

**ACADEMIC CAPITALISM;  
POLITICS, POLICIES AND THE ENTREPRENEURIAL UNIVERSITY**

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## **CHAPTER 1: INTRODUCTION**

This book examines ongoing changes in the nature of academic labor in the period 1970-1995, with an emphasis on the 1980s and 1990s. We argue that the changes currently taking place are as great as the changes in academic labor that occurred during the last quarter of the nineteenth century. As the industrial revolution at the end of the nineteenth century created the wealth that provided the base for postsecondary education and attendant professionalization, so the globalization of the political economy at the end of the twentieth century is destabilizing patterns of university professional work developed over the past hundred years. Globalization is creating new structures, incentives and rewards for some aspects of academic careers and is simultaneously instituting constraints and disincentives for other aspects of careers.

### **THE SCOPE OF CHANGE**

We are not the only ones to argue that higher education as an institution and faculty as its labor force face change unprecedented in this century. David Breneman (1993) deploys financial data persuasively, making the case that state and federal funds are diminishing as part of the higher education resource mix. He does not see these financial changes as an aberration in historical funding patterns, but as a new reality to which higher education will have to accommodate. James Fairweather (1988) studies how colleges and universities try to compensate for diminished government revenues through liaison with business and industry, through partnerships focused on innovative product

development, and through the marketing of educational and business services. Patricia Gumpert and Brian Pusser (1995) examine the power accrued by state system administrative offices to shape programs and curricula and to standardize and routinize faculty work, while costs are transferred to students. William Massy and Robert Zemsky (1994, 1995) speak to changing patterns of academic work, driven by an academic ratcheting process that encourages ever more research and is accompanied by a complex "administrative lattice" to manage research, especially the growth of research on the perimeter of the university, where entrepreneurial centers and institutes bring in increasing amounts of external funds. Gary Rhoades (forthcoming) writes about the legal and economic changes that promote increased management prerogatives to shape academic work and the concomitant loss of power on the part of unionized faculty. His analysis of union contracts reveals the erosion of faculty ability to set work loads, to establish staffing parameters, and to set broad curricular directions. Henry Etzkowitz, in a forthcoming book, takes the position that all these changes add up to The Second Academic Revolution.

Scholars of other countries address similar changes in higher education. Burton Clark (1995) writes about innovative European universities that are characterized by increased entrepreneurship, conflicting faculty and administrative values, especially around governance issues, and greater diversification of institutional funding. He points to a shift of cutting edge institutional action from the liberal arts core to an entrepreneurial periphery. In the United Kingdom, Gareth Williams (1992, 1995) describes broad patterns of financial change that reduced government funding for universities and encouraged

faculty to bring in increased external funding, were their units to survive. Michael Gibbons (1994) studies how changes in funding work to bring the university and its faculty in line with the economic production, and the managerial revolution taking place as a global economy develops. Although he emphasizes the changes in science, engineering and professional schools, which he now sees as the center of the university, he too notes that segments of all fields, including the social sciences and the humanities, are aligning themselves with the market. In Australia, John Smyth's edited volume on Academic Work chronicles changes that, in broad outline, parallel those that have occurred in the United Kingdom. Simon Marginson (1993, 1995) elaborates on the "marketization" or increased market and market-like behavior in which Australian institutions and faculty engage. In Canada, Howard Buchbinder and Janet Newson (1990), Buchbinder and Rajagopal (1993, 1995), and Newson (1994), too, describe diminished government funding and the beginning of "marketization."

Our book draws heavily on the work of these scholars, using it to paint a broad picture of the changes faced by faculty and institutions of higher education, in particular, public research universities. Our work differs from that of the scholars we draw on in that we bring together topics that are usually treated separately, notably undergraduate and graduate education, teaching and research, student aid policies and federal research policies. Rather than looking at undergraduate education and the issues related to it (student aid policy, tuition costs, faculty productivity), as separate from graduate education, and at the issues that surround graduate education (national science and technology policy, including government research priorities, federal research funding,

business and industry research funding), we bring these together so we can better grasp the degree of change taking place and begin to understand the forces of change. We try to analyze change using a variety of theories and data sets, depending on our level of analysis: macro political economic theory and national higher education policies to understand the global reach of change and how it plays out in higher education and research policies; resource dependency theory and data on national higher education financial trends to help us grasp the degree of postsecondary education change that has occurred at the level of the nation state; process theories of professionalization and case studies of institutions where faculty and administrators engage in entrepreneurial activities that are the spearhead of change; sociology of knowledge and case studies of faculty engaged in technology transfer that allow us to glimpse how faculty create new epistemologies in a changing world.

Our book is divided into two parts. Part I, Chapters 1-3, provides an introduction and overview (Chapter 1) and, as well, an analyses of the macro level changes affecting higher education and faculty work (Chapters 2 and 3). Chapter 2 examines global political economic change, and then looks at how the four countries mentioned above--Australia, Canada, the United Kingdom and the United States--developed national higher education and research policies that responded to the emergence of global markets. Chapter 3 presents data on higher education finance patterns for the four countries over a twenty year period. These data show how the countries' postsecondary systems were shaped by the emergence of a global economy and resultant national higher education and research policy changes.

Part II, Chapters 4-6, presents case studies of various institutions. The case studies concentrate on faculty and administrators engaged in the sorts of entrepreneurial activity so characteristic of academe's response to the macro level changes presented in Part I. Chapter 4 deals with how successful academic entrepreneurs assess the advantages and disadvantages of their work. All faculty who generated external revenues above a certain cut-off point were included; the units they represented ranged from engineering centers to physical education. Chapter 5 presents case studies of faculty who were involved with a particular form of entrepreneurial activity, technology transfer, which is the movement of products and processes from the university to the market. In Chapter 6, we focus again on faculty who transferred technology to the market, looking closely at how their work shapes their epistemology. We explore changing values, norms and beliefs. In the conclusion, Chapter 7, we sum up our findings and spell out the consequences for faculty and administrators in terms of academic life at the unit level (center and department), at the college level, and with regard to central administration. We also suggest likely impacts that increased faculty and institutional interaction with the market might have on different segments of the university, analyzing them in terms of closeness to or distance from the market.

During the industrial revolution, faculty in various nation states were able to position themselves between capital and labor, protecting themselves from the harsh discipline of the market (Abbott 1988, Perkin 1989). Professionals negotiated a tacit social contract with the community-at-large in which they received monopolies of practice in return for disinterestedly serving the public good (Furner 1975, Bledstein 1977, Haskell

1977). The very concept of a professional turned on the practitioner eschewing market rewards in return for a monopoly of practice. Professionals made the case that they were guided by ideals of service and altruism. They did not seek to maximize profits; they claimed to put the interests of client and community first.

Although numerous scholars have questioned the degree to which professionals realized ideals of service and altruism, for the most part professionals in the first half of the twentieth century did not participate directly in the market (Larson 1977, Starr 1982). Their interaction with the market was mediated by professional associations and by the law. Professionals did not advertise; they served clients, not customers; they often charged standardized fees that would have been considered price-fixing on the open market. Persons not professionally certified were legally prevented from offering a wide variety of professional services (Brint 1994).

Faculty are a subset of professionals, although in some ways they are the paramount professionals since they have monopolies on advanced degrees and train and credential all other professionals. In this, their professional status is almost unique. In many ways, faculty historically have been more insulated from the market than other professionals. Because they have worked for institutions that were non-profit and often state funded, they have not become fee-for-service practitioners, whether solo or in group practice. Moreover, colleges and universities have had a tradition of autonomy from the market and the state (American Association of University Professors 1915, Berdahl 1978).

During the second half of the twentieth century, professors, like other

professionals, gradually became more involved in the market (Slaughter and Rhoades 1990, Brint 1994). In the 1980s, globalization accelerated the movement of faculty and universities toward the market, in ways we will describe below. We think the 1980s were a turning point, when faculty and universities were incorporated into the market to the point where professional work began to be patterned differently, in kind, rather than in degree. Participation in the market began to undercut the tacit contract between professors and society because the market put as much emphasis on the “bottom line” as on client welfare. The raison d’etre for special treatment for universities, the training ground of professionals, as well as for professional privilege was undermined, increasing the likelihood that universities, in the future, will be treated more like other organizations and professionals more like other workers.

The changes surrounding faculty and universities as they move into the market are complex, and are most clearly seen at the increasingly permeable boundaries between the research university, its work force, and the world outside the academy. Although these changes have far reaching consequences for all of postsecondary education, we concentrate on public research universities because the changes in the nature of faculty patterns of work are most dramatic at these sites. Because these changes are impelled as much by organizations, institutions, and social forces outside higher education as inside, we use theories and concepts that are not an integral part of the higher education literature to explain them. To deal with the complexity of the change we use different theories, data sets, and methods. At the international level, we use political economic theories, data on global economic change, and data on various higher education and



research policies. At the national level, we use higher education finance data from Australia, Canada, the United Kingdom and the United State; and we connect these data to resource dependency theory. At the institutional level, we use process theories of professionalization and sociology of science to help us interpret data from our case studies. In the course of this book, we try to explain terms, to define what may be unfamiliar concepts, to provide an understanding of the several theories, and to clarify the way the theories articulate with each other at the several levels. We ask our readers to have patience and bear with us as we put forward our lines of argument, which at times are complex; we hope the material we present will repay attention.

The political economic changes we examine are global and structural: they are not likely to disappear, allowing us to return to business as usual. In the 1970s and 1980s, markets became global, in considerable part due to increased economic competition from Pacific Rim countries. Multinational conglomerates (large corporations manufacturing unrelated products) began to dominate the world economy. Established industrialized countries, such as the United Kingdom and the United States, lost shares of world markets to the Pacific Rim countries. Multinational corporations in established industrialized countries responded to the loss of market share by investing in new technologies so they would remain competitive in global markets. These corporations turned increasingly to research universities for science-based products and processes to market in a global economy.

The biological sciences exemplify the growing involvement of science and technology (or perhaps science as technology [Foreman 1995]) in the market place. Prior

to the 1980s, biology was a basic science whose faculty were concerned primarily with performing research for the National Science Foundation and authoring papers for scholarly conferences and journals. As corporations became more aggressive in their search for products for highly competitive global markets, they began to invest in molecular biology, the key to biotechnology. By the mid-1980s, most full professors of molecular biology held equity positions (they were given stock in return for their expertise) in spin-off companies (small corporations based on products developed in university or government laboratories) that sold products to large corporations and were on the national advisory boards of corporations with biotechnology products (Krimsky 1982, Kenny 1986). Corporations supplied 45% of the funding for academic biotechnology (U.S. Congress, Office of Technology Assessment 1991). When Biology Departments were restructured to feature molecular biology, many faculty became entrepreneurs.

Biology was not the only basic science that became entrepreneurial and whose faculty lost their relative insulation from the market. In the 1980s, a variety of interdisciplinary centers and departments developed--materials science, optical science, cognitive science--that became increasingly involved in market activity. The shift occurred because the corporate quest for new products converged with faculty and institutional searches for increased funding.

As the economy globalized, the business or corporate sector in industrialized countries pushed the state to devote more resources to the enhancement and management of innovation, so that corporations and the nations in which they were headquartered could compete more successfully in world markets (Jessop 1993).

Business leaders wanted government to sponsor commercial research and development in research universities and in government laboratories. In the United States, the NSF, once regarded as the bastion of basic research, developed Industry/University Cooperative Research Centers in the 1980s and, under President Clinton, a national science and technology policy exemplified by the Advanced Technology Programs housed in the Department of Commerce (Slaughter and Rhoades 1996). In the United Kingdom, Interdisciplinary Research Centers involving academic-industry-government funding emerged in the 1980s. Australia modeled its Cooperative Research Centers, founded in the 1990s, on the models provided by the United Kingdom and the United States (Hill 1993). Under Prime Minister Mulroney, Canada attempted to develop university-industry-government partnerships by tying increases in university research funding to corporate contributions for university research or for national research councils (Julien 1989). In all four countries, corporate CEOs worked with university leaders and government officials to develop partnerships aimed at bringing new products and processes to market (Slaughter 1990, Slaughter and Rhoades 1996). Faculty and research universities were willing to consider partnerships with business and government, based on commercial innovation because government spending on higher education was slowing down.

The flow of public money to higher education was receding, in part because of increasing claims on government funds. In the 1970s, the emergence of global financial markets made possible the financing of ever larger debts in western industrialized countries. These monies were used primarily for entitlement programs (federally funded

programs to which every citizen has a claim, for example, primary and secondary education, health care and social security), for debt service, and in the United States, for military expansion. As borrowing increased, federal shares of funding for postsecondary education programs, particularly research and development, decreased (Slaughter and Rhoades 1996).

In the United States, the federal government is the primary funding agent for student aid and for research grants and contracts, but the several states generally pay for faculty salaries and institutional operations. As the share of Federal funds for higher education decreased, the states picked up some of the burden, but not all, because the states, too, were spending the bulk of their monies on entitlement or mandated programs, such as health care and prisons. Beginning with the economic downturn in 1983, states periodically experienced fiscal crisis (state income failed to match state expenditures). These crises precipitated restructuring in higher education. In 1993-1994, the several states, for the first time, experienced an absolute decline in the amount of money expended on higher education, rather than a decline in the share of resources provided or in inflation-adjusted, per student, expenditures. Again, the several states began to restructure higher education to contain costs. Restructuring often put increased resources at the disposal of units and departments close to the market, that is those relatively able to generate external grants and contracts. At the state and federal level, then, conditions of financial uncertainty encouraged faculty and institutions to direct their efforts toward programs and research that intersected with the market.

To maintain or expand resources, faculty increasingly had to compete for external

dollars that were tied to market-related research, which was referred to variously as applied, commercial, strategic and targeted research, whether these monies were in the form of research grants and contracts, service contracts, partnerships with industry and government, technology transfer, or the recruitment of more and higher fees-paying students. We call institutional and professorial market or market-like efforts to secure external monies academic capitalism.

We had numerous and lengthy discussions with our colleagues about the term academic capitalism. Although some thought the term appropriate, others thought that it too strongly connoted a Faustian bargain with the "business class" (heads of large corporations who have regular face-to-face meetings on a series of boards and forums and are concerned with national policy formation [Useem 1984]). Especially in Australia, our somewhat social democratic colleagues saw academic capitalism as conjuring up stronger images of exploitation of the academic labor force than was warranted by current practices in colleges and universities. Others in Australia thought the term slighted the state, especially given that the state in most cases provided the great bulk of external monies for universities and colleges, whether these were for basic or applied research, or for university-industry partnerships, or for for-profit ventures handled through arms-length foundations.<sup>i</sup> Generally these (sometimes heated) discussions revealed the inadequacy of extant language to address changes that blur the customary boundaries between private and public sectors. The same kinds of language limitations make problematic descriptions of the increasing numbers of hybrid organizations emerging in a period of privatization and deregulation. In the end, because no one was able to formulate

a more precise term, we decided to employ academic capitalism, in part because alternatives--academic entrepreneurship or entrepreneurial activity--seemed to be euphemisms for academic capitalism, euphemisms that failed to capture fully the encroachment of the profit motive into the academy.

Of course, the word capitalism connotes private ownership of the factors of production--land, labor, and capital--and considering employees of public research universities to be capitalists at first glance seems a blatant contradiction. However, capitalism also is defined as an economic system in which allocation decisions are driven by market forces. Our play on words is purposeful. By using academic capitalism as our central concept, we define the reality of the nascent environment of public research universities, an environment full of contradictions, in which faculty and professional staff expend their human capital stocks increasingly in competitive situations. In these situations, university employees are simultaneously employed by the public sector and are increasingly autonomous from it. They are academics who act as capitalists from within the public sector: they are state-subsidized entrepreneurs.<sup>ii</sup>

Although faculty and administrators at research intensive universities may be state subsidized entrepreneurs, their position in many ways is analogous to that of industrial researchers and entrepreneurs in primary sector industries (large, oligopolistic industries that produce critical goods and services and employ large numbers of persons, many of whom are unionized and receive a social benefits package as part of their wages and salaries [O'Connor 1973, Braverman 1975]). Many of these industries--for example, aerospace, computers, electronics and nuclear industries, as well as pharmaceutical,

chemical and agriculture industries--are cushioned from the market by state support from a variety of federal agencies--for example, the Department of Defense, Department of Energy, the National Aeronautics and Space Agency, the Department of Agriculture and the National Institutes of Health. These industries are supported by the federal government because they are perceived to be critical to a number of national missions--primarily defense, food supply, health. So important are these missions that the industries contributing to them are partially subsidized by the state rather than left to the vagaries of the market. Many of the science based products and processes produced by these industries rely on the same technologies for which academic capitalists receive public and private support. In other words, academic capitalists are subsidized primarily from the same sources and for many of the same reasons as industrial capitalists. The market, the state and the academy (public universities are, of course, technically arms of the several states) are related in complex and sometimes contradictory ways. (For a fuller account of the relation between state subsidized primary sector industry, universities engaged in basic research and the emergence of market-oriented research, see Slaughter and Rhoades. 1996).

Another way to approach the idea of academic capitalism is through the widely accepted notion of human capital. What we mean by this is as follows: Almost everyone, today, is aware that the knowledge and skills possessed by workers contribute to economic growth. Conceptually, these worker capabilities make their contribution by adding to the quality of labor, which of course is one of the three factors of production, land and capital being the other two. Empirical demonstration of the importance of labor

quality traces back at least to the work of Edward Denison (1962), who built National growth accounting models. (Leslie and Brinkman [1988] update and synthesize the results of this long line of research up through the mid-1980s.) For production work the quality of labor is built largely through formal education and on the job training. This brings us to the role of university academics in contributing to economic growth. Universities are the repositories of much of the most scarce and valuable human capital that nations possess, capital that is valuable because it is essential to the development of the high technology and technoscience necessary for competing successfully in the global economy. The human capital possessed by universities, of course, is vested in their academic staffs. Thus the specific commodity is academic capital, which is no more than the particular human capital possessed by academics. This final step in the logic is to say that when faculty implement their academic capital through engagement in production, they are engaging in academic capitalism. Their scarce and specialized knowledge and skills are being applied to productive work that yields a benefit to the individual academic, to the public university they serve, to the corporations they work with, and to the larger society. It is indeed academic capitalism that is involved, both technically and practically.

Academic capitalism deals with market and market-like behaviors on the part of universities and faculty. Market-like behaviors refer to institutional and faculty competition for monies, whether these are from external grants and contracts, endowment funds, university-industry partnerships, or institutional investment in professors' spin-off companies, or student tuition and fees. What makes these activities market-like is that



they involve competition for funds from external resource providers. If institutions and faculty are not successful, there is no bureaucratic recourse; they do without. Market behaviors refer to for-profit activity on the part of institutions, activity such as patenting, and subsequent royalty and licensing agreements, spin-off companies, arms-length-corporations (corporations that are related to universities in terms of personnel and goals, but are chartered legally as separate entities) and university-industry partnerships, when these have a profit component. Market activity also covers more mundane endeavors, such as the sale of products and services from educational endeavors (for example, logos and sports paraphernalia), profit-sharing with food services and book-stores and the like. When we talk about restructuring of higher education, we mean substantive organizational change and associated changes in internal resource allocations (reduction or closure of departments, expansion or creation of other departments, establishment of interdisciplinary units); substantive change in the division of academic labor with regard to research and teaching; the establishment of new organizational forms (such as arms-length companies and research parks); and the organization of new administrative structures or the stream-lining or re-design of old ones.

In this book, we explore the emergence of academic capitalism by tracing the growth of global markets, the development of national policies that target faculty applied research, the decline of the block-grant as a vehicle for state support for higher education, and the concomitant increase in faculty engagement with the market. We argue from our data that a quiet revolution has already taken place. Analysis of financial data show a shift from state block-grants (undesignated funds that accrue to universities, often

according to formulas) to grants and contracts that are targeted on commercial endeavor. Within public research universities, fewer and few funds are devoted to instruction and more and more to research and other endeavors that increase institutional ability to win external funds. Faculty face a Catch-22 situation. Even when they are asked to focus on undergraduate teaching, most rewards are attached to bringing in external funds, funds that require them to perform research that may keep them from the classroom.

We concentrate our examination of changes in professional labor on four large English-speaking countries: Australia, Canada, the United Kingdom, and the United States, emphasizing Australia and the United States. We chose the major English-speaking countries because our research design and methods called for examination of documents and financial data, and in-depth interviews and observations of faculty; and we are both essentially monolingual. Although we confined our study to English-speaking countries, we noted from various Organization for Economic Cooperation and Development (OECD) publications that the public universities of most Western industrialized countries were moving toward academic capitalism, pushed and pulled by the same global forces at work in the English-speaking countries.

A few words should be said here about the omission of private institutions from our focus. First, private colleges and universities are of very minor importance in three of our four nations. In the United States, where (all) private institutions serve approximately 20 per cent of all students, the research enterprises of private universities are very substantial. Although limitations on our resources, alone, might have caused us to eliminate them from our study, there was an additional reason for our decision: Private

universities in the United States receive little in the way of government block grants; therefore the major factor theorized to drive university destabilization does not pertain to them. Indeed, U.S. private universities have been operating in a highly competitive, relatively "unprotected" (by government), environment for many years, and as we shall see, they do exhibit some of the more important, projected features. As a matter of fact, private universities in the United States might well be viewed as prototypes of where public universities are headed, and we reflect on this reality below.

Movement toward academic capitalism is far from uniform; indeed, it is characterized by unevenness. Even within the English-speaking countries, there exists a continuum on this dimension, with Canadian academics probably least involved with the market and U.S. academics perhaps most involved. U.S. higher education institutions have always participated to some degree in commercial activity although we think the intensification in the last fifteen years has greatly exceeded past involvement, and, as we said earlier, represents a difference, in kind, rather than in degree. In contrast, higher education in the United Kingdom and Australia have moved rapidly toward the market, the United Kingdom in the mid-1980s, Australia in the late-1980s.

We emphasized two of these countries, the United States because of our familiarity with it, and Australia because in 1991 we received Fulbright research grants to investigate the changing nature of academic labor there and the costs and benefits of commercial science and technology. Although the decision to emphasize the United States and Australia was to some extent happenstance, the two countries captured the political economic variation we sought to examine: incremental change and abrupt change, the

United States under a Republican President, Australia under a Labor Prime Minister. Despite the great political differences between the United States and Australia, in the relative power of the state, in the power of private capital and rates of change in postsecondary education, both systems of higher education were moving toward what we called academic capitalism, providing an ideal situation for looking at the underlying forces moving the systems in the same direction.

We turn now to the plan of the book, providing a brief overview of the research questions that drive the several sections and separate chapters, a description of the data we use, and the theories that guide our interpretations of the data. The theories, the data and the methods vary by level of analysis (global, national, institutional, individual), so in this section we concentrate on explaining the linkages among these. A more complete account of theory, data, and methods, as well as more detailed citations, are presented later in the book.

## **INTERNATIONAL CHANGES THAT SHAPE HIGHER EDUCATION**

In Part I, Chapter 2, we examine the growth of a global political economy, the development of Australian, Canadian, British, and American national higher education policies that seek to enhance national competitiveness by linking postsecondary education to business innovation. This linking is an effort to create national wealth by increasing global market shares through the discovery of new products and processes in order to increase the number of high-paying, high-technology jobs.

Two research questions inform Chapter 2. What forces are driving the restructuring of higher education? How are these forces manifested in national policy in the four countries? The data for the chapter are national policy documents, white papers, and legislation from the four countries that pertain to higher education. The method is comparative analysis of documents.

To answer the first question--what forces are driving the restructuring of higher education--we look at political economic explanations of the emergence of global markets and explore the implications of global markets for research universities. Given that the changes occur across the four countries, we look to theories that deal with social forces shaping global change. We review three political economic interpretations of globalization: neo-liberal political economics, as manifested in the Chicago school (Friedman 1981, 1991, Friedman and Leub 1987); liberal or post-Keynsian interpretations (Kuttner 1991, Reich 1991, Thurow 1985); and radical or post-marxist ones (Barnet and Cavanagh 1994, Chomsky 1994, Jessop 1993). Although these theorists disagree markedly with regard to agency--be it market, capital mobility, or business class--all see the emergence, in traditional industrialized nations in the 1980s, of a global market creating conditions that mean less money for social welfare and education functions and more money for building corporate competitiveness. This trend has powerful implications for postsecondary education. National policy makers in advanced industrialized countries are moving discretionary research and training monies into programs focused on the production aspects of higher education, programs that complement areas of innovation in multinational corporations, such as high technology manufacturing, development of

intellectual property, and producer services (non-life insurance and reinsurance, accountancy, advertising, legal services, tax consultancies, information services, international commodity exchanges, international monetary exchanges and international securities dealing [Thrift 1987, Sassen 1991]) and are reducing monies that are targeted on programs for education and social welfare functions of the state. With regard to postsecondary education, some departments, colleges, and curricular areas gain revenue shares (for example, some areas of the physical and biological sciences and engineering, business, and law), while areas such as the humanities, some physical sciences (for example, physics), and most social sciences lose shares, as do fields such as education, social work, home economics or family studies. In other words, policy-makers at the level of the nation state, whether responding to pressures from the market, international capital mobility, or the business-class, are concentrating state monies on higher education units that aid in managing or enhancing economic innovation, and thereby, competitiveness..

If changes in the global economy were causing national policy makers to shift resources to technology innovation, intellectual property, and producer services fields, we should have seen changes in national legislation and in administrative directives to that effect in Australia, Canada, the United States and the United Kingdom. Very generally, we found that all four countries developed national policies that promoted a shift from basic, or curiosity-driven research to targeted, commercial or strategic research. We were particularly concerned with the ways in which national policies dealt with access to higher education, curricula, research, and autonomy for the post-secondary sector. In all

four countries, policies that affected higher education were instituted, using a rhetoric about maintaining global market shares, creating national wealth, increasing the number of high-paying jobs, and building prosperity. With regard to access, higher education policies encouraged greater student participation, but at a lower national cost. Most countries increased tuition, and most systems switched the balance from student grants to loans. In terms of curricula, national policies exhibited a strong preference for departments and colleges close to the market. The several countries, with the possible exception of Canada, were moving away from basic research toward entrepreneurial research. All the countries, with one exception, started integrating higher education into broad government planning processes, processes that focused primarily on economic development. In short, national policies in three of the four countries moved decisively toward academic capitalism. At the same time, a variety of national policies pushed for greater higher education economy and efficiency, which turned universities toward restructuring and other adjustments.

In Part I, Chapter 3, we look at the financing of postsecondary education in the four countries to see whether changes in national policy that foster market and market-like behaviors have had an impact on colleges and universities. Specifically, we ask whether the changes in national policy described in Chapter 2 have had concrete, measurable effects on spending patterns in the four countries. At the national level, we found resource dependency theory (Pfeffer and Salancik 1978) more useful than global political economic theory. At this level of analysis, we were no longer concerned with what caused changes in policy and how the new policies took shape. Instead, we wanted to analyze national

patterns of higher education revenue changes that these policies produced. Resource dependency theory suggested that public universities and colleges would focus on maintaining and expanding revenues, especially those most critical to the organization. We expected public research universities to respond to national policy directives and move toward market-like behaviors because these organizations were heavily dependent on the state for funding, especially for research monies.

Although there was some variation by country and postsecondary sector (research universities, polytechnics, community colleges), in general the results were in the expected direction. The percentage of GNP devoted to postsecondary education did not always decline absolutely, but the rate of growth did decline. Further, revenue shifts were away from block grant funding sources to those that reflected a "competition" or "market" base. Overall, general public funds for higher education were down, particularly when considered in constant dollars per enrolled students. However, revenue shares from other sources, such as sales and services increased, as did shares from tuition. Private gifts, grants and contracts, and sales and services also were up. Expenditure patterns reflected the changes in the revenue environment. With regard to institutional expenditures, measured in shares of all expenditures, instructional funds declined, while research, public service and administration expenditures increased. Relatively discretionary funding categories, such as operations and maintenance of plant and libraries experienced large decreases, while student aid increased sharply. Very generally then, universities and colleges in all four countries seemed to be changing their revenue generating patterns, moving from funding by general public means toward higher



tuition and competitive grants and contracts, private gifts, and other competitive sources of monies.

Our analysis of financial patterns in the four countries demonstrated that all postsecondary institutions were receiving increasing revenues from market and market-like activities, suggesting that academic capitalism may go far beyond research universities. Our case studies at public research universities indicate that academic capitalism is not confined to science and engineering, that faculty across a wide array of units engage in academic capitalism. Faculty seem to take for granted resources automatically provided by the state or several states--salary, space, some equipment--and actively seek those resources that go beyond standard institutional issue. In other words, money at the margins alters faculty behavior. If this pattern prevails throughout postsecondary education, academic capitalism will become the watchword of academic behavior.

## **FACULTY AND INSTITUTIONAL RESPONSE TO POLITICAL ECONOMIC CHANGE AND RESOURCE DEPENDENCY: AUSTRALIAN CASES**

In Part II, we look at the ways in which changes described in Part I play out in the daily lives of administrators, department heads, and faculty, using our data from Australian research universities as our base. We pose two research questions: How do administrators and faculty describe the advantages and disadvantages of academic capitalism? How do individual academics respond to the rise of academic capitalism?

We used qualitative analysis to deal with interview data from the several cases, although some interview data were quantified and used in cost-benefit taxonomies. In other instances, institutional statistics were used to compare patterns of external income generation by departments at various institutions.

Resource dependency theory guides Chapter 4. Oversimplified, resource dependency theory suggests that organizations deprived of critical revenues will seek new resources. In the late 1980s, Australian national higher education policies changed higher education financing so that faculty had to compete for government research funds rather than receive them as a prerogative of holding a university position. (A detailed account of these policy changes is presented in Chapter 2.) These government research funds were increasingly targeted on national priorities that were often concerned with Australian economic development. The federal government began to monitor institutions through a Quality Assurance scheme, rewarding universities that met agreed upon goals and objectives. At the same time, government share of funds for higher education decreased and professors and institutions were encouraged to raise money from outside the government. Faculty and institutions began to recruit full-fee paying overseas students, develop partnerships with industry for research and training, and create products and processes suitable for the market.

In other words, universities and faculty had to compete--engage in market and market-like behavior--for critical resources. Research money is a critical resource for universities not only because most research money is raised competitively, but because universities are prestige-maximizers. Since most faculty teach, and many faculty perform

public service, but fewer win competitive research funds from government or industry, research is the activity that differentiates among and within universities. Resource dependency theory suggests that faculty will turn to academic capitalism to maintain research (and other) resources and to maximize prestige. Put another way, if faculty were offered more resources to teach more students, it is not clear that they would compete for these monies with the same zeal with which they compete for external research dollars. Further, faculty are selective in their pursuit of external research money. They go after basic or fundamental research funds with the same vigor as always, but increasingly look for commercial research funding for frontier science and engineering projects that are tied to national policy initiatives and are partnered by prestigious firms, usually those that are national or multinational in scope.

Chapter 4 uses two data sets. First, it examines the financial records of two Australian research universities. These were used to identify internal units that self-generated more than a few thousand dollars annually, regardless of the source of external funds. The associated entrepreneurial activities encompassed a broad array of projects, ranging from applied social science research contracts to monies secured by engineering departments for the development of intellectual property. Second, we interviewed representative project managers and staff from the units that had entrepreneurial agreements as well as unit members who were not a party to these agreements or related work. The first part of each interview was a subjective discussion of the advantages and disadvantages of academic capitalism for the unit and for the university. The second part employed a technique used in economics research to impute quantitative values to

qualitative variables, permitting a rough means of assigning dollar values to the qualitative criteria and for the calculation of a benefits/costs ratio.

Based on the data presented in this chapter, we suggest that faculty are willing to put a great deal of professional energy into winning financial awards, so long as the resources secured allow them to maintain or even enhance their place in the status and prestige system and permit some degree of discretionary spending. Faculty are quite willing to compete for commercial monies if these resources do not conflict directly with traditional status and prestige hierarchies and compensate with symbolic rewards, such as media association of science and technology with national economic competitiveness. In other words, faculty behavior may not be as difficult to change as scholars of higher education have thought. If resources do not undermine faculty status and prestige systems, a relatively small amount of money at the margins can substantially alter faculty activity. In resource dependency theory, this is known as [The Rule of 10%](#).

The research questions that guided Chapter 5 asked how university managers, center heads and individual faculty responded to changing markets and changing resource mixes. How did faculty perceive the impacts of academic capitalism on their unit, their universities and their careers? Were they developing new strategies to deal with political economic change and national higher education policy change? If new strategies were emerging, did they result in organizational change?

Chapter 5 uses resource dependency theory and process theories of professionalization (Perkin 1989, Larson 1977, Abbott 1988, Starr 1982, Brint 1994). Resource dependency theory sets the stage by establishing the limited funding faced by

faculty and the likely direction they will take to deal with austerity. But resource dependency theory, like the political economic theories we dealt with earlier, is a theory of constraint that deals with social and political economic structures and perhaps does not concentrate as much on individual and collective human agency. Professionalization theory, more strongly grounded in the daily practise of highly educated experts, helps us look at faculty as social actors in the drama of organizational change.

Process theories of professionalization view professionalization as a process for which knowledge, theory, expertise and altruism are not enough; organizational, political and economic skills are equally, if not more important. Process theories of professionalization look at professionals' active agency, particularly at their intervention in the political economy, to gain a greater degree of control over their work lives and income streams, through, for example, state licensure laws. Because process theories of professionalization emphasize the ways that professionals act in moments of great change in the political economy--for example, the rise of industrialization (Bledstein 1977, Haskell 1977), and the formation of the welfare state (Finegold and Skocpol 1995)--they should help us understand how professors position themselves at the advent of global economy. Process theories of professionalization intersect political economic (Chapter 2) and resource dependency theories (Chapters 3 and 4) in that the rise of a global economy is exacerbating faculty and institutional resource dependence with regard to critical resources, especially those for research; faculty respond to these changes by attempting to develop new strategies to protect and enhance professional privileges at the level of the institution and the discipline.

The data for this chapter were interviews with forty-seven persons in eight units in three universities. The units selected were those most deeply involved in technology transfer, which is the movement of products and processes from the university to the market. We selected faculty involved in technology transfer for close scrutiny because technology transfer is perhaps the most direct form of academic engagement with the market. Technology transfer often results in intellectual property, defined as patents and processes, trademarks or copyrights, and organized consultancies (an Australian term, which refers to faculty consulting activities that are channeled through the university, and from which faculty receive one-third of the profits, their college one-third, and the university one-third) aimed at the commercial market.

Generally, we found that faculty and institutional leaders were extremely sensitive to changes in the resource mix at the level of the institution and the field. In Australia, vice-chancellors encouraged faculty to act as entrepreneurs. Their hope was to develop products and services that would generate resources through for-profit activity such as licensing and royalties, direct sales, or shares of faculty consulting. The approaches administrators used to promote academic capitalism were various. Some administrators let faculty take the initiative. These administrators provided broad policy guidelines and offered incentives to encourage faculty to discover and develop products and processes for the market, but did not otherwise participate. Other administrators targeted particular products and processes, and closely regulated their development. Yet other administrators worked with the business community and government leaders to create a large resource pool to support the development of complex technologies. In the later

case, faculty were encouraged to band together in interdisciplinary arrangements to act as partners in relatively stable, on-going enterprises.

Heads of departments or heads of centers very often aggressively developed procedures for generating revenues from faculty activity, including income from technology transfer activities that provided intellectual property and from faculty consulting. They used new organizational structures to create interdisciplinary knowledge that tapped fresh revenue flows. Their tactics looked more like business plans than professionalization strategies. Very often, the new units called for the addition of large numbers of professional officers and non-academic staff, who were fiercely loyal to center or institute heads, did not engage much with faculty, and were not very interested in teaching. They were much more a part of commercial culture than academic culture, and tended to bring commercial values to their work, concentrating on making their centers operate more like small firms, expanding commercial activity, and generating increased amounts of profit.

Faculty were more varied in their response than central administrators and center heads. All of the full professors, most of the associate professors, but fewer junior faculty, regarded entrepreneurial activity and the development of intellectual property positively. Faculty especially valued the improved relations with external bodies, heightened prestige of their units, closer linkage to the economy (consulting opportunities, student employment opportunities) and added monetary benefits. Given that the faculty were primarily applied scientists or were from professional schools, they saw their entrepreneurial work as an extension of the research in which they were traditionally

engaged, or, in the case of intellectual property, as a justifiable extension of that work. Junior faculty, post doctoral fellows and graduate students were less favorable in their views of academic capitalism. They felt that performance expectations had doubled, because they were now supposed to demonstrate excellence in two research venues, fundamental and commercial.

For Chapter 6, we asked whether academic conceptions of the nature of knowledge were changing. Did the faculty still value fundamental or basic theoretical knowledge above all else, or were market pressures and resource dependency changing academic epistemology? How did professors deal with the professional norm of altruism when they pursued the discovery and development of profit-making products and processes? If change was occurring, was it across all fields or was it confined, in research universities, to fields that were close to the market? The complexity of the environment faculty faced pushed us to cross disciplinary boundaries, drawing on a variety of theories, drawing on a variety of theories as we tried to understand the emerging epistemology of academic capitalism. As in Chapter 5, resource dependency theory set the stage for behavioral change on the part of faculty. Again, as in Chapter 5, we drew on professionalization theory to understand changes in faculty norms, values and beliefs and the way these changes were manifested by faculty as organizational actors. We pay particular attention to professionalization theory that examines faculty interactions with markets (Brint 1994). Because the majority of faculty we studied were scientists or engineers, we used sociology of science as well as science innovation theories to look at the intersection of science and markets (Gummett 1991, Etzkowitz 1994, Gibbons 1994).



We expected that faculty engaged in academic capitalism would begin to reconceptualize knowledge so that entrepreneurial research would be valued highly, especially entrepreneurial research on the frontiers of science and technology, research that involved discovery of innovative products and processes for global markets.

The data were from interviews with a sub-group of the sample in Chapter 5, the thirty tenure-track faculty located in units engaged heavily in academic capitalism. At the unit level--the interdisciplinary center or department--and in some fields or subfields, conceptions of knowledge were changing markedly. With regard to altruism, professors engaged in academic capitalism were ambivalent. Although they still hoped their research would benefit humankind, they began to speak about research paying its own way. If they were able to support their research with funds aimed at commercial targets, they saw no reason why other researchers could not. The same pattern held true in terms of basic versus applied research. They still saw basic research as the bedrock of science, but saw entrepreneurial research as folded into that stratum, forming a new composite. Merit was no longer defined as being acquired primarily through publication: instead, merit was defined at least in part by success with market and market-like activities. Faculty were changing their conceptions of knowledge more rapidly than administrators. For faculty in high-technology fields close to the market, knowledge was valued as much for its commercial potential and resource-generating capability as for the power of discovery.

In our concluding chapter, we explore the implications for the restructuring of postsecondary education, for patterns of professional work, and for emerging epistemologies of science. While we draw on the data presented in our cases, we also

speak broadly to postsecondary education changes currently taking place in the United States. Finally, we present some alternatives for faculty and institutional leaders to consider as they respond to political economic and policy changes.

We conclude that a better understanding of academic capitalism will help faculty and staff make better sense of their daily lives; that successful academic capitalists will gain personal power within universities, both individually and collectively; that personal stress will increase for all organizational actors; that central administrators, too, will gain in the redistribution of power whereas middle-managers may become less important to organizational life; and that the concept of university shared governance may suffer. In this, we see a loss to the concept of the university as a community, where the individual members are oriented primarily toward the greater good of the organization. A major vehicle for redistributing power to the operating units of the university will be budget devolution, the granting of both responsibility for raising revenues and the authority for spending it to the individual units. We see governments that provide block-grant funding and students whose tuitions cover only a relatively small share of instructional costs as possessing only limited power in effecting university response to their desires; this is in contrast with university responsiveness to those who provide money for specific purposes and mandate the accomplishment of those ends.

Perhaps our most keenly-felt desire in writing this book was that the state and the electorate would become aware that the decline in undergraduate education perceived to exist in public research universities is a natural, almost unavoidable outcome of the decline in the share of revenues provided by government in block-grant form. Reversing this trend will require either greater state support, some way of inducing greater university responsiveness to the desires of the state, or some combination of the two. Although we believe that ultimately, in a competitive-market environment, proportional shares of state block-grant support and tuition revenues must follow students to the units that enroll them, we are not sanguine about this eventuality in the short or intermediate term. We hold that governments must create incentives for universities to allocate their resources along the general lines for which the state intends that they be spent.

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i. With the exception of the United States, "the state" refers to the executive branch and administrative arm of government at the federal or national level; in the United States, when we mean units of government such as Illinois, Minnesota, or Wisconsin, we will specify the state or use the term "the several states"; in the case of Canada, for the comparable units of government, such as Alberta, British Columbia or Ontario, we will use the term "the provincial governments."

ii. We use the term academic to cover college and university employees who are professionals or quasi-professionals. In other words, we include tenure-track faculty, academic professionals, and administrators in the term academic, since academic capitalism is a phenomenon that encompasses the professorate, academic support

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staff, and administrators. The term faculty is used interchangeably with professors and refers to tenure-track personnel; when speaking about a particular rank, that rank is specified, i.e., full professor.