital ($5.5 million) for a publicly traded business, Genetics Savings and Clone, which depended on science that was in progress at TAMU. Four TAMU veterinary science faculty became Sperling's business partners, trading their expertise for equity shares in Genetic Savings and Clone. Although it is not clear from the newspaper accounts whether TAMU, as an institution, held an equity position in Genetics Saving and Clone, TAMU actively lobbied to have the state of Texas change laws that prevented institutions from holding equity shares in corporations based on faculty discoveries (Schmidt 2002).

In the Missyplicity case, we see faculty housed in public institutions not as undergoing corporatization but as seeking profits from corporations. Institutions not only are acted on by corporations external to them but actively seek to lobby state legislatures in order to change regulations so that colleges and universities have more opportunity to engage in market and marketlike behaviors. Generally, college and university involvement in entrepreneurial activity is portrayed as win-win. Faculty equity holding in corporations based on their research is seen as an incentive for professors to move technology to the market. Colleges and universities are viewed as playing an important part in state economic growth, contributing to general prosperity.

However, the faculty at TAMU were able to participate in the Missyplicity project only because of their previous education and training, which was heavily state subsidized. Sperling sought out TAMU veterinary scientists for his project because they had successfully cloned several animal species, including a calf named Second Chance. Much of this cloning research had been federally funded. Thus, the Missyplicity project drew on taxpayer-funded, state-subsidized educational and research talent. The project also drew heavily on the legitimacy provided by TAMU scientists to convince pet owners to fast-freeze their pets' bodily fluids at $895–$1,395, depending on the pet's state of decrepitude.

Although the Missyplicty project was represented as the altruistic act of a dog owner trying to replicate his beloved pet, the cloning technologies involved are part of a multimillion-dollar animal models market. Designer animals—such as mice in which nonprofit university researchers have inserted human genes—are especially valued for disease research and sometimes cost more than $2,000 for a breeding pair. Genetic Savings & Clone, working on more complex cats and dogs, had "to pay to use other companies' patented cloning techniques," but, according to Charles Long, the general manager, "we hope to change the process so significantly that we wouldn't be bound by other patents, and we'd

have our own . . . that someone else might license . . . That's the position you want to get yourself in—to get others to pay" (Monro 2002, p. 1).

Although the Missyplicity project used private funds, it built on taxpayer-funded research in biotechnology. While most taxpayers are unlikely to purchase cloning services, they already purchase medicines based on patented cell lines and research animals, such as oncomouse, developed at Harvard and marketed by Dupont for the study of cancer. Taxpayers pay for the federal research that professors perform in universities, they effectively subsidize the corporations that partner with universities to develop technologies based on federal research, and they pay again when they purchase various high-priced pharmaceuticals.

The TAMU researchers successfully cloned a cat, named CC (Carbon Copy), but not a dog, which is more reproductively complex. Although CC was genetically identical to the calico cat from which it was cloned, CC looked like a striped tabby rather than a calico, alarming pet owners who sought at least facsimiles, if not eternal life. Sperling—who wanted dogs not cats, let alone cats that were not carbon copies—withdrew his funding from TAMU, although he continued to fund Genetic Savings and Clone. Although TAMU researchers were not successful in cloning Missy, they still held equity in Genetics Saving and Clone. They were not chastened by their inability to meet their sponsor's goals. Instead, they have turned to deer cloning in hopes of producing bucks with bigger antlers for the Texas hunting "industry," a bigger buck for the bang. In many regards, faculty at TAMU functioned as state-subsidized entrepreneurs who risked little by partnering with Genetic Savings and Clone. Although they were not able to clone Missy, they kept their positions and their salaries, and moved on to another entrepreneurial project.

Our analysis of the Missyplicity project highlights a number of themes relevant to this book. Among them are the growth of market and marketlike activity in the sciences and engineering, as captured by patenting, and the recent aggressive commercialization of instruction, as practiced by University of Phoenix and as captured by copyrighting in public and private higher education. Market and marketlike activities are no longer confined to the sciences and engineering; they permeate the higher learning. Faculty and institutions are not merely acted on by external organizations, such as corporations and the state; they are also actors who form boundary-spanning organizations and networks to integrate with the new economy. Although the rhetoric surrounding entrepreneurial faculty and institutional activity highlights the close connection to the market, the state plays an important role in subsidizing the emerging academic capitalist knowledge/learning regime. Projects like Missyplicity,

which depend heavily on the work of previously accomplished, state-subsidized science even though entrepreneurial funds pay for the immediate research work, raise questions about opportunity costs. Does the citizenry of Texas or the United States want their tax dollars to support any work corporations or entrepreneurs choose to do, or would they rather see public funds for research applied to corporate ventures with a more socially redeeming purpose, such as fighting AIDS or educating children more effectively? The Missyplicity project raises questions about the terms of the academy's engagement with the new economy; we explore these questions in this book.

In the remainder of this chapter, we review the 1990s scholarship on higher education and research, noting what distinguishes our book from previous literature. We then point to the ways in which our book builds on and is different from *Academic Capitalism: Politics, Policies and the Entrepreneurial University* (1997). Following this brief literature review, we present a theory of academic capitalism that explains the processes by which colleges and universities are integrating with the new economy, shifting from a public good knowledge/learning regime to an academic capitalist knowledge/learning regime. We conclude with an overview of the book's content.

More Academic Capitalism and the Higher Education and Research Literature

In the 1990s, a substantial literature on how to change higher education emerged: Leslie and Fretwell's *Wise Moves in Hard Times: Creating and Managing Resilient Colleges and Universities* (1996), and Tierney's *The Responsive University: Restructuring for High Performance* (1998) and *Building the Responsive Campus: Creating High Performance Colleges and Universities* (1999). The premise underlying this work is that colleges and universities are difficult to change and that whatever changes take place are largely located on the margins of a relatively unchanging core.[2] For the most part, this literature deals with undergraduate education.

At the same time, a literature developed around the research function and research universities that saw higher education as undergoing a great deal of change. For example, Etzkowitz, Webster, and Healey (1998, p. 1) talk of a "second [academic] revolution" that involves "the translation of research into products and into new enterprises." However, the scholarly work that deals with

2. Exceptions are Francis and Hampton 1999, who point to significant ways in which public research universities have been responsive to market pressures.

research focuses mainly on patents and various forms of university-industry-government partnerships. It does not address college and university commodification and commercialization of a wide range of copyrightable educational products and services, often directed toward undergraduates or niche graduate student markets. For example, Geiger (1993), when speaking to "the university's embrace of commercial endeavors" during the 1980s, refers to research activities. A similar focus on research is evident in critiques of industry-university connections, whether they argue that industry is in some sense taking over the academy, as does Soley in *Leasing the Ivory Tower: The Corporate Takeover of Academia* (1995), or that universities are too eager to sell out to corporations, as does Bowie in *University-Business Partnerships: An Assessment* (1994; see also Feller 1997).

In contrast, our book looks at undergraduate and research/graduate education and at copyrights and trademarks as well as patents, focusing on generation of external resources from market activities that turn on the selling of products, processes, and services. We see significant changes occurring across research/graduate and undergraduate education and in professional schools, as well as in science and engineering. We conceptualize these changes as a shift from a public good knowledge/learning regime to an academic capitalist knowledge/learning regime. The changes we discuss encompass instruction as well as research, involve administrative and trustee activities, and attend as much to student consumption as student learning.

A second point that distinguishes our work from that of others is our attention to networks of actors that link universities to each other, to corporations, and to various state agencies. Most of the literature on change in higher education focuses on individual organizations. Dramatic case studies, such as those by Clark (1970, 1998), tell stories about organizational transformations in the culture and practices of individual colleges and universities, exploring, for example, how campuses develop entrepreneurial culture. The organization has been the focus of recent work that specifies culturally contingent aspects of successful change (Kezar and Eckel 2002). However, the larger environment and particularly the organizational networks of which most organizations are a part remain relatively unexamined.

Rather than simply focusing on individual organizations, the literature often anthropomorphizes the organization as suggested by the titles of some of the books on organizational change discussed earlier: the "learning college," the "responsive university." Such metaphors convey a sense that the organization is bounded and is a single entity. The referent, after all, is "the" organization, with

clearly defined boundaries. There is little, if any, consideration of subunits and groups within the organization, or of their multiple connections with various units and groups outside the organization.

The prevailing models for analyzing higher education organizations are grounded in a presumption that higher education is distinct from the state and from the market. In comparative scholarship, scholars work out of a triangle model (Clark 1983) that categorizes systems in terms of the influence of the state, the market, and the academic profession on higher education organizations. In studies of governance in U.S. higher education, scholars explore dimensions of substantive and procedural autonomy from the state, building on Berdahl's (1971) classic work. The academic discourse tends to privilege the market in a laissez-faire sense. Academic managers seek to situate higher education enterprises as farther and separate from "the state" and closer and connected to "the market."

When the literature does look beyond "the" organization (Gibbons et al. 1994; Council on Competitiveness 1996; Stokes 1997; Branscomb 1997a, 1997b; Feldman et al. 2002a), it focuses on how universities interact with corporations and, less frequently, state agencies. However, this literature still sees universities, corporations, and the state as having relatively clear boundaries, and for the most part does not look at networks. (For an exception, see Powell 1990.) Even Etzkowitz, Webster, and Healey (1998), who offer a biological "triple helix" model in which the strands are the entwined relations of university-industry-government, still treat the strands as separate and distinct, although they foreground universities and industry and background the state.

In contrast to literatures that focus on "the" organization or on research relations between universities and industry, construed as separate organizational spheres, we look at networks of actors that cross boundaries among universities and colleges, business and nonprofit organizations, and state(s).

In much of the literature the interests of the organization are equated with the interests of its managers. For instance, a key to change is generally thought to be an organizational leader who initiates and supports the new development.[3] By contrast, we focus on a wider range of academic actors, examining changes in the academic profession and the structure of faculty employment, as well as on the emergence of groups of other professionals involved in com-

3. See Shaw and London 2001 for an exception with regard to community colleges; they map out cases in which the core faculty and core culture affect the activities of the organization in fundamental ways.

modifying and commercializing intellectual products.[4] Presently we see academics becoming increasingly managed professionals (Rhoades 1998a), who are governed by central administrators and nonfaculty managerial professionals (Rhoades 1998b; Rhoades and Sporn 2002), ranging from technology transfer and chief information officers to university attorneys, who are increasingly central players in the academic enterprise. In our view, the ascendance of the academic capitalist knowledge/learning regime requires us to rethink the centrality and dominance of the academic profession.

The Scope and Analytical Focus of *Academic Capitalism and the New Economy*

Academic Capitalism and the New Economy differs not only from the literature on higher education and research; it also differs from its predecessor, *Academic Capitalism* (1997). An important difference between the books lies in their substantive focus in terms of countries and institutions. *Academic Capitalism* (1997) examined public research universities in four countries—Australia, Canada, the United States, and the United Kingdom. In this book, we concentrate on the United States and on the nonprofit higher education institutions in the U.S. system, from public and private research universities to community colleges.[5] We offer a fuller and more focused picture of academic capitalism in the United States that encompasses the varied institutional settings in which market and marketlike practices are pursued.

In expanding the institutional scope of our study, we have also expanded our analytical interests. *Academic Capitalism* (1997) concentrated on technology transfer. In this book, we follow through on and update the earlier analysis of patenting and technology transfer. In addition, we address the intensified commercialization of instruction, educational materials, and software/courseware in relation to changes in copyright policies nationally and at the institutional level. Copyright represents an area of market and marketlike activities by institutions, faculty, and students that touches a much broader range of places and

4. For us, a central part of academic capitalism is a reversal of Jencks and Riesman's *Academic Revolution* (1968). Jencks and Riesman were conceptualizing the ascendancy of the national academic profession in the post–World War II era, which was supported by federal research and grounded in meritocracy. Etzkowitz, Webster, and Healey 1998, in referring to a second academic revolution, misread Jencks and Riesman's work, attributing the first academic revolution to the late nineteenth and early twentieth century and the introduction of the research mission.

5. We do not focus on the for-profit sector of higher education, which in proportional terms remains quite small; in our view, this sector could be seen as an important indicator of academic capitalism and its relation to the new economy, but it merits a separate study.

players than does patenting; it involves the commodification of higher education not just in technoscience fields in research universities but in virtually all fields and classrooms in all types of institutions. For example, we consider the intellectual property policies of less prestigious institutions, including unionized ones (see Rhoades 1998a), which address the ownership, commercialization, and use of educational materials produced in community colleges and comprehensive masters and doctoral degree-granting universities.

Much of the policy and scholarly attention in the realm of copyright has concentrated on distance education, on the development of videotaped and on-line courses and programs delivered to students off campus (e.g., see Noble 2001). Those are important developments and areas of intensified activity, nationally and internationally, and we analyze some of these activities. However, we are also interested in copyright as it relates to educational materials, courses, and programs delivered on campus in traditional classrooms but mediated in various ways by technology, whether through new projection technologies in the classroom, or software platforms for organizing syllabi, chat rooms, readings, and focused questions for orienting students to the readings.

Academic Capitalism and the New Economy has a somewhat different conceptual focus than *Academic Capitalism* (1997). This difference is partly a function of changing authors. Initially, *Academic Capitalism and the New Economy* was to be written by Slaughter, Leslie, and Rhoades. However, Leslie retired, and, when asked if he would continue to participate, replied, ever the economist, that he could not see the marginal utility, either to his career or any personal utility function, of yet another book. Partly the new conceptual focus stems from profound changes in U.S. higher education that occurred in the 1990s as colleges and universities aggressively pursued the market behaviors outlined in *Academic Capitalism* (1997). Previously Slaughter and Leslie (1997, p. 210) drew conclusions regarding the "encroachment of the profit motive into the academy." We now point to the internal embeddedness of profit-oriented activities as a point of reorganization (and new investment) by higher education institutions to develop their own capacity (and to hire new types of professionals) to market products created by faculty and develop commercializable products outside of (though connected to) conventional academic structures and individual faculty members.

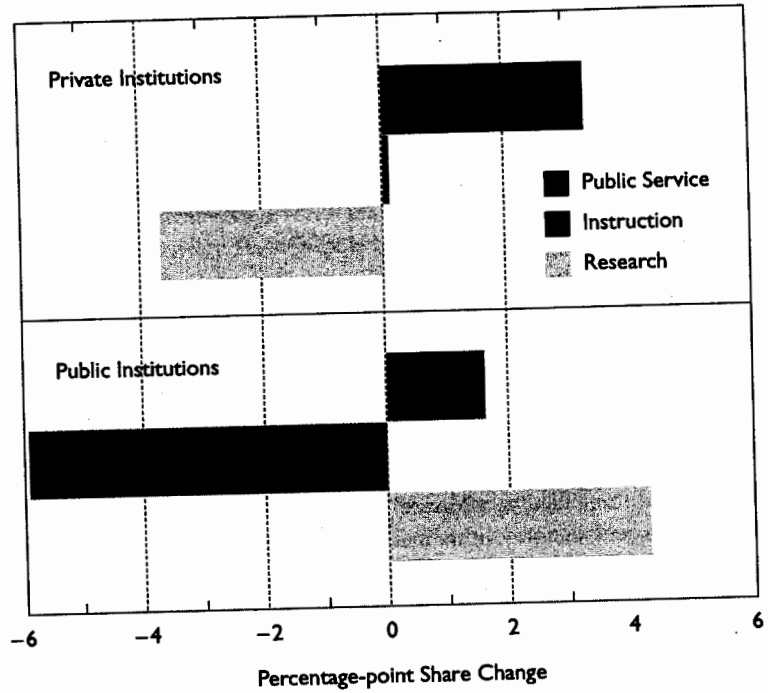
In this book, we do not feature resource dependency theory. Although we continue to define academic capitalism as the pursuit of market and marketlike activities to generate external revenues, our current analysis focuses on the blurring of boundaries among markets, states, and higher education. A premise of resource dependency theory, as of much organization theory, is that there is

a relatively clear boundary between the organization and its environment. Resource dependency theory predicts that the organization, which is the object of study, will take on and reflect the organizational characteristics of the principal external resource providers in its environment, a conception that requires the focal organization to be distinct and separate from organizations in its resource environment. In contrast, we see the academic capitalist knowledge/learning regime as characterized by the development of new networks of actors who develop organizations that span and blur the boundaries between public and private sectors. We have come to see colleges and universities (and academic managers, professors, and other professionals within them) as actors initiating academic capitalism, not just as players being "corporatized."

However, we do see the changing resource mix as promoting an academic capitalist knowledge/learning regime with regard to state funds, federal monies, and tuition dollars. Fiscal crises combined with rising tuition have created a climate that emphasizes the importance of new sources of external revenues. Periodic state fiscal crises, marked by budget shortfalls and clawbacks from the higher education sector, give legitimacy to notions of resource shortages. Even though such shortages do not occur regularly or predictably and seldom affect all institutions, they nonetheless reinforce faculty and administrators' beliefs that increases in external resource flows are necessary to sustain the academic enterprise. The growth of the academic enterprise, especially in science and engineering fields, means that even though federal funds continue to grow in absolute terms, these monies do not meet the expectations for generous funding to which scientists and engineers have been accustomed (Greenberg 2001). The (somewhat) slow rate of increase in federal research funding intensifies competition among scientists and engineers in federal grant and contract markets. Although a great deal of attention has been paid to patents and university-industry-government partnerships, the external revenue stream to which institutions have turned most frequently is student tuition. The greatest increase in shares of institutional funds has come through raising tuition, which has heightened students' and parents' consumer consciousness about what they expect in terms of their educational experience and in terms of returns on investment in their human capital. These changed expectations reshape student identity from that of learner to that of consumer.

We do not follow up the important analysis of revenue and expenditure trends in *Academic Capitalism* (1997) because these have been mapped out by others. As Francis and Hampton (1999) show, the trends delineated in *Academic Capitalism* continued in the 1990s. That ongoing pattern is evident in Figure 1.1.

Figure 1.1 Changes in Share of Combined Expenditures Accounted for by Research, Instruction, and Public Service at All Public and Private Institutions, 1977–1996



Source: National Science Board, Science and Engineering Indicators, 2002. Arlington, VA: National Science Foundation, 2002 (NSB-02-1).

For the late 1970s and 1980s *Academic Capitalism* (1997) documented smaller shares of college and university revenues coming from the state and a lesser share of institutional expenditures in higher education going to instruction. This continued in the 1990s. Although in the national aggregated data, this appears as a gradual, incremental trend, we believe that at the level of colleges and universities, shifting resource dependencies are more often experienced as periodic episodes of crisis during which institutions go through restructuring processes.[6] For many universities, for example, one such period was the early

6. We make this argument only for the United States. In other countries, for example, Brazil, state fiscal crisis may be a continuing condition that brings about the rise of alternative institutions—in the Brazilian case, private tuition-based higher education.

1990s. Many institutions are again in the midst of such a process, after several years of having been spared, in relative terms, fiscal stringency. Although we do not see resource dependency as causal, we think that it plays an important part in the development of the academic capitalist knowledge/learning regime. The slow and continued decrease in state block grants as a share of annual operating revenues of public universities, marked by periodic, intense fiscal crises, has played an important part in legitimating academic capitalism. However, during the periods in which states recovered and increased budgets (although not shares), university pursuit of market activity nonetheless increased.

The Theory of Academic Capitalism

Unlike in *Academic Capitalism* (1997), in this book we offer a theory of academic capitalism. This theory explains the processes by which universities integrate with the new economy. In constructing our theory, we draw on the work of Foucault (1977, 1980), Mann (1986), and Castells (1996, 2000). Although these theorists see the centrality of knowledge, organizations, and networks to the economy, generally—and, in Castells's case, to the new economy, specifically—none of them directly addresses universities or the part played by universities in the new economy, other than Castells's brief mention of universities as "milieus of innovation." We acknowledge our intellectual debt to these theorists, as well as to many others, for ideas and concepts that helped us, but we have crafted a theory of our own.

In the last quarter of the nineteenth century, universities integrated with the industrial economy, shifting from a focus on theology, moral philosophy, and the education of gentlemen, overseen by the clergy, to science-based disciplines ranging from chemistry and engineering to the social sciences. Land-grant institutions played an important role by contributing to the industrialization of agriculture (Williams 1961). Many of these new fields of knowledge were concerned with the development and management of science-based, mass-production industries and the establishment of states' ground rules for capitalism. Although jurisdiction over new fields was contested, professionals exercised an increasing amount of oversight. While a handful of moral philosophers and university presidents resisted colleges and universities' integration with the industrial economy, the majority of professors and scholars participated in the stabilization and expansion of professional careers rooted in university education.

Generally, the superiority of scientific knowledge over theology—the triumph of a more perfect knowledge—was offered as the theoretical explanation for the institutionalization of the new knowledge in universities. This explanation

allowed professors and professionals to keep a (shifting and tenuous) distance between the university and industry, which provided the wealth that made the modern university possible, and between the university and the state, which often provided the proximate resources for higher education. Professors and higher education interests certainly served the industrial economy and the state, but in doing so they arguably gained some power by claiming a social contract with society in return for disinterested, nonpartisan research (Silva and Slaughter 1984).[7]

At the turn of the twenty-first century, we cannot ignore corporations and the state because knowledge is not easily separable from the new economy. In the information society, knowledge is raw material to be converted to products, processes, or service. Because universities are seen as a major source of alienable knowledge, they are in the process of establishing new relations with the global economy. Autonomy, the preferred but perhaps always fictive position of universities with regard to capital and the state, becomes less possible.[8]

The theory of academic capitalism focuses on networks—new circuits of knowledge, interstitial organizational emergence, networks that intermediate between public and private sector, extended managerial capacity—that link institutions as well as faculty, administrators, academic professionals and students to the new economy. New investment, marketing and consumption behaviors on the part of members of the university community also link them to the new economy. Together these mechanisms and behaviors constitute an academic capitalist knowledge/learning regime.

The New Economy

Although the new economy is central to the rise of the academic capitalist knowledge regime, it is not causal. Universities are difficult to separate from the new economy because they contribute richly to its development. The new economy treats advanced knowledge as raw material that can be claimed through legal devices, owned, and marketed as products or services. As such, universities

7. We apologize for this extremely compressed account of the relationship between universities, corporations, the state, and professional associations in the last quarter of the nineteenth century. For a deeper understanding, see Haskell 1977, Bledstein 1977, Furner 1975, Ross 1991, Silva and Slaughter 1984, Slaughter 1997, Perkin 1989, Geiger 1993, Ben-David 1984, Barrow 1990, and Veysey 1965.

8. We see organized professors, in learned associations such as the American Economic Association and cross-disciplinary organizations such as the American Association of University Professors, as tacitly agreeing to curb the revolutionary potential of new knowledge in return for academic freedom. This freedom is a somewhat circumscribed right, which allows professors to use their expertise only if they serve the existing order. See Slaughter 1981, 1988, and Barrow 1990.

are sites where knowledge is rendered alienable in multiple ways, a number of which we describe in the course of this volume.

In considering the new economy, we are not so much concerned with causality or characteristics, which have been discussed at length by scholars from various disciplines (Barnet and Cavenaugh 1994; Bell 1973; Carnoy 1993; Castells 1993, 1996, 1997, 1998, 2000; Chomsky 1994; Cohen 1993; Cohen and Zysman 1987; Greider 1997; Harrison and Bluestone 1990; Jessop 1993; Kuttner 1997; Reich 1991; Sassen 1991; Slaughter and Leslie 1997), as with the implications of the new economy for academe. We see the salient characteristics of the new economy for colleges and universities as being its global scope, its treatment of knowledge as raw material, its non-Fordist production processes, and its need for educated workers and consumers.

Global Scope

Unlike *Academic Capitalism* (1997), we do not focus on the global dimensions of higher education in this book. Although we recognize its growing importance, we think that concentration on the global dimensions of colleges and universities can occlude our view of the many new mechanisms, organizations, networks, and market practices that connect higher education to the new economy in any one country. Indeed, the proliferation and complexity of these processes is so great we sometimes think we have barely scratched the surface of the country we know best, the United States. In the future, we plan to follow the mechanisms, organizations, networks, and practices we identify into the global arena, but to do so now would call for another volume.

Nonetheless, globalization is a central feature of the new economy. The global nature of the new economy disperses manufacturing around the world. Transnational corporations with headquarters in the United States or the European Union have moved many manufacturing plants to nations with lower labor costs. Simultaneously, countries such as Japan, Korea, and segments of countries such as China and Mexico have developed their own manufacturing capacity for products such as appliances, automobiles, and computers. The success of competitor countries has turned the United States toward high technology products and services, where it has a global advantage, at least in part because of its research universities. The dispersal of manufacturing has precipitated greater reliance on information technologies to manage far-flung operations, stimulating research in information technology, including infrastructure, and especially distance learning.

U.S. universities also have globalized, although their globalization processes have been distinct from corporations. Scholars traditionally have participated

in international learned networks. The growth of the Internet and the World Wide Web, which originated in academe, has intensified the global dimension of scholarship. As the cost of research has risen, federal policy has promoted international cooperation to reduce costs (Greenberg 2001). As the numbers of U.S. students interested in science and engineering careers has decreased, universities have recruited international students to the point where roughly half of all graduate students in science and engineering are foreign nationals, constituting a global labor force within U.S. universities. Schools ranging from community colleges to universities recruit international students and offer off-shore distance education programs. University and corporate globalization processes tend to converge around markets for knowledge-intensive new economy products, a number of which are licensed to corporations by universities.

Knowledge as Raw Material

Corporations in the new economy treat advanced knowledge as a raw material that can be claimed through legal devices, owned, and marketed as a product or service. The knowledge is often heavily technologized and/or digitized. Biotechnology and information technology are key examples and illustrate the importance of universities as knowledge sites. Corporations protect knowledge through patents, copyrights, and trademarks. Corporations have moved beyond protecting individual pieces of intellectual property, such as books, and have started to copyright education programs and services. The rise of for-profit education, perhaps most successfully exemplified by the University of Phoenix, strongly suggests that education can be treated like any other service.

Like corporations, colleges and universities have begun to treat knowledge as a raw material. Prior to 1981, fewer than 250 patents were issued to universities per year. In 1999, colleges and universities filed 5,545 patents (COGR 1999). In 1978, several universities permitted acquisition of equity in companies licensing their technology; by 2000, 70 percent of a sample of sixty-seven research universities had participated in at least one equity deal (Feldman et al. 2002a). In the past five years (1997–2002), approximately half of the states have adjusted their conflict of interest laws so that universities, as represented by administrators, and faculty, as inventors and advisors, can hold equity positions in private corporations even when those corporations do business with universities (Schmidt 2002). Many universities developed copyright policies, particularly in the period 1983–1993. Universities and colleges have also developed their own distance education services, for example, Columbia University's Fathom and University of Maryland University College, which are sold to non-traditional markets and serve as profit centers for these universities.

Non-Fordist Manufacturing

The new economy does not rely on mass production to the same degree as the industrial economy. Corporate leaders in the new economy have downsized middle management and developed new manufacturing processes that heavily utilize computers (CAD/CAM) and feature just-in-time manufacturing processes. These processes call for smaller numbers of educated workers who are supplemented by larger numbers of part-time or contingent workers who labor for relatively short periods of time and then disperse: the flexible work force. Although Fordist / mass production manufacturing continues, it has grown primarily in countries outside the United States that have appropriately educated but low-wage workers.

Corporate leaders also have begun to "unbundle" work. For example, rather than having customer service for products tied to product manufacturing or even sales, service is separated and often outsourced. Information technology services are often offered over the web or the telephone, and the person who walks the customer through the steps needed to repair a device is often based in another country. (However, in an inversion of globalization, the identity of the repair person is often masked. Indian call operators for a variety of computer products go to "call colleges" where they acquire American names and identities.)

Like their corporate counterparts, university managers have reconfigured their labor force. They too are concerned with developing a flexible work force, which they see as necessary to restructure colleges and universities to integrate with the new economy. In academe, flexibility is attained by increasing the numbers of part-time or contingent faculty. Part-time teachers increased from 22 percent of the labor force in 1970 to approximately 50 percent in 1997 (Benjamin 2002).

Again like their corporate counterparts, university managers also have begun to "unbundle" work. Unbundling of professorial work is most dramatic with regard to on-line education and distance education, for which curricula are often written by specialists and delivered by adjuncts. As with many market practices, unbundling varies somewhat by type of institution. In some community colleges, a very small number of faculty serve as full-time managers of part-time, low-cost faculty who provide some face-to-face interaction with students as well as internet contact. In universities, faculty involved with general education courses often become content providers who are members of teams of academic professionals who are specialists in multimedia, pedagogy, and web design. Other faculty functions that have been unbundled are advising, counseling, and some forms of mentoring, which have been turned over to academic professionals in student personnel services. Full-time faculty, whose salaries constitute the largest item in annual operating budgets, therefore have their work concentrated on the classroom and/or the laboratory.

Ironically, academic managers have adopted some techniques that their corporate counterparts have moved away from (or moved overseas). For example, academic managers have expanded middle management. A growing number of middle managers supervise the mass production of education through the use of information technologies such as Blackboard or WebCt. These programs create educational platforms in which all faculty must participate, standardizing teaching and making education modules interchangeable. A combination of partial automation and managerial oversight may be necessary for quality assurance as colleges and universities increase numbers of part-time faculty.

Educated Workers and Technology Savvy Consumers

Corporations in the new economy require educated workers and technology-savvy consumers. Corporations need well-educated workers in business related areas—science, engineering, medicine, law—to create and protect knowledge-based products, processes, and services. At the undergraduate level, business has become the core curricula: the majority of all courses taken in four-year schools are in business fields (Adelman 1999). Universities have restructured their curricula in these areas through complex processes that we describe in this volume.

College and universities have a (somewhat) hidden extracurricular course of instruction in consumption capitalism and as a milieu of use for technologically sophisticated corporate products.[9] Universities instruct students in consumption capital before they enter through their own complex and subtle, irregularly discounted pricing structures. Once they are on campus, students have greatly increased opportunities for consumption, ranging from luxury dormitories to minimalls in student unions. Colleges and universities have formal agreements with corporations in which they serve as test beds for new products, often in information technology lines. Corporations and universities form strategic alliances in which universities serve as test beds for new products, offering a milieu impossible to duplicate in a laboratory. Often students and faculty participate in modifying or improving the products, the benefits of which are captured by both the university and corporations in terms of use and by the corporation in terms of economic return. Informally, "wired" campuses

9. Castells uses the term *milieu of innovation* in reference to universities. We think they may serve an equally important new economy function (product instruction) as milieus of use.

create opportunities for students to play with information technology and thus are sites where desire and consumption are fused, creating technology-savvy consumers whose purchases fuel the new economy.

Although colleges and universities work closely with corporations, they have not simply replicated corporate processes. Unlike corporations, whose products know no borders but whose workers are restricted by national boundaries, universities have a global graduate student body that performs essential research work. Furthermore, although we are not focusing on the altruistic endeavors of colleges and universities, certain segments (such as some humanities programs) within these complex, multimission institutions do not endeavor to capture external resources. However, many higher education actors have created new circuits of knowledge, interstitial organizations, and boundary-spanning networks that link them to the new economy. Nonetheless, colleges and universities remain distinct from corporations.

The Neoliberal State

Corporations work closely with the neoliberal state to construct the new economy. The neoliberal state focuses not on social welfare for the citizenry as a whole but on enabling individuals as economic actors. To that end, neoliberal states move resources away from social welfare functions toward production functions. For example, since the 1980s, the U.S. Congress has formed a competitiveness coalition that has passed numerous laws enabling the development of civilian technology for global markets (Slaughter and Rhoades 1996, forthcoming). Although this legislation was initially aimed at small corporations deemed engines of economic growth, large corporations with global reach often have been the beneficiaries. The neoliberal state redefined government, privatizing, commercializing, deregulating, and reregulating state functions to promote the new economy in global markets. While universities were not primary players in creating the neoliberal state, they often endorsed initiatives, directly or indirectly. For example, university managers lobbied for Bayh-Dole (1980), a law that allowed universities to own and profit from federally funded research performed by faculty. Student loans offer another example. Although university managers always ask Congress for greater amounts of student aid, when it has not been forthcoming as grants, they have endorsed expanded student loan programs, which has hastened and strengthened the redefinition of students as consumers rather than learners.

The neoliberal state has participated in creating global governing structures, especially those related to protection of trade and intellectual property. The Uruguay Round of the General Agreement on Tariffs and Trade (GATT) of

1986 stood for vigorous patent enforcement around the globe. The Trade-Related Aspects of Intellectual Property Rights (TRIPs) were also initiated in the 1986 GATT. TRIPs played a major role in extending copyright fifty years beyond the life of the author of a work. The World Trade Organization (WTO) brokered the General Agreement on Trade and Services (GATS), which regulates global trade in educational services. The U.S. Department of Commerce, along with several other countries, has recently put forward negotiating proposals for GATS to treat education like any other service that is traded in the global market place. The proposal is limited to higher (tertiary) education, adult education, training services, and educational testing (Sauve 2002). The neoliberal state has developed new legislation and regulations to cover knowledge-based products, processes, and services in the new economy, extending global protection to commercial endeavors of corporations and universities.

The neoliberal state has also promoted privatization, commercialization, deregulation, and reregulation within the United States. Colleges and universities that pursue an academic capitalist knowledge/learning regime have benefited from these processes. Commercialization has been legislated in a number of instances. Bayh-Dole (1980) commercialized and privatized federal research, allowing universities and corporations to claim ownership of patents taken out on products and processes discovered during the course of federally funded research. At the federal level, the purpose of Bayh-Dole (1980) was commercialization. Many states have legal requirements that faculty disclose patentable discoveries to ensure that colleges and universities have the opportunity to review them for commercial potential (Chew 1992). The deregulation and accompanying reregulation of federal communications law promoted low-cost corporate ownership of the airwaves, creating commercial opportunities for broader bandwidth that colleges and universities have exploited through product development via Internet2.

The neoliberal state has reinterpreted labor law to increase workplace flexibility in corporations and universities. Beginning with Ronald Reagan and the air traffic controllers, the government has discouraged unionization on the part of state workers. Presidential candidates routinely speak against white collar unionization, usually targeting teachers, who comprise the largest union in the nation.

The several states also enact neoliberal legislation and administrative policies that allow corporations and universities to use "flexible" or part-time workers. The states have also altered accreditation practices. They accredit for-profits, such as University of Phoenix. In so doing, they accept hiring practices that decenter full-time faculty—the states affirm lack of faculty involvement in shared

governance as well as universities with no libraries and little face-to-face instruction. The neoliberal state, like the new economy, has put in place rules and regulations that valorize "virtual" instruction. The state itself has become a flexible employer, outsourcing, relying on temporary workers, and reducing health care benefits.

The National Labor Relations Board has taken an increasingly conservative stance toward labor law and disputes in the corporate sector, and unionization is down. However, professionals employed by state and nonprofit organizations are turning to unions for protection, suggesting that highly educated workers with a guild tradition may be able to use unions to buffer the workplace fragmentation that characterizes the neoliberal state. Public sector faculty unionization has increased for part-timers as well as full-timers. The National Labor Relations Board has supported part-time faculty organization, as it has graduate student unionization in private as well as public higher education. Protections found in the Keynesian welfare/warfare state can still be invoked and activated.

The neoliberal state began to turn students into consumers as early as 1972, when Congress shifted higher education funding from institutions to students. Combined with rising tuition, the shift from grants to loans over the course of the past thirty years has confirmed students' identity as consumers of higher education. The neoliberal state also prefers relatively well-to-do students with legislation such as the Middle Income Assistance Act (1978) and the 1997 Tax Relief Act that enables high-achieving students from middle- and upper-middle-class families to use nonpayment of tax to pay for shares of tuition at costly institutions.

In many ways, the new economy depends on the neoliberal state for ground rules that create and sustain a global playing field. Colleges and universities, often arms of the state, benefit from (and sometimes participate in lobbying for) neoliberal initiatives to the degree that they are committed to an academic capitalist knowledge/learning regime. Those colleges and universities unable or unwilling to integrate with the new economy have difficulty accessing new programs and opportunities. Similarly, programs, departments, or colleges that resist, ignore, or are unable to intersect the new economy within institutions that are generally pursuing an academic capitalist knowledge/learning regime rarely share in its rewards and incentives.

Circuits of Knowledge

Knowledge no longer moves primarily within scientific/professional/scholarly networks. Teaching is no longer the province of faculty members who work

with students in classrooms, connected to wider realms of knowledge through their departments and disciplinary associations. Courseware like BlackBoard and WebCT link faculty to electronic platforms that standardize teaching across colleges and universities, creating new circuits of knowledge that are more accountable to administrators than disciplinary associations. University-industry-government partnerships are another obvious example of new circuits of knowledge. University research is judged not only by peers but also by patent officials, who award ownership based on who is first to reduce to practice, and by corporations, which judge knowledge on its commercial potential.

Although peer review is still important within scholarly disciplines, universities as institutions no longer judge their own performance. Instead, outside organizations like *U.S. News and World Report* rate college and university performance, judging their worth to the student/parent consumer. To some degree, such outsiders have replaced accrediting associations, creating new circuits of knowledge that move outside the educational profession, fusing education with consumption. Institutions compete for position, as concerned to maintain place in these venues as in ratings of the disciplines by scholarly peers (Ehrenberg 2000). When *U.S. News and World Report* develops new rating categories, such as the degree to which campuses are "wired" or the "port to pillow ratio" for information technology in dormitories, colleges and universities compete for high rank, even though the relation between expenses for new infrastructure to educational outcomes is not examined.

Peer review, the cornerstone of the academic profession, is no longer conducted solely by university members. The refereeing or review of scholarly papers by experts has come to include degree holders who work in industry as well as academics. The number of scholars from industry sitting on National Science Foundation (NSF) peer review programs has risen substantially (Slaughter and Rhoades 1996). Although the industrial scholars may well be as competent as academics, the shift illustrates the new circuits of knowledge created under an academic capitalist knowledge/learning regime.

Interstitial Organizational Emergence

A number of new organizations have emerged from the interstices of established colleges and universities to manage new activities related to generation of external revenues. Many of these organizations are boundary spanning, bringing universities, corporations, and the state closer together. For example, technology licensing offices equipped to manage intellectual property have burgeoned. Economic development offices have grown to oversee the linking of areas in which universities have research strength to efforts by the states to build

their economies. Trademark licensing offices have emerged in an increasing number of universities. Fund-raising officials are no longer confined to university foundations; they are now frequently located in colleges and even in departments. University, colleges, and departments are developing educational profit centers that market instructional programs that are not part of the official curricula to niche markets.

Intermediating Networks

Actors and organizations that participate in an academic capitalist knowledge/learning regime are arrayed in networks that intermediate between public, nonprofit and private sectors (Metcalfe, in progress). Intermediating organizations have proliferated in the past twenty-five years. Examples of such organizations are the Business Higher Education Forum (Slaughter 1990), the University-Industry-Government Research Roundtable, Internet2, Educause, and the League for Innovation. These organizations bring together different sectors interested in solving common problems that often stem from opportunities created by the new economy. In corporatist fashion, representatives of the different sectors attempt to arrive at solutions before approaching the policy or legislative process. Networks of intermediating organizations allow representatives of public, nonprofit, and private institutions to work on concrete problems, often redrawing (but not erasing) the boundaries between public and private. For example, in the 1980s, the Business Higher Education Forum, an organization of corporate and university CEOs, made the case for individual education accounts (IEAs), to which workers could make tax-free contributions from which they could then withdraw funds to pay for retraining to retool for another of the multiple careers occasioned by the rapidly changing new economy (Slaughter 1990). Corporations envisioned IEAs as a mechanism for perpetual worker retraining, and, given the educational demands of the new economy, community colleges could design certification programs, four-year colleges could offer off-curricula programs able to act as profit centers, and universities could develop masters of science degrees that were essentially professional retraining or professional development courses. Legislation similar to the IEA was passed as part of the Taxpayer Relief Act of 1997 (see chapter 2). The network of business and university leaders redrew traditional educational boundaries, taking advantage of new markets in ways that served the new economy, and providing directly for education of corporate workers at state and worker expense.

Extended Managerial Capacity

New circuits of knowledge, interstitial organizational emergence, and intermediating networks to some degree called for extended managerial capacity on the part of colleges and universities. With trustees' and university presidents' approval, managers increased their capacity to engage the market, redrawing the boundaries between universities and the corporate sector. Although we use patents and copyright to exemplify extended managerial capacity, the concept is also demonstrated in trademark licensing programs, economic development offices, distance-education profit centers, foundations, and other organizations.

In the 1980s, technology transfer officials engaged the market by licensing patented technology to corporations in return for royalties. In the 1990s, many universities began to take equity in start-up companies based on intellectual property discovered by faculty members. In effect, university managers acted as venture capitalists, picking technologies they thought would be winners in the new economy. By the end of the 1990s, university managers were involved in the market in terms of licensing income, usually received in the form of royalties from sales; milestone payments, which were made when particular research results were reached; equity interest, which could include publicly tradable shares, privately held shares, or options to acquire shares; material transfer agreements; tangible property sales (cell lines, software, compositions of matter); and trade secrets. A few universities permitted profit-making corporations in which faculty and/or administrators participated in corporations in which they held stock as consultants, employees, members, or chairs of boards of directors.

Copyright policies were developed primarily in the 1980s and 1990s. Although a number of institutions "allowed" faculty members to personally own their scholarly and creative works, universities increasingly claimed materials that were "work for hire," which included all work by academic professionals, or work directly commissioned by universities—for example, general education syllabi—or that made substantial use of university resources, which faculty often did when developing digitized courseware. The educational materials covered included video recordings, study guides, tests, syllabi, bibliographies, texts, films, film strips, charts, transparencies, other visual aids, programmed instructional materials, live video and audio broadcasts, and computer software including programs, program descriptions, and documentation of integrated circuit and databases. Some university managers who negotiated with corporations over copyrighted products, processes, and services were located in technology licensing and transfer offices. Sometimes these offices were expanded to

become intellectual property offices or technology transfer and creative works offices. These offices oversee the business aspects of commercializing intellectual properties and managing copyright issues or of developing enterprise centers to further build up and market copyrightable educational materials. Extended managerial capacity is less developed with regard to copyrights than it is for patents because institutional copyright policies and offices are a more recent phenomenon.

Market Behaviors

New circuits of knowledge, interstitial organizational emergence, intermediating organizations, and expanded managerial capacity create networks through which college and universities connect to the new economy. Colleges and universities also engage in an array of miscellaneous market and marketlike behaviors that cut across colleges and universities, attaching a price to things that were once free or charging more for items or services that were once subsidized or provided at cost. For example, most universities now charge, whether outright or through fees, for parking, use of student recreation facilities, and use of computer facilities. Historically, subsidized meal services were located in dormitories and provided low-cost food for students. Now food services are outsourced to fast-food companies such as McDonald's and Domino's and are part of food courts located in student unions, which serve as minimalls and profit centers. Although market and marketlike behaviors are defined by competition for external resources, they are also associated with a host of ancillary behaviors, such as advertising and marketing. Enrollment management offices spend large sums on advertising, designing view books and other materials that represent the educational life style of the institution and then mailing them to affluent zip codes or to students who scored well on standardized tests. Trademark licensing officials work with "athleisure"-wear corporations to cross-license products that are sold in bookstores, where students are captive markets. Market and marketlike behaviors, as well as ancillary practices such as advertising, have permeated the fabric of colleges and universities, contributing to an academic capitalist knowledge/learning regime.

Although colleges and universities are integrating with the new economy and adopting many practices found in the corporate sector, they are not becoming corporations. Colleges and universities very clearly do not want to lose state and federal subsidies, or, in the case of research universities, to pay taxes, to be held to corporate accounting standards, to be held accountable for risks they take with state and donor money, and to relinquish, if they are public, eleventh-amendment protection and be liable for mistakes and various forms of mal-

practice. However, colleges and universities are participating in redrawing the boundaries between public and private sector, and they favor boundaries that allow them to participate in a wide variety of market activities that enable them to generate external revenues. Corporations participate in this redrawing because the new boundaries move research closer to the market, allowing universities to act as industrial laboratories and subsidizing the cost of product development. Similarly, many of the new forms of education prepare nontraditional student markets to use new economy products or prepare them for entry-level work, socializing the cost of education.

These boundaries between private and public are fluid: colleges and universities, corporations, and the state (of which public universities are a part) are in constant negotiation. Contradictions and ironies are rife. For example, for-profit tertiary education makes money for corporations that provide educational services but may conflict with corporations that prefer state subsidy of worker training. Corporations worked with universities to support Bayh-Dole (1980), which privatized federal research, but are unhappy with universities' aggressive claims to intellectual property and litigate regularly against them about ownership of broad patents that underlie a variety of pharmaceutical products. The "firewall" that once separated public and private sectors has become increasingly permeable.

Professional Strategies

As colleges and universities integrate with the new economy, professional groups within them have to develop strategies for how they will position themselves. Departments and fields that are close to markets—for example, biotechnology, medical substances and devices, or information technology—have some built-in advantages, given the importance of these fields to the new economy. However, the proximity of a department or program to the market does not always predict how it will fare in terms of institutional resource allocation or ability to generate external revenues. For example, a number of fine arts colleges, traditionally not conceptualized as close to the market, have redefined themselves so that they train art students in graphic design, digital animation, and web design, therefore connecting directly to the new economy. Some departments find niche markets that allow them to generate external revenues. For example, some classics departments augment their budgets by sponsoring revenue-generating educational trips to Greece and Rome, while some anthropology departments offer tours of prehistoric sites, charging for the tour and the pleasure of digging. Some departments in education sell tests and measurements copyrighted by their faculty. Often the external revenues brought in by

these market revenues allow such departments to continue to deliver the standard of education they think appropriate to their fields, while colleges and universities generally invest in other areas, such as information technology infrastructure or advertising for high-end, high-scoring student markets.

Faculty are no longer the only important group of professionals within universities. Academic professionals have also organized themselves—in groups like the Association of University Technology Managers, Association of Collegiate Licensing Administrators, Association of University Marketing Professionals, and many others. In many cases, they were able to crystallize as professional groups because they responded to opportunities offered by the new economy. Lacking the prerogatives accorded to faculty, these new groups of professionals may be more strategic, aggressive, and flexible than faculty in responding to the opportunity structures associated with the new economy.

Shifting Knowledge/Learning Regimes

Overall, we conceptualize colleges and universities as shifting from a public good knowledge/learning regime to an academic capitalist knowledge/learning regime. The public good knowledge regime was characterized by valuing knowledge as a public good to which the citizenry has claims.[10] Mertonian norms—such as communalism, universality, the free flow of knowledge, and organized skepticism—were associated with the public good model. The public good knowledge/learning regime paid heed to academic freedom, which honored professors' right to follow research where it led and gave professors rights to dispose of discoveries as they saw fit (Merton 1942). The cornerstone of the public good knowledge regime was basic science that led to the discovery of new knowledge within the academic disciplines, serendipitously leading to public benefits. Mertonian values are often associated with the Vannevar Bush model, in which basic science that pushes back the frontiers of knowledge was necessarily performed in universities (Bush 1945). The discoveries of basic science always preceded development, which occurred in federal laboratories and sometimes in corporations. It often involved building and testing costly prototypes. Application followed development and almost always took place in corporations. The public good model assumed a relatively strong separation between public and private sectors.

10. This model decentered an earlier model, embedded in land-grant universities, which saw research as a public service, offered directly to citizens of a state, a concept which is perhaps best captured by *The Wisconsin Idea* (McCarthy 1912).

However, returning to the public good knowledge/learning regime would be problematic because it had an unacknowledged side. In the 1945–1980 period, much scientific and engineering research depended on Department of Defense funding for weapons of mass destruction. The first university-industry-government partnerships were with military contractors such as General Electric and Westinghouse who build nuclear reactors as part of the Atoms for Peace program. Much scientific and engineering research was classified, and the need for secrecy fueled movements like McCarthyism, which created an unfavorable climate for academic freedom.

The academic capitalism knowledge regime values knowledge privatization and profit taking in which institutions, inventor faculty, and corporations have claims that come before those of the public. Public interest in science goods are subsumed in the increased growth expected from a strong knowledge economy. Rather than a single, nonexclusively licensed, widely distributed product—for example, vitamin D irradiated milk—serving the public good, the exclusive licensing of many products to private firms contributes to economic growth that benefits the whole society. Knowledge is construed as a private good, valued for creating streams of high-technology products that generate profit as they flow through global markets. Professors are obligated to disclose discoveries to their institutions, which have the authority to determine how knowledge shall be used. The cornerstones of the academic capitalism model are basic science for use and basic technology, models that make the case that science is embedded in commercial possibility (Stokes 1997; Branscomb 1997a, 1997b). These models see little separation between science and commercial activity. Discovery is valued because it leads to high-technology products for a knowledge economy.

Academic capitalism also has an unacknowledged side. The benefits of economic growth do not always fall evenly on the population. Treating knowledge as a private good may make much of it inaccessible, perhaps constraining discovery and innovation. Conferring decision-making power on institutions rather than faculty may impinge upon academic freedom. Basic science for use and basic technology may provide narrow forms of discovery and education that do not sit well with concepts of public good. An academic capitalist knowledge/learning regime may undermine public support for higher education.

Although we see the academic capitalist knowledge/learning regime as ascendant and have sharply delineated the boundaries between the two models for analytical purposes, academic capitalism has not replaced the public good knowledge regime. The two coexist, intersect, and overlap. For example, securing entrepreneurial revenue streams, a focus of the academic capitalist knowledge/learning regime, has become more important but has not replaced the research

prestige associated with the public good knowledge regime. However, the two intersect at points where money for research, as is often the case in biotechnology, becomes entrepreneurial funding. Research universities continue to emphasize doctoral education, associated with the public good knowledge regime and research prestige, but also increasingly emphasize (terminal) professional masters' degrees that are associated with the new economy and the academic capitalist knowledge/learning regime. Community colleges continue to promote transfer and associate degree programs but also have a growing emphasis on certificates and contract education, which connect students to the new economy without degrees. Because the burden of our book is depicting and explaining the academic capitalist knowledge/learning regime, we concentrate heavily on demarcating it from the public good and previous knowledge regimes, but we understand that the regimes coexist.

Overview of the Book

Chapter 2 asks how selected federal legislation enables an academic capitalist knowledge/learning regime. Building on our earlier studies that focused on how federal legislation promoted competitiveness research and development policy (Slaughter and Rhoades 1996, forthcoming), we have broadened our legislative selection to include copyright and trademarks as well as student financial aid. The implications of each piece of legislation for academic capitalism are presented. Because we are concerned with politics as well as policy, we analyze the congressional voting patterns on the selected legislation, for which we found broad, durable bipartisan support.

Building on our work on Arizona patent policies (Slaughter and Rhoades 1993), chapter 3 asks how state, state system, and institutional patent policies create opportunities for more academic capitalism. We analyze state system and institutional policies in six states—California, Florida, Missouri, New York, Texas, and Utah—from 1980 through 2002. The patent policies reveal a shift from a public good to an academic capitalist knowledge/learning regime. The change is most apparent in colleges and universities' greatly expanded managerial capacity, which allows them to engage the new economy.

Chapter 4 asks how these policies play out in the lives of students and faculty. We draw on work regarding federal appellate court cases in the 1990s involving patents and students (Baez and Slaughter 2001). We analyze three cases that suggest that students who participate in the academic capitalist knowledge/learning regime by working on patents learn that they are valued more as intellectual workers than students, which leads them to become market actors

(Slaughter et al. 2002; Slaughter and Archerd, forthcoming). Building on work from the 1990s on university-industry relations (Campbell and Slaughter 1999a, 1999b), we analyzed thirty-eight interviews with faculty involved with business to see how they negotiate the market. We found them uncertain about the boundaries between public and private spheres, enticed by market opportunities, and plagued by conflict of interest issues.

Chapter 5 parallels chapter 4, asking how state and state system copyright policies create opportunities for academic capitalism. Chapter 5 uses data from the same states and over the same time period as chapter 4. We are particularly interested in the expansion of market activity beyond the research domain. We find that copyright policies create commercial opportunities in almost all fields, enabling "instructional capitalism" (Anderson 2001).

Chapter 6 builds on previous work on union contracts (Rhoades 1998a). It raises two broad questions. First, what do faculty negotiating union contracts want with regard to ownership of courseware, teaching materials, and digitized intellectual property? The data are drawn from a national data set containing union contracts, and position papers developed by the American Association of University Professors (AAUP), the American Federation of Teachers (AFT), and the National Education Association (NEA). We find that faculty seek ownership of copyrights for both market benefits and quality control. Our second question builds on recent work on information technology (Croissant, Rhoades, and Tapia, forthcoming) and asks how technologies that promote digitized copyrights shape social relations within universities. We find that university learning centers staffed by managerial professionals facilitate faculty use of technology to develop digitized products, but use of campus resources enhances university rather than faculty claims to ownership.

Chapter 7 asks to what degree the academic capitalist knowledge/learning regime has penetrated to the academic heartland (Clark 1998). Building on previous work on the relation between teaching, research, and market activities (Leslie, Rhoades, and Oaxaca 1999), we examine entrepreneurial practices in 135 science, engineering, and social science departments in eleven public research universities. We find that departments pursue educational entrepreneurial activities as well as research. However, faculty often resist managerial direction altogether or pursue entrepreneurial activities of their own.

Chapter 8 asks how college and university presidents contribute to an academic capitalist knowledge/learning regime. We use the case of Internet2, an organization of presidents, to explore the question, drawing on the voluminous material provided by its website. We find that presidents work with corporate leaders and leaders of various government agencies to build the telecommuni-

cations infrastructure for the new economy. Universities and corporations follow an intellectual property framework that allows each to profit from products and processes derived from publicly funded research and development discovered while building Internet infrastructure. Administrative academic capitalism has its own circuits of knowledge, related to but distinct from those of faculty.

In chapter 9 we ask how university trustees are networked and how the network contributes to the academic capitalist knowledge/learning regime. We conduct a network analysis of the boards of trustees of the top ten private and top ten public universities that receive the most NSF funding (Pusser, Slaughter, and Thomas 2002). We analyze the interlocks created by trustees who sit on corporations in the NSF Research 500 and at the top thirty capitalized public corporations in the United States. We discover that the private boards are very tightly interlocked and speculate that the trustees' networks articulate universities with the new economy.

Chapter 10, coauthored with our colleague Samantha J. King, raises questions about students as captive markets. Using cultural studies theories about branding and image, we examine eight all-school sports contracts with Nike, Adidas, and Reebok. We also look at university trademark licensing of institutional names, logos, and mascots. We find that athletic shoe companies seek out universities to market their brands; they in turn find universities eager to sell their sports programs as an advertising milieu. In the 1990s, universities developed trademark programs that marketed products with institutional names, logos, and mascots to students almost as aggressively as did shoe companies. Indeed, athletic shoe companies and universities often cross-licensed products.

Chapter 11 addresses the relationship of institutions to students in the context of the academic capitalist knowledge/learning regime, drawing mostly on secondary materials. We ask how the pursuit of academic capitalism leads institutions to maximize tuition revenues and minimize student aid expenditures in recruiting their freshmen classes. We also ask to what extent pursuit of external revenues leads institutions to market their educational services to student populations outside historic catchment areas. In answering these questions, we draw on scholarship that advances conceptions of information and consumption (but not consumer) oriented capitalism. Our analysis is informed by sociological scholarship on social stratification and higher education in the United States.

Chapter 12 revisits the theory of academic capitalism, placing earlier chapters in broader context. We also explore the contradictions, ironies, and inconsistencies of an academic capitalist knowledge/learning regime. We conclude by examining alternatives.

Looking to the Past, or Pointing out Alternative Futures?

Our book is focused on what we see as an ascendant tendency and orientation of colleges and universities to engage in market behaviors in the pursuit of revenues that involve developing new organizational infrastructures, fostering new professions and structures of professional employment, and forming new intersectoral networks that affect the very identity of higher education institutions and their relations with faculty, staff, and students. From our tracking of this path of more academic capitalism, some readers might infer that we are looking back to some imagined past of professorial and managerial commitment that valued the public good more than institutional gain. They would be wrong. We neither look to nor pine away for the past, nor do we suffer any illusions about its problems. The not-too-distant past in higher education (like the continued present) featured fundamental social inequities, significant constraints on the free pursuit of knowledge, a linking of the research enterprise to the purposes and mechanisms of the cold war, and a commitment to knowledge that served a relative few at the cost of many. When we were born, the doors of many colleges and universities were closed, effectively and legally, to women and students of color. Our youth was spent in the midst of a cold war that created an icy climate for ideas and beliefs that were critical of the capitalist economy or that called for economic democracy; it also served as a rationale for much secrecy in academic science in the form of classified research. It has only been in the past three decades that a systematic questioning of the classical knowledge canon and an opening up to new forms of scholarship and knowledge has emerged. We do not wish to return to the past.

We are social scientists, trying to grapple with changes in the organization, structure of work, and orientation of higher education institutions. We understand that the academic profession and colleges and universities have long been involved with the world of commerce. One of our dissertations was about how social scientists professionalized by serving corporate and political power (Slaughter 1975). However, we see the current pattern of what we are calling more academic capitalism as distinctive. Just as in academic science and technology policy we see the ascendance of a "competitiveness coalition" in policy networks, gaining prominence in relation to (but coexisting with) the cold war coalition of previous decades (Slaughter and Rhoades 1996). So in the policies and practices of colleges and universities we see the ascendance of an academic capitalist knowledge/learning regime, gaining prominence in relation to (but coexisting with) the public good knowledge/learning regime of previous decades. Such changes are consequential for society in terms of access to higher

education, knowledge production in academia, and higher education's performance of and balance between various cultural, economic, educational, political, and social functions.

Having proposed an ascendant pattern in higher education, we are well aware that other patterns of practice persist. Indeed, we see our activities and ourselves as being linked to a network of actors and structures providing social critique and seeking social justice in higher education and society. However, we understand that we are complicit in academic capitalism, even as we analyze it, given that our book creates our careers, allowing us to intersect opportunity structures and revenue streams offered by the new economy.

2

THE POLICY CLIMATE FOR ACADEMIC CAPITALISM

In this chapter, we review national and international legislation, treaties, and trade agreements that create opportunities for academic capitalism in postsecondary education. The period of study is from 1980 to 2000, but we focus on the 1990s. We follow legislation, treaties, and trade agreements that affect two policy areas, student financial aid and research.

Student financial aid began the process of marketization in 1972, when the Higher Education Act of 1965 was amended to give aid to students rather than institutions. Basic Educational Opportunity Grants, later known as Pell grants, became vouchers, which students used in partial payment for education at institutions of their choice. The shift initiated a degree of marketlike competition among institutions for federally subsidized student tuition dollars. Grants and loans were gradually expanded from covering full-time, traditional age students attending public and nonprofit, private colleges and universities to supporting students at proprietary institutions. In the late 1980s and early 1990s, the proprietary institutions' default rates were so great that their federal student aid was cut back. Beginning in the late 1990s, proprietary institutions recast as for-profits, such as the University of Phoenix, were again able to draw heavily on federal grants and loans for nontraditional students attending part-time and on-line.[1] Nonprofit public and private colleges and universities began to emulate programs such as those offered by Phoenix. Many of the students who currently benefit from the expanded federal student financial aid are employed adults in need of retraining or professional development. The dynamic new economy calls for workers to change jobs frequently. Increasingly, workers use tertiary education to train and retrain through certificate and associate degrees, or to retool and upgrade through four-year degrees.

1. We are aware that there are caps on the number of hours that students can take on-line and as part-timers, and are also aware of the lobbying efforts by for-profits to remove these caps. We discuss this in more detail later in the chapter.